India-Africa Healthcare:
Prospects and Opportunities

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INDIA-AFRICA HEALTHCARE: PROSPECTS AND OPPORTUNITIES

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Executive Summary

The healthcare systems across the world came under severe stress with the outbreak of the coronavirus disease (COVID-19), which was declared a global pandemic on March 11, 2020, by the World Health Organisation (WHO). As nations across the world strive to retain their economic momentum, the pandemic has impressed upon the need for countries to revisit their social progress, particularly in terms of healthcare facilities. One of the 17 United Nations Sustainable Development Goals (SDGs) declared during 2015 as a part of the 2030 Agenda for Sustainable Development, namely, "Ensure healthy lives and promote well-being at all ages" (SDG 3), has become increasingly pertinent amidst the pandemic.

Africa has been drawing increased global attention, given the vast opportunities the continent offers. However, there are various kinds of challenges, both economic and social, impeding the region's progress. Africa's healthcare system has been fragile, even before the pandemic, along with an additional burden of a higher number of cases in HIV, malaria, diabetes, hypertension and malnourishment, among others. To build a resilient economy, it is, therefore, critical to focus on strengthening the existing healthcare systems.

In terms of a fatality caused by the COVID-19 pandemic, Africa has been fairly insulated despite its limited healthcare capacities (WHO 2020). Further, the continent has the opportunity to learn from its past experiences with the Ebola virus epidemic and other serious infectious diseases. At the same time, the late entry of the virus into the continent has given the African countries the advantage to learn from the experiences of other countries and implement early measures before cases started to rise.

The COVID-19 pandemic arrived at a moment when growth prospects for many African countries looked promising. At the beginning of 2020, the continent was on its economic expansion track, with economic growth projected to increase by around 4 percent in the next two years. However, with the outbreak

of the COVID-19 pandemic and the fall in commodity prices, Africa's growth projections were revised downwards. In July 2020, the AfDB estimated a GDP loss for Africa in the range of US$ 173 billion - US$ 237 billion for 2020 and 2021. The International Monetary Fund (IMF), in its World Economic Outlook October 2020, lowered its estimates for Africa's nominal GDP at US$ 2.3 billion in 2020, compared to US$ 2.4 billion recorded in 2019. Accordingly, Africa is estimated to witness a growth contraction of 2.6 percent in 2020 from a growth of 3.3 percent registered in 2019. Major economies like Nigeria, Egypt, South Africa, Algeria, and Morocco accounted for 57.8 percent of the continent's cumulative GDP during 2020.

Africa's population is growing at 2.5 percent a year, which is more than twice as fast as South Asia (1.2 percent) and Latin America (0.9 percent). If it continues at its current growth rate, Africa's population is expected to double by 2050 (approximately 2.5 billion) driven by falling mortality rates and growing fertility rates. Africa is going through a demographic transition with an increasing share of the population moving into the age categories of 25-64 and above 65 from the categories of population under 15 and population aged 15-24. Africa witnessed a decline in per capita income since the commodity price downturn, from US$ 2,275.8 in 2014 to US$ 1,840.6 in 2017. Though the per capita income started picking up from 2017 and stood at US$ 1,922.5 in 2019, due to the COVID-19 pandemic, it is estimated to decline to US$ 1,812.9 in 2020. Africa is also witnessing an urban transition with more than 41 percent of its population living in cities in 2015, which is expected to increase further to 60 percent by 2050. However, urbanisation with a lower per capita income poses challenges in terms of inadequate provision for services like water and sanitation with 56.3 percent of the urban population living in slums. This may lead to poor health outcomes thereby increasing the risk of both communicable and non-communicable diseases. Thus, there is a need to ensure the supply of quality healthcare to transform the risks of demographic and disease burdens into a demographic dividend.

Trading under the African Continental Free Trade Area agreement (AfCFTA), scheduled to start from July 1, 2020, was deferred to January 1, 2021, due to the pandemic. Preliminary estimates from the World Trade Organization (WTO) show a decline in both merchandise and services exports from Africa in 2020 by 20.3 percent and 34.8 percent, respectively, reflecting the decline in crude oil prices and reduced global demand for commodities as well as contact intensive services. Potentially, the full implementation of the AfCFTA could boost Africa's income by 7 percent or US$ 450 billion, increase Africa's exports by US$ 560 billion and lift 30 million people out of extreme poverty by 2035. According to the UNCTAD, FDI inflows were estimated to be 18 percent lower in Africa and stood at US$ 38 billion in 2020 as compared to US$ 46 billion in 2019.

As economic growth remains subdued, investment in essential infrastructure, including healthcare, needs to be amplified to bring Africa back to a sustainable growth path, to realise the goals of Agenda

2063. Investment has been an important driver of GDP growth for Africa prior to COVID-19, accounting for more than half of Africa's GDP in 2019. The healthcare sector remains one of the most prospective sectors for investment in Africa. The value of business opportunities in healthcare in Africa is estimated to reach US$ 259 billion in 2030. As the public sector alone cannot achieve the healthcare targets and aspirations for Africa, private investments in collaboration with the public sector, are required for bridging the existing gaps in health infrastructure and service delivery.

Present Status of Healthcare in Africa

African economies have made considerable headway in improving the health outcomes of their populations, despite the challenges of food insecurity, epidemic diseases, and poverty. However, Africa's mortality statistics reveal the need to further strengthening the healthcare systems in the continent. Achieving targets under SDG 3 by 2030, which include increasing life expectancy, reducing child and maternal mortality rates, reducing the burden of diseases, among others, would pave a long way in strengthening the healthcare system. However, it would require substantial financial resources.

While there has been an overall improvement in mortality linked to communicable diseases and maternal, neonatal, and nutrition conditions (percentage of total deaths) for Africa, which fell from 52 percent in 2010 to 44.7 percent in 2019, it continues to remain significantly higher than the global average of 18.4 percent. The overall maternal mortality ratio (per 100,000 live births) in Africa, which stood at 525 in 2017, was more than double the global average of 211. Similarly, while the average life expectancy at birth in the continent improved to 63.8 years in 2018 from 59.5 years in 2010, it remains below the global average of 72.6 years.

The Prevalence of HIV in Africa, which is measured as a percentage of the population of age 15-49 in the continent, is six times the world average (0.7 in 2019) at 4.2. Yet, the past decade has seen dramatic progress with the antiretroviral therapy (ART) coverage (as a percentage of people living with HIV) in the continent, which increased from 21 percent in 2010 to 56 percent in 2019. However, it continues to remain below the world average of 67 percent in 2019. HIV Prevalence was the highest in the Southern African countries like Eswatini, Lesotho, Botswana, and South Africa where more than 19 percent of the population within the age group 15-49 were affected. Eastern African countries also have considerably high rates of their population affected by HIV. Among the parasitic and vector diseases, the Crude Death Rate (CDR) due to malaria in Africa at 35.6 was more than 6 times the global average of 5.3 people per 100,000 population in 2019. The incidence of malaria (per 1000 population at risk) in the continent has however reduced on an average from 203.1 in 2010 to 172.6 in 2018. The incidence of tuberculosis (TB) per 100,000 people in Africa is 202 in 2019 was much above the world average of 130. CDR due to TB stood at 34.6 (per 100,000 population) in 2019, more than double the global average at 15.7.

The African region also witnessed a higher CDR for other major infectious diseases like childhood cluster diseases including whooping cough, diphtheria, measles, and tetanus, and diarrhoeal diseases. CDR for childhood-cluster diseases stood at 19.1 (per 100,000 population) as compared to the global average of 4.3 whereas the CDR for diarrhoeal diseases in the African region stood at 45.5 (per 100,000 population) as compared to a global average of 19.7 in 2019. Unsafe drinking-water and sanitation, and lack of hand hygiene are the major reasons leading to death by infectious diseases including diarrhoeal diseases. Childhood cluster diseases like DTP (diphtheria, tetanus and pertussis), polio, and measles can be eradicated by immunization. In 2018, global coverage rates for the third dose of the diphtheria, tetanus- and pertussis-containing vaccine (DTP3) reached 86 percent. For Africa, it was 76 percent with more than 30 countries having coverage higher than the world average.

The incidence of non-communicable diseases (NCDs) in Africa remains below the global average due to its young population. According to the World Development Indicators, causes of death by NCDs as a percentage of total death in Africa have increased from 39.2 percent in 2010 to 45.3 percent in 2019. The surge is possibly driven by growing urbanization and changes in lifestyle, unhealthy diets, reduced physical activity, hypertension, obesity, diabetes, and air pollution. While the ratio of deaths by NCDs to total death in Africa is much below the global average of 73.6 percent in 2019, the number of deaths by NCD in the continent is projected to outweigh the number of deaths due to communicable, maternal, neonatal, and nutritional diseases combined by 2030.

In terms of congenital anomalies, Africa accounts for higher CDRs than the global average, at 17.2 (per 100,000 population). According to the WHO, this may be due to a possible lack of access to sufficient, nutritious foods by pregnant women, increased exposure to agents or factors such as infection and alcohol, or poor access to healthcare and screening. On the other hand, the CDR for digestive diseases in Africa, remains close to the global average while the CDR for diabetes mellitus in the continent, which stood at 16.2, is much below the global average of 19.4. Overall Africa's diabetes prevalence (percentage of population ages between 20 and 79) has increased from 4.9 percent in 2010 to 5.8 percent in 2019 as compared to the world average which has creased from 6.4 percent in 2010 to 8.8 percent in 2019.

According to the WHO report on Universal Health Coverage (UHC), Africa as a region witnessed the lowest average UHC service coverage index (UHC SCI), which stood at 46 as compared to the global average of 66 in 2017. African countries with the lowest UHC SCI during the same year are Somalia (25), Chad (28), Madagascar (28), South Sudan (31), and Central African Republic (33). However, seven countries in Africa have higher UHC SCI higher than the global average, which includes Egypt (68), Cabo Verde (69), South Africa (69), Morocco (70), Tunisia (70), Seychelles (71) and Algeria (78).

Healthcare Expenditure in Africa

The members of the African Union (AU) in 2001 pledged to set a target of allocating at least 15 percent of their annual budget to improve the healthcare sector during the Abuja Declaration. The AU also urged the donor member countries to scale up their support. However, spending on healthcare in the continent continues to remain low. According to the World Bank, in 2018, countries in Africa spent on average 5 percent of their GDP on health, compared to the global average of about 10 percent. Official development assistance has not been able to fill this financing gap. Out of US$ 3.8 trillion of global spending on health, only 1 percent was spent by Africa in 2018. Although access to primary healthcare facilities have increased in Africa, healthcare infrastructure at tertiary level and specialized level continues to remain inadequate creating scope for further investments.

Limited fiscal space has also contributed to the worsening state of healthcare. Currently, African countries spend on an average US$ 62 per capita on health, which is less than one-tenth of the global average of US$ 661.6. However, within Africa also, this varies across countries ranging from as low as US$ 2.8 per capita to US$ 620.4 per capita. Some of the key factors contributing to low per capita expenditure on health in the continent would include, among others, low GDP, low tax collection efficiency, and low budget allocations to the sector due to competing priorities. Of the 52 African countries with available data in 2018, 42 countries did not meet the WHO recommended level (US$ 86) of per capita public health expenditure. The share of public health expenditure, private health expenditure, and external health expenditure as a percentage of total health expenditure reveals that Africa is considerably dependent on donor funding (20.5 percent of total health expenditure) compared to other regions of the world. Out-of-pocket spending remains the main source of domestic health spending in Africa. With a share of 37.8 percent of total health expenditure in 2018, the ratio of out-of-pocket spending on health in Africa is higher than all other regions across the world, except South Asia.

Health Infrastructure in Africa

The 2019 Global Health Security Index, which does a comprehensive assessment of a country's health system capabilities of 195 countries, reveals that 33 out of 54 ranked African countries are rated as least prepared to deal with epidemic threats that have international implications. While the WHO recommends at least 10 medical doctors per 10,000 people to ensure adequate coverage at the primary care level, Africa on an average accounted for 3 medical doctors for every 10,000 people as compared to a global average of 15.6 in 2018. Also, as compared to the global average of 37.6 nursing and midwife personnel per 10,000 population, Africa accounted for the lowest count of 10.1 per 10,000 population in 2018. According to the Human Development Report 2020 by the UNDP, Africa has a density of 14 hospital beds per 10,000 population as compared to the world average of 27. The density of health

posts, health centres, district or rural or provincial hospitals along with specialized hospitals remain considerably low reflecting scope for investment in primary, secondary, or tertiary healthcare levels.

The burden of communicable diseases remains higher in the Sub-Saharan African countries whereas the incidence of non-communicable diseases tends to be high among the North African countries and also countries with relatively higher per capita income. Countries in Eastern Africa and Southern Africa have higher prevalence of HIV/AIDS and TB. Countries like Egypt, Cabo Verde, South Africa, Morocco, Tunisia, Seychelles, Algeria, Libya, Eswatini, Mauritius, Namibia, and Botswana have a UHC SCI above 60. These countries were found to have lower maternal mortality ratio and higher life expectancy. They also have an improved healthcare infrastructure in terms of higher number of hospital beds and number of medical professionals in comparison to the population. These countries also tend to have a higher public expenditure in health per capita. Increasing existing capacities for treatment and hospital bed facilities, upgrading medical infrastructure including equipment and supplies for healthcare facilities, diagnostic equipment, supply of pharmaceuticals, protective medical supplies and training healthcare personnel are the areas to be addressed for Africa's healthcare sector. In the long run, substantial investments in health preparedness are required to boost Africa's healthcare systems and build its resilience against future shocks.

Africa's Trade in Pharmaceuticals

Disruptions to global supply chains were among the biggest consequences of COVID-19. A surge in demand for pharmaceutical products and medical equipment went skyrocketing leading to countries imposing export prohibition or restrictions. Africa accounts for 16 percent of the world population but carries 26 percent of the global disease burden. Its pharmaceutical industry accounts for less than 2 percent of the medicines consumed by the continent as more than 90 percent of the pharmaceutical products are imported. Africa also imports medical devices and equipment substantially.

Africa's dependence on imports of pharmaceutical products is immense. While the continent's global pharmaceutical exports stood at US$ 1.1 billion in 2019, accounting for 0.2 percent of its global exports, the value of its imports of pharmaceutical products is over 15-fold of its exports, accounting for 3 percent of Africa's total imports in 2019. India was the largest supplier of pharmaceutical products to Africa, valued at US$ 3.2 billion and accounted for 19.1 percent of Africa's pharmaceutical imports in 2019. Other major exporters to Africa during 2019 include France, Germany, Switzerland, and the Netherlands, among others. India's major pharmaceutical exports to Africa include medicaments for therapeutic or prophylactic purposes, vaccines for human medicine, medicaments containing antibiotics, and medicaments containing penicillin, among others. Africa's substantial imports of pharmaceutical products reflect the huge demand and inadequate domestic supply. Boosting local production would ensure quality-assured medicines, continuity in supply, value addition, and generation of employment.

Investing in Africa's Healthcare – India's Role

According to the Financial Times database, the healthcare sector accounts for a meagre 0.1 percent of foreign capital expenditure envisaged in Africa during 2010-2019 and combining with pharmaceuticals it accounts for just one percent of the total foreign capital expenditure in Africa. India has been the 3rd largest investor in Africa's healthcare sector during the period 2010 to 2019 after UK and USA, accounting for a share of 19 percent. The cumulative global investment in Africa's healthcare sector during this period was US$ 1.1 billion, of which India accounted for US$ 210 million. The majority of FDI has been into general medical and surgical hospitals (82.4 percent) followed by outpatient care centres and medical and diagnostic laboratories (14.7 percent), and nursing and residential care facilities (1.6 percent).

India has come a long way in the healthcare sector in terms of infrastructure, technology and accessibility, and affordability. It has successfully controlled many communicable diseases and emerged as a destination for affordable and quality healthcare. India has long been engaging with several African nations to help alleviate several infectious diseases by making generic medicines and vaccines available at low costs. India's role has been crucial in facilitating Africa's healthcare through various initiatives like Dollar a Day treatment for HIV and Open-Source Drug Discovery for TB. Besides Indian hospitals and healthcare service providers present in Africa, pharmaceutical manufacturing companies also have a strong presence.

During the third edition of the India Africa Forum Summit in 2015, India had announced a contribution of US$ 100 million towards the India-Africa Development Fund and US$ 10 million towards the India-Africa Health Fund. India's experience in the digital revolution to support Africa's development by extending health and education was one of the guiding principles announced in the Uganda parliament by the Indian Prime Minister in July 2018, thus reflecting the importance of India's healthcare cooperation with Africa. India's medical diplomacy with Africa, therefore, fits with the Agenda 2063 and Sustainable Development Goals of Africa, and therefore going to be a critical pillar for India Africa relations going forward.

Conservative estimates indicate Africa's health financing gap at US$ 66 billion per annum. However, the quantum of resources required to meet the SDG 3 targets are higher, ranging from US$ 108 to US$ 143 billion. While governments are constrained by limited fiscal space for increased government spending, investments by the private sector will be an important source to fill this gap. Accordingly, private sector investments could complement the existing government spending, to enhance coverage across the continent. These could be done through a mix of measures including government participation, public-private partnership (PPP), joint ventures, and foreign direct investments (FDI). FDI can play a significant

role in filling the healthcare infrastructure gaps in Africa and India can partner with Africa in ameliorating healthcare challenges that the huge continent faces.

In this regard, India Exim Bank has conducted a Webinar on 'India-Africa Dialogue: Prospects in Healthcare' on December 2, 2020. The scope of this webinar revolved around three key aspects of healthcare, viz. Healthcare Infrastructure, Healthcare Facilities, and Training and Capacity Building. The Webinar was well represented by the Ministry of External Affairs, Government of India, Minister of Health and Wellness, Government of the Republic of Mauritius, African diplomats in India, Indian diplomats to Africa, and Indian companies, among others. Key suggestions and recommendations discussed during the sessions have been included in the areas of cooperation along with the strategies proposed in this study.

Strategies for Enhancing India's Healthcare Investments in Africa

Healthcare infrastructure in Africa may be explored through two broad routes, either under the GOI-supported Lines of Credit (LOCs) that shall help India build a better relationship with the African nations or through the PPP model. Here, constructions of primary and secondary healthcare centres, and the hospitals, can be under the LOC route, whereas constructions of tertiary healthcare centres, as well as hospitals, can be via the PPP route. Indian hospital majors, who have gained significant experience in running hospitals under the PPP framework, could be ideal partners for Africa's healthcare infrastructure needs. PPPs could prove to be an efficient solution that reduces the investment risks, improves efficiency, and lead to more inclusive outcomes. Twinning India's expertise in the construction and administration of hospitals could be a focused, win-win approach for the Africa-India bilateral relations.

Africa spent around US$ 6 billion in 2016 on medical tourism out of which US$ 1 billion was accounted for by Nigeria and US$ 100 million by Kenya. Alternatively, savings from medical tourism can be used to finance or subsidise other expenditures, which may also include health coverage or insurance for the poor. On an average, more than 50,000 African patients visit India every year for treatment on a medical visa reflecting the demand for India's affordable and quality healthcare. If a fund could be set up like the India-Africa Health Fund for financing tertiary hospitals across Africa in at least five regions with a capacity of one hundred beds each, these patients along with several others who are unable to bear the additional travel costs could be offered treatment. These hospitals could be built across the five regions of the continent – North, East, Central, West, and Southern Africa.

According to a recent study by the Lancet, around 29 million people that accounted for roughly 2.2 percent of Africa's population, are at high risk of getting severe COVID-19 and are defined as those that would require hospital admission if infected. The number may increase to 3.1 percent or 42 million

taking into consideration underlying medical conditions such as HIV, chronic respiratory diseases, diabetes, cancer, and other non-communicable diseases along with age frailty. Presently, Africa has a lower share of its population living in the oldest (and highest risk) age groups. However, with the demographic transition, this share is expected to increase further in the future. The fatality resulting from health shock like COVID-19 will be much higher, particularly with countries having a high prevalence of communicable diseases and rising incidence of NCDs. Therefore, the health infrastructure needs to be prepared accordingly for people requiring hospitalization. Given that setting up a 100-bed capacity tertiary hospital would require around US$ 20 million in Nigeria and Egypt, where the healthcare financing gap remains the highest, it would require roughly US$ 100 million of an investment to set up at least five hospitals with a minimum of 100-bed capacity across the five regions of Africa.

Building Hospitals

Indian companies with expertise in executing health infrastructure development projects such as building hospitals, health centres, and digitally connected medical facilities may leverage these opportunities in Africa. The hospital could be developed through Engineering, Procurement and Construction (EPC) mode or under EPC and Financing mode. Based on the requirement of the host country, Indian hospital operators could also be engaged for providing the technical expertise. This would give the healthcare project contractor a single point responsibility which includes design, supply, installation, testing, and commissioning of medical and paramedical equipment, and furniture. Additionally, a comprehensive maintenance contract for four to five years (even after handing over the facility) may be given. Indian companies could also invest in Africa through overseas investment or joint ventures to acquire or set up hospitals in Africa.

Strengthening Hospital Management and IT infrastructure

During the India Exim Bank webinar on 'India-Africa Dialogue: Prospects in Healthcare', it was proposed by one of the speakers that if some 200-300 bed large African hospitals with adequate infrastructure lacks electronic medical records and hospital management system, Indian hospitals can collaborate for installation of the entire digital hospital management system and can offer management services for a period of three to five years. Digitising healthcare would contribute to increased medical consultation and better access to healthcare. Service digitization including patient enrolment processes, network management, and a strong IT infrastructure is essential for running a hospital.

Digitalisation of Healthcare

Digital healthcare includes products and services like telehealth, electronic medical records (EMRs) of patients, tele-medicine, eLearning and mobile health. Digital health is increasingly used to improve

health systems, use resources efficiently and improve patient care. As efforts to manage the pandemic tend to undermine care for other illnesses, including major NCDs like cancer, there are concerns of delay in the diagnosis and treatment of these non-communicable diseases. The imperative is to build a comprehensive tele-medicine network that will fill the gaps. The investment opportunities in telehealth in Africa are estimated at US$ 11 billion. Primary healthcare provision could be transformed through telehealth and remote monitoring of patients.

Promoting Medical Tourism and Wellness Centres

Ayurveda and wellness centres could be another area for Indian companies to invest, particularly for non-communicable diseases. Indian companies can collaborate with local African companies to set up wellness centres especially in tourist destinations. Ayurveda and traditional medicine and wellness centres could be explored thus leveraging India and Africa's rich cultural heritage and brand value.

Medical Equipment

Medical equipment comprises consumables, furniture, and accessories used in hospitals, complex medical devices used for diagnosis or treatment. With the continent facing challenges in terms of a high capital cost of equipment, lack of financing options, and poor service support, this may be a good opportunity for Indian investors to explore investment prospects in such areas. Setting up healthcare hubs with modern machinery and equipment can facilitate healthcare tourism in these prominent countries, which would help realise the cost of installation of such high-end medical equipment. India and Africa could also collaborate in setting up manufacturing plants for medical consumables like surgical gloves and masks or gowns. According to the International Trade Centre, while Africa's share in global exports of personal protective equipment remains minimal, critical inputs required to manufacture the equipment, including natural rubber latex and synthetic non-woven fabrics, are sourced from the continent. The relative abundance of several ingredients of medical equipment in Africa creates possibilities to develop regional value chains and contribute to building its resilience to global health crises.

Leveraging the Pharmaceuticals Value Chain

Africa is critically dependent on imported medicinal and pharmaceutical products. Many Indian companies have already established local manufacturing units or joint ventures in Africa for supplying quality medicines at concessional rates for major diseases like HIV/AIDS, TB, malaria and cardiovascular-related diseases. Further opportunities exist in setting up pharmaceutical manufacturing units with upgraded technology, the growing number of hospitals and other healthcare facilities create higher

demand for the supply of pharmaceuticals. The PPP model could be explored for involving formal government contracting with the private sector to support the development of the pharmaceutical value chain (for research and development, production, procurement, storage, and distribution). Large scale regional pharmaceutical or vaccine manufacturing plants and joint facilities could be established, which could also be utilised for research and cold storage. This would also contribute towards building a sustainable value chain in the region and ensure greater certainty and security of supply, especially in times of global epidemics or other crises. Loan assistance from regional development financial institutions could be utilised for establishing these common research facilities or laboratories.

Promoting Research and Development

Indian Institutions like the National Institute of Pharmaceutical Education and Research, the CSIR – Indian Institute of Chemical Biology, and the Biotechnology Industry Research Assistance Council (BIRAC), among others, could tie up with African institutions for establishing pharma innovation and incubation centres or biotechnology parks in African countries. Exchange programmes could be curated for African researchers to interact with Indian academia as well as Indian industry to facilitate greater technology transfer and build sustainable capacities and capabilities; and to undertake collaborative research on infectious diseases with a focus on developing vaccines and improved diagnostics, as well as advance research for manufacturing of novel drugs and diagnostics for neglected tropical diseases and non-communicable diseases.

Medical Education and Capacity Building

Investments in healthcare could be beneficial only if developing medical infrastructure and human resources are considered concomitantly. Investment opportunities exist in providing medical education and training besides setting up hospitals, for creating sufficient and qualified medical staff. Capacity building could be done by various means including direct training, long-distance learning, continuous medical education, among others to improve the knowledge and skills of healthcare providers. An "Indo-African Medical University" based in India could be created and scholarships or fellowships could be offered to African students for undertaking training from Indian medical institutions. It could operate as a not-for-profit entity with the trustees being African countries. The Association of Healthcare Providers India (AHPI) could become members along with the Ministry of Health and Family Welfare, Government of India. This could be a three-year course acting like a self-sustaining hybrid model of virtual and practical training. They could receive training in areas like paediatrics, obstetrics, gynaecology, anaesthesia, general medicine, radiology, orthopaedic, ophthalmology, cardiology, and oncology. These students, after undergoing one year of training in Africa, would come to India and work at the community health centres or district hospitals or any of the member private hospitals.

Promoting Healthcare Innovation and Start-Ups

African countries currently face challenges in terms of low investment in healthcare technology innovation despite demonstrating immense potential. African health technology firms suffer from inadequate funding and research facilities. Further, even with the growing number of innovations, the continent continues to suffer from unequal access to quality healthcare. To promote innovation, the African countries could collaborate with their Indian counterparts to build on technological capabilities. A common e-marketplace for healthcare innovations in terms of new products could be developed. Africa is emerging as the fastest-growing mobile user, with a rising middle class and improving broadband coverage, cities across the continent could be tapped as potential markets for quality healthcare systems powered by digital innovations. Further, these innovations could be leveraged for last mile delivery of services to rural areas. Therefore, encouraging market-driven innovations and increasing access to finance for start-ups promoting digital innovations in healthcare is the need of the hour.

Financing Healthcare

As on March 31, 2021, 12 LOCs worth US$ 1.6 billion have been extended to 8 countries in Africa's healthcare sector. The India Exim Bank GOI-supported LOCs to the health sector accounted for 1.5 percent of total operative LOCs extended to Africa, implying scope for further investments. However, during the Webinar on 'India-Africa Dialogue: Prospects in Healthcare', it was highlighted that the Indian Development and Economic Assistance Scheme (IDEAS) Guidelines on GOI-LOCs states a minimum requirement of import of 75 percent value of the contract of goods and services from India. However, for building a super speciality hospital the requirement for importing medical equipment from a third country may sometimes exceed 25 percent of the contract value. The IDEAS Guidelines offer a relaxation of 10 percent on case-to-case basis for projects involving strategic significant civil construction. Therefore, building super speciality hospitals may also be considered as strategic construction and offered similar relaxation. Also, import of medical equipment on case-to-case basis may be offered relaxation based on the complexity of the project. Alternatively, a separate fund may be also created in consultation with the regional development financial institutions of Africa in PPP or commercial mode.

Trilateral Cooperation in Healthcare

India and Africa can jointly explore the potential for tripartite cooperation initiatives with third countries in critical areas such as transfer of skills, transfer of technology, and technical assistance. As the North African countries being part of the Middle East and North Africa (MENA) region are strategically closer to the GCC countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates), sovereign wealth funds could also be utilised for high-end health infrastructure projects. The trilateral

partnership initiatives could be given further impetus by setting up a dedicated fund or agreements involving the development financial institutions of the respective countries for investing in healthcare infrastructure projects in Africa.

Way Forward

African countries need to ensure the adoption of a comprehensive approach to healthcare. As the public sector remains budget constrained, it needs to act as an enabler to foster private investment so that the double disease burden could be dealt with, along with the development of robust health infrastructure to face future health shocks. This is also expected to create direct and indirect employment, thereby ensuring sustainable growth. Investments in the healthcare system would also facilitate research in pharmaceuticals and developing local capacity along with enhancing laboratory testing facilities, diagnostic centres, delivery of healthcare services to rural areas, and primary, secondary, and tertiary hospitals. Digital technology for promoting early detection through tele-medicine, maintaining patient records along with facilitating healthcare delivery also needs to be promoted. Further, investment in capacity building and training of medical professionals remains another pertinent area. These measures would contribute towards building capacity and a resilient healthcare system in the continent.

India and Africa have been natural allies with longstanding historical and trade relations. With a shared vision of providing UHC to their citizens in line with their commitment to the SDGs, India and Africa's development cooperation is a testimony to South-South cooperation. Indian hospitals and companies in the healthcare, pharmaceuticals and related fields may therefore collaborate in this initiative of building a resilient Africa, thus, giving the India-Africa Partnership a new dimension.

1 Background

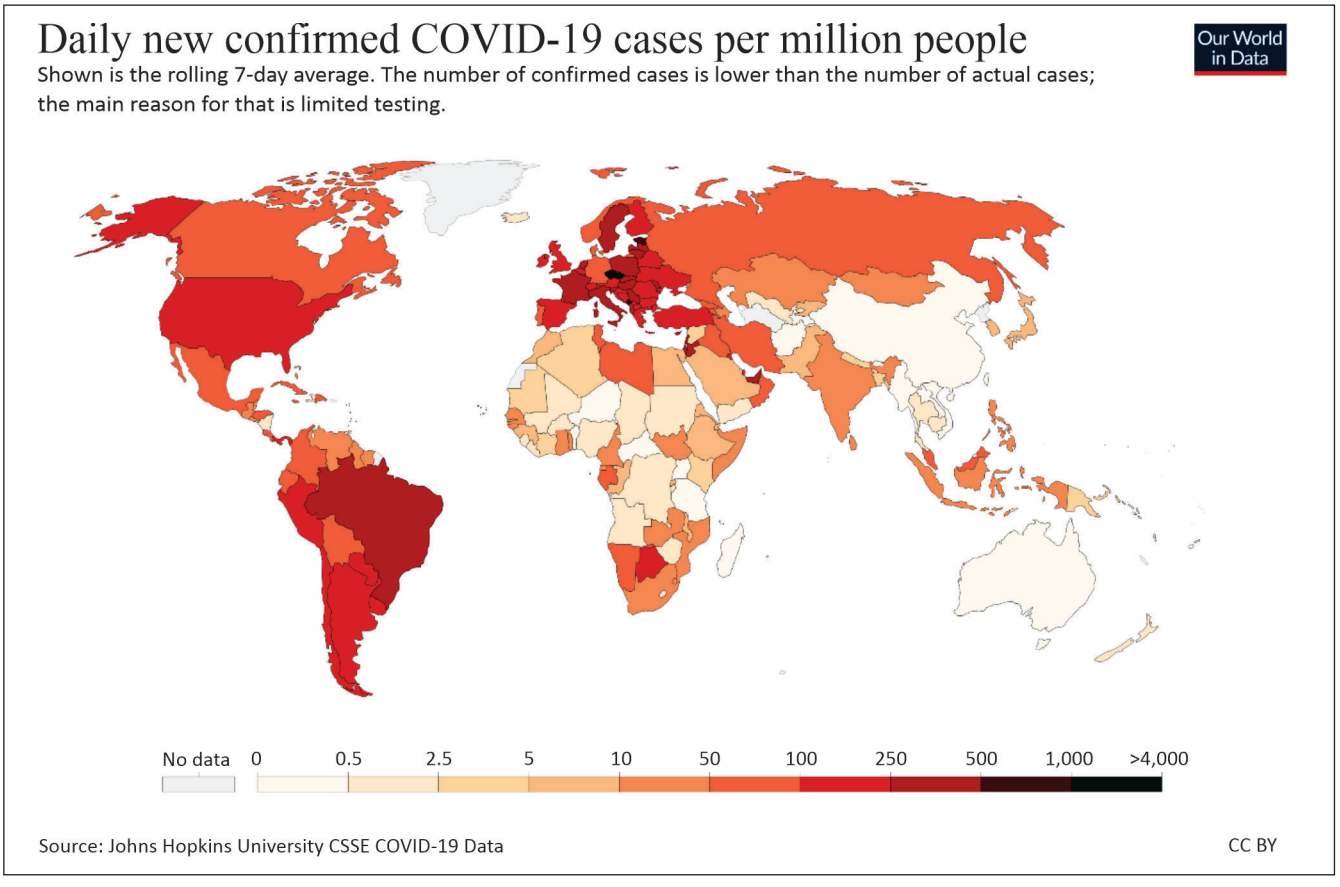
The healthcare systems across the world are under severe stress with the outbreak of the coronavirus disease (COVID-19), which was declared a global pandemic on March 11, 2020, by the World Health Organisation (WHO). As nations across the world strive to retain their economic momentum, the pandemic has impressed upon the need for countries to revisit their social progress, particularly in terms of healthcare facilities. One of the 17 United Nations Sustainable Development Goals (SDGs) declared during 2015 as a part of the 2030 agenda for Sustainable Development[1] namely, "Ensure healthy lives and promote well-being at all ages"(SDG 3), become increasingly pertinent amidst the pandemic.

Africa has been drawing increased global attention, given the vast opportunities the continent offers. However, there are various kinds of challenges, both economic and social, impeding the region's progress. Africa's healthcare system has been fragile, even before the pandemic, along with an additional burden of a higher number of cases in HIV, malaria, diabetes, hypertension and malnourishment, among others. To build a resilient economy, it is, therefore, critical to focus on strengthening the existing healthcare systems.

In terms of a fatality caused by the COVID-19 pandemic, Africa has been fairly insulated, despite its limited healthcare capacities (WHO 2020). Further, the continent has the opportunity to learn from its past experiences with the Ebola virus epidemic and other serious infectious diseases, while the late entry of the virus into the continent has given the African countries the advantage to learn from experiences of other countries and implement early measures such as limiting or halting air transportation, putting in place curfews, and even ordering lockdowns before cases started to rise. As shown in **Exhibit 1.1**, Africa remains one of the regions with low COVID-19 cases per million in the first quarter of 2021.

[1] United Nations, "Transforming our world: the 2030 Agenda for Sustainable Development", October 2015.

Exhibit 1.1: Daily New Confirmed COVID-19 Cases per Million People



Source: Adapted from Our World in Data, University of Oxford (accessed on Mar 1, 2021)

In 2020, when the pandemic started to affect the nations, economic activity across the world was severely affected. Further, there was significant uncertainty to economic recovery. The International Monetary Fund (IMF), January 2021, estimated the global economic activity to have contracted by 3.5 percent in 2020 from a growth of 2.8 percent registered in 2019 as a result of COVID-19, making it one of the most severe global recession of the past 150 years. The emerging market and developing economies were estimated to contract by 2.4 percent during 2020 after growing by 3.6 percent in 2019. Oil exporters and economies dependent on tourism particularly faced difficult prospects due to subdued oil prices and the absence of cross-border travel. Low income developing countries were estimated to have contracted by 0.8 percent during 2020 after registering a growth of 5.3 percent in 2019.

The COVID-19 pandemic arrived at a moment when growth prospects for many African countries were promising. At the beginning of 2020, the continent was on its economic expansion track, with growth projected to rise at around 4 percent in 2020 and 2021[2]. However, with the outbreak of the COVID-19 pandemic and the fall in commodity prices, Africa's growth projections were revised downwards. The

[2] African Development Bank, African Economic Outlook 2020, January 2020.

African Economic Outlook 2020 released by the African Development Bank (AfDB) in January 2020 projected Africa to grow at 3.9 percent in 2020 followed by 4.1 percent in 2021. However, the outbreak of COVID-19 pandemic has led to major disruptions across the world economy leading to a health and as well as economic crises. As a result, the growth projections made earlier have been revised, taking into account the impact of the pandemic on Africa's economy. The African Economic Outlook 2020 Supplement in July 2020 projected the real GDP of Africa to contract by 3.4 percent in 2020. The AfDB has estimated a GDP loss in the range of US$ 173 billion - US$ 237 billion for Africa for the years 2020 and 2021[3].

Supply chain disruptions in such times also lead to increased food prices. In 2014, for example, when the Ebola outbreak struck West Africa, staple food prices dramatically increased[4] causing further inflationary pressures in the economy. Taking cognisance that unlike the Ebola outbreak in 2014, the global nature of the current pandemic and its resultant lockdowns have contributed to much worse supply chain disruptions leading to higher food prices and other essential healthcare commodities. This reinforces the premise of the link between better health and economic progress. And going forward, especially post the pandemic, healthcare systems and their access are going to be the new yardstick for economic welfare and growth.

The nexus between economic growth and health remains bidirectional. An increase in life expectancy by an extra year has been found to increase the per capita GDP of a country by 4 percentage points. A healthy population implies a healthy labour force which acts as a potential driver of GDP growth and at the same time economic growth may also contribute to improvements in healthcare through increased investment[5]. Health has always been instrumental in shaping a country or region's education, income and overall economic development.

However, the economic impact of the pandemic has been damaging. The hardest hit countries in Africa were those with large domestic outbreaks, those heavily dependent on travel and tourism as well as commodity exporters, particularly of oil.

Africa has been observing modest growth in recent years, averaging around 3 percent between 2015 to 2019 as compared to the robust growth averaging above 5 percent before 2014 (IMF Data Mapper October 2020). An increasingly challenging external environment and sluggish world trade had resulted in Africa's modest expansion in 2019. According to the IMF's WEO October 2020, Africa's nominal GDP is estimated to amount to US$ 2.3 billion in 2020 declining from US$ 2.4 billion in 2019. Africa is estimated to undergo a growth contraction of 2.6 percent in 2020 from a growth of 3.3 percent registered in 2019.

[3] African Development Bank, African Economic Outlook 2020 Supplement, July 2020.
[4] Rice went up by over 30% and cassava by 150% (Source: OECD)
[5] United Nations Economic Commission for Africa, "Healthcare and Economic Growth in Africa", February 2019.

The major economies like Nigeria, Egypt, South Africa, Algeria, and Morocco accounted for 57.8 percent of the continent's cumulative GDP during 2020. According to the AfDB's African Economic Outlook Supplement 2020, the five largest economies, namely, Algeria, Egypt, Morocco, Nigeria, and South Africa, would account for the major contraction in output of the continent. The projected recessions in Nigeria and South Africa cumulatively would account for more than 50 percent of Africa's contraction in GDP in 2020.

Table 1.1 shows the economic outlook of the major economies which together accounted for 84.2 percent of Africa's nominal GDP in 2020 (detailed table in **Annexure 1**).

Table 1.1: Economic Outlook of Major African Economies

Region/Country	Nominal GDP (US$ bn)				Real GDP growth (%)			
	2019	2020[e]	2021[f]	2022[f]	2019	2020[e]	2021[f]	2022[f]
Africa	**2427.3**	**2329.1**	**2488.7**	**2694.2**	**3.3**	**-2.6**	**3.7**	**4.6**
Nigeria	448.1	443.0	466.9	531.4	2.2	-3.2	1.5	2.5
Egypt	302.3	361.9	374.9	394.1	5.6	3.6	2.8	5.5
South Africa	351.4	282.6	317.2	346.6	0.2	-7.5	2.8	1.4
Algeria	169.3	147.3	155.3	160.8	0.8	-5.5	3.2	2.6
Morocco	118.6	112.2	123.8	130.3	2.2	-7.0	4.9	3.5
Kenya	95.4	101.0	105.7	113.8	5.4	1.0	4.7	6.0
Ethiopia	92.8	95.6	91.5	94.0	9.0	1.9	0.0	8.9
Ghana	67.0	67.3	71.9	76.8	6.5	0.9	4.2	4.1
Tanzania	60.8	64.1	67.6	73.1	7.0	1.9	3.6	6.1
Angola	89.4	62.7	68.1	72.4	-0.9	-4.0	3.2	3.0
Côte d'Ivoire	58.6	61.5	71.1	77.5	6.5	1.8	6.2	6.5
DR Congo	49.8	46.1	49.6	52.4	4.4	-2.2	3.6	4.5
Tunisia	38.8	39.2	40.6	41.2	1.0	-7.0	4.0	2.9
Cameroon	38.9	39.0	44.4	47.6	3.9	-2.8	3.4	4.3
Uganda	36.5	37.7	41.2	45.1	6.7	-0.3	4.9	5.5

Note: e – Estimate; f – Forecast

Source: IMF World Economic Outlook October 2020 and January 2021 Update

In Nigeria and South Africa, the two largest economies in the region, output fell sharply during 2020. The real GDP of Nigeria is estimated to have contracted by 3.2 percent in 2020, after registering a modest growth of 2.2 percent in 2019, as the effects of the COVID-19 pandemic and associated measures affected activity in all sectors. Nigeria's macroeconomic situation has been challenging since the 2016

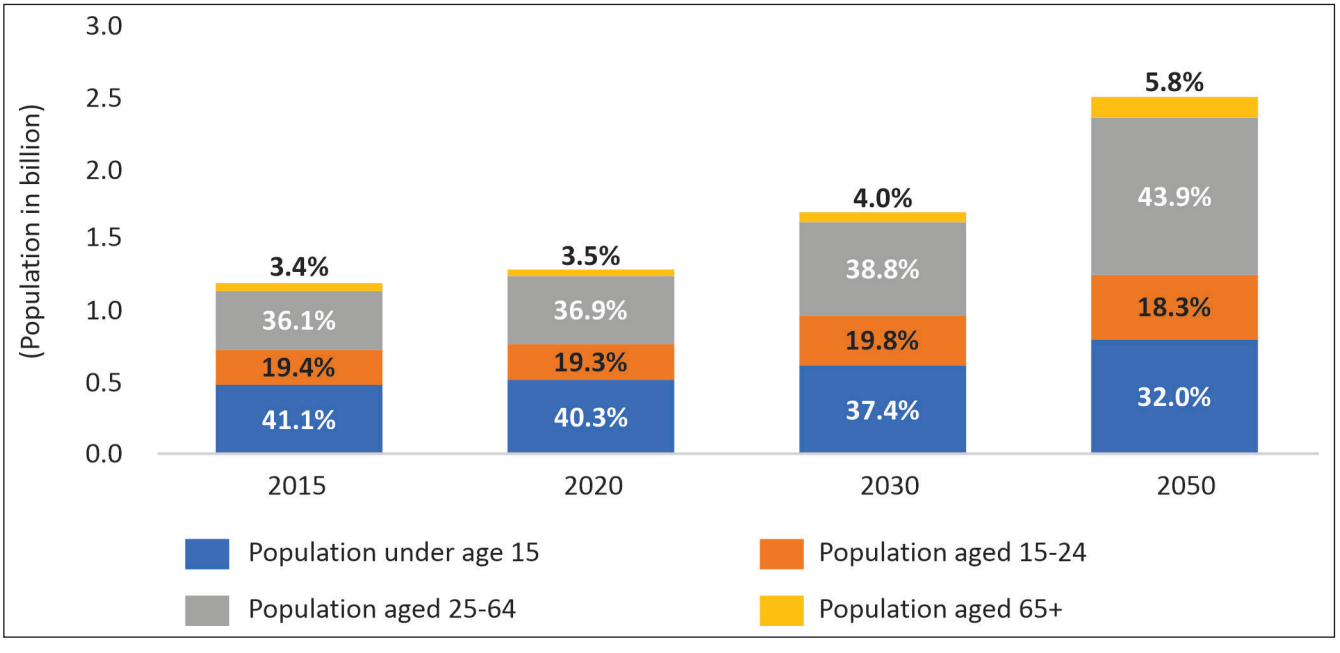
recession. Supply chain disruptions due to COVID-19 coupled with weaker international oil price and OPEC quotas further drove down the output.

Likewise, economic activity in South Africa was already sluggish even before the pandemic hit, with the real GDP growing by 0.2 percent in 2019. With the outbreak of COVID-19 leading to disruption in transport, trade and tourism, output is expected to have fallen 7.5 percent in 2020. The country suffered the most severe COVID-19 outbreak in Sub-Saharan Africa, which prompted strict lockdown measures and brought the economy to a standstill.

Demography of Africa

Africa's population is growing at 2.5 percent a year, which is more than twice as fast as South Asia (1.2 percent) and Latin America (0.9 percent). If it continues at its current growth rate, Africa's population is expected to double by 2050 (approximately 2.5 billion)[6] driven by falling mortality rates and growing fertility rates. This growth is also expected to be aligned with the growth of the middle class and household consumption. Thus, quality healthcare has the potential to transform the risks of demographic and disease burdens into a demographic dividend. **Chart 1.1** shows the changes in the share of population across age categories over the coming years. Africa is going through a demographic transition with an increasing share of population moving into the age category of 25-64 and above 65 from the categories of population under 15 and population aged 15-24.

Chart 1.1: Demographic Profile of Africa



Source: World Population Prospects 2019, United Nations and India Exim Bank Analysis

[6] United Nations, World Population Prospects 2019, Volume II: Demographic Profiles.

Africa witnessed a decline in per capita income since the commodity price downturn after 2014 resulting in a decline from US$ 2,275.8 in 2014 to US$ 1,840.6 in 2017. Though it started picking up from 2017 and stood at US$ 1,922.5 in 2019, due to the COVID-19 pandemic, it is estimated to decline to US$ 1,812.9 in 2020. Africa is also witnessing an urban transition with more than 41 percent of its population living in cities in 2015. The share is further expected to increase up to 60 percent by 2050. However, urbanisation with a lower per capita income poses challenges in terms of inadequate provision for services like water and sanitation with 56.3 percent of the urban population living in slums. This may lead to poor health outcomes thereby increasing the risk of both communicable and non-communicable diseases Thus, there is a need to ensure the supply of quality healthcare to transform the risks of demographic and disease burdens into a demographic dividend.

Impact of COVID-19 on Africa's Trade and Investment

The decline in crude oil prices by an average of 33 percent[7] from US$ 61.4 per barrel in 2019 to US$ 41.2 per barrel in 2020, is expected to put significant strains on the revenue of the net oil exporters like Algeria, Angola, Republic of Congo, Equatorial Guinea, South Sudan. Preliminary estimates from the World Trade Organisation (WTO) show that Africa's merchandise exports have contracted by 20.3 percent during 2020 whereas services exports contracted by 34.8 percent. According to the United Nations World Tourism Organisation (UNWTO), tourist arrivals in Africa are estimated to decline by 75 percent in 2020 from 70 million in 2019 to 18 million in 2020. During 2019, Africa contributed to 2 percent of the world's services exports (calculated from WTO database). Even though it is a modest share compared to the total services traded across the world, for many African countries, services exports have increasingly emerged as a source of foreign exchange and national income, especially travel and tourism services. Africa has the second fastest growing tourism sector in the world with tourism contributing to 8.5 percent of Africa's GDP and employs around 24 million people. Services represent more than 40 percent of exports on average for countries like Ethiopia, Mauritius, Kenya, Morocco and Uganda[8]. Other countries like Seychelles, Rwanda, Tanzania, South Africa are also dependent on tourism. According to the estimates of the International Air Transportation Association, Africa's aviation industry is estimated to lose US$ 2 billion of revenue during 2020.

The African Continental Free Trade Area agreement (AfCFTA), which was to come to effect from July 2020 was also deferred on account of the pandemic to January 1, 2021. Potentially, the full implementation of the AfCFTA could boost Africa's income by 7 percent or US$450 billion, increase Africa's exports by US$ 560 billion and lift 30 million people out of extreme poverty by 2035, as per a World Bank study[9]. The AfCFTA becomes particularly important as the World Bank estimates up to US$ 79 billion loss of output

[7] Calculated from World Bank Commodity Price Data (Pink Sheet)
[8] Africa Trade Policy Centre, "Africa trade and Covid19", Working Paper 586, August 2020.
[9] World Bank, "The African Continental Free Trade Area: Economic and Distributional Effects". July 27, 2020.

in Africa during 2020. The AfCFTA has the potential to re-organise markets and economies across the region, leading to the creation of new industries and the expansion of key sectors.

As regards investments, according to the UNCTAD's preliminary estimates in January 2021, global FDI flows declined by 42 percent in 2020 compared with 2019,and were 30 percent below the levels witnessed after the global financial crisis of 2009. Developed economies experienced the biggest fall, a decline of 69 per cent. FDI flows to developing economies, on the other hand, decreased by only 12 per cent. FDI Inflows were estimated to be 18 percent lower in Africa and stood at US$ 38 billion in 2020 as compared to US$ 46 billion in 2019. Africa has undergone a lower contraction in FDI received compared to Latin America and the Caribbean (37 percent) but higher than developing Asia (4 percent), mainly affected due to lower demand for commodities. Greenfield project announcements in Africa declined by 63 percent from US$ 77 billion in 2019 to US$ 28 billion in 2020 due to the low prices and demand for commodities.

Outlook

As economic growth remains subdued, investment in essential infrastructure including healthcare and digitalisation need to be amplified to bring Africa back to a sustainable growth path and achieving the goals of Agenda 2063. Investment has been an important driver of GDP growth for Africa prior to COVID-19, with investment spending exceeding consumption expenditure, and accounting for more than half of Africa's GDP in 2019[10]. The healthcare sector remains one of the most prospective sectors for investment in Africa. Business opportunities in healthcare in Africa is estimated to reach US$ 259 billion in 2030[11]. As the public sector alone cannot achieve the healthcare targets and aspirations for Africa, private investments in collaboration with the public sector, are required for bridging the existing gaps in health infrastructure and service delivery.

[10] African Development Bank, African Economic Outlook 2020, January 2020.
[11] Business and Sustainable Development Commission, United Nations Foundations, February 2017.

2 Present Status of Healthcare in Africa

The COVID-19 pandemic has exposed the fragility of health systems across the world and tested their resilience. Nevertheless, the outbreak has also emerged as an opportunity for strengthening the healthcare systems, along with an increased need for expenditure in research and development, innovation, and public health delivery. It has also amplified the role of pharmaceutical companies, medical device manufacturers, bio-technology and clinical research organizations. COVID-19 pandemic has also led to fostering of healthcare innovation with a wide range of applications in surveillance, contact tracing, community engagement, treatment, laboratory systems and infection prevention and control.

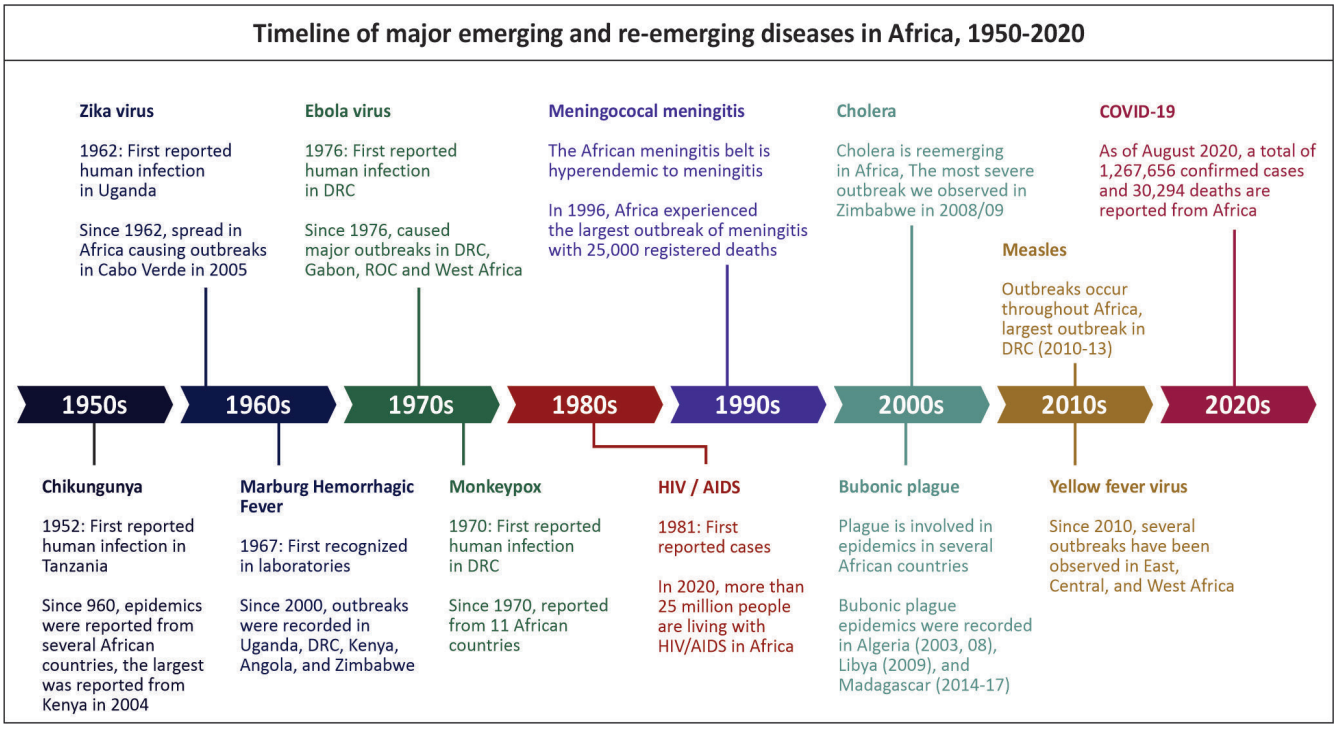
African economies have made considerable headway in improving the health outcomes of their populations, despite the challenges of food insecurity, epidemic diseases, and poverty. The interventions in the area of maternal and child health is reflected in the significant improvement in the healthcare statistics. However, Africa's mortality statistics reveal that there is a need to further strengthen the efforts to improve the healthcare systems in the continent.

Africa's underlying burden of communicable or infectious diseases continues to remain the largest in the world. Every year, communicable diseases account for over 227 million years of health life lost and annual productivity loss of over US$ 800 billion (World Health Organization Regional Office for Africa, 2019).

In terms of the proportional share of disease burden, communicable diseases continue to dominate, accounting for 59 percent of total deaths in Africa as compared to the global share of 30 percent in 2015. Communicable diseases like HIV/AIDS, malaria, tuberculosis (TB), account for over 60 percent of the disease burden of Africa. Malaria, HIV/AIDS, pneumonia, TB, diarrhoea, and measles account for

more than 90 per cent of over 10 million disease-related deaths in Africa every year[12]. Concurrently, the average share of non-communicable diseases like hypertension, heart failure, diabetes, chronic respiratory diseases and cancer, has increased from 26 percent to 37 percent between 2000-2016, indicating a rising burden of diseases on the continent. **Exhibit 2.1** shows the timeline of incidence of various infectious diseases on the continent across years. Moreover, with the outbreak of COVID-19, it is well established that outbreak prone diseases are a serious threat to global as well as the African economies.

Exhibit 2.1: Timeline of Emerging Infectious Disease Patterns in Africa



Source: Adapted from Africa Needs a New Public Health Order to Tackle Infectious Disease Threats, Science Direct, Volume 183, Issue 2, October 2020

Communicable Diseases, Maternal, and Neonatal Conditions

There has been an overall improvement in mortality linked to communicable diseases and maternal, neonatal and nutrition conditions (percentage of total deaths) for Africa[13], which fell from 52 percent in 2010 to 44.7 percent in 2019. However, it remains significantly higher than the global average of 18.4 percent.

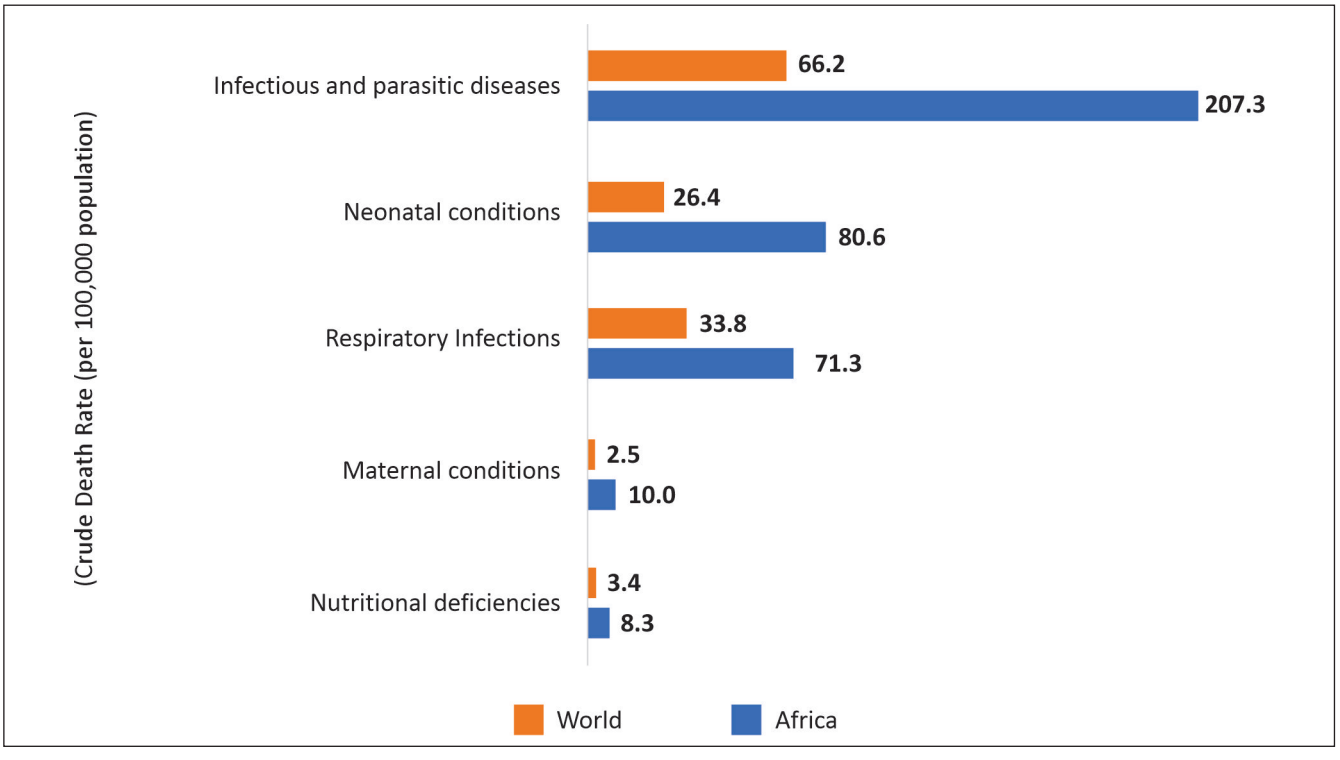
Within Africa, death caused by communicable diseases and maternal, neonatal and nutrition conditions was the highest in Nigeria at 65.2 percent of total deaths in 2019, followed by Chad (63.4 percent),

[12] United Nations Economic Commission for Africa, "Healthcare and Economic Growth in Africa", February 2019.
[13] Average of 54 countries calculated based on data from World Development Indicators 2019 (accessed on March 1, 2021)

South Sudan (61.3 percent), Somalia (61 percent), and Mali (60.3 percent)[14]. Egypt, Morocco, Mauritius, and Tunisia had the lowest deaths due to communicable diseases along with deaths caused by maternal, neonatal, and nutritional conditions at 9.6 percent, 8.9 percent, 7.3 percent and 7.1 percent, respectively (**Annexure 2**).

Chart 2.1 shows the major causes of death due to communicable diseases along with deaths caused by maternal, neonatal, and nutritional conditions based on Crude Death Rates (CDR) per 100,000 population in 2019. Among communicable diseases, the burden for infectious and parasitic diseases in Africa remains the highest with CDR (per 100,000 population) at three times the world average. Deaths due to respiratory infections also remain double the global average in Africa during 2019.

Chart 2.1: Major Causes of Death in Africa by Communicable Diseases, Maternal, Neonatal, and Nutritional Conditions



Note: African Region as defined by the WHO consists of 47 countries

Source: Global Health Estimates 2019, WHO; and India Exim Bank Analysis

The "Goal 3" under the Sustainable Development Goals set by the United Nations is to "Ensure healthy lives and promote well-being for all at all ages". This goal related to health defines 13 targets and 28 Indicators[15] to be achieved by 2030, with a focus on areas such as increasing life expectancy, reducing child and maternal mortality rates, reducing the burden of diseases and eradication of malaria, HIV/AIDS, tuberculosis, among others. However, achieving these targets requires substantial financial resources.

[14] ibid
[15] unstats.un.org/sdgs

According to a study by the Lancet Global Health, the annual financing gap to reach the SDG health targets for low-income countries (LICs), lower middle-income countries (MICs) and upper MICs is more than US$ 370 billion. Around 75 percent of financing are for health systems, with health workforce and infrastructure (including medical equipment) as the main cost drivers[16]. For LICs, the financing gap ranges between US$ 52 billion to US$ 66 billion to meet the SDG target of 2030 whereas for MICs, it is around US$ 223 billion to US$ 302 billion. Among the 29 LICs, 23 are African economies whereas for around 106 (Lower and Upper) MICs, 29 are African countries. So, among LICs, 80 percent are African countries whereas among the MICs, 27 percent are African countries[17]. So, it is estimated that approximately a range of US$ 108 billion to US$ 143 billion of annual financing gap is required to be bridged for Africa to meet its SDG 3 targets by 2030.

According to the WHO, in LICs, infectious diseases accounted for half of overall health spending, while in middle income countries, they accounted for one-third. Non-communicable diseases accounted for about 30 percent of health spending in MICs and about 13 percent in LICs.

SDG Target 3.1: *"By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births."*

Maternal Mortality Ratio

The maternal mortality ratio refers to the number of women who die from pregnancy-related causes while pregnant or within 42 days of pregnancy termination per 100,000 live births. Most maternal deaths are preventable through appropriate management of pregnancy and care at birth, including antenatal care by trained health providers, assistance during childbirth by skilled health personnel, and care and support in the weeks after childbirth. According to the World Health Statistics 2020 by the WHO[18], Sub-Saharan Africa accounted for 66 percent of the world's maternal deaths during 2014-2019, with only 60 percent of births were assisted by skilled health personnel. The overall maternal mortality ratio (per 100,000 live births) in Africa stood at 525 in 2017 (as per latest data available) as compared to the global average of 211. South Sudan accounted for the highest maternal mortality ratio of 1,150 (per 100,000 live births) followed by Chad (1,140), Sierra Leone (1,120), Nigeria (917), Somalia (829) and Central African Republic (829), respectively. Low maternal mortality ratio, where it remained below 100, has been observed in countries like Libya (72), Morocco (70), Mauritius (61), Cabo Verde (58), Seychelles (53), Tunisia (43) and Egypt (37) in 2017.

[16] The Lancet Global Health, "Financing transformative health systems towards achievement of the health Sustainable Development Goals", July 2017.
[17] Based on World Development Indicators, World Bank accessed on March 1, 2021
[18] World Health Organization, World Health Statistics 2020: Monitoring Health for the SDGs, 2020.

Skilled Birth Attendance is the percentage of births attended by personnel trained to give the necessary supervision, care, and advice to women during pregnancy, labor, and the postpartum period; to conduct deliveries on their own; and to care for newborns. According to the World Health Statistics 2020 by the WHO, in terms of proportion of births attended by skilled health personnel (% of total number of live births), Botswana, Libya, Mauritius and Tunisia were the African countries that had close to 100 percent presence during 2010-2019. Other countries like Seychelles, Algeria, South Africa, Egypt, Cabo Verde also had more than 92 percent of skilled health personnel attending live births. As a result, these countries have lower maternal mortality ratio (**Annexure 3**).

SDG Target 3.2: *"By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births."*

Under 5 Mortality Rate

According to the WHO, as of 2019, 121 countries have already met the SDGs target for under-five mortality, and another 21 countries are expected to do so by 2030. Efforts to accelerate progress need to be scaled up in the remaining 53 countries, two-thirds of which are in Sub-Saharan Africa. Many child deaths can be prevented through interventions such as immunization, exclusive breastfeeding, proper nutrition, and prompt and appropriate treatment of common childhood illnesses. Reductions in air pollution and greater access to basic hygiene, safely managed drinking-water and sanitation also contribute to save many young lives[19].

Africa's average mortality rate (under 5 per 1,000 live births) stood at 60.2 in 2019 as compared to the global average of 37.7 and South Asia at 40.2, respectively. However, it has reduced significantly when compared against Africa's high mortality rate (under 5) of 82.5 registered in 2010. Nigeria had the highest mortality rate (under 5) at 117.2 per 1000 live births in 2019 followed by Somalia (117), Chad (113.8) and Central African Republic (110.1). On the other hand, countries like Tunisia, Mauritius, Cabo Verde, Seychelles, and Libya have mortality rates (under 5) below 20 during 2019.

Neonatal Mortality Rate

Average life expectancy at birth in Africa improved to 63.8 years in 2018 (latest data available) as compared to 59.5 years in 2010. However, it continues to remain below the global average of 72.6 years. South Asia and Latin America had a life expectancy at birth at 69.4 years and 75.4 years, respectively, in 2018. Within Africa, the highest life expectancy at birth was observed in Algeria (76.7 years), Tunisia and Morocco (76.5 years each), Mauritius (74.4) and Seychelles (72.8) in 2018. Life expectancy at birth

[19] World Health Organization, World Health Statistics 2020: Monitoring Health for the SDGs, 2020.

stood lower than rest of the African countries in the case of countries such as Chad (54), Lesotho (53.7), and Central African Republic (52.8).

SDG Target 3.3: *"By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases, and other communicable diseases."*

HIV/AIDS, Malaria, Tuberculosis, and other Communicable Diseases

The Prevalence of HIV in Africa, which is measured as a percentage of the population of age 15-49 in the continent, is six times the world average (0.7 in 2019) at 4.2. Yet, the past decade has seen dramatic progress with the antiretroviral therapy (ART) coverage (as a percentage of people living with HIV) in the continent, which increased from 21 percent in 2010 to 56 percent in 2019. However, it continues to remain below the world average of 67 percent in 2019. HIV Prevalence was the highest in the Southern African countries like Eswatini, Lesotho, Botswana, and South Africa where more than 19 percent of the population within the age group 15-49 were affected. Eastern African countries also have considerably high rates of their population affected by HIV (**Annexure 4**). On the other hand, countries like Algeria, Comoros, Egypt, Morocco, Somalia, and Tunisia remain at the lower end with 0.1 percent of the population affected by HIV in 2019. CDR due to HIV/AIDS in Africa stood at 39.8 (per 100,000 population) in 2019 as compared to the global average of 8.8.

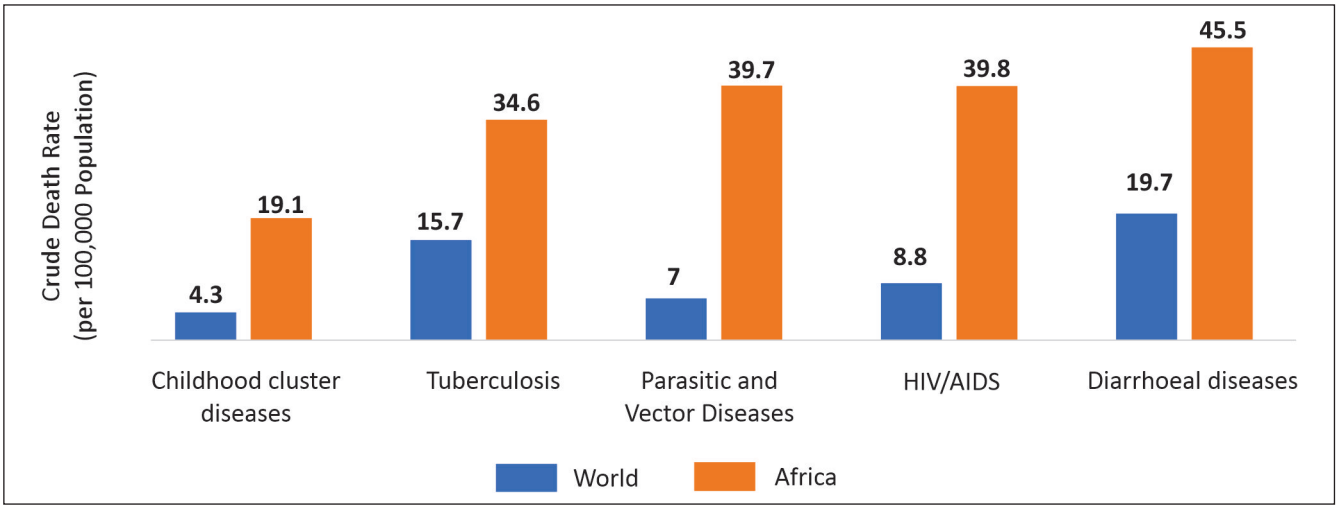
Among the parasitic and vector diseases, malaria accounts for 5 percent of total death in Africa and the CDR due to malaria in Africa at 35.6 was more than 6 times the global average of 5.3 people per 100,000 population in 2019. The incidence of malaria (per 1000 population at risk)[20] in the continent has however reduced on an average from 203.1 in 2010 to 172.6 in 2018 (as per latest data available). Among the African countries, Algeria, Egypt, Morocco, Cabo Verde, Botswana and Eswatini have less than 1 incidence of malaria (per 1000 population at risk) whereas Niger (356.6), Liberia (361.5), Benin (386.2), Mali (386.8), Burkina Faso (398.7) and Rwanda (486.5) have high incidence of malaria.

According to the World Development Indicators published by the World Bank, incidence of TB per 100,000 people in Africa is 202 in 2019, which is marginally lower than that of South Asia, which stood at 201, but much above the world average of 130. Lesotho has the highest incidence of TB per 100,000 people at 654 in 2019 followed by South Africa at 615. The lowest incidence is in countries such as Seychelles (16), Egypt (12) and Mauritius (12). CDR due to TB stood at 34.6 (per 100,000 population) in 2019, more than double of the global average at 15.7. The African region accounts also for higher crude death rates for other major infectious diseases like childhood cluster diseases including whooping cough, diphtheria, measles and tetanus, and diarrhoeal diseases as shown in **Chart 2.2**. CDR for childhood-

[20] Malaria incidence is the number of new cases of malaria in one year per 1,000 people in a given population.

cluster diseases stood at 19.1 (per 100,000 population) as compared to the global average of 4.3 whereas the CDR for diarrhoeal diseases in the African region stood at 45.5 (per 100,000 population) as compared to a global average of 19.7 in 2019.

Chart 2.2: Major Cause of Death by Top 5 Infectious and Parasitic Diseases



Source: Global Health Estimates 2019, World Health Organization, and India Exim Bank Analysis

According to the World Health Statistics 2020 by the WHO, within Africa, the proportion of the population using safely managed drinking-water services was 29 percent as compared to the global average of 71 percent in 2017. Proportion of the population using a hand-washing facility with soap and water stood at 28 percent as compared to the global average of 60 percent in 2017. Proportion of the population using safely managed sanitation services is at 20 percent as compared to the global average of 45 percent in 2017. Unsafe drinking-water and sanitation, and lack of hand hygiene are the major reason leading to death by infectious diseases including diarrhoeal diseases. Childhood cluster diseases like DTP (diphtheria, tetanus and pertussis), polio, and measles can be eradicated by immunization. In 2018, global coverage rates for the third dose of the diphtheria, tetanus- and pertussis-containing vaccine (DTP3) reached 86 percent. For Africa it was 76 percent with more than 30 countries having coverage higher than the world average. Morocco, Seychelles, Cabo Verde, Tanzania, Ghana, Libya, Mauritius, Rwanda and Tunisia have a coverage of 97 percent in 2018. However, countries like Angola, Nigeria, South Sudan, Central African Republic, Guinea, Somalia, Chad, and Equatorial Guinea accounted for less than 60 percent coverage.

Non-Communicable Diseases

SDG Target 3.4: *"By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being."*

Mortality from non-communicable diseases is defined as the percentage of 30-year-old-people who would die before their 70th birthday from any of cardiovascular disease, cancer, diabetes, or chronic respiratory disease, assuming that they would experience current mortality rates at every age and would not die from any other cause of death (e.g., injuries or HIV/AIDS).

Non-communicable diseases (NCDs) are not transmissible directly from person to person. NCDs include cancer, diabetes mellitus, cardiovascular diseases, digestive diseases, skin diseases, musculoskeletal diseases, and congenital anomalies. Although the incidence of NCDs in Africa remain below the global average due to its young population, the growing urbanization and associated changes in lifestyle, however, could create the additional burden in the future. This double disease burden would be difficult for the health systems to handle. Chronic NCDs are growing at an alarming pace and present a challenge in terms of both prevention and treatment. These challenges are emerging in a context of high fertility and population growth. According to the United Nations estimates[21], Africa's population is expected to expand from 1.2 billion in 2015 to 2.5 billion in 2050.

According to the World Development Indicators, causes of death by NCDs as a percentage of total death in Africa (average for 54 countries) has increased from 39.2 percent in 2010 to 45.3 percent in 2019. The surge is possibly driven by unhealthy diets, reduced physical activity, hypertension, obesity, diabetes, and air pollution. The global average of deaths by NCDs was 73.6 percent in 2019.

In 2019, the lowest shares of death by NCDs across the continent were witnessed in Chad (27 percent), Nigeria (27.1 percent), South Sudan (27.9 percent), Somalia (29.9 percent) and Mali (30.3 percent). On the other hand, more than 80 percent of deaths by NCDs were recorded in countries such as Morocco (84.2 percent), Egypt (85.6 percent), Tunisia (85.9 percent) and Mauritius (88.4 percent) (**Annexure 5**).

According to the WHO, around 41 million people worldwide died of NCDs in 2016, equivalent to 71 percent of all deaths. Four NCDs caused most of those deaths: cardiovascular diseases (17.9 million deaths), cancer (9.0 million deaths), chronic respiratory diseases (3.8 million deaths), and diabetes (1.6 million deaths). The WHO estimates that deaths from NCDs are likely to increase globally by 17 percent between 2014 and 2024 and within the African region by 27 percent (28 million additional deaths). These estimates would be further exacerbated by the COVID-19 pandemic. The number of deaths by NCDs is further projected to outweigh the number of deaths due to communicable, maternal, neonatal and nutritional diseases combined by 2030[22].

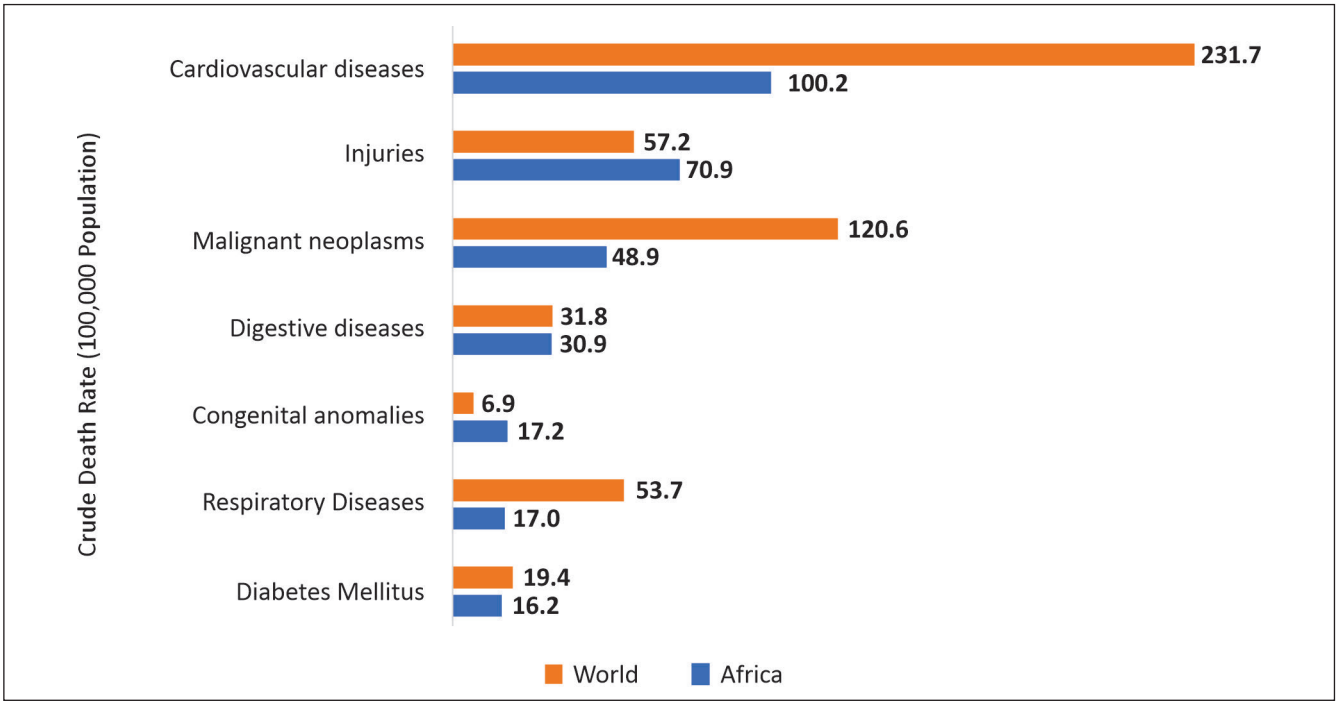
As shown in **Chart 2.3**, the major CDR for cardiovascular diseases, malignant neoplasms and respiratory diseases remain low in Africa compared to the global average in 2019.

[21] United Nations, World Population Prospects 2019, Volume II: Demographic Profiles.
[22] WHO Regional Office of Africa: Noncommunicable diseases.

However, in terms of congenital anomalies, Africa accounts for higher CDRs than the global average. According to the WHO, congenital anomalies can be defined as structural or functional anomalies (for example, metabolic disorders) that occur during intrauterine life and can be identified prenatally, at birth, or sometimes may only be detected later in infancy, such as hearing defects. In other words, congenital refers to the existence at or before birth. Africa accounted for the highest CDR at 17.2 among all the regions defined by the WHO in 2019.

According to the WHO, although 50 percent of all congenital anomalies cannot be linked to a specific cause, there are some known genetic, environmental, and other causes or risk factors. Lower income may be an indirect determinant of congenital anomalies, with a higher frequency among resource-constrained countries. It is estimated that about 94 percent of severe congenital anomalies occur in LICs and MICs. As an indirect determinant, this higher risk relates to a possible lack of access to sufficient, nutritious foods by pregnant women, an increased exposure to agents or factors such as infection and alcohol, or poorer access to healthcare and screening. Factors often associated with lower income may induce or increase the incidence of abnormal prenatal development[23].

Chart 2.3: Major Causes of Death by Non-communicable Diseases and Injuries



Source: Global Health Estimates 2019, World Health Organization, and India Exim Bank Analysis

The CDR for digestive diseases in Africa, however, remains close to the global average. The crude death rate for diabetes mellitus in Africa is 16.2 as compared to the global average of 19.4. Overall Africa's diabetes prevalence (percentage of population ages between 20 and 79) has increased from 4.9 percent in 2010

[23] World Health Organisation, "Congenital anomalies", December 1, 2020.

to 5.8 percent in 2019. Countries with higher diabetes prevalence in 2019 were Sudan (22.1 percent), Mauritius (22 percent), Egypt (17.2 percent), South Africa (12.7 percent), Comoros (12.3 percent) and Seychelles (12.3 percent). African countries with less than 2 percent of prevalence of diabetes in 2019 include the Gambia (1.9 percent), Zimbabwe (1.8 percent) and Benin (1 percent).

Universal Health Coverage

SDG Target 3.8: *"Achieve universal health coverage, including financial risk protection, access to quality essential healthcare services and access to safe, effective, quality and affordable essential medicines and vaccines for all".*

This is measured by coverage of essential health services and the proportion of the population with large household expenditures on health as a share of the total. Coverage of essential health services is defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, non-communicable diseases and service capacity and access, among the general and the most disadvantaged population.

Universal health coverage (UHC) implies that all people receive the health services they need, including public health services designed to promote better health (such as anti-tobacco information campaigns and taxes), prevent illness (such as vaccinations), and to provide treatment, rehabilitation and palliative care (such as end-of-life care) of sufficient quality to be effective, while at the same time ensuring that the use of these services does not expose the user to financial hardship.

The UHC service coverage index (SCI) is an index reported on a unitless scale of 0 to 100, which is computed as the geometric mean of 14 tracer indicators of health service coverage. The tracer indicators are organized by four components of service coverage: (1) Reproductive, maternal, newborn and child health (2) Infectious diseases (3) Noncommunicable diseases (4) Service capacity and access (**Table 2.1**).

According to the WHO, International Health Regulations (IHR) core capacity index is measured by the average percentage of attributes of 13 core capacities that have been attained at a specific point in time. The 13 core capacities are: (1) national legislation, policy and financing; (2) coordination and National Focal Point communications; (3) surveillance; (4) response; (5) preparedness; (6) risk communication; (7) human resources; (8) laboratory; (9) points of entry; (10) zoonotic events; (11) food safety; (12) chemical events; and (13) radionuclear emergencies.

Table 2.1: Parameters for Determining UHC Service Coverage Index

Components	Indicators
Reproductive, maternal, newborn and child health	• Family planning • Antenatal care • Child immunization (DTP3) • Care seeking for Pneumonia
Infectious disease control	• TB effective treatment • HIV treatment • Insecticide-treated nets • Basic sanitation
Noncommunicable diseases	• Normal blood pressure • Mean fasting plasma glucose • Tobacco nonsmoking
Service capacity and access	• Hospital bed density • Health worker density • International Health Regulations (IHR) core capacity index

Source: Universal Health Coverage Report 2019, WHO

According to the WHO report on Universal Health Coverage[24], the African countries with lowest UHC SCI are Somalia (25), Chad (28), Madagascar (28), South Sudan (31), and Central African Republic (33). Overall average for Africa was 46 as compared to the global average UHC of 66 in 2017. However, seven countries in Africa have higher UHC service coverage index – Egypt (68), Cabo Verde (69), South Africa (69), Morocco (70), Tunisia (70), Seychelles (71) and Algeria (78) (**Annexure 6**).

Healthcare Expenditure in Africa

In the Abuja Declaration, members of the African Union in 2001 pledged to set a target of allocating at least 15 percent of their annual budget to improve the health sector and urged donor countries to scale up support. According to the World Bank, in 2018, countries in Sub-Saharan Africa are only spending about 5 percent of their GDP on health, compared to a world average of about 10 percent and official development assistance for health systems strengthening has not been able to fill this financing gap. In 2018, primary health care strengthening was again made a priority by the global health community based on the Astana Declaration[25].

[24] World Health Organization, Primary Healthcare on the Road to Universal Health Coverage: 2019 Monitoring Report, 2019.
[25] World Health Organization, "Global Conference on Primary Health Care, Astana, Kazakhstan", October 25-26, 2018.

Although access to primary healthcare facilities have increased in Africa, healthcare infrastructure at tertiary level and specialized level continues to remain inadequate creating scope for further investments. A recent study found that across this region, close to 30 percent of people cannot access emergency care within two hours of travel time[26]. Out of US$ 3.8 trillion of global spending on health, only 1 percent was spent by Africa in 2018[27]. The health of a population drives economic growth and vice versa. Robust economic growth provides more fiscal space for public allocation of resources for social sectors and prioritizing healthcare. The region needs to engage in and encourage innovative and cost-effective health interventions that will help improve allocative efficiency and production of health, with the ultimate goal of making possible health-led economic growth and development[28]. Official development assistance can help in priority areas including HIV, maternal and child health, NCDs, preparedness and primary healthcare) However, to set up a robust healthcare system providing tertiary and quaternary care would require public sector as well as private sector collaboration.

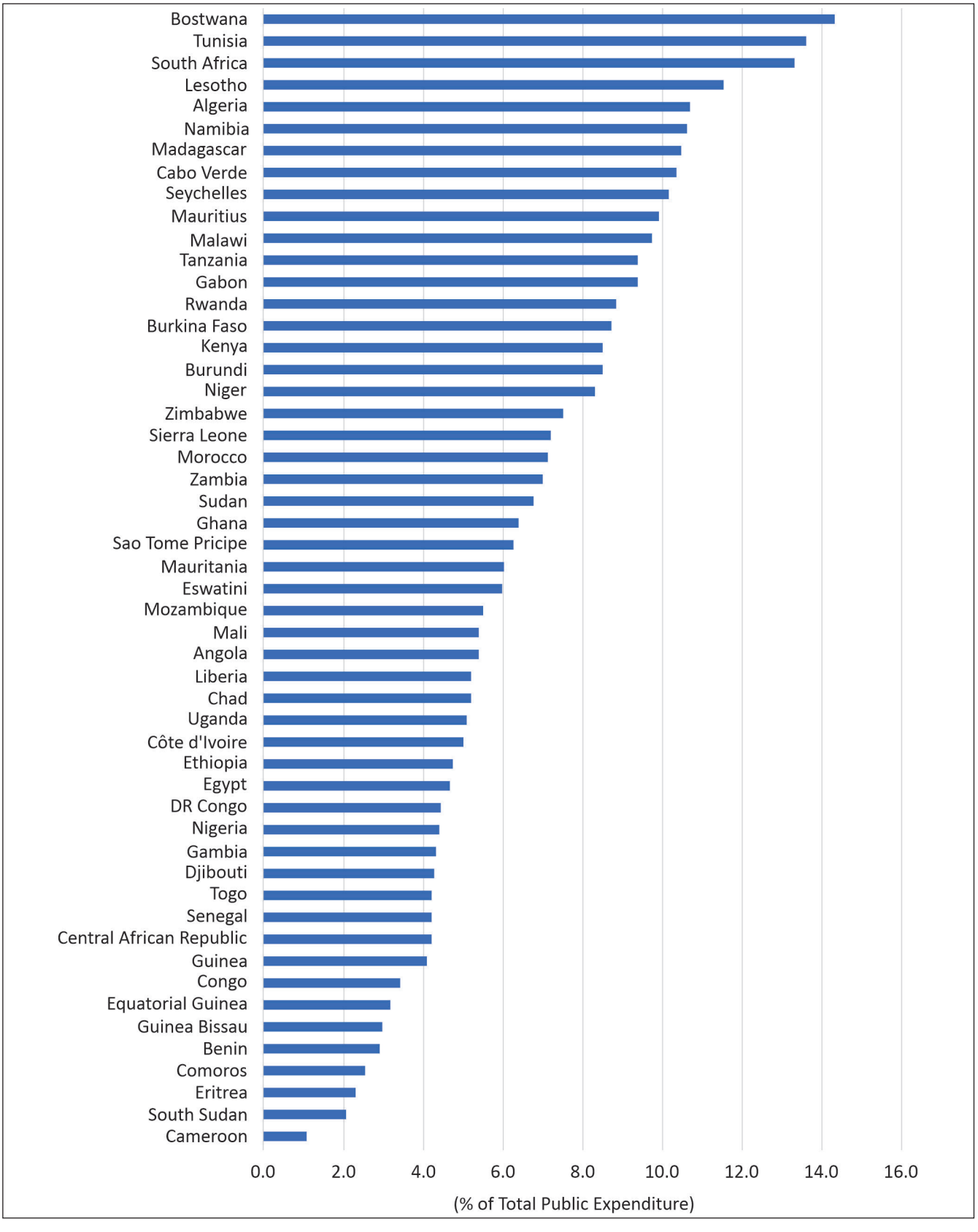
However, as shown in **Chart 2.4**, countries like Mauritius, Seychelles, Cabo Verde, Madagascar, Namibia, Algeria, Lesotho, South Africa, Tunisia, and Botswana have spent more than 10 percent of their public expenditure on health during 2018. It needs to be taken into consideration that the ability of countries to meet the 15 percent target differs based on their economic size, fiscal space, as well as other priorities.

Even though economic growth in Africa has remained robust during in the recent past, it has not been followed by increased spending in healthcare. Between 2000 and 2015, for example, public spending on health, as a proportion of its overall spending, decreased in 23 African countries even though the per capita income had doubled, and between 2015 to 2018 it has declined further among 16 countries. This is likely to worsen with the COVID-19 pandemic leading to decline in revenue.

Limited fiscal space has also contributed to the worsening state of healthcare. In 2018, total health expenditure represented 5.5 percent of Africa's GDP, against the world average of 9.8 percent, and 6.7 percent in East Asia and the Pacific, 8 percent in Latin American and the Caribbean, and 16.4 percent in North America. However, it is greater than South Asia where health expenditure as a percentage of GDP in 2018 was 3.5 percent (**Chart 2.5**).

[26] Lancet Global Health, "Access to emergency hospital care provided by the public sector in Sub-Saharan Africa in 2015: a geocoded inventory and spatial analysis", 2018.
[27] World Health Organization, "Global spending on health: Weathering the storm", 2020.
[28] Observer Research Foundation, Daniel Mwai & Theresa Ndavi, "What Ails Health Systems in Africa? An Economic Perspective,", December 2020.

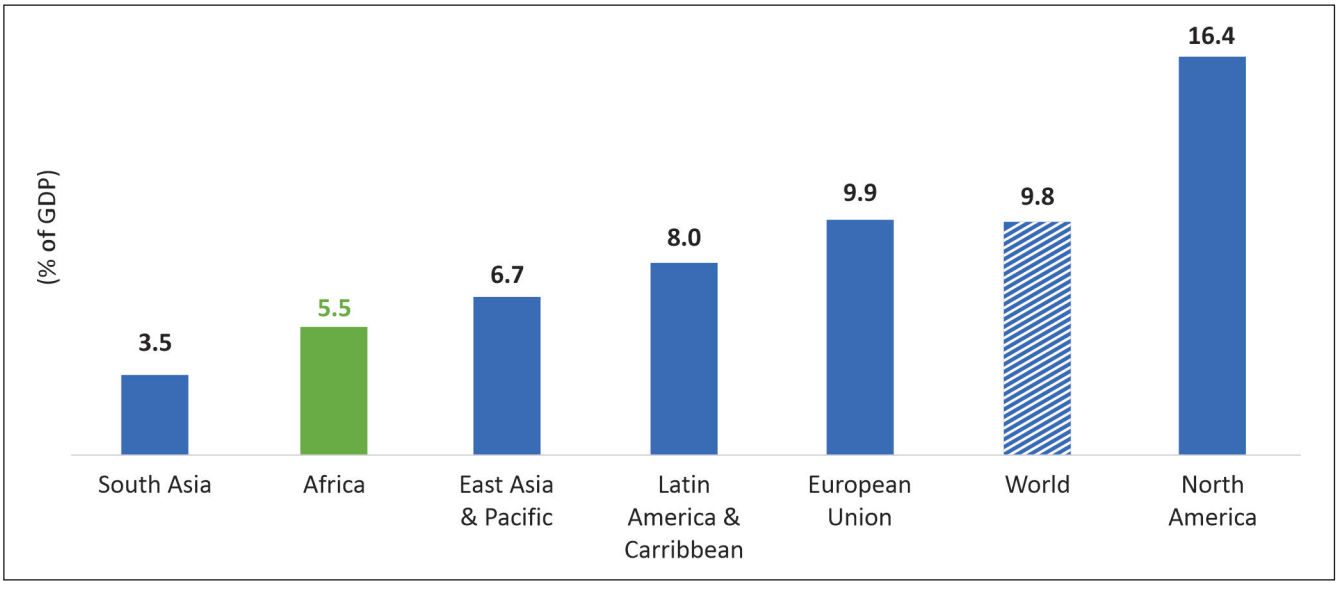
Chart 2.4: Public Health Expenditure in Africa



Note: Data pertains to 2018 and data for Libya and Somalia not available

Source: World Development Indicators, World Bank (accessed on March 1, 2021) and India Exim Bank Analysis

Chart 2.5: Health Expenditure (as a share of GDP)

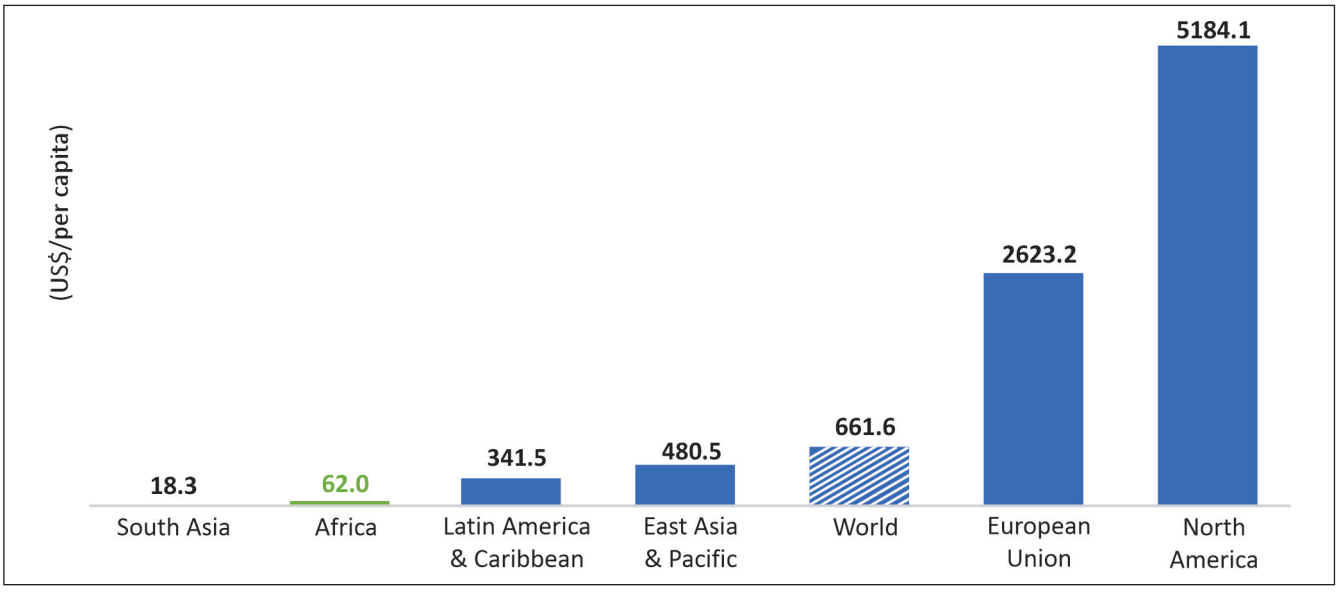


Note: Data pertains to 2018. Data for Africa is average of 52 countries. Data for Libya and Somalia not available.

Source: World Development Indicators Database, World Bank (accessed on March 1, 2021) and India Exim Bank Analysis

Currently, African countries spend on an average US$ 62 per capita on health compared to the global average of US$ 661.6 (**Chart 2.6**). However, within Africa also, this varies across countries ranging from as low as US$ 2.8 per capita to US$ 620.4 per capita This is due to several factors but most significant among them is a low GDP and low tax collection efficiency among African countries, compounded by low budget allocations to the health sector due to competing priorities. South Asian countries spend

Chart 2.6: Public Health Expenditure Per Capita (Current US$)



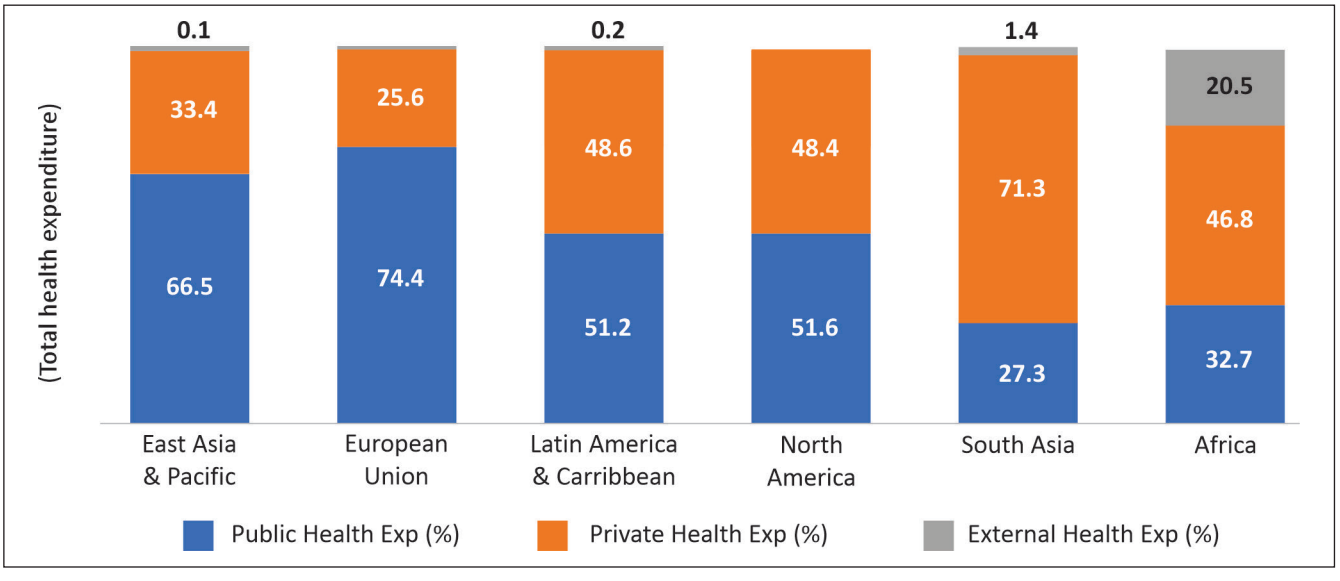
Note: Data pertains to 2018. Data for Africa is average of 52 countries. Data for Libya and Somalia not available.

Source: World Development Indicators Database, World Bank (accessed on March 1, 2021) and India Exim Bank Analysis

lower at US$ 18.3 per capita in 2018. African countries with lowest public health expenditure per capita are DR Congo, South Sudan, Cameroon, Central African Republic, Eritrea, and Guinea-Bissau with less than US$ 5 per capita public expenditure. On the other hand, countries with the highest per capita public expenditure in health in the continent are Namibia (US$ 217.2), Mauritius (US$ 281.9), South Africa (US$ 284.3), Botswana (US$ 374.2) and Seychelles (US$ 620.4). Of the 52 African countries with available data in 2018 (**Annexure 7**), 42 did not meet the WHO recommended level (US$ 86) of per capita public health expenditure. Other than the countries mentioned earlier, Eswatini, Cabo Verde, Gabon, Tunisia, and Algeria met the WHO recommended level in 2018.

As shown in **Chart 2.7**, the share of public health expenditure, private health expenditure and external health expenditure as a percentage of total health expenditure reveals that Africa is considerably dependent on donor funding (20.5 percent of total health expenditure) as compared to the other regions of the world[29].

Chart 2.7: Share of Total Health Spending



Note: Data pertains to 2018. Data for Africa is average of 52 countries. Data for Libya and Somalia not available.
Source: World Development Indicators Database, World Bank (accessed on March 1, 2021) and India Exim Bank Analysis

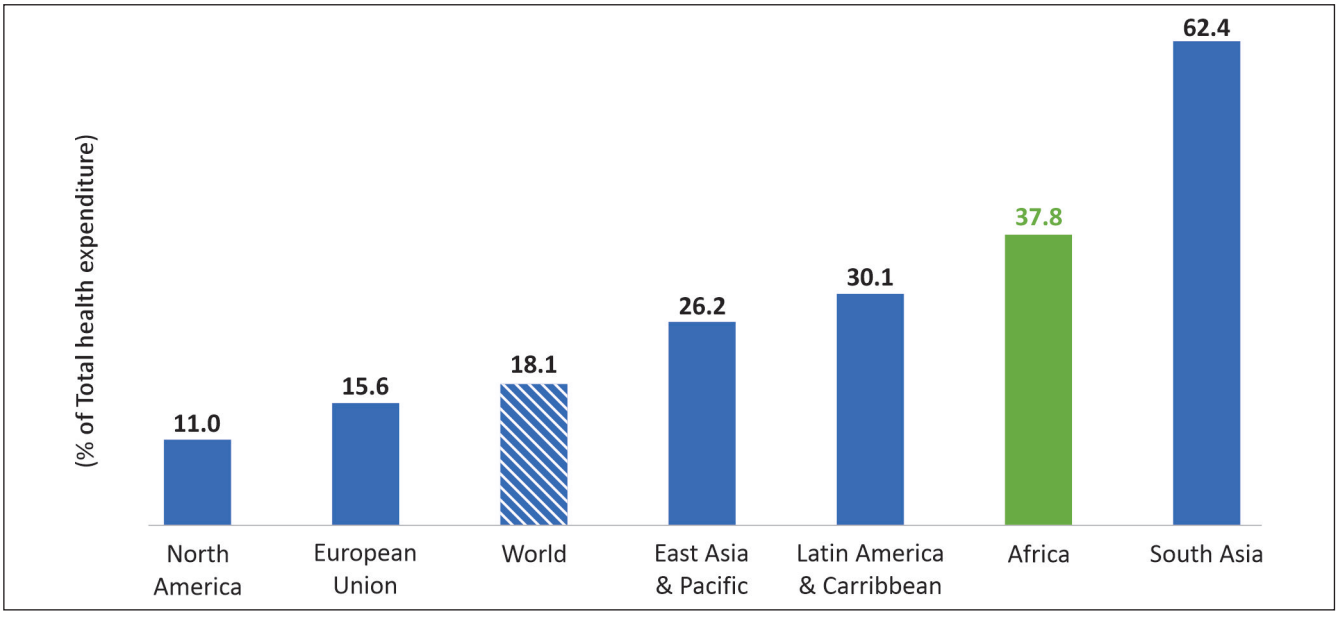
External aid to health includes official development assistance through grants and concessional loans from bilateral and multilateral donors, and grants from private donors. According to the Global Health Spending 2020 by the WHO, the top ten recipient countries accounted for more 46 percent of external aid for health in 2018. These were Nigeria (7.9 percent), Ethiopia (5.8 percent), Uganda (4.9 percent), Mozambique (4.6 percent), Kenya (4.3 percent), India (4.2 percent), Tanzania (4.1 percent), Zambia

[29] According to the definition of the World Development Indicators, external health expenditure composes of direct foreign transfers and foreign transfers distributed by government encompassing all financial inflows into the national health system from outside the country.

(3.6 percent), South Africa (3.5 percent), DR Congo (3.3 percent) and Bangladesh (2.7 percent). The other African countries, which received more than one percent of global external aid in healthcare in 2018 were Zimbabwe (2.5 percent), Ghana (1.8 percent), Malawi (2.1 percent), Mali (1.5 percent), Côte d'Ivoire (1.4 percent), Rwanda (1.3 percent), Sudan (1.2 percent), South Sudan (1.1 percent), Madagascar (1.1 percent), Sierra Leone (1 percent), respectively. Among these, other than South Africa, which is an upper middle-income country, rest are low-income or lower middle-income countries. Therefore, among the 26 countries which received a cumulative of percent of global external aid for health, 19 were African countries. These 19 countries accounted for 54.5 percent or approximately US$ 8.8 billion of global external aid for health during 2018.

Out-of-pocket spending (OOPS) remains the main source of domestic health spending in lower income countries. In 2018, Africa on an average spent 37.8 percent as out-of-pocket health expenditure as a share of total expenditure, higher than all other regions across the world, except South Asia (**Chart 2.8**). Among the African countries, OOPS remains the highest in Nigeria at 76.6 percent, followed by Cameroon (75.6 percent), Equatorial Guinea (75.3 percent), Comoros (74.5 percent) and Guinea-Bissau (74.5 percent).

Chart 2.8: Out of Pocket Expenditure on Health



Note: Data pertains to 2018. Data for Africa is average of 52 countries. Data for Libya and Somalia not available.

Source: World Development Indicators Database, World Bank (accessed on March 1, 2021) and India Exim Bank Analysis

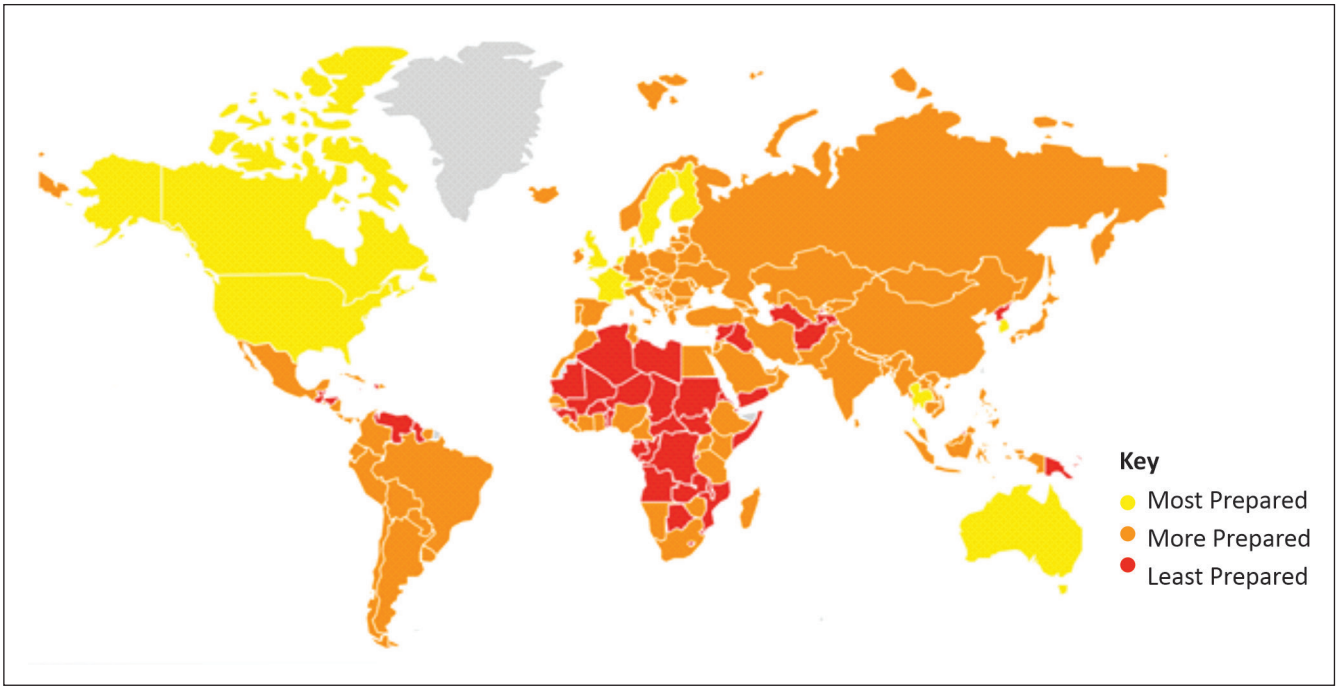
Health Infrastructure in Africa

According to the 2019 Global Health Security Index, which does a comprehensive assessment of a country's health system capabilities of 195 countries, reveals that 33 out of 54 ranked African countries are rated as least prepared to deal with epidemic threats that have international implications. The

recent Ebola and yellow fever outbreaks in Africa highlighted the vulnerability of countries to public health emergencies.

The Global average of the Health Security Index score is 40.2 out of 100 whereas the average score for 54 African countries (**Annexure 8**) comes to 30.9 with the highest being 54.8 for South Africa and the lowest being 6.3 for the Republic of Congo.

Exhibit 2.2: Global Health Security Index 2019



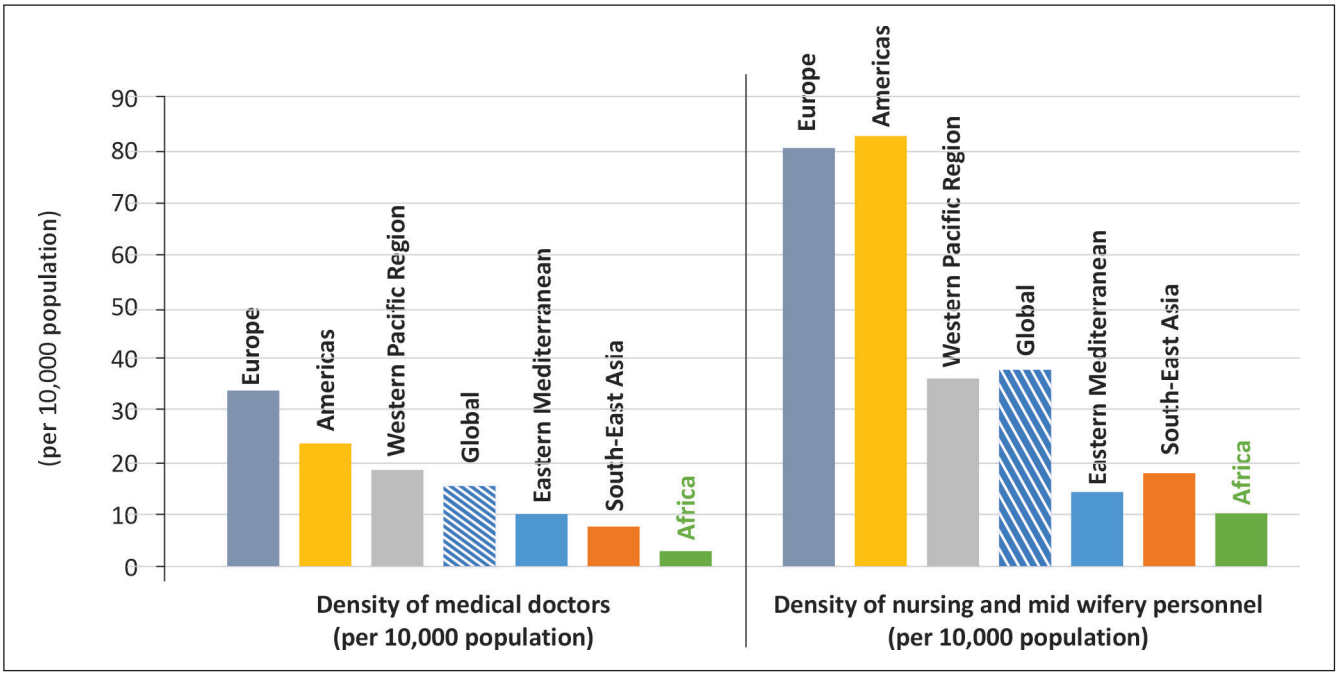
Source: Adapted from Global Health Security Index 2019 (accessed on March 1, 2021)

SDG Target 3.C: *"By 2030 Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries."*

Health worker density is the size of the health workforce per 1,000 people. It is measured based on the density of physicians, surgeons, nurses and midwives, dentistry, and pharmaceutical personnel.

A well-prepared health workforce under adequate working conditions is essential to build strong health systems. Health professionals such as medical doctors and nurses are the people who respond to both emergencies and everyday needs. As shown in **Chart 2.9**, Africa on an average accounted for only 3 medical doctors for every 10,000 people as compared to a global average of 15.6 in 2018.

Chart 2.9: Density of Medical Staff in Africa



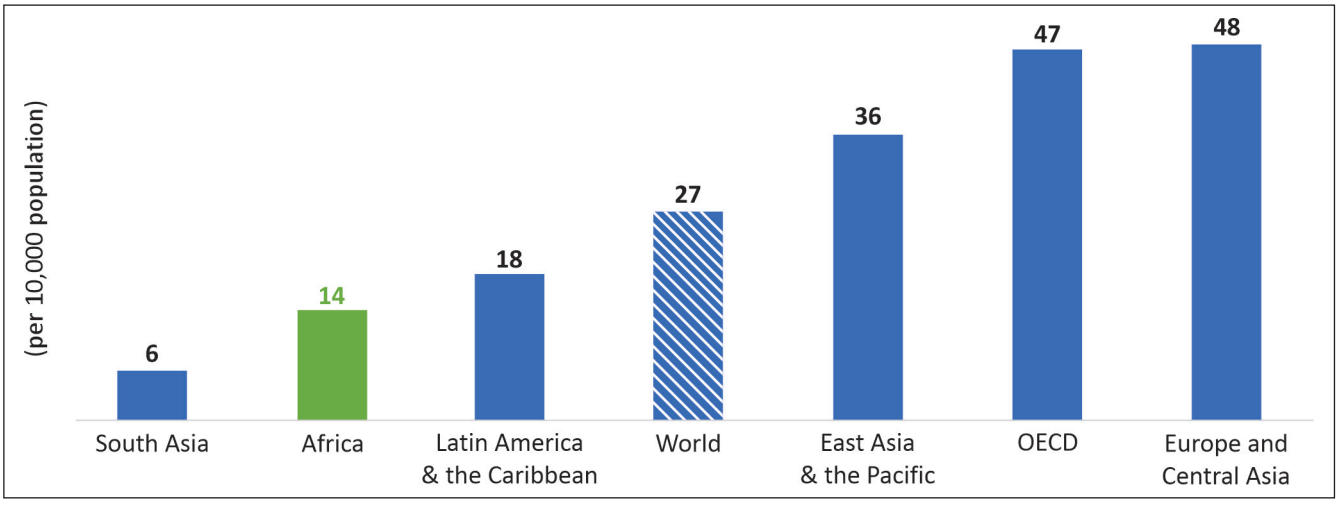
Source: WHO Statistics 2020; World Health Organization and India Exim Bank Analysis

The WHO recommends at least 10 medical doctors per 10,000 people to ensure adequate coverage at the primary care level. According to the Global Health Statistics 2020, prepared by the WHO, only Zambia, Tunisia, Algeria, Libya, Seychelles, and Mauritius met the target by 2018 and the remaining 47 countries have fewer than 10 doctors per 10,000 people. Tanzania, Somalia, Sierra Leone, Chad, Liberia, Malawi, and Niger have fewer than 1 physician per 10,000 people.

Also, as compared to the global average of 37.6 nursing and midwife personnel per 10,000 population, Africa accounted for the lowest count of 10.1 per 10,000 population in 2018 (**Chart 2.9**). Only 25 countries out of the 53 reported African countries had more than 10 nursing and midwife personnel per 10,000 population during 2018. Cameroon, Somalia, Guinea, Madagascar, Central African Republic, Sierra Leone, and Chad had 2 personnel per 10,000 population at maximum. Eswatini (41) along with Ghana (42), Botswana (54), Libya (65) and Seychelles (81) accounted for higher than the global average in 2018.

According to the Human Development Report 2020 by the UNDP, 17 African countries have less than ten hospital bed per 10,000 people, which include economies such as Ethiopia (3), Uganda (5), Tanzania (7), and Ghana (9), among others. The least number of hospital beds are in Madagascar, Senegal, Guinea, Ethiopia, Niger, Burkina Faso where there are less than 5 beds per 10,000 population. On an average, Africa has a density of 14 hospital beds per 10,000 population as compared to the world average of 27 (**Chart 2.10**). The highest number of hospital beds are available in Libya (32), Mauritius (34), and Seychelles (36) with more than 30 hospital beds per 10,000 population (**Annexure 9**).

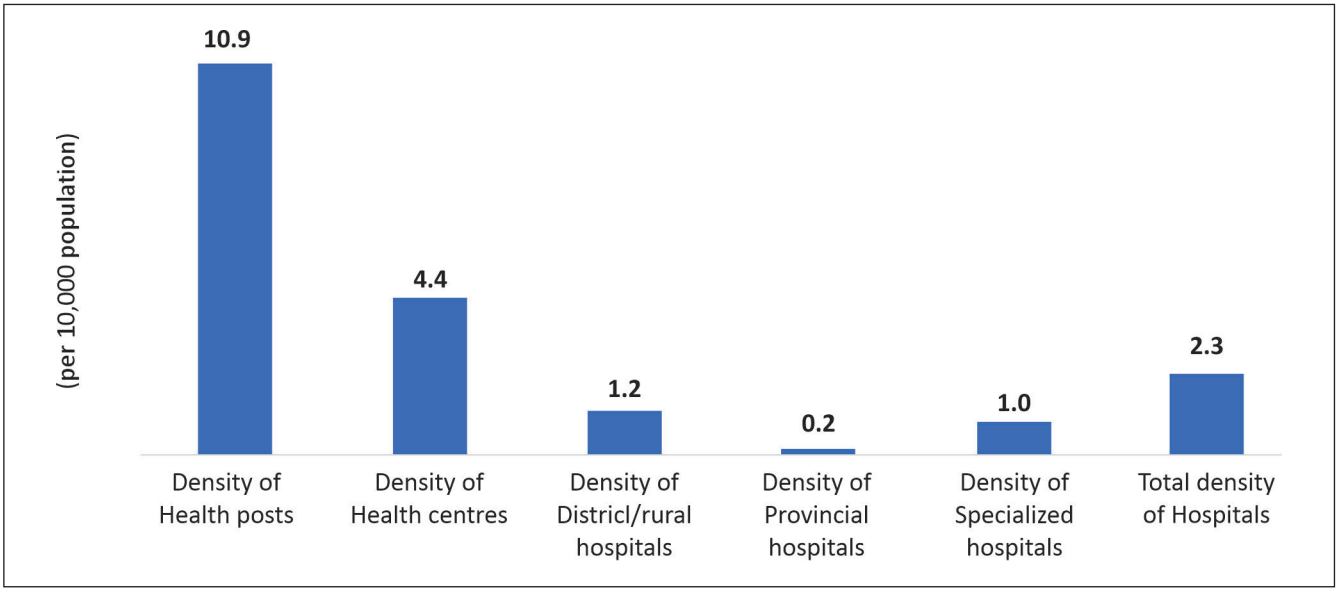
Chart 2.10: Hospital Beds Per 10,000 Population



Source: Human Development Report 2020, UNDP and India Exim Bank Analysis

Chart 2.11 shows the hospital and healthcare infrastructure availability in Africa. Health post density and health centre density helps measure physical access to outpatient health care services thereby reflecting the status of access to primary healthcare in the countries. The other parameters like the density of district or rural or provincial hospitals and specialized hospitals reflecting secondary or tertiary healthcare status remain considerably low.

Chart 2.11: Density of Hospitals by Type in Africa



Note: Data is average for 41 African countries and pertains to 2013 (latest available)
Source: The Global Health Repository, World Health Organization and India Exim Bank Analysis

Cabo Verde has the highest number of health posts (per 100,000 population) at 33.5, followed by Gabon, Libya, the Gambia, Seychelles, Tunisia, Ethiopia and Sao Tome and Principe have more than

15 health posts. The density of health centres remained highest in Guinea Bissau at 33 followed by Burkina Faso and Côte d'Ivoire (12 each), Togo (11), Zimbabwe and Ghana (9 each), Zambia (8). Highest density of hospital remains in Guinea Bissau at 56.5 followed by Gabon (3.5), Libya (2.6) and Tunisia (2.3), respectively (**Annexure 10**).

The burden of communicable diseases remains higher in the Sub-Saharan African countries whereas the incidence of non-communicable diseases tends to be high among the North African countries. Similar scenario is reflected in the health infrastructure and spending as well. Increasing existing capacities for treatment and hospital bed facilities, upgrading medical infrastructure including equipment and supplies for healthcare facilities, diagnostic equipment, supply of pharmaceuticals, protective medical supplies and training healthcare personnel are the areas to be addressed for Africa's healthcare sector. In the long run, substantial investments in health preparedness are required to boost Africa's healthcare systems and build its resilience against future shocks.

3 An Overview of Africa's Trade in Pharmaceuticals

Disruptions to global supply chains were among the biggest consequences of COVID-19. Demand for pharmaceutical products and medical equipment like personal protective equipment, gloves, laboratory reagents, breathing appliances including ventilators, masks for medical oxygen, surgical or laboratory sterilisers and disinfectants as well as test kits went skyrocketing leading to countries imposing export prohibition or restrictions. In April 2020, the WHO reported that about 80 countries and customs territories had banned or restricted the export of COVID-19 related supplies in order to prevent domestic shortages.

Africa accounts for 16 percent of the world population but carries 26 percent of the global disease burden. Its pharmaceutical industry accounts for less than 2 percent of the medicines consumed by the continent as more than 90 percent of the pharmaceutical products are imported. Africa also imports medical devices and equipment substantially.

Africa's Trade in Pharmaceuticals

Africa's total merchandise exports stood at US$ 476.6 billion during 2019, of which pharmaceutical exports stood at US$ 1.1 billion. Pharmaceutical exports from Africa have increased modestly at a CAGR of 2 percent from US$ 0.9 billion in 2010. The major pharmaceutical products exported by Africa at HS-6 digit level during 2019 are shown in **Table 3.1**.

The major exporters of pharmaceutical products in Africa were South Africa, which accounts for 38.2 percent of Africa's pharma exports, Egypt (23.9 percent), Morocco (10.3 percent), Kenya (10.3 percent), Tunisia (6.7 percent), Mauritius (2.8 percent) and Uganda (1.2 percent).

Table 3.1: Major Pharmaceutical Products Exported by Africa

HS Code	Product	Exported value in 2019 (US$ mn)	Share in Pharma Exports (%)
	Total	**1,135.5**	**100.0**
300490	Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes	822.6	72.4
300510	Adhesive dressings and other articles having an adhesive layer	64.3	5.7
300230	Vaccines for veterinary medicine	45.9	4.0
300439	Medicaments containing hormones or steroids used as hormones but not antibiotics	32.7	2.9
300390	Medicaments consisting of two or more constituents mixed together	27.6	2.4
300590	Wadding, gauze, bandages and the like, e.g. dressings, adhesive plasters, poultices	19.6	1.7
300420	Medicaments containing antibiotics, put up in measured doses	18.9	1.7
300410	Medicaments containing penicillins or derivatives thereof	11.8	1.0
300220	Vaccines for human medicine	10.0	0.9
300450	Medicaments containing provitamins, vitamins, incl. natural concentrates and derivatives	9.3	0.8

Source: ITC Trademap; derived from UN Comtrade and India Exim Bank Analysis

Africa's total merchandise imports stood at US$ 577.9 billion during 2019, of which pharmaceutical products were the seventh largest imported commodity by the continent at US$ 17 billion or 3 percent of Africa's total imports. Pharma imports have increased by a CAGR of 5 percent from US$ 10.5 billion in 2010.

Table 3.2 shows the major pharmaceutical imports of Africa during 2019. The major imported products at HS 6-digit level by Africa are medicaments for therapeutic or prophylactic use (HS 300490 - 59.5 percent), vaccines for human medicine (HS 300220 - 10.2 percent), medicaments containing antibiotics (HS 300420 - 4.8 percent), immunological products (HS 300215 - 3.1 percent) and medicaments containing penicillin (HS 300410 - 2.6 percent), among others.

Table 3.2: Major Pharmaceutical Products Imported by Africa

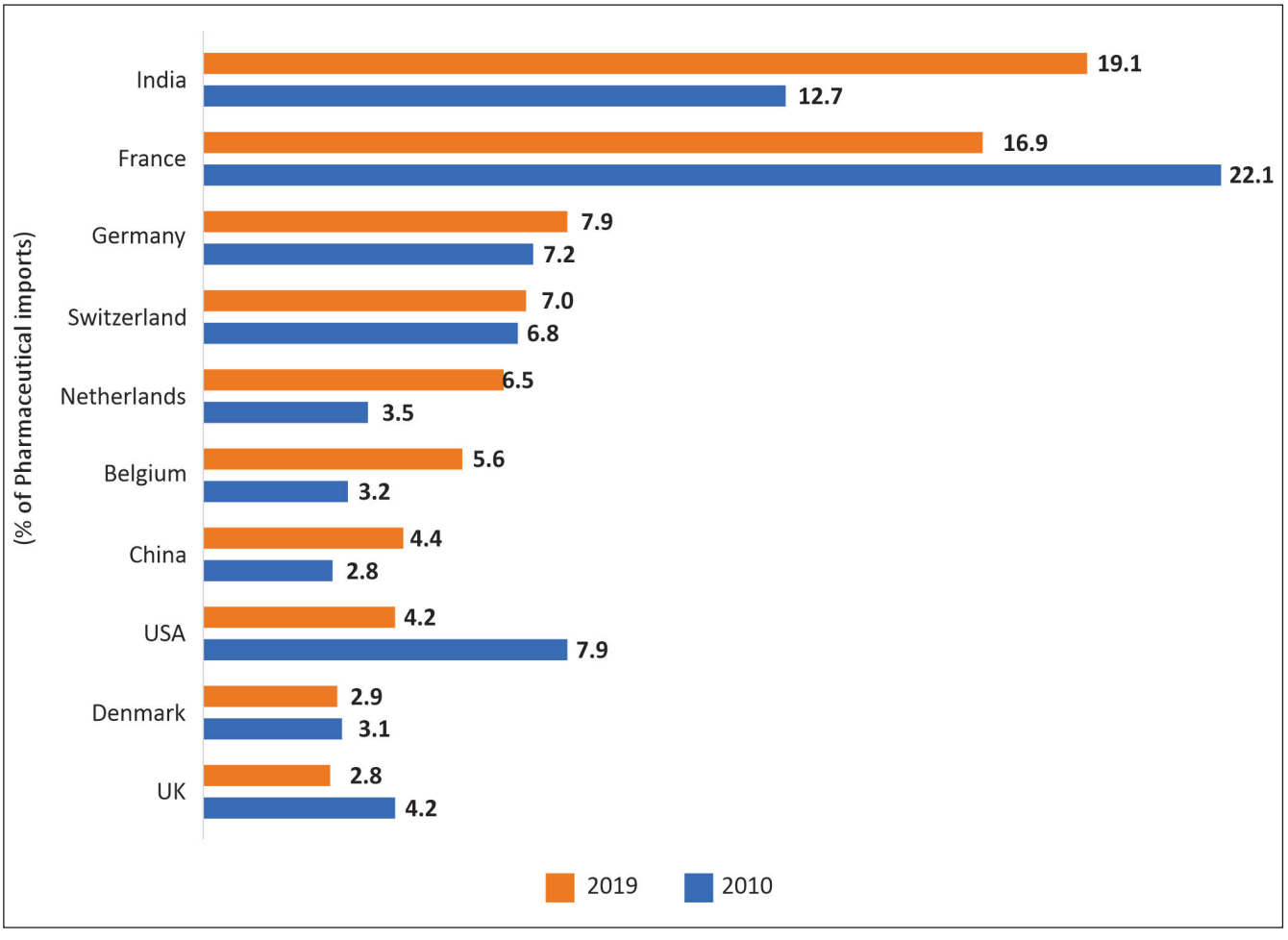
HS Code	Product	Imported value in 2019 (US$ bn)	Share in Pharma Imports (%)
	Total	**17.0**	**100.0**
300490	Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes	10.0	58.8
300220	Vaccines for human medicine	1.7	9.9
300420	Medicaments containing antibiotics	0.8	4.7
300439	Medicaments containing hormones or steroids used as hormones	0.6	3.6
300215	Immunological products, put up in measured doses or in forms or packings for retail sale	0.5	3.0
300390	Medicaments consisting of two or more constituents mixed together	0.4	2.5
300410	Medicaments containing penicillins or derivatives thereof	0.4	2.5
300230	Vaccines for veterinary medicine	0.3	1.9
300431	Medicaments containing insulin but not antibiotics	0.3	1.5
300450	Medicaments containing provitamins, vitamins, incl. natural concentrates	0.2	1.2

Source: ITC Trademap; derived from UN Comtrade and India Exim Bank Analysis

The major importers were Egypt (15.5 percent), South Africa (14.4 percent), Algeria (10.3 percent), Nigeria (8.6 percent), Morocco (4 percent), Kenya (3.3 percent) and Tunisia (3.2 percent), among others.

India emerged as the largest exporter of pharmaceutical products (HS 30) to Africa in 2015 and it continued to remain so in 2019. India's exports stood at US$ 3.2 billion accounting for 19.1 percent of Africa's pharmaceutical imports in 2019, increasing from US$ 1.3 billion in 2010 (12.7 percent). Other major exporters to Africa during 2019 include France, Germany, Switzerland and Netherlands, among others (**Chart 3.1)**.

Chart 3.1: Major Pharmaceutical Exporters to Africa



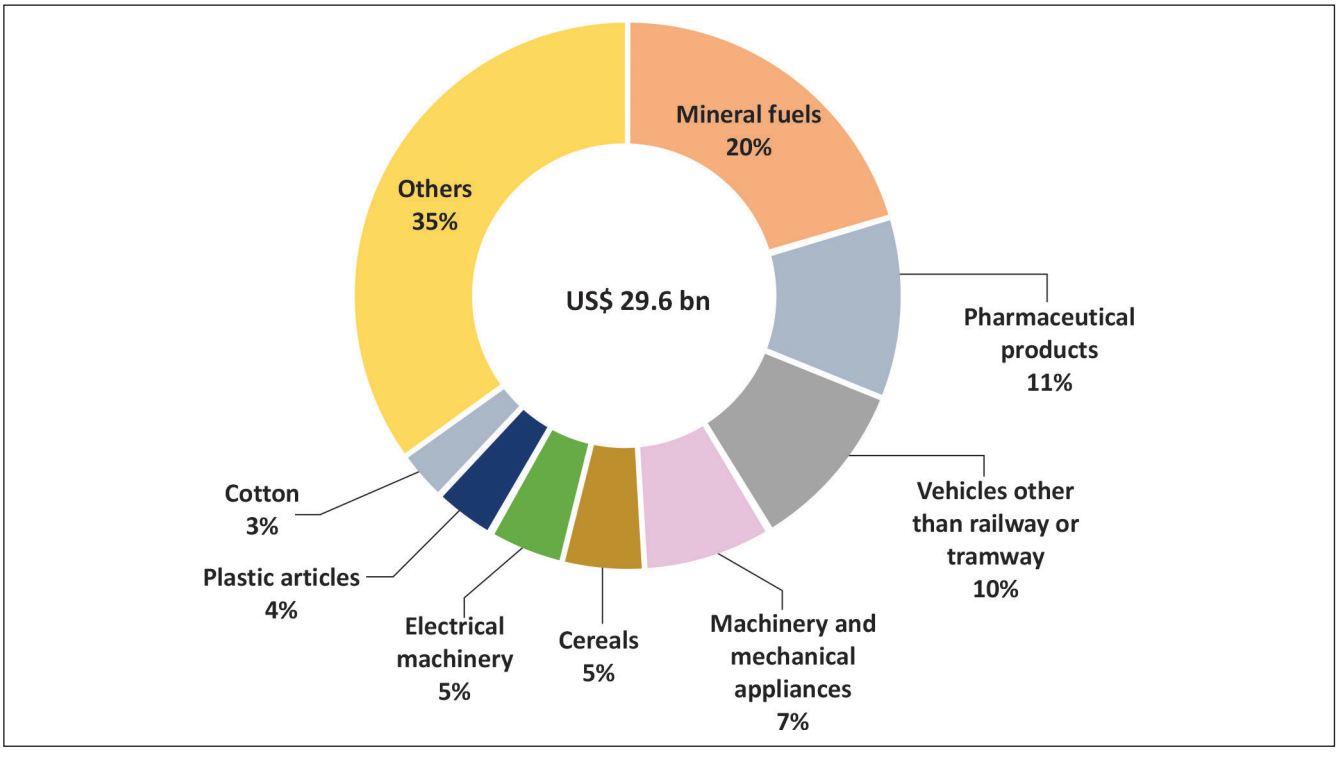
Note: Data for Africa's Imports from India has been taken as reported by India

Source: ITC Trademap; derived from UN Comtrade and India Exim Bank Analysis

India's exports to Africa increased from US$ 17.9 billion in 2010 to US$ 29.6 billion in 2019. **Chart 3.2** shows the major exported products by India to Africa during 2019.

India's major pharmaceutical exports to Africa include medicaments for therapeutic or prophylactic purposes (HS 300490 – 72.1 percent), followed by vaccines for human medicine (HS 300220 – 9.5 percent), medicaments containing antibiotics (HS 300420 – 4.9 percent), medicaments containing penicillin (HS 300410 – 2.9 percent), among others.

Chart 3.2: India's Major Exports to Africa



Source: ITC Trademap; derived from UN Comtrade and India Exim Bank Analysis

Africa's substantial imports of pharmaceutical products reflect the huge demand and inadequate domestic supply. According to McKinsey & Co., the African pharmaceutical market is expected to be worth US$45 billion by 2025 and US$ 65 billion by 2030 driven by increased urbanisation, healthcare capacity, and improved business environment[30]. The major markets are expected to be Algeria, Angola, Cameroon, Egypt, Ethiopia, Ghana, Kenya, Libya, Morocco, Nigeria, South Africa, Sudan, Tanzania, Tunisia, and Uganda. The AfCFTA will potentially integrate a the African continent of 1.3 billion people presently and 2.5 billion people by 2050, thereby creating scope for tapping the expanding market. Boosting local production would ensure quality-assured medicines, continuity in supply, value addition and generation of employment. The private sector needs to leverage this opportunity.

[30] McKinsey & Company, "Africa: A continent of opportunity for pharma and patients", June 2015.

4 Investing in Africa's Healthcare – India's Role

As highlighted in the earlier chapters, looking from the disease burden faced by the continent, Africa's healthcare spending remains highly inadequate. The health financing gap of Africa remains in the range of US$ 108 billion to US$ 143 billion per year to meet the 2030 SDG 3 targets. Other studies have estimated that even at a conservative level, this gap goes up to US$ 66 billion per annum[31]. As Africa is expected to experience rapid population growth with concomitant changes in age structure along with increasing urbanisation. Further, since there would be a shift from communicable disease to non-communicable diseases, national healthcare systems need to be built to face challenges in terms of both communicable and non-communicable diseases. The factors driving the growth of healthcare sector in the region include a rising number of hospitals/clinics, increased focus on the use of point-of-care diagnostics for improving community-based service delivery, increasing community health awareness, rise in in-country manufacturing of drugs and diagnostics, and a rising number of insurance providers. With the private sector accounting for 50 percent of healthcare expenditure, the healthcare infrastructure and service delivery need to be further strengthened.

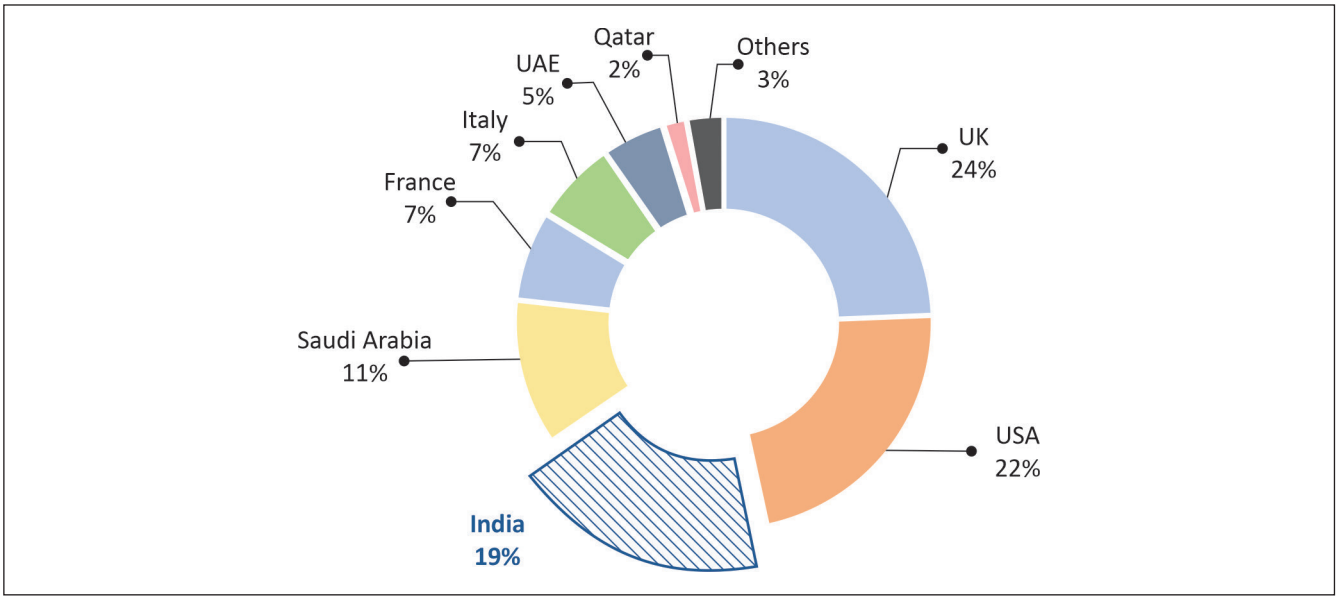
According to the Goldstein Market Research, the African healthcare sector, which was valued US$ 35 billion in 2016 is expected to increase to US$ 80 billion by 2030. Emerging private healthcare is expected to play a key role in the growth of the African health system given that it accounts for 46.8 percent of the total spending in healthcare in 2019. According to Deloitte, health spending in the Middle East and Africa will be the highest among all the regions and expected to grow at 7.4 percent during 2019-23.

According to the data derived from the Financial Times database, fDiMarkets, India has been the 3rd largest investor in Africa's healthcare sector from 2010 to 2019, after UK and USA, accounting for a

[31] United Nations Economic Commission for Africa, "Healthcare and Economic Growth in Africa", February 2019.

share of 19 percent (**Chart 4.1**). The cumulative investment in healthcare during this period was US$ 1.1 billion of which India accounted for US$ 210 million. The majority of FDI has been into general medical and surgical hospitals (82.4 percent) followed by outpatient care centres and medical and diagnostic laboratories (14.7 percent), and nursing and residential care facilities (1.6 percent).

Chart 4.1: Major Countries Investing in Healthcare in Africa



Note: Total FDI flows to healthcare sector in Africa stood at US$ 1.1 billion during January 2010 to December 2019; FDI Markets tracks cross-border investment in a new physical project or expansion of an existing investment which creates new jobs and capital investment. This data differs from official data on FDI flows as company can raise capital locally, phase their investment over a period of time, and can channel their investment through different countries for tax efficiency.

Source: fDi Markets online database and India Exim Bank analysis (accessed on December 3, 2020)

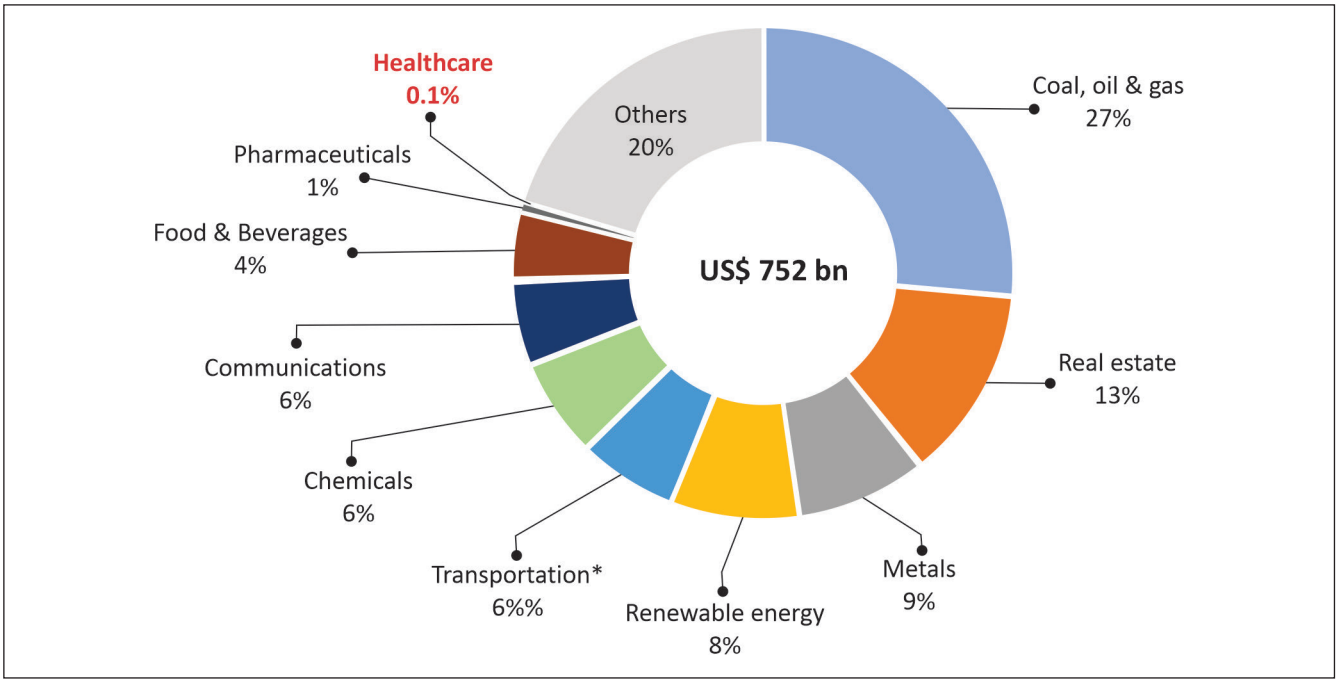
However, overall healthcare continues to take a backseat in comparison to other sectors receiving FDI in Africa. Healthcare alone accounts for only 0.1 percent of foreign capital expenditure envisaged in Africa during 2010-2019; combining with pharmaceuticals it accounts for just one percent of the global FDI inflows to Africa (**Chart 4.2**). Although India was the 8th largest investor in Africa during 2010-2019 in terms of overall investment, it was the 3rd largest investor in healthcare during the same time.

Some of the common challenges facing India and Africa in healthcare are as follows -

Double burden of disease: The contribution of non-communicable diseases (NCDs) to the overall disease burden in India has risen from 54.8 percent in 2010 to 65.9 percent in 2019. In the case of Africa, it has increased from 39.2 percent to 45.3 percent during the same period[32]. A survey conducted by the World Health Organization (WHO) in 2020 to analyse the impact of COVID-19 on the NCDs found that nearly

a third of the countries in Africa do not have a budget for NCDs and hence there was no reallocation of government funding g initially allocated for NCDs to non-NCD services due to COVID-19 response efforts[33]. As the NCD related deaths are predicted to overtake the death due to communicable diseases in Africa by 2030, developing the healthcare infrastructure in tandem with the modern facilities is the need of the hour.

Chart 4.2: Major Sectors Receiving Africa's Investment Inflows



Note: - includes warehousing; Total FDI flows to Africa stood at US$ 752 billion during January 2010 to December 2019; FDI Markets tracks cross-border investment in a new physical project or expansion of an existing investment which creates new jobs and capital investment. This data differs from official data on FDI flows as company can raise capital locally, phase their investment over a period of time, and can channel their investment through different countries for tax efficiency.

Source: fDi Markets online database and India Exim Bank analysis (accessed on December 3, 2020)

Rapid urbanisation: It is estimated that Africa's cities will add 950 million residents by 2050, with the region seeing the fastest urban growth rate in the world. In 2018, India had the second largest urban population globally, totalling 461 million, which is about one-third of the country's total population. This figure is expected to reach 877 million by 2050.

Tuberculosis: India and 16 countries in the African region are among the WHO's 30 high tuberculosis (TB) burden countries that collectively account for nearly 87 percent of the annual global TB burden. India accounts for the largest share (26 percent) of the global TB burden, while the African region accounts for an additional 25 percent in 2019[34].

[34] WHO Global TB Database accessed on March 1, 2021.

HIV/AIDS: Globally, the African region is the worst affected by HIV/AIDS, with 25.7 million out of 38 million people living with HIV globally in 2019. East and Southern Africa accounted for 20.7 million whereas West and Central Africa accounted for 4.9 million people living with HIV in 2019. North Africa has a relatively smaller share. According to the UNAIDS database[35], the East and Southern African region accounted for 43.5 percent of AIDS-related death (out of 690,000 deaths globally) followed by Western and Central Africa accounting for 20.3 percent in 2019. Similarly, India reported an estimated 2.1 million people living with HIV, 88,000 new HIV infections and 69,000 AIDS-related deaths in 2017. India has reduced new HIV infections into half in the last 20 years. UNAIDS and the WHO estimates that the pandemic could cause more than 110,000 additional AIDS-related deaths in Sub-Saharan Africa between 2020–2021 if treatment is disrupted even by a capacity of 20 percent.

India's Endeavour towards Meeting SDG 3

India and Africa have made substantial progress in the healthcare sector in line with their commitment to SDG. The African Union (AU) Summit in 2015 outlined Agenda 2063, which is aimed at achieving a prosperous Africa based on inclusive growth and sustainable development, while recognising the importance of health and nutrition in achieving this vision. India too has demonstrated its commitment to the SDG 3 i.e., "Ensure healthy lives and promote well-being at all ages" through the National Health Policy, 2017, which outlines its vision for achieving UHC. The Ayushman Bharat – Pradhan Mantri Jan Aarogya Yojana (AB-PMJAY), India's flagship Government scheme launched in September 2018, is a major step in this direction as it aims at providing accessible and affordable healthcare. According to the Economic Survey 2020-21, the PMJAY scheme has been implemented across 32 states and union territories and 24,215 hospitals have been empanelled and covers 1574 procedures including 23 specialities. Among these 23 specialities, general medicine has been most used since 2018, with dialysis accounting for 30 percent of claims under the general medicine category. It is followed by general surgery, obstetrics and gynaecology accounting for more than half of the claims received on average. Other specialities covered include cardiology, burn management, cardiothoracic and vascular surgery, interventional neuro radiology, oncology, neonatal care packages, urology among others[36].

India has one of the largest immunization programs in the world. It has surpassed global averages for immunization against major diseases like polio, measles and hepatitis B. According to the Global Health Observatory, WHO, for bacille Calmette-Guérin (BCG) vaccine to prevent childhood tuberculous meningitis and miliary disease, India's immunization coverage among 1 year old is 92 percent as compared to the global average of 88 percent, for hepatits B (Hep B3) among 1 year old it is 91 percent as compared to global average of 85 percent in 2019. Whereas for polio, India's coverage was estimated at 90 percent in 2019 as compared to the global average of 86 percent in 2019. Immunization Programme in India was

[35] aidsinfo.unaids.org
[36] Ministry of Finance, Government of India, Economic Survey 2020-21.

introduced in 1978 as 'Expanded Programme of Immunization' (EPI) by the Ministry of Health and Family Welfare, Government of India. In 1985, the programme was modified as the 'Universal Immunization Programme' (UIP) to be implemented in a phased manner to cover all districts in the country by 1989-90 with the one of the largest health programme in the world.

The UIP provides several vaccines to infants, children and pregnant women. Vaccines provided under the UIP are BCG, Oral Polio Vaccine, Hepatitis B Vaccine, Pentavalent Vaccine, Rotavirus Vaccine, Pneumococcal Conjugate Vaccine, Fractional Inactivated Poliomylitis Vaccine, Measles/ MR Vaccine, Japanese Encephalitis Vaccine, DPT Booster (Diphtheria, Tetanus and Pertussis), Tetanus and adult diphtheria (Td) vaccine, respectively[37].

India's malaria eradication programme began in 1958 and concerted efforts have contributed to significant reduction in malaria incidence in the present years. The World Malaria Report (WMR) 2020 released by the WHO, indicates that India has made considerable progress in reducing its Malaria burden. India is the only high endemic country that has reported a decline of 17.6 percent in 2019 as compared to 2018. Malaria cases dropped by 71.8 percent and deaths due to the same dropped by 73.9 percent between 2000 and 2019. [38]. India has eradicated smallpox in May 1975 with the assistance of the WHO in 1973 through the National Smallpox Eradication Programme through vigorous surveillance and door to door vaccination. This paved the way for shaping the structure of immunisation efforts in the country. India also managed to eradicate polio in a similar manner where community health workers played a significant role in the nation-wide vaccination drive. India accounted for 60 percent of polio cases globally in 2009. However, on March 27, 2014, India was declared polio-free by the WHO after an extensive Pulse Polio Immunization programme was launched in 1995, conducted twice a year and children under five years of age were administered polio drops. This resulted in a further decline of the number of polio cases to 1,005 reported in 1996 from 1,50,000 reported in the 1980s on average in India. In 2011, India recorded the last reported case of polio.

India has also made strides with regards to HIV infection and AIDs-related deaths by making free anti-retroviral treatment available. According to the UNAIDS, in 2017, 56 percent of people living with HIV were on treatment, a significant rise from 2013 when coverage stood at just 36 percent.

India has also launched its first indigenous vaccine the Pneumococcal Vaccine in December 2020 for immunization against Streptococcus pneumoniae (pneumococcus) which is a leading cause of bacterial pneumonia, meningitis and sepsis in children. Trials have been conducted in India as well as The Gambia and South Africa and shown efficacy of 77-83 percent[39].

[37] Universal Immunisation Programme (www.nhp.gov.in/universal-immunisation-programme_pg)
[38] World Health Organization, World Malaria Report 2020.
[39] Ministry of Health and Family and Welfare, Government of India, "Indigenous Vaccine also a step towards Atmanirbhar Bharat, being Vocal for Local", PIB Press Release, December 28, 2020.

India's Engagement with Africa in Healthcare

India has come a long way in the healthcare sector in terms of infrastructure, technology and accessibility and affordability. It has successfully controlled many communicable diseases and emerged as a destination for affordable and quality healthcare. India has long been engaging with several African nations to help alleviate several infectious diseases by making generic medicines and vaccines available at low costs. India's role has been crucial in facilitating Africa's healthcare through various initiatives like Dollar a Day treatment for HIV, Open-Source Drug Discovery for TB. Besides Indian hospitals and healthcare service providers present in Africa, pharmaceutical manufacturing companies also have a strong presence. India had also donated vaccine for Foot and Mouth disease. India had provided the Bhabatron nuclear imaging machine to Kenya, Tanzania, Uganda, Madagascar and Malawi used mainly for cancer treatment. India had extended bilateral assistance of US$ 50,000 each to Guinea and Liberia to combat the Ebola outbreak. In addition, India has also contributed US$ 500,000 to the WHO, US$ 10 million to the UN Trust Fund for and an additional US$ 2 million for the purchase of protective gear to combat the Ebola Virus Disease (EVD) in the affected countries of West Africa. The testimony of India's continental approach towards Africa is the India-Africa Health Science Meet. The ICMR and the African Union have established an India-Africa Health Sciences Platform to promote research collaborations.

India's expertise in producing low-cost generic drugs accounts for a major component of the trade partnership with Africa. The availability of Cipla Ltd's triple combination of antiretroviral (ARV) medicines at US$ 350 per person per year changed the dynamics as compared to US$ 10,000-US$ 15,000 side by side sold by multinational companies in 2001 thus making ARV medicines affordable for patients in developing countries. In 2017, Aurobindo Pharma, an Indian generic pharmaceutical company signed the multilateral deal with the governments of South Africa and Kenya, UNAIDS other international development agencies to supply the generic ARV at US$75 per patient a year, for supplying to in 92 countries, most of them in Africa[40].

Other than low-cost generic medicines and vaccines, India's development assistance to Africa is another pillar for healthcare cooperation. India's flagship project in tele-education and tele-medicine for Africa, the e-Vidya Bharati and Arogya Bharati Network Project has received participation from 17 African countries. India has provided medicine to 35 African nations on a grant basis in their fight against the COVID-19 pandemic worth approximately US$ 1.8 million. At least 16 African countries were provided various training programmes in India under the ITEC programme[41].

[41] Ministry of External Affairs, Government of India Annual Report 2020-21.

The third India-Africa Forum Summit in 2015 recognised that the promotion of health is critical in the development of human capital, which drives socio-economic growth. Africa and India, therefore, reaffirmed their commitment to enhancing collaboration and sharing of experience in the application of advancement in science, technology, research and development to training in the area of HIV, TB, Malaria, Ebola and Polio[42]. Africa and India agreed to collaborate in areas like universal access to primary and public healthcare and building resilience of such systems for preventing and fighting epidemic diseases; support Africa's Campaign on Accelerated Reduction of Maternal Mortality in Africa (CARMMA) through cooperation in training healthcare professionals; ensure access to affordable and quality medicines by leveraging the flexibilities provided by the agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) administered by the World Trade Organization; training of doctors and medical professionals through tele-medicine and e-health applications; and strengthen private and public sector collaboration for procurement and manufacturing pharmaceuticals and joint cooperation in research and development of pharmaceuticals including traditional medicine; among others.

India-Africa Partnership in healthcare has made significant progress since India-Africa Forum Summit III in October 2015 when India announced a contribution of US$ 100 million towards India-Africa Development Fund and US$ 10 million towards the India-Africa Health Fund. Further, in July 2018, Prime Minister Narendra Modi had addressed Uganda Parliament with the ten guiding principles of India-Africa engagements. One of these was to harness India's experience in the digital revolution to support Africa's development by extending health and education, thus reflecting the importance of India's healthcare cooperation with Africa. India's medical diplomacy with Africa, therefore, fits with the Agenda 2063 of Africa and Sustainable Development Goals, and is thus going to be a critical pillar for India-Africa relations and needs to be strengthened further.

Need for India's Re-Engagement with Africa

Africa's health financing gap is estimated at US$ 66 billion per annum by United Nations Economic Commission for Africa (based on a conservative threshold of 5 percent of GDP for government expenditure on health) in 2019. However, the quantum of resources required to meet the SDG 3 targets are higher as mentioned earlier. It is thus clear that Africa will need additional support to retrieve the economy back on to its growth trajectory. While governments are constrained by limited fiscal space for increased government spending, investments by the private sector will be an important source to fill this gap. Accordingly, private sector investments could complement the existing government spending, to enhance coverage across the continent. It is therefore evident that the healthcare sector in Africa has substantial scope for improvement, and such improvements need to be through a mix of measures

[42] Ministry of External Affairs, Government of India, Third India-Africa Forum Summit India-Africa Framework for Strategic Cooperation, , October 29, 2015.

including government participation, public-private partnership, joint ventures, and foreign direct investments (FDI). FDI for that matter can play a significant role in filling the healthcare infrastructure gaps in Africa. This is where a country like India can partner with countries in Africa in ameliorating healthcare challenges that the huge continent faces.

As mentioned earlier, business opportunities in the healthcare and wellness sector in Africa are estimated to be worth US$259 billion by the year 2030. There are numerous opportunities for the private sector to invest in laboratory and diagnostics, pharmaceuticals, skills development, research and capacity-building, and digital health innovations.

India Exim Bank, being a policy arm of the Government of India, has actively participated in both the India-Africa Forum Summit (IAFS) and the CII-EXIM Bank Conclave on India-Africa Project Partnership. India Exim Bank has also had its publications released during these events apart from having dedicated sessions in these gatherings, which include broad-based participation from respective governments and industry bodies.

India Exim Bank has conducted a webinar on 'India-Africa Dialogue: Prospects in Healthcare' on December 2, 2020. The scope of this webinar was around the three key aspects of healthcare: Healthcare Infrastructure, Healthcare Facilities and Training and Capacity Building and was well represented by key stakeholders in India and Africa including the Ministry of External Affairs, Government of India, Minister of Health and Wellness, Government of the Republic of Mauritius, African diplomats in India, Indian diplomats to Africa, Indian companies, among others. Major suggestions and recommendations discussed during this webinar have also been included in the areas of cooperation along with the strategies suggested in this chapter. The programme schedule, containing the list of panelists, is at **Annexure 12**.

Strategies for Enhancing India's Healthcare Investments in Africa

As highlighted earlier, the scope of the Government's participation in creating healthcare infrastructure in Africa is limited, indicating the scope for private investments. Healthcare infrastructure in Africa may be explored through two broad routes, either under the GOI-supported Lines of Credit (LOCs) that shall help India build a better relationship with the African nations or through the PPP model. Here, construction of primary and secondary healthcare centres, and the hospitals can be under the LOC route, whereas construction of tertiary healthcare centres, as well as hospitals, can be via the PPP route. Indian hospital majors, who have gained significant experience in running hospitals under the PPP framework, could be ideal partners for Africa's healthcare infrastructure needs. PPPs could prove to be an efficient solution that reduces the investment risks, improves efficiency and lead to more inclusive outcomes.

The time has come to initiate strong foreign policy measures and invest in the development of facilities in Africa's health sector and support African economies to achieve their Sustainable Development Goals (SDGs), mainly Universal Health Coverage (UHC), and Africa's Agenda 2063. Twinning India's expertise in the construction and administration of hospitals could be a focused, win-win approach for the Africa-India bilateral relations.

The healthcare sector of Africa faces a shortage in terms of skilled personnel. According to the WHO, Africa's average number of physicians per 10,000 population is only 3 as opposed to the WHO recommendation of at least 10 physicians per 1,000 population. For Sub-Saharan Africa, the number goes down to 2.3 per 10,000 people. Also, as compared to the global average of 37.6 nursing and midwife personnel per 10,000 population, Africa accounted for the lowest count of 10.1 per 10,000 population in 2018.

India's competitive advantage lies in its large pool of well-trained medical professionals. India has the largest pool of doctors and paramedical staff in South Asia with 1.2 million Allopathic doctors, 0.17 million dental surgeons, 2 million nurses, and 0.8 million formally trained Ayurvedic doctors. India is also cost-competitive compared to its peers in Western countries and Asia. The cost of surgery in India is about one-tenth of that in the US or Western Europe[43].

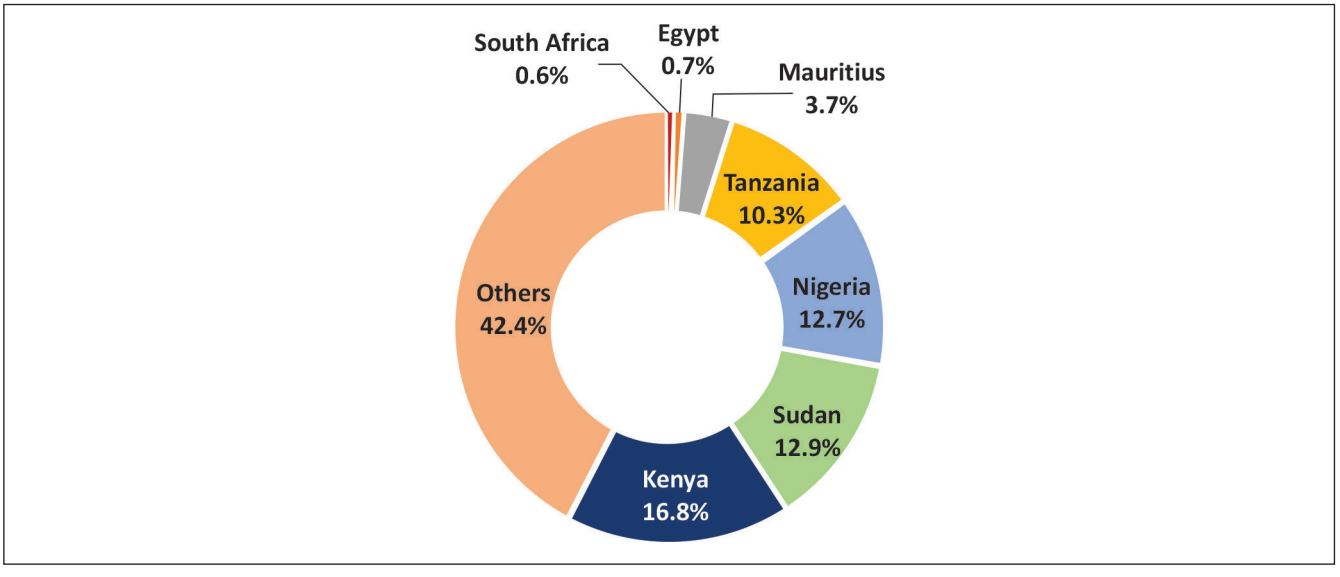
India's prowess in the healthcare and medical segment is globally acknowledged. The credibility of Indian doctors and nurses is well recognised abroad. India's healthcare industry is valued at US$ 190 billion in 2020 and expected to grow up to US$ 372 billion by 2022. According to the IBEF, the hospital industry in India accounts for nearly 80 percent of the total healthcare market and is expected to reach US$132 billion by 2023 from US$ 61.8 bn in 2017 growing at a CAGR of 16-17 percent. The primary care industry is currently valued at US$13 billion. The diagnostics industry in India is currently valued at US$4 billion. The share of organized sector is almost 25 percent in this segment (15 percent in labs and 10 percent in radiology). The Indian medical tourism market is expected to grow from its current size of US$3 billion from 2015 to US$ 7-8 billion by 2020. Medical tourism or medical or health-related travelling is international travelling to seek healthcare services. Healthcare services and offered in India are mainly medical treatment including cardiac care, organ transplantation, orthopaedics, neurosciences, oncology, and bariatrics, wellness and rejuvenation which focuses on aesthetic reasons such as cosmetic surgery, stress relief, spa treatments, and alternate medicine or for AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homeopathy) services. The Indian healthcare ecosystem has been delivering world-class care and treatment for a wide range of ailments related to eye, heart, and kidney to organ transplantation, orthopaedics, and cancer at lower costs. India also has some of the most renowned super-speciality hospitals and services equipped with the latest technologies involving

[43] IBEF and InvestIndia.gov.in

artificial intelligence and robotics[44]. Indian development partnership is creating medical infrastructure such as hospitals, providing training and medical services, sometimes remotely through tele-medicine, to countries in South Asia, West Asia and in Africa.

During 2018, a total of 10,557,976 tourists visited India, of which around 6.1 percent came to India on medical visa (644,036). The number of tourists arriving in the country using medical visa has increased by 3.5 times since 2014. India's expertise in modern and traditional medicines have been the focus of its partnership in healthcare, particularly in Africa. According to the Bureau of Immigration, Africa accounted for 33 percent of total foreign tourist arrivals i.e., 351,198 tourist arrivals in India in 2018. Among the African tourists, 14.6 percent came on Medical Visa. In fact, the good share of African medical tourists in India is indicative of the Brand image of Indian Healthcare. **Chart 4.3** shows the share of African tourists coming to India on medical visa on an average of 50,152 from 2016 to 2018 from different countries. Kenya attracted the highest share on an average followed by Sudan, Nigeria, and Tanzania.

Chart 4.3: Average Foreign Tourist Arrival from Africa during 2016-2018



Note: On an average 50,152 tourists came from Africa to India on medical visa during 2016-2018

Source: India Tourism Statistics and India Exim Bank Analysis

India has become increasingly popular among foreign tourists because of the highly qualified doctors and state-of-the-art equipment, and the treatments are approved by the WHO and the US Food and Drug Administration. In addition to quality medical services provided by its hospitals and doctors, patients come to India because medical costs are much more cost-effective compared to that of the developed nations.

[44] Invest India, "Heal in India: Emergence of India as a Hub of Medical Tourism", April 19, 2021.

While medical tourism will continue as patients continue to seek cost-effective treatments, solving the health system challenges in Africa will likely address the immediate healthcare requirement for critical treatment, reduce the time taken for such treatment and accordingly reduce the amount spent on treatment without medical travel. It has been estimated that Africa spent US$ 6 billion in 2016 on medical tourism out of which US$ 1 billion was accounted by Nigeria[45]. Patients travelled to Germany, US, UK, UAE and India from Nigeria for medical treatment. Kenya spent roughly US$ 100 million every year for outbound medical travel to India, South Africa, UK and USA[46]. Alternatively, savings from medical tourism can be used to finance or subsidise other expenditures, which may also include health coverage or insurance for the poor.

Going forward, Africa needs to create regional and national medical hubs, and tap into pharmaceutical markets to produce and distribute generic drugs that will, to some extent, reduce dependence on overseas countries for medical treatment.

Though offshore healthcare comes with many benefits, it may not be sustainable for the African economies in the long run. The recent international air travel bans on account of the COVID-19 pandemic have made it increasingly difficult for medical tourists to avail such health services. Investments by Indian healthcare players can cater to a portion of this client base, apart from catering to the rest of the population of the region.

One of the key indicators of a healthcare infrastructure gap is the ratio of beds to population. The global average hospital bed-to-population ratio is 2.7 beds per 1,000 people. The only African countries having more hospital beds than average of 2.7 beds is Seychelles, Mauritius, Libya, São Tomé and Príncipe and Namibia. Taking into consideration the global average hospital bed-to-population ratio and the latest available hospital bed ratio for the ten most populous African countries, the current and forecast healthcare infrastructure gap has been identified.

All the African countries fall short of the global average hospital bed-to-population ratio of 2.7 beds per 1000 people and require significant investment in healthcare infrastructure. In terms of additional beds, for example, Nigeria has a current deficit of 4,000 beds based on its present bed ratio of per 1000 people and would require 81,000 additional beds by 2035 considering the rate of population growth. Kenya requires an additional 32,000 beds by 2035 and presently has a bed deficit of 2,000 as of 2019. **Table 4.1** shows the bed deficit in the top 10 most populous economies of Africa in 2019.

[45] "Africa's Health Tourism", Africa News, October 3, 2019.
[46] Knight Frank Research 2019, "Healthcare in Africa", 2019.

Table 4.1: Hospital Bed to Population Deficit in Select African Economies in 2019

	Available Hospital Bed per 1,000 people	Current deficit of Hospital Beds required based on country population	Hospital Beds required by 2035	Medical Tourists Visiting from India
Nigeria	0.5	4,000	81,000	6,384
Ethiopia	0.3	800	14,000	-
Egypt	1.4	3,000	41,000	329
DR Congo	0.8	2,000	43,000	-
Tanzania	0.7	1,000	26,000	5,155
South Africa	2.3	2,000	30,000	6,384
Kenya	1.4	2,000	32,000	8,445
Uganda	0.5	700	15,000	-
Sudan	0.7	800	16,000	6,463
Algeria	1.9	1,000	17,000	-

Note: data not available

Source: Africa Horizon 2019, Knight Frank Research, Global Health Observatory, WHO and Ministry of Tourism, Government of India and India Exim Bank Research

If each region has a 100-bed hospital, which implies 365,000 bed nights and at 70 percent occupancy, it would result in utilisation of 255,550 bed nights. If a patient is admitted on an average for 5 days, a 100-bed capacity hospital would be able to accommodate approximately 51,100 patients per year.

On an average, 50,000 African patients visit India for treatment per year on a medical visa. If a fund could be set up like the India-Africa Health Fund for financing tertiary hospitals across Africa in at least five regions with a capacity of hundred bed each. These could be built across the five regions of the continent – Northern, Eastern, Central, Western and Southern Africa.

According to a recent study by the Lancet[47], around 2.2 percent of Africa's population, that is around 29 million people are at high risk of getting severe COVID-19 and are defined as those that would require hospital admission if infected. The number may increase up to 3.1 percent or 42 million taking into consideration underlying conditions like HIV, chronic respiratory diseases, diabetes, cancer and other non-communicable diseases along with age frailty. However, the proportions of the population at increased and high risk estimated for Africa are lower than in Asia, Europe or Northern America, driven by demographics and strong association between severe COVID-19 and age. Africa has a lower share of

[47] Lancet Global Health 2020, "Global, regional, and national estimates of the population at increased risk of severe COVID-19 due to underlying health conditions in 2020: a modelling study", June 12, 2020.

its population living in the oldest (and highest risk) age groups. However, with the demographic transition expected to go up in future, the fatality resulting from any communicable diseases or health shock like COVID-19 will be much higher especially with African countries with high HIV prevalence (especially the Southern African countries) along with other communicable diseases like TB and growing prevalence of other NCDs among countries like Mauritius, Tunisia, Egypt, Morocco and Seychelles. Therefore, the health infrastructure needs to be prepared accordingly for people requiring hospitalization. Medanta Africare, a joint venture between Kenyan investors and Delhi-based RJ Group of India, constructed a 200-bed tertiary-care facility for US$ 18 million in Nairobi in 2017[48]. Likewise, research indicates that setting up a tertiary 100-bed hospital in Nigeria and Egypt may cost up to US$ 20 million. Nigeria and Egypt are the two countries where healthcare financing gap remains the highest of a cumulative of at least US$ 33 billion per year. Therefore, roughly US$ 100 million of investment may be required to set up at least 5 hospitals with a minimum of 100-bed capacity.

A 100-bed capacity general hospital is expected to generate employment of approximately 135 doctors, 255 nurses, 150 allied healthcare professional staff and 60 administrative staff generating a cumulative employment opportunity for 600 people[49].

AfCFTA could potentially generate a combined consumer and business spending of US$ 6.7 trillion by 2030[50]. The free-trade area is expected to drive growth in private healthcare, including medical tourism.

Building Hospitals

Indian companies with expertise in executing health infrastructure development projects such as building hospitals, health centres, and digitally connected medical facilities may leverage these opportunities in Africa. India could offer three types of financial models for developing healthcare infrastructure in Africa by building hospitals, those provided under India Exim Bank's LOC, Buyer's Credit under the National Export Insurance Account (NEIA) and Commercial Buyer's Credit. The hospital could be developed in "design and build mode", which is done in Engineering, Procurement and Construction (EPC) mode, or under EPC and Financing modes. Based on the requirement of the host country, Indian hospital operators could also be engaged for providing the technical expertise. This would give the healthcare project contractor a single point responsibility which includes design, supply, installation, testing and commissioning of medical and paramedical equipment, and furniture. Additionally, a comprehensive maintenance contract for four to five years (even after handing over the facility) may be given. Indian hospitals like Apollo offer project consultancy. It has been instrumental in setting up tertiary care facilities across 12 African countries. **Exhibit 4.1** shows the support that could be provided by the Indian companies at different levels across the healthcare value chain[51].

[48] "Africans seeking health-care in India draw hospitals to Kenya", Mint, November 25, 2016.
[49] Knight Frank Research 2019, "Healthcare in Africa", 2019.
[50] World Economic Forum, "6 reasons why Africa's new free trade area is a global game changer", February 2021.
[51] African Development Bank, Health Systems Research India Initiative and the University of the Witwatersrand, "Developing coordinated public-private partnerships and systems for financing health in Africa", , May 2017.

Exhibit 4.1: Building Healthcare Hubs in Africa

Design and Construction	Non-clinical Services	Primary Care	Clinical Support Services	Specialised Clinical Services	Hospital Management
• Detailed Design • Building Construction • Medical Equipment • Capital Financing	• IT equipment supply and maintenance • Food • Laundry • Cleaning • Billing • Medical Waste	• Primary Care • Public Health • Vaccine • Maternal and Child Health	• Laboratory Analysis • Radiology • Medical Equipment maintenance • Ambulance Services	• Dialysis • Radiotherapy • Day Surgery • Other	• Hospital Information System • Human Resource Training

Source: Derived from WITS-AfDB and India Exim Bank Analysis

During the experience sharing session by the Indian companies, in the India Exim Bank webinar on one of the speakers, from Larsen & Toubro (L&T) Construction, L&T Ltd. mentioned that L&T has significant presence in various countries across Africa and provides end to end solutions including medical equipment, right from concept to commissioning. In India, it has executed more than 55,000 hospital beds and approximately 40 hospitals across India and some hospitals in the Middle East. L&T has won a contract for constructing the Flacq University Hospital in Mauritius with the Ministry of Health and Wellness, Government of Mauritius. The project is worth Mauritian Rupee (MUR) 4 billion (approximately US$ 96 million). The project consultant was also an Indian company – Hospital Services Consultancy Corporation Limited[52]. The hospital will be a state-of-art full-fledged teaching hospital with 800 beds and the construction is expected to start by 2021[53]. This highlights the scope for PPP in healthcare and closer integration between public and private health delivery and financing. Indus Healthcare Group, in collaboration with Botswana Development Cooperation, had established a 75 bedded academic hospital in Botswana. The project included the involvement of Indian architectural and design teams and Indian exports of medical equipment and bio-medical devices etc. under the PPP mode. Likewise, other hospitals like Dr. Agarwal's Eye Hospitals are present in 10 African countries including offering eye treatment in Ghana, Uganda, Kenya, Madagascar, Tanzania, Rwanda, Zambia, Mozambique, Nigeria in addition to with 14 facilities. It has received investments from CDC Group (private equity fund of UK government) of US$ 30.3 million approximately and from Temasek a Singapore based equity fund of US$ 37.5 million approximately for its expansion plans including Africa with more than 20 hospitals in the next few years[54]. Dr. Agarwal's Eye Hospital in Rwanda began its operations in 2012. It provides specialised treatments like retinal or cornea transplant. Other than domestic patients, the hospital serves foreign patients from Burundi, the Democratic Republic of Congo, Kenya and Uganda. The costs of specialist procedures in Africa are comparable to costs in India. However, the cost of travel and

[52] Government of Mauritius, "Health Minister Effects Site Visit for Construction of New Flacq Hospital", January 9, 2020.
[53] Government of Mauritius,"An envelope of Rs 12 billion earmarked for Health sector, June 10, 2020".,
[54] "Dr Agarwal's plans Rs 500 crore spend for setting up 60 hospitals in 3 yrs", Business Standard, December 18, 2019.

accommodations is higher. For example, the cost of eye surgery in India and Rwanda is about US$2,500 per treatment; but including the cost of travel and accommodation in India, an African patient would have to spend close to US$10,000 [55].

Indian companies have also invested in Africa through overseas investment or joint venture mechanism. Shalby Multi-specialty Hospitals have established outpatient clinics in Sudan, Ethiopia, Rwanda, Kenya and Tanzania[56]. Fortis Healthcare had established a Joint Venture with CIEL Healthcare Limited ('CHL'), which is a wholly owned subsidiary of CIEL Limited ('CIEL'), one of the leading industrial and investment groups in Mauritius to set up The Medical and Surgical Centre Limited ('MSCL'), which owns "Fortis Clinique Darné", a premier private hospital in Mauritius. Later it was extended to Uganda[57]. Recently in 2018, Fortis has sold its entire stake to CIEL Healthcare Ltd.

Madras Institute of Orthopaedics and Traumatology (MIOT Hospitals) has signed MOU with the Ministries of Health in Rwanda and Seychelles, for training doctors in key surgical areas. Metropolis Healthcare has established diagnostic and pathology labs across South Africa, Kenya, Mauritius and Ghana.

Healthcare Global Enterprises (HCG) has established comprehensive cancer centres in East Africa (Uganda, Kenya and Tanzania). HealthCare Global Enterprises Limited ("HCG") acquired a majority stake in Cancer Care Kenya in 2017. HCG CCK Cancer Centre is the first private comprehensive cancer care centre in the East African region which is the partnership between India and Kenya. HCG CCK Cancer Centre is well-equipped with latest technology and along with a multi-disciplinary team of oncologists, it provides the highest quality of cancer care in the East African region[58].

According to the Financial Times data, as of December 2019, Tanzania and Mauritius accounted for the largest share of foreign investments received in the healthcare sector from India (26 percent each), followed by Uganda (22 percent), Rwanda (16 percent), Nigeria (4 percent), Ghana (2 percent), Burundi, Kenya, Egypt, Zambia and Ethiopia (1 percent each).

Strengthening Hospital Management and IT infrastructure

Dr. Devi Prasad Shetty, Chairman, Narayana Health, during the India Exim Bank webinar on "India-Africa Dialogue : Prospects in Healthcare" proposed that if some 200-300 bed large hospitals could be identified in African countries with adequate infrastructure but they have lack electronic medical records and hospital management system. Indian hospitals could collaborate with these African hospitals for

[55] World Bank, "The Unexplored Potential of Trade in Services in Africa", 2016
[56] Shalby Hospitals, Annual Report 2019-20.
[57] Investment Funds for Health in Africa (www.ifhafund.com/portfolio/ciel-healthcare-limited)
[58] www.hcgcck.com

installation of the entire digital hospital management system and are ready to manage it for a period of three to five years. Digitising healthcare would thus contribute to increased medical consultation and better access to healthcare. Service digitization including patient enrolment processes, network management and a strong IT infrastructure is essential for running a hospital.

Hospital Management which has already begun in The Gambia could be another area of example to explore further, particularly in the field of ICT to enhance patient experience and service delivery. New Delhi based BLK Super speciality Hospital, and the Ministry of Health and Social Welfare of The Gambia signed an MOU in 2015 to build The Gambia's healthcare capacity and train healthcare professionals on latest advances and scale up their capacities in cardiac sciences, renal transplants, laparoscopic surgeries, oncology, and plastic /cosmetic and maxillofacial surgeries. Through this agreement, BLK Super Speciality Hospital would provide all technical and procedural assistance including equipment planning & purchase, pharmaceutical supply chain management and procurement of drugs from India[59].

Promoting Medical Tourism and Wellness Centres

Ayurveda and wellness centres could be another area for Indian companies to invest, particularly for non-communicable diseases. Ayurveda and traditional medicine and wellness centres could be set up in African countries famous for their tourism. This would be mutually complementary and beneficial for both India and Africa. Innovative financing leveraging the brand value, getting regional and international bank funding also need to be explored.

Medical Equipment

Medical equipment comprises consumables, furniture and accessories used in hospitals, complex devices used for diagnosis or treatment. Many African economies face challenges in healthcare services import specialised medical services like diagnostic facilities, bio-medical equipment. The major challenges faced by the continent involve high capital cost of equipment, lack of financing options and poor service support. This may be a good opportunity for Indian healthcare sector investor to explore. Setting healthcare hubs with modern machinery and equipment may facilitate healthcare tourism in these prominent countries which would ensure an ample number of patients to realise the cost of installation of such high-end medical equipment. India's indigenously developed high-performance cobalt machine – Bhabatron-II – for providing radiotherapy to cancer patients have been donated to African countries like Kenya and Madagascar. This is specially designed for rural areas with a battery backup of up to 8 hours. Such projects could also be considered under the PPP model and set up in the healthcare hubs of Africa.

[59] "The Republic of Gambia signs MoU with India's Leading BLK Super Speciality Hospital", BLK Super Speciality Hospital, October 30, 2015.

Africa sources medical equipment and consumables mainly from the European Union, China, and India. Within Africa, the major suppliers of medical supplies are South Africa, Kenya and Eswatini accounted for two-third of intra-African exports of medical supplies.

Indian and African companies could therefore collaborate in diversifying exports into medical consumables like surgical gloves and masks or gowns. According to a report by the International Trade Centre[60], while Africa accounts for a very less share of global exports of personal protective equipment, the continent exports the major inputs like natural rubber latex and synthetic non-woven fabrics which are required to manufacture these products. The relative abundance of some ingredients into medical supply production in Africa creates possibilities to develop regional value chains and contribute to the global supply of these items in the medium term. Africa majorly imports surgical gloves from Malaysia, China, and India which account for 76 percent of total imports. Africa accounts for only 0.2 percent of the global supply of gloves, whereas it exports 7.5 percent of natural rubber latex (HS 400110). Major exporters like Côte d'Ivoire, Ghana, and Cameroon which account for 98 percent of the total natural rubber latex exports of Africa, do not export any surgical gloves. The major exporters of surgical gloves within Africa are South Africa (75 percent of Africa's export of HS 401511) followed by Uganda (10.6 percent) and Senegal (5.6 percent) in 2019. If a value chain could be created by a seamless supply of inputs across Africa, the production of surgical gloves could be increased. Masks and gowns require synthetic nonwoven fabrics (HS 560311) as inputs, of which Africa contributes 3.5 percent to world exports. Despite the local availability of this input, exports of masks (HS 902000) have been limited to just 0.5 percent of world exports in 2019, thus creating scope for a value chain for masks. While Egypt largely exports synthetic nonwoven fabrics, both Egypt and South Africa export large quantities of the primary ingredient (polypropylene in primary forms) used to produce these fabrics. On the other hand, South Africa is the largest exporter of masks in Africa accounting for 83.2 percent of Africa's exports followed by Tunisia (8 percent), Morocco (1.9 percent) and Kenya (1.1 percent). The AfCFTA is expected to boost intra-African trade by eliminating import duties and non-tariff barriers providing opportunities for expansion of trade. According to the ITC[61], while African countries export just 32 percent of their medical products to African markets, they account for 72 percent of the burden of non-tariff measures faced by African exporters. Tariff cuts and trade facilitation measures would support the free flow of health products and the respective inputs and thereby support regional value chains in selected medical products. It will also contribute to building the continent's resilience to global health crises.

One of the examples of private investment in medical equipment is the medical technology firm Trivitron Healthcare Africa, a joint venture between Trivitron Healthcare Group India and Investment Funds for Health in Africa (IFHA), which is a healthcare private equity investor in Africa to provide medical devices and instruments across Africa. Trivitron Healthcare Africa is headquartered in Dubai

[60] International Trade Centre, "Medical Industries in Africa: A Regional Response to Supply Shortages, 2020.
[61] ibid

and has a direct presence and sales and service infrastructure in Kenya and South Africa. The company provides laboratory medicine, medical imaging, critical care, operation theatre, and renal care products which are manufactured in Trivitron's U.S. FDA / CE-certified factories in India, Finland and Turkey. THA also provides engineering support and is involved in the distribution of products from other leading global corporations, as well. It is also instrumental in executing turnkey hospital projects and provides biomedical engineering services[62].

The Ministry of Health and Family Welfare (MoHFW), Government of India, has come up with a novel initiative of, a network of retail pharmacies – AMRIT (that stands for Affordable Medicines and Reliable Implants for Treatment) by the HLL Lifecare Ltd, across India to make available and accessible all drugs, implants, surgical, disposables at highly affordable prices. AMRIT retail pharmacy network offers more than 5200 drugs, implants, surgical disposables and other consumables at average discounts of up to 60 percent of Maximum Retail Price (MRP). Drugs are given there at a concessional or discounted rate to the consumers who visit these hospitals. Subsidized ortho implants, cardiac implants and stents are also available[63]. A similar model, to reduce the out-of-pocket expenditure especially through pharmacies, could be adopted in African countries.

A speaker from HLL Lifecare highlighted that the company also has a chain of diagnostic centres and laboratories (Hind Labs) for blood tests, MRI, CT scans and mobile medical units around the country. These operate in collaboration with the state governments. HLL has been instrumental in East Africa for the supply of medical equipment and installation was done in East Africa as a part of the grant provided by the Ministry of External Affairs, Government of India. In Liberia, they have supplied medical equipment and installation worth US$ 8 million. In Guinea, through India Exim Bank's LOC, two 130 bedded hospitals have been constructed. So HLL is capable of both health infrastructure construction and service delivery being a government company. HLL is also into teleradiology where the X-ray and MRI scans are being sent to a large number of radiologists for opinion through HLL's platform. Likewise, other Indian medical equipment manufacturers could also collaborate with the African governments to address the challenges and reach a cost-effective yet accessible solution.

Leveraging the Pharmaceuticals Value Chain

Africa is critically dependent on imported medicinal and pharmaceutical products. Most African countries are net importers of medicinal and pharmaceutical products and as much as 94 per cent of Africa's total stock of pharmaceuticals are imported.

[62] United Nations Economic Commission for Africa, "Healthcare and Economic Growth in Africa",
[63] www.lifecarehll.com

The African Continental Free Trade Agreement (AfCFTA) is expected to boost intra-African trade of pharmaceuticals and promote large scale industrialisation. A pooled procurement mechanism would encourage leading global generic pharmaceutical manufacturers to build plants in Africa or partner with African pharmaceutical companies to manufacture generic products and help in addressing the challenge of the lack of affordable financing and access to modern technology. The Pharmaceutical Manufacturing Plan for Africa (PMPA) therefore advocates for multisectoral and multi-stakeholder collaboration. In June 2020, the African Union launched the Africa Medical Supplies Platform which promotes the procurement of medical supplies from local manufacturers and taps into the harmonized regulatory systems created in the context of the PMPA[64].

Countries like Ethiopia have built a dedicated Kilinto Industrial Park for pharmaceutical manufacturing with the goal to become the "Pharmaceutical Hub of Africa" as a part of its national strategy. China has constructed two large generic plants in Ethiopia to capture markets in Ethiopia, Sudan, South Sudan, and Eritrea. The Sansheng plant has a capacity for 5 billion solid preparations, 300 million ampoules and 10 million large volume parenterals. Kenya is building an HIV drugs plant at a cost of US$100 million to export throughout Africa. Tanzania would be setting up five plants and has invited foreign drug companies to take up production[65]. However, boosting local production of pharmaceutical products would imply increasing demand for machinery and manufacturing intermediates such as API by the host countries. Therefore, the composition of exports to Africa is expected to gradually change from consumer products to manufacturing intermediates.

Indian pharmaceutical firms like Cadila in Ethiopia, Cipla in Uganda and South Africa , Dr Reddy's in South Africa and Ranbaxy in Nigeria- are actively involved in manufacturing through foreign direct investments.

Africa continues to face challenges such as human resource constraints, inadequate infrastructure, high operating costs, inadequate linkages between local and international suppliers, high cost of local commercial capital, poor regulation, industry fragmentation, and low production quality standards. Enhancing quality, increasing scale, the creation of regional hubs, strategic focus on the drug-product formulation, and upgradation of existing value-chains will help these countries build a local pharmaceutical industry[66]. According to an ITC survey, while importing medicines, the necessary laboratory approvals and quality checks take almost a month leading to delays due to inadequate testing facilities.

[64] "How Africa can manufacture to meet its own pharmaceutical needs", Africa Renewal, Janet Byaruhanga, September 2020.
[65] "Looming Chinese threat to Indian pharma exports in Africa", Express Pharma, April 14, 2020.
[66] Observer Research Foundation, "Expanding Pharmaceutical Local Production in Africa: An idea Whose Time has Come?" Oomen C Kurian, ORF, April 2019.

Africa has approximately 375 pharmaceutical manufacturing companies, with the majority of them located in Algeria, Egypt and Morocco in North Africa. The manufacturing companies present in Sub-Saharan Africa are limited to fewer countries like Kenya, Ethiopia, Uganda, Côte d Ivoire, Ghana, Nigeria, and South Africa having companies that produce for their local markets and, in some cases, for export to neighbouring countries. Local producers purchase active pharmaceutical ingredients (APIs) from other manufacturers and formulate them into finished drugs and other pharma products. Majority of manufacturers in sub-Saharan Africa are limited to activities like packaging involving purchasing pills and other finished drugs in bulk and repackaging them for sale. Only two manufacturers in South Africa, and one in Ghana are producing APIs, without much of R&D activity[67]. Setting up pharmaceutical manufacturing units with upgraded technology, therefore remains an opportunity, besides developing healthcare infrastructure in Africa, as with a growing number of hospitals and other healthcare facilities the supply chain of pharmaceutical would need to be established. The PPP model could be explored for involving formal government contracting with the private sector to support the development of pharmaceutical value chain (research and development, production, procurement, storage, and distribution). The joint implementation of a PPP model by a group of countries for any part of the value chain (e.g. pharmaceutical production or research and development). There is considerable interest within the region for the establishment of regional pharmaceutical or vaccine manufacturing plants and joint facilities could be used for research and cold storage. This would provide the region with greater certainty and security of supply, especially in times of global epidemics or other crises, which could disrupt foreign supplies. This will likely require active regional collaboration among several countries, in the form of harmonising legal/regulatory frameworks and financial support. Loan assistance from regional financial institutions could be utilised for these common research facilities or laboratories[68]. Indian pharmaceutical industry is the third largest in the world, in terms of volume, and 14th largest in terms of value. India almost doubled its share in world pharma exports in a span of ten years from 1.4 per cent in 2010 to 2.6 per cent in 2019. A significant raw material base and availability of a skilled workforce have enabled India to emerge as an international manufacturing hub for generic medicines. Further, India is the only country with the largest number of US-FDA compliant pharma plants (more than 262 including APIs) outside of the USA. It is the largest provider of generic medicines globally, occupying a 20 percent share in global supply by volume, and also supplies 62 percent of global demand for vaccines. It has more than 3,000 pharma companies with a strong network of over 10,500 manufacturing facilities. The sector offers 60,000 generic brands across 60 therapeutic categories. The API industry is ranked third largest in the world and 57 percent of APIs to prequalified list of the WHO[69].

[67] McKinsey & Company, "Should Sub-Saharan Africa Make its own drugs?", January 10, 2019.
[68] African Development Bank, Health Systems Research India Initiative and the University of the Witwatersrand, "Developing coordinated public-private partnerships and systems for financing health in Africa", African Development Bank, Health Systems Research India Initiative and the University of the Witwatersrand, May 2017.
[69] Invest India and Ministry of Finance, Government of India Economic Survey 2020-21.

Some of the major Indian pharmaceutical joint ventures or subsidiaries manufacturing or trading in Africa are Ajanta Pharma Ltd., Alkem Laboratories, Aurobindo Pharma Ltd., Ashish Life Science Pvt. Ltd., Bliss GVS Pharma Ltd., Cadila Healthcare, Celogen Pharma Pvt. Ltd., Cipla Ltd., Dr Reddy's Laboratories, Emami Biotech Ltd., Emcure Pharmaceuticals Ltd., Glenmark Pharmaceuticals, Healthcare Global Enterprises Ltd., Intas Pharmaceuticals Ltd., IPCA Laboratories, J B Chemicals, Lucid Pharma Private Ltd., Lupin Ltd., Macleods Pharmaceuticals Ltd., Nestor Pharmaceuticals Ltd., Orchid Chemicals and Pharmaceuticals Ltd., Parenteral Drugs (India) Ltd., Ranbaxy Laboratories, R.N. Laboratories Pvt. Ltd., Span Divergent Ltd., Sun Pharma and Twenty-first Century Pharmaceuticals Private Ltd[70]. Opportunities exist for Indian companies to establish local manufacturing units or Joint ventures and establish a good network of the supply chain of quality medicines at concessional rates for major diseases like HIV/AIDS, TB, Malaria, cardiovascular diseases.

Promoting Research and Development

In 2019, an MOU was signed between India-Africa Health Sciences Cooperation between the Indian Council of Medical Research (ICMR) and the African Union was signed in March 2019. The MOU aims to strengthen cooperation in the areas of research and development, capacity building, health services, pharmaceutical trade and manufacturing capabilities for drugs and diagnostics[71]. Indian Institutions like the National Institute of Pharmaceutical Education & Research, the CSIR – Indian Institute of Chemical Biology and the Biotechnology Industry Research Assistance Council (BIRAC), among others I could tie up with African institutions for establishing pharma innovation and incubation centres or biotechnology parks in African countries. Exchange programmes could be curated for African researchers to interact with Indian academia as well as Indian industry in order to facilitate greater technology transfer and build sustainable capacities and capabilities; undertake collaborative research on infectious diseases with a focus on developing vaccines and improved diagnostics, as well as advance research for manufacturing of novel drugs and diagnostics for neglected tropical diseases and non-communicable diseases especially those affecting Africa[72].

Medical Education and Capacity Building

Investments in healthcare will be beneficial only if developing medical infrastructure and human resources are considered concomitantly. Investment opportunities also exist in medical education besides setting up hospitals, for creating sufficient and qualified medical staff. Therefore, investing in

[70] Research and Information System for Developing Countries, "Together Towards a Healthy Future India's Partnerships in Healthcare", 2019.
[71] MoU on India-Africa Health Sciences Cooperation between the Indian Council of Medical Research and African Union, March 27, 2019.
[72] PwC and NATHEALTH, "Unlocking the potential of India-Africa collaboration for healthcare innovation", 2020.

medical training institutions and medical colleges is required so that human capital to support Africa's medical infrastructure is built. Capacity building could be done through various means, including direct training, long-distance learning, continuous medical education, among others, to improve the knowledge and skills of healthcare providers.

According to the African Economic Outlook Supplement 2020, low enrolment rates in health education programs in many African countries have led to a shortage of healthcare workers. The share of African students enrolled in health and welfare programs in 2017 remain low across countries ranging from 0.4 percent in Burkina Faso to 12.1 percent in Seychelles.

As suggested by Dr. Devi Prasad Shetty, Chairman of Narayana Hrudayalaya Ltd., during India Exim Bank Webinar held on "India-Africa Dialogue: Prospects in Healthcare" there is a need, for skilled healthcare workers and trained doctors for the African sub-continent in order to improve healthcare services delivery in the Africa hospitals. He added, that even though Africa has several medical colleges they do not have the capacity to train specialists. An "Indo-African Medical University" based in India could be created and scholarships or fellowships could be offered to African students for undertaking training from Indian medical institutions. It could operate as a not-for-profit entity with the trustees being African countries, the Association of Healthcare providers India (AHPI) and Ministry of Health and Family Welfare, Government of India. This could be a three-year course acting like a hybrid model of virtual and practical training. These students after undergoing one year of training in Africa would come to India and work at the community health centres of the government or district hospitals or any of the member private hospitals of AHPI. They could receive training in specialised areas such as paediatrics, obstetrics, gynaecology, anaesthesia, general medicine, radiology, orthopaedic, ophthalmology, cardiology, and oncology. These doctors could then go back to Africa and train other doctors in their respective countries. This could be a self-sustaining model as the students do would not need to pay any fees for the training. The hospital, where they would undergo training could bear their food and lodging, and the local government in the African country (of the student's domicile) could bear their travelling expenses. This would be a win-win situation for both India and Africa and could be done without any significant investment.

The limited availability of qualified healthcare professionals in several parts of Africa has been a cause of concern. Training and development of skilled nurses and para-medical staff is key to unravelling the potential of healthcare opportunity in the continent. Increased number of scholarships/fellowships to African students for undertaking professional training from Indian healthcare institutions; scale-up of capacity-building efforts under e-VBAB. PPP model is being explored for Diploma courses and mid-career specialisation courses with private hospitals. Several doctors and paramedical staff from the African continent have been trained by Indian hospitals like Apollo from 24 African countries at its

five facilities in New Delhi, Chennai, Hyderabad, Bengaluru and Ahmadabad. In 2018, it commenced training of paramedics from partner countries including Kenya, Malawi, Nigeria, São Tomé and Príncipe, Seychelles, Sudan, South Sudan, Tanzania and Zambia[73].

Digitalisation of Healthcare

Another important area for African healthcare is digitising the healthcare services for efficient service delivery. Digital healthcare includes products and services like telehealth, electronic medical records (EMRs) of patients, tele-medicine, eLearning and mobile health. Digital health is increasingly used to improve health systems, use resources efficiently and improve patient care. The recent international air travel bans have made it increasingly difficult for medical tourists to avail emergency services, strengthening the case for setting up regional hubs that provide tertiary and quaternary care. As efforts to manage the pandemic tend to undermine care for other illnesses, including major NCDs like cancer, there are concerns of delay in the diagnosis and treatment of these non-communicable diseases. Moreover, the social-distancing norms, as well as the fear of contracting COVID-19 from a hospital, are preventing people from getting medical help in person. Major eHealth projects in Africa include the Telemedicine Network for Francophone African Countries (RAFT), HINARI Access to Research in Health Programme, ePortuguese Network and Pan-African e-Network Project[74]. The investment opportunities in Telehealth in Africa are estimated at US$ 11 billion. Primary healthcare provision could be transformed through telehealth and remote monitoring of patients, combined with new financing approaches to support healthcare access. Digital technology (IT and telecoms) companies enable health systems by improving communications and the ability to process information.[75] For example, Airtel Africa owned by Bharti Airtel, which provides telecommunication services in 14 countries of Africa, signed an MOU with Apollo Hospitals in 2016 to launch “Ask Apollo” which is a web and mobile enabled patient-centric service. The service allows the patient to talk to Apollo doctors, face-to-face through video conferencing, or connect with them via voice or e-mail[76].

The Pan Africa e-network project has been revamped to e-VidyaBharti (tele-education) and e-Arogya Bharti (tele-medicine) Project (e-VBAB) and launched in October 2019. Under this programme, medical practitioners at the patient end locations can consult online Indian medical specialists in 12 super speciality hospitals in India. Five super specialty hospitals in Africa are also in the network. Any doctor from any of the remote locations can refer the patient`s medical records to any of the super speciality hospital and have a tele-medicine video session for live diagnosis and advice by the doctors on a scheduled time in association with the provider, super speciality Hospital, and the receiver and the Remote Tele-

[73] RIS, “Together Towards a Healthy Future: India’s Partnerships in Healthcare”, 2019.
[74] United Nations Economic Commission for Africa, “Healthcare and Economic Growth in Africa” February 2019.
[75] ibid
[76] “Airtel, Apollo Hospitals partner for healthcare services in Africa”, Business Standard, July 12, 2016.

Medicine centre. Patient consultations have been set up across 12 super speciality hospitals (All India Institute of Medical Sciences (AIIMS), New Delhi; Amrita Institute of Medical Sciences, Kochi; Apollo Hospitals, Chennai; CARE Hospital, Hyderabad; Escorts Heart Institute and Research Centre, New Delhi; Fortis Hospital, Noida; Narayana Hrudayalay, Bengaluru; Sri Ramchandra Medical Centre, Chennai; Moolchand Hospital, New Delhi; HCG, Bengaluru; Dr Bala Bai Nanavati Hospital, Mumbai; Sanjay Gandhi Institute of Medical Sciences, Lucknow) of India, including wherein along with consultation to medical staff, training is also provided. Areas covered under the tele-medicine services are General (Internal) Medicine, Radiology, Adult Cardiology, Pediatric Cardiology, Dermatology, Endocrinology, Infectious Diseases/HIV-AIDS, Neurology, Gastroenterology, Nephrology, Pathology, Psychiatry, Pediatrics, Medical Oncology, Urology, Genetics, Gynecology ad Ophthalmology. The Pan African e-Network Project is also part of Africa's Agenda 2063 flagship programme[77].

The tele-education portal iLearn (www.iLearn.gov.in), provides access for African students to over 500 courses in various disciplines including engineering and technology, education, mathematics and sciences, education, humanities and arts, and teacher training. The portal also offers 15,000 scholarships to Africans to pursue undergraduate and postgraduate courses from premier public and private universities of India. Building on the success of Phase-1 of Pan-Africa e-Network project, e-VBAB has been well received by African countries. Telecommunications Consultants India Limited (TCIL), the implementing agency of the programme, signed MOUs with Benin, Côte d'Ivoire, Comoros, Democratic Republic of Congo, Eritrea, The Gambia, Ghana, Mali, Malawi, Mauritius, Mozambique, Republic of Guinea, Zambia, Sierra Leone, Sudan, and Uganda. The e-VBAB project offers tele-medicine and continuing medical education for African doctors, paramedics and patients and is completely funded by the Government of India for its entire duration. Teleconsultation, teleradiology, e-ICU and skill enhancements have been the focus areas especially after the pandemic.

Promoting Healthcare Innovation and Start-Ups

The pandemic has provided a renewed impetus to healthcare innovation by presenting an opportunity to rethink and redesign healthcare delivery processes and systems and maximise the adoption of digital technology to cope with the disruptions in usual service delivery and management. In the healthcare sector, such innovation offers potential opportunities to developing regions like India and Africa which are in urgent need of low-cost, efficient, and sustainable healthcare solutions that are easily accessible to the majority of the population.

Technology-based innovations are increasingly being adopted in healthcare for a range of applications. Mobile-based applications are being used to provide targeted healthcare information to individuals,

[77] au.int/agenda2063/flagship-projects

teleconsultation platforms, to provide real-time decision-making support to health workers, e-learning tools, to provide health workers with on-the-go access to training content and clinical procedures.

According to the WHO, Africa accounted for 12.8 percent of the healthcare innovations in areas encompassing new or modifications of existing technologies that have been developed worldwide to target different areas of the COVID-19 response. The response areas include surveillance, contact tracing, community engagement, treatment, laboratory systems and infection, prevention and control. In Africa, 57.8 percent of these technologies were ICT-driven, 25 percent were based on 3D printing and 10.9 percent were robotics. The ICT-based innovations include WhatsApp Chatbots in South Africa, self-diagnostic tools in Angola, contact tracing apps in Ghana and mobile health information tools in Nigeria. The countries accounting for highest number of healthcare innovations were South Africa (13 percent), Kenya (10 percent), Nigeria (8 percent) and Rwanda (6 percent). According to the World Intellectual Property Organisation (WIPO), Sub-Saharan Africa is the region with the largest number of economies performing above expectations in terms of innovations compared to their level of development[78]. These economies include South Africa, Tunisia, Kenya, Morocco, Malawi, Rwanda, Tanzania, Niger, Madagascar and Mozambique. While this is encouraging, there remains significant gap in investment level to further spark innovation on the continent. The WHO recommends greater investment in ICT infrastructure, robotics, artificial intelligence, and bolster university-led research in healthcare[79].

All 47 African Member States in the WHO African Region adopted a WHO strategy for scaling up health innovations in Africa in 2020.80 percent of all Member States agreed to perform needs assessments by 2023 to identify critical gaps in their health systems and will have established coordination mechanisms to scale up innovations.

The ongoing COVID-19 pandemic has helped showcase the role of technology-enabled platforms as an alternate distribution channel for remote delivery of healthcare services. These technology-enabled platforms offer a promising new avenue to address last-mile healthcare access and delivery challenges. Healthcare innovators in Somalia have come up with digital health technology powered by solar energy that allows health workers to work in rural and off-grid areas thereby providing last mile connectivity[80].

Likewise, India has also witnessed plenty of disruptive technologies driven by artificial intelligence, 3D printing, surgical robotic tools, remote monitoring solutions and patient-facing mobile applications in the healthcare sector. Healthcare innovation has also been supported by the Government of India's initiatives such as Make in India, Start-up India, Digital India, National Health Stack and National Digital

[78] World Intellectual Property Organization, Global Innovation Index 2020.
[79] World Health Organisation, "COVID-19 spurs health innovation in Africa", October 29, 2020.
[80] World Bank Blogs, "In Somalia, Innovation is Key to Revolutionizing Healthcare", December 1, 2020.

Health Blueprint. The Government of India also launched the National Healthcare Innovation Portal, which aims to pool together and showcase innovative programme designs, practices, technology solutions and products across India's public and private healthcare sector.

Box 4.1: Collaboration of Healthcare Innovators with Healthcare Providers

TechEmerge Health is a program by the IFC that connects technology companies worldwide with leading healthcare providers in emerging markets. The TechEmerge Health East Africa program is supported by the Ministry of Economic Affairs and Employment of Finland, the Israeli Ministry of Economy and Industry, and the Government of Japan. Twenty leading private healthcare providers from Ethiopia, Kenya, and Uganda have been identified by the IFC to participate and the IFC would provide seed funding and technical support to these healthcare technology companies and the healthcare providers who are adopting these innovations. Under the programme, 17 innovative health tech Start-ups from 11 countries were successfully matched with 11 leading healthcare providers across Ethiopia, Kenya and Uganda to jointly implement 20 pilot projects and build long-term partnerships. The technology solutions ranged from Artificial Intelligence enabled point of care diagnostics, clinical decision support tools, imaging, patient engagement, emergency response, among others. The solutions would be piloted in hospitals, clinics, labs, pharma retail outlets, and with health insurers over the coming year. TechEmerge Health East Africa is the third edition of the program. Originally it was launched in India in 2015, where it matched 17 healthcare technology companies with 15 local healthcare providers. The technology innovators had raised over US$ 14 million during the program and the solutions adopted by the healthcare providers in India have benefitted more than 300,000 patients per year. Building on the success in India, TechEmerge was launched in Brazil in 2017.

Source: IFC

Collaboration at start-up levels could also benefit both the regions in addressing common challenges. Africa currently faces challenges in terms of low investment in innovation. To promote innovation, the African countries could collaborate with their Indian counterparts to build on technological capabilities. A common e-marketplace for healthcare innovations in terms of new products could be developed.

Africa is emerging as the fastest-growing mobile user, with over 70 percent of the continent having mobile coverage with 3G connections and 30 percent with 4G networks[81]. Some African countries have also been using mobile innovations in their healthcare delivery. For example, through Babyl, Rwanda has enabled access for over 2 million citizens to healthcare through telehealth. Likewise, other healthcare

[81] The State of Mobile Internet Connectivity 2019, GSMA Intelligence, July 2019.

innovators exist in other African countries- Medical Concierge Group (Uganda) and Mobihealth (Nigeria). Despite having immense potential, African health technology firm suffer from inadequate funding and research facilities. Also, even with growing number of innovations, the continent continues to suffer from inequality in access to quality healthcare. Therefore, more efforts are required to unlock digital health innovations for all in Africa[82]. With a rising middle class and improving broadband coverage, cities across the continent could be tapped as potential markets for quality healthcare systems powered by digital innovations. Further, these innovations could be leveraged for last mile delivery of services to rural areas. Therefore, encouraging market-driven innovations, such as increasing access to finance for start-ups and policies promoting digital innovations are the need of the hour.

Financing Healthcare

In October 2015, during the Third India-Africa Forum Summit (IAFS III), India pledged a US$ 600 million grant assistance including an India-Africa Development Fund (US$ 100 million) and an India-Africa Health Fund (US$ 10 million). Additionally, India committed to provide US$10 billion LOCs on concessional terms[83]. India Exim Bank also funded major health sector related projects in Africa, mainly through the GOI-supported LOCs. Some prominent projects include US$ 8 million to Seychelles for implementation of Integrated Health Information System, US$ 5 million to Senegal for the supply of medical equipment, furniture and other accessories to four hospitals, US$ 50 million to Zambia for setting up of prefabricated health post, US$ 35 million to Guinea to strengthen their health systems, and US$ 71.4 million to Côte d'Ivoire for upgrading their military hospitals. As on March 31, 2021, 12 LOCs worth US$ 1.6 billion have been extended to 8 countries in Africa's healthcare sector (**Table 4.2**). The GOI-supported LOCs extended by India Exim Bank to the health sector accounted for 1.5 percent of total operative LOCs extended to Africa, implying increased scope for further investments. However, during the India Exim Bank webinar on "India-Africa Dialogue: Prospects in Healthcare", it was highlighted that the Indian Development and Economic Assistance Scheme (IDEAS) Guidelines on GOI-LOCs states a minimum requirement of import of 75 percent value of the contract of goods and services from India. However for building a super speciality hospitals as the need for importing medical equipment from a third country may sometimes exceed 25 percent of the contract value. The IDEAS Guidelines offer a relaxation of 10 percent on case-to-case basis for projects involving strategic significant civil construction. Therefore, building super speciality hospitals may also be considered as strategic construction and offered similar relaxation. Also, import of medical equipment on case-to-case basis may be offered relaxation based on the complexity of the project. Alternatively, a separate fund may be also created in consultation with the regional development financial institutions of Africa in PPP or commercial mode.

[82] World Economic Forum, "It's time for a great reset of Africa's e-health systems. Here's how", July 17, 2020.
[83] mea.gov.in/india-africa-forum-summit-2015

Table 4.2: LOCs Extended to African Countries in Healthcare Sector

Country	Projects / Sectors Financed	Amount (US$ mn)
Benin (under LOC to EBID)	Procurement of medical equipment and rehabilitation of health establishment	150.0
Côte d'Ivoire (under LOC to EBID)	Equipment and Rehabilitation Health facilities project	500.0
Côte d'Ivoire	Upgradation of Military Hospitals	71.4
Guinea	Strengthening of Health System	35.0
Guinea	Construction and Upgradation of Regional Hospitals in Kankan and Nzerekore	20.5
Mauritius	Equity Participation for financing various Infrastructure (E-Health)	500.0
Senegal	Up-gradation and rehabilitation of Health Care System	24.5
Senegal	Supply of medical equipment, furniture and accessories to four hospitals	5.0
Seychelles	General Purpose and implementation of Integrated Health Info. System.	4.1
Togo (under LOC to EBID)	Supply and installation of equipment for health facilities	250.0
Zambia	Pre-fabricated health posts	50.0
Zambia	Pre-fabricated health posts	18.0
Total		**1,628.5**

Trilateral Cooperation in Healthcare

COVID-19 has emphasized the importance of international and regional cooperation. Tripartite Cooperation initiatives could be explored involving India and African countries through transfer of skills, transfer of technology and technical assistance. As the North African countries being part of the Middle East and North Africa (MENA) region are strategically closer to the GCC countries (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates), sovereign wealth funds could also be utilised for high-end health infrastructure projects. India is collaborating with Japan and Kenya to build a cancer hospital that will have research facilities and also provide training to medical professionals[84]. The trilateral partnership initiatives could be given further impetus by setting up a dedicated fund or through agreements involving development financial institutions of both countries like India Exim Bank and Japan International Cooperation Agency (JICA) or Japan Bank of International Cooperation (JBIC)[85].

[84] "India-Africa Partnership in a Changing World", Keynote Address, T.S. Tirumurti, Manohar Parrikar Institute for Defence Studies and Analyses, 2019.
[85] CII, "India in Africa: Developing Trilateral Partnership" March 2019.

India's Vaccine Diplomacy with Africa

Africa had around 4 million confirmed COVID 19 cases as of March 2021, with majority of the cases reported in South Africa, Morocco, Tunisia, Algeria, Nigeria, and Kenya. With a population of around 1.3 billion, India has been battling the COVID-19 pandemic on its own. Despite such challenges, the country has demonstrated the capacity to support partner countries, and has been at the forefront of supplying medicines and generic drugs to others since the beginning of the pandemic. India has supplied hydroxychloroquine and paracetamol tablets, test kits, and other medical equipment for about 90 countries, including 25 from Africa[86].

India is the major supplier of vaccines to the United Nations International Children' Emergency Fund (UNICEF) also which, in turn, supplies about 40 per cent of total vaccine demand for childhood vaccination in more than 100 countries. India is a major partner in the GAVI, the Vaccine Alliance, a Public-Private Partnership (PPP) initiative to increase access to affordable vaccines in the developing world. India was the 7th largest vaccine exporter during 2019 accounting for a share of 2.6 percent of the global share of vaccines for human medicine (HS 300220). The share has increased from 0.8 percent in 2010 being the 11th largest exporter.

India's Vaccine Maitri Initiative reflects the supply of Made-in-India COVID-19 vaccine for free or at a marginal cost to countries around the world. The leading Made-in-India vaccines are Covaxin, manufactured by Bharat Biotech and the Oxford-AstraZeneca Covishield, produced by the Serum Institute of India. The Vaccine Maitri Initiative has been launched after India pledged US$ 15 million to GAVI during the Global Vaccine Summit in June 2020 and assured India's allegiance to supplying vaccines to the global community during the UN General Assembly in September 2020[87]. During January-March 2021, 24.4 million India-made COVID-19 vaccines were supplied to Africa. Under commercial arrangements, 8.4 million vaccines were exported to to five African countries Mauritius, Morocco, Egypt, Algeria, and South Africa. In terms of international grant, one million vaccines were supplied to 17 African countries and approximately 15 million vaccines to 26 African countries were supplied under the COVAX[88] initiative (**Table 4.3**).

[86] "India's Vaccine Maitri with Africa", Manohar Parrikar Institute for Defence Studies and Analyses, 2021.
[87] Statement by External Affairs Minister in Rajya Sabha on the Vaccine Maitri Initiative, MEA, March 17, 2021
[88] COVAX is the vaccines pillar of the Access to COVID-19 Tools (ACT) Accelerator. The ACT Accelerator is a ground-breaking global collaboration to accelerate the development, production, and equitable access to COVID-19 tests, treatments, and vaccines. COVAX is co-led by the Coalition for Epidemic Preparedness Innovations (CEPI), Gavi and the World Health Organization (WHO), alongside key delivery partner UNICEF. Its aim is to accelerate the development and manufacture of COVID-19 vaccines and to guarantee fair and equitable access for every country in the world.

Table 4.3: India's Supply of COVID-19 Vaccines to Africa (in Lakhs)

Country/Region	Grant	Commercial	COVAX	Total
Mauritius	1.0	3.0	-	4.0
Seychelles	0.5	-	-	0.5
Morocco	-	70.0	-	70.0
Egypt	-	0.5	-	0.5
Algeria	-	0.5	-	0.5
South Africa	-	10.0	-	10.0
Ghana	0.5	-	6.0	6.5
Côte d'Ivoire	0.5	-	5.0	5.5
D.R. Congo	0.5	-	17.2	17.7
Angola	-	-	6.2	6.2
The Gambia	-	-	0.4	0.4
Nigeria	1.0	-	39.2	40.2
Kenya	1.0	-	10.2	11.2
Lesotho	-	-	0.4	0.4
Rwanda	0.5	-	2.4	2.9
São Tomé and Príncipe	-	-	0.2	0.2
Senegal	0.3	-	3.2	3.5
Mali	-	-	4.0	4.0
Sudan	-	-	8.3	8.3
Liberia	-	-	1.0	1.0
Malawi	0.5	-	3.6	4.1
Uganda	1.0	-	8.6	9.6
Togo	-	-	1.6	1.6
Djibouti	-	-	0.2	0.2
Somalia	-	-	3.0	3.0
Sierra Leone	-	-	1.0	1.0
Botswana	0.3	-	-	0.3
Mozambique	1.0	-	3.8	4.8
Ethiopia	-	-	21.8	21.8
Benin	-	-	1.4	1.4
Eswatini	0.2	-	0.1	0.3
Cape Verde	-	-	0.2	0.2

Country/Region	Grant	Commercial	COVAX	Total
Namibia	0.3	-	-	0.3
South Sudan	-	-	1.3	1.3
Zimbabwe	0.4	-	-	0.4
Niger	0.3	-	-	0.3
Africa	9.7	84.0	150.5	244.1
Total	***105.2***	***357.9***	***182.0***	***645.0***
Africa share (%)	***9.2***	***23.5***	***82.7***	***37.8***

Source: Ministry of External Affairs, Government of India, and India Exim Bank Analysis

During the WTO TRIPS Council meeting, held on October 15-16, 2020, India and South Africa jointly proposed "Waiver from Certain Provisions of the TRIPS Agreement for the Prevention, Containment and Treatment of COVID-19" for a limited period of time. This would ensure that the intellectual property rights do not emerge as a barrier for affordable and urgent access to medical products, including vaccines and therapeutics, and enable countries to mitigate the health crisis caused by the COVID-19 pandemic.[89]

Way Forward

African countries need to ensure the adoption of a comprehensive approach to healthcare. As the public sector remains budget constrained, it needs to act as an enabler to foster private investment so that the double disease burden could be dealt with, along with the development of robust health infrastructure to face future health shocks. This is also expected to create direct and indirect employment, thereby ensuring sustainable growth. Investments in the healthcare system would also facilitate research in pharmaceuticals and developing local capacity along with enhancing laboratory testing facilities, diagnostic centres, delivery of healthcare services to rural areas, and primary, secondary, and tertiary hospitals. Digital technology for promoting early detection through tele-medicine, maintaining patient records along with facilitating healthcare delivery also needs to be promoted. Further, investment in capacity building and training of medical professionals remains another pertinent area. These measures would contribute towards building capacity and a resilient healthcare system in the continent.

India and Africa have been natural allies with longstanding historical and trade relations. With a shared vision of providing UHC to their citizens in line with their commitment to the SDGs, India and Africa's development cooperation is a testimony to South-South cooperation. Indian hospitals and companies in the healthcare, pharmaceuticals and related fields may therefore collaborate in this initiative of building a resilient Africa, thus, giving the India-Africa Partnership a new dimension.

[89] Ministry of Finance, Government of India Economic Survey 2020-21.

5 Export-Import Bank of India in Africa

The Export-Import Bank of India (India Exim Bank) commenced operations in 1982. The Bank was set up under an Act of Parliament (Export-Import Bank of India Act 1981), for providing financial assistance to exporters and importers, and for functioning as the principal financial institution for coordinating the working of institutions engaged in financing export and import of goods and services with a view to promoting the country's international trade. In its endeavour to promote India's international trade, India Exim Bank's vision has evolved from financing, facilitating and promoting trade and investment, to a conscious and systematic effort at creating export capabilities; India Exim Bank today seeks to develop commercially viable business relationships with externally-oriented companies.

Africa has always been a focus region for India Exim Bank, and thus a critical component of its strategy to promote and support two-way trade and investment. As a partner institution to promote economic development in Africa, the commitment towards building relationships with the African Region is reflected in the various activities and programmes, which India Exim Bank has set in place.

India Exim Bank has representative offices in Abidjan (Côte d'Ivoire), Addis Ababa (Ethiopia), Johannesburg (South Africa), and Dubai (United Arab Emirates), which play key roles in facilitating economic cooperation with the African Region, and are closely associated with several of the Bank's initiatives. The representative offices interface with multilateral institutions such as African Development Bank (AfDB), Afreximbank, regional financial institutions such as Trade and Development Bank (TDB) (erstwhile PTA Bank), West African Development Bank (BOAD), and developmental financial institutions such as Industrial Development Corporation of South Africa Ltd. (IDC), as well as Indian missions in the region, with the aim of increasing bilateral commercial engagements between the two regions.

Lines of Credit

To enhance bilateral trade and investment relations, India Exim Bank has in place several Lines of Credit (LOCs) extended to developing partner countries in Africa. These LOCs supplement the 'Focus Africa'

programme of the Government of India (GOI) and are extended especially to priority sectors, identified by GOI for mutual cooperation and benefit. Besides these LOCs extended at the behest of GOI, India Exim Bank extends its own commercial LOCs to various financial institutions and other entities in Africa, including the Trade and Development Bank (TDB) (covering 17 countries in the eastern and southern African region), Banque ouest-africaine de développement (BOAD) (West African Development Bank covering 8 countries in the West African region), Indo-Zambia Bank, Nigerian Exim Bank and African Export-Import Bank (Afreximbank). These LOCs facilitate import of project-related equipment and services from India on deferred credit terms. At the same time, many of these LOCs are earmarked for infrastructure and related projects. As on March 31, 2021, the total number of operative GOI-supported LOCs to Africa stood at 181, which were extended to 39 countries and the ECOWAS Bank for Investment and Development (EBID) amounting to US$ 10.57 billion. In addition, India Exim Bank also extended a commercial LOC amounting to US$ 4 million to EBID.

Select success stories in the healthcare sector are as follows –

Zambia - India Exim Bank extended GOI-supported LOC of US$ 50 million and US$ 18 million to the Government of Zambia for financing the pre-fabricated health posts in Zambia. The project is under execution as on date.

Togo - A healthcare project for supply and installation of ultrasound scanners, maternity and sterilization equipment, valued at US$ 20.04 million, under the US$ 250 million LOC to EBID, was executed in Togo. The project has increased the sense of security, improved healthcare, made health services affordable and improved the overall standard of living of the people of Togo.

Kenya - Under the LOC of US$ 29.95 million to the Government of the Republic of Kenya for upgradation of Rift Valley Textile (RIVATEX East Africa) Ltd. Rivatex, East Africa Limited, Kenya, is producing face masks to Kenya Medical Supplies Authority (KEMSA). The mask consists of three layers with the Particulate Filtration Efficiency of 68 percent which is being used by common public to protect themselves. Also, this helps the country to reserve the N95 & three-layer surgical masks for medical professionals and those infected with COVID-19.

A list of LOCs extended to African countries is given at **Annexure 11**. Select examples include:

Countries:

- **Angola** – Railway rehabilitation project; industrial park; and textile project;
- **Benin** – Supply of railway equipment; agricultural equipment; tractor assembly plant; water supply project; and cyber city project;

- **Burkina Faso** – Rural electrification; agricultural projects including acquisition of tractors, harvesters, agricultural processing equipment; and low cost housing and economical buildings project;
- **Burundi** – Hydro-electric project; farm mechanization; and integrated food processing complex;
- **Cameroon** – Plantation projects;
- **Central African Republic** – Cement plant and procurement of buses; hydro-electric project; and mining project;
- **Chad** – Setting up of cotton yarn plant, bicycle plant and rolling mill; agro-processing plants for tomato and mango and irrigation equipment;
- **Comoros** – Power project;
- **Côte d'Ivoire** – Project for renewal of urban transport system in Abidjan and agricultural projects; IT & biotechnology park; fisheries and coconut fibre processing plant; electricity interconnection project; rice production programme; and electricity interconnection project;
- **Democratic Republic of Congo** – Hydroelectric project; setting up a cement factory, acquisition of buses, rehabilitation of manganese mine and acquisition of equipment; transmission and distribution project; and installation of pumps;
- **Djibouti** – Supply of diesel generator sets; and setting-up cement plants;
- **Eritrea** – Agricultural and educational projects;
- **Eswatini** – IT project; and agricultural development and mechanization of agriculture;
- **Ethiopia** - Energy transmission and distribution project; and development of sugar industry;
- **The Gambia** – Setting up of tractor assembly plant; national assembly building complex; electrification expansion project; and replacement of asbestos water pipes with UPVC pipes project;
- **Ghana** – Rural electrification, agriculture, communication and transportation projects; construction project; sugar plant; fish harvesting and processing project; procurement of high capacity wagons and spares; waste management equipment and management support project; and sugarcane development and irrigation project;
- **Guinea** – Strengthening of Health System; Solar Projects; and drinking water supply of Grand Conakry-Horizon 2040;
- **Guinea Bissau** – Electricity project; food processing unit; and purchase of tractors and water pumps for development of the agricultural sector;
- **Kenya** – Power transmission lines; agriculture mechanization project; and development of various small and medium enterprises;

- **Lesotho** – Export of tractors, pump sets, consultancy services and irrigation equipment; and vocational training centre project;
- **Liberia** – Power transmission and distribution project;
- **Madagascar** – Rice productivity and fertilizer production project;
- **Malawi** – Cotton processing; one-village one-project; green belt initiative; irrigation and threshing plant; procurement of design, supply, installation and commissioning of fuel storage facilities; irrigation network; commissioning of sugar processing facility; and construction of water supply system;
- **Mali** – Rural electrification and setting up of agro machinery and tractor assembly plant; electricity transmission and distribution project; agriculture and food processing project; and acquisition of railway coaches and locomotives from India.
- **Mauritania** – Potable water project; and milk processing plant;
- **Mauritius** – Supply of offshore patrol vessel; purchase of specialised equipment and vehicles; and acquisition of Waterjet Fast Attack Craft;
- **Mozambique** – Gaza Electrification Project; water drilling project; IT park project; housing project; road rehabilitation project; rural drinking water and electricity project; and solar photovoltaic module manufacturing plant;
- **Niger** – Acquisition of transport equipment, transformers, motor pumps and flour mills; power projects; supply of potable project; and electrification of villages using solar photovoltaic system;
- **Nigeria** – Supply and commissioning of transmission lines; solar mini-grid electrification and solar street lighting; and construction of gas-based power plant;
- **Republic of Congo** – Rural electrification projects; development of transport system; and cement plant project;
- **Rwanda** – Power projects; irrigated agriculture project; establishment of vocational training centres; road project; and development of SEZ;
- **Senegal** –Supply of medical equipment; supply of buses and accessories; fruit processing units; rural electrification project and fishing industry development project; irrigation project; and acquisition of railway coaches and locomotives from India; rice self-sufficiency programme; setting meat processing, cold storage, rendering and tannery plant and market place; IT training projects; and women poverty alleviation programme;
- **Seychelles** – Implementation of integrated health information system; and import of goods and services from India for specific projects;

- **Sierra Leone** – Procurement of tractors and connected implements, harvesters, rice threshers, rice mills, maize shellers and pesticide spray equipment; rehabilitation of existing facilities and addition of new infrastructure to supply potable water; and transmission lines;
- **Sudan** – Transmission and sub-station project; project for setting up power plant; agricultural equipment; scientific equipment; solar electric panels; supply of equipment for railways; micro-industrial projects; development of livestock production and services; and sugar plant project;
- **Tanzania** – Export of tractors, pumps and vehicles; water supply schemes; and extension of pipeline;
- **Togo** – Rural electrification project; power transmission line; and farming and cultivation projects;
- **Zambia** – Hydroelectric project; and
- **Zimbabwe** – Up-gradation of pumping station and river water intake system; and renovation/ upgradation of thermal power plant.

Institutions:

- **ECOWAS Bank for Investment and Development (EBID)** – Financing acquisition and implementation of Core Banking Solution [CBS].

Project Exports

India Exim Bank has been providing a steady stream of support to project activities in engineering, procurement, and construction (civil, mechanical, electrical or instrumental). This includes the provision of specific equipment related to supplies, construction and building materials, consultancy, technical know-how, technology transfer, design, and engineering (basic or detailed). India Exim Bank also supports existing or new projects, plants or processes that require additional assistance in processes such as international competitive bidding including multilaterally funded projects in India.

Buyer's Credit under National Export Insurance Account (NEIA)

In order to provide further impetus to project exports from India on medium- or long-term basis, especially in the infrastructure sector, a product called Buyer's Credit under National Export Insurance Account (BC-NEIA) was introduced in April 2011. Under this programme, India Exim Bank facilitates project exports from India by way of extending credit facility to overseas sovereign governments and government-owned entities for import of goods and services from India on deferred credit terms. Indian exporters can obtain payment of eligible value from India Exim Bank, without recourse to them, against negotiation of shipping documents. NEIA is a Trust, set up by the Ministry of Commerce and Industry and administered by the ECGC Ltd. As on March 31, 2021, a positive list of 92 countries have been

identified by ECGC for which Indian exporters can avail BC-NEIA, of which 38 countries belong to Africa. During the same period, India Exim Bank has sanctioned an aggregate amount of US$ 2 billion under BC-NEIA for 21 projects in Africa valued at US$ 2.2 billion.

Finance for Joint Ventures Overseas

Further, India Exim Bank supports Indian companies in their endeavour to globalise their operations, through overseas joint ventures (JVs) and wholly-owned subsidiaries (WOS). Such support includes loans and guarantees, equity finance and in select cases direct participation in equity along with Indian promoters to set up such ventures overseas. In Africa, India Exim Bank has supported several such ventures in countries such as South Africa, Kenya, Mauritius, Ghana, Nigeria, Sudan, Egypt, Zambia, Morocco, Uganda and Tanzania, across a range of sectors like agriculture and food processing, agro-based products, auto and auto components, chemicals, construction, electronics, engineering goods, EPC services, mining and minerals, plastics and rubber products, packaging, pharmaceuticals, software and IT-enabled services, and textiles. These ventures serve to promote value addition, as also contribute to capacity building and capacity creation in host countries. As on March 31, 2021, India Exim Bank through its overseas investment finance programme has supported 49 Indian companies in 14 countries in Africa with an aggregate sanction of ₹58.9 billion. India Exim Bank has supported one company under through its overseas investment finance programme in the healthcare services sector in 2017-18 with a sanction ₹ 0.2 billion in Mauritius.

Association with African Development Bank (AfDB)

India is a member of the African Development Bank (AfDB) Group. Many Indian companies participate in projects funded by the AfDB Group. India Exim Bank works very closely with the AfDB and has an active programme which offers a range of information, advisory and support services to Indian companies to enable more effective participation in projects funded by multilateral funding agencies, including the AfDB. India Exim Bank assists Indian companies in projects supported by the AfDB, through fund and non-fund based assistance, while also providing advance alerts on upcoming opportunities. With the support from India Exim Bank, Indian project exporters have secured a number of overseas contracts in Africa in sectors such as power, telecommunications, transport, water supply & sanitation. India Exim Bank also organizes Business Opportunities seminars in Projects funded by AfDB across various centres in India.

Africa – India Partnership Day

India Exim Bank together with the Federation of Indian Chambers of Commerce and Industry (FICCI) organizes the Africa – India Partnership Day, on the sidelines of AfDB's Annual Meeting, with an objective

of sharing India's developmental experiences with Africa, particularly in Public-Private Partnership (PPP) model of financing infrastructure development. India Exim Bank, along with FICCI, has so far hosted six such events; first being on May 30, 2013, in Morocco; followed by Rwanda on May 22, 2014; Côte d'Ivoire on May 27, 2015; Zambia on May 24, 2016; Ahmedabad, India on May 24, 2017; and Equatorial Guinea on June 13, 2019. The Africa-India Partnership Day has become a regular feature of the AfDB Annual Meeting, and showcases the immense scope for expanding the mutually enriching partnership between Africa-India.

Project Development Company (PDC) in Africa

Africa is a region of opportunities, as the continent is receiving plenty of investments in the infrastructure space. The PPP structure is slowly getting popularised by the national governments, increasing the interest of the private sector in infrastructure development. However, institutional capacity in several African nations is in a nascent stage.

Addressing the limited institutional capacity in Africa on conceptualisation, management, execution and imparting project development initiatives, India Exim Bank along with other Indian institutions have joined hands with the AfDB and promoted a Project Development Company (PDC) for infrastructure development in Africa.

The PDC, named Kukuza Project Development Company, has been incorporated in Mauritius in July 2015. 'Kukuza' in Swahili means 'a cause to growth'. Reflecting the name, the PDC is expected to provide specialist project development expertise to take the infrastructure project from concept to commissioning in the African Continent. The PDC will provide the entire gamut of project development expertise to various infrastructure projects, such as project identification, pre-feasibility/ feasibility studies, preparation of detailed project reports, environmental and social impact assessment, etc.

The PDC shall utilise the domain expertise of each partner during the project development process to establish a bankable and sustainable implementation format based on an in-depth understanding of the concerns of all the stakeholders - public authority, users community, developers/ investors and lenders.

India Exim Bank's Engagements in ITC's SITA

On March 09, 2014, Department for International Development (DFID) mandated the International Trade Centre (ITC), United Kingdom, to design and implement a project, called 'Supporting India's Trade Preferences for Africa' now called 'Supporting Indian Trade and Investment for Africa' (SITA). SITA is a six-year (2014-2020) project that aims at promoting exports from five East African countries – Ethiopia, Kenya, Rwanda, the United Republic of Tanzania and Uganda – to India through investment and skills

transfer from the Indian side. India Exim Bank has entered into an MOU with ITC in Geneva on March 26, 2014, through which the Bank has been associated with ITC's SITA initiative. The Project was in its inception phase from March 2014 to March 2015, where a roadmap for SITA, including the focus sectors, was defined.

Member of Association of African Development Finance Institutions (AADFI)

India Exim Bank is a member of the Association of African Development Finance Institutions (AADFI), a forum of institutions/ banks with the objective of creating coordination and economic solidarity among the development finance institutions in the African continent. The membership of AADFI helps to provide a platform for building linkages with other institutions in Africa, which are members of AADFI.

Association with Other Indian Institutions

India Exim Bank's equity in Agricultural Finance Corporation, which offers consultancy support in the development of agro-technology; and promoter membership in 'Small Farmers' Agri-Business Consortium (SFAC)', an investment institution whose objectives include promoting small and medium agri-business ventures, places India Exim Bank in a vantage position to share its expertise and support development related activities in Africa.

Global Network of Exim Banks and Development Finance Institutions (G-NEXID)

India Exim Bank has entered into a Memorandum of Understanding (MOU) with four Exim Banks/ Development Financial Institutions (DFIs) viz. Export-Import Bank of India, Export-Import Bank of Malaysia, African Export-Import Bank, Andean Development Corporation and Export-Import Bank of Slovakia to form Global Network of Exim Banks and Development Financial Institutions (G-NEXID), which was formally launched at its inaugural meeting at UNCTAD, Geneva on March 13, 2006. Annual Meetings are held to deliberate upon measures to foster a long-term relationship, share experience and strengthen financial cooperation to promote trade and investment relations among developing countries. The UNCTAD is a permanent observer in all statutory meetings and a key partner in the Network's activities.

G-NEXID members in the African Region include African Export-Import Bank, Egypt; Central African States Development Bank (BDEAC), Republic of Congo; Development Bank of Zambia; ECOWAS Bank for Investment and Development (EBID), Togo; Ghana Export-Import Bank (GEXIM); Nigerian Export-Import Bank (NEXIM); and Trade and Development Bank (TDB), Burundi.

Inter-Bank Cooperation Mechanism among BRICS members

BRICS, which comprise Brazil, Russia, India, China and South Africa, is an association of five major emerging economies. In order to develop and strengthen economic ties and investment cooperation between BRICS countries, in 2010 state financial institutions for development and export support of the BRICS nations entered into an MOU, laying the foundation of BRICS Inter-Bank Cooperation Mechanism. Export-Import Bank of India (India Exim Bank) is the nominated member development bank under the BRICS Interbank Cooperation Mechanism, along with other nominated member development banks from member nations of BRICS namely Banco Nacional de Desenvolvimento Economico e Social (BNDES), Brazil; State Corporation Bank for Development and Foreign Economic Affairs – Vnesheconombank, Russia; China Development Bank Corporation, and Development Bank of Southern Africa. The inter-bank cooperation among BRICS countries is expected to facilitate trade and help raise the economic profile of member countries at regional and global levels. Inter-bank cooperation is the first step toward closer cooperation within BRICS, and the member countries will jointly finance projects in high technology, innovation and energy saving.

Select MOUs signed by India Exim Bank under the BRICS Inter-Bank Cooperation Mechanism include:

BRICS Summit 2010 (Brazil)

- Memorandum of Cooperation among BRICS Development Banks.

BRICS Summit 2011 (China)

- Framework Agreement for Financial Cooperation.
- Protocol of Accession of DBSA to the MOC signed in 2010.

St. Petersburg Economic Forum (2011), Russia

- Memorandum for Cooperation in Personnel and Training.

BRICS Summit 2012 (India)

- Master Agreement on Extending Credit Facility in Local Currency.
- BRICS Multilateral Letter of Credit Confirmation Facility Agreement.

BRICS Summit 2013 (South Africa)

- BRICS Multilateral Infrastructure Co-financing Agreement for Africa.
- BRICS Multilateral Cooperation and Co-financing Agreement for Sustainable Development.

BRICS Summit 2014 (Brazil)

- Multilateral Cooperation Agreement on Innovation.

BRICS Summit 2015 (Russia)

- Memorandum of Understanding on Cooperation with the NDB.

BRICS Summit 2016 (India)

- Memorandum of Understanding amongst Members of BRICS Interbank Cooperation Mechanism and New Development Bank on General Cooperation.

BRICS Summit 2017 (China)

- Interbank Local Currency Credit Line Agreement under BRICS Interbank Cooperation Mechanism.
- Cooperation Memorandum Relating to Sharing of Credit Ratings.

BRICS Summit 2018 (South Africa)

- Memorandum of Understanding on Collaborative Research on Distributed Ledger and Blockchain Technology in the Context of the Development of the Digital Economy.

BRICS Summit 2019 (Brazil)

- Memorandum of Understanding for Mobilisation of Private Investment in Infrastructure.

BRICS Summit 2020 (Russia-virtual)

- Memorandum of Understanding on Principles of Responsible Financing

Partner in Institutional Building in Africa

As a partner institution in promoting economic development in Africa, India Exim Bank shares its experience in the setting up of institutional infrastructure for enhancing international trade. In this regard, the Bank has taken active participation in the institutional building process in a number of countries in Africa. Besides being associated in the setting up of the Afreximbank, India Exim Bank undertook an assignment to design, develop, and implement a programme on Film Financing in Nigeria for NEXIM for expanding its exposure in financing films (under Film Financing Programme). India Exim Bank has also been involved in the design and implementation of Export Finance Programmes for Industrial Development Corporation (IDC), South Africa; Consultancy Assignment for the Government of Mauritius on 'Projecting Mauritius as an investment hub for Indian Firms'; establishment of Export Credit Guarantee Company in Zimbabwe; and preparing a blueprint for setting up of Export-Import Bank of Zimbabwe.

In 2015, the International Trade Centre (ITC), Geneva, under its 'Supporting Indian Trade and Investment for Africa (SITA)' Project, has awarded India Exim Bank an assignment for 'Institution Capacity Building for Export Credit and Insurance' to enhance trade competitiveness in Rwanda. The objective of the assignment was to establish a rationale and suggest a broad framework for establishing an Export Credit Insurance Corporation in Rwanda.

In 2018-19, India Exim Bank concluded an assignment for the GEXIM for providing technical assistance across its various operational areas. India Exim Bank also delivered a 21-day training programme for GEXIM officials in Ghana and organised a skill enhancement programme for the top management of GEXIM in Mumbai.

Institutional Linkages

India Exim Bank has been consciously forging a network of alliances and institutional linkages to help further economic cooperation with the African Region. Towards this end, India Exim Bank has taken up equity in Afreximbank, West African Development Bank (BOAD), and Development Bank of Zambia. These endeavours are supplemented by the various Memoranda of Cooperation (MOCs) / Memoranda of Understanding (MOUs). The Bank has entered into MOUs/ MOCs with key institutions in the African Region including the AfDB; TDB; Afreximbank; Banque De Financement Des Petites Et Moyennes Entreprises (BFPME), Tunisia; Banque Internationale Arabe de Tunisie, Tunisia; Board of Investment (BOI), Mauritius; ECO Bank (Pan African Bank); Foreign Investment Promotion Agency, Tunisia; Industrial Development Bank of Sudan; IDC, South Africa; NEXIM; National Bank of Egypt; and Societe Tunisienne de Banque, Tunisia.

Knowledge Building and Technology Transfer

In the area of knowledge building and technology transfer, India Exim Bank's research studies focus on potential areas for boosting India's trade and investment relations with various regions in Africa, which include, among others, the Southern African Development Community (SADC), Economic Community of West African States (ECOWAS), Southern African Customs Union (SACU), North Africa, Common Market for Eastern and Southern Africa (COMESA), Least Developed Countries (LDCs), Maghreb region and East African Community (EAC). In order to support AfDB's High 5 agenda, India Exim Bank released five studies namely, 'Integrate Africa: A Multi-dimensional Perspective', 'Feed Africa: Achieving Progress Through Partnership', 'Water, Sanitation and Healthcare in Africa: Enhancing Facility, Enabling Growth', 'Power Sector in Africa: Prospect and Potential' and 'Manufacturing in Africa: A Roadmap for Sustainable Growth' during the annual meeting of the AfDB in Ahmedabad, India in May 2017.

In a Nutshell

In sum, India Exim Bank, with its comprehensive range of financing, advisory and support services, seeks to create an enabling environment for enhancing the two-way flow of trade, investment and technology between India and the African Region. While promoting infrastructure development and facilitating private sector development in host countries, the various efforts of India Exim Bank, ensconced in its range of activities, also contribute towards institutional building in the African Region.

Annexure 1

Select Macroeconomic Indicators of African Countries

Region/Country	Nominal GDP (US$ bn)				Real GDP growth (%)			
	2019	2020	2021	2022	2019	2020	2021	2022
Africa	2427.3	2329.1	2488.7	2694.2	3.3	-2.6	3.7	4.6
Nigeria	448.1	443.0	466.9	531.4	2.2	-3.2	1.5	2.5
Egypt	302.3	361.9	374.9	394.1	5.6	3.6	2.8	5.5
South Africa	351.4	282.6	317.2	346.6	0.2	-7.5	2.8	1.4
Algeria	169.3	147.3	155.3	160.8	0.8	-5.5	3.2	2.6
Morocco	118.6	112.2	123.8	130.3	2.2	-7.0	4.9	3.5
Kenya	95.4	101.0	105.7	113.8	5.4	1.0	4.7	6.0
Ethiopia	92.8	95.6	91.5	94.0	9.0	1.9	0.0	8.9
Ghana	67.0	67.3	71.9	76.8	6.5	0.9	4.2	4.1
Tanzania	60.8	64.1	67.6	73.1	7.0	1.9	3.6	6.1
Angola	89.4	62.7	68.1	72.4	-0.9	-4.0	3.2	3.0
Côte d'Ivoire	58.6	61.5	71.1	77.5	6.5	1.8	6.2	6.5
D.R. Congo	49.8	46.1	49.6	52.4	4.4	-2.2	3.6	4.5
Tunisia	38.8	39.2	40.6	41.2	1.0	-7.0	4.0	2.9
Cameroon	38.9	39.0	44.4	47.6	3.9	-2.8	3.4	4.3
Uganda	36.5	37.7	41.2	45.1	6.7	-0.3	4.9	5.5
Sudan	33.4	32.6	32.5	31.9	-2.5	-8.4	0.8	1.4
Senegal	23.6	24.4	28.1	30.6	5.3	-0.7	5.2	6.0
Libya	39.8	21.8	31.8	43.0	9.9	-66.7	76.0	54.9
Zambia	24.2	18.9	19.6	20.5	1.4	-4.8	0.6	1.1
Mali	17.3	17.7	20.1	22.0	5.1	-2.0	4.0	6.0
Burkina Faso	15.7	16.1	18.3	19.9	5.7	-2.0	3.9	5.5
Botswana	18.5	15.9	17.3	19.5	3.0	-9.6	8.7	4.3

Region/Country	Nominal GDP (US$ bn)				Real GDP growth (%)			
	2019	2020	2021	2022	2019	2020	2021	2022
Benin	14.4	15.3	17.5	19.2	6.9	2.0	5.0	7.0
Gabon	16.9	15.1	16.6	17.9	3.8	-2.7	2.1	3.9
Mozambique	15.2	14.6	14.1	15.1	2.3	-0.5	2.1	4.7
Guinea	13.8	14.2	15.3	16.6	5.6	1.4	6.6	7.0
Madagascar	14.1	14.2	15.7	17.4	4.8	-3.2	3.2	4.8
Zimbabwe	18.7	14.0	8.0	8.4	-6.5	-10.4	4.2	2.5
Niger	12.9	13.0	14.3	16.4	5.9	0.5	6.9	12.8
Mauritius	14.0	11.3	12.2	13.5	3.0	-14.2	9.9	6.5
Chad	10.9	10.5	12.0	13.0	3.0	-0.7	6.1	4.8
Rwanda	10.1	10.4	10.6	11.5	9.4	2.0	6.3	8.0
Namibia	12.5	10.3	11.5	12.7	-1.0	-5.9	3.4	3.6
Equatorial Guinea	11.8	10.0	11.6	11.6	-6.1	-6.0	2.2	-4.7
R. Congo	12.5	10.0	10.9	11.5	-0.6	-7.0	-0.8	1.9
Malawi	7.7	8.3	8.5	8.8	4.5	0.6	2.5	6.5
Mauritania	7.6	7.4	7.6	7.9	5.9	-3.2	2.0	4.2
Togo	5.5	5.7	6.4	7.0	5.3	0.0	3.0	4.5
Somalia	4.9	4.9	5.4	5.7	2.9	-1.5	2.9	3.2
South Sudan	4.9	4.2	4.6	5.0	0.2	-7.5	2.8	1.4
Sierra Leone	4.2	4.1	3.8	3.9	5.4	-3.1	2.7	4.2
Eswatini	4.6	3.8	4.2	4.7	1.1	-3.5	1.4	0.8
Djibouti	3.3	3.4	3.7	4.1	7.5	-1.0	7.0	6.5
Burundi	3.1	3.1	3.3	3.4	1.8	-3.2	3.1	2.0
Liberia	3.2	3.1	3.1	3.3	-2.5	-3.0	3.2	4.1
Central African Republic	2.3	2.3	2.6	2.8	3.0	-1.0	3.0	5.0
Eritrea	2.0	2.1	2.3	2.4	3.8	-0.6	5.7	3.7
Lesotho	2.4	1.9	2.1	2.4	1.0	-4.8	3.9	4.3
Cabo Verde	2.0	1.9	2.1	2.2	5.7	-6.8	4.5	4.8
The Gambia	1.8	1.8	2.0	2.2	6.1	-1.8	6.0	6.8
Guinea-Bissau	1.4	1.4	1.6	1.7	4.5	-2.9	3.0	4.0
Comoros	1.2	1.2	1.3	1.4	1.9	-1.8	2.9	3.8
Seychelles	1.7	1.2	1.2	1.4	3.9	-13.8	4.2	5.6
São Tomé and Príncipe	0.4	0.4	0.5	0.5	1.3	-6.5	3.0	5.5

Source: IMF World Economic Outlook October 2020 and January 2021 Update

Annexure 2

Cause of Death, by Communicable Diseases and Maternal, Neonatal and Nutrition Conditions

Country	Mortality rate, under-5 (per 1,000 live births)	Life expectancy at birth, total (years)	Cause of death, by communicable diseases and maternal, neonatal and nutrition conditions (% of total)
Algeria	23.3	76.7	13.0
Angola	74.7	60.8	59.2
Benin	90.3	61.5	51.8
Botswana	41.6	69.3	44.9
Burkina Faso	87.5	61.2	54.1
Burundi	56.5	61.2	51.2
Cabo Verde	14.9	72.8	15.8
Cameroon	74.8	58.9	51.8
Central African Republic	110.1	52.8	59.1
Chad	113.8	54.0	63.4
Comoros	62.9	64.1	44.1
D.R. Congo	84.8	60.4	56.2
R. Congo	47.8	64.3	52.0
Côte d'Ivoire	79.3	57.4	54.3
Djibouti	57.5	66.6	37.4
Egypt	20.3	71.8	9.6
Equatorial Guinea	81.8	58.4	59.5
Eritrea	40.5	65.9	38.6
Eswatini	49.4	59.4	42.1
Ethiopia	50.7	66.2	44.7
Gabon	42.5	66.2	46.3
Gambia	51.7	61.7	52.2

Country	Mortality rate, under-5 (per 1,000 live births)	Life expectancy at birth, total (years)	Cause of death, by communicable diseases and maternal, neonatal and nutrition conditions (% of total)
Ghana	46.2	63.8	45.2
Guinea	98.8	61.2	58.0
Guinea-Bissau	78.5	58.0	57.6
Kenya	43.2	66.3	48.3
Lesotho	86.4	53.7	42.2
Liberia	84.6	63.7	58.4
Libya	11.5	72.7	10.4
Madagascar	50.6	66.7	45.5
Malawi	41.6	63.8	49.6
Mali	94	58.9	60.3
Mauritania	72.9	64.7	52.7
Mauritius	16	74.4	7.3
Morocco	21.4	76.5	8.9
Mozambique	74.2	60.2	54.4
Namibia	42.4	63.4	45.2
Niger	80.4	62.0	59.2
Nigeria	117.2	54.3	65.2
Rwanda	34.3	68.7	38.2
São Tomé and Príncipe	29.8	70.2	31.0
Senegal	45.3	67.7	43.8
Seychelles	14.2	72.8	13.5
Sierra Leone	109.2	54.3	56.7
Somalia	117	57.1	61.0
South Africa	34.5	63.9	35.7
South Sudan	96.2	57.6	61.3
Sudan	58.4	65.1	35.5
Tanzania	50.3	65.0	54.3
Togo	66.9	60.8	48.6
Tunisia	16.9	76.5	7.1
Uganda	45.8	63.0	51.7
Zambia	61.7	63.5	56.5
Zimbabwe	54.6	61.2	47.6

Source: World Development Indicators, World Bank

Annexure 3

Maternal Mortality Ratio and Proportion of Births Attended by Skilled Health Personnel

Country	Maternal mortality ratio (per 100,000 live births)	Proportion of births attended by skilled health personnel (%)
Algeria	112	97
Angola	241	47
Benin	397	78
Botswana	144	100
Burkina Faso	320	80
Burundi	548	85
Cabo Verde	58	92
Cameroon	529	69
Central African Republic	829	40
Chad	1140	24
Comoros	273	82
R. Congo	378	91
Côte d'Ivoire	617	74
D.R. Congo	473	80
Djibouti	248	87
Egypt	37	92
Equatorial Guinea	301	68
Eritrea	480	34
Eswatini	437	88
Ethiopia	401	28
Gabon	252	89
The Gambia	597	83
Ghana	308	78

Country	Maternal mortality ratio (per 100,000 live births)	Proportion of births attended by skilled health personnel (%)
Global	211	81
Guinea	576	55
Guinea-Bissau	667	45
Kenya	342	62
Lesotho	544	87
Liberia	661	61
Libya	72	100
Madagascar	335	46
Malawi	349	90
Mali	562	67
Mauritania	766	69
Mauritius	61	100
Morocco	70	87
Mozambique	289	73
Namibia	195	88
Niger	509	40
Nigeria	917	43
Rwanda	248	91
São Tomé and Príncipe	130	93
Senegal	315	74
Seychelles	53	99
Sierra Leone	1120	87
Somalia	829	-
South Africa	119	97
South Sudan	1150	19
Sudan	295	78
Tanzania	524	64
Togo	396	69
Tunisia	43	100
Uganda	375	74
Zambia	213	63
Zimbabwe	458	86

Source: World Health Statistics 2020, World Health Organisation

Annexure 4

Incidence of HIV/AIDS, Malaria and Tuberculosis

Country	Prevalence of HIV, total (% of population ages 15-49)	Antiretroviral therapy coverage (% of people living with HIV)	Incidence of malaria (per 1,000 population at risk)	Incidence of tuberculosis (per 100,000 people)
Algeria	0.1	67	0.0	61
Angola	1.9	27	228.9	351
Benin	1	65	386.2	55
Botswana	20.7	82	0.6	253
Burkina Faso	0.7	67	398.7	47
Burundi	1	84	250.3	107
Cabo Verde	0.6	62	-	46
Cameroon	3.1	62	247.0	179
Central African Republic	3.5	46	347.3	540
Chad	1.2	58	164.8	142
Comoros	0.1	82	18.8	35
D.R. Congo	0.8	53	319.8	320
R. Congo	3.1	25	235.1	373
Côte d'Ivoire	2.4	63	330.6	137
Djibouti	0.8	43	35.2	234
Egypt	0.1	32	0.0	12
Equatorial Guinea	7.2	35	269.0	181
Eritrea	0.6	62	28.9	86
Eswatini	27	96	0.8	363
Ethiopia	0.9	74	31.8	140
Gabon	3.5	51	248.2	521
The Gambia	1.9	29	66.0	158

Country	Prevalence of HIV, total (% of population ages 15-49)	Antiretroviral therapy coverage (% of people living with HIV)	Incidence of malaria (per 1,000 population at risk)	Incidence of tuberculosis (per 100,000 people)
Ghana	1.7	45	224.3	144
Guinea	1.4	45	283.9	176
Guinea-Bissau	3.4	41	123.3	361
Kenya	4.5	74	70.1	267
Lesotho	22.8	65	-	654
Liberia	1.5	33	361.5	308
Libya	0.2	34	-	59
Madagascar	0.3	13	82.4	233
Malawi	8.9	79	213.6	146
Mali	1.2	36	386.8	52
Mauritania	0.2	57	39.4	89
Mauritius	1.2	25	-	12
Morocco	0.1	70	0.0	97
Mozambique	12.4	60	305.4	361
Namibia	11.5	85	26.7	486
Niger	0.2	61	356.6	84
Nigeria	1.3	65	291.9	219
Rwanda	2.6	87	486.5	57
São Tomé and Príncipe	-	-	13.9	114
Senegal	0.4	70	55.8	117
Seychelles	-	-	-	16
Sierra Leone	1.6	43	320.4	295
Somalia	0.1	33	34.3	258
South Africa	19	70	1.7	615
South Sudan	2.5	18	235.9	227
Sudan	0.2	22	46.8	67
Tanzania	4.8	75	124.3	237
Togo	2.2	64	267.3	37
Tunisia	0.1	20	-	35
Uganda	5.8	84	289.2	200
Zambia	11.5	85	156.7	333
Zimbabwe	12.8	85	51.0	199

Source: World Development Indicators, World Bank

Annexure 5

Causes of Death by Non-communicable Diseases

Country	Cause of death, by non-communicable diseases (% of total)	Diabetes prevalence (% of population ages 20 to 79)
Algeria	79.4	6.7
Angola	31.7	4.5
Benin	39.0	1.0
Botswana	45.7	5.8
Burkina Faso	34.8	7.3
Burundi	36.8	5.1
Cabo Verde	70.1	2.4
Cameroon	37.7	6.0
Central African Republic	31.9	6.0
Chad	27.0	6.0
Comoros	44.7	12.3
D.R. Congo	34.1	6.0
R. Congo	38.6	6.0
Côte d'Ivoire	35.7	2.4
Djibouti	51.8	5.1
Egypt	85.6	17.2
Equatorial Guinea	32.8	6.0
Eritrea	49.5	5.1
Eswatini	45.9	4.5
Ethiopia	43.3	4.3
Gabon	45.0	6.0
The Gambia	37.1	1.9

Country	Cause of death, by non-communicable diseases (% of total)	Diabetes prevalence (% of population ages 20 to 79)
Ghana	45.4	2.5
Guinea	33.3	2.4
Guinea-Bissau	33.2	2.4
Kenya	40.9	3.1
Lesotho	45.1	4.5
Liberia	31.7	2.4
Libya	75.1	10.2
Madagascar	45.0	4.5
Malawi	40.2	4.5
Mali	30.3	2.4
Mauritania	37.1	7.1
Mauritius	88.4	22.0
Morocco	84.2	7.0
Mozambique	36.2	3.3
Namibia	43.0	4.5
Niger	30.4	2.4
Nigeria	27.1	3.1
Rwanda	50.4	5.1
São Tomé and Príncipe	57.6	2.4
Senegal	44.9	2.4
Seychelles	79.0	12.3
Sierra Leone	34.1	2.4
Somalia	29.9	5.1
South Africa	51.3	12.7
South Sudan	27.9	10.2
Sudan	53.9	22.1
Tanzania	34.4	5.7
Togo	41.1	2.4
Tunisia	85.9	8.5
Uganda	35.6	2.5
Zambia	34.8	4.5
Zimbabwe	39.3	1.8

Source: World Development Indicators, World Bank

Annexure 6

Universal Health Coverage in African Countries

Country	UHC: Service Coverage Index
Algeria	78
Angola	40
Benin	40
Botswana	61
Burkina Faso	40
Burundi	42
Cabo Verde	69
Cameroon	46
Central African Republic	33
Chad	28
Comoros	52
Congo	39
Côte d'Ivoire	47
D.R. Congo	41
Djibouti	47
Egypt	68
Equatorial Guinea	45
Eritrea	38
Eswatini	63
Ethiopia	39
Gabon	49
The Gambia	44
Ghana	47

Country	UHC: Service Coverage Index
Guinea	37
Guinea Bissau	40
Kenya	55
Lesotho	48
Liberia	39
Libya	64
Madagascar	28
Malawi	46
Mali	38
Mauritania	41
Mauritius	63
Morocco	70
Mozambique	46
Namibia	62
Niger	37
Nigeria	42
Rwanda	57
São Tomé and Príncipe	55
Senegal	45
Seychelles	71
Sierra Leone	39
Somalia	25
South Africa	69
South Sudan	31
Sudan	44
Tanzania	43
Togo	43
Tunisia	70
Uganda	45
Zambia	53
Zimbabwe	54
Africa	46
World	66

Source: World Health Statistics 2020, World Health Organisation

Annexure 7

Share of Health Expenditures

Country	Current health expenditure (% of GDP)	Public health expenditure per capita (current US$)	Public health expenditure (% of current health expenditure)	Private health expenditure (% of current health expenditure)	External health expenditure (% of current health expenditure)	Out-of-pocket expenditure (% of current health expenditure)
Algeria	6.2	168.4	65.8	34.1	0.0	32.6
Angola	2.5	36.7	41.9	54.7	3.3	36.8
Benin	2.5	6.1	19.7	50.2	30.1	44.5
Botswana	5.8	374.2	77.5	16.1	6.4	3.3
Burkina Faso	5.6	17.1	42.5	42.3	15.2	35.8
Burundi	7.7	5.9	24.6	44.5	30.9	25.6
Cabo Verde	5.4	117.2	60.2	30.9	8.9	28.0
Cameroon	3.5	3.2	6.0	85.5	8.5	75.6
Central African Republic	11.0	3.4	6.3	42.4	51.4	41.7
Chad	4.1	5.0	17.0	67.4	15.6	61.9
Comoros	4.6	6.0	9.3	76.3	14.5	74.5
D.R. Congo	3.3	2.8	15.1	49.7	35.2	41.6
R. Congo	2.1	17.5	36.8	55.3	7.9	52.3
Côte d'Ivoire	4.2	20.7	28.8	58.9	12.3	39.4
Djibouti	2.3	35.1	49.6	30.6	19.8	28.9
Egypt	4.9	36.1	28.7	70.6	0.7	62.3
Equatorial Guinea	3.0	62.4	19.9	77.8	2.3	75.3
Eritrea	4.1	3.7	15.6	48.6	35.8	48.6
Eswatini	6.5	89.1	32.9	24.6	42.5	11.3
Ethiopia	3.3	5.7	23.4	40.7	35.9	35.5

Country	Current health expenditure (% of GDP)	Public health expenditure per capita (current US$)	Public health expenditure (% of current health expenditure)	Private health expenditure (% of current health expenditure)	External health expenditure (% of current health expenditure)	Out-of-pocket expenditure (% of current health expenditure)
Gabon	2.7	128.0	58.6	40.2	1.2	23.1
The Gambia	3.1	6.8	30.6	34.3	35.1	29.3
Ghana	3.5	30.3	38.9	48.7	12.4	37.7
Guinea	3.9	6.3	16.4	73.7	9.9	60.6
Guinea-Bissau	7.0	4.9	9.2	78.4	12.4	74.5
Kenya	5.2	37.2	42.1	42.4	15.5	23.6
Lesotho	9.3	72.5	58.1	16.0	25.9	16.0
Liberia	6.7	11.4	25.2	49.6	25.2	41.8
Madagascar	4.8	7.9	35.7	34.3	30.0	28.1
Malawi	9.3	10.3	28.9	17.9	53.2	11.2
Mali	3.9	9.9	28.2	35.8	36.0	33.9
Mauritania	4.6	19.5	35.9	56.5	7.6	52.0
Mauritius	5.8	281.9	43.1	56.4	0.5	48.5
Morocco	5.3	70.2	40.2	59.6	0.2	47.0
Mozambique	8.2	8.5	21.2	15.9	62.9	9.7
Namibia	8.0	217.2	46.1	49.3	4.6	8.4
Niger	7.3	10.1	33.2	55.0	11.8	48.8
Nigeria	3.9	12.5	14.9	77.3	7.9	76.6
Rwanda	7.5	18.4	31.5	37.8	30.7	10.5
São Tomé and Príncipe	6.3	55.1	44.0	16.3	39.7	15.0
Senegal	4.0	14.0	23.8	62.5	13.7	55.9
Seychelles	5.1	620.4	74.5	25.2	0.4	23.5
Sierra Leone	16.1	8.3	9.7	64.4	25.9	44.8
South Africa	8.3	284.3	54.0	44.1	1.9	7.7
South Sudan	6.4	2.9	10.8	26.9	62.3	22.0
Sudan	4.5	13.7	22.8	69.5	7.6	66.2
Tanzania	3.6	15.8	42.9	24.8	32.2	24.0
Togo	6.2	7.1	17.0	66.2	16.8	56.3
Tunisia	7.3	144.3	57.4	42.2	0.4	38.9
Uganda	6.5	6.8	15.8	41.1	43.1	38.4
Zambia	4.9	29.7	39.1	16.4	44.6	10.0
Zimbabwe	4.7	39.2	28.0	52.0	20.0	24.4

Source: World Development Indicators, World Bank

Annexure 8

Global Health Security Index for Africa 2019

Countries	GHS Rank 2019	Overall Score	Preparedness
Algeria	173	23.6	Least Prepared
Angola	170	25.2	Least Prepared
Benin	150	28.8	Least Prepared
Botswana	139	31.1	Least Prepared
Burkina Faso	145	30.1	Least Prepared
Burundi	177	22.8	Least Prepared
Cabo Verde	146	29.3	Least Prepared
Cameroon	115	34.4	More Prepared
Central African Republic	159	27.3	Least Prepared
Chad	150	28.8	Least Prepared
Comoros	160	27.2	Least Prepared
R. Congo	189	6.3	Least Prepared
Côte d'Ivoire	105	35.5	More Prepared
Djibouti	175	23.2	Least Prepared
D.R. Congo	161	26.5	Least Prepared
Egypt	87	39.9	More Prepared
Equatorial Guinea	195	16.2	Least Prepared
Eritrea	178	22.4	Least Prepared
Eswatini	139	31.1	Least Prepared
Ethiopia	84	40.6	More Prepared
Gabon	186	20	Least Prepared
The Gambia	117	34.2	More Prepared

Countries	GHS Rank 2019	Overall Score	Preparedness
Ghana	105	35.5	More Prepared
Guinea	125	32.7	Least Prepared
Guinea-Bissau	186	20	Least Prepared
Kenya	55	47.1	More Prepared
Lesotho	144	30.2	Least Prepared
Liberia	111	35.1	More Prepared
Libya	168	25.7	Least Prepared
Madagascar	86	40.1	More Prepared
Malawi	154	28	Least Prepared
Mali	147	29	Least Prepared
Mauritania	157	27.5	Least Prepared
Mauritius	114	34.9	More Prepared
Morocco	68	43.7	More Prepared
Mozambique	153	28.1	Least Prepared
Namibia	104	35.6	More Prepared
Niger	132	32.2	Least Prepared
Nigeria	96	37.8	More Prepared
Rwanda	117	34.2	More Prepared
São Tomé and Príncipe	192	17.7	Least Prepared
Senegal	95	37.9	More Prepared
Seychelles	133	31.9	Least Prepared
Sierra Leone	92	38.2	More Prepared
Somalia	194	16.6	Least Prepared
South Africa	34	54.8	More Prepared
South Sudan	180	21.7	Least Prepared
Sudan	163	26.2	Least Prepared
Tanzania	101	36.4	More Prepared
Togo	129	32.5	Least Prepared
Tunisia	122	33.7	More Prepared
Uganda	63	44.3	More Prepared
Zambia	152	28.7	Least Prepared
Zimbabwe	92	38.2	More Prepared

Source: Global Health Security Report 2019

Annexure
9

Hospital Beds (per 10,000 Population)

Country	Hospital beds per 10,000 population
Algeria	19
Benin	5
Botswana	18
Burkina Faso	4
Burundi	8
Cabo Verde	21
Cameroon	13
Central African Republic	10
Comoros	22
Djibouti	14
Egypt	14
Equatorial Guinea	21
Eritrea	7
Eswatini	21
Ethiopia	3
Gabon	13
The Gambia	11
Ghana	9
Guinea	3
Guinea-Bissau	10
Kenya	14

Country	Hospital beds per 10,000 population
Liberia	8
Libya	32
Madagascar	2
Malawi	13
Mauritius	34
Morocco	10
Mozambique	7
Namibia	27
Niger	4
São Tomé and Príncipe	29
Senegal	3
Seychelles	36
Somalia	9
South Africa	23
Sudan	7
Tanzania	7
Togo	7
Tunisia	22
Uganda	5
Zambia	20
Zimbabwe	17

Source: Human Development Report 2020, UNDP

Annexure
10

Density of Medical Staff in Africa

Country	Density of medical doctors (per 10,000 population)	Density of nursing and midwifery personnel (per 10,000 population)
Algeria	17.2	16
Angola	2.1	4
Benin	1	4
Botswana	5.3	54
Burkina Faso	1	9
Burundi	1	9
Cabo Verde	7.8	13
Cameroon	1	0
Central African Republic	1	2
Chad	0.4	2
Comoros	2.7	6
R. Congo	1.6	6
Côte d'Ivoire	2.3	6
D.R. Congo	1	11
Djibouti	2.2	7
Egypt	4.5	19
Equatorial Guinea	4	5
Eritrea	1	14
Eswatini	3.3	41
Ethiopia	1	7
Gabon	6.8	30

Country	Density of medical doctors (per 10,000 population)	Density of nursing and midwifery personnel (per 10,000 population)
The Gambia	1	15
Ghana	1.4	42
Guinea	1	1
Guinea-Bissau	1.3	7
Kenya	1.6	12
Lesotho	1	33
Liberia	0.4	5
Libya	20.9	65
Madagascar	1.8	2
Malawi	0.4	4
Mali	1.3	4
Mauritania	1.9	9
Mauritius	25.3	35
Morocco	7.3	14
Mozambique	1	7
Namibia	4.2	20
Niger	0.4	3
Nigeria	3.8	12
Rwanda	1.3	12
São Tomé and Príncipe	1	19
Senegal	1	3
Seychelles	21.2	81
Sierra Leone	0.3	2
Somalia	0.2	1
South Africa	9.1	13
Sudan	2.6	7
Togo	1	4
Tunisia	13	25
Uganda	1.7	12
Tanzania	0.1	6
Zambia	11.9	13
Zimbabwe	2.1	19

Source: World Health Statistics 2020, World Health Organisation

Annexure 11

India Exim Bank's LOCs in Africa (As on March 31, 2021)

GOI-supported LOCs extended by India Exim Bank

Sr. No.	Country	Borrower	Amount of Credit (US$ mn)	Products/Projects covered
1	Angola	Government of Angola	40.0	Railway rehabilitation
2	Angola	Government of Angola	30.0	Industrial park
3	Angola	Government of Angola	15.0	Setting up a textile project (cotton ginning & spinning)
4	Benin	Government of Benin	15.0	(A) Railway equipment (US$ 10.25 mn), (B) agricultural equipment (US$ 4.25 mn) and (C) feasibility study for setting up a cyber city (US$ 0.50 mn)
5	Benin	Government of Benin	15.0	Tractor assembly plant and farm equipment manufacturing unit
6	Benin	Government of Benin	42.6	Upgradation of 47 Water Supply Schemes in 103 villages in Benin
7	Burkina Faso	Government of Burkina Faso	30.0	Agricultural projects including acquisition of tractors, harvesters, agricultural processing equipment
8	Burkina Faso	Government of Burkina Faso	25.0	Rural electrification
9	Burkina Faso	Government of Burkina Faso	22.5	Low cost housing and economical buildings project in Burkina Faso
10	Burundi	Government of Burundi	80.0	Kabu Hydro Electric Project
11	Burundi	Government of Burundi	4.2	Farm Mechanization
12	Burundi	Government of Burundi	0.2	Preparation of Detailed Project report for an Integrated Food Processing Complex in Burundi

Sr. No.	Country	Borrower	Amount of Credit (US$ mn)	Products/Projects covered
13	Burundi	Government of Burundi	161.4	Construction of Parliament building in Gitega and ministerial Buildings in Burundi
14	Cameroon	Government of Cameroon	37.7	(i) Maize Farm Plantation Projects (US$ 18.77 mn), (ii) Rice Farm Plantation Projects (US$ 18.88 mn)
15	Cameroon	Government of Cameroon	42.0	Cassava Plantation Project
16	Central African Republic	Government of Central African Republic	29.5	Setting up a modern dry process cement plant of 400 TPD capacity and procurement of 100 buses for internal transport
17	Central African Republic	Government of Central African Republic	20.0	Development of Mining Project
18	Central African Republic	Government of Central African Republic	39.7	Two hydro-electric projects
19	Central African Republic	Government of Central African Republic	7.0	[i] Capitalisation of all interest, penal interest and commitment fees overdues under the LOC of US$ 29.50 million and future interest and other dues falling due under the LOC of US$ 29.50 million till September 15, 2024 [ii] Capitalisation of all future interest and other dues falling due under the new LOC of US$ 20.00 million till January 16, 2023
20	Chad	Government of Chad	50.0	Cotton yarn plant, bicycle plant, Industrial transport equipment and rolling plant mill, Agro-processing plants for tomato and mango and Irrigation equipment
21	Chad	Government of Chad	15.9	For financing Extension of spinning mill [addition of weaving and processing capacities] [US$ 15.90 million] in Chad
22	Chad	Government of Chad	6.1	[i] Capitalisation of all interest, penal interest and commitment fee overdues under the LOC of US$ 50 million and future interest and other dues falling due under the LOC of US$ 50 million till June 2020, into new LOC of US$ 6.12 million. [ii] Capitalisation of all future interest and other dues falling due under the new LOC of US$ 15.90 million till December 23, 2023, into new LOC of US$ 6.12 million
23	Comoros	Government of Comoros	41.6	For installation of an 18 MW power project in Moroni, the capital city of Comoros

Sr. No.	Country	Borrower	Amount of Credit (US$ mn)	Products/Projects covered
24	Côte d'Ivoire	Government of Côte d'Ivoire	26.8	Renewal of urban transport system in Abidjan and for agricultural projects in the field of vegetable oil extraction, fruits and vegetable chips production, production of cocoa, coffee
25	Côte d'Ivoire	Government of Côte d'Ivoire	25.5	(I) Mahatma Gandhi IT and Biotechnology Park, (ii) Fisheries Processing Plant and (Iii) Coconut fibre processing plant
26	Côte d'Ivoire	Government of Côte d'Ivoire	30.0	Transmission line between Côte d'Ivoire and Mali
27	Côte d'Ivoire	Government of Côte d'Ivoire	30.0	Rice production programme
28	Côte d'Ivoire	Government of Côte d'Ivoire	24.0	Electricity Interconnection Project between Côte d'Ivore and Mali
29	Côte d'Ivoire	Government of Côte d'Ivoire	71.4	Upgradation of Military Hospitals
30	D.R.Congo	Government of D. R. Congo	33.5	Setting up a cement plant, acquisition of buses and acquisition of equipment for MIBA
31	D.R.Congo	Government of D. R. Congo	25.0	Installation of hand pumps and submersible pumps
32	D.R.Congo	Government of D. R. Congo	42.0	Execution of Kakobola Hydroelectric Power Project
33	D.R.Congo	Government of D. R. Congo	168.0	Katende Hydro-electric Project
34	D.R.Congo	Government of D. R. Congo	82.0	Completion of Katende Hydro-electric Project
35	D.R.Congo	Government of D. R. Congo	34.5	Development of Power Distribution Project in Bandundu Province
36	D.R.Congo	Government of D. R. Congo	109.9	Financing transmission and distribution project in Kasai province of Democratic Republic of the Congo (DRC) for evacuation of electricity from Katende Hydroelectricity Power Project
37	D.R.Congo	Government of D. R. Congo	33.3	Financing installation of 15 MW solar photovoltaic power project at Karawa, province – North Ubangi, Democratic Republic of Congo
38	D.R.Congo	Government of D. R. Congo	25.3	Financing installation of 10 MW solar photovoltaic power project at Lusambo, province – Sankuru, Democratic Republic of Congo

Sr. No.	Country	Borrower	Amount of Credit (US$ mn)	Products/Projects covered
39	D.R.Congo	Government of D. R. Congo	24.6	Financing installation of 10 MW solar photovoltaic power project at Mbandaka, Province – Equator
40	Djibouti	Central Bank of Djibouti	10.3	General purpose
41	Djibouti	Government of Djibouti	10.4	Cement Plant Project
42	Djibouti	Government of Djibouti	14.6	Completing Cement Plant Project in Djibouti
43	Djibouti	Government of Djibouti	15.1	Ali Sabieh Cement Project, Djibouti
44	Eritrea	Government of Eritrea	20.0	Multipurpose agricultural projects and educational projects
45	Ethiopia	Government of Ethiopia	65.0	Energy transmission and distribution project
46	Ethiopia	Government of Ethiopia	122.0	Development of sugar industry
47	Ethiopia	Government of Ethiopia	166.2	Development of sugar industry
48	Ethiopia	Government of Ethiopia	213.3	Development of sugar industry
49	Ethiopia	Government of Ethiopia	91.0	Development of sugar industry
50	Ethiopia	Government of Ethiopia	47.0	Development of sugar industry
51	The Gambia	Government of Gambia	5.8	Supply of tractors
52	The Gambia	Government of Gambia	10.0	Construction of National Assembly Building Complex
53	The Gambia	Government of Gambia	16.6	Completion of the National Assembly Building Complex
54	The Gambia	Government of Gambia	22.5	Electrification expansion project
55	The Gambia	Government of Gambia	22.5	Replacement of Asbestos water pipes with UPVC pipes project
56	The Gambia	Government of Gambia	7.0	Capitalisation of all existing overdue amount and future interest dues
57	Ghana	Government of Ghana	27.0	Rural electrification, agricultural and transportation projects
58	Ghana	Government of Ghana	60.0	Rural electrification project and construction of Presidential Office
59	Ghana	Government of Ghana	25.0	Foreign Policy Training Institution, railway corridors and agro processing plant
60	Ghana	Government of Ghana	21.7	(i) Improved fish harvesting & fish processing project and (ii) Waste management equipment and management support project
61	Ghana	Government of Ghana	35.0	Sugar Plant

Sr. No.	Country	Borrower	Amount of Credit (US$ mn)	Products/Projects covered
62	Ghana	Government of Ghana	24.5	Sugarcane development and irrigation project
63	Ghana	Government of Ghana	30.0	Rehabilitation and Up-gradation of Potable Water System in Yendi, Ghana
64	Ghana	Government of Ghana	150.0	Strengthening of Agriculture Mechanization Services Centres
65	Guinea	Government of the Republic of Guinea	35.0	Strengthening of Health System
66	Guinea	Government of the Republic of Guinea	20.2	Solar Projects
67	Guinea	Government of the Republic of Guinea	20.5	Construction and Up-gradation of Regional Hospitals in Kankan and Nzerekore
68	Guinea	Government of the Republic of Guinea	170.0	Project for strengthening the drinking water supply of Grand Conakry-Horizon 2040
69	Guinea Bissau	Government of Guinea-Bissau	25.0	Food processing and agricultural sector (US$ 5 mn) Rural Electrification Project (US$ 20 mn)
70	Kenya	Government of Kenya	61.6	Power Transmission Lines (1st tranche of US$ 102.08 mn)
71	Kenya	Government of Kenya	100.0	Agriculture Mechanization project
72	Kenya	Government of Kenya	15.0	Development of various small and medium enterprises
73	Kenya	Government of Kenya	30.0	Upgrade of Rift Valley Textiles Factory (RIVATEX East Africa Ltd)
74	Liberia	Government of Liberia	1.4	Power Transmission and Distribution Project
75	Lesotho	Government of Lesotho	5.0	General purpose: Contracts approved include export of pump sets, consultancy services and irrigation equipment
76	Lesotho	Government of Lesotho	4.7	Vocational training centre for empowerment of youth and women
77	Madagascar	Government of Madagascar	25.0	Project for rice productivity and project for fertilizer production
78	Madagascar	Government of Madagascar	2.5	Completion of unfinished fertilizer plant project
79	Malawi	Government of Malawi	30.0	Supply of irrigation, storage, tobacco threshing plant and one village- one project
80	Malawi	Government of Malawi	50.0	Cotton Processing Facilities, Green Belt Initiative and One Village One Product Project

Sr. No.	Country	Borrower	Amount of Credit (US$ mn)	Products/Projects covered
81	Malawi	Government of Malawi	76.5	Irrigation Network and Sugar processing equipment and fuel storage facility
82	Malawi	Government of Malawi	23.5	Construction of a new water supply system from Likhubula river in Mulanje to Blantyre
83	Malawi	Government of Malawi	215.7	Drinking Water Supply Schemes and Other Development Projects
84	Mali	Government of Mali	27.0	Rural electrification and setting up of agro machinery and tractor assembly plant
85	Mali	Government of Mali	30.0	Electricity transmission and distribution project from Côte d'Ivoire to Mali
86	Mali	Government of Mali	45.0	Electricity transmission and distribution project from Côte d'Ivoire to Mali
87	Mali	Government of Mali	36.0	Completion of Mali-Ivory Coast Interconnection Link for integrating the national power grids of the two countries.
88	Mali	Government of Mali	15.0	Agriculture and food processing projects
89	Mali	Government of Mali	100.0	Power Transmission Project Connecting Bamako and Sikasso via Bougouni
90	Mali & Senegal	Governments of Mali and Senegal	27.7	Acquisition of railway coaches and locomotives from India
91	Mauritania	Government of Mauritania	21.8	Potable water project (US$ 4.896 mn) and Milk Processing Plant (US$ 11.30 mn)
92	Mauritius	Government of Mauritius	48.5	Supply of Offshore Patrol Vessel
93	Mauritius	Government of Mauritius	46.0	Purchase, upgradation, servicing and maintenance of defence related equipment and vehicles for the Mauritius Police Force (MPF)
94	Mauritius	Government of Mauritius	18.0	To finance the acquisition of Waterjet Fast Attack Craft
95	Mauritius	Government of Mauritius	52.3	Project Trident [Construction of berthing jetty and Head Quarter building for National Coast Guard of Mauritius]
96	Mauritius	SBM [Mauritius] Infrastructure Development Co. Ltd. [a nominated agency of Government of Mauritius]	500.0	Equity Participation for financing various Infrastructure Projects
97	Mauritius	Government of Mauritius	100.0	Defence Procurement

Sr. No.	Country	Borrower	Amount of Credit (US$ mn)	Products/Projects covered
98	Mozambique	Government of Mozambique	20.0	General purpose - Contracts approved include supply of water drilling machinery, equipment, accessories, components and spares, support vehicles, water and fuel tankers and electrical equipment
99	Mozambique	Government of Mozambique	20.0	Electrification of Gaza province
100	Mozambique	Government of Mozambique	20.0	Transfer of water drilling technology and equipment
101	Mozambique	Government of Mozambique	25.0	To finance IT Park Project which will comprise construction of building and (a) incubator facility, (b) research and learning centre and (c) technology park and administrative facility.
102	Mozambique	Government of Mozambique	30.0	Rural Electrification Project in the provinces of Inhambane, Zambezi and Nampula
103	Mozambique	Government of Mozambique	25.0	Rural Electrification of Cabo Delgado, Manica, Niassa Provinces
104	Mozambique	Government of Mozambique	20.0	Enhancing productivity of rice, wheat, maize cultivation
105	Mozambique	Government of Mozambique	13.0	Solar Photo Voltaic Module Manufacturing Plant
106	Mozambique	Government of Mozambique	19.7	Rural drinking water project extension
107	Mozambique	Government of Mozambique	149.7	Rehabilitation of Road between Tica, Buzi and Nova Sofala in Mozambique
108	Mozambique	Government of Mozambique	47.0	Construction of 1200 houses in Mozambique
109	Mozambique	Government of Mozambique	38.0	Construction of 1600 Borewells with Hand pumps and 8 Small Water Systems in Mozambique
110	Mozambique	Government of Mozambique	95.0	Procurement of railway rolling stock including locomotives, coaches and wagons
111	Mozambique	Government of Mozambique	250.0	Re-offering of LOC for Improving the quality of power supply in Mozambique
112	Niger	Government of Niger	17.0	Buses, automobiles, flour mills and motor pumps.
113	Niger	Government of Niger	20.0	(a) Rehabilitation of six-power stations (b) Purchase of three power transformers (c) Rehabilitation as well as erection of power lines between various places in Niger

Sr. No.	Country	Borrower	Amount of Credit (US$ mn)	Products/Projects covered
114	Niger	Government of Niger	34.5	Solar electrification of 30 villages and solar photovoltaic system of 5 MW
115	Niger	Government of Niger	25.0	Potable Water for Semi-Urban and Rural Communities
116	Niger	Government of Niger	30.0	Solid Waste Treatment cum Landfill Project
117	Nigeria	Government of Nigeria	100.0	[i] construction of gas-based power plant in the cross river state [ii] 132/33 KV substation, solar mini grid electrification and solar street lighting in the state of Kaduna; & [iii] supply and commissioning of transmission lines;
118	R. Congo	Government of Republic of Congo	70.0	Rural Electrification
119	R. Congo	Government of Republic of Congo	89.9	Development of Transport System
120	R. Congo	Government of Republic of Congo	55.0	Setting up a Greenfield 600 tpd rotary kiln Cement Plant Project
121	Rwanda	Government of Rwanda	20.0	Power projects
122	Rwanda	Government of Rwanda	60.0	Power projects
123	Rwanda	Government of Rwanda	120.1	[i] Export Targeted Modern Irrigated Agricultural Project (US$ 60.22 million); and [ii] Extension of Export Targeted Modern Irrigated Agricultural Project (US$ 59.83 million)
124	Rwanda	Government of Rwanda	81.0	Establishment of 10 Vocational Training Centres and 4 business incubation centres in Rwanda
125	Rwanda	Government of Rwanda	66.6	Base-Butero-Kidaho road project
126	Rwanda	Government of Rwanda	100.0	Development of two SEZs & expansion of the Kigali SEZ
127	Rwanda	Government of Rwanda	100.0	Three Agriculture Project Schemes i.e. (i) Warufu Multipurpose Irrigation Project, (ii) Mugesera Irrigation Project, and (iii) Nyamukana Irrigation Project
128	Senegal	Government of Senegal	17.9	Export of 350 buses and accessories and 85 pick-up vans
129	Senegal	Government of Senegal	27.0	Irrigation Project

Sr. No.	Country	Borrower	Amount of Credit (US$ mn)	Products/Projects covered
130	Senegal	Government of Senegal	11.0	Supply of 70 multipurpose oil presses, 70 mini bakeries and 70 cereal and fruit processing units for women poverty alleviation and supply of 320 pickup vehicles and 80 station wagons for support of decentralized administration.
131	Senegal	Government of Senegal	10.0	IT training projects
132	Senegal	Government of Senegal	25.0	Rural electrification project and Fishing Industry Development Project
133	Senegal	Government of Senegal	5.0	Supply of medical equipment, furniture and other accessories to four hospitals
134	Senegal	Government of Senegal	27.5	Rural electrification
135	Senegal	Government of Senegal	19.0	Fisheries Development Project
136	Senegal	Government of Senegal	42.0	Setting up a Modern Abattoir, Meat Processing, Cold Storage, Rendering and Tannery Plant and Market Place in Senegal
137	Senegal	Government of Senegal	63.0	Rice Self Sufficiency programme in Senegal
138	Senegal	Government of Senegal	26.0	Acquisition of buses
139	Senegal	Government of Senegal	24.5	Up-gradation and rehabilitation of Health Care System.
140	Seychelles	Government of Seychelles	8.0	General Purpose and Implementation of Integrated Health Information System.
141	Seychelles	Government of Seychelles	10.0	Import of goods and services from India for specific projects funded by Development Bank of Seychelles (DBS)
142	Seychelles	Government of Seychelles	10.0	Procurement of goods and projects as per the specified needs of the Government of the Republic of Seychelles
143	Sierra Leone	Government of Sierra Leone	15.0	Procurement of tractors and connected implements, harvesters, rice threshers, rice mills, maize shellers and pesticide spray equipment
144	Sierra Leone	Government of Sierra Leone	30.0	Rehabilitation of existing facilities and addition of new infrastructure to supply potable water
145	Sierra Leone	Government of Sierra Leone	78.0	Transmission Line and Substation in Sierra Leone
146	Sierra Leone	Government of Sierra Leone	30.0	Land and infrastructure development including Hydraulics, water management system (irrigation) and provision of Tractors.

Sr. No.	Country	Borrower	Amount of Credit (US$ mn)	Products/Projects covered
147	Sierra Leone	Government of Sierra Leone	15.0	Expansion of the ongoing projects for rehabilitation of existing potable water facilities in four communities in Sierra Leone
148	Sudan	Government of Sudan	50.0	General purpose: Contracts approved include export of electrification equipment, photovoltaic cells, diesel coaches, rehabilitation of locomotives, textile machinery, copper rods etc.
149	Sudan	Government of Sudan	350.0	Setting up of 4 x 125 MW Kosti Combined Cycle Power Plant
150	Sudan	Government of Sudan	41.9	SINGA-GEDARIF transmission and Sub-Station Project
151	Sudan	Government of Sudan	48.0	Supply of agricultural inputs for the Sudanese Agricultural Bank, technical and laboratory equipment to Higher Educational Institutions, scientific equipment for Ministry of Science and Technology, solar electrification & meeting requirements of Sudan Railways
152	Sudan	Government of Sudan	37.4	SINGA-GEDARIF Transmission line extension to Galabat, micro-industrial projects and development of livestock production and services
153	Sudan	Government of Sudan	25.0	Mashkour (earlier Elduem) Sugar Project at White Nile State (First tranche of US$ 150 mn)
154	Sudan	Government of Sudan	125.0	Mashkour Sugar Project (Second tranche of US$ 150 mn)
155	Sudan	Government of Sudan	45.2	Capitalization of Interest under operative LOCs for change in terms of the existing LOCs
156	Sudan	Government of Sudan	19.6	Capitalization of Interest under operative LOCs for change in terms of the existing LOCs
157	Eswatini (Swaziland)	Government of Eswatini (Swaziland)	20.0	Information technology park
158	Eswatini (Swaziland)	Government of Eswatini (Swaziland)	37.9	Agricultural Development and Mechanization of Agriculture in Eswatini (Swaziland)
159	Eswatini (Swaziland)	Government of Eswatini (Swaziland)	10.4	Construction of a Disaster Recovery Site

Sr. No.	Country	Borrower	Amount of Credit (US$ mn)	Products/Projects covered
160	Tanzania	Government of Tanzania	40.0	Export of tractors, pumps and equipment from India to Tanzania.
161	Tanzania	Government of Tanzania	36.6	Financing the purchase of 679 (earlier 723) vehicles
162	Tanzania	Government of Tanzania	178.1	Water supply schemes to Dar-es-Salam
163	Tanzania	Government of Tanzania	268.4	Extension of Lake Victoria Pipeline to Tabora, Igunga and Nzega
164	Tanzania	Government of Tanzania	92.2	Rehabilitation and improvement of water supply system in Zanzibar
165	Tanzania	Government of Tanzania	500.0	Water Supply scheme in 17 towns in Tanzania
166	Togo	Government of Togo	15.0	Rural Electrification Project
167	Togo	Government of Togo	13.1	Farming and cultivation of Rice, Maize and Sorghum in Togo
168	Togo	Government of Togo	30.0	Rural Electrification Project to cover 150 localities
169	Togo	Government of Togo	52.0	Setting up of 161 KV Power Transmission Line
170	EBID, West Africa	Ecowas Bank for Investment and Development (EBID), West Africa	250.0	Public Sector projects
171	EBID, West Africa	Ecowas Bank for Investment and Development (EBID), West Africa	100.0	Financing exports of various equipment, goods and services
172	EBID, West Africa	Ecowas Bank for Investment and Development (EBID), West Africa	150.0	Export of goods and services and project exports
173	EBID, West Africa	Ecowas Bank for Investment and Development (EBID), West Africa	500.0	Development Projects
174	Zambia	Government of Zambia	29.0	Itezhi-Tezhi Hydro power project
175	Zambia	Government of Zambia	50.0	Pre-fabricated health posts
176	Zambia	Government of Zambia	18.0	Pre-fabricated health posts
177	Zimbabwe	Government of Zimbabwe	28.6	Up-gradation of Deka Pumping Station and River Water Intake System in Zimbabwe

Sr. No.	Country	Borrower	Amount of Credit (US$ mn)	Products/Projects covered
178	Zimbabwe	Government of Zimbabwe	87.0	Renovation/Up- gradation of Bulawayo Thermal Power Plant
179	Zimbabwe	Government of Zimbabwe	19.5	Completion of Phase II: Up-gradation of Deka Pumping Station and River Water Intake System in Zimbabwe
180	Zimbabwe	Government of Zimbabwe	23.0	Up-gradation of Bulawayo Thermal Power Plant
181	Zimbabwe	Government of Zimbabwe	310.0	Repowering of Hwange Thermal Power Station
	Total		**10,575.2**	

Commercial LOCs extended by India Exim Bank

Sr. No.	Borrower	Region	Amount of Credit (US$ mn)	Products/Projects covered
1	Ecowas Bank for Investment and Development	West Africa	4.0	Financing acquisition and implementation of Core Banking Solution [CBS]
	Total		**4.0**	

Annexure 12

Programme Schedule of the India Exim Bank Webinar on "India-Africa Dialogue: Prospects in Healthcare"

India-Africa Dialogue: Prospects in Healthcare

Date: Wednesday, December 2, 2020

Time: **1600 hrs – 1800 hrs IST**

Time	Details
1600 hrs - 1603 hrs	***Introduction of Panelists*** *Mr. Sunil Rajguru* *Resident Representative (East Africa), India Exim Bank*
1603 hrs – 1610 hrs	***Overview of Africa's Healthcare Sector*** *Ms. Snehal Bangera* *Economist, India Exim Bank*
1610 hrs – 1620 hrs	***Opening Remarks*** *Ms. Harsha Bangari* *Deputy Managing Director, India Exim Bank*
1620 hrs - 1630 hrs	***Keynote Address – India's Footprints in Africa's Healthcare*** *Mr. Rahul Chhabra* *Secretary (ER), Ministry of External Affairs, Government of India*
1630 hrs - 1640 hrs	***Address by Guest of Honour*** *Dr. Kailesh Kumar Jagutpal* *Hon'ble Minister of Health and Wellness, The Republic of Mauritius*

Time	Details
1640 hrs - 1710 hrs	***Regional Focus Session*** *Panelists* • *Mr. Mohammed Maliki, Ambassador of the Kingdom of Morocco to India* • *H.E. Mr. Gilbert Shimane Mangole, High Commissioner of the Republic of Botswana* • *Mr. G. V. Srinivas, Ambassador of India to Senegal (concurrently accredited to The Gambia, Guinea Bissau and Cabo Verde)* • *Mr. A. Ajay Kumar, High Commissioner of India to Uganda (concurrently accredited to Burundi)*
1710 hrs -1740 hrs	***Experience Sharing Session*** *Panelists* • *Dr. Devi Prasad Shetty, Chairman, Narayana Health* • *Mr. K B George, Chairman and Managing Director, HLL Lifecare Ltd.* • *Dr. K. Hari Prasad, Hospitals Division - President, Apollo Hospitals* • *Mr. V. Sukumar Hebbar, Vice President & Head, L&T Construction, Larsen & Toubro Ltd.*
1740 hrs - 1755 hrs	**Q&A Session**
1755 hrs - 1800 hrs	***Vote of Thanks*** *Mr. Sanjay Choudhary* *Resident Representative (Southern Africa), India Exim Bank*

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