

Pandemic Risks Threaten Africa's Sustainable Development

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Abstract

Africa faces significant challenges in achieving the United Nations Sustainable Development Goals (SDGs) by 2030, compounded by a rapidly growing population, demographic shift, and a host of socioeconomic and environmental issues. The population of Africa is projected to increase from 1.3 billion in 2020 to 2.5 billion in 2050¹. The continent's economic growth has already been sluggish over the past decade due to factors such as conflicts, famine, and various endemic and epidemic diseases, including Ebola, Mpox, Lassa fever, malaria, HIV/AIDS, tuberculosis, pneumonia, and diarrheal diseases. This large population increase will only further strain economic growth in the region. Health crises are exacerbated by weak health systems, primarily due to insufficient financial resources and acute shortages of healthcare workers. Despite the Abuja Declaration of 2001, where African leaders committed to allocating at least 15% of their GDP to healthcare, few countries have met this target. The COVID-19 pandemic has underscored the vulnerability of African nations, revealing significant impacts on populations, economies, and social structures. The pandemic, coupled with existing challenges such as climate change, has further strained the continent's fragile health systems. Infectious diseases, particularly those thriving in severe climatic conditions, pose ongoing healthcare challenges. Addressing these issues through climate-resilient health systems, "One

¹ Sadigov R. Rapid Growth of the World Population and Its Socioeconomic Results. *Scientific World Journal*. 2022 Mar 23; 2022:8110229. doi: 10.1155/2022/8110229. PMID: 35370481; PMCID: PMC8967589.

Health” approach is essential for improving life expectancy and fostering sustainable development.

We advocate a "One Health" approach to addressing disease surveillance, pandemic preparedness, and response. One Health is “a collaborative, multi-sectoral strategy aimed at achieving optimal health outcomes by recognizing the interconnectedness of people, animals, plants, and their shared environment.”² This approach is particularly crucial for combating emerging infectious diseases. Emerging and endemic zoonotic diseases pose a threat not only to the health of animals and humans but also to global health security. An estimated 60% of known infectious diseases and up to 75% of new or emerging infectious diseases are zoonotic in origin.^{3,4} Because zoonotic diseases represent critical threats to global health security, implementing robust disease surveillance, early warning systems, and climate action plans are vital components for redefining Africa's future. By integrating these strategies, African nations can enhance their resilience, achieve some, if not all the SDGs by 2030, and meet the objectives of the Africa Agenda 2063. We reviewed official government reports, analyses, and peer-reviewed articles to inform our analyses.

Key Words: Pandemic risks, Epidemics, One Health, Global Health Security, Sustainable Development

Introduction

Africa’s population is growing at an exponential rate. By 2030, when countries are expected to achieve the United Nations Sustainable Development Goals (SDGs), the population of Africa is projected to

²CDC:<https://www.cdc.gov/one-health/about/index.html> Health collaborative, plants environment

³ Salyer SJ, Silver R, Simone K, Barton Behravesh C. Prioritizing Zoonoses for Global Health Capacity Building-Themes from One Health Zoonotic Disease Workshops in 7 Countries, 2014-2016. *Emerg Infect Dis.* 2017 Dec;23(13):S55-64. doi: 10.3201/eid2313.170418. PMID: 29155664; PMCID: PMC5711306.

⁴ Woolhouse ME, Gowtage-Sequeria S. Host range and emerging and reemerging pathogens. *Emerg Infect Dis.* 2005;11:1842-7. 10.3201/eid1112.050997

significantly increase from 1.3 billion in 2020 to 2.5 billion in 2050.⁵ This demographic surge presents both opportunities and challenges for sustainable development across the continent. Over the past decade, Africa's economic growth has been hindered by a combination of factors including wars, famine, and outbreaks of diseases such as Ebola, COVID-19, malaria, HIV/AIDS, tuberculosis, pneumonia, and diarrheal diseases.⁶ Consequently, beyond the pronounced health issues, these diseases should, and must globally be seen as a development concern, affecting education and knowledge acquisition, income and social status, productivity and economic growth and other direct and indirect components of human development such as gender equality and human rights.⁷

In 2001, African leaders met in Abuja, Nigeria, and pledged to allocate at least 15% of their GDP to healthcare.⁸ However, more than two decades later, fewer African countries have met this goal. The Member States of the African Region of the World Health Organization are on average still far from meeting key health financing goals.⁹ Out-of-pocket expenditure is still higher than 40% of the total health expenditure in 20 of the 55 countries, and in 22 countries the total health expenditure does not reach even the minimal level of \$44 U.S. Dollars per capita defined by the High Level Task Force on Innovative International Financing for Health Systems (HLTF).¹⁰ Only Botswana, Rwanda and Zambia have managed to meet both the Abuja and the HLTF targets so far.¹¹ The COVID-19 pandemic has highlighted the severe impacts of weak health systems, affecting populations, economies,

⁵Sadigov R. Rapid Growth of the World Population and Its Socioeconomic Results. *Scientific World Journal*. 2022 Mar 23;2022:8110229. doi: 10.1155/2022/8110229. PMID: 35370481; PMCID: PMC8967589.

⁶ Boutayeb A. (2020) The Impact of Infectious Diseases on the Development of Africa. *Handbook of Disease Burdens and Quality of Life Measures*. 2010:1171-88. doi: 10.1007/978-0-387-78665-0_66. PMCID: PMC7120372.

⁷ Boutayeb A. (2010) The Impact of Infectious Diseases on the Development of Africa. *Handbook of Disease Burdens and Quality of Life Measures*. 2010:1171-88. doi: 10.1007/978-0-387-78665-0_66. PMCID: PMC7120372.

⁸ Karamagi H.C. Njuguna D, Kidane S.N.et. al. (2023). Financing health system elements in Africa: A scoping review. *PLoS One*. 2023 Sep 13;18(9):e0291371. doi: 10.1371/journal.pone.0291371. PMID: 37703243; PMCID: PMC10499258.

⁹ World Health Organization African Region (2020) State of Health Financing in the African Region, state-of-health-financing-afro.pdf (who.int)

¹⁰ World Health Organization African Region (2020) State of Health Financing in the African Region, state-of-health-financing-afro.pdf (who.int), pg. 20

¹¹World Health Organization African Region (2020) State of Health Financing in the African Region, state-of-health-financing-afro.pdf (who.int), pg. 20

and social structures. As the world grapples with the aftermath of this pandemic, it is crucial for nations, international organizations, and the private sector to draw useful lessons and implement strategies to mitigate future health crises. In this commentary, we highlight which factors accelerated or hindered Africa's development in the 21st century and explore why pandemics and epidemics pose threats to Africa's sustainable development.

Population Growth, Economic and Health Challenges

As mentioned, the population growth, economic impact, and health challenges, are critical factors. High population growth rates strain resources and infrastructures, including healthcare systems. Despite notable progress in some areas, the continent's economic growth has been sluggish, hindered by various factors including political instability, conflicts, and public health crises.

These health challenges are exacerbated by weak health systems, primarily due to insufficient financial resources and health workforces. Africa is disproportionately affected by acute shortages of healthcare workers compared to other parts of the world. According to the World Health Organization (WHO), Africa has the lowest density of healthcare workers globally, with an average of 2.3 healthcare workers per 1,000 population, significantly lower than the global average of 7.2 healthcare workers per 1,000 population.¹² The shortage of healthcare workers in Africa can be attributed to various factors, including emigration of skilled healthcare professionals to other regions, inadequate training and retention of healthcare workers, and limited healthcare infrastructure and resources.¹³ These challenges are further compounded by the burden of diseases such as HIV/AIDS, malaria, Mpox and now COVID-19, which require a robust healthcare workforce for effective prevention, treatment, and management.¹⁴

¹²The state of the health workforce in the WHO African Region, 2021. Brazzaville: WHO Regional Office for Africa; 2021. Licence: CC BY-NC-SA 3.0 IGO.

¹³ WHO, (2022), <https://www.afro.who.int/news/chronic-staff-shortfalls-stifle-african-health-systems-who-study>.

¹⁴ Park, J., Kang, S., Seok, D. *et al.* Barriers against and strategies for malaria control during the COVID-19 pandemic in low- and middle-income countries: a systematic review. *Malar J* 22, 41 (2023). <https://doi.org/10.1186/s12936-023-04452-2>.

Demographic Shift

The demographic shift in Africa refers to as the significant changes in the continent's population structure, particularly the rapid growth and urbanization of its population. Africa is experiencing a demographic transition characterized by declining mortality rates, increasing life expectancy, and high fertility rates.¹⁵ This shift has several implications for development, including its impact on pandemic diseases, economic growth, and overall development: First, the demographic shift in Africa can impact the spread and management of pandemic diseases. With a growing population and increasing urbanization, there is a higher risk of disease transmission in densely populated areas. Additionally, healthcare systems may face challenges in providing adequate healthcare services to the growing population. Recently, the disruption of normal legislative activities in the Kenyan capital of Nairobi by mostly young people is a clear manifestation of the economic and social issues facing the continent.¹⁶ However, a young population can also have advantages in combating diseases, as younger individuals generally have stronger immune systems. The relatively young population in Africa has been associated with lower vulnerability to severe COVID-19 illness and mortality compared to older populations.¹⁷ Second, the demographic shift in Africa presents both opportunities and challenges for economic growth. With a large and young workforce, Africa has the potential for a demographic dividend, where a productive and skilled labor force can drive economic development. However, to harness this dividend, it is essential to invest in education, skills development, job creation, and entrepreneurship. Failure to do so may lead to high levels of unemployment, social unrest, and economic stagnation.¹⁸ Third, the demographic shift in Africa has implications for overall development ensure that the benefits of demographic changes are shared equitably among all segments of society.¹⁹

¹⁵Goldstone J.A, (2022), www.hoover.org/research/africa-2050-demographic-truth-and-consequences.

¹⁶World Bank (2023) <https://www.worldbank.org/en/country/kenya/overview>

¹⁷ World Health Organization. (2020). COVID-19 pandemic response. [Online] Available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>.

¹⁸ UN.org, Department of Economic and Social Affairs (2023), Frontier Technology Issues: Harnessing the economic dividends from demographic change | Department of Economic and Social Affairs.

¹⁹ UN.org, Department of Economic and Social Affairs (2023), Frontier Technology Issues: Harnessing the economic dividends from demographic change | Department of Economic and Social Affairs.

The impact of the demographic shift can vary across different countries and regions within Africa. Each country faces unique circumstances and challenges that require tailored approaches to address the consequences and maximize the opportunities presented by the demographic shift. In addition to these demographic shifts, epidemic diseases pose even more threats to the continent's overall development.

Impact of Epidemics (Ebola, Mpox and COVID-19)

The 2014-2016 Ebola outbreak in West Africa and the 2020 COVID-19 pandemic and ongoing Mpox outbreaks have had significant economic and social impacts on the continent of Africa, thereby affecting the attainment of the Sustainable Development Goals (SDGs).²⁰ In terms of economic impact, these outbreaks have led to severe disruptions in various sectors. During the Ebola outbreak, the most affected countries such as Sierra Leone, Liberia, and Guinea experienced a decline in economic growth as trade, agriculture, and tourism were severely affected. More than 28,000 cases and 11,000 deaths were reported from these 3 most affected countries.^{21,22} The closure of borders, travel restrictions, and fear of infection led to a decline in foreign direct investment and a contraction in economic activities. Similarly, the COVID-19 pandemic has caused economic shocks across the continent, with countries like Liberia, Ghana, South Africa, Nigeria, and Kenya experiencing a contraction in GDP and rising unemployment rates.²³ Lockdown measures reduced international trade, and disruptions in supply chains have adversely affected sectors such as tourism, manufacturing, and agriculture.²⁴

²⁰ United Nations. (2021). Sustainable Development Goals. [Online] Available at: <https://sdgs.un.org/goals>.

²¹ Den Boon S, Marston BJ, Nyenswah TG, Jambai A, Barry M, Keita S, Durski K, Senesie SS, Perkins D, Shah A, Green HH, Hamblion EL, Lamunu M, Gasasira A, Mahmoud NO, Djingarey MH, Morgan O, Crozier I, Dye C. Ebola Virus Infection Associated with Transmission from Survivors. *Emerg Infect Dis*. 2019 Feb;25(2):249-255. doi: 10.3201/eid2502.181011. Epub 2019 Feb 17. PMID: 30500321; PMCID: PMC6346469.

²² World Health Organization. Ebola situations report 30 March 2016. [cited 2016 Apr 11] <http://apps.who.int/ebola/current-situation/ebola-situation-report-30-march-2016>.

²³ World Bank (2023) <https://www.worldbank.org/en/country/kenya/overview>.

²⁴ Guan, D., Wang, D., Hallegatte, S. *et al*. Global supply-chain effects of COVID-19 control measures. *Nat Hum Behav* 4, 577-587 (2020). <https://doi.org/10.1038/s41562-020-0896-8>.

On the social front, both outbreaks have exacerbated existing challenges and inequalities. During the Ebola outbreak, affected countries witnessed a significant loss of human lives and social economic activities were affected, leading to social disruptions and increased vulnerability. The outbreak strained healthcare systems, leading to a reduced capacity to address other health issues, such as maternal and child health, immunizations, malaria, HIV/AIDS, and TB. Similarly, the COVID-19 pandemic has highlighted the existing inequalities in access to healthcare and basic services. Vulnerable populations, including women, children, and those living in poverty, have been disproportionately affected. For example, in countries like Liberia, Guinea, Ghana, South Africa, and Nigeria, the pandemic has exacerbated social inequalities and increased food insecurity.²⁵

Significant lessons were learned from the Ebola epidemic. Governments in Africa have played a crucial role in responding to these outbreaks and mitigating their impacts. For instance, during the Ebola outbreak, the governments of Sierra Leone, Liberia, and Guinea, with international support, implemented emergency response measures, including the deployment of healthcare workers, establishment of treatment centers, and public awareness campaigns.²⁶ These efforts helped to contain the outbreak and restore economic stability. Similarly, during the COVID-19 pandemic, governments across the continent have implemented various measures, including lockdowns, testing and contact tracing, and economic stimulus packages, to mitigate the spread of the virus and support affected populations. For example, in Nigeria, Egypt, Senegal, South African government implemented a comprehensive social relief and economic support package to provide income support and address food insecurity.²⁷

However, the economic and social impacts of these outbreaks have posed significant challenges to the attainment of the SDGs in Africa. The disruptions in economic growth, healthcare systems, and social services have

²⁵ Khine MM, Langkulsen U. The Implications of Climate Change on Health among Vulnerable Populations in South Africa: A Systematic Review. *Int J Environ Res Public Health*. 2023 Feb 15;20(4):3425. doi: 10.3390/ijerph20043425. PMID: 36834118; PMCID: PMC9959885.

²⁶ WHO (2020) <https://www.who.int/news-room/feature-stories/detail/ebola-then-and-now>.

²⁷ Khine MM, Langkulsen U. (2023) The Implications of Climate Change on Health among Vulnerable Populations in South Africa: A Systematic Review. *Int J Environ Res Public Health*. 2023 Feb 15;20(4):3425. doi: 10.3390/ijerph20043425. PMID: 36834118; PMCID: PMC9959885.

hindered progress in areas such as poverty eradication, good health and well-being, and gender equality. For instance, the economic downturn caused by the COVID-19 pandemic has pushed millions of people into poverty, reversing progress made in poverty reduction effort. These outbreaks have also worsened gender inequalities, with women disproportionately affected by job losses, increased caregiving responsibilities, and limited access to healthcare services.²⁸ Infectious diseases and climate issues are interwoven. African climate is replete with complexity and marvels. The Sahara is the world's largest desert with the deepest layer of intense heating anywhere on Earth.²⁹

Climate Change and Health

Africa is particularly vulnerable to the impacts of climate change due to its geographical location, high dependence on agriculture, and limited adaptive capacity. According to the Intergovernmental Panel on Climate Change (IPCC),³⁰ Africa is projected to experience increased temperatures, changing rainfall patterns, more frequent and intense droughts, and rising sea levels. As previously discussed, infectious diseases pose a significant threat to public health in Africa, especially those that are influenced by severe climatic conditions. For instance, vector-borne diseases like malaria, dengue fever, and Zika virus are strongly influenced by temperature and precipitation patterns.³¹ Rising temperatures and changing rainfall patterns can expand the geographic range of disease vectors, such as mosquitoes, leading to increased transmission and higher disease burden. Thus, waterborne diseases like cholera and diarrheal diseases are closely linked to climate conditions. Extreme weather events, such as floods and storms, can contaminate water sources, leading to outbreaks of these diseases.

To address the health challenges posed by climate change, it is crucial to adopt climate-resilient health systems. This involves strengthening health infrastructure, improving surveillance and early warning systems, enhancing emergency preparedness and response capabilities, and

²⁸ United Nations Foundation (2023) <https://unfoundation.org/blog/post/the-shadow-pandemic-how-the-covid-19-crisis-is-exacerbating-gender-inequality/>.

²⁹ BBC: <https://www.bbc.com/news/world-africa-50726701>.

³⁰ Intergovernmental Panel on Climate Change. (IPCC). (2021). Sixth Assessment Report.

³¹ Rocklöv, J., Dubrow, R. (2020) Climate change: an enduring challenge for vector-borne disease prevention and control. *Nat Immunol* **21**, 479–483 (2020). <https://doi.org/10.1038/s41590-020-0648-y>.

promoting climate-sensitive healthcare practices. For example, integrating climate information into disease surveillance systems can help predict and respond to disease outbreaks. Implementing climate-resilient infrastructure, such as improved water and sanitation systems, can reduce the risk of waterborne diseases. Additionally, promoting sustainable agricultural practices and diversifying livelihoods can enhance resilience to climate-related health impacts, incorporating a One Health approach is a critical vehicle.

Table 1: Impact of Climate Change on Health

Climate Factor	Health Impact	Diseases Affected
Rising Temperatures	Increase vector-borne diseases	Malaria, Dengue Fever
Extreme Weather Events	Displacement and waterborne diseases	Cholera, Diarrheal diseases
Air Pollution	Respiratory diseases	Asthma, COPD

The One Health Approach

Implementing the One Health approach requires collaboration and coordination among multiple sectors, including human health, animal health, environmental health, agriculture, and wildlife management. By breaking down silos and fostering interdisciplinary collaboration, countries can effectively address the complex and interconnected nature of health challenges. For example, during the COVID-19 pandemic, collaboration between public health agencies, veterinary services, and environmental organizations has been crucial in understanding the zoonotic origins of the virus and implementing preventive measures. Similarly, addressing the health impacts of climate change requires collaboration between health authorities, meteorological services, and agricultural sectors to develop integrated strategies for climate adaptation and resilience. The “One Health” approach is a collaborative and multi-sectoral strategy that aims to achieve optimal health outcomes by recognizing the interconnectedness of people, animals, plants, and their shared environment.³² This approach is particularly crucial for combating emerging infectious diseases, as over 60% of these diseases are zoonotic in origin, meaning they can be transmitted

³² Centers for Disease Control and Prevention. (2021). One Health Basics. [Online] Available at: <https://www.cdc.gov/onehealth/basics/index.html>

between animals and humans.³³ Implementing robust disease surveillance systems, early warning mechanisms, and climate action plans are vital components of the One Health approach.³⁴

Robust disease surveillance systems and early warning mechanisms are essential components of the One Health approach. These systems enable the timely detection, reporting, and response to emerging infectious diseases and other health threats. By integrating data from human, animal, and environmental health sectors, countries can identify patterns and trends, assess risks, and implement preventive measures. For instance, during the Ebola outbreak in West Africa, early warning systems that involved community engagement, rapid diagnostic tests, and real-time data sharing helped in early detection and containment of the disease.³⁵ Similarly, in the context of climate change, monitoring and surveillance of vector-borne diseases, such as malaria and dengue fever, can help predict and respond to outbreaks in a timely manner.

Additionally, incorporating climate action plans into the One Health approach is crucial for addressing the health impacts of climate change. These plans should include measures to mitigate greenhouse gas emissions, promote climate-resilient healthcare systems, and enhance adaptive capacity. For example, countries can develop climate-resilient infrastructure, such as energy-efficient healthcare facilities and sustainable water and sanitation systems, to reduce vulnerability to climate-related health risks. Also, integrating climate information into public health planning and decision-making processes can help identify and address climate-sensitive health issues. By implementing climate action plans, countries can build resilience to climate change and protect the health and well-being of their populations.

Figure 1 below describes “One Health” approaches that are particularly relevant to emerging infectious diseases, of which greater than

³³ Centers for Disease Control and Prevention. (2021). One Health Basics. [Online] Available at: <https://www.cdc.gov/onehealth/basics/index.html>

³⁴ Centers for Disease Control and Prevention. (2021). One Health Basics. [Online] Available at: <https://www.cdc.gov/onehealth/basics/index.html>

³⁵ Buseh A.G, Stevens P.E, Bromberg M., Kelber S.T (2015). The Ebola epidemic in West Africa: challenges, opportunities, and policy priority areas. *Nurs Outlook*. 2015 Jan-Feb;63(1):30-40. doi: 10.1016/j.outlook.2014.12.013. Epub 2014 Dec 17. PMID: 25645480; PMCID: PMC7111626.

60 percent are zoonotic, and to diseases that have a strong link to environmental conditions (e.g., water- and vector-borne diseases).³⁶ Many of these diseases spill over to humans through a complex and multi-step process.³⁷

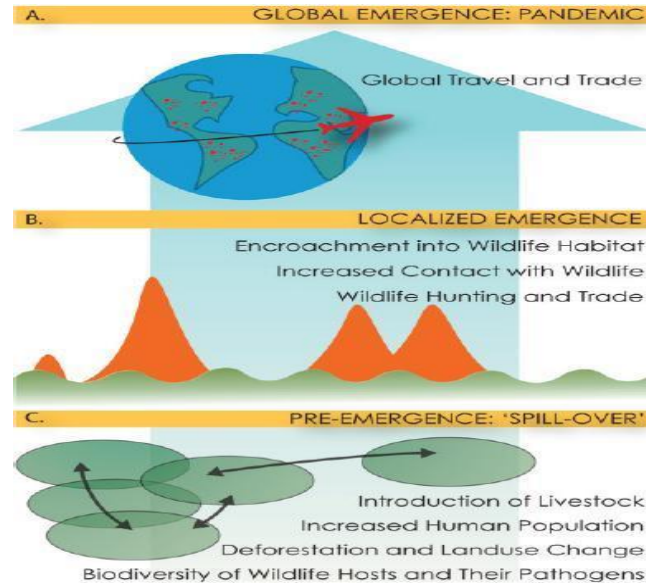


Figure 1:
Figurative description of the multi-scale, multi-step process of pandemic emergence³⁸

Source: Bogich et al., 2012

Conclusion

To achieve the Sustainable Development Goals (SDGs) by 2030, African governments must adopt a comprehensive strategy that addresses the complex challenges aggravated by epidemics. The COVID-19 pandemic

³⁶ National Academic of Sciences, Engineering, and Medicine (2022) *Public Health lessons for non-vaccine influenza interventions: Looking past COVID-19*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/26283>, page 23

³⁷ National Academic of Sciences, Engineering, and Medicine (2022) *Public Health lessons for non-vaccine influenza interventions: Looking past COVID-19*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/26283>, page 23.

³⁸ National Academic of Sciences, Engineering, and Medicine (2022) *Public Health lessons for non-vaccine influenza interventions: Looking past COVID-19*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/26283>, page 23.

has starkly revealed the vulnerabilities within Africa's healthcare systems and highlighted the urgent need for improvements. For example, the pandemic's strain on healthcare infrastructure in countries like South Africa and Nigeria underscores the necessity for increased investment in health facilities and technologies. Strengthening healthcare systems must go hand-in-hand with economic diversification and social protection. This involves not only improving healthcare infrastructure and access to quality education but also fostering gender equality and sustainable economic growth.

A practical approach to improving life expectancy in Africa involves addressing fundamental health determinants. For instance, investing in primary healthcare systems, as demonstrated by Rwanda's successful integration of community health workers, can significantly enhance healthcare delivery. Prioritizing the training and retention of healthcare professionals is crucial, as evidenced by Ethiopia's Health Extension Program, which has expanded healthcare access in rural areas. Additionally, improving access to essential medicines and vaccines, like the rollout of COVID-19 vaccines across the continent, was vital for better health outcomes.

Moreover, addressing social determinants of health such as poverty, gender inequality, and inadequate sanitation is essential. For example, Kenya's efforts in improving access to clean water through the "Water for Health" initiative highlight the importance of tackling these issues to enhance overall health. Economic policies should also focus on job creation and poverty reduction, as seen in the success of Ghana's industrialization and entrepreneurship programs.

To redefine Africa's future and achieve the SDGs by 2030 while meeting the goals of Africa Agenda 2063, nations must implement specific strategies. Strengthening healthcare systems involves increasing investments in infrastructure and workforce, as demonstrated by the expansion of healthcare facilities in Ethiopia. Enhancing disease surveillance and early warning systems is crucial; for example, the establishment of the Africa CDC's Regional Collaborative Platform improves early detection and response capabilities. Implementing the One Health approach, which integrates human, animal, and environmental health, is exemplified by the efforts of the African Union's InterAfrican Bureau for Animal Resources. Climate action must be a priority; developing climate-resilient health strategies, as seen in Kenya's climate-smart agriculture initiatives, can

mitigate the impact of climate change on public health. Lastly, promoting economic diversification and growth, as illustrated by Nigeria's push towards diversifying its economy away from oil dependency, is essential for long-term development.

In sum, overcoming Africa's development challenges requires a multi-faceted approach that integrates healthcare improvements, economic diversification, and social protection. By adopting targeted strategies and fostering collaboration among governments, international organizations, and the private sector, Africa can enhance resilience to health threats, improve life expectancy, and achieve sustainable development. Through a holistic and integrated approach, the continent can build a healthier, more resilient, and sustainable future for its people.

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