

# Nigeria in 2050

## Major player in the global economy or poverty capital?

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Nigeria's potential to be a major player in the global economy due to its human and natural resource endowments remains unfulfilled, and the country has been declared the 'poverty capital' of the world. Using the International Futures model, this report presents Nigeria's existing state of development and its likely pathway to 2050. It then simulates ambitious but realistic policy interventions across different sectors that could propel Nigeria to prosperity.

## Key findings

- ▶ Nigeria has made socio-economic progress, but faces serious social, economic and security challenges. Insurgency, banditry, separatist agitations, policy discontinuity, corruption and mismanagement threaten Nigeria's development prospects.
- ▶ Nigeria is not on track to achieve most of the SDGs by 2030, and is forecast to have the highest number of poor people globally by 2050.
- ▶ There is a poverty polarity between northern and southern Nigeria, with rates in the north significantly above the national average.
- ▶ Nigeria has one of the world's lowest tax-revenue-to-GDP ratios, leaving little fiscal space for productive expenditure.
- ▶ The public health and education sectors are incapacitated by mismanagement, corruption and inadequate funding.
- ▶ Nigeria's population is forecast to increase to over 450 million by 2050, by which time it will be the third most populous country globally.
- ▶ Although Nigeria has great agricultural potential, the sector is unable to meet the nutritional demands of a rapidly growing population.
- ▶ Nigeria has made little progress in export diversification. The oil and gas sector determines economic growth and contributes to the bulk of export earnings and government revenue. Macroeconomic instability, a skills shortage, an unfriendly business environment and infrastructure deficits constrain productivity and growth in the non-oil sector.
- ▶ With aggressive but reasonable policy interventions, Nigeria could have a significantly brighter future.

## Recommendations

The authorities should:

- ▶ Address security challenges by upgrading the capability of the defence and security sector through adequate funding to respond promptly to armed groups' attacks.
- ▶ Promote national cohesion and social inclusion by ensuring a fair distribution of socio-economic amenities across the states.
- ▶ Set up a national social protection programme to support the poorest and most vulnerable to reduce poverty and inequalities.
- ▶ Intensify the fight against corruption, improve public financial management and domestic revenue mobilisation by accelerating digitalisation to enhance tax efficiency.
- ▶ Address the infrastructure gap by creating an enabling environment for private-sector-led infrastructure development.
- ▶ Continue rehabilitating oil-refining facilities to boost local refining capacity for self-sufficiency to permanently remove the petrol subsidy.
- ▶ Involve religious leaders in family planning programmes and improve females' education and job opportunities to reduce fertility.
- ▶ Improve health and educational outcomes to enhance human capital and address skills shortages in line with the economy's needs.
- ▶ Invest in the agriculture sector to increase productivity, ensure food security, reduce poverty and enable a peaceful coexistence between farmers and herders.
- ▶ Implement reforms to deepen economic and export diversification, focusing on manufacturing, starting with improving the business climate and macroeconomic stability.

## Introduction

Located in West Africa with a population of over 200 million in 2020, Nigeria is by far the most populous country in Africa and a key regional player in West Africa. The country is a multi-ethnic and culturally diverse federation made up of 36 states and the Abuja Federal Capital Territory (FCT) grouped into six geopolitical zones (north-west, north-central, north-east, south-west, south-east and south-south). Recognised as Africa's largest economy, well ahead of South Africa and Egypt, Nigeria is also the largest crude oil exporter and has the largest natural gas reserve on the continent.

While some progress has been made in socio-economic terms in recent years, Nigeria faces serious social, economic and security challenges. Indeed, the country has one of the highest numbers of people living in extreme poverty in the world and high youth unemployment. More than 80 million<sup>1</sup> people survive on less than US\$1.90 a day, the international measure for extreme poverty. An overdependence on oil exports, deplorable infrastructure, human capital bottlenecks, low tax revenue mobilisation, deeply embedded corruption and decades of mismanagement have stymied investment, growth and the diversification of the economy.

In addition, the chaos caused by rising banditry-related attacks, kidnapping and communal clashes in the country threaten food security as it hinders access to farms and food production. Furthermore, Nigeria has been facing terrorism threats from the Islamist group Boko Haram since 2009.

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Violence perpetrated by this armed group is estimated to have resulted in the deaths of 350 000 people, with 314 000 of these attributable to indirect physical and economic causes.<sup>2</sup> Also, criminal gangs and farmer–herder violence, most notably in the states of Zamfara, Katsina and Kaduna, have killed more than 8 000 people since 2011 and forced more than 200 000 people to flee their homes, according to a report by the International Crisis Group (ICG).<sup>3</sup> Consequently, a severe humanitarian crisis persists in north-east, north-west and north-central regions of Nigeria.

These challenges, in addition to poor governance and massive income and wealth inequality, have manifested in many people having poor health, nutrition and education, and the country fares badly on socio-economic indicators. Nigeria finds itself at the lower end of the United Nations (UN) Human Development Index (HDI). According to the 2020 Human Development Report, the country ranks 161 out of 189 countries. As Africa's largest economy and most populous country, a stable and prosperous



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Nigeria is crucial for regional stability and faster poverty reduction in West Africa. Concrete steps therefore need to be taken to overcome Nigeria's monumental developmental challenges.

This report looks at the recent history and the likely human and economic development trajectory in Nigeria (referred to as the Current Path). The report explores a series of policy interventions aimed at laying the foundations for long-term inclusive growth and development. We use the International Futures (IFs) modelling platform (see Box 1) hosted and developed by the Frederick S Pardee Center for International Futures at the University of Denver for much of the analysis and forecast. Two country groups are used in this report as benchmarks for gauging Nigeria's historical and future progress. Both draw on the World Bank's latest income-grouping classifications.

Nigeria achieved lower middle-income status in 2014, so the report compares Nigeria to other African and global lower middle-income groups. Where appropriate, Nigeria is also compared to Malaysia, which was as poor as Nigeria in the 1960s. Where Nigeria is compared to the averages for lower middle-income Africa or globally, it is excluded from the group to make the comparison more genuine.

## Background

For much of the four decades following independence in 1960, Nigeria was ruled by the military. The country only began its democratic transition in 1999.

Except for two short periods of civilian rule (1960–1966 and 1979–1983), the period 1960–1999 was marked by a succession of several military regimes that ruled the country after coming to power through coups d'état. The first two coups d'état in January and July of 1966 led to the Biafra War (1967–1970), which claimed more than one million lives, mostly from starvation.<sup>4</sup>

In 1979, the army, led by General Olusegun Obasanjo, transferred power to an elected government. However, the second attempt at a democratic political system failed and the military returned to power. The worsened economic failures of the civil government under President Shehu Shagari ushered in a military coup led by Major General Muhammadu Buhari in December 1983. Nearly two years later, General Buhari's regime was, in turn, overthrown by a coup led by General Ibrahim Babangida.

The latter engaged in tightly controlled economic reforms under the auspices of the International Monetary Fund (IMF) to facilitate the repayment of crushing external debt. The Structural Adjustment Programme (SAP),

### Box 1: Tool for forecasting: The International Futures (IFs) modelling platform

The IFs modelling platform is a global long-term forecasting tool that integrates various development systems, including demography, economy, education, health, agriculture, environment, energy, infrastructure, technology and governance. It blends different modelling techniques to form a series of relationships based on academic literature to generate its forecasts.

IFs uses historical data from 1960 (where available) to identify trends and produce a 'Current Path' scenario from 2015 (the current base year). The Current Path is a dynamic scenario representing current policy choices and technological advancements and assumes no significant shocks or catastrophes. However, it moves beyond a linear extrapolation of past and current trends by leveraging our available knowledge about how systems interact to produce a dynamic forecast.

The data series within IFs comes from a range of international sources like the World Bank, World Health Organization (WHO) and various UN bodies like the Food and Agricultural Organization (FAO) and the United Nations Population Fund (UNPF). The model is an open-source tool and can be downloaded for free at [www.pardee.du.edu](http://www.pardee.du.edu).

This project uses IFs version 7.63 for its analysis.

Note that all gross domestic product (GDP) and GDP per capita figures in this report are in 2017 constant US\$.

which was in effect between 1986 and 1993, was highly controversial and incited intense public unrest. For instance, between 1986 and 1993, the number of strikes in the country tripled even as the military government intensified its survivalist strategies by banning labour unions and arresting unionists.<sup>5</sup>

After the controversial annulment of the nationwide election results in mid-1993, Babangida, under the pressure of continued civil unrest, ceded power to an interim government (caretaker government). But this interim government was short-lived, and was toppled by General Sani Abacha in November 1993. Nigeria experienced its worst military dictatorship under the Abacha regime, and this experience contributed to the military completely losing legitimacy in ruling the country.<sup>6</sup> General Abdulsalami Abubakar, who took over after the death of Sani Abacha in 1998, freed all political prisoners and paved the way for early elections, which were won by the former head of the junta, Olusegun Obasanjo, in 1999.

### Governance and leadership are mainly driven by self-interest instead of collective well-being or development

The economic and social effects of these successive military regimes were disastrous. For example, in the 1980s, about 45% of foreign exchange earnings went into debt servicing, and there was very little growth and a rise in poverty and crime.<sup>7</sup> Political leadership also became self-serving and driven by ethnicity and patron–client politics.<sup>8</sup>

President Olusegun Obasanjo was re-elected in 2003, though the election was marred by electoral fraud and violence. Four years later, he was succeeded by Umaru Yar'Adua, who won the April 2007 presidential elections. However, health concerns prevented him from fully exercising his powers and, shortly before his death in May 2010, the National Assembly passed a resolution that allowed the then vice president, Goodluck Jonathan, to serve as president. Immediately after Yar'Adua's death, Jonathan was sworn in as executive president and later won the 2011 presidential elections.

In 2015, the All Progressives Congress (APC) party led by Muhammadu Buhari won the elections by promising to

crack down on terrorism and corruption, modernise the economy and reduce poverty. Buhari secured a second term at the 2019 presidential elections, despite the fact that the results were contested by the main opposition party, the People's Democratic Party (PDP).

In sum, Nigeria's economic and political transformation process since independence has been marked by progress and setbacks. However, there are reasons to be optimistic about the future of the country. The transition from authoritarian military regimes to democratic civilian rule offers an opportunity for the population to elect a developmentally oriented governing elite.

### Current development trajectory of Nigeria

This section answers the following questions: What are the trends that have shaped modern Nigeria and how do they compare with trends for other countries at similar levels of development? Given the current policies and environmental conditions, what will the situation likely be in 2050, in line with Nigeria Agenda 2050? To answer these questions, the following sections highlight the recent past, current state of development and the possible future of Nigeria along the Current Path forecast within IFs, namely in terms of governance, demographics, education, health, poverty, economy, infrastructure and agriculture.

### Governance and security concerns in Nigeria

Despite a well-educated elite, entrepreneurial verve and abundant natural resources, leadership failure, weak institutions and policy missteps have made Nigeria symbolic of unfulfilled potential. The ruling elite have failed to transform the country's potential into prosperity. As a result, six decades after independence, petroleum-rich Nigeria is still grappling with a high level of poverty, ailing infrastructure, socio-economic instability and underdevelopment.

Mismanagement, nepotism and favouritism characterise governance dynamics in Nigeria. The elite view politics as an avenue for wealth accumulation. Public office holders generally award contracts to cronies and personally held companies. As a result, governance and political leadership in Nigeria have been mainly driven by self-interest instead of collective well-being or national development.<sup>9</sup> Nigeria finds itself in the bottom half of the Mo Ibrahim African

Governance Index, with a score of 43.6 out of 100, ranked 32 out of 54 countries in Africa in 2019.<sup>10</sup>

Chart 1 shows Nigeria's government effectiveness score compared with the average for African and global income-group peers and includes a forecast to 2050. With a score of 1.5 out of a maximum of 5 in 2019, government effectiveness in Nigeria is very low and remains below the average for its peers. This implies that the Nigerian government's performance in public services delivery and policy formulation and implementation is lower than the average for its income group. Although the forecast is that government effectiveness will improve, it will likely continue to remain below the average for its peer income groups across the forecast horizon.

Weak government capacity and corruption have undermined government effectiveness in service delivery. For instance, the tax-to-GDP ratio in Nigeria is about 6%, compared to 16% in Egypt, 18% in Ghana and Kenya, 29% in South Africa and 20% on average in sub-Saharan Africa.<sup>11</sup> This low domestic revenue mobilisation limits the government's ability to fund public goods and services to

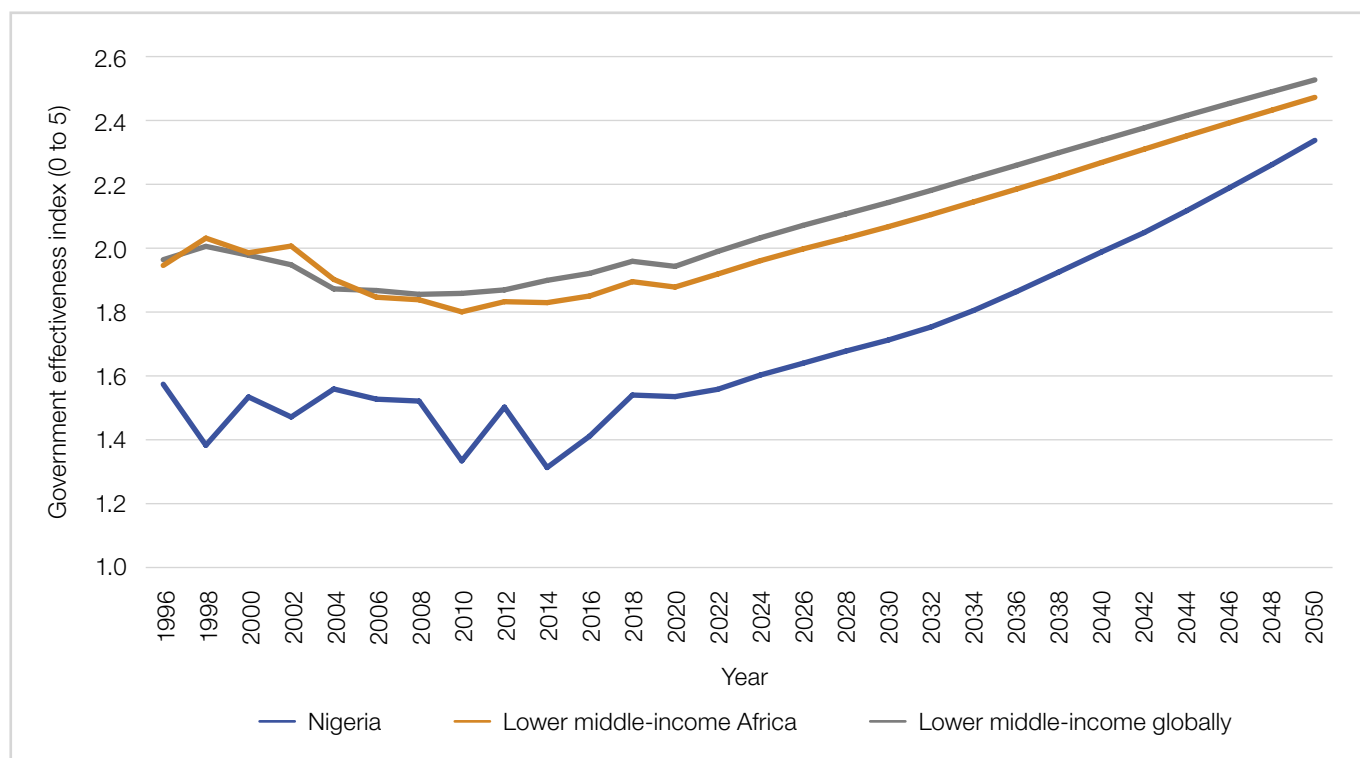
improve the dire social service delivery outcomes in the country. The structural corruption also compounds the inefficiencies in raising tax revenue.

Corruption is perhaps the Achilles heel of economic and human development in Nigeria. A study by the Carnegie Endowment for International Peace cites corruption as 'the single greatest obstacle preventing Nigeria from achieving its enormous potential. It drains billions of dollars a year from the country's economy, stymies development, and weakens the social contract between the government and its people'.<sup>12</sup>

The endemic corruption has led to the phenomenon of 'ghost workers' and 'ghost pensioners', terms used to describe people who do not actually exist but who are added to the payroll system, with their salaries and pension payments disappearing into the pockets of public officials.<sup>13</sup> This has a knock-on effect on the government budget and limits government capacity to invest in badly needed socio-economic infrastructure.

Successive Nigerian governments have made efforts to fight corruption in the country. These measures have included reform of public procurement and

**Chart 1: Trends in government effectiveness in Nigeria and other groups, 1996–2050**



Source: Forecast in IFs, version 7.63, historical data from the World Bank

anti-corruption enforcement agencies such as the recent Economic and Financial Crime Commission, the Independent Corruption and Other Practices Commission and the Code of Conduct Bureau.<sup>14</sup>

However, progress has been slow. Profound political and institutional challenges, as well as inadequate funding, have undermined the credibility and effectiveness of these anti-corruption agencies.<sup>15</sup> As a result, corruption remains stubbornly high in the country. According to the global Corruption Perceptions Index (CPI) 2020 by Transparency International, Nigeria occupies 149th position out of the 180 countries surveyed, with a score of 25 out of 100. The twin problems of corruption and bad governance have made Nigeria a 'giant with clay feet', the largest economy with the largest number of poor people in Africa.

### Profound political and institutional challenges have undermined the effectiveness of anti-corruption agencies

Nigeria is also facing multidimensional security threats, including insurgencies, terror acts, kidnappings, armed robberies and communal clashes, particularly between farmers and herders. Boko Haram and an Islamic State-affiliated splinter faction, the Islamic State West Africa Province (ISWAP), have spread terror in their strongholds in the north-eastern part of the country by increasing attacks and kidnappings. This violence has left more than 36 000 dead and more than two million displaced to date. Since 2018, Boko Haram has strengthened and increased its deadly attacks, targeting Nigerian military bases in particular.<sup>16</sup> As a result, Nigeria is ranked third out of 135 countries on the 2020 Global Terrorism Index (GTI).<sup>17</sup>

In addition to Boko Haram in the north-east, criminal gangs and other armed organisations are mushrooming in north-west and north-central Nigeria. Violence in north-west Nigeria has three dimensions. The first layer includes violence from competition between Fulani herders with their associated militias, known as *yan-bindiga* (gun owners), and Hausa farmers with their vigilantes, referred to as *yan sa kai* (volunteer guards),

over land and water resources.<sup>18</sup> Farmer–herder conflicts in northern Nigeria have gained momentum in recent years due to rising population pressures and diminishing water resources, as well as desertification caused by climate change.<sup>19</sup>

The second dimension is comprised of violence perpetrated by criminal gangs seeking to enrich themselves amid the proliferation of small arms in the region. These criminal gangs generate revenue by rustling cattle, pillaging villages and kidnapping people for ransom. At least US\$11 million was paid in ransom between 2016 and 2020.<sup>20</sup> The third dimension of violence in Nigeria's north-west involves the infiltration of jihadist groups seeking to take advantage of the security crisis. Women and girls are paying a heavy price in these attacks by different armed groups in the region as they are also subjected to sexual violence, often abducted or gang-raped in the presence of family members.<sup>21</sup>

In addition to this multidimensional violence, a new separatist rebellion is emerging in the south-east, where a past secessionist attempt to create the republic of Biafra sparked a civil war between 1967 and 1970. Operations by Nigeria's security forces to dismantle these armed groups also have unintended consequences, as they push some of them to other regions in the country, further exacerbating insecurity countrywide.

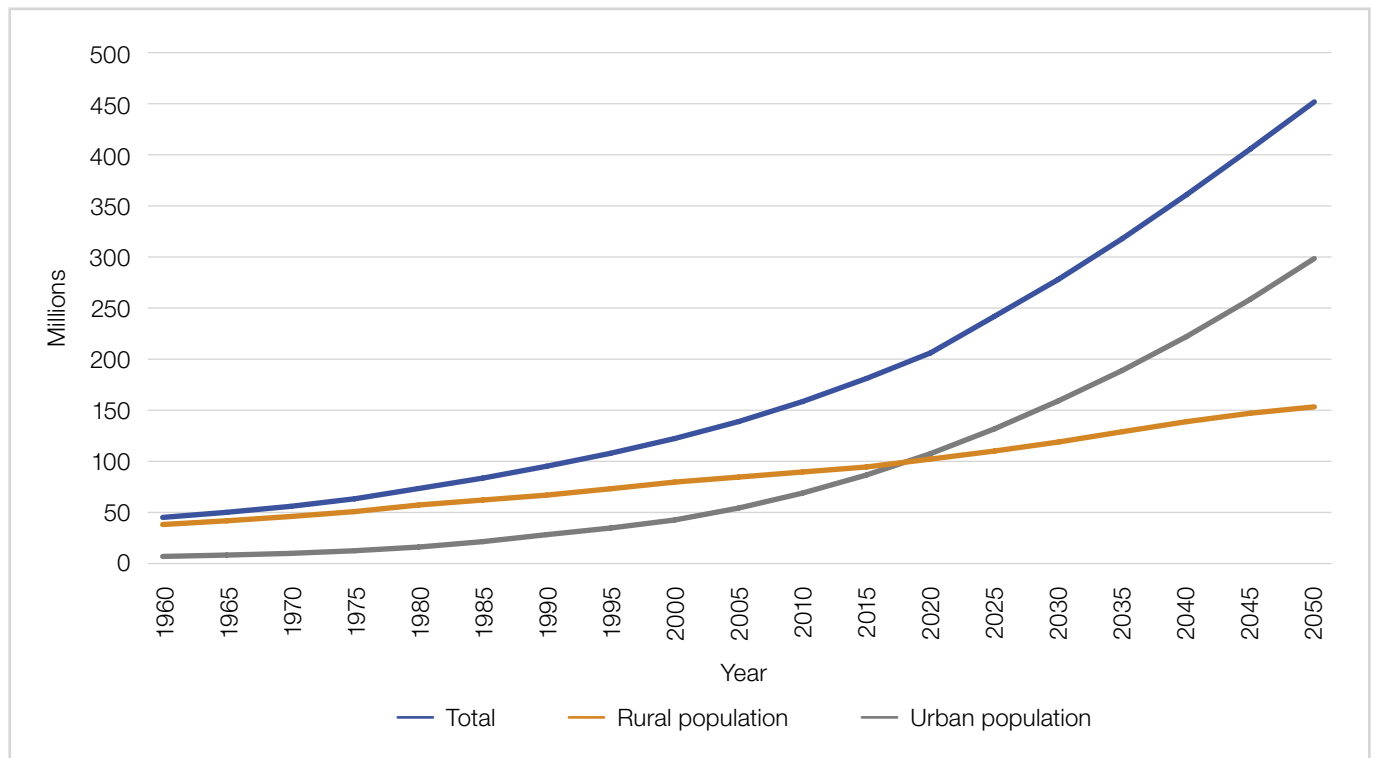
In sum, corruption, bad governance and insecurity are threatening Nigeria's development prospects. Good leadership is needed to attain effective governance capable of addressing corruption, security and resource mobilisation for inclusive and sustainable development.

### Demographics

According to the 2018 Nigeria Demographic and Health Survey,<sup>22</sup> Nigeria's population is 46% Christian (broken down between 10% Catholics and 36% Protestants) and 53.5% Muslim, with the remaining 0.5% being followers of traditional animist religions or not declared (atheists, agnostics).<sup>23</sup> The country is home to over 250 different ethnic groups. This ethnic and religious diversity is often the source of tension, and religious affiliation plays a role in shaping political and power dynamics in Nigeria.<sup>24</sup>

Nigeria is facing a significant population boom. According to IFs, from an estimated 45 million people at independence in 1960, Nigeria's population has

**Chart 2: Trends in Nigeria's population growth, 1960–2050**



Source: Forecast in IFs version 7.63; historical data from UN population division

more than quadrupled to 200 million people, making it the seventh most populous country globally. On the current development trajectory (Current Path), Nigeria's population is likely to increase from about 200 million in 2019 to about 452 million by 2050 (Chart 2). At that point, Nigeria will be the third most populous country globally, after India and China.

The fertility rate in Nigeria was 5.4 children per woman in 2020, a slight decline from 6.6 in 1990, making it currently ranked eighth globally. The Current Path forecast is that Nigeria's fertility rate will decline to 3.4 children per woman by 2050, making it the fourth highest globally. The population of the northern states is growing faster than that of the southern states. For instance, the average fertility rate in the south-west is about 3.9 children per woman while it is about 6.6 in the north-west.<sup>25</sup> By state, the fertility rate ranges from 3.4 children per woman in Lagos to 7.3 children per woman in Katsina.<sup>26</sup>

As evident in Chart 2, the high population growth in Nigeria goes hand in hand with rapid urbanisation. In 2019, about half of Nigerians, or 100 million people, lived

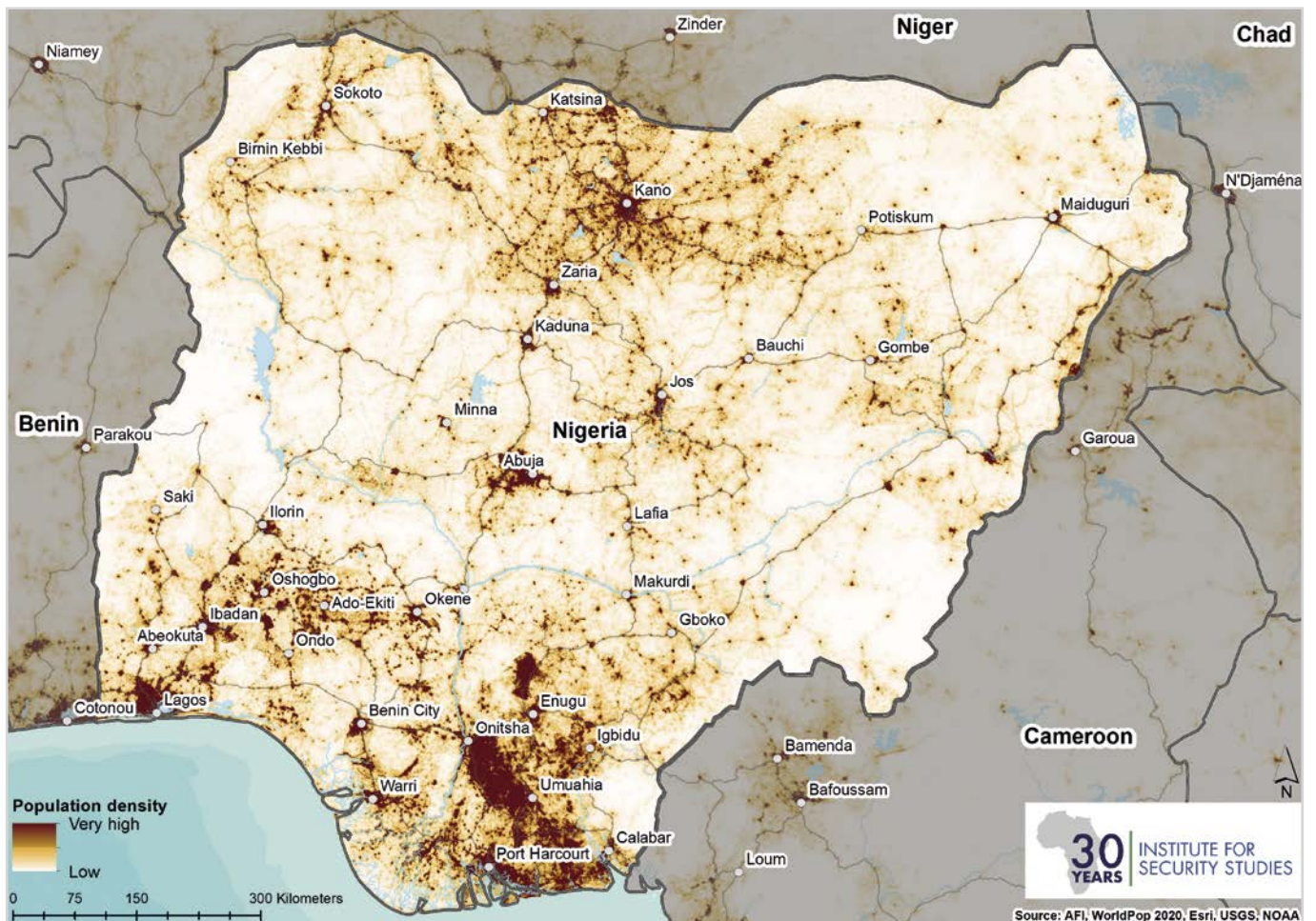
in cities. The population of Lagos itself has grown from 300 000 inhabitants in 1950 to 15 million in 2018.<sup>27</sup> The urbanisation rate in Nigeria is one of the fastest in the world – the Nigerian urban population is growing at a rate of 4.2% per year, that is to say, twice the world rate, and is significantly higher than the Nigerian population growth rate of 3%.

On the Current Path, 66% of the population will be urban by 2050; this is equivalent to nearly 300 million people. The increasing size of the urban population is also associated with unemployment, poverty, inadequate health, poor sanitation, urban slums and environmental degradation. It is estimated that more than half of the Nigerian urban population lives in slums.

The population is unevenly distributed across the country, concentrating along trade routes and natural resource locations. Average density ranges from five people per hectare in rural areas to 45 people per hectare in urban spaces. The highest rural densities are found in the south-west, while the highest urban densities are located in the cities of Lagos, Kano, Ibadan, Kaduna, Port Harcourt, Benin City and Maiduguri (Chart 3).

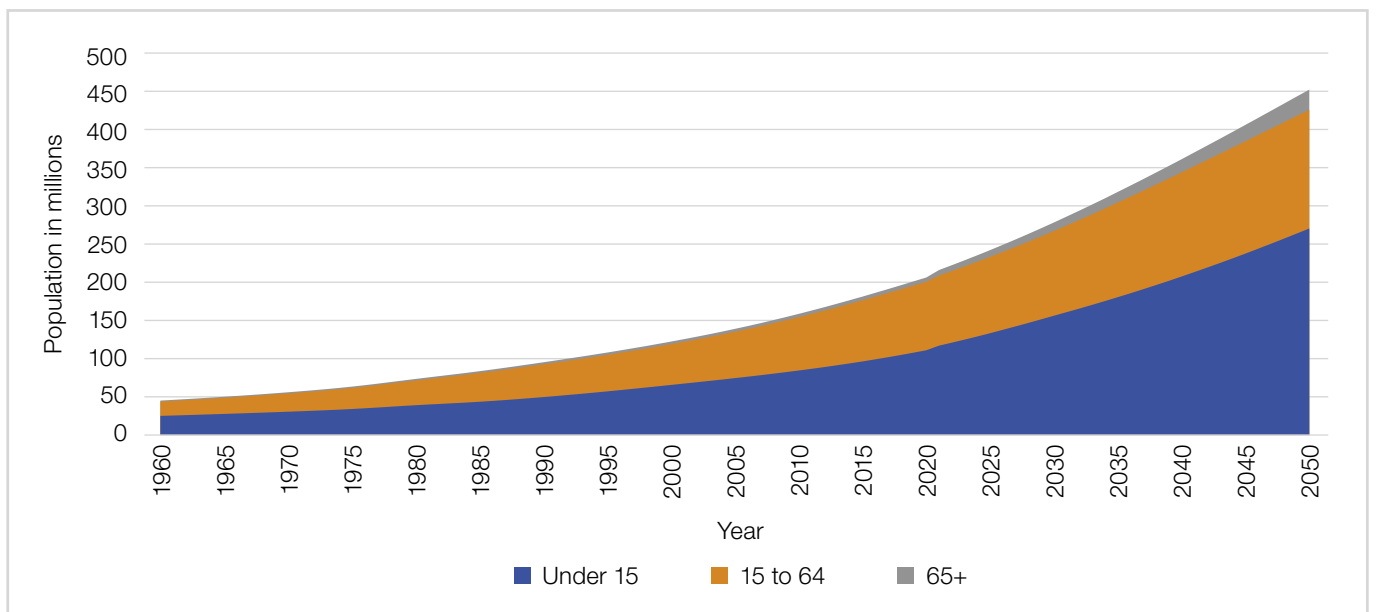


Chart 3: Geographical distribution of Nigerian population, 2020



Source: ArcGIS online with population data from Worldpop

Chart 4: Population structure, 1960–2050



Source: Forecast in IFs version 7.63; historical data from UN population division

Successive Nigerian governments have recognised the necessity of reducing the rapid population growth, but efforts to implement a comprehensive demographic policy have often been met with religious objections.<sup>28</sup> Family planning policies are a topic of fractious debate among religious leaders in the country.<sup>29</sup> Nigeria's modern contraceptive prevalence rate is 12% among women aged 15–49; this is significantly lower than the average for its region (28%).<sup>30</sup>

A country's population age structure plays a vital role in social, economic and political development. Nigeria is among the countries with the most youthful age structure, with a median age of 18. This means that half of the Nigerian population is younger than 18.

About 43.5% of the population is in the below 15 years of age dependency age group, while 2.7% are in the 65 and above dependency age group. On the Current Path, the share of these two dependency age groups is projected to be, respectively, 34.4% and 5.8% by 2050. About 54% of the Nigerian population is in the 15–64 working-age group, and this is forecast to increase to 59.7% by 2050. The structure of Nigeria's population is

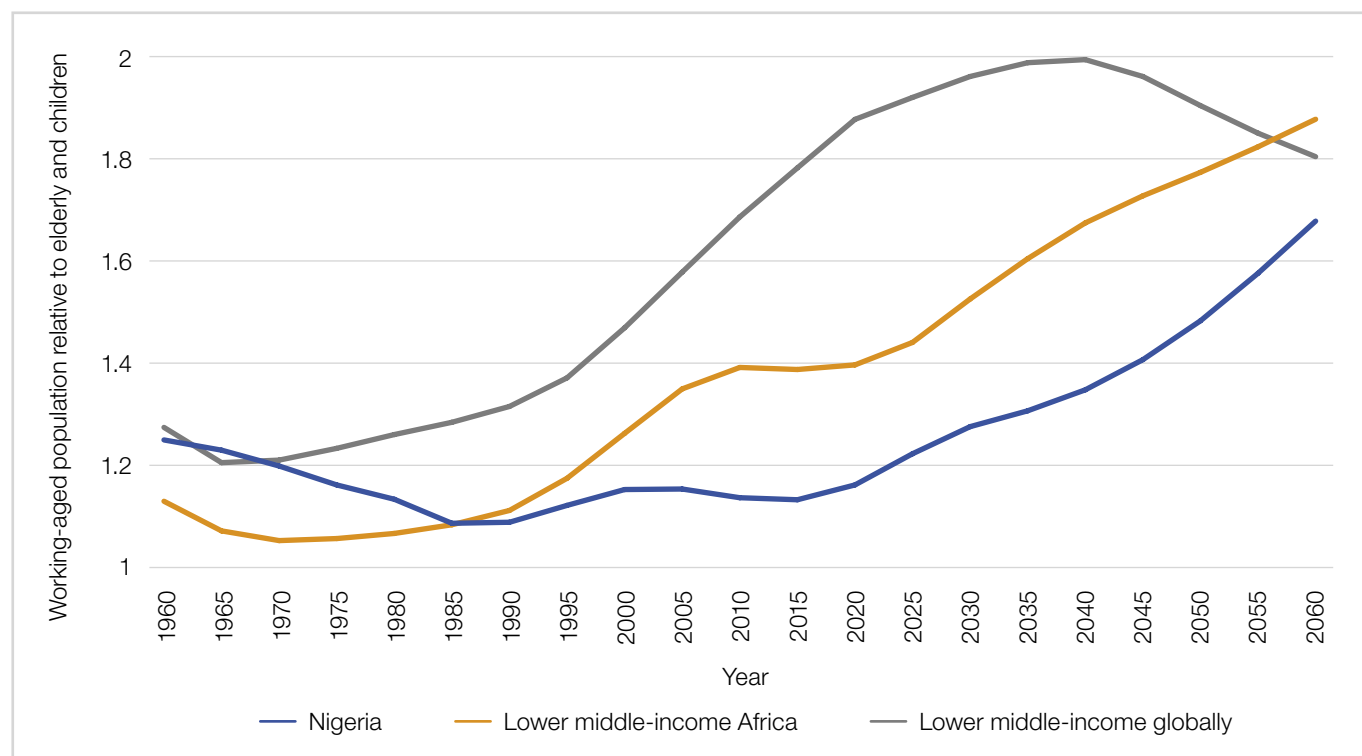
typical of countries with a low life expectancy and high fertility rates.

The large cohort of children below 15 requires more investment in education, health and infrastructure. An increase in the working-age population relative to dependent children and elders can generate economic growth known as the demographic dividend.

Generally, the demographic dividend materialises when a country reaches a ratio of at least 1.7 people of working age for each dependent.<sup>31</sup> When there are fewer dependents to take care of, it frees up resources for investment in both physical and human capital formation, and eventually increases female labour force participation. Studies have shown that about one-third of economic growth during the East Asia economic miracle can be attributed to the large worker bulge and a relatively small number of dependents.<sup>32</sup>

However, the growth in the working-age population relative to dependents does not automatically translate into rapid economic growth unless the labour force acquires the needed skills and is absorbed by the labour market. Without sufficient education and

**Chart 5: Demographic dividend – Nigeria and other groups, 1960–2060**



Source: Forecast in IFs version 7.63; historical data from the UN population division

employment generation to successfully harness their productive power, the growing labour force could turn into a demographic ‘bomb’ instead of a demographic dividend, as many people of working age may remain in poverty, potentially creating frustration, social tension and conflict.

On the Current Path, the ratio of working-age people to dependents will improve slowly from its current level of 1.1 to about 1.5 by 2050, below the minimum threshold of 1.7 that a country should reach to expect the demographic dividend. Nigeria only gets to this positive ratio around 2060, implying that it will experience its demographic dividend almost two decades later than the average for lower middle-income Africa and five decades later than the average for lower middle-income globally (Chart 5).

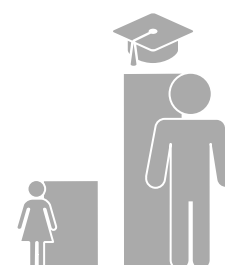
## Policymakers need to take urgent action to address the high population growth in order to speed up the country’s demographic transition

Also, the youth bulge, defined as the ratio of the population between the ages of 15 and 29 to the total adult population, is currently about 47% for Nigeria, and it will remain above 40% across the Current Path forecast horizon. While this large youth bulge can usher in youth activism and positive political changes in a country, it can also increase the likelihood of criminal violence, conflicts and instability, mainly when the needs of the youth, such as employment, cannot be met. Nigeria has one of the highest youth unemployment rates: two-thirds of the youth are either jobless or under-employed, while one-third of the country’s working-age population is unemployed.<sup>33</sup> Recently, the EndSARS protests which were initially against police brutality became a platform for the youth to express their anger with the leaders of the country, and demand change.

Better management of population growth is key to the development of a nation. Policymakers in Nigeria need to take much more urgent action to address the high population growth in order to speed up the country’s demographic transition. A decline in the below 15 dependency age group helps governments and parents to invest more in each child in terms of education and health,<sup>34</sup> with positive implications for human capital formation.

### Poverty and inequality

Like in the Democratic Republic of the Congo (DRC) and many other sub-Saharan African countries, poverty in Nigeria presents a paradox: the country is resource rich, but most people are poor. Chart 6 reveals that the rate of poverty and the number of people living in extreme poverty have been very high in Nigeria over time. The poverty rate in the country reached its highest levels over the period 1995–2000 (66.1% on average) before taking a downward trend to 40.1% in 2018 – its lowest level since independence in 1960. The average poverty rates for lower middle-



UNICEF REPORTS THAT ABOUT 60% OF OUT-OF-SCHOOL CHILDREN IN THE COUNTRY ARE GIRLS

income Africa and globally were 22.4% and 9.7%, respectively, in 2018.

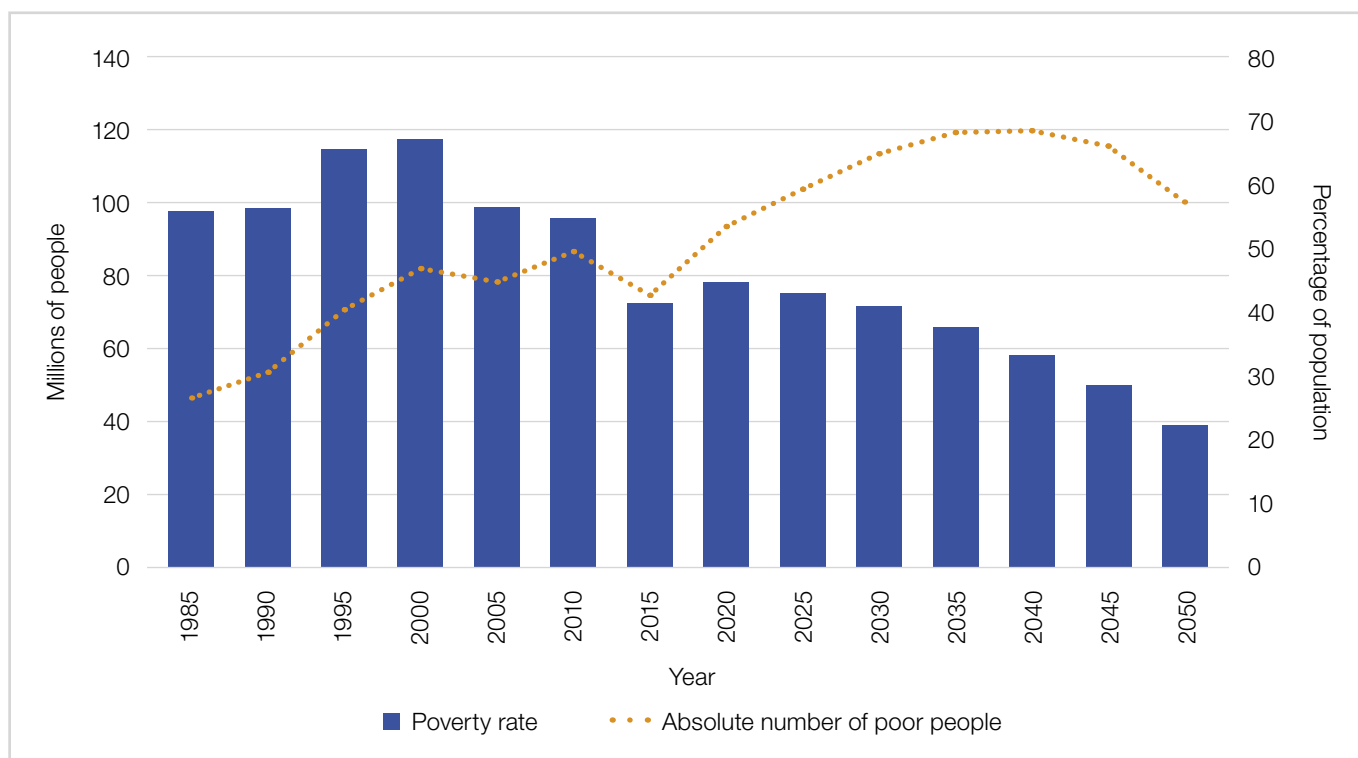
According to the IMF, poverty rates have declined more slowly in Nigeria than in other sub-Saharan African countries with similar GDP per capita growth<sup>35</sup> because of the ineffectuality of the various poverty alleviation programmes, in part due to corruption.<sup>36</sup> Corruption can undermine the effectiveness of government poverty-alleviation programmes by diverting public social spending away from its targets, such as education and health.

On the Current Path, the poverty rate in Nigeria is forecast to increase from 42.8% in 2019 to 44% in 2021 before declining gradually across the forecast horizon. This is mainly due to the COVID-19 pandemic and the associated economic crisis, which has plunged millions more people into poverty. According to the World Bank, the COVID-19 crisis is expected to push an additional 10.9 million people into poverty by 2022 in Nigeria.<sup>37</sup> On the Current Path, the poverty rate in Nigeria is forecast to decline gradually to reach 22.1% by 2050, versus 9.1% and 2.5% for the projected averages for, respectively, lower middle-income Africa and lower middle-income globally in the same year.

However, the absolute number of poor people will continue to increase due to the rapid population growth. The number of poor people is projected to increase from 87.3 million in 2019 to peak at about 120 million in 2038 before slowly declining to 100 million by 2050. Therefore, unless the Nigerian government takes proactive measures in confronting poverty, the country will miss the Sustainable Development Goal (SDG) of eliminating extreme poverty by 2030 by a substantial margin. Indeed, on the Current Path, the extreme poverty rate in Nigeria is projected to be about 41% by 2030, while Goal 1 of the SDGs requires that less than 3% of every country's population should be living in extreme poverty by 2030.

Also, Nigeria shows a characteristic pattern of poverty polarity between northern and southern Nigeria. Poverty in the country is more concentrated in the northern states. As shown in Chart 7, poverty rates in most northern states are above the national average. For instance, more than 87% of the population in the northern states of Sokoto, Taraba and Jigawa live in extreme poverty compared to only 6% and 4.5% of the population, respectively, in the southern states of Delta and Lagos.

**Chart 6: Monetary poverty in Nigeria (< US\$1.90 per day and person), 1985–2050**



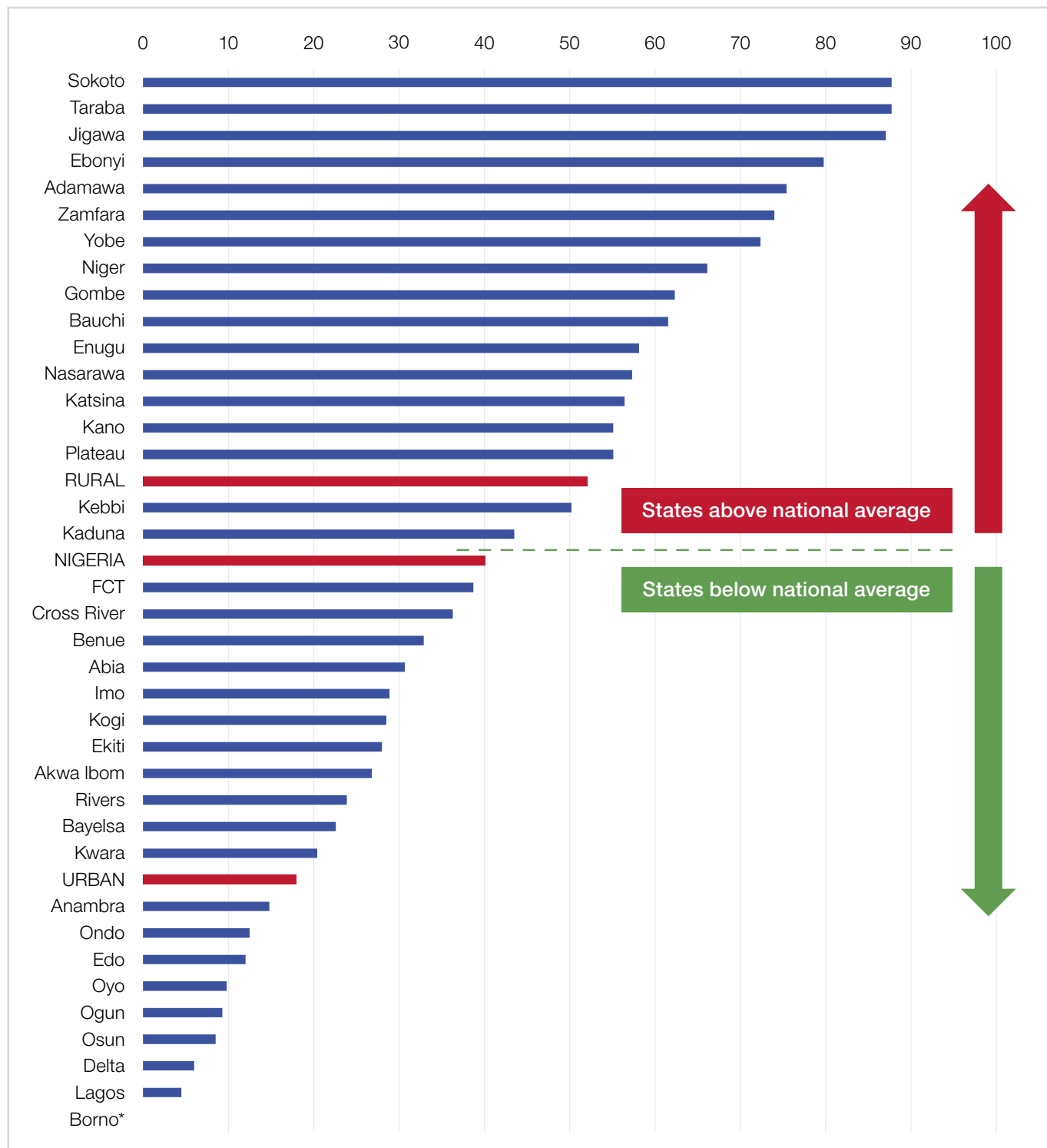
Source: Forecast in IFs; historical data from the World Bank



The northern region performs poorly on almost all human development indicators when compared to the south. According to the World Bank, 87% of Nigeria's poor live in

the northern region, with about half of them in the north-west.<sup>38</sup> The conflict between farmers and herders has contributed to the high level of poverty in northern Nigeria.

**Chart 7: Poverty rates (% of the population) by states of Nigeria (< US\$1.90 per person/day)**



Source: Data from Nigeria National Bureau of Statistics, '2019 poverty and inequality in Nigeria: Executive summary', May 2020

\* Data for Borno state is not available

The violence has deeply affected the economy of the region. Agriculture, on which about 80% of the population of the region depends for livelihoods, has been particularly hit.<sup>39</sup> Thousands of hectares of farmland have been either destroyed or rendered inaccessible, a situation that has resulted in poverty and aggravated malnutrition.<sup>40</sup>

Chart 7 also reveals that Nigerian poverty is predominantly a rural phenomenon; the average poverty rate in rural areas is 52.1% versus 18% in urban areas. This indicates significant challenges with access and opportunities for Nigerians that live in rural areas of the country. For instance, about 78% of financially excluded adults in the country live in rural areas, compared to nearly 22% in urban areas.<sup>41</sup>

The above analysis of extreme poverty in Nigeria is based purely on a monetary measure. However, poverty is not only about money; it is increasingly being understood as a multidimensional phenomenon. Even households that are not monetarily poor may find it difficult to access food, clean water, housing, security and health and education services.<sup>42</sup>

Without sufficient education and employment, the growing labour force could turn into a demographic 'bomb' instead of a demographic dividend

The Multidimensional Poverty Index (MPI) complements monetary measures of poverty by taking into account the multiple deprivations faced by people in a country. Multidimensional poverty is more widespread in Nigeria and has been compounded by the COVID-19 pandemic. According to the 2020 global MPI, 46.4% of Nigerians are multidimensionally poor.<sup>43</sup> This is equivalent to about 95 million people living in multidimensional poverty. This is more than the entire population of the DRC. According to the World Bank, Nigeria is the largest contributor to multidimensional poverty in sub-Saharan Africa. This implies that meeting regional targets on monetary and non-monetary poverty hinges on Nigeria.

In addition to corruption and unemployment, inequality is another key driver of poverty in Nigeria. The wealth of the nation is concentrated in the hands of a few. For instance, about one-third of billionaires in sub-Saharan Africa are Nigerians, and there are 194 Nigerian multimillionaires whose fortune exceeds US\$30 million, with 93% of them living in Lagos state.<sup>44</sup> According to Oxfam International, the combined wealth of the five richest Nigerians, US\$29.9 billion, could end extreme poverty in the country.<sup>45</sup> Oxfam International revealed that a few wealthy elites had exploited the benefits of the nation's economic growth to the detriment of ordinary Nigerians.

Also, Nigerian women are subject to unequal treatment in terms of labour, education and property. The patriarchal society and deep-rooted traditions make life difficult for many women in Nigeria.<sup>46</sup> For example, low-skilled

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46.6%

OF NIGERIANS ARE  
MULTIDimensionALLY POOR  
– EQUIVALENT TO ABOUT  
95 MILLION PEOPLE

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and low-wage jobs are predominantly occupied by women. In addition, they are five times less likely to own land than men. Widowhood is often a source of discrimination and can lead to losing property, land and any money saved before a husband's death.<sup>47</sup>

According to the IFs database, the income inequality level measured by the Gini index was 0.42 in 2019 in Nigeria versus 0.39 for lower middle-income Africa and 0.37 for lower middle-income globally. Although Nigeria has the largest number of poor people among its lower middle-income peers, it has the lowest public spending on social protection (0.3% of GDP), which is also poorly targeted.<sup>48</sup> As a result, Nigeria ranked second to last among 158 countries assessed on Oxfam's 2020 Commitment to Reducing Inequality (CRI) Index,<sup>49</sup> which captures governments' actions concerning social spending, tax and labour rights.

A high level of inequality reduces the elasticity of poverty to economic growth and can cause socio-political instability in a country. The growing social discontent and the surge in criminal gangs involved in kidnappings for ransom in Nigeria in recent years are partly linked to unemployment, poverty, limited economic opportunity, social inequality, and unequal allocation and distribution of state resources.

Frustrated by living in abject poverty with no prospect of a job, some Nigerians may sympathise with the armed groups or get involved in criminal activities. According to the International Crisis Group, some girls and women living mainly in the north-east part of Nigeria chose to join Boko Haram voluntarily in the hope of a better life. Also, an empirical study by Adekoya and Abdul-Razak revealed a strong relationship between crime and poverty in Nigeria.<sup>50</sup>

Overall, Nigeria's poor are mostly rural, predominantly female, mostly illiterate and mainly in the informal sector.<sup>51</sup> Nigeria was declared the 'poverty capital' of the world a while ago<sup>52</sup> despite its abundant natural resources. To ensure peace and stability in the country, proactive measures need to be taken to break the cycle of poverty. The government should scale up social safety net transfers to a broader share of the poor, reduce corruption and improve employment and educational opportunities.

## Education

The education system in Nigeria is administered at federal, state and local government levels. The Federal Ministry of Education oversees overall policy formation and ensures quality control but is mainly involved with tertiary education. Basic and senior secondary education remain primarily under the jurisdiction of the state and local governments. The Nigerian education system can be described as a '1-6-3-3-4' system: one pre-primary year (recently introduced) and six years of primary, followed by three years of junior secondary education, which together comprise the basic education. The next three years are senior secondary education, followed by four years of tertiary education for a basic degree.<sup>53</sup>

According to Nigeria's national policy on education, the language of instruction for the first three years of elementary school should be the 'indigenous language of the child or the language of his/her immediate environment', most commonly Hausa, Ibo or Yoruba. After that, English is used from Grade 4. This policy, however, is not always followed and instruction is often delivered in English.<sup>54</sup>

### More than 30% of Nigeria's population aged 15 years and older can neither read nor write

The education sector has not received enough attention in Nigeria, and this manifests in the chronically low public funding, decaying educational infrastructure, deteriorating teaching capabilities and high illiteracy, among other issues.

The national literacy rate improved modestly from 55% in 2003 to about 65% in 2019, 10 percentage points below the average for lower middle-income Africa and 20 percentage points below the world average. However, despite the progress made, more than 30% of Nigeria's population aged 15 years and older can neither read nor write. Moreover, the literacy rate is even lower in most of the northern states of the country. For instance, the literacy rate in north-west Nigeria is estimated to be about half the national rate.<sup>55</sup>

These distressing statistics imply that a significant proportion of Nigeria's working-age population is not employable in an economic environment where manual labour is becoming less important. The absence of appropriate knowledge and skills leads to poverty.

The mean years of education of adults is a good indicator of the general level of education or the stock of education in a country. In Nigeria, the average number of years of schooling for adults aged 15 years and over, according to 2019 data in IFs, is about eight years. However, when disaggregated by gender, males have about nine years and females seven years of schooling. This means that most adults in the country have barely completed basic education.

However, Nigeria performs slightly better than the average for its income group in Africa, which is about

seven years. By 2050, the average years of education for adults 15+ will only be about nine years, nearly one year higher than the projected average for African lower middle-income.

The education system can be viewed as a pipeline where completion or attainment of one level gives access to the next. The more students that are allowed to enrol and complete primary school, the greater the pool of students that can proceed to secondary and tertiary levels. Chart 8 presents the performance of various education indicators (Box 2) from one level to another for Nigeria compared to its peers. The chart is colour-coded to show country and group performance, ranging from good (green) to bad (orange).

Primary school enrolment in Nigeria has improved in recent years but remains below the average for its Africa

### Box 2: Selected educational indicators

**Gross enrolment rate:** The number of students enrolled in a given level of education, regardless of age, as a percentage of the official school-age population corresponding to the same level of education. Rates can therefore be above 100%.

**Completion rate:** The number of people in the relevant age group who have completed the final grade of the given level of education as a percentage of the population at the theoretical graduation age for the given level of education.

Source: UNESCO

Chart 8: Progress through the education pipeline (latest data – 2018, 2019)

Country/region	Primary		Lower secondary		Upper secondary		Tertiary	
	Enrolment (gross)	Completion	Enrolment (gross)	Completion	Enrolment (gross)	Completion	Enrolment (gross)	Completion
Nigeria	94.1	85.6	56.5	48.9	47.2	42.3	11.0	5.3
Africa LMICs	104.2	84.7	58.7	61.3	43.1	40.7	19.8	11.6
LMICs globally	105.1	84.0	58.7	70.0	43.1	45.8	28.5	22.5

Source: IFs version 7.63; historical data from UNESCO Institute for Statistics

Note: LMICs = Lower middle-income countries



income group. UNICEF reports that the net attendance at the primary level is only 70%. Also, the net primary enrolment rate (not shown in the chart) is only 67%, implying that many children who are supposed to be in school are not. This means that Nigeria still has a bottleneck at the primary enrolment stage, as the number of pupils that can get into and through primary school determines the size of the pool available for secondary and tertiary.

Consequently, educational outcomes for secondary and tertiary levels are very low in Nigeria, with the situation at the tertiary level significantly worse. The low educational outcomes at the tertiary level are also explained by the low-carrying capacity or intake level of the tertiary institutions. Only about 10% of applicants seeking admission into tertiary institutions are placed.<sup>56</sup>

Officially, primary education is free and compulsory in Nigeria, but the reality on the ground is quite different. According to UNICEF, Nigeria has the world's highest number of out-of-school children – about 10.5 million children aged 5–14 are not in school, with 60% of them in northern Nigeria.<sup>57</sup> The rapid population growth and the youthfulness of Nigeria's population have brought many challenges to the education system.

With children under 15 making up over 40% of the 200 million people, the education system is unable to cope. North-west Nigeria has the highest number of out-of-school children in the nation. In states like Kano, Katsina, Sokoto, Zamfara and Kebbi, more than 30% of school-age children are not in school.<sup>58</sup> In addition to those who do not attend school, millions of children are in the poorly resourced and under-supervised Quranic school system (*almajiranci*), which is notorious for producing unskilled youth cohorts.<sup>59</sup>

Furthermore, a gender imbalance in the education sector also affects enrolment and educational outcomes. While the gender parity index for primary school and secondary school has improved to 1.00 and 0.97 respectively, UNICEF reports that about 60% of out-of-school children in the country are girls. Many girls are not in school due to stereotypes about education for girls, financial constraints and early marriages.<sup>60</sup>

However, the situation of female education varies by state or region. For instance, in the north-east and north-west

states, girls' primary net attendance rate is 47.7% and 47.3%, respectively,<sup>61</sup> implying that more than half of the young girls in these states are not in school.

Girls in the southern regions have more than twice the chance to attend school than their peers in the north, where jihadist insurgency and poverty are rampant. Education in northern Nigeria has become one of the casualties of jihadist insurgency and banditry as students are frequently taken from schools in mass abductions. More than 1 000 students have been abducted since December 2020 and the group Boko Haram, for instance, kidnapped over 270 schoolgirls from Chibok in 2014.<sup>62</sup>

### Officially, primary education is free and compulsory in Nigeria, but the reality on the ground is quite different

On top of the alarming number of out-of-school children, the quality of education received by those who have the opportunity to be in school has slipped significantly. Getting more children into school is essential, but ensuring that they actually learn is more important. Many empirical studies have reported that educational quality impacts economic growth more than educational quantity.<sup>63</sup> The quality of education is usually tracked using Harmonized Test Scores. According to the 2020 World Bank Human Capital Project report, students in Nigeria score 309 on a scale where 625 represents advanced attainment and 300 represents minimum attainment.<sup>64</sup>

Dilapidated school infrastructure, obsolete educational materials, insufficiency of qualified teachers, limited STEM (science, technology, engineering and mathematics) training, and lack of high-quality technical and vocational education and training (TVET) programmes affect the quality of education and create a disconnect between graduates' skills and labour market needs.<sup>65</sup> The end result is the low employability of the labour force and high youth unemployment in the country.

Chronically inadequate public funding, corruption and bad governance are some of the key factors underlying the deterioration in public education

outcomes across all levels in Nigeria. The resources allocated to the education sector have increased only modestly despite the exploding number of students. The education budget increased from 6.4% of the national budget in 2003 to 8.2% in 2013 and 10.7% in 2014 before dipping below 10%.

In 2018, only about 7% of the national budget was allocated to the education sector while the 'Education 2030 Agenda' (Incheon Declaration) requires states to allocate at least 15% to 20% of total public expenditure to education.<sup>66</sup> As a result of insufficient funding, some public schools are highly dilapidated or have collapsed and student-to-teacher ratios have significantly increased. It is common to see 100 pupils for one teacher or students learning under trees due to the lack of classrooms in some areas.<sup>67</sup> As parents seek better education than they find in the public schools, private education has mushroomed over the years in the country. In Lagos state alone, more than 18 000 private schools were operating in 2018.<sup>68</sup>

Corruption is another factor hindering the growth of the education sector and, in consequence, the development of a skilled labour force in Nigeria. Often, school funds meant for salaries, equipment and maintenance are diverted or mismanaged. This pushes teachers to strike in protest of low wages and late payments, which negatively affects their productivity and the quality of teaching they deliver.

### Nigeria's deteriorating tertiary education has pushed many secondary school graduates to migrate in search of quality education abroad

In 2017, for instance, the University of Ibadan ranked at 801 and was the only Nigerian university listed among the top 1 000 in international university rankings, while universities from other African countries such as South Africa, Ghana and Uganda were ranked much higher.<sup>69</sup> Nigeria's deteriorating tertiary education condition has pushed many secondary school graduates to migrate, searching for quality education abroad. Nigeria's outbound tertiary students were estimated at about 85 000 in 2017, making Nigeria the largest African country of origin of international students.<sup>70</sup>

There are, however, promising efforts to improve the quantity and quality of education in the country. The number of recognised universities grew almost tenfold from 16 in 1980 to 152 in 2017, and the federal government has announced plans to build more classroom blocks and federal universities across the country and improve the teacher recruitment process.<sup>71</sup> There are also many reform projects to enhance vocational training to provide employment-gearred education in the private sector.<sup>72</sup>



NIGERIA HAS THE HIGHEST  
MATERNAL MORTALITY RATIO  
AMONG LOWER MIDDLE-  
INCOME AFRICAN COUNTRIES

## Health

The public health sector in Nigeria is incapacitated by a cocktail of mismanagement, corruption and poor resources. As a result, Nigeria has very poor health outcomes, with some of the worst healthcare statistics in the world. In 2019, the country ranked 187th for overall health efficiency among 191 WHO member states.<sup>73</sup>

The efficacy of a country’s health system can be assessed through several indicators such as infant mortality, maternal mortality and life expectancy. In 2019, Nigeria’s infant mortality ranked as the highest among lower middle-income countries in Africa, with 67 deaths per 1 000 live births.

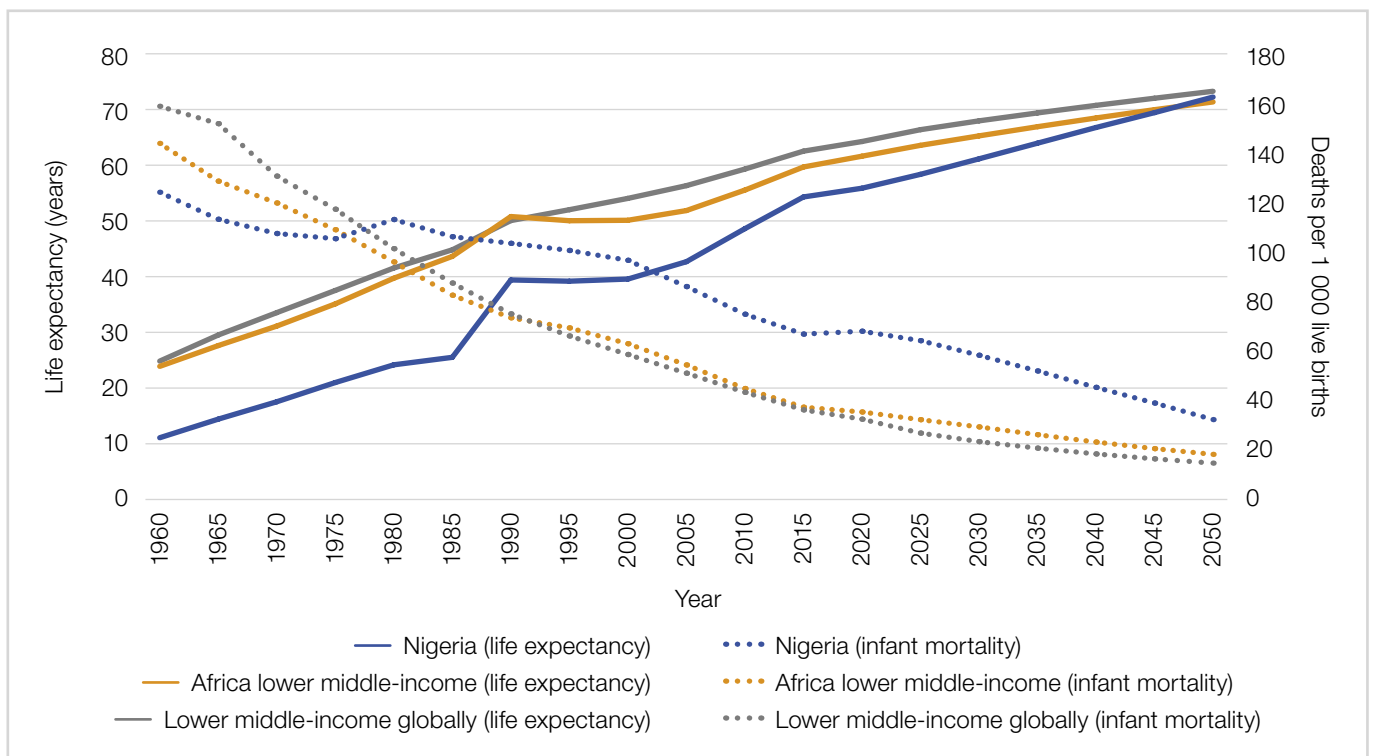
The SDG target regarding the infant mortality rate is below 25 deaths per 1 000 live births by 2030. On the Current Path, Nigeria is not on track to achieve this target as it is forecast to have an infant mortality rate of 59 deaths per 1 000 live births by 2030 and 33 deaths per 1 000 live births in 2050, significantly above the projected average of 15 deaths per 1 000 live births for global lower middle-income countries in the same year (Chart 9).

Life expectancy climbed from 55 years in 1990 to 65 years in 2019, and under the Current Path scenario is likely to reach 75 years by 2050, on a par with the projected average for its income peers.

Nigeria has the highest malaria prevalence and mortality headcount in Africa, placing a huge economic burden on the country

Nigeria has the highest maternal mortality ratio among lower middle-income African countries, with 831 maternal deaths per 100 000 live births. The SDG target for maternal mortality (SDG 3.1) is a ratio of less than 70 deaths per 100 000 by 2030, a target that will be unattainable on the Current Path trajectory of the country. Under the Current Path scenario, Nigeria is forecast to reach a ratio of 246 deaths per 100 000 live births by 2050, well above the projected averages of 50 deaths per 100 000 live births and 26 deaths per 100 000 live births for lower middle-income Africa and global lower middle-income countries, respectively (Chart 10).

Chart 9: Life expectancy and infant mortality, 1960–2050



Source: Forecast in IFs version 7.63; historical data from the Institute for Health Metrics and Evaluation (IHME)

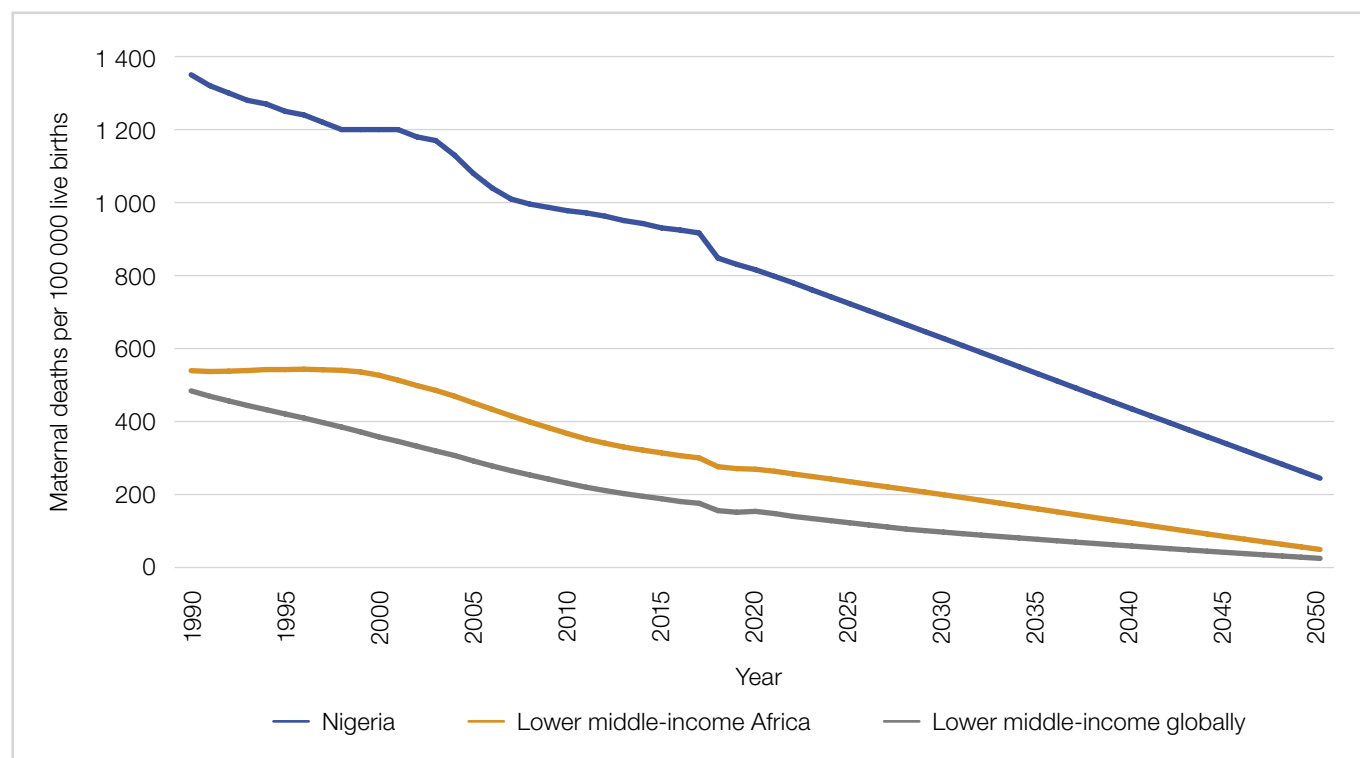
Nigeria is also battling with the highest incidences and prevalence of severe acute malnutrition on the African continent and an estimated two million children are affected.<sup>74</sup> Children in Nigeria are exposed to chronic malnutrition, with 44% of children,<sup>75</sup> the second highest burden in the world, considered stunted. Stunting prevalence in children has only marginally improved in the past three decades, dropping from a rate of 48.7% in 1990 to 36.5% in 2019. Most of the gains towards lowering stunting rates have been made in the southern states of Nigeria but of concern is a consistent increase observed between 2008 and 2015 in the north-western states.<sup>76</sup>

Nigerian children are experiencing a nutritional crisis.<sup>77</sup> A study by the World Bank found that only 23.7% of children had the benefits of exclusive breastfeeding during their first six months of life, while 30% had a vitamin A deficiency and 76% were anaemic.<sup>78</sup> These worrisome figures are the result of poor-quality food, unhygienic environments, a lack of education around child nutrition, inadequate access to health services and information and a lack of access to community-based programmes.<sup>79</sup>

The most predominant causes of adult mortality are preventable, treatable and curable (Chart 10) and 13% of deaths in the under-five age category could have been prevented through vaccines that target diseases such as measles, pertussis and meningitis.<sup>80</sup> Vaccination coverage, however, remains low and has not changed much in the past 25 years.<sup>81</sup> Vaccination rates also vary significantly across states, with the highest vaccination rates in the southern and north-central states and the lowest observed in the north-east and north-west. The under-five mortality rate also remains highest in the northern states due to the lower vaccination rates.<sup>82</sup>

Nigeria has the highest malaria prevalence and mortality headcount in Africa, placing a huge economic burden on the country. The direct and indirect economic burden of malaria is estimated at about 13% of Nigeria's GDP.<sup>83</sup> Nigeria has, however, made significant strides in combating malaria and has seen death rates drop since 2008. Insecticide-treated net access increased from 1% in 2003 to 47% in 2016 and other interventions in the form of rapid diagnostic tests and treatment courses have all contributed to lower mortality rates.<sup>84</sup>

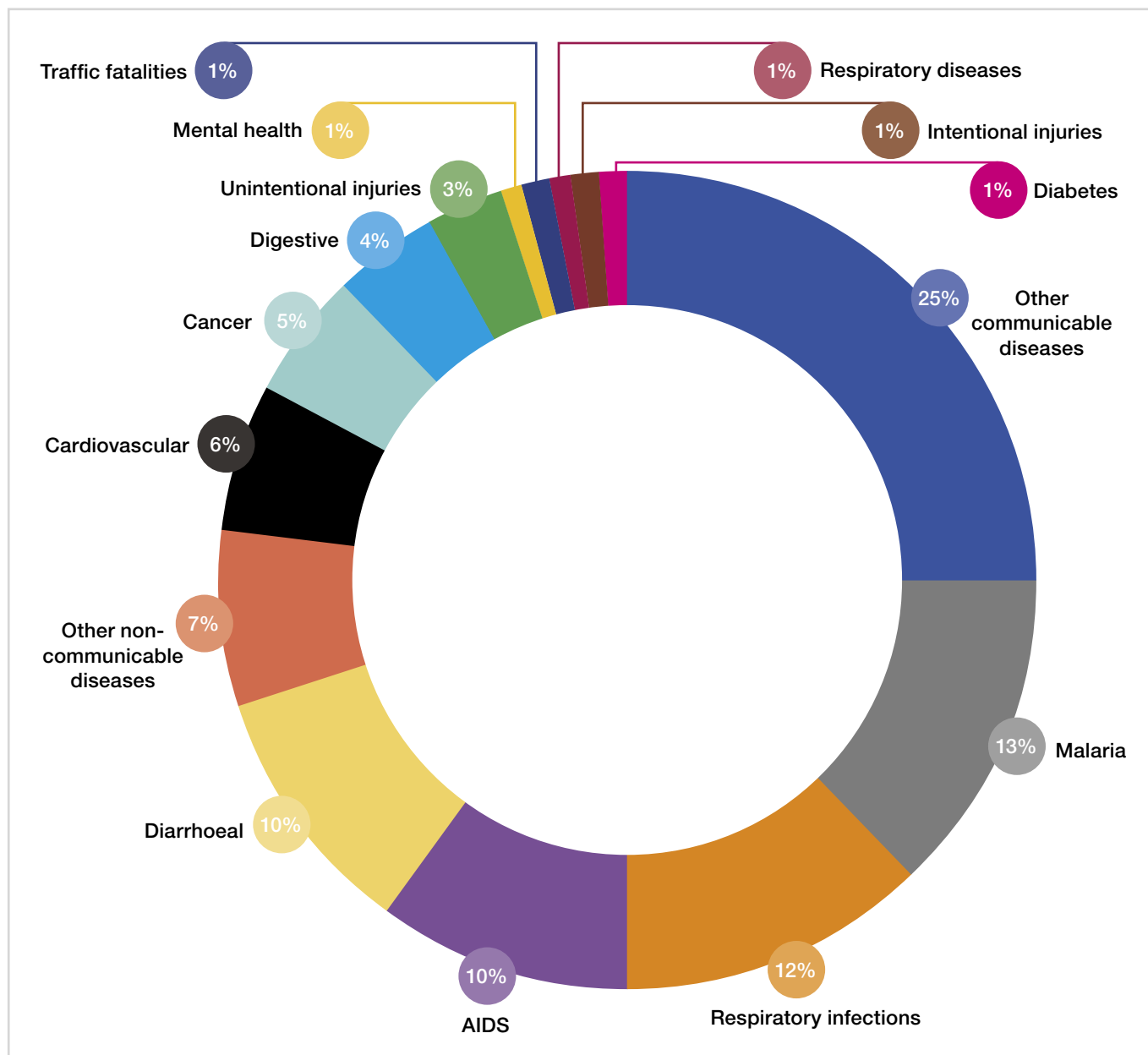
**Chart 10: Maternal mortality, 1990–2050**



Source: Forecast in IFs version 7.63; historical data from the Institute for Health Metrics and Evaluation (IHME)



Chart 11: Main causes of death in Nigeria, 2019



Source: IFs version 7.63; historical data from GBD-Institute for Health Metrics and Evaluation

The new malaria vaccine approved by the WHO is viewed as a ‘game-changer’ in combating the disease in Africa, which accounted for 94% of the world’s cases in 2019.<sup>85</sup> The Nigerian government needs to get ready in terms of the infrastructure and logistics required to roll out the vaccine when it becomes available.

The past three decades have also seen the country battling close to 60 epidemics. Diseases such as Lassa fever were responsible for epidemics in 1989, 2012, 2016 and 2018. Yellow fever caused epidemics in 1991 and

as recently as 2019, and a devastating (and completely preventable) measles outbreak affected nearly 22 000 people in 2019. Cholera alone has been responsible for 20 epidemics in the country, a direct result of poor water, sanitation and hygiene (WASH).<sup>86</sup>

Poor environmental health also directly affects the health and well-being of citizens. Nigeria’s delta region has seen significant air, soil and water pollution as a direct result of oil spillage and gas flaring, with the latter leading to increased respiratory and dermal illnesses.<sup>87</sup> High

rates of deforestation coupled with population increases pose an increased risk to the emergence and re-emergence of infectious diseases, while overexploitation of resources, such as the mining in the north-western states, has caused devastating and fatal lead toxicity in communities.<sup>88</sup>

Overall, communicable diseases are the leading causes of deaths in Nigeria (Chart 11). On the Current Path, this trend is forecast to change from 2044, when non-communicable diseases will become the leading causes of deaths. This will occur much later than the average for global lower middle-income countries. This has implications for Nigeria's healthcare system, which will need to invest in the required capacity as the treatment of non-communicable diseases is difficult and costly.

## Nigeria's infrastructure gap has long been a drain on productivity, growth and competitiveness

Nigeria is chronically underinvesting in its health sector, with health expenditure in 2019 at a mere 3.6% of GDP, the fourth lowest among low-middle-income economies in Africa. The private health sector is responsible for about 60% of healthcare service delivery in the country.<sup>89</sup> About 67% of Nigerians can reach a health facility within a 30-minute walking distance.<sup>90</sup> However, households and individuals are unable to access quality and equitable services due to limited human resource capacities; poor equipment; poor coordination between the local, state and federal governments responsible for primary, secondary and tertiary levels of care, respectively; and excessive healthcare fees, among others.<sup>91</sup>

Due to poor working conditions, Nigeria is experiencing a medical 'brain drain'. It is estimated that about 2 000 doctors have left the country over the past few years to seek better work conditions and pay abroad,<sup>92</sup> a situation which, combined with inadequate funding, has led to a chronically under-resourced health system. High out-of-pocket health payments also limit the ability of poor households to access and utilise basic healthcare services in the country. Private health expenditure accounts for 76% of total health expenditure, while

out-of-pocket health expenditure represents 73% of total health expenditure, the highest compared to other African countries.<sup>93</sup>

A well-fed and healthy population will aid in national development and productivity. It is therefore critical that the country addresses its poor health outcomes. Corrupt practices should be eliminated through accountability measures. Investing in primary health facilities and community programmes will significantly reduce the nutritional risks faced by children. Ramping up vaccinations for preventable diseases and expanding basic WASH infrastructure can also significantly reduce mortality rates.

### Basic infrastructure

The role of basic infrastructure such as roads, electricity, information and communication technology (ICT) and improved water and sanitation in boosting productivity, growth and human development is well documented. The adequate provision of basic infrastructure affects inequalities by allowing the poor segment of the society to access core economic activities and services in a country. Nigeria's infrastructure gap has long been a drain on productivity, growth and competitiveness, especially in the non-oil sector.<sup>94</sup>

The provision of infrastructure in Nigeria has not kept pace with the continued rapid population growth. Nigeria's core infrastructure stock is estimated at 20% to 25% of GDP compared to the international benchmark of 70%.<sup>95</sup> In 2020, Nigeria ranked 24 out of 54 African countries on the African Development Bank's Infrastructure Development Index, with a score of 23.2 out of 100. The relatively good ranking of Nigeria despite its poor score reveals the extent to which infrastructure development is low in Africa.

### Water, sanitation and hygiene

Improved water and sanitation infrastructure improves the human capital stock in a country through its positive impact on health outcomes. Better provision of clean water and improved sanitation will help to prevent the spread of communicable diseases, which is the leading cause of death in Nigeria. As stated by UNICEF, in Nigeria: 'The use of contaminated drinking water and poor sanitary conditions result in increased vulnerability to water-borne diseases, including diarrhoea which leads

to deaths of over 70 000 children under five annually. 73% of the diarrhoeal and enteric disease burden is associated with poor access to adequate WASH. Frequent episodes of WASH related ill-health in children, contribute to absenteeism in school, and malnutrition.<sup>96</sup>

Nigeria has, however, made significant progress in providing clean water to its population over the past 20 years. According to IFs, in 2000, only 57.1% of Nigerians had access to safe water, while the averages for lower middle-income Africa and global lower middle-income were, respectively, 73.5% and 83%. As of 2020, 82.5% of the Nigerian population had access to clean water against 83.8% for the average for African income peers. In other words, the absolute number of people with access to improved water sources increased from nearly 70 million in 2000 to 163 million in 2020, a 133% increase over 20 years.

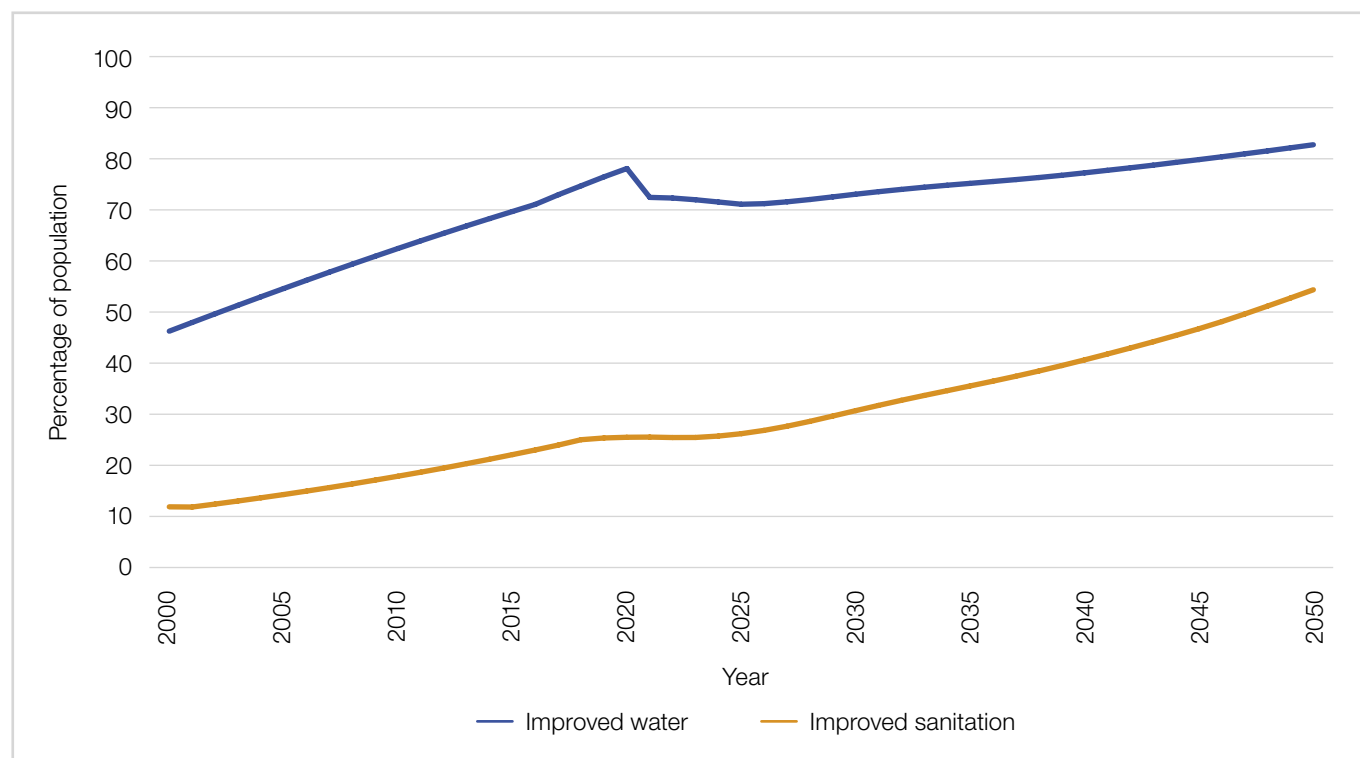
Although the improvement is impressive, more needs to be done as nearly 43 million people still do not have access to improved water sources. This implies that 43 million people rely on unsafe water sources for their needs, thereby exposing them to malnutrition and communicable diseases such as cholera.

Access to drinking water is skewed towards urban areas, where 95.3% of the population has access to improved sources of water, against 68.8% in rural areas. This discrepancy between urban and rural areas can also be observed regarding access to basic hand-washing facilities. In 2020, only 25% of the rural population had access to a basic hand-washing facility compared to nearly 41% in urban areas.<sup>97</sup> Overall, nearly 138 million people are without access to a basic hand-washing facility in Nigeria.

On the Current Path, the access rate to safe water is forecast to decline in the short to medium term; it will only recover its 2020 level around 2042 before increasing to 86.2% by 2050 (Chart 12). This implies that nearly 60 million people will still be without access to clean water sources by 2050 in Nigeria. The slow growth associated with the long-term impact of COVID-19, compounded by the rapid population growth, might explain this slowdown in the water access rate. By 2050, the water access rate is forecast to be, respectively, 91.5% and 97% for Africa lower middle-income and global lower middle-income.

The access to improved sanitation rate in Nigeria increased modestly from 29.5% in 2000 to 42.5% in

**Chart 12: Safe water and improved sanitation access rates in Nigeria, 2000–2050**



Source: Forecast in IFs version 7.63; historical data from WHO/UNICEF JMP global database

2020, against 57.8% for the average for lower middle-income Africa, and 66.3% for the average for Nigeria's global lower middle-income peers. In rural Nigeria, only 33% of the population has access to improved sanitation compared to over 50% of the population in urban areas.<sup>98</sup> Nearly 30% of the population in rural areas practise open defecation,<sup>99</sup> a fraction that has changed marginally since 2000. The Current Path forecast is that access to improved sanitation will improve slightly to reach about 64% of the population by 2050 compared to nearly 75% and 89%, respectively, for Nigeria's Africa income peers and global income peers.

This overall low level of access to WASH services is linked to Nigeria's high burden of communicable disease and malnutrition. With the support of the World Bank, the government of Nigeria has recently strengthened its commitment to improve access to WASH to catch up with regional peers and ensure universal access by 2030 in line with the SDGs. In May 2020, the World Bank approved a loan of US\$700 million for Nigeria to support its National Action Plan (NAP) for the Revitalization of the Water Supply, Sanitation, and Hygiene Sector.<sup>100</sup>

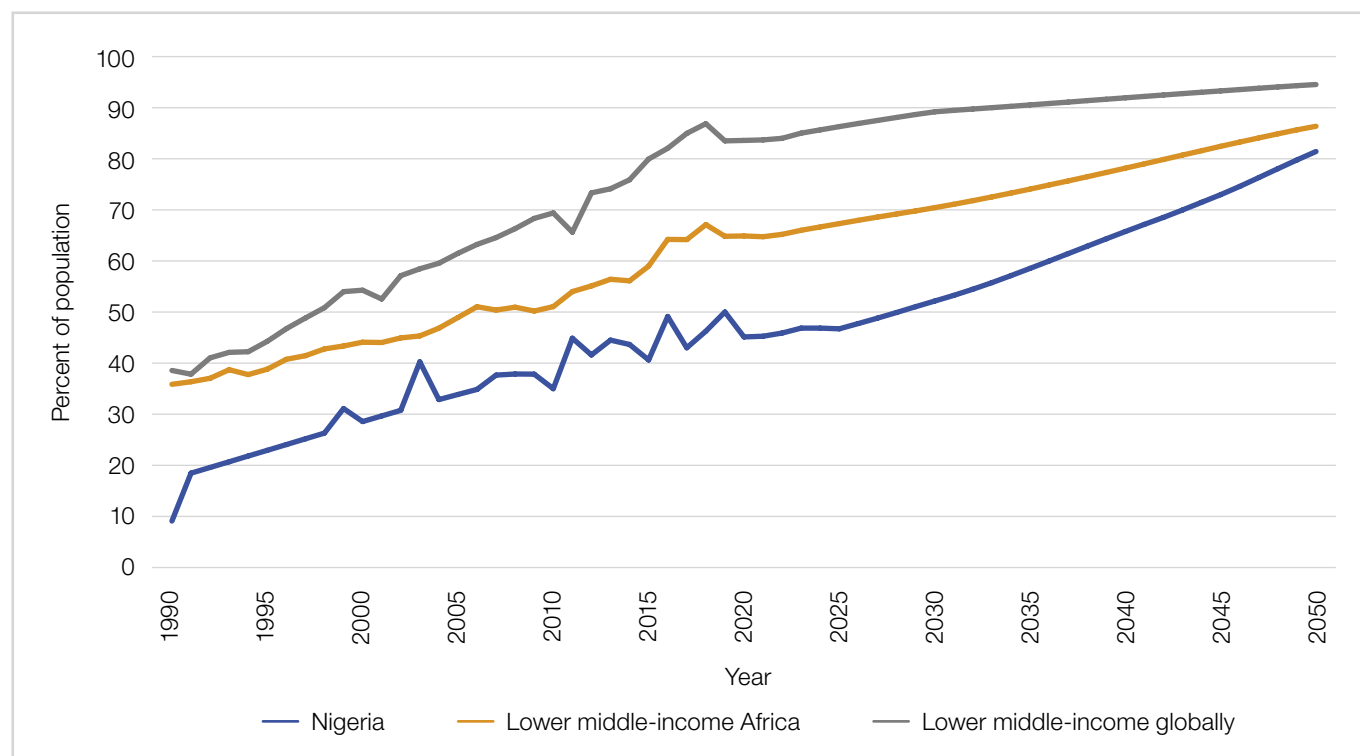
### Energy/electricity access

Nigeria is endowed with large oil, gas, hydro, solar, geothermal and biomass resources. According to the International Energy Agency (IEA), currently, Nigeria has, respectively, 15% and 16% of Africa's oil and gas reserves.<sup>101</sup> However, Nigeria has one of the highest rates of energy poverty in the world and is unable to meet the energy demand of the population. While Nigeria's oil-refining capacity is estimated at 445 000 barrels per day (bpd), the actual output is only about 45 000 bpd, which is far below the domestic demand.<sup>102</sup>

As of 2019, about 60% of Nigerians (roughly 120 million people) had access to electricity in Nigeria (Chart 13). In other words, nearly 80 million people were without electricity in the country. The current electricity access rate in Nigeria is more than 15 percentage points below the average for lower middle-income Africa (71.8%), and nearly 30 percentage points below the average for Nigeria's global lower middle-income peers (86.1%).

After 2035, Nigeria will gradually narrow the electricity access gap with the average of its Africa income peers and show convergence beyond the 2050 time horizon.

Chart 13: Access to electricity, 1990–2050



Source: Forecast in IFs version 7.63; historical data from the World Bank

The electricity access rate in Nigeria is forecast to reach nearly 85% (or 384 million people) by 2050 compared to, respectively, 89% and 95.6% for the averages for Africa lower middle-income and global lower middle-income groups in the same time period. Over the next 30 years, an additional 274 million people will gain access to electricity in Nigeria.

### Nigeria's per capita annual consumption of electricity, estimated at 136 kWh, is one of the lowest in Africa

Electricity provision is also skewed in favour of urban areas. According to IFs, in 2019, 86% of the urban population had access to electricity against only 34% in rural areas. In rural areas, many households rely on biomass (coal and firewood), which causes harmful indoor air pollution and deforestation. This causes respiratory-related illness and affects girls' education outcomes as they are generally tasked with domestic chores like collecting firewood, which limits their study time. IFs estimates that about 69% of households use traditional cookstoves, and it is forecast to steadily decline to 18% by 2050.

Access to reliable electricity is critical to economic growth and improvements in livelihoods. However, in Nigeria, getting connected to the national grid does not necessarily mean access to reliable electricity supply. Power cuts are the key feature of electricity supply in Nigeria. Currently, Nigeria has about 16 384 MW of installed generation capacity which mostly depends on thermal and hydro (11 972 MW of gas; 2 062 MW of hydro; 10 MW of wind; 7 MW of solar; and 2.3 MW of other/diesel).<sup>103</sup>

However, due to inefficiencies in the power sector, only 4 000 MW are eventually distributed to the end users, which is hugely insufficient for a country of over 200 million people. Poorly maintained or dysfunctional plants, deteriorating transmission lines, corruption and power theft are some of the key factors explaining this huge gap between installed capacity and capacity distributed. To remedy this situation, parts of the country's power sector were privatised in 2013 but this has not led to significant improvements in electricity provision in the country.<sup>104</sup>

As a result, households and businesses continue to constantly experience power outages with a negative impact on productivity. Nigeria's per capita annual consumption of electricity, estimated at 136 kWh, is one of the lowest in Africa.<sup>105</sup> In 2018, the typical Nigerian firm experienced more than 32 power cuts and these repeated power cuts have led to a heavy reliance on fossil fuel back-up generators across the country.<sup>106</sup>

The result is that Nigeria is the largest importer of electric generators in Africa, and among the global top six countries (Nigeria, India, Iraq, Pakistan, Venezuela and Bangladesh) that generate electricity through back-up generators.<sup>107</sup> According to a report by the International Finance Corporation (IFC), the amount spent every year in Nigeria on buying and operating small generators is about US\$12 billion, and the collective installed capacity of generators is eight times more than the entire national grid.<sup>108</sup>

The operations of back-up generators come with high financial costs, often double that of grid electricity, and this is a huge burden on the small and medium scale enterprises (SMEs), which account for about 90% of businesses and over 80% of employment in Nigeria.<sup>109</sup> Also, these generators emit carbon dioxide and carbon monoxide that may pose serious risks to health and the environment.

In sum, Nigeria's power sector situation requires significant investment and capability building for a reliable electricity supply. It is estimated that the country needs investment worth US\$100 billion in the power sector over the next 20 years to provide electricity to its rapidly growing population.<sup>110</sup>

With the support of international organisations, the government is trying to boost power generation in the country. For instance, the African Development Bank (AfDB), which is already working with the Nigerian government on a US\$410 million transmission project, is pledging to invest an additional US\$200 million through the Rural Electrification Agency (REA) to improve access to electricity in the country.<sup>111</sup> Also, the World Bank has approved a US\$750 million Power Sector Recovery Operation (PSRO) loan for Nigeria to ensure the supply of 4 500 MW/h of electricity to the grid by 2022.<sup>112</sup>

The Nigerian National Integrated Infrastructure Master Plan (NIIMP) emphasises improving energy supply to meet the rapidly growing demand for energy in



the country. In the plan, the government's ambitious energy sector targets by 2043 are: 350 GW of electricity generation; increase oil production to four million bpd; gas production to 30 000 cubic feet per day (mcfpd); and oil-refining capacity to four million bpd.<sup>113</sup>

### Roads and rail

Adequate transport infrastructure in good condition is an important requirement of economic growth and development as it cuts across all the sectors of a nation's economy. With a total road network of about 195 000 km in 2017, Nigeria has the largest road network in West Africa.<sup>114</sup>

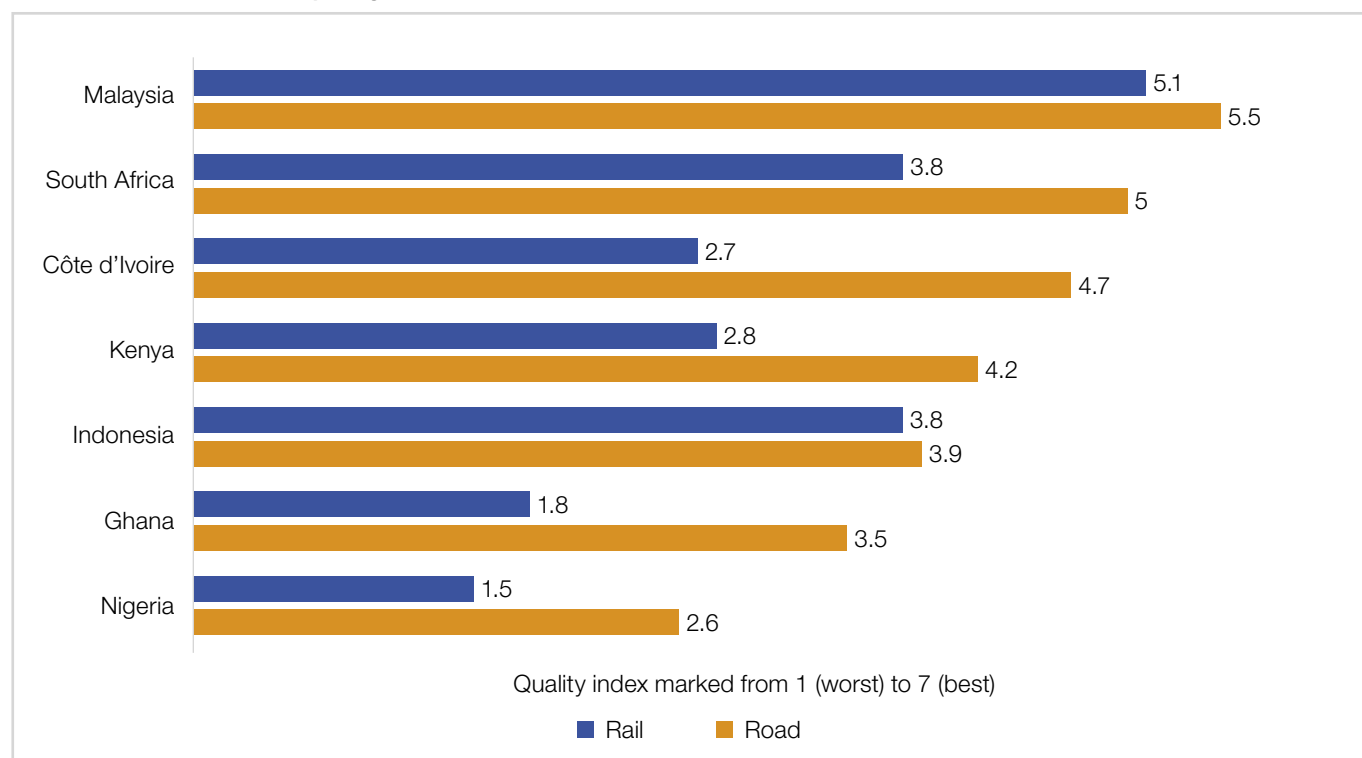
According to the NIIMP, federal roads account for 18% of the total road network, but carry about 70% of the national vehicular and freight traffic. State roads make up about 15% while local government roads represent 67% of the total road network. The road sector accounts for nearly 90% of all freight and passenger movement in the country, mainly due to the inadequacy of other forms of transportation, especially rail.<sup>115</sup> For instance, in 2018, there were only six operational locomotives in Nigeria

and most of the rail lines of 3 798 km are in a severe state of disrepair and need to be replaced.<sup>116</sup>

Nigeria lags behind its global income peers in terms of percentage of roads paved and road density. In 2019, about 31% (60 000 km) of Nigeria's road network was paved compared to the averages of 35.4% and 54.3% for Africa lower middle-income and global lower middle-income, respectively. As for road density, Nigeria has about 2.1 km of roads per 1 000 hectares of land area, ahead of Africa's lower middle-income average, but behind the average for global lower middle-income countries, which is estimated at around 4.1 km per 1 000 hectares.

As shown in Chart 14, most of Nigeria's roads are in poor condition and are often mentioned as a cause of the country's high rate of road fatalities. In the rainy season, travelling becomes very difficult, and sometimes almost impossible on many secondary roads. According to the NIIMP, in 2012, around 40% of the federal road network was in poor condition, requiring rehabilitation; 30% was in fair condition, hence in need of periodic maintenance; and 27% was in good

Chart 14: Road and rail quality in selected countries, 2016



Quality index ranked from 1 (worst) to 7 (best)

Source: Data from the World Economic Forum Global Competitiveness Report 2016–2017

condition, requiring only routine maintenance. The rest (3%) is unpaved trunk roads. As for the state roads and local government roads network, 78% and 87%, respectively, are in poor condition.<sup>117</sup>

There are, however, ongoing efforts to revamp and extend the road network to improve connectivity. For instance, in the 2018 federal government budget, 295 billion Naira (nearly US\$1 billion) were allocated for road capital works and maintenance.<sup>118</sup> On the Current Path, IFs estimates that the share of paved roads as a percent of the total road network will be around 80% in 2050, on a par with the projected average for global lower middle-income countries.

### Information and communication technology

ICT connectivity has been growing in recent years with continued effort to promote competition in the sector. Thus, Nigeria has the largest mobile telecom market in Africa, although it is subject to erratic electricity supply and vandalism of infrastructure.<sup>119</sup>

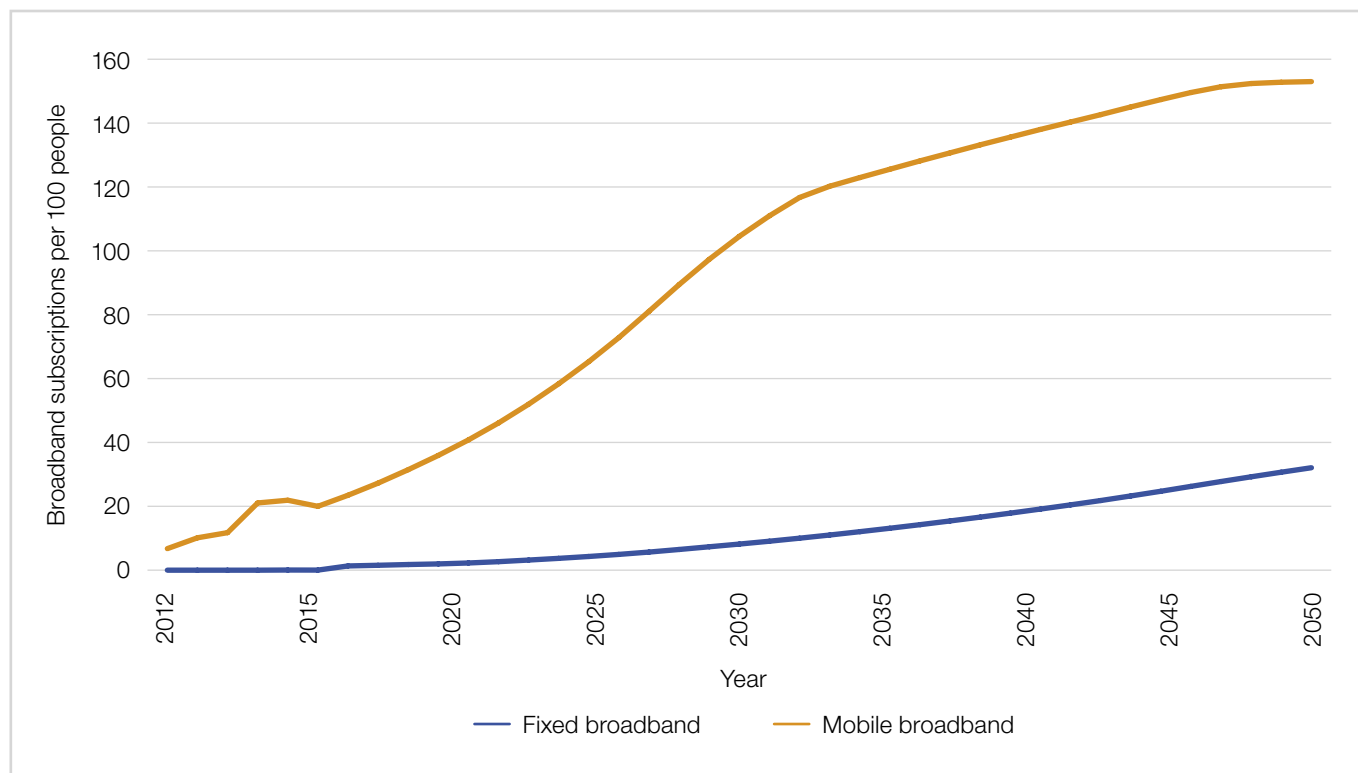
As of 2017, mobile phone subscriptions per 100 people were about 76 compared to 97 and 99.8 respectively for

the averages for lower middle-income Africa and lower middle-income globally. Currently, there are four GSM (Global System for Mobile Communications) operators in the country: AIRTEL, a subsidiary of the Indian mobile group; MTN, a subsidiary of the South African MTN Group; 9mobile, a subsidiary of ETISALAT of the United Arab Emirates; and GLOBACOM, owned by a privately held Nigerian group. There are also two operators using Code Division Multiple Access (CDMA) technology, Visafone and Multilinks, but their market share is quite small.<sup>120</sup>

In 2017, mobile broadband subscriptions per 100 people in Nigeria were at 19.9. IFs estimates it at 27 in 2019, against 43 for lower middle-income Africa. Fixed broadband penetration in the country is very low, with a penetration rate of 0.04%, below the African average of 0.6% and well below the world average of 13.6%.

Overall, about 42% of Nigerians use the internet and the connections are mostly via mobile networks. In absolute terms, Nigeria has the largest number of internet users in Africa due to its large population; the country accounts for more than 30% of internet users on the continent, with most of them in the urban areas.<sup>121</sup> The Current Path

Chart 15: Mobile and fixed broadband penetration rate, 2012–2050



Source: Forecast in IFs version 7.63; historical data from the International Telecommunications Union (ITU)

forecast is that mobile broadband will continue to be the most common and popular way through which people in Nigeria access the internet (Chart 15). By 2050, mobile broadband subscriptions per 100 people are projected to reach 152, on a par with the average for global lower middle-income countries.

Nigeria scores better on ICT skills than the sub-Saharan African average, but falls well below the global average.<sup>122</sup> The country is home to several high-growth digital companies. Lagos is a thriving digital hub in Africa and the centre of digital developments in Nigeria. It was the only city in Africa that featured in the 2019 Global Startup Ecosystem Report as a start-up ecosystem that could challenge the 30 leading global ecosystems led by Silicon Valley.<sup>123</sup> Digital entrepreneurship ecosystems are also growing in the cities of Abuja and Port Harcourt.<sup>124</sup>

### Despite significant progress, Nigeria still has a long way to go to achieve widespread use of the internet in rural areas

Also, Nigeria has the largest e-commerce market in Africa. In 2018, the e-commerce spending in the country was estimated at US\$12 billion and was projected to increase to US\$75 billion in revenues by 2025, with big homegrown players like Jumia and Kong.<sup>125</sup> According to the World Bank, there are 87 digital platforms operating in Nigeria and 66 of them are homegrown (76%); the remaining are from the US, Europe and the rest of Africa.<sup>126</sup>

However, Nigeria still has a long way to go to achieve widespread use of the internet (broadband) due to infrastructural bottlenecks, particularly in rural areas. In 2017, Nigeria ranked 143rd out of 176 countries on the International Telecommunication Union's (ITU) ICT Development Index (IDI). It is a composite index that is used to monitor and compare ICT development in countries.<sup>127</sup> Nigeria's poor ranking reflects its low broadband subscriptions (fixed and mobile).

Widespread access to high-speed internet has the potential to improve the country's socio-economic outcomes. Broadband can increase productivity, reduce transaction costs and optimise supply chains, with a positive effect on economic growth. A study by the World Bank revealed that

a 10% increase in broadband penetration in developing countries leads to a 1.4% increase in GDP.<sup>128</sup> Cognisant of this economic growth opportunity offered by broadband technologies, the Nigerian government has designed a National Broadband Plan 2020–2025 to deliver data download speeds of about 25 Mbps (megabytes per second) in urban areas and 10 Mbps in rural areas; the target by 2025 is a penetration rate of at least 70%.<sup>129</sup>

### Economy

Nigeria's economy at independence showed great promise, with agriculture as its backbone. The country adopted import substitution as an industrialisation policy to produce most imported goods locally. The discovery of crude oil in commercial quantities changed the course of Nigeria's economy, however. With rising oil prices and increasing demand, extracting and exporting crude oil became the dominant economic activity. The abundance of petrodollars made it easier to import various goods and services. As a result, advances made in agriculture and manufacturing were neglected and these sectors have become less competitive over time.<sup>130</sup> Today, Nigerian exports remain undiversified; it is highly dependent on crude oil, which accounts for more than 80% of total exports, half of government revenues and the bulk of hard currency earnings.<sup>131</sup>

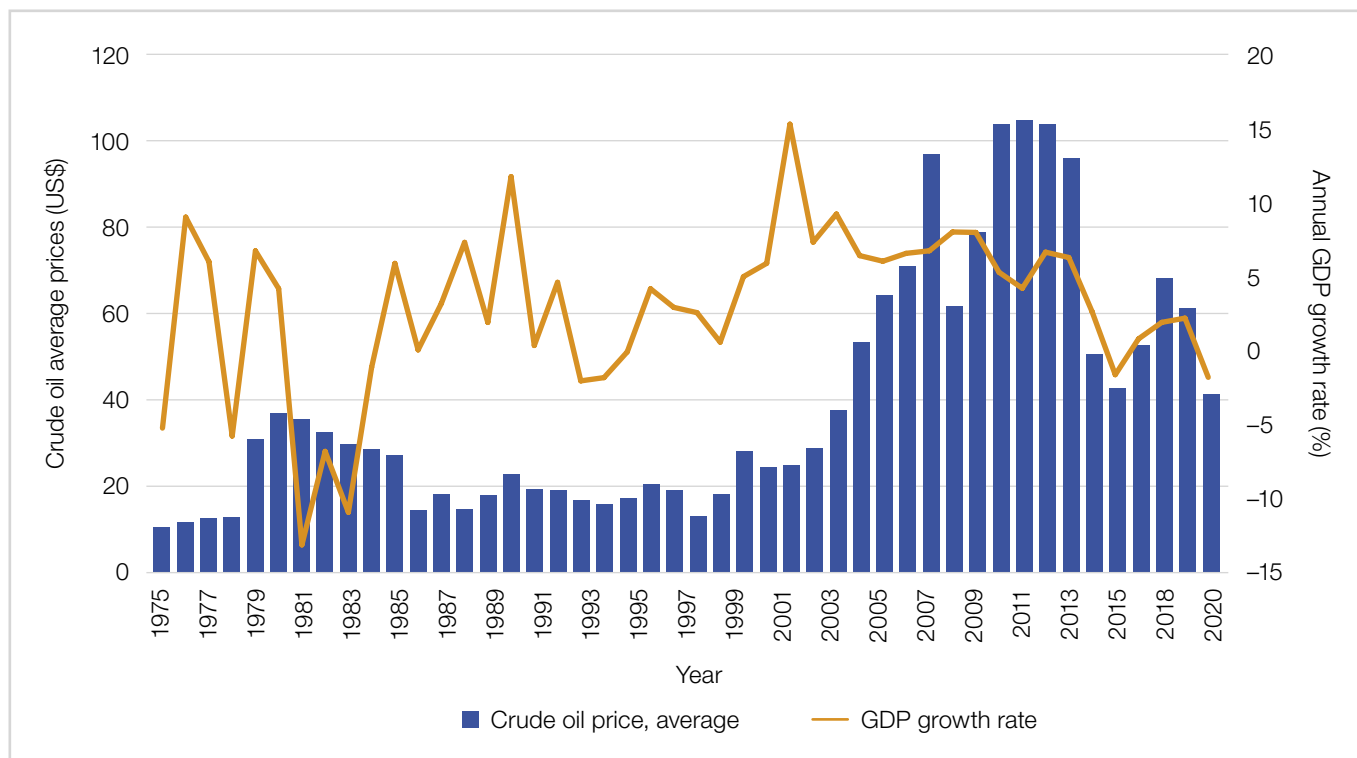
### Economic growth and sectoral contribution to GDP

Since the shift from agriculture to crude oil and gas in the late 1960s, the growth performance of Nigeria has been driven by the repeated oil price boom-bust cycles. As shown in Chart 16, the country has over time recorded volatile and low average growth.

After recording an average growth rate of 7% between 2000 and 2014, a sharp drop in oil prices from mid-2014 to 2016 saw the Nigerian economy fall into a recession. The growth rate fell from 6.3% in 2014 to 2.7% in 2015 and -1.6% in 2016, and led to a budgetary crisis.<sup>132</sup> The economy was slowly recovering from the 2016 recession, with the growth rate rebounding to 0.8% in 2017, 1.9% in 2018 and 2.2% in 2019, when the COVID-19 pandemic struck. With the collapse of commodity prices associated with the COVID-19 crisis, the economy contracted by 1.8% in 2020, lower than the projected contraction of -3.2% at the pandemic's beginning.

This lower than expected contraction was due to the oil price recovery and the implementation of long-

Chart 16: Trends in crude oil prices and GDP growth in Nigeria, 1975–2020



Source: World Development Indicators, World Bank Commodity Price Data

awaited policy reforms by Nigerian authorities to counter the economic shock.<sup>133</sup> The policy reforms include harmonisation of the exchange rate, adjustment of electricity tariffs, cutting non-essential spending, enhancing debt management and increasing public sector transparency, especially for oil and gas operations.<sup>134</sup>

Nigeria’s crude-oil-dependent economy makes the country’s macroeconomic environment more vulnerable to commodity price shocks. Evident from Chart 17, some of Nigeria’s key macroeconomic indicators deteriorated

significantly following the oil price collapse in 2016 and 2020. Falling oil revenues increased the federal government deficit from 0.9% of GDP in 2014 to 2.6% in 2016 (Chart 17). Also, foreign exchange reserves declined from US\$34 billion in 2014 to a record low of US\$26.9 billion in 2016.

As a result, the Naira lost almost half of its value against the US dollar by depreciating sharply from ₦156.5/US\$1 in 2014 to ₦253.1/US\$1 in 2016. Similarly, the inflation rate increased from 8% in 2014 to 18.6% in 2016.

Chart 17: Selected macroeconomic indicators, 2014–2020

	2014	2015	2016	2017	2018	2019	2020
<b>Budget deficit (% GDP)</b>	-0.9	-1.6	-2.6	-3.1	-2.8	-3.3	-4.0
<b>Debt (% GDP)</b>	13.7	15.8	19.0	20.9	23.5	25.4	34.6
<b>Foreign exchange reserves (billion US\$)</b>	34.2	28.3	26.9	39.3	42.6	38.1	36.5
<b>Official exchange rate (Naira/US\$1.00)</b>	156.5	191.8	253.1	305.3	305.6	306.5	358.3
<b>Inflation (%)</b>	8.0	9.6	18.6	15.4	11.4	11.9	15.7
<b>Current account balance (% GDP)</b>	0.1	-3.1	0.6	2.7	0.9	-3.8	-3.6

Source: Central Bank of Nigeria; IMF

The decline in crude oil prices led to a fall in foreign reserves and put pressure on the exchange rate, thereby increasing inflation. This is because a weakening currency increases import prices, which are passed to the domestic price level.

Macroeconomic instability, infrastructure gaps, requisite skills shortage, corruption and an unfriendly business environment discourage private investment and constrain productivity and growth in the non-oil sector.

The structure of Nigeria's economy makes it unable to achieve inclusive growth. An empirical study by Ajide and Olukemi revealed that an inflation rate above 9% is harmful to growth in Nigeria,<sup>135</sup> yet it has been above that rate since 2015. Also, government intervention measures such as fuel subsidies, multiple exchange rates, import restrictions and tax exemptions have created market distortions and taken a heavy toll on state finances.<sup>136</sup>

Due to weak tax administration, corruption and high levels of non-compliance, Nigeria has one of the world's lowest tax revenues-to-GDP ratios, leaving little fiscal space for productive expenditure. As a result of these long-standing structural constraints, bad policy and poor implementation, Nigeria's economy continues to underperform despite the country's potential to become a global economic powerhouse given its large human and natural endowments.<sup>137</sup>

Fuel subsidies, multiple exchange rates, import restrictions and tax exemptions have created market distortions and taken a toll on state finances

Unemployment, poverty and inequality are widespread. According to the World Bank, a 1% increase in economic growth leads to only a 0.1% increase in employment in Nigeria.<sup>138</sup> This low elasticity of employment to economic growth shows the extent to which the Nigerian oil-driven growth path is jobless. The informal sector has therefore become the lifeblood of millions of Nigerians.

A 2018 International Labour Organization (ILO) estimate shows that 93% of all employment in Nigeria is informal, with 95% of women working in the informal sector compared to 90% of men.<sup>139</sup> The World Bank, cited by ILO, estimates that Nigeria needs to create another 40 to 50 million jobs by 2030<sup>140</sup>. Unless the government takes bold actions to diversify the economy, the current economic model with heavy dependence on crude oil will certainly not allow Nigeria to achieve this target.

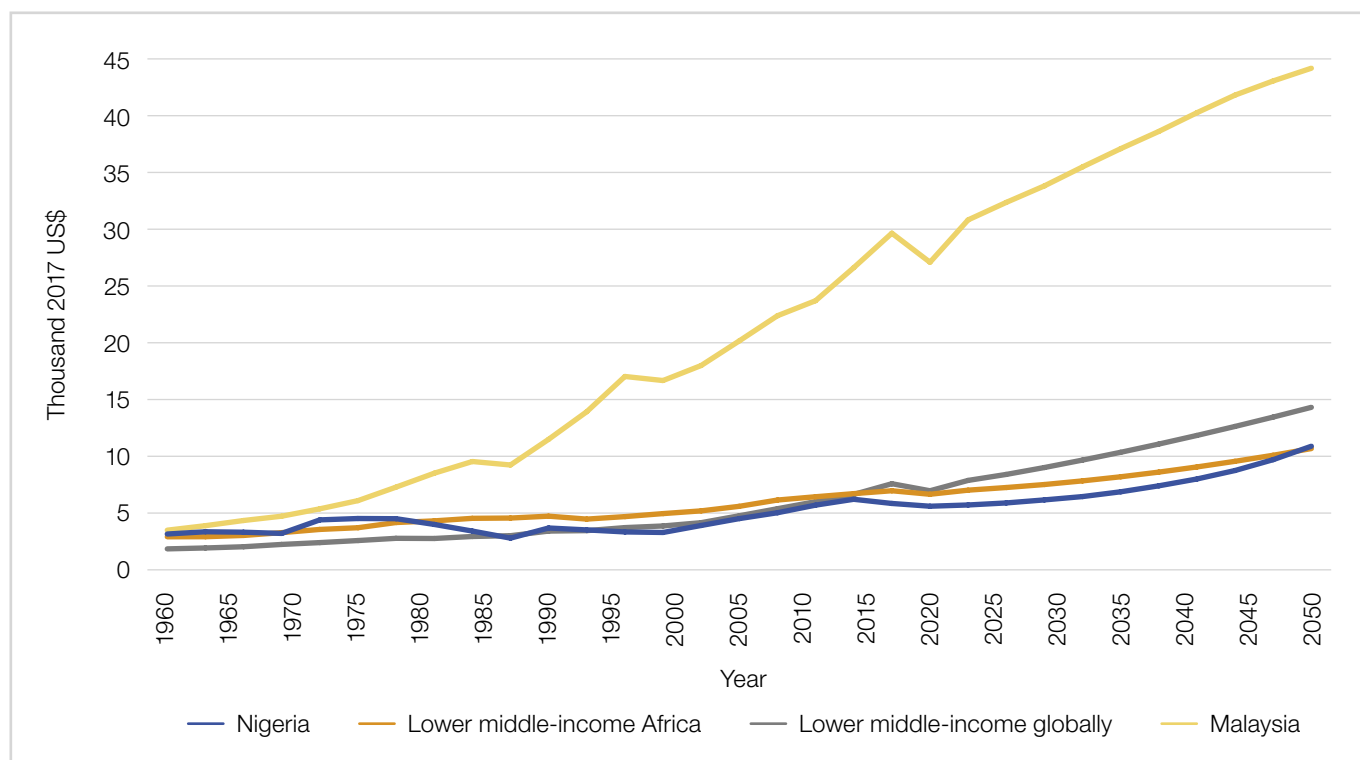
Nigeria has the largest GDP in Africa; however, in 2019, it ranked 16th out of Africa's 54 countries in terms of GDP per capita. Over the past five years, population growth in Nigeria has consistently outpaced economic growth, thus reducing the GDP per capita, which is now almost back to its 2010 level and is projected to continue to decline as the economy is forecast to



95% OF WOMEN WORK IN THE INFORMAL SECTOR COMPARED TO 90% OF MEN



Chart 18: Trends in GDP per capita (PPP): Nigeria, Malaysia and other groups, 1960–2050



Source: Forecast in IFs version 7.63; historical data from the IMF

grow more slowly than the population. The Current Path forecast is that the GDP per capita of Nigeria will remain below its level of 2015 until 2029 (Chart 18).

The country's inability to sustain economic growth and the rapid population growth dilute per capita income growth. On the Current Path, the GDP per capita of Nigeria is projected to increase from about US\$5 830 in 2019 to US\$10 891 by 2050, slightly above the projected average of US\$10 684 for lower middle-income Africa in the same year. It is, however, below the projected average of US\$14 333 for lower middle-income globally. Across the forecast horizon, Nigeria will continue to have the largest economy in Africa, with an estimated GDP of US\$3.1 trillion by 2050, a more than fivefold increase from US\$0.58 trillion in 2019.

The overreliance on crude oil, policy missteps, corruption and bad governance have impeded economic development in Nigeria. Malaysia, which was as poor as Nigeria in the 1960s, today has a GDP per capita about five times that of Nigeria. Between 1960 and 1975, Nigeria's GDP per capita was on a par with that of Malaysia (Chart 18).

The gap between Malaysia's GDP per capita and that of Nigeria widened sharply when Malaysia started to diversify its economy away from volatile commodity prices. In 1957, tin and rubber accounted for 85% of Malaysia's exports before the country took a significant step to diversify its economy from the 1970s through a solid commodity-based manufacturing sector.<sup>141</sup> As a result, the share of crude oil in Malaysian petroleum exports has declined from 95% to 20%, while processed palm oil exports increased from 0% in 1974 to 99% in 1994.<sup>142</sup> In contrast, Nigeria has continued to rely on crude oil export and today its manufacturing share in GDP is less than 10%.

Chart 19 shows the structure of Nigeria's GDP according to IFs classification of sectors. The services sector is the dominant sector of the Nigerian economy and consists of several industries, such as banking, retail and wholesale trade, tourism, real estate, motion pictures (Nollywood), telecommunications and entertainment. With over 2 500 movies produced annually, the booming Nollywood is the world's second-largest film industry in terms of output and contributes around 2% to Nigeria's GDP.<sup>143</sup> With adequate

investment, a supportive regulatory environment and capacity development, Nollywood could grow further and create more jobs for Nigerians.

Overall, in 2019, the services sector accounted for more than 50% of Nigerian GDP. Efforts to improve the productivity in the service sector will have positive spillover effects on the other sectors of the economy, such as manufacturing, which is dependent on external sourcing of essential inputs such as transportation, financing, design and communication.

Agriculture makes the second most significant contribution to Nigeria's GDP at about 22%. It is followed by the manufacturing industry and the energy sector (mainly oil and gas), which account for about 9% of GDP. ICT and materials accounted, respectively, for 4.9% and 0.5% of GDP in 2019 (Chart 19).

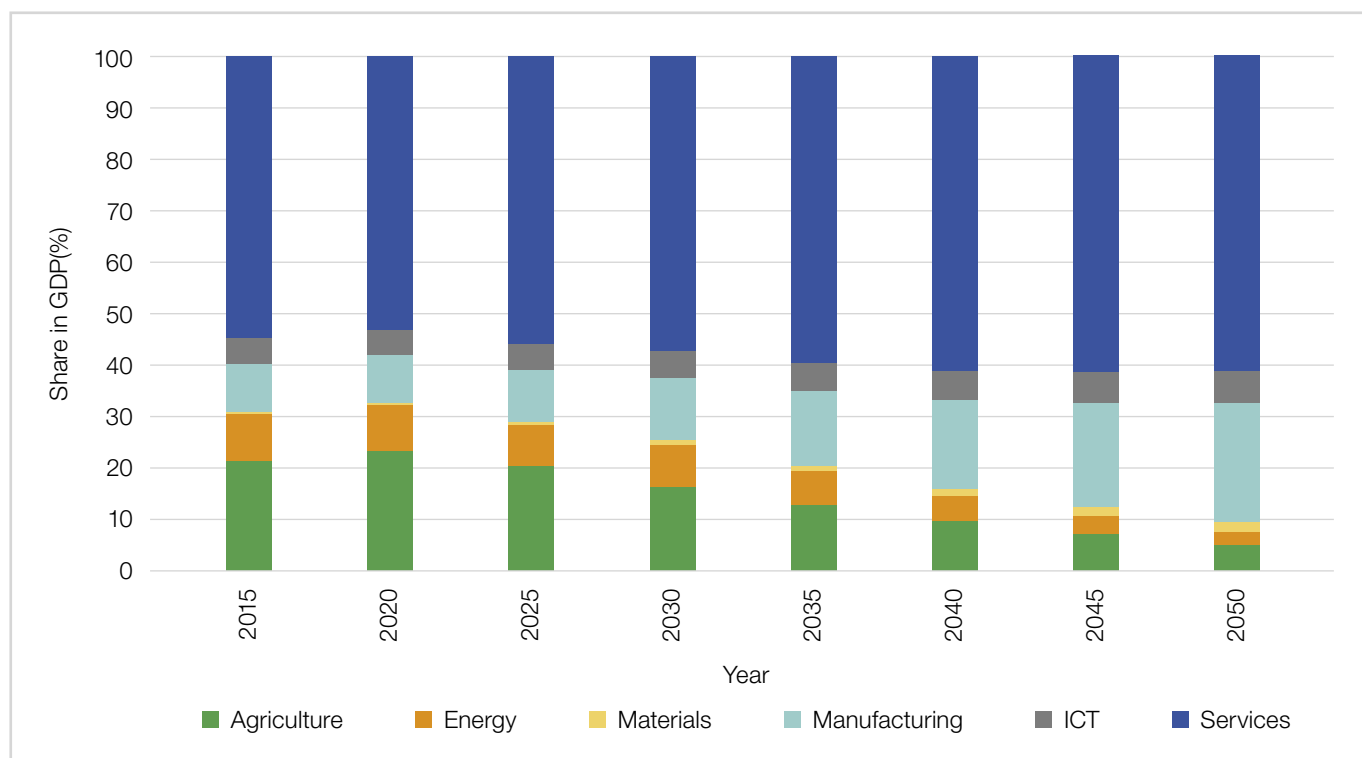
Due to sluggish growth in the non-oil sector, the oil and gas sector, which accounts for less than 10% of GDP, determines economic growth and contributes to over 90% of export earnings and more than half of government revenue. On the Current Path, manufacturing's share in GDP is forecast to be 23%

and that of services to be over 60% by 2050. The share of agriculture is forecast to decline from over 20% in 2019 to 5% by 2050 (Chart 19), reflecting the structural transformation of the economy.

The global shift to greener energy is a wake-up call for Nigeria to take bold and transformative reforms to unleash the potential of the non-oil sector, which accounts for more than 90% of GDP, to hedge against domestic and external shocks stemming from the oil sector. The focus should be on agriculture and the development of the manufacturing industry to achieve sustained growth, reduce poverty and diversify the source of income and foreign exchange earnings. With rare exceptions, all the countries that have significantly improved their economic and social outcomes did so on the back of manufacturing.

Nigeria has had several development plans over the years, all of them stressing the necessity of diversifying the economy through a robust manufacturing sector. However, agreed industrial policies are not effectively implemented and, in some cases, implementation is not sustained, usually due to a lack of strong political

**Chart 19: Sectoral contribution to Nigeria's GDP, 2015–2050**



Source: Forecast in IFs; historical data from the World Bank

will and commitment. Industrialists have raised this policy inconsistency as one of the key obstacles to their commitment to large capital expenditure in the manufacturing sector.<sup>144</sup>

## Agriculture and climate change

Nigeria is a country with great agricultural potential, yet cycles of inadequate financial investment, poor land-use management, slow adaptation to climate change and the slow adoption of new technologies have left the sector unable to meet the nutritional demands of a rapidly growing population.

At the onset of independence, Nigeria had a very productive agricultural export oriented economy. It was the world's largest exporter of groundnuts and an important exporter of cocoa, palm produce, rubber and cotton.<sup>145</sup> The country produced surplus crops and exported nearly 1.5 million metric tons of agricultural produce.<sup>146</sup> The contribution of agriculture to GDP stood well over 60% and was the main source of export earnings and government revenue.<sup>147</sup>

In the first two decades post-independence the agricultural sector experienced a gradual decline in production. The change was brought on by the emergence of the oil sector in the 1960s and the commercial exportation thereof in the 1970s, which rapidly shifted attention and labour away from the agricultural sector towards the lucrative oil industry.

These trends, alongside a civil war at the end of the 1960s that channelled agricultural expenditure and budgets into military expenditure, started a downward curve in agricultural production. The end of the civil war was accompanied by a devastating drought that led to massive crop and livestock losses.<sup>148</sup> By 1975 Nigeria had effectively lost its net exporter status<sup>149</sup> and exported only 0.5 million metric tons of agricultural produce.<sup>150</sup>

The gradual decline in production sparked a season of heavy governmental interventions and the period from 1970 to 1986 saw many attempts to revive the agricultural sector and a plethora of policies and programmes were implemented and enacted.<sup>151</sup> Most of these interventions were aimed at reclaiming Nigeria's net-export status and ensuring food security by ramping up domestic production. Yet the agricultural import bill kept growing and by 1981 Nigeria was importing

5.8 million metric tons of agricultural produce, up from 0.4 million metric tons two decades earlier.<sup>152</sup>

The agriculture sector in Nigeria has seen numerous policies and programmes through the decades, all implemented with varying levels of vigour. Over the period 1980 to 2010, about ₦873 billion was spent on fertiliser subsidies; however, this did not lead to significant improvements in the sector.<sup>153</sup> It is estimated that about 90% of the money spent on fertiliser subsidies during this 30-year period was lost to corruption.<sup>154</sup>

The sector is still characterised by low productivity, food insecurity and slow adoption of modern technologies. It is largely dependent on rain and thus highly vulnerable to rainfall variability amidst low irrigation capacity. Currently, there is an average fertiliser usage of 7.3 kg/ha, which is significantly below the recommended optimal average of 400 kg/ha.<sup>155</sup>

## Despite its gradual decline, the agricultural sector remains vital for the Nigerian economy and its people

Nigeria has about 71 million hectares of agricultural land area and the major crops are maize, cassava, guinea corn, yam beans, millet and rice.<sup>156</sup> The current crop yields of 5.7 metric tons per hectare, placing Nigeria in ninth position on the continent, are unable to meet the growing domestic demand. For instance, only 57% of the 6.7 million metric tons of rice that is consumed annually in the country is produced locally.<sup>157</sup> The gap of about three million metric tons is imported. To encourage local production, the government banned importation of rice in 2019. According to the IFs database, in 2019, the country imported 19 million metric tons of agricultural produce and exported only 0.3 million metric tons. As a result, Nigeria has one of the highest prevalence rates of severe acute malnutrition.

Despite its gradual decline, the agricultural sector remains vital for the Nigerian economy and its people. It is the main source of livelihoods for the majority of rural Nigerians and contributes 22% to the GDP. Nigeria's workforce has more than tripled, from 18 million in 1960 to about 60 million in 2019, and the agricultural sector employs nearly 70% of this workforce (formal and informal sector).<sup>158</sup>

Farming activity is characterised by small-scale farmers producing subsistence-level output on small-holdings occupying 0.5 ha on average.<sup>159</sup> These subsistence farmers make up the bulk of food production, producing small volumes through rudimentary methods.

Many of the policies implemented to target production increase and growth stimulation came at a profound environmental cost. Millions of hectares of natural forests have been cleared for agricultural fields, grazing land or converted into commercial plantations, eroding the carbon sink capacity of the country and directly contributing to climate change, soil erosion, anthropogenic floods, the emergence of new pathogens and viruses and biodiversity loss. Poor land-use management, an inadequate land tenure system and overgrazing, increased chemical use and fertiliser abuse have led to soil degradation, desertification and diminishing grazing capacity.<sup>160</sup> Recent policies have given attention to catchment rehabilitation, reintroduction of forests and addressing the desertification of the northern savannas.

Natural resource conflicts are a great concern throughout the country and have vastly escalated in recent decades. Oil spills in the Nigerian delta have polluted arable soils and rivers, and diminished communities' ability to utilise soil for crop production and rivers for fisheries.<sup>161</sup> Desertification in the northern regions has increased the migration of pastoralists southwards, causing increased violent conflict with farmers, hindering production and affecting food security. Poor land tenure systems and inadequate management of land-use disputes, as well as desertification brought on by increased rainfall variability in the north of the country, have fuelled these conflicts.<sup>162</sup>

The sector lacks funding and innovation. Agricultural expenditure is extremely low and in 2020 represented only 1.8% of the budget.<sup>163</sup> Another concern is that rural access remains low and poor road conditions make accessing markets and partaking in economic activity very difficult.<sup>164</sup>

Current agriculture development plans aspire to obtain food security, reduce post-harvest losses and increase agricultural yields. They emphasise adequate funding

for the sector and highlight the role of improving production systems and adopting new technologies. For instance, the fertiliser subsidy programme has been abolished and replaced with the Presidential Fertiliser Initiative (PFI), under which the government supplies discounted imported fertiliser inputs through the Nigeria Sovereign Investment Authority fertiliser fund vehicle. The inputs are then blended with locally sourced urea and distributed to farmers at ₦5 000 per bag, compared to imported fertilisers which can cost as much as ₦9 000. After recovering their costs and deducting their margins, the blending companies then remit the revenues to the government for re-investment into the next phase of production.<sup>165</sup>

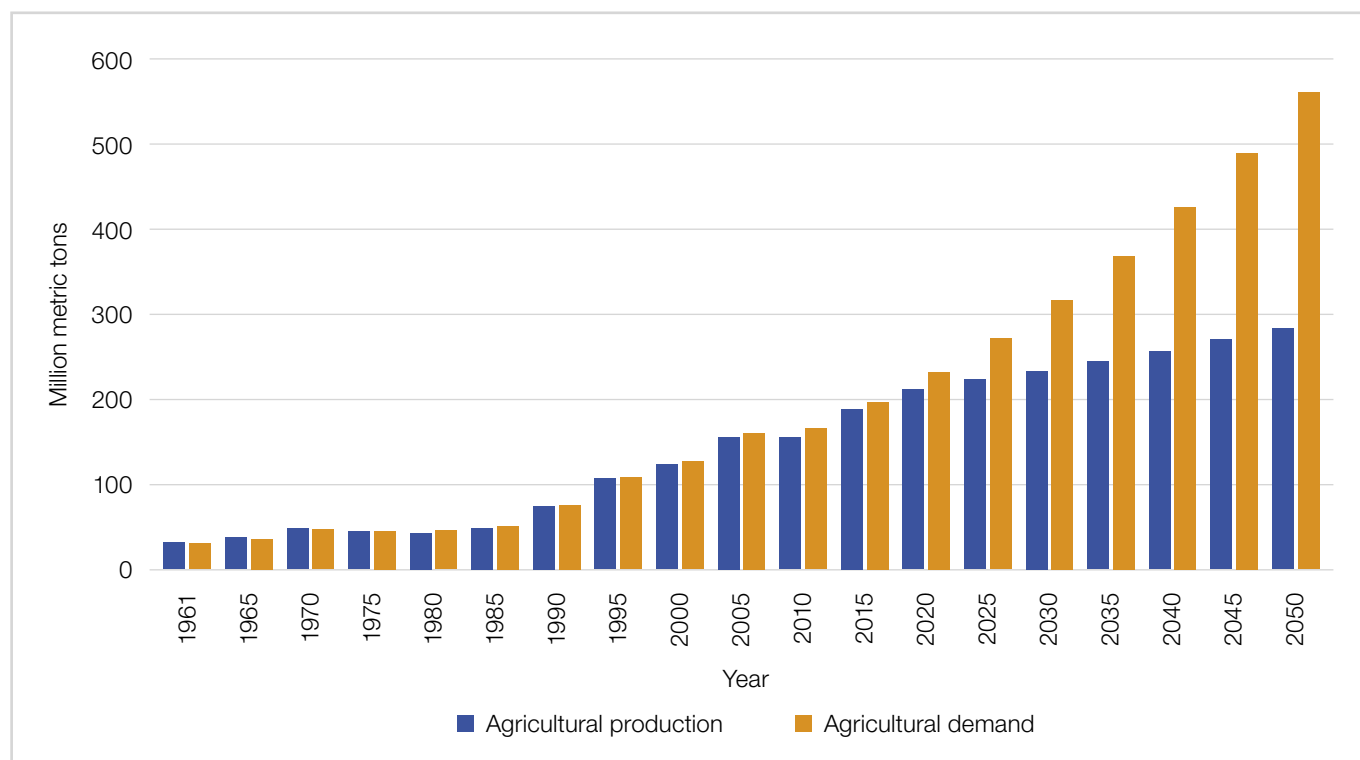
The current average crop yields of 5.7 metric tons per hectare cannot meet the growing domestic demand

The new US\$2.5 billion fertiliser plant owned by Africa's richest man, Aliko Dangote, is expected to produce three million metric tons of urea fertiliser per annum.<sup>166</sup> This will help Nigeria meet the domestic demand for fertiliser, a critical component of achieving food sufficiency for the country.

Going forward, the large and rapidly growing population will undoubtedly place enormous pressure on food production and land administration. As shown in Chart 20, under the Current Path scenario, agricultural demand is set to increase from 225 million metric tons in 2019 to about 560 million metric tons by 2050, while agricultural production is likely to only reach 283 million metric tons by 2050, resulting in a significant unmet demand of nearly 50% of total demand by 2050. This huge deficit will substantially increase the import bill with further pressure on foreign reserves and the exchange rate.

With the rapidly growing population, estimated at more than 400 million by 2050, enhancing agricultural productivity through adaptation of new technologies and innovations as well as climate smart agriculture is crucial to ensure food security and nutrition in Nigeria. Support from all development partners for the efforts of the Nigerian government will be key to achieving this goal.

Chart 20: Trends in agricultural (crop) production and demand in Nigeria, 1961–2050



Source: Forecast in IFs; historical data from FAO of the United Nations

### International trade

Nigeria’s export basket is dominated by hydrocarbons (oil and gas), making the country’s balance of payments vulnerable to volatile commodity prices. The country is relatively open to trade, with a foreign trade to GDP ratio of 33% in 2018. Like many African countries, Nigeria mainly exports crude oil and gas and imports manufactured goods and refined petroleum (Chart 21). Due to the weak domestic refining capacity, Nigeria relies on imported petroleum products despite being the continent’s largest oil producer. To remedy this situation, the Nigerian government is taking initiatives to rehabilitate oil refinery facilities. For instance, the government has approved US\$1.5 billion in funding to revamp the Port Harcourt refinery, which has a refining capacity of about 210 000 barrels of oil per day.<sup>167</sup>

In 2019, crude oil and other petroleum products accounted for 87% of total export while manufacturing goods accounted for 73% of imports. India, Spain, France, the Netherlands and Ghana were the top five destinations of Nigerian exports in 2019, while imports

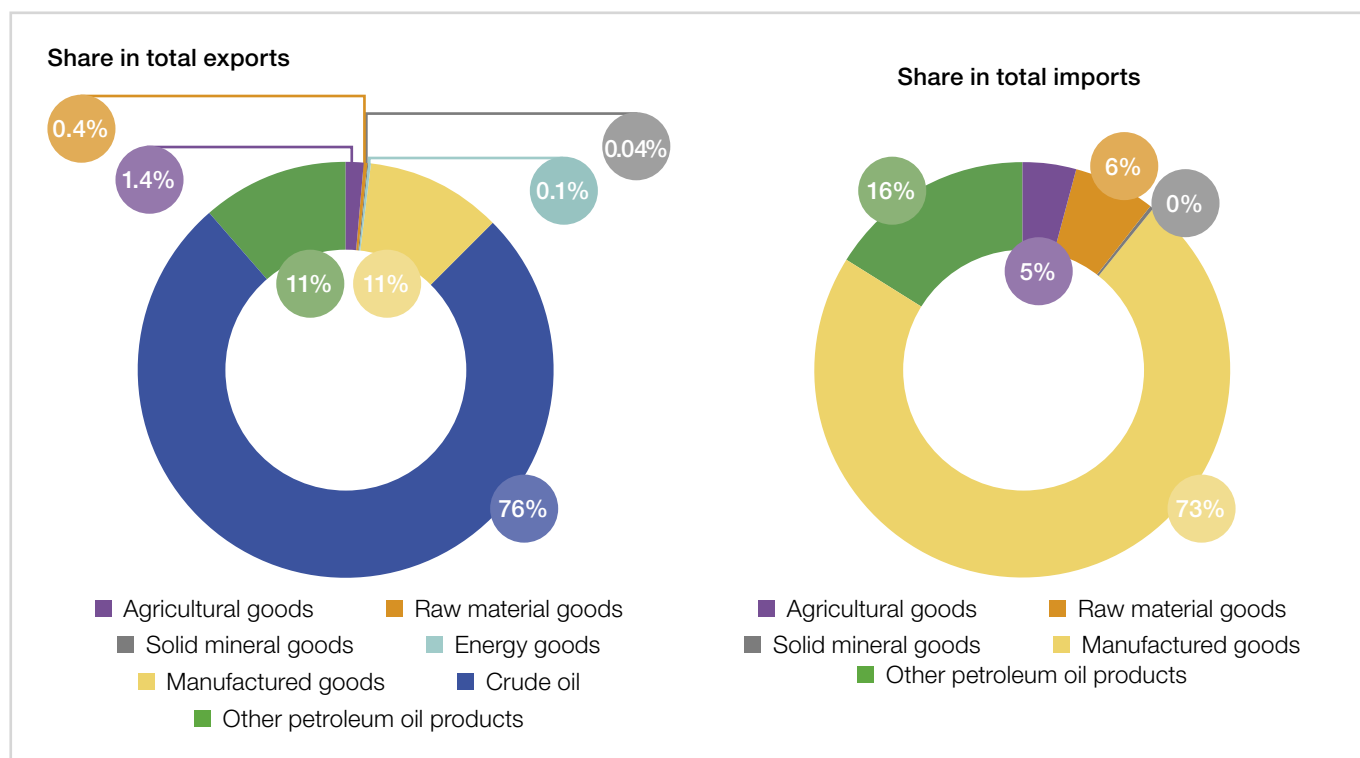
were mainly from India, China, the United States, the Netherlands and Belgium in the same year.

Nigeria has signed trade agreements with a number of countries in Africa, the Caribbean, the Pacific and the European Union even though the country remains protectionist in specific sectors, such as agriculture. Also, Nigeria is the 34th member state to formally ratify the African Continental Free Trade Area (AfCFTA) agreement, a key decision given its position as Africa’s largest economy and the continent’s most populous country.<sup>168</sup>

In addition to formal trade, there are also significant informal trade flows between Nigeria and its neighbours, of which fuel may be the most significant. Given that Nigeria subsidises the retail price of refined fuel, the price in Nigeria is very low compared to the prevailing prices in neighbouring countries. This has triggered a vast cross-border informal trade between Nigeria and its neighbours, such as Benin and Niger, with large volumes being moved across the border, often on motorbikes loaded with jerry cans.<sup>169</sup> Recently, Nigeria closed its border with Benin to curb the smuggling of goods such as rice. Officially, Nigeria’s shares in Benin export and



Chart 21: Export and import structure by product group, 2019



Source: Data from the Nigerian National Bureau of Statistics (NBS)

import are, respectively, 6% and 2%, but these official statistics are highly misleading given the massive informal trade between the countries.<sup>170</sup>

### Foreign direct investment (FDI) and overseas worker remittances

Nigeria has enormous FDI potential. Apart from oil and gas, the country has about 44 solid minerals in commercial quantity.<sup>171</sup> Beyond natural resources, there are also tremendous opportunities for FDI in industries such as agriculture, tourism, consumer goods, textiles and entertainment given the vastness of the consumer market.

According to the UNCTAD 2020 World Investment Report, FDI to Nigeria amounted to only US\$3.3 billion in 2019, an almost 50% decrease compared to the previous year due to a slowdown in investment in the oil and gas industry.<sup>172</sup> In Nigeria, oil and gas production faces threats from terrorism, vandalism and theft from criminal organisations that steal crude oil directly from pipelines. A recent report revealed that Nigeria loses about 200 000 barrels of oil per day to theft, amounting to nearly US\$42 billion over the period 2009–2018.<sup>173</sup>

This may discourage foreign investors from engaging in the oil and gas sector, negatively impacting overall FDI inflows into the country.

Nigeria was, however, the fourth largest host country for FDI in Africa in 2019, behind Egypt (US\$9 billion), South Africa (US\$4.6 billion) and Republic of Congo (US\$3.4 billion). FDI to Nigeria is diversifying into other sectors such as manufacturing and services even though the largest share still goes to the oil and gas industry. Some of the key investing countries in Nigeria are the USA, China, the United Kingdom, the Netherlands and France.

Attracting more manufacturing FDI could help Nigeria diversify its economy away from oil by investing in a competitive manufacturing sector, which should contribute to sophisticating its exports and sustaining growth. However, infrastructural bottlenecks, corruption and a poor business climate curb this type of FDI inflow into the country. The government has recognised these constraints to private investment and growth, and efforts have been made under the Economic Recovery and Growth Plan (ERGP 2017–2020) to improve the business environment.

According to the 2020 World Bank Doing Business Report, Nigeria ranks 131th out of 190 countries, a significant leap from its position of 146th in the previous report.<sup>174</sup> The country has improved in many subcategories of the rankings, such as starting a business, dealing with construction permits, getting electricity, registering property, trading across borders and enforcing contracts. The report names Nigeria as one of the top 10 countries with the most notable improvements in business climate, and the target of the authorities is to get Nigeria in the top 70 countries on the Doing Business Index by 2023. This augurs well for manufacturing FDI to Nigeria in the near future.

Given its large diaspora, Nigeria is the largest destination of remittances in sub-Saharan Africa. They are the leading source of external finance in the country, far ahead of FDI and official development assistance (Chart 22). Remittances amounted to US\$17.2 billion in 2020, a nearly 28% decrease compared to its pre-pandemic level of US\$23.8 billion (5.3% of GDP) in 2019 as the incomes of Nigerians in the diaspora were severely affected by the COVID-19 pandemic. These official statistics may, however, be misleading, as a

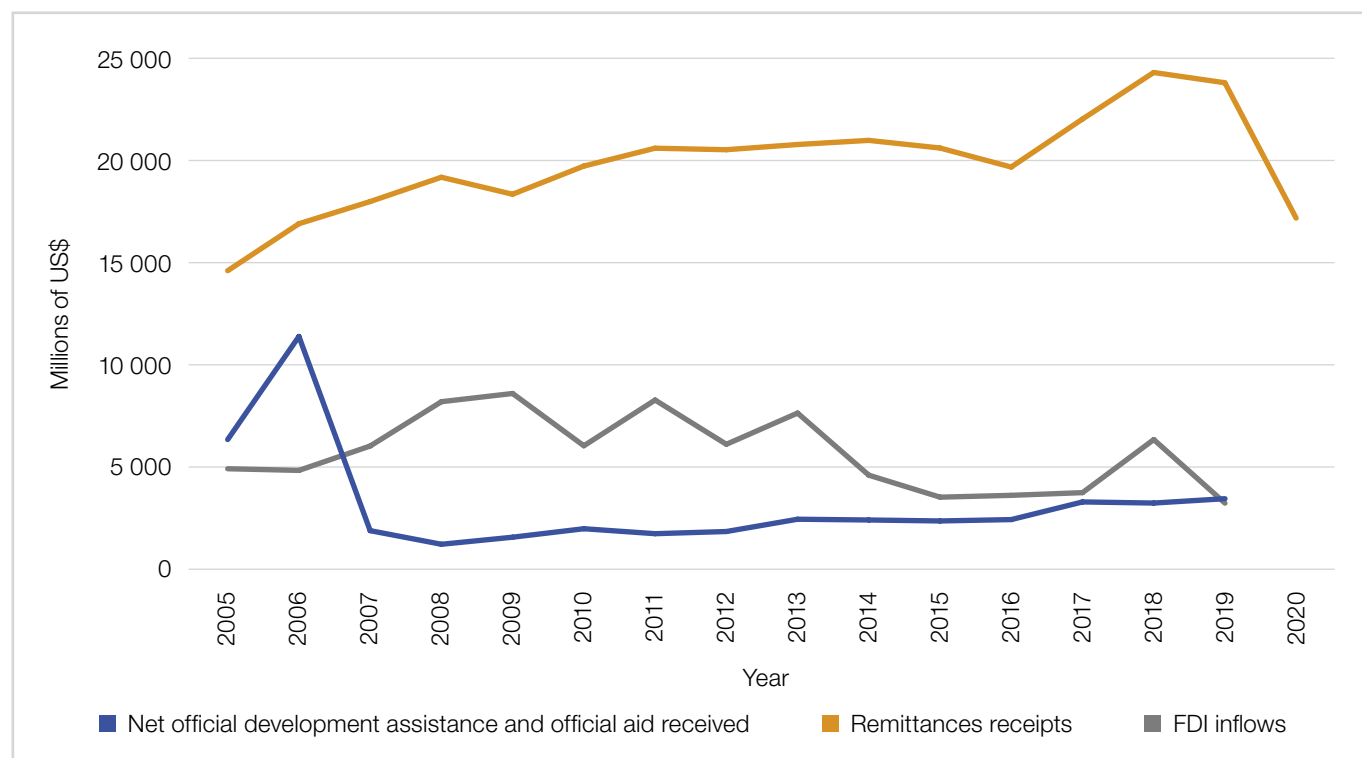
significant share of remittances to Nigeria occur via informal channels. According to the World Bank and the IMF, if remittances sent through informal channels are taken into account, total remittances could be as much as 50% higher than the official record.<sup>175</sup>

Remittances are the leading source of external finance in Nigeria, far ahead of FDI and official development assistance

The contribution of remittances to poverty reduction and human development is well documented. Also, remittances tend to be less volatile to economic downturns than FDI and Portfolio Investment (PI), and hence help boost foreign exchange reserves and mitigate the negative impact of the repeated oil price shocks on the Nigerian current account balance.

Efforts should therefore be made to offer cheaper and faster ways for remitters to send money to their relatives in order to boost remittance inflows into the country. Growth in remittances is one of the key objectives of

Chart 22: Recent trends in external financial flows to Nigeria, 2005–2020



Source: Data from the World Bank and UNCTAD

the Central Bank of Nigeria (CBN), highlighted by its 'Naira for Dollar' initiative which incentivised Nigerians by paying them five Naira for every US dollar received via the remittance channel.<sup>176</sup> The CBN digital currency (eNaira) introduced recently is expected to improve diaspora remittances through the official routes by reducing the cost of receiving and sending money.

In summary, the Current Path analysis has revealed that Nigeria faces monumental development challenges. Weak governance, corruption, insecurity, rapid population growth, infrastructure and human capital bottlenecks, environmental exploitation, and limited economic diversification are some of the key factors impeding Nigerian development progress. Although the country has made progress in recent years and is forecast to improve its economic and human development outcomes going forward, the improvement is not fast enough, and the country is likely to still lag behind its African and global income peers by 2050.

Without additional intervention, Nigeria will not fulfil its potential to become one of the major players in the global economy. It will likely remain the 'poverty capital' of the world or a 'giant with clay feet', with the world's highest number of poor people by 2050. Rigorous and targeted socio-economic policy interventions need to be undertaken to improve the country's current development trajectory.

### **Scenario analysis: pathways for a prosperous Nigeria**

This section asks the following question: What can be done to improve Nigeria's current development trajectory to propel the country onto a path of prosperity? We attempt to answer this question by designing scenarios and simulating their impact.

The scenario components presented in Chart 23 focus on the areas where Nigeria is performing poorly based on the preceding Current Path analysis: governance and security, agriculture, human capital formation, basic infrastructure, and economic and export diversification. These scenario components are subsequently combined into a single scenario called the Super Nigeria scenario, which simulates a broad policy push to propel the country onto a path of shared prosperity.

In line with the second 10-year implementation plan of the African Union's Agenda 2063, a long-term vision for the future of Africa, the interventions within each cluster commence in 2024 and present a subsequent 10-year push to 2033, with the improvements maintained to 2050 (Nigeria Agenda 2050). The various interventions are based on a careful calibration of what is realistically possible. This is based on comparisons of what has been achieved by countries that are at similar levels of development to Nigeria through a process of benchmarking (see Annex C).

The interventions are an optimistic view on the development trajectory of Nigeria's future. The objective is to highlight policy interventions needed to propel Nigeria into a prosperous future. Components of a worst-case scenario for Nigeria include the possibility of a descent into widespread warlordism, intensified ethnic and religious strife, herder and farmer clashes, the breakup of Nigeria into smaller countries or a domestic military takeover, as experienced repeatedly by the country over the period 1960–1999.

Improvements in recent years aren't enough to prevent Nigeria lagging behind African and global income peers

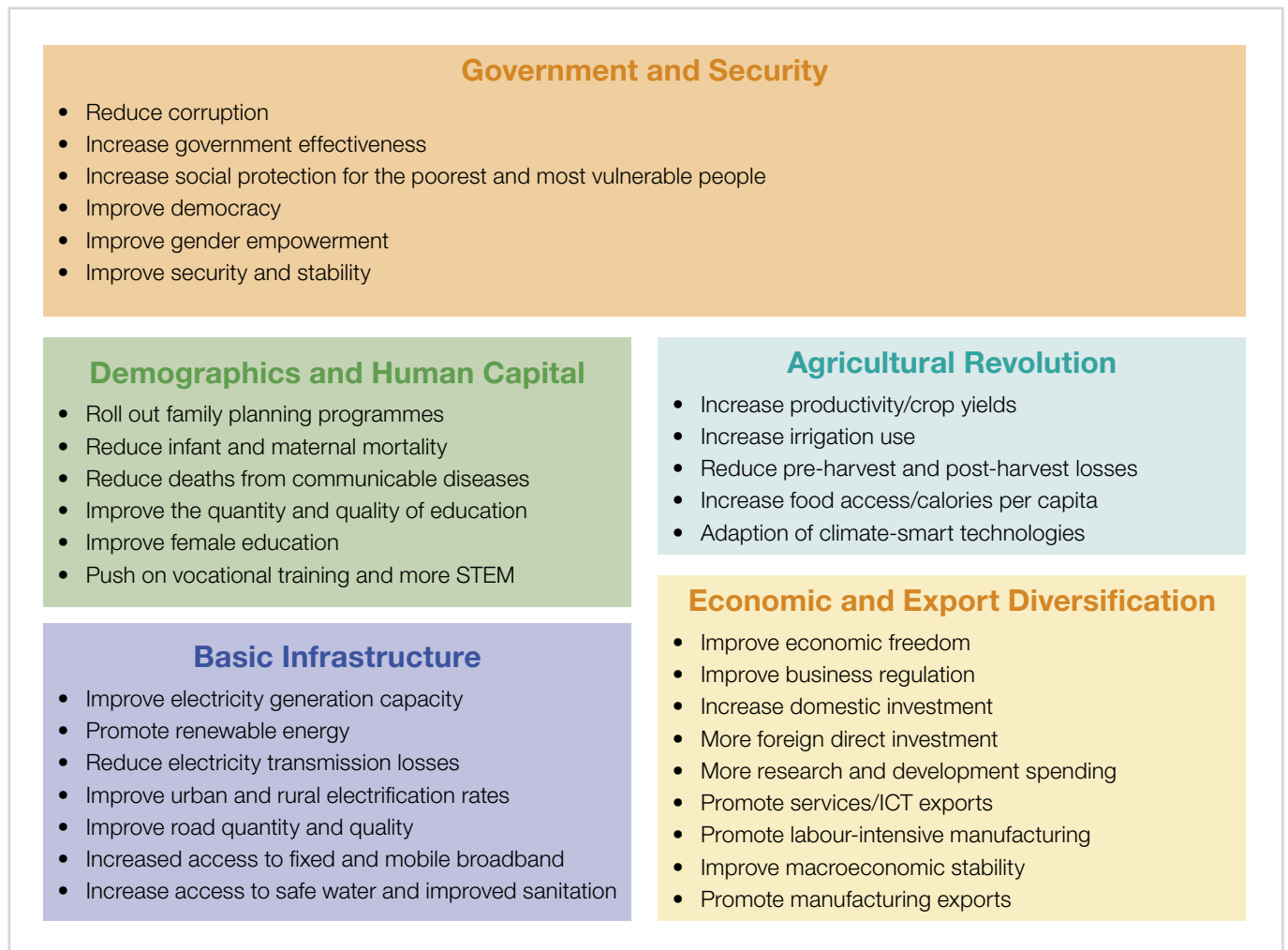
The worst-case scenario could inform preparedness for national emergencies; however, we prefer to be optimistic about the future of Nigeria and hence focus on how to improve the country's long-term development prospects.

### **Governance and Security**

This section briefly describes a set of interventions modelled within the IFs modelling platform to emulate improved governance, security and stability in Nigeria. Bad governance and rising insecurity are threatening the country's development prospects. For this reason, the scenario increases governance effectiveness to provide citizens with better social services and hence improve the dire social service delivery outcomes in the country.

This is underpinned by improvement in government capacity through efforts to enhance domestic revenue mobilisation. Thus, the intervention increases taxes on skilled workers as a proxy for government efforts to make

Chart 23: Intervention clusters/scenario components



Source: Authors

wealthy households pay their fair share of taxes. Also, the government intensifies its efforts to reduce corruption, which is a key obstacle preventing Nigeria from realising its human and economic potential.

In this scenario component, the Nigerian government aggressively pushes to improve social inclusion through improved democracy, gender empowerment and support for the poorest and most vulnerable households through well-targeted social grant programmes. Nigeria has one of the lowest levels of public spending on social protection.

Improvement in government effectiveness, accountability and a reduction in corruption are accompanied by efforts to address the multiple overlapping security crises and to improve stability. Thus, the scenario reduces the governance security risk from societal violence (conflict

and terror) and separatism. The benchmarking for these interventions is presented in Annex C.

Under this scenario component, the annual government revenue is nearly US\$167 billion more than the Current Path forecast by 2050. Expenditures on health, education and infrastructure all increase, including military expenditure, which is US\$13.4 billion more in 2050 than the amount forecast on the Current Path for that year. This is expected as the country needs to address the equipment shortfalls in the defence and security sector to tackle rising security threats such as terrorism, kidnapping, assassinations, armed robbery and oil pipeline vandalism.

If this scenario were implemented, Nigeria could experience large gains in economic growth and poverty reduction. Indeed, the size of the Nigerian

economy would be US\$738 billion larger in 2050 than the projected value on the Current Path. The average Nigerian is also expected to gain US\$1 816 in GDP per capita (PPP) in 2050 compared to the Current Path. Also, there will be 26.5 million fewer Nigerians surviving on less than US\$1.90 per day in 2050 compared with the Current Path forecast.

This is equivalent to a monetary poverty rate of 16.3% against 22.1% on the Current Path. Good governance and security cut across all the sectors; they create incentive and confidence for investment and innovation. Good governance is crucial for efficient use of public funds for development and improving the well-being of the population. According to an economist at the World Bank, 'When governance is good, public investments crowd in private investment by providing the energy, roads, logistics and communications links necessary for firms to function productively.'<sup>177</sup>

### **Demographics and Human Capital**

As revealed by the Current Path analysis, Nigeria has a rapidly growing population as well as poor human capital outcomes. Nigeria is forecast to have a population of more than 450 million by 2050. This combination of high population growth and low human capital development is a serious impediment to Nigeria's socio-economic advancement. Human capital is one of the key drivers of productivity and prosperity. A decline in fertility reduces the size of the below-15 dependency age group and, therefore, reduces the demand for education and health services.

Thus, reducing fertility increases per capita availability of resources for investment in education and health, even in the absence of real increases in the allocation of government resources for these sectors. Therefore, in this scenario, we proceed on the premise that the Nigerian federal government has recognised the necessity to tackle the growing population challenge and the importance of human capital formation for the social and economic well-being of the country, and therefore has taken bold actions to address years of underinvestment in human capital. For these reasons, the scenario includes three intervention groupings aimed at setting Nigeria on a different demographic trajectory and transitioning the education and health systems towards a path of long-term inclusive growth and development.

The first policy intervention is an aggressive push towards modern contraceptive use to reduce the fertility rate. Modern contraceptive prevalence in Nigeria is well below the average of its African and global income peers, leaving room for improvement. The second group of interventions improves health outcomes in Nigeria. As shown by the Current Path analysis, Nigeria has some of the worst healthcare statistics in the world. In this cluster, we proceed on the premise that the federal government, with the assistance of development partners, has improved the accessibility, affordability and quality of healthcare and has rolled out its National Health Insurance Scheme across the entire country.

The interventions therefore simulate a series of reductions in the incidence of communicable and non-communicable diseases. These include a reduction in malaria and HIV prevalence as well as in respiratory infections. It also reduces infant and maternal mortality. About 44% of children under five years of age suffer from chronic malnutrition in Nigeria.<sup>178</sup> This is equivalent to about 14.5 million Nigerian children at risk of being stunted or not developing to their full potential. Against this backdrop, the scenario improves nutritional outcomes by reducing severe and acute malnutrition (SAM).

### **High population growth and low human capital development impedes Nigeria's socio-economic advancement**

The final group of interventions in this scenario represents reasonable improvements in the quantity and quality of education in Nigeria. It improves the throughput along the entire educational funnel. Specifically, it increases primary net intake for males and females to reduce the high number of out-of-school children. It improves graduation rates at lower secondary and upper secondary levels as well as an improved tertiary intake. Also, the proportion of STEM students and the share of students in TVET are increased to address the skills shortage in the country. Finally, the intervention focuses on education quality, and reasonable quality improvements are modelled at the primary and secondary levels.



Under this scenario, 62% of fertile women use modern contraception by 2050, on a par with the projected average for African lower middle-income countries in the same year. As a result, Nigeria is set on a different demographic path, where it converges with the average of its African income peers by 2050. The fertility rate declines from 5.4 children per woman in 2020 to 2.4 by 2050, a nearly 42% decrease compared to the Current Path forecast of 3.4 births per woman. If the Demographic and Human Capital scenario were implemented, Nigeria could accelerate the population transition to reap the demographic dividend by 2048 instead of 2060 on the Current Path. Generally, the demographic dividend materialises when a country reaches a ratio of at least 1.7 people of working age for each dependent.

In this scenario, Nigeria benefits from substantial economic growth and poverty reduction. GDP surpasses the Current Path forecast by US\$307.5 billion in 2050 while the GDP per capita (PPP) is about US\$1 468 more than the Current Path forecast for the same year. Also, in this scenario, there are more than 30 million fewer Nigerians living in extreme poverty (less than US\$1.90 per day) in 2050, equivalent to a poverty rate of 16.7% instead of 22.1% for the Current Path forecast in the same year. This intervention cluster shows that controlling the population growth and investing in human capital could enhance economic and human development in Nigeria.

## Agricultural Revolution

Agriculture is the source of livelihood for millions of Nigerians. However, as revealed by the Current Path analysis, the sector faces several challenges that negatively impact on productivity. Investing in agriculture can ensure food security, reduce resource conflicts, provide jobs, increase income and pave the way for economic diversification through agro-processing. For these reasons, we proceed on the premise that the Nigerian government has acknowledged the importance of this sector, and hence that it makes an aggressive push to revive and modernise it.

Therefore, the interventions in this scenario component constitute a coordinated push to unlock Nigeria's agricultural potential. The interventions reflect an aggressive but reasonable improvement in agricultural productivity (average yields) as a result of the adoption of modern and climate-smart agriculture technologies,

improved seedlings, and increased fertiliser and pesticide use. Likewise, land under irrigation is increased to reduce the vulnerability of rainfed crops.

The scenario equally reduces post-harvest losses through improved storage facilities and improves market access. We also assume that the government reforms the land tenure system to address conflicts and disputes around land and other natural resource use more quickly and efficiently, and in a way that unlocks credit. Feeding the largest population in Africa is a mammoth task, one that requires significant attention and investment. While the sector can benefit from increased export revenues it should focus its attention first on establishing food security. The intervention therefore increases calorie per capita as a proxy for improvements in food access.

The Agricultural Revolution scenario reduces the number of children suffering from malnutrition by nearly 1.4 million in 2050

Under the Nigerian Agricultural Revolution scenario, Nigeria will produce about 182 million metric tons of additional food (crops, meat and fish) in 2050 compared to the Current Path forecast. The scenario improves food access and consumption in Nigeria, as available calorie per capita per day from crops, fish and meat increases from 2 547 in 2019 to 3 286 in 2050. As a result, the share of children suffering from malnutrition declines by nearly 1.4 million or 2.3 percentage points in 2050 relative to the Current Path forecast.

Also, the scenario lifts an additional 19.1 million Nigerians out of extreme poverty by 2050 compared to the Current Path. The size of the Nigerian economy gets a boost; it is about US\$187.2 billion larger than the size forecast on the Current Path by 2050 while the GDP per capita at PPP is US\$431 larger than it would otherwise be on the Current Path in the same year.

## Basic Infrastructure

The weak infrastructure base in Nigeria constitutes a major constraint for both large and small businesses, and has long been a bottleneck for economic growth.

Actions are, however, being undertaken to address the situation, as shown by the Current Path analysis. However, without additional intervention, the current pace of progress will not be fast enough to advance human and economic development in the country. Therefore, we proceed on the premise that the Nigerian government will accelerate the implementation of its ambitious NIIMP that aims to enhance infrastructure development over the next 30 years.

The first group of interventions in the Basic Infrastructure scenario component simulates aggressive but reasonable improvements in energy access. These consist of increasing electricity generation capacity, including through greater use of renewable energy, and reducing electricity transmission and distribution losses. The intervention also increases the share of the population with access to electricity in both rural and urban areas.

The Basic Infrastructure scenario reduces the number of poor people by 11.8 million in 2050 compared to the Current Path forecast

The second group of interventions represents an effort to improve access to transport infrastructure, which plays a critical role in economic growth, by reducing transportation costs of goods and services and improving productivity. The scenario therefore increases total road length as well as the share of paved roads.

The third group of interventions in this scenario represents a concerted effort to expand broadband coverage. The digital economy has the potential to create jobs and transform millions of Nigerians' lives. Increasing broadband penetration can help Nigeria leapfrog some of the constraints of traditional infrastructure. Therefore, we proceed on the premise that the Nigerian government has recognised the benefits of increased broadband penetration and envisions an aggressive push on broadband access across the country. The intervention thus models aggressive but reasonable improvements in mobile and fixed broadband access.

Poor access to clean water and improved sanitation constitutes one of the key underlying factors of the high morbidity and mortality rates among children under five in Nigeria. Against this backdrop, the final set of interventions in the Basic Infrastructure scenario represents an effort to boost access to safe water and improved sanitation across the country.

If this scenario were implemented, the proportion of households using traditional cookstoves could decline from 69.4% in 2019 to about 12% in 2050. Improvement in energy provision increases the use of modern cookstoves, which reduces deforestation and respiratory infections. In terms of economic and human development, the size of the Nigerian economy would be US\$342.6 billion larger in 2050 than the projected value on the Current Path. The average Nigerian is also expected to gain US\$844 income



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UNDER THE ECONOMIC AND EXPORT DIVERSIFICATION SCENARIO, MANUFACTURING EXPORTS INCREASE FROM 2% OF GDP IN 2019 TO 21.2% BY 2050

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per annum (PPP) in 2050 compared to the Current Path for that year. Also, there are 11.8 million fewer Nigerians living in extreme poverty in 2050 compared with the Current Path forecast. This translates to a poverty rate of 19.6% against 22.1% on the Current Path.

## Economic and Export Diversification

Crude oil exports continue to be the backbone of Nigeria's economy, putting the country at the mercy of volatile commodity prices. It also leads to jobless growth as the oil and gas industry is generally capital-intensive. In addition, it contributes to increased carbon emissions and severe environmental degradation, eroding the natural capital of the country. Currently the manufacturing sector in Nigeria is weak and unable to play a leading role in economic growth and development. As noted by economist Nicolas Kaldor, manufacturing is the engine of economic growth (Kaldor's engine of growth hypothesis).<sup>179</sup> It has back and forward linkages with other sectors and transforms the productivity structures across the economy.

Thus, without a robust manufacturing sector, sustained growth cannot be achieved and sufficient jobs cannot be created to reduce inequality and poverty in Nigeria. This scenario therefore models the impact of a concerted effort by the Nigerian authorities to unleash the potential of the non-oil sector with particular focus on manufacturing and export diversification.

The first cluster of interventions improves business regulation and economic freedom to promote SME-driven industrialisation. SMEs are the engine of job creation in Nigeria; reducing bureaucracy and simplifying administrative procedures and formalities make it easier for them to do business and grow. Improvement in economic freedom is also used as a proxy for strong economic institutions. Well-functioning economic institutions such as good enforcement of property rights can set the stage for innovation and industrial revolution.

The second cluster of interventions increases domestic and foreign investment and labour participation rates, and improves macroeconomic stability. Attracting manufacturing FDI can help Nigeria develop its manufacturing base and diversify its exports. Export-oriented manufacturing FDI played an important role in the sophistication of Malaysian exports.<sup>180</sup> However,

there are limits to how far foreign manufacturing firms can drive a country's industrialisation. Thus, the scenario increases domestic investment to model government efforts to promote 'national champions' in the manufacturing sector. Macroeconomic stability also matters for industrialisation. High domestic inflation, for instance, can erode the competitive edge of exporting firms. An increase in remittances is used as a proxy for macroeconomic stability in this scenario.

Nigeria is the largest recipient of remittances in sub-Saharan Africa. Remittances are a more stable source of external finance than FDI and portfolio investment. Significant remittance inflows help boost foreign reserves and reduce pressure on the exchange rate, thereby stabilising the inflation rate. Likewise, the labour participation rate is increased as a proxy for the promotion of labour-intensive manufacturing to boost job creation in the country.

## Enhancing agricultural productivity through new technologies and innovations is crucial to ensure food security in Nigeria

The final cluster of interventions models government efforts to boost research and development (R&D) activities and promote export diversification, especially manufacturing and services/ICT goods. R&D and trade promotion are some of the key policy interventions that nurtured manufacturing in Malaysia.<sup>181</sup> Technology upgrading through R&D is crucial for a robust manufacturing sector. It stimulates innovation, increases productivity and improves the quality of products. Also, local industries thrive when they participate in export markets and compete globally, as it provides incentives for firms to innovate, potentially resulting in high productivity.

Under the Economic and Export Diversification scenario component, manufacturing exports increase from 2% of GDP in 2019 to 21.2% by 2050. The scenario has substantial impacts on the Nigerian economy and human development. The Nigerian economy grows by US\$1.4 trillion (or 46%), larger than what it would be on the Current Path in 2050. The average Nigerian would also have an income that is US\$3 551 (PPP) higher than the Current Path, while more than 33 million

fewer Nigerians would live in extreme poverty in 2050 compared to the Current Path forecast.

The labour force in the manufacturing sector is more than three million larger in 2050 than what it would be on the Current Path, implying that the materialisation of this scenario would lead to more job creation. Also, the value added of the manufacturing sector is US\$347 billion above the Current Path forecast in the same year.

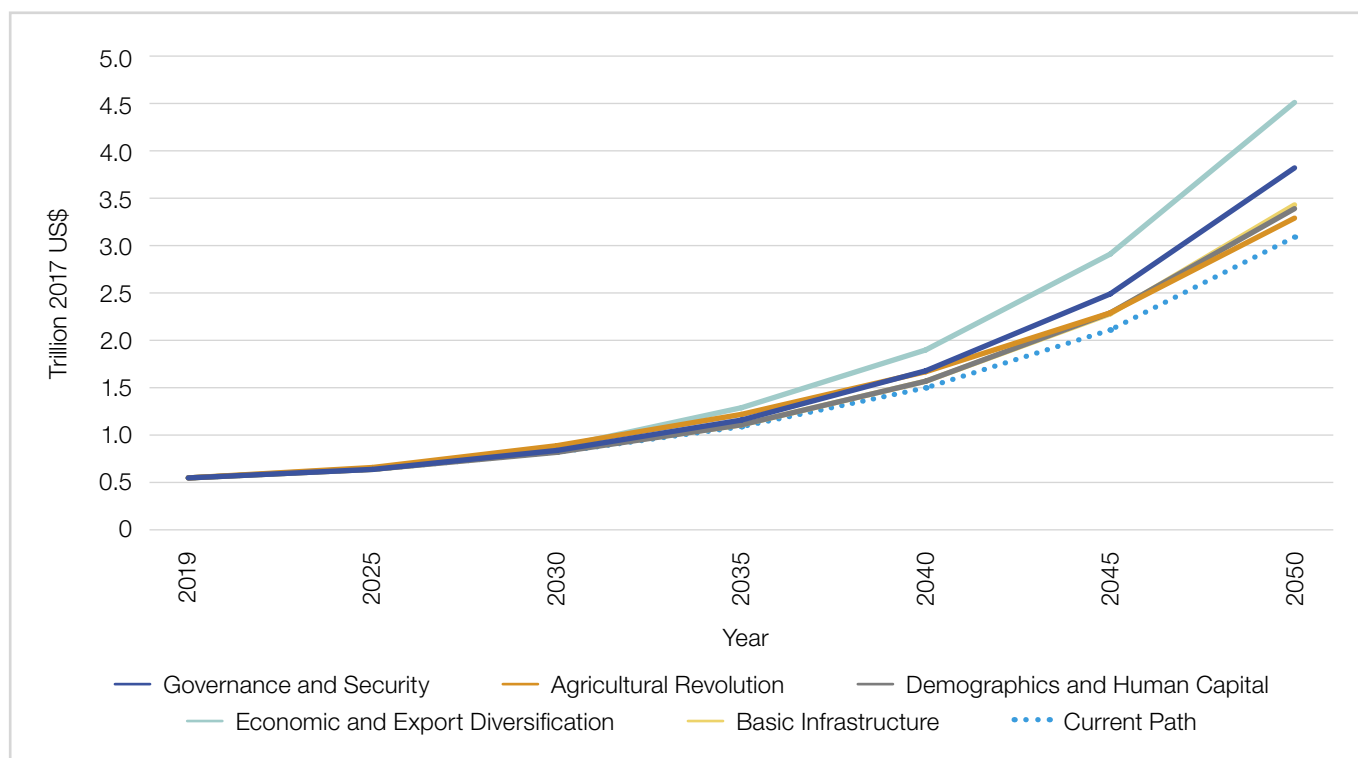
### Comparing scenario impacts on development in Nigeria

Nigeria gets a boost to its GDP in all the scenarios. As shown in Chart 24, the size of the Nigerian economy in each scenario is larger than on the Current Path. Nigeria's economy stands to benefit most from the interventions in the Economic and Export Diversification scenario. The Governance and Security scenario has the second most significant impact on GDP expansion. The Agricultural Revolution, Basic Infrastructure, and Demographics and Human Capital scenarios are neck and neck in expanding Nigeria's GDP. However, agriculture has the biggest impact on GDP in the short term (until 2030) (Chart 24).

Similarly, all the interventions push average income above the Current Path, with the most significant improvement from the Economic and Export Diversification scenario (Chart 25). Despite the GDP size in the Demographics and Human Capital scenario being smaller than in the Basic Infrastructure scenario (Chart 24), it has the third most significant impact on GDP per capita after the Economic and Export Diversification and Governance and Security scenarios. This means that Nigeria could mechanically improve some of its development indicators by reducing fertility.

Chart 26 shows that all the interventions contribute to poverty reduction in Nigeria. The poverty rates in the scenarios in 2050 range from 15% in the Economic and Export Diversification scenario, 16% in the Governance and Security scenario, 17% in the Demographics and Human Capital scenario, 18% in the Agricultural Revolution scenario to 19.6% in the Basic Infrastructure scenario, against 22% on the Current Path. However, the number of poor people in Nigeria increases in the first few years of each intervention cluster before declining due to the lasting scars of the COVID-19 crisis and the fact that some of these policy interventions take time to yield results in

Chart 24: The size of the Nigerian economy in each scenario: GDP



Source: Forecast in IFs version 7.63; historical data from IMF and World Bank

poverty reduction (Chart 26). In the case of the Economic and Export Diversification scenario, the additional investment required to unlock higher rates of growth initially increases poverty rates above the Current Path forecast.

Of all the scenarios, the Agricultural Revolution is the most powerful way to reduce extreme poverty in the short to medium term in Nigeria. Until 2043, the Agricultural Revolution scenario has the lowest number of poor people compared to other scenarios. These findings imply that in the short to medium term, growth in the agriculture sector has the most potential to raise income and consumption among the poorest in Nigeria. However, in the long term, the contribution of agriculture to poverty reduction is projected to decline due to the structural transformation of the economy, which involves the shift of productive resources from low productivity sectors such as subsistence agriculture to higher productivity activities in the manufacturing or high-end service sector.

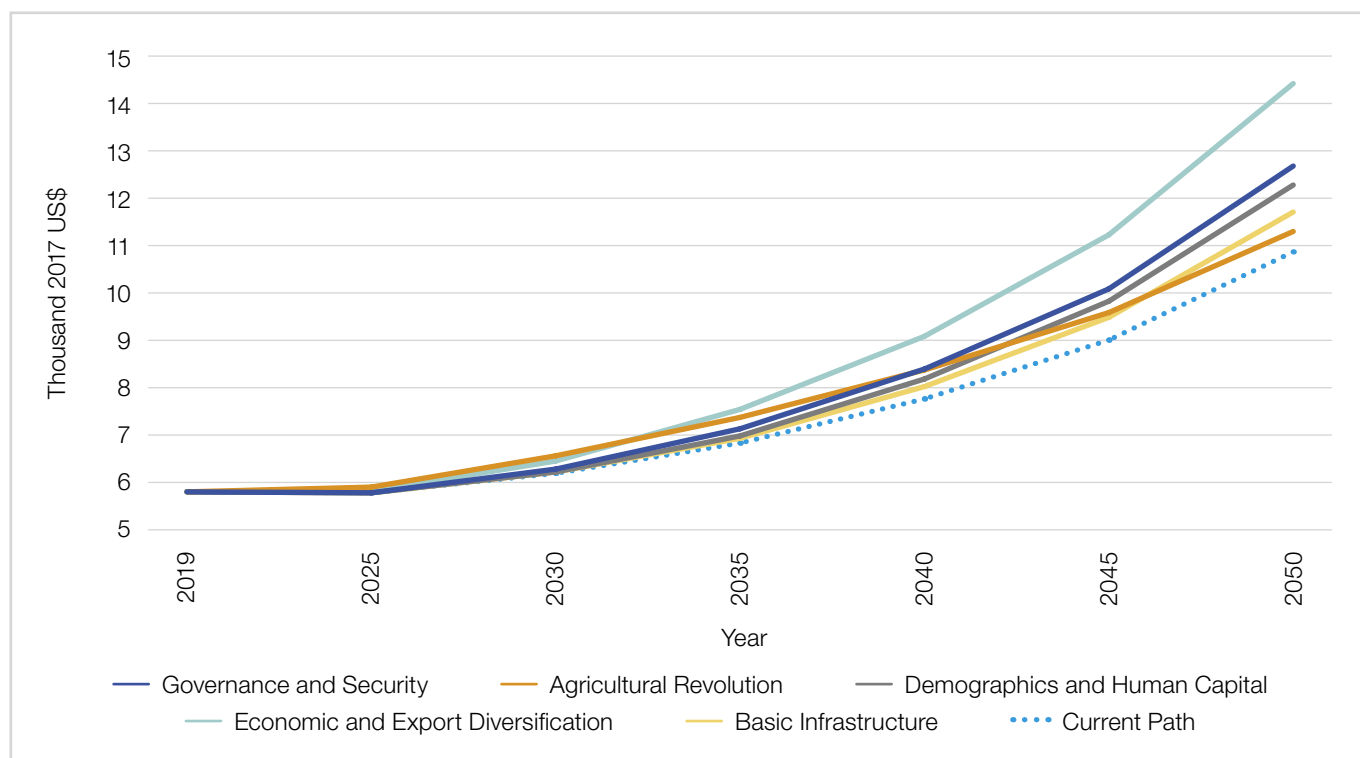
Chart 26 shows that the Economic and Export Diversification scenario results in the largest reduction of poor people in the long term. It is followed closely by the Demographics and Human Capital scenario.

Investments aimed at developing non-resource sectors such as manufacturing take time, often decades, to yield expected results. It is also associated with short- to medium-term costs relating to poverty or consumption as they divert resources towards higher value-added activities. This is why in the Economic and Export Diversification scenario, poverty increases marginally for almost a decade above the Current Path, and thereafter it declines dramatically (Chart 26).

The findings also reveal that investing in Nigerian people is an important way to reduce poverty in the long term. Investing in human capital is a powerful way to improve productivity and the income prospects of the poor segment of society. However, it takes time to yield results, as it would take more than a decade for a child enrolled today in primary school to make meaningful contributions to the economy.

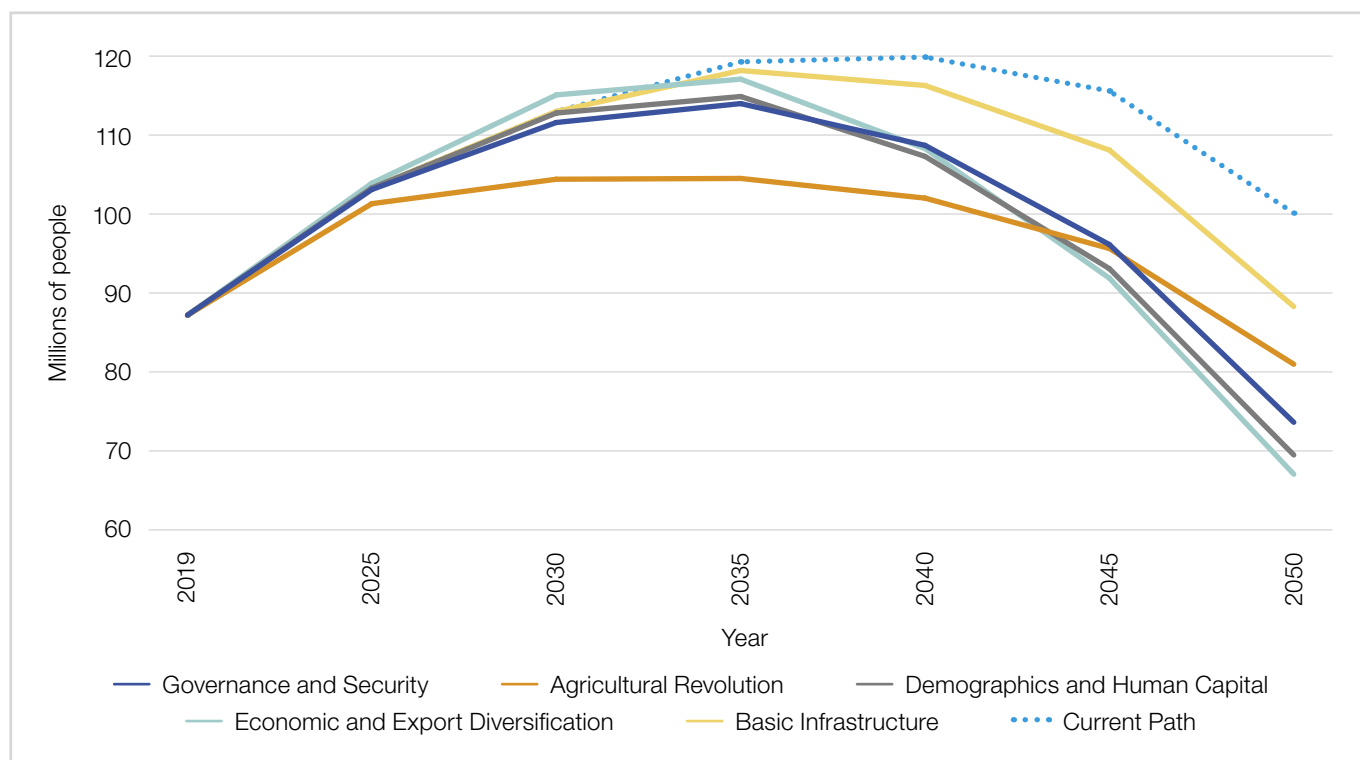
Overall, the findings show clearly that improving governance and security, reducing fertility, investing in human capital, improving basic infrastructure provision, reviving agriculture and accelerating economic and export diversification could significantly improve Nigeria's

**Chart 25: GDP per capita (PPP) in each scenario**



Source: Forecast in IFs version 7.63; historical data from IMF and World Bank

Chart 26: Poverty headcount (< US\$1.90 per day) in each scenario



Source: Forecast in IFs version 7.63; historical data from World Bank

development prospects. However, in the short to medium term, the most significant improvement in GDP, average income and poverty reduction will likely come from government efforts to revive the agriculture sector. In the long term, industrialisation will become the biggest contributor to growth, income and poverty reduction.

### Combined Super Nigeria scenario

In the preceding section, we simulated the impact of five sectoral scenarios. These sectors are, however, not isolated; they are deeply interlinked. For instance, infrastructure and human capital development are crucial for industrialisation and economic diversification. Similarly, the provision of rural roads is vital for food self-sufficiency and agriculture commercialisation. Agriculture can also pave the way to manufacturing through agro-processing, while improving governance and security cuts across all sectors. Thus, a holistic approach or a coordinated policy push across industries is the best option to propel Nigeria to prosperity. Therefore, the Super Nigeria scenario combines all the above-mentioned sectoral scenarios. It is a scenario where Nigerian authorities make a concerted effort to remove

the binding constraints on sustained, inclusive growth and development in Nigeria.

If the Super Nigeria scenario were enacted, Nigeria could expect a significant improvement to its human and economic development prospects. In this scenario, the size of the Nigerian economy measured in GDP at the market exchange rate (MER) is US\$3.5 trillion larger than the Current Path forecast in 2050. On the Current Path, Nigeria is forecast to have the 12th largest economy globally by 2050. However, if the Super Nigeria scenario were implemented, the country would have the fifth largest economy globally, with a GDP of about US\$6.6 trillion by 2050 (Chart 27), marginally larger than the German economy, under the Current Path scenario assumptions for other countries.

In the Super Nigeria scenario, the average Nigerian has about US\$11 300 additional dollars in 2050 relative to the Current Path. The GDP per capita in the scenario is US\$22 236 (PPP), which is double what it would be on the Current Path in 2050 (Chart 28). Under the Current Path scenario assumptions for the peer groups, Nigeria's GDP per capita in the Super Nigeria scenario is about US\$7 500



higher than the average for the global lower middle-income countries and US\$11 500 higher than the average for lower middle-income Africa in 2050. In terms of GDP per capita, Nigeria will rank 15th in Africa and 124th globally in 2050 on the Current Path. But in the Super Nigeria scenario, it would rank sixth in Africa and 81st globally in 2050.

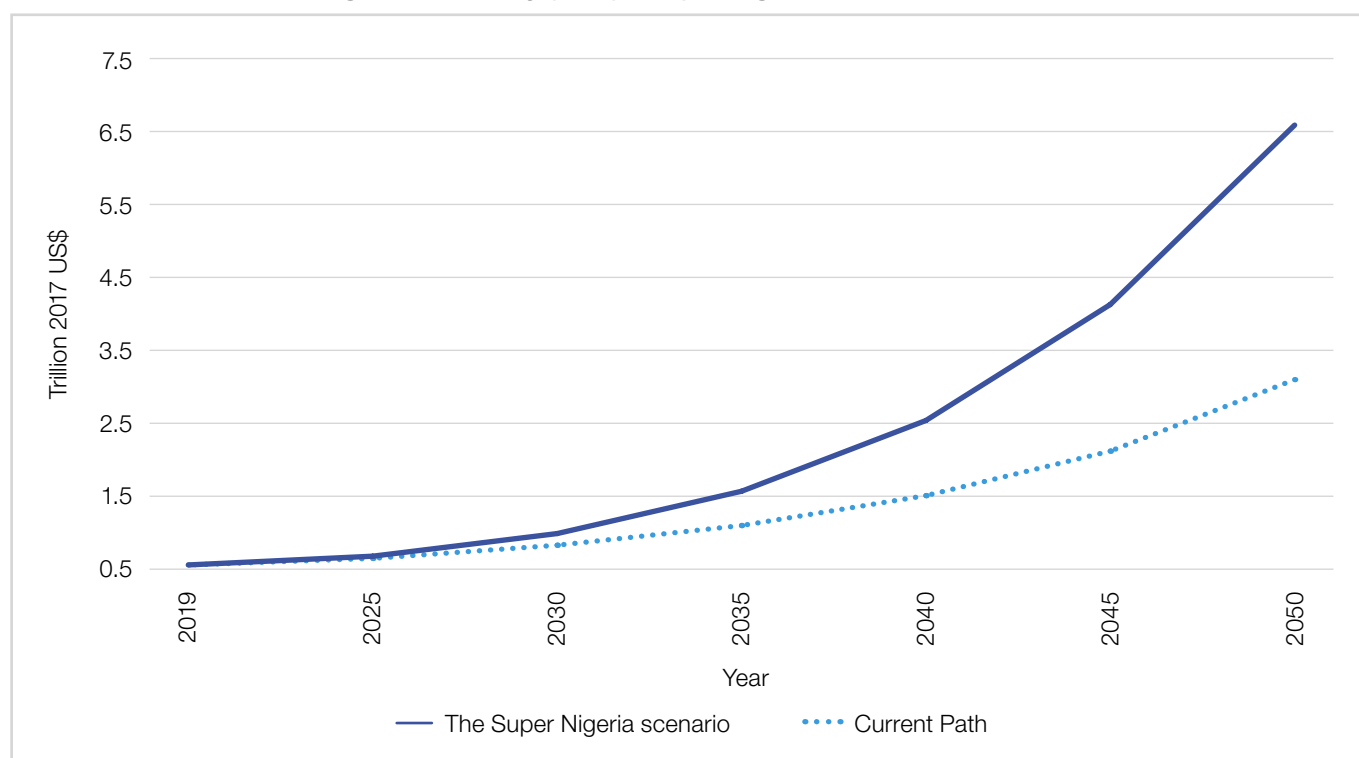
The Super Nigeria scenario or the combined scenario has a dramatic impact on poverty reduction. The country will almost eradicate extreme poverty by 2050, two decades earlier than on the Current Path. The poverty rate at US\$1.90 is 3.8% in 2050 instead of 22.1% on the Current Path (Chart 29). This translates to about 15 million people in extreme poverty in 2050 against 100 million people on the Current Path. In other words, 85 million fewer Nigerians live in extreme poverty in 2050 than on the Current Path.

As Nigeria is a lower middle-income country, one could also use US\$3.20 per day as the poverty line, according to the World Bank. At this poverty line, 19.2% of Nigerians (or 77 million people) would live in extreme poverty by 2050 in the Super Nigeria scenario compared to 52.3% (or 209.4 million) on the Current Path in the same year.

In the Super Nigeria scenario, the number of malnourished people is more than 13 million fewer in 2050 than on the Current Path (Chart 30). The food import dependence is 19.7% of total demand against more than 50% on the Current Path in the same year. Nigeria will continue to import food but at a much lower level than the Current Path. This will reduce demand for foreign exchange and increase stability in the exchange rate and the macroeconomic environment.

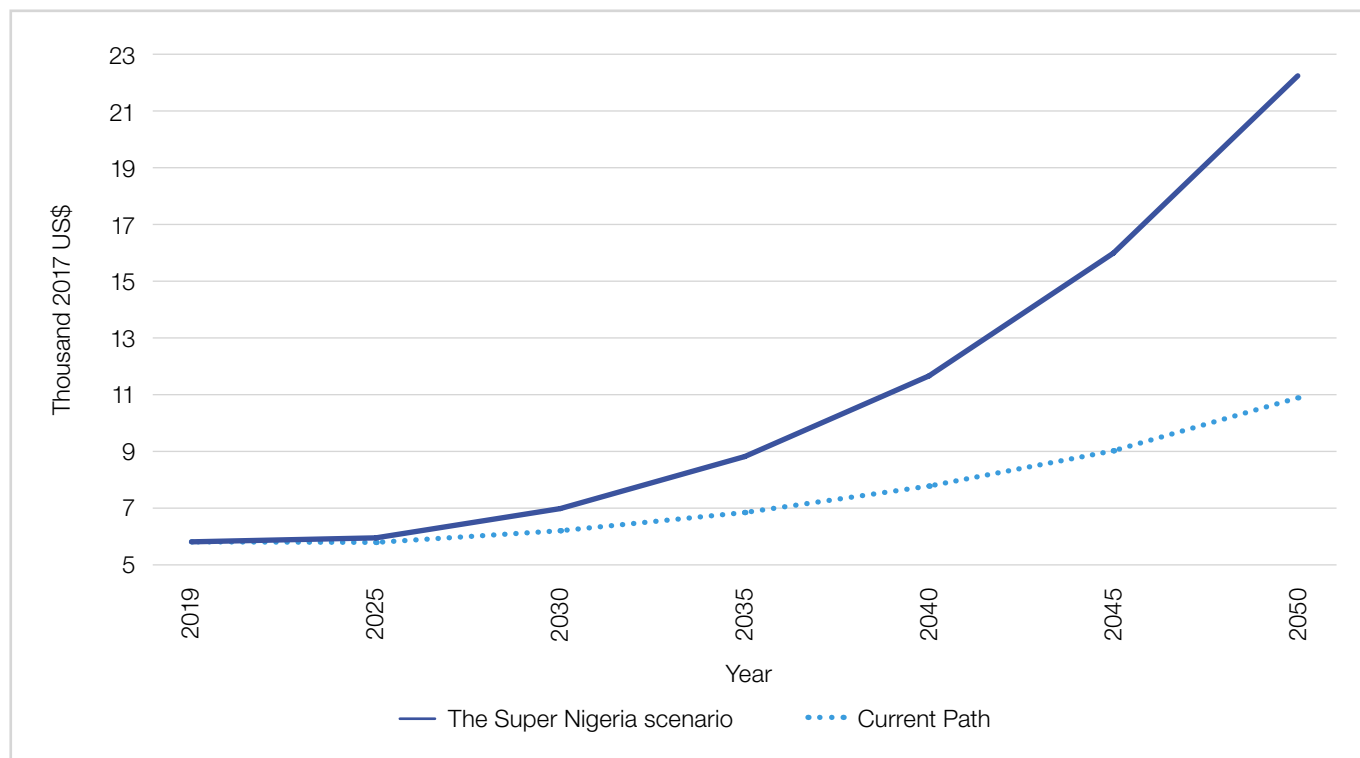
Key health and population indicators underline the dramatic changes that would occur in the Super Nigeria scenario, such as a total fertility rate that declines to replacement level (2.1) by 2047 (compared to the Current Path forecast of 3.7) and a population that is 52 million smaller by 2050. By 2050 life expectancy will be 4.6 years longer than on the Current Path forecast, though men would still be living about half a year longer than women. Nigeria would also, as from 2045, have the potential to benefit from a demographic dividend with a ratio of 1.7 working-age persons for each dependent. In the Current Path forecast, Nigeria only gets to the 1.7 ratio around 2060.

**Chart 27: The size of the Nigerian economy (GDP) – Super Nigeria scenario vs the Current Path**



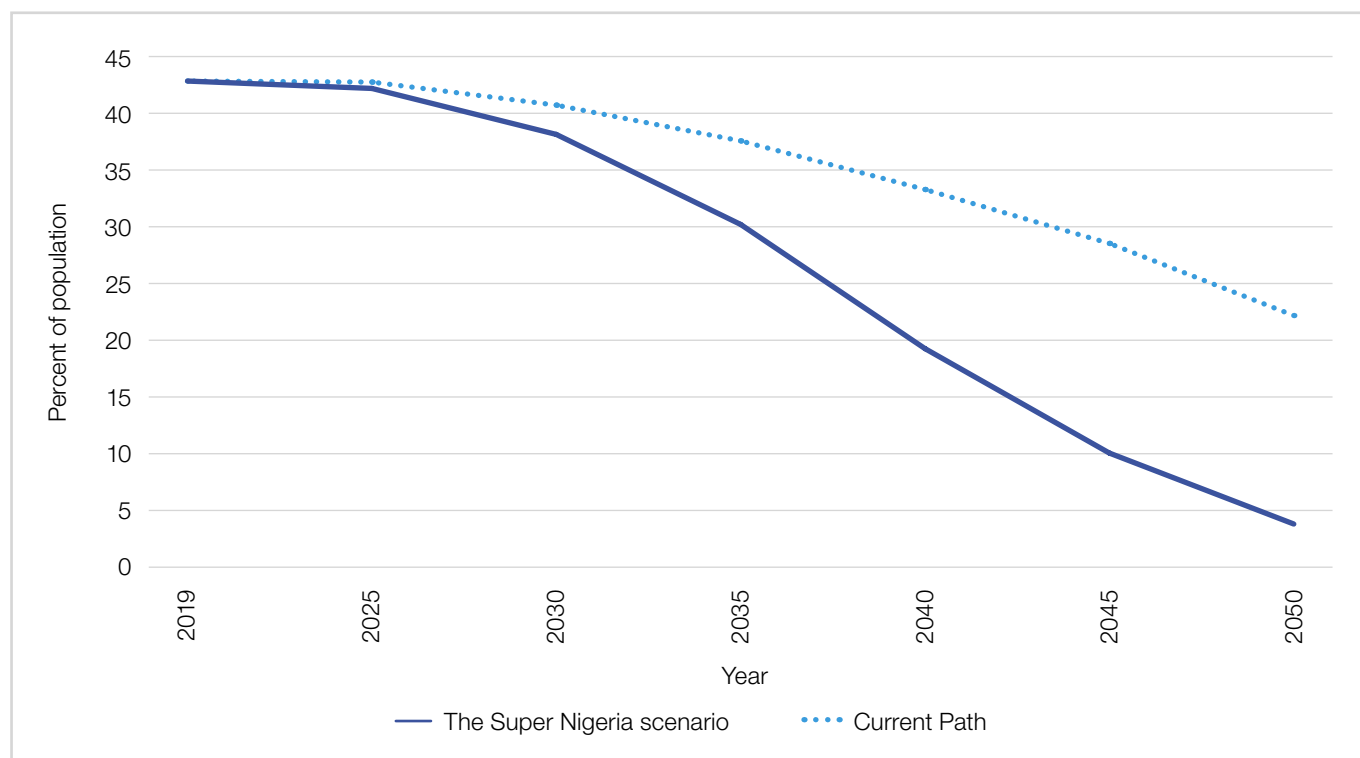
Source: Forecast in IFs version 7.63; historical data from IMF and World Bank

Chart 28: GDP per capita (PPP) – Super Nigeria scenario vs the Current Path



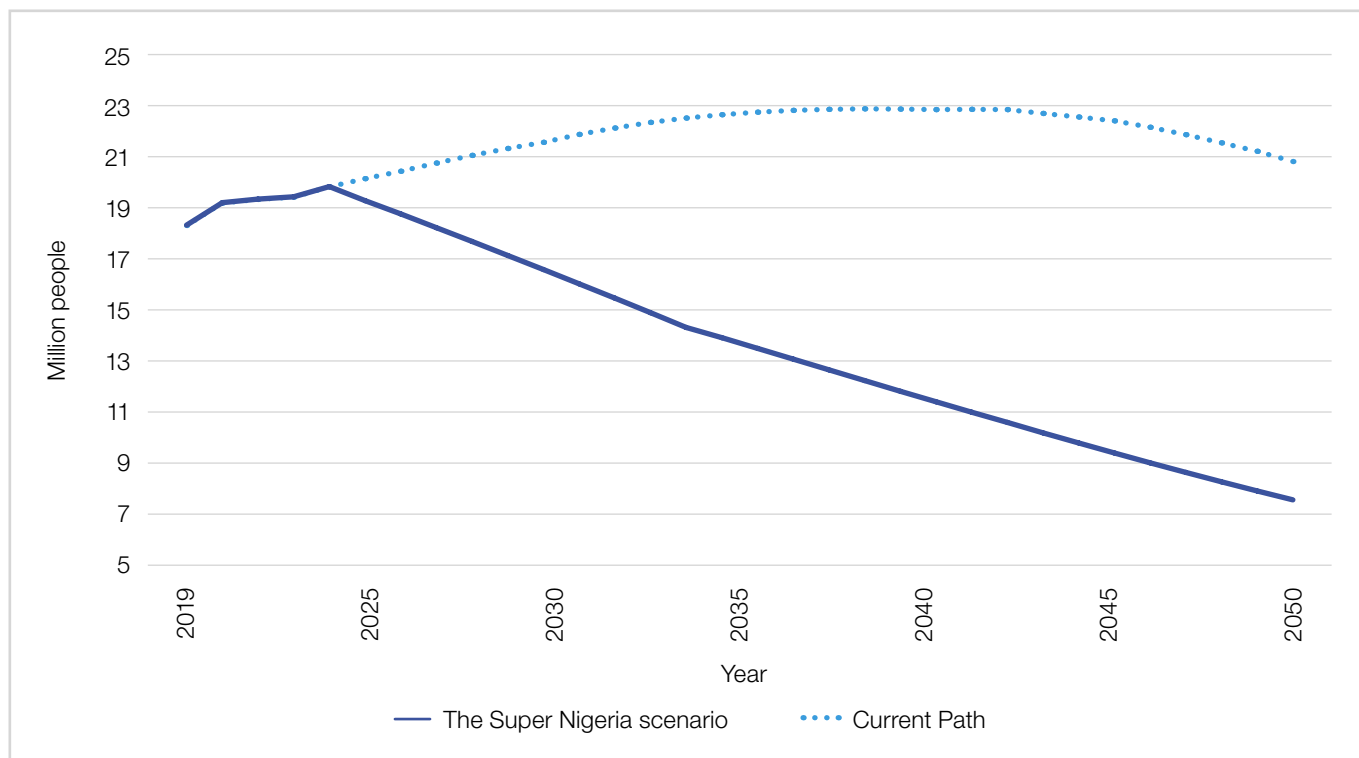
Source: Forecast in IFs version 7.63; historical data from IMF and World Bank

Chart 29: Income poverty (< US\$1.90 per day) – Super Nigeria scenario vs the Current Path



Source: Forecast in IFs version 7.63; historical data from World Bank

Chart 30: Malnourished people in Nigeria – Super Nigeria scenario vs the Current Path



Source: Forecast in IFs version 7.63; historical data from FAO

Overall, Nigeria could expect a significantly brighter future if the Super Nigeria scenario were implemented. However, success will require strong political determination and commitment from Nigerian authorities as well as financial resources. The federal government revenue is currently highly dependent on crude oil export and hence vulnerable to commodity price volatility on international markets. This will have direct implications for the government’s ability to shoulder the monetary cost for the Super Nigeria scenario.

Domestic financial markets, foreign investors, domestic revenue mobilisation capacity and public–private partnership (PPP) arrangements will undoubtedly be critical for the materialisation of this scenario. Also, the implementation of the Super Nigeria scenario will require efforts to mitigate its impact on carbon emission for sustainable accelerated development. With increased economic activity in the Super Nigeria scenario, Nigeria is forecast to produce 409 million tons of carbon compared to 271 million tons on the Current Path in 2050 (51% rise above the Current Path).

### Conclusion and policy recommendations

The potential of Nigeria to be a major player in the global economy due to its human and natural resource endowments remains unfulfilled. This report highlighted the development challenges faced by Nigeria and the way forward to transform the country’s potential into prosperity. The analysis revealed that many factors such as policy inconsistency or discontinuity, corruption and mismanagement are holding back development and prosperity in Nigeria. In other words, the lack of visionary leadership to make the right choices and reforms is a critical reason why Nigeria is still underdeveloped after four decades of independence.

If bold and transformative actions are not taken, Nigeria will continue to lag behind in various economic and human development indicators. For instance, the findings show that, on the current development trajectory (Current Path scenario), Nigeria will likely have the highest number of poor people globally by 2050, at more than 100 million people.

In light of this distressing forecast, we simulated ambitious but realistic policy interventions across different sectors that

could propel Nigeria to prosperity. Of the five intervention clusters, the Economic and Export Diversification (industrialisation) scenario has the most significant impact on development indicators, but in the short term, a revitalised agriculture sector will be the low-hanging fruit to improve Nigeria's human and economic development outcomes. Meanwhile, the Super Nigeria scenario, which combines all the intervention clusters, shows that an integrated approach or policy coordination across sectors could yield a significantly brighter future for Nigeria.

Improving Nigeria's development prospects will require effective leadership and determined implementation of development policies. Leadership is about 'serving the people; it is about taking responsibility and accountability and working for the good of society to enable the people to achieve their full potential'.<sup>182</sup> Nigerian leaders should set aside their personal interests and orient the public purse to serve the population and its development.

The starting point is to address the rising security challenges and separatism sentiment. Economic prosperity can only be effectively pursued if there is peace, stability and cohesion. To this end, the security forces' capability should be upgraded by providing adequate funding for enhanced operations, training, equipment and logistics to respond promptly to armed groups' attacks and to deal with the unconventional security threats in the country. Also, Nigerian security forces should treat those who defect from armed groups or criminal gangs humanely and follow fair judicial and rehabilitation processes to encourage more armed fighters and criminals to give up banditry. Nigeria desperately needs a competent and independent judiciary and the enforcement of the rule of law.

Military operations to quell violence should be accompanied by efforts to improve governance, transparency, accountability and the continued fight against corruption. This would help avoid the misuse of public funds meant for development projects and better manage the resources to address the population's needs. Unemployment, poverty, economic hardship and unequal distribution of resources are underlying factors in the kidnapping for ransom, terrorism and separatist agitations in the country. In the absence of livelihoods, many unemployed youths become more vulnerable to recruitment by armed groups and criminals.

The Nigerian government should improve social service delivery outcomes and create economic opportunities, especially in northern Nigeria where poverty is more severe, to reduce the discrepancy between north and south in terms of human development. There should be a well-targeted national social protection programme to support the poorest and most vulnerable people to reduce inequalities and poverty, which are destabilising factors in Nigeria. In sum, the 'carrot and stick approach' would be an effective strategy to curb violence and criminal activities in the country.

### A revitalised agriculture sector is low-hanging fruit to improve Nigeria's human and economic development

The Nigerian authorities should invest in the agricultural sector to increase productivity. The first priority should be to ensure food security. Thus, effort should be made to increase crop yield through better land-use management practices and the adoption of new and climate-smart technologies. The government should facilitate access to high-yield, disease- and drought-resistant seedlings; fertiliser and credit guarantees for farmers; increased agricultural expenditure in irrigation use; improved rural roads; storage facilities; and increased R&D investments to encourage research to support agriculture productivity. Managing agricultural resources sustainably will be vital to securing food security and stability. A better land management system that addresses conflicts and disputes around land use and tenure should thus be adopted. Nigeria's federal and state governments should work for peaceful coexistence between farmers and herders by resolving disputes through dialogue and resource-sharing agreements and reforming livestock production. In this regard, the implementation of the National Livestock Transformation Plan approved in 2019 should be accelerated.

Efforts should improve access to family planning, healthcare, education, clean water and improved sanitation. Poor human capital outcomes and high population growth are threatening Nigeria's development prospects. Given the importance of religion in Nigeria's socio-cultural fabric, religious leaders can

inhibit or enhance the effectiveness of family planning programmes to reduce fertility in the country. A study by Adedini et al. revealed that contraceptive uptake among women who had exposure to family planning messages from religious leaders is higher than among women with no exposure in Nigeria.<sup>183</sup>

The government should therefore involve religious leaders in its family planning programmes. This should be supported by efforts to raise the minimum legal age for marriage and improve female education and job opportunities. A study by Van den Broeck and Maertens shows that female employment reduces fertility in rural Senegal.<sup>184</sup>

In addition to population management, the government should invest in Nigerian people by facilitating access to education and healthcare services. The Nigerian authorities should improve the accessibility, affordability and quality of healthcare and roll out a National Health Insurance Scheme across the entire country. This should go hand in hand with efforts to improve access to safe WASH facilities to prevent the spread of communicable diseases. The quantity and quality of education should be improved by tackling corruption in the education system, improving teachers' recruitment procedures and increasing funding. With a population of about 250 million, Indonesia invests US\$50 billion annually in the education sector while Nigeria, with a population of 200 million, spends less than US\$2 billion on education.<sup>185</sup>

Human capital development is crucial to enhance Nigeria's economic growth and reduce poverty. It is therefore critical to step up investment in the Nigerian education sector to address the human capital bottleneck. Also, the education curriculum needs to be reviewed in collaboration with the private sector and industrialists to match it with the needs of the labour market. Many industrialists in Nigeria struggle to fill job vacancies because of a shortage of skills.<sup>186</sup> Particular attention should therefore be given to technical and vocational education and STEM courses to address the skills gap in the economy.

The implementation of the Nigerian NIIMP should be accelerated to increase the provision of basic infrastructure in the country. Efforts should be made to increase access to energy/electricity, quality roads and rail, and broadband (ICT). The focus should be

on decentralised mini- and off-grid schemes, using renewable energy to provide a reliable power supply and improving the electrification rate in urban and rural areas.

Concerning the oil sector, the government should continue its efforts to rehabilitate oil-refining infrastructure to boost local refining capacity for self-sufficiency in order to successfully and permanently remove the costly petrol subsidy, which mostly benefits the elite. Attention should be given to the Niger Delta's rehabilitation and restoration to reverse the environmental degradation and pollution caused by the oil sector and restore the livelihoods of the people dependent on this ecosystem.

In addition, the government should successfully implement its National Broadband Plan to increase broadband access and accelerate digitalisation. Digitalisation can help improve government effectiveness through e-government services. It will also help to enhance tax efficiency and boost domestic revenue mobilisation in addition to anti-corruption reforms. The introduction of e-filing in Kenya and e-invoicing in São Tomé and Príncipe, for instance, allowed authorities to expand the tax base to the informal sector and boost revenue collection efficiency.<sup>187</sup>

### It is critical to step up investment in the Nigerian education sector to address the human capital bottleneck

Given the high cost of infrastructure, the Nigerian authorities should create an enabling environment for PPP-led infrastructure development.

Reforms should be undertaken to deepen economic and export diversification, focusing on manufacturing for greater domestic value addition, job creation and poverty reduction. The starting point could be labour-intensive commodity-based manufacturing (vertical integration) to leverage the country's natural comparative advantage in agri-business, solid minerals and metals, and oil and gas. As comparative advantages are dynamic, in the long term, through learning by doing, capability accumulation and technology upgrading, the country could expand its manufacturing sector into the

areas where it does not have a natural comparative advantage (horizontal integration).

Nigeria spends about US\$30 billion annually on imported manufactured goods, more than 50% of the total import bill.<sup>188</sup> A robust local manufacturing sector would capture a large part of these products. Therefore, the Nigerian authorities should continue their reform efforts to improve the business climate and economic freedom to attract domestic and foreign investment to the manufacturing industry and other non-oil sectors. Also, reforms need to be made to promote macroeconomic stability; public procurement should be strategically used to patronise domestically produced goods.

The Nigerian Export Promotion Council (NEPC) should make an effort in identifying and expanding new

export markets for 'made in Nigeria' goods. In this regard, authorities should refine the National Industrial Revolution Plan in line with AfCFTA and accelerate its implementation. AfCFTA is an avenue for Nigeria to diversify its exports away from the hydrocarbon sector.

The policy choices and scenarios suggested in this report will amount to nothing without Nigerian authorities' concerted effort and commitment to implement them. The country has had several development plans, but the practical implementation has been disappointing. Nigeria needs a visionary and developmentally oriented governing elite to lift up the Nigerian population through sound economic development practices, social services and strong institutions.

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## ANNEX A

### Progress towards some key SDGs: Current Path vs the Super Nigeria scenario

Indicators	Current Path by 2030	Super Nigeria scenario by 2030	Current Path by 2040	Super Nigeria scenario by 2040	Current Path by 2050	Super Nigeria scenario by 2050	Target value
<b>Goal 1: POVERTY</b>							
Indicator 1.1.1b – Percentage of population below \$1.90 (2011\$ PPP) per day	40.6	38.1	33.2	19.2	22.1	3.8	3
<b>Goal 2: HUNGER</b>							
Indicator 2.1.1a – Percentage of undernourished population	7.8	5.7	6.3	3.3	4.6	1.8	3
Indicator 2.2.2c – Severe acute malnutrition among children under five	3.6	2.3	3.3	1.5	2.8	1.0	1
<b>Goal 3: HEALTH</b>							
Indicator 3.2.2 – Infant mortality rate in deaths per 1 000 newborns	30	17	23	8	16	4	12
Indicator 3.3.1b – AIDS death rate as percentage of population	0.042	0.040	0.021	0.02	0.009	0.009	0
Indicator 3.3.3 – Malaria death rate per 1 000	0.39	0.38	0.23	0.22	0.13	0.12	0
Indicator 3.7.1 – Contraception use as percentage of fertile women	21	32	29	55	39	80	97
<b>Goal 4: EDUCATION</b>							
Indicator 4.1.1c – Primary education gross completion rate – Total	91.7	94.4	95	98	97	100	97
Indicator 4.1.1e – Lower secondary education graduation rate – Total	53.5	64	59.3	81	69.6	96.3	97
Indicator 4.1.1g – Upper secondary education graduation rate – Total	44.8	54.1	50.3	70.3	61	89.6	97
Indicator 4.5.1i – Upper secondary education gross enrolment rate parity index (female/male)	0.98	0.99	1.0	1.0	1.0	1.0	1
Indicator 4.5.1k – Years of education obtained by population 15+ parity index (female/male)	0.81	0.81	0.83	0.85	0.89	0.9	1

Indicators	Current Path by 2030	Super Nigeria scenario by 2030	Current Path by 2040	Super Nigeria scenario by 2040	Current Path by 2050	Super Nigeria scenario by 2050	Target value
<b>Goal 6: WATER AND SANITATION</b>							
Indicator 6.1.1 – Percentage of people with access to improved water	78.5	80.7	81.7	91	86.2	97	98
Indicator 6.2.1 – Percentage of people with access to sanitation services – Improved	44.4	50.6	52.3	69.5	63.3	84	98
<b>Goal 7: ENERGY</b>							
Indicator 7.1.1 – Percentage of population with access to electricity – Total	61.7	76.3	72.6	94.5	85.1	99.6	98

## ANNEX B

### Adjustments made within IFs

#### *Growth rate adjustments*

The 2021 and 2022 growth rates for Nigeria were adjusted to the July 2021 IMF World Economic Outlook update to 2.5% and 2.6% respectively.

#### *The size of the informal sector adjustment*

The share of informal labour in the total labour force for Nigeria was adjusted to ILO latest data.

#### *Additions or amendments to some historical data within IFs using a Project Data File*

Series	Years changed or added	Sources
Access to electricity (Total)	2019	USAID-POWERAFRICA-Nigeria <a href="http://www.usaid.gov/powerafrica/nigeria">www.usaid.gov/powerafrica/nigeria</a>
Access to electricity – Urban area	2019	USAID-POWER AFRICA-Nigeria <a href="http://www.usaid.gov/powerafrica/nigeria">www.usaid.gov/powerafrica/nigeria</a>
Access to electricity – Rural area	2019	USAID-POWER AFRICA-Nigeria <a href="http://www.usaid.gov/powerafrica/nigeria">www.usaid.gov/powerafrica/nigeria</a>
Access to other improved water (%)	2016–2020	WHO/UNICEF JMP global database <a href="https://washdata.org/">https://washdata.org/</a>
Access to piped water (%)	2016–2020	WHO/UNICEF JMP global database <a href="https://washdata.org/">https://washdata.org/</a>
Access to improved sanitation (%)	2016–2020	WHO/UNICEF JMP global database <a href="https://washdata.org/">https://washdata.org/</a>
Central government debt as % of GDP	2013–2020	World economic outlook database, IMF
Roads, total network, kilometres	2017	The World Factbook-CIA <a href="http://www.cia.gov/the-world-factbook/countries/nigeria/">www.cia.gov/the-world-factbook/countries/nigeria/</a>
Roads paved (%)	2017	The World Factbook-CIA <a href="http://www.cia.gov/the-world-factbook/countries/nigeria/">www.cia.gov/the-world-factbook/countries/nigeria/</a>

## ANNEX C

### Scenario interventions

All interventions are from 2024, interpolated to 2033 and then maintained at that level until 2050 unless indicated otherwise.

#### Governance and Security

Interventions and parameters	Adjustment in IFs	Benchmark/Justification/Notes
Increase governance effectiveness (goveffectm)	Interpolate from 1 to 1.2	Between 2002 and 2012, Rwanda increased its government effectiveness score by 53%. Nigeria's score on the government effectiveness index increases by 38% between 2024 and 2033. Under the Current Path scenario assumptions for other countries, Nigeria is on a par with Sri Lanka and Cape Verde by 2050.
Reduce corruption (govcorruptm)	Interpolate from 1 to 1.15	The score for Tanzania increased by about 58% between 1998 and 2008. Nigeria's score on the corruption index improved by 38.6% between 2024 and 2033.
Improve democracy (democm)	Interpolate from 1 to 1.03	Between 2012 and 2017, the score of Burkina Faso increased by 60%. With this intervention, Nigeria's score increases by 11.2% between 2024 and 2033.
Improve gender empowerment (gem)	Interpolate from 1 to 1.5	Zambia improved its gender empowerment score by nearly 57% between 1995 and 2009. Nigeria's score increases by 46% between 2024 and 2033.
Increase social welfare transfer (unskilled labour)	Interpolate from 1 to 1.25	Nigeria has one of the lowest public expenditures on social protection. Under the Current Path scenario assumptions for other countries, Nigeria is on a par with the projected average for global lower middle-income peers by 2050.
Increase taxes (skilled workers)	Interpolate from 1 to 1.1 between 2024 and 2033 then change/repeat to 1	A proxy for government efforts to improve tax compliance and reduce income inequality.
Improve governance security (govriskm)	Interpolate from 1 to 0.9	Under the Current Path scenario assumptions for other countries, Nigeria is on a par with Cambodia by 2050.
Reduce societal violence (conflict and terror) (svmulm)	Interpolate from 1 to 0.9	Rising kidnapping for ransom and terrorism are threatening Nigerian development prospects.
Reduce the probability of state failure (internal war) (sfintlwaradd)	Interpolate from 0 to -0.2	Separatist agitations are rising in Nigeria. Long-term stability and unity are necessary to propel the country to prosperity.

## Demographics and Human Capital

Interventions and parameters	Adjustment in IFs	Benchmark/Justification/Notes
Increase contraceptive use (contrusm)	Interpolate from 1 to 1.5	Between 1992 and 2003, contraceptive use increased by more than 40% in Egypt. From a very low base, contraceptive use in Nigeria increases by 88% between 2024 and 2033. Under the Current Path scenario assumptions for other countries, the fertility rate in Nigeria is on a par with the projected average for lower middle-income Africa by 2050.
Reduces mortality for children under five (hlmortcdchldm)	Interpolate from 1 to 0.7	Between 2008 and 2017, infant mortality declined by about 30% in India. Infant mortality declines by 47% between 2024 and 2033 in Nigeria. Nigeria is on a par with the projected average for lower middle-income Africa by 2050.
Reduces maternal mortality ratio (matmortratio)	Interpolate from 1 to 0.5	Between 2005 and 2014, Angola reduced maternal mortality by about 50%. Maternal mortality ratio declines by more than 50% in Nigeria between 2024 and 2033. Nigeria is on a par with the projected averages for its African and global income peers by 2050.
Reduce malaria prevalence (hlmalariaprevm)	Interpolate from 1 to 0.6	Between 2008 and 2017, Ghana reduced its malaria prevalence by about 43%. Under the Current Path scenario assumptions for other countries, malaria prevalence in Nigeria is on a par with the average for global income peers by 2050.
Reduce respiratory infections (hlmortm (resp. infections))	Interpolate from 1 to 0.6	Under the Current Path scenario assumptions for other countries, the respiratory infections death rate in Nigeria is on a par with Tunisia by 2050.
Reduce diarrhoea (hlmortm (diarrhea))	Interpolate from 1 to 0.6	Under the Current Path scenario assumptions for other countries, the diarrhoea death rate in Nigeria is on a par with the projected average for lower middle-income Africa in 2050.
Reduce HIV prevalence (hlmortm (AIDS))	Interpolate from 1 to 0.6	Between 2007 and 2017, HIV prevalence declined by 50% in Honduras. With this intervention, HIV prevalence in Nigeria declines by 35% between 2024 and 2033.
Reduce other communicable diseases (hlmortm (OthCommDis))	Interpolate from 1 to 0.9	Under the Current Path scenario assumptions for other countries, this intervention brings Nigeria in line with the projected average for lower middle-income Africa by 2050.
Reduces severe acute malnutrition prevalence (SAM) (malnchpsamm)	Interpolate from 1 to 0.7	Between 2002 and 2011, SAM prevalence declined by nearly 38% in Vietnam. SAM in Nigeria declines by nearly 34% between 2024 and 2033.
Primary net intake rate (edpriintnm) (female)	Interpolate from 1 to 1.15	60% of school-age children that are out of school in Nigeria are girls. Between 1996 and 2006, Laos increased its female primary net intake by 68.5%. Female primary net intake in Nigeria increases by 22% between 2024 and 2033.
Primary net intake rate multiplier (male)	Interpolate from 1 to 1.1	Between 1999 and 2009, Morocco increased its male primary net intake by 49%. Male primary net intake in Nigeria increases by 16% between 2024 and 2033.
Improve the quality of primary education (edqualpriallm)	Interpolate from 1 to 1.15	Between 1995 and 2005, primary education quality (total test score) in Kenya increased by 31%. Primary education quality in Nigeria (total test score) increases by 17% between 2024 and 2033.
Increase lower secondary school graduation rate (Total) (edseclowgram)	Interpolate from 1 to 1.2	Between 2015 and 2019, Laos increased its lower secondary completion rate by 22%. Lower secondary completion rate in Nigeria increases by 28.7% between 2024 and 2033.

Interventions and parameters	Adjustment in IFs	Benchmark/Justification/Notes
Increase upper secondary school graduation rate (Total) (Edsecupprgram)	Interpolate from 1 to 1.2	Between 2015 and 2019, the upper secondary school graduation rate increased by 29% in Uganda. The upper secondary school graduation rate in Nigeria increases by about 15% between 2024 and 2033. Under the Current Path scenario assumptions for other countries, Nigeria is on a par with the projected average for the global lower middle-income countries by 2050.
Improve the quality of secondary education (edqualsecallm)	Interpolate from 1 to 1.2	Between 2000 and 2005, secondary education quality (total test score) in Morocco increased by about 17%. In this intervention, secondary education quality (total test score) in Nigeria increases by 15% between 2024 and 2033.
Increase tertiary intake (Total) (edterintm)	Interpolate from 1 to 1.5	In Nigeria, only about 10% of applicants seeking admission into tertiary institutions are placed. Between 2000 and 2010, enrolment in tertiary institutions nearly doubled in Ukraine. Enrolment in tertiary institutions in Nigeria increases by 33% between 2024 and 2033.
Increase graduation rate in tertiary education (science & engineering) (Edtersciेशradd)	Increase by 10 percentage points between 2024 and 2033 and hold.	Between 2006 and 2016, the share of science and engineering students in tertiary graduates in Kyrgyzstan increased by about 35%. From a very low base, the share of science and engineering students in tertiary graduates in Nigeria increases by about 46.8% between 2024 and 2033.

### Agricultural Revolution

Interventions and parameters	Adjustment in IFs	Benchmark/Justification/Notes
Increase crop yields (ylm)	Interpolate from 1 to 1.5	Between 2006 and 2016, average crop yields in Nepal increased by about 61.5%. Average crop yields in Nigeria increase by 41% between 2024 and 2033. Under the Current Path scenario assumptions for other countries, Nigeria is on a par with Bangladesh by 2050.
Increase land area equipped for irrigation (Landirareaequipm)	Interpolate from 1 to 1.3	Between 2010 and 2016, land area equipped for irrigation increased by nearly 29% in Kenya. Under the Current Path scenario assumptions for other countries, Nigeria is on a par with Nepal by 2050.
Reduce agriculture loss from producer to consumer (aglosstrasm)	Interpolate from 1 to 0.5	Infrastructure shortage in the rural areas causes huge losses when transporting agricultural production from producer to consumer in Nigeria. This intervention puts it on a par with the projected average for lower middle-income globally by 2050. This intervention reduces agriculture loss along the value chain by about 13% between 2024 and 2050.
Reduce loss rate of agriculture production (aglossprodm)	Interpolate from 1 to 0.5	To reduce agricultural production loss at the point of production. This intervention puts it on a par with the projected average for lower middle-income globally by 2050.
Increase food access/ calories per capita (clpcm)	Interpolate from 1 to 1.15	Between 2000 and 2010, calorie per capita increased in Mongolia by 33.5%. Calorie per capita increases in Nigeria by 15.5% between 2024 and 2033.

## Basic Infrastructure

Interventions and parameters	Adjustment in IFs	Benchmark/Justification/Notes
Reduce capital cost to output ratio in energy qem – Q (OthRenew)	Interpolate from 1 to 0.8	To stimulate the production of renewable energies. From a very low base, the production of renewable energies (OthRenew) in Nigeria increases by more than 100% between 2024 and 2033.
Increase electricity generation capacity per capita (infraelecgenccpm)	Interpolate from 1 to 1.15 between 2024 and 2033 then change/repeat to 1.1	Between 2006 and 2016, electricity generation capacity per capita in Laos increased by more than 100%. In this intervention, electricity generation capacity per capita in Nigeria increases by 55% between 2024 and 2033.
Reduce electricity transmission and distribution loss (infraelectranloss)	Interpolate from 1 to 1.3	Between 2009 and 2014, the Republic of Congo reduced electricity transmission losses by nearly 37%. In this scenario, electricity transmission losses in Nigeria decrease by 28.6% between 2024 and 2033.
Increase access to electricity (Infraelecaccm) (Rural)	Interpolate from 1 to 1.4	Between 2009 and 2019, the electricity access rate in urban areas increased by 41% in India. Electricity access in rural areas in Nigeria increases by about 50% between 2024 and 2033.
Increase access to electricity (Infraelecaccm) (Urban)	Interpolate from 1 to 1.15	Between 2005 and 2015, the electricity access rate in urban areas doubled in Lesotho. In this scenario, electricity access in urban areas in Nigeria increases by about 21% between 2024 and 2033. Under the Current Path scenario assumptions for other countries, Nigeria is on a par with the projected average for global lower middle-income countries by 2050.
Increase total road network (Infraroadm)	Interpolate from 1 to 1.3	Between 2000 and 2010, India increased its total road network by about 38%. In this intervention, the Nigerian total road network increases by 34% between 2024 and 2033.
Increase roads paved length (Infraroadpavedpcntm)	Interpolate from 1 to 1.2	Between 2001 and 2011, paved roads length increased by 57% in India. In this intervention, paved roads length in Nigeria increases by 49% between 2024 and 2033.
Increase access to fixed broadband internet (ICT) (Ictbroadm)	Interpolate from 1 to 1.5	Access to fixed broadband in Algeria increased by more than 100% between 2007 and 2017. From a very low base, access to fixed broadband in Nigeria increases by more than 100% between 2024 and 2033.
Increase access to mobile broadband (ICT) (Ictbroadmobilm)	Interpolate from 1 to 1.4	Between 2012 and 2017, access to mobile broadband increased by nearly 200% in Cape Verde. In this intervention, access to mobile broadband increases in Nigeria by more than 100% between 2024 and 2033. Nigeria is on a par with the projected averages for global and African lower middle-income countries by 2050.
Increase access to improved sanitation (sanitation)	Interpolate from 1 to 1.5	Between 2000 and 2010, access to improved sanitation increased by more than 50% in India. In this intervention, access to improved sanitation increases by 35.5% in Nigeria between 2024 and 2033.
Increase access to clean water (watsafem) (piped)	Interpolate from 1 to 1.5	Access rate of piped water is low in Nigeria. Between 2000 and 2010, access to piped water increased by nearly 85% in Kyrgyzstan. From a very low base, access to piped water in Nigeria increases by 80% between 2024 and 2033.



## Economic and Export Diversification

Interventions and parameters	Adjustment in IFs	Benchmark/Justification/Notes
Improve business regulation (govbusregindm)	Interpolate from 1 to 0.8	To address the opaque business environment of Nigeria. Between 2006 and 2016, the regulatory quality score for Côte d'Ivoire improved by about 35%. The Nigerian regulatory quality score increases by about 14% between 2024 and 2033.
Improve economic freedom (econfreem)	Interpolate from 1 to 1.1	A proxy for strong economic institutions which are crucial for a successful industrial policy. Between 1990 and 2010, the economic freedom score for Bangladesh increased by 31.5%. In this scenario, Nigeria's score improves by about 12% between 2024 and 2033 to reach 7.4 (out of a possible 10).
Improve domestic investment in the economy (Invnm)	Interpolate from 1 to 1.15	A proxy for domestic investment in the manufacturing sector. In this scenario, domestic investment increases from 15.7% of GDP in 2024 to 20% in 2033, and tracks with the projected average for lower middle-income Africa by 2050.
Increase foreign investment (FDI inflows)	Interpolate from 1 to 1.15	A proxy for improvement in manufacturing FDI inflows. Between 2007 and 2012, FDI flows to Ghana increased by about 3% of GDP. In this scenario, FDI flows to Nigeria increase by 1.25% of GDP between 2024 and 2033, catching up to the average of 3.5% of GDP for African lower middle-income countries by 2033, then tracks with the group to 2050.
Increase remittances (Xworkremitnm)	Interpolate from 1 to 1.15	To provide foreign exchange to ease pressure on the exchange rate, and improve macroeconomic stability. Macroeconomic stability matters for industrialisation/manufacturing. In this scenario, remittance inflows into Nigeria double between 2024 and 2033.
Increase labour participation	Interpolate from 1 to 1.1	To promote labour-intensive manufacturing. In this scenario, the labour force in the Nigerian manufacturing sector doubles between 2024 and 2033.
Increase R&D activities (Total) (Randdexpm)	Interpolate from 1 to 1.2	To increase public and private spending on R&D. Technology upgrading is crucial for a robust manufacturing sector. It increases productivity and the quality of products. In this scenario, public spending on R&D in Nigeria increases by nearly 50% from a very low base between 2024 and 2033.
Increase manufacturing export (xsm)	Interpolate from 1 to 1.25	As a result of trade promotion in manufacturing exports. Manufacturing exports in Nigeria increase from 2% of GDP in 2024 to 5.4% in 2033. It reaches 21% of GDP by 2050, compared to 11% on the Current Path.
Increase services export (ICT goods) (xsm)	Interpolate from 1 to 1.1	As a result of trade promotion in services exports. ICT exports in Nigeria increase marginally to 0.002% of GDP in 2033, and reach 0.006% of GDP by 2050.

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