THE CHALLENGES OF SUSTAINABLE DEVELOPMENT IN NIGERIA AMIDST THE GLOBAL PANDEMIC (COVID-19)

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ABSTRACT

Background: Sustainable Development is that which meets the needs of the present without undermining the ability of future generations to fulfill their own needs. Unfortunately, the 17 Sustainable Development Goals (SDGs) targets set by the United Nations to be achieved by 2030 have been affected to a large extent by the current COVID-19 Pandemic. The Coronavirus COVID-19 pandemic has so far infected more than 270 million people and killed over 5.3 million. Aside from the direct impact on people's lives and health, the Pandemic's most considerable impact has been by far on Education, the Economy, and Social infrastructures, especially in developing countries.

Objective: The work reviews of literature and SDG Reports on the impact of the Pandemics on the Goals relating to the Economy (SDG 1, 2, and 8), Education (SDG 4), and health (SDG 3) in the Nigerian context, using some of the critical indicators of these Goals.

Methods: We explore data from the SDG interactive platform to compare the trend and changes in these indicators before and after the Pandemic's start to determine the pandemics' effect on these Goals. In addition, we discussed the global efforts toward vaccine access to bring an end to the current Pandemic.

Conclusions: The review suggested that the Pandemic has significantly impacted all indicators targeted in this work. It also suggests some possible solutions, using exemplary sustainable developments that still impact ordinary citizens' economies and livelihoods. Further recommends deploying online teaching-learning methods and other stakeholders' investments in the health and education sectors.

Keywords: Nigeria, COVID-19 Pandemic, Sustainable Development Goals, SDGs Nigeria

Received: 01/05/2022
Accepted: 01/07/2022
DOI: https://doi.org/10.37497/sdgs.v10i2.206

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INTRODUCTION

Development is said to be sustainable when it meets the needs of the present and in no way compromises future generations' ability to meet their own needs. It is mentioned in the news every day as the world copes with a series of challenges, ranging from climate change, biodiversity loss, conflicts, resource scarcity, and the coronavirus (COVID-19) pandemic halting all forms of development the world over.

In 2015, UN Member countries adopted the Agenda 2030, including the Sustainable Development Goals (SDGs), to replace or build on the Millennium Development Goals (MDGs). The Sustainable Development Goals lay out the most significant challenges we need to address for the sake of both people and the planet by 2030 (UN, 2015a). It seeks to guide countries to end extreme poverty and hunger, fight inequality and injustice, and fix climate change, among other things (UN, 2015b).

However, in most countries, including Nigeria, even the MDGs targets were only partially achieved, thus shifting a more significant development burden to the future (Oleribe & Taylor-Robinson, 2016). This suggests that even without the Pandemic's challenges, such nations were falling behind on the benchmarks essential for a smooth transition to the SDGs. Subsequently, when the SDGs were adopted, several challenges remained, affecting the goals in many countries/regions, even though noticeable progress was being made in addressing many global social and development issues following the successful implementation of actions relating to other countries' MDGs. Additionally, five years after the SDGs were launched, the world is facing a devastating Pandemic that has nearly brought the world to a halt.

This work reviews the Pandemic's impact on the goals relating to the Economy (SDG 1, 2, and 8), Education (SDG 4), and health (SDG 3) in the Nigerian context, using some of the critical indicators of these Goals. We reviewed literature reporting the state of the stated Goals and how the Pandemic impacted them. To achieve the stated objective, a literature search was conducted for articles from databases such as Google search, scholar, Scopus, web of science, EBSCO, Sciencedirect, Wiley library, Springer, Nature journal, Jstor, and MDPI for articles, journals, reports, books, and white papers published before and after the Pandemic. To further visualize Nigeria's performance, we compared the country to others in the same region and to more developed countries using data from the SDG interactive platform. The indicators used in this review were selected based on their significance and relevance to the topic. The work also highlights the extensive international efforts to aid the regional pandemic response. Finally, the work suggests local creative initiatives, economic diversification, tried and true infrastructure development models, and adaptive internet use (SDG 9) as the solution.

Global Pandemic

A pandemic is an epidemic that spreads all over the globe (Grennan, 2019). A disease is considered a pandemic when it is infectious, widespread, and kills many people. The Spanish influenza of 1918 is a typical example that killed approximately 50 million people and infected over one-third of the global population (Curator, 2020). It exhibits all three attributes; however, cancer is not a pandemic, even though it is responsible for many deaths worldwide; it is neither infectious nor contagious.

The fact that the entire world has merged into a global village is no longer news. Today, any phenomenon affecting a particular nation of the globe affects others quickly. As human civilizations flourished, so did infectious diseases. Large numbers of people and animals living in close proximity to each other, often with poor sanitation and nutrition, provide fertile breeding grounds for diseases (Amanda Onion et al., 2019). The emergence of new overseas trading routes has adversely aided the spread of novel infections worldwide, thus creating the first global pandemics (Piret & Boivin, 2021).

History has shown that previous pandemics recorded around the world adversely affected global developmental processes (Piret & Boivin, 2021). For instance; the H1N1 virus of 1918, in which an estimate of about 500 million people became infected with a recorded mortality estimate of about 50 million worldwide; the H2N2 virus of 1957/1958, which claimed about 1.1 million lives worldwide (Taubenberger & Morens, 2006), the 1968 pandemic (H3N2 virus), which resulted in the loss of about 1 million lives; the 2009 pandemic (H1N1 PDM 09 virus), which recorded over 12,000 deaths, and the most recent being the Coronavirus (COVID-19) pandemic (*CDC and NCIRD*, 2019).

COVID-19 Pandemic

The novel human coronavirus disease COVID-19 has become the fifth documented Pandemic since the 1918 flu pandemic. COVID-19 was first reported in Wuhan, China, in December 2019, and subsequently spread worldwide. It was first named novel coronavirus (2019-nCoV) and later coronavirus disease 2019 (COVID-19) by the World Health Organization (WHO) (Liu et al., 2020) It was then named by the International Committee on Virus Taxonomy officially as Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) based on phylogenetic analysis (Amanda Onion et al., 2019) Finally, on March 11, 2020, WHO concluded that COVID-19 could be described as a pandemic like all the earlier pandemics (Liu et al., 2020).

As of the time of writing this manuscript, the WHO reported over 270 million confirmed cases of COVID-19 globally, with over 5.3 million deaths recorded worldwide (WHO, n.d.-a) It is suspected that SARS-CoV-2 is a spillover of an animal coronavirus that later acquired a human-to-human transmission ability (Amanda Onion et al., 2019). The virus is highly contagious in the human population and spreads quickly and continues to evolve rapidly as several new strains, including the Alpha, Beta, Gamma, Delta (B.1.617.2), and the latest Omicron (B.1.1.529) are continuously found around the globe. Currently, the two variants of concern (VOC) include the Delta variant responsible for the devastating second wave in various places worldwide and the recently identified highly mutated Omicron variant. Omicron is a variant of concern because it showed the highest contagiousness and has about 65 mutations, the highest so far on the Spike protein, which allows it to evade the available vaccines, which were all designed to target this protein (Ferré et al., 2021).

In Nigeria, the first documented case of COVID-19 was discovered in Lagos on February 27, 2020, and as of the latest count as of December 10, 2021, Nigeria has recorded 215,918 confirmed cases, with 2981 deaths as reported by the Nigerian Centre for Disease Control (NCDC) COVID-19 data (NCDC, 2020).

Sustainable Development Goals in Nigeria

The SDGs' scope was significantly expanded compared to the MDGs, increasing the Goals from 8 to 17. As a result, the SDGs increased in comprehensiveness and the complexity of development planning challenges. Even more so than the MDGs, Agenda 2030 and SDGs requires an integrated, targeted strategy that incorporates the cross-sectoral connections of policies, trade-offs & beneficial synergies.

Furthermore, the SDGs included all 193 UN Member States, developing and developed countries alike (SDG, n.d.-a). Moreover, Nigeria is currently ranked 160 out of 164 nations with an overall score of 48.9 out of 100, based on combined average performance across all the 17 SDGs (Sachs et al., 2021). A quick summary of Nigeria's progress on the 17 SDGs according to the most recent UN report is seen in Figure 1 below. For example, as seen in figure 1, approximately 13 of the 17 Sustainable Development Goals (SDGs) exhibited a low level of progress, or what the United Nation's report refers to as "the major challenge remains," region, which includes all of the Goals under investigation in this study (Sachs et al., 2021).

Figure 1: Illustrative Representation of the 17 Sustainable Development Goals Current Progress in Nigeria based on the UN 2021 report.

The 17 SDGs aim to end poverty, hunger, and inequality, combat climate change and environmental degradation, increase access to health and education, and develop strong institutions and partnerships.

For this review, the SDGs under consideration, as mentioned earlier, were grouped under Economic, Education, and Health sector development. This is because these tripods are the wheels that drive all other forms of development; it also focuses on Nigeria's current development priorities and the current leadership objectives. It is worth mentioning that the institutional dimensions for creating an enabling policy environment for the implementation of the SDGs in Nigeria, as outlined by the Voluntary National Review (VNR) report, was through the nation's Economic and Recovery Growth Plan (ERGP) 2017-2020 (SDGNigeria, 2020b) The emphasis of the ERGP on the fiscal, social, and environmental aspects of growth is consistent with the expectations of the SDGs (Curator, 2020).

Economic Development and SDG Targets.

SDG-8, which aims at promoting "*sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all,*" has not been on target even before the Pandemic; the global economic growth has been lower than in past years. Nigeria experienced a substantial increase in the unemployment rate between 2013 and 2015, where a more than 2-fold increase was recorded compared to previous years (SDG, n.d.-b; SDGs, n.d.). The Pandemic has further disrupted this Goal pushing the world into a recession. This triggers about 10.5% drop-in global gross working hours, affecting small and medium-sized businesses, informal employees, self-employed workers, day-to-day wage earners, and workers in the industry (SDG, 2020a).

The informal economy is valued at 53% of the labor force in Nigeria and accounts for 65% of its GDP (SDGNigeria, 2020a). This critical indicator showed that Nigeria slipped about 0.6% (SDG, n.d.-c). The recent data suggests that the unemployment rate is more severe among youth. This demography has a combined unemployment and under-employment rate of 55.4%, a 4% increase compared to 2018 (SDG, 2020a; SDGNigeria, 2020a, 2020b). This group is vital for diversifying the economy beyond dependence on oil and gas and poverty reduction (SDG-1) through the digital economy since the younger generation is more acquainted with modern technology (SDGNigeria, 2020b).

Education Development and the SDG.

SDG 4 focuses on quality education to ensure inclusive, equitable, and qualitative education and advance long-term learning opportunities for all (Ekhator et al., 2021). Education is a goal in itself, but more importantly, it is the means by which most of the other Development Goals can easily be achieved (Boeren, 2019; Ekhator et al., 2021; UNESCO, n.d., 2017). Education is vital to achieving the requisite skills for sustainable growth and development (Ekhator et al., 2021). The concept of education for sustainable development (ESD), which is described as the education that fosters changes in knowledge, skills, values, and attitudes to enable a more sustainable and just society for all, is the term most used internationally and by the United Nations to look at this complex Goal (UNESCO, n.d.; Wikipedia, 2002).

The Nigerian education sector has various issues, ranging from funding, poor infrastructure, teacher shortages, overcrowded classrooms, and gender equity (Christopher Odogwu Chidi, 2019). Furthermore, studies on education for and on sustainable development have been limited. At the same time, the available empirical evidence also highlighted many issues relating to concepts and practices, including deficits in curricula and inappropriate implementation approaches (Ekhator et al., 2021).

Furthermore, the challenges facing the Nigerian education sector are numerous, but foremost among these challenges is the Out-of-School children. The Universal Basic Education Commission (UBEC) in 2016 report estimated that Nigeria had about 10.5 million out-of-school children, the highest number globally (tochukwu, 2018a). This is more prevalent in the Northern part of Nigeria (SDGNigeria, 2020b), where the ongoing insurgency and other insecurity challenges, coupled with the adverse climate change-driven, extreme poverty, prevalence, and inadequate government campaign efforts that have continuously failed to address the problem. The

regional disparities are immense in a country of more than 200 million people, with 78 percent of Southwestern children able to read whole or part sentences, compared to only 17 percent of Northeastern children (UN, 2020b). In order to deliver high-quality education, the government must boost its educational spending, which now accounts for only 1.6 percent of GDP (UN, 2020b). Indeed, getting it right in education will translate to overall development. Hence, as a step toward the SDGs, the State Universal Basic Education Board's provision of free Universal Basic Education to all Nigerian children of school age was implemented (Hanachor & Wordu, 2021; tochukwu, 2018b).

During the Pandemic, the education system needed to shift from conventional classroom teaching to online. This trend has been the focus of many forward-looking higher learning institutions in many developed countries, even before the onset of the Pandemic, which makes their transition to the new norm faster and easier. On the contrary, in developing nations such as Nigeria, even the fundamental infrastructures such as easy access to a reliable power supply and the internet have not been available to most of the populace, and when coupled to already existing problems, such a transition during the pandemic period is bound to become more challenging.

SDG and Healthcare Development in Nigeria

Nigeria has some significant poor health challenges, such as high maternal mortality rates (SDGNigeria, 2020b). Despite its strategic position as having Africa's largest economy, the country is significantly underserved in health care. Health facilities (health centers, personnel, and medical equipment) are inadequate in the country, especially in rural areas (Welcome, 2011) Although the Nigerian Government has implemented numerous reforms to address the wide-ranging health care system problems, the impact has been minimal due to the largely uneven enforcement of such reforms at different levels of Government, with State and Local Governments having the poorest enforcements, and the COVID-19 adversely challenging the already fragile public health system (SDGNigeria, 2020b).

During the COVID-19 Pandemic, issues such as limited proper protective gear for personal and medical use (Ogoina, 2020), with inadequate access to essential personal protective equipment in health care settings were evident (Oladele et al., 2021) Furthermore, the knowledge of appropriate use of PPE among health workers needs to be reinforced (Ogoina, 2020). Hygiene and prioritizing equitable access to clean water and soap have proven vital in protecting the public (SDGNigeria, 2020b). Additionally, more investment in public health is significantly needed to ensure that universal access to basic care is met and that the most vulnerable are met (Ogoina, 2020; SDGNigeria, 2020b).

Several local efforts to produce the much-needed PPEs and homemade face masks using local material and skills provided income to many Nigerians that might have lost their source of income due to the preventative economic shutdown (Evelyn Rupert, 2020; Gary Seidman, 2021; Ogoina, 2020).

The Major Issues Relating to the Impact of the COVID-19 Pandemic on SDG

The central question this work attempts to answer is*: what challenges did the global Pandemic of COVID-19 pose to the economy, education, and health sectors development in Nigeria?* And the answer is straightforward "Damaging." The latest SDGs report of 2021 showed Nigeria Continuing to be one of the worst-performing

countries globally, ranking only 6th to the last and having a score of about 1.6 points less than the regional average score (SDGs, n.d.).

A close look at the effect of the several extreme measures adopted, ranging from the closure of schools, ban on intra- and inter-State movement to the closure of national borders, markets, and other public places, etc., were put in place to contain the spread of COVID-19. Interestingly, most of them are still prevalent, especially with the recently observed impact of the "second and third waves" insight. Moreover, most of these measures have detrimental effects on growth and development. The damages caused by these measures are hard to quantify directly; however, some of the estimates on key indicators of Economic, Education, and Health Development as related to the SDGs during the Pandemic could be used to determine the impact of COVID-19 on Nigeria.

COVID-19 Effect on the Economy

COVID–19 pandemic seriously adversely affected both the Nigerian and global economies (Erumebor, 2021). The effect of the lockdown nearly shut down the whole of the economy by halting operations in the manufacturing sector and disruption in the supply chain, among others. The restrictions on local close proximity interactions, people's movement, and the international border closures have caused all components of cumulative demand to fall (Ojo, n.d.). The country's economic performance in 2020 has been fragile and gradually sliding into a recession, following a global trend (Teslim Shitta-Bey et al., 2020). As posited by the Central Bank of Nigeria, this development has led to unprecedented disruptions in global supply chains, a sharp drop in crude oil prices, turmoil in global stock and financial markets, massive cancellation, and movement restrictions in many countries' critical air routes across the globe. The Nigerian Statistics Bureau has reported that the country's economy has contracted by 6.1% year on year in the second quarter of 2020, which has been the steepest decline in ten years (Erumebor, 2021).

Nigeria's estimated poverty rate has risen by 5.14 percent, with the percentage of people living under US$1.90 per day increasing from 37.68 percent in 2018 to 42.82 percent in 2022 (SDG, n.d.-d; *World Poverty Clock*, n.d.). Furthermore, around 3.3 Nigerians are now slipping into poverty every minute, compared to about 0.1 in 2019 just before the Pandemic unset (SDG, n.d.-e). The Factor, which is calculated using historical income distribution estimates, population predictions by age and educational attainment, and GDP projections, is also predicted to also continue in this downward trend through 2026 and only return to the 2019 levels around 2029 (*World Poverty Clock*, n.d.).

These outcomes have had severe adverse implications for critical sectors, including but not limited to, the Oil and gas, airlines, manufacturing, trade, and consumer markets. Furthermore, the stock of unsold manufactured products has risen to an all-time high of about N402.4 billion due to consumers' dwindling income in the country (Christiana T. Alabi, 2020; Chukwuka Onyekwena & Mma Amara Ekeruche, 2020; Ojo, n.d.). The downturn in respect to household spending stems from travel constraints, forcing consumers to spend mainly on vital goods and services, low aspirations of potential earnings, and the depletion of capital and expected resources (Ojo, n.d.). In addition, the restrictions on movement not only decreased the consumption of non-essential goods in general, but also affected the income-generating ability of the populace, thereby limiting their consumption spending (Ojo, n.d.).

Most importantly, Nigeria's only reliable source of revenue generation has been Oil for decades, however, the available potentials in the oil revenue have not been effectively tapped – to date, the country export crude oil and import refined oil, thereby losing all other products from the crude Oil – petrochemicals and other inclusions. Nigeria's breakeven cost is the highest of the world's major oil-exporting countries (Rebecca Engebretsen & Catherine Anderson, 2020).

The most disturbing story about Nigeria's economic future is the prediction that Oil may no longer be marketable in the nearest future – meaning sustaining the nation's development through oil revenue is no longer guaranteed. Furthermore, oil prices have been getting lower in the world market even before the Pandemic hit.

During the Pandemic, this downward trend has been exacerbated along with all other economic activities (Ophori et al., 2014a). The double blow from the Coronavirus (COVID-19) and the oil price shock made it especially difficult for oil-exporting countries like Nigeria at a time when the fossil fuel industry is facing a process of structural decline (Ophori et al., 2014a).

Suffice therefore to conclude that COVID-19 Pandemic has had a severe adverse effect on attaining the Economic related Sustainable Development Goals, such as SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation, and Infrastructure) and resultant SDG 1 (No Poverty), and SDG 2 (Zero hunger), among others (Soumya Bhowmick, 2021).

Effect of COVID-19 on Education.

UNESCO estimated that about 24 million students were at risk of not returning to school in 2020 following COVID-19 disruptions (Giannini, 2020a). And almost half of these children are located in South and West Asia and Sub-Saharan Africa. Furthermore, approximately 5.2 million of these populations are girls, and socio-economic factors such as the need to generate income, increased household and child-caring responsibilities, early and forced marriage and/or unintended pregnancy, or fear of the virus resurgence heighten this risk (Giannini, 2020b).

Additionally, studies have shown considerable gaps in educational standards between urban and rural areas in Nigeria (Jokodola, n.d.; Kazeem et al., 2015; van Maarseveen, 2021). Also, children from the poorest households are four times more likely to drop out of school than their more affluent peers (Azubuike et al., 2021). Both of these social factors have also been shown to determine the effect of the Pandemic on people in many other areas, including, for instance, early exposure to ICT and online resources (Azubuike et al., 2021), which has been proven to be crucial for continued studies during the Pandemic (Nureni et al., 2020).

In March 2020, all Schools in Nigeria were closed down as preventive measures to contain the communal spread of the Pandemic. Both students and teachers struggled with the necessity for unique emergency teaching approaches and the transition to remote learning (Ebohon et al., 2021). Apart from the disruptions on the academic calendar, the schools' untimely closure also had other resulting adverse multiplier effects. During the period of school closure, the rate of rape and other social vices was so alarming, thus posing serious threats to achieving SDG 4 (Quality Education), SDG 5 (Gender Equality), and SDG 11 (Make cities and Communities Safe and Sustainable), among others. It was gladdening that the Federal Government directed for the re-opening of Schools, initially on the 12th of October 2020. This was, however, short-lived as it was followed by incessant

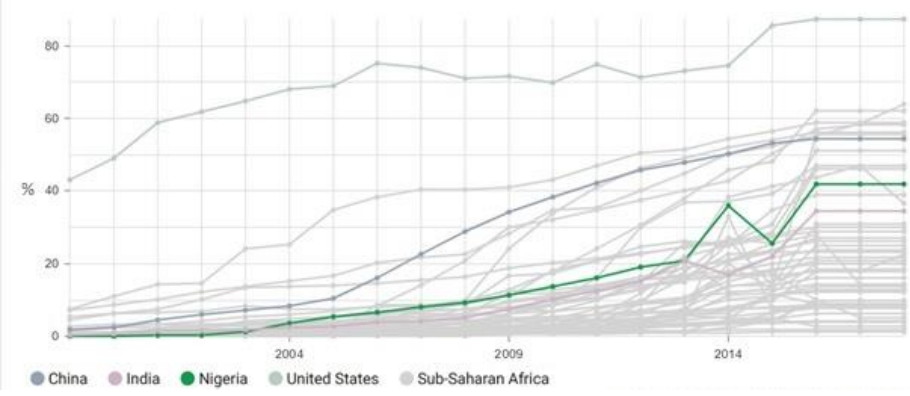
closure spilling to 2021 owing to the second wave of mutant virus (Delta) emergence (CDC, 2021; Horby et al., 2021; Vogel, 2021).

People were advised to remain indoors during the COVID 19 lockdown to disrupt the pandemic transmission chain. However, living indoor for a long duration without any outside world contact is almost impossible for a normal human being. Digital connectivity through mobile phones, laptops, and other information communication technology (ICT) devices was the only communication mode accessible to the outside world during the lockdown. Providing education to students cannot be discontinued for long, and the Nigerian Government and educators could rise to the challenge of continuing to teach even in times of such crisis.

In order to engage students in studying from their respective homes or elsewhere, the schools were directed to introduce the e-learning mode (Ebohon et al., 2021). However, switching to online teaching and learning mode to replace the traditional face-to-face methods was hindered due to certain constraints (Oyediran et al., 2020), including lack of functional and modern information communication technology resources, power, inadequate skills to operate the digital devices, and several other factors of the "digital divide," such as high subscription cost (Nureni et al., 2020). The lack of student-student and student-teacher interactions has also been cited as a major disadvantage of virtual learning over traditional face-to-face teaching methods (Ebohon et al., 2021). However, other studies have shown students' preference for prerecorded classes over live class interactions (Rafi et al., 2020).

Furthermore, the acceptance or rejection of ICT tools for use in education and coupled with its integration into student life, remains open for further studies. However, several theories concerning the adoption, perception, acceptance, infusions, and ease-of-use of ICT in the education process, such as the Diffusion of Innovation theory (DOI); Social Cognitive Theory (SCT); Theory of Reasoned Action (TRA); Theory of Planned Behavior (TPB); Technology Acceptance Model (TAM) among others, exist for the investigation of the factors affecting users' acceptance or rejection of ICT in Education (Azubuike et al., 2021).

The percentage of the population using the internet, a critical indicator for SDG 9, which deals with technology adoption, showed that the percentage of Nigerians using the internet remained stagnant at around 40 % between 2017 and 2019 (see figure 2 below) (SDG, n.d.-e)**.** However, the UN's reports of 2020 (SDG, 2020b) and 2021(SDG, 2021) indicated a downward trend in the trajectory of the indicator and the overall Goal.



Source: ITU, and prepared on the SDGs index Data Explorer platform

Figure 2 *Percentage of the population of Nigerians using the internet by year, compared to some developed (the USA and China), developing (India), and all sub-African countries from 1999 to 2018*

Compared to many sub-Saharan countries and even rapidly developing countries like India, Nigeria's percentage of internet users is not significantly worse. Furthermore, Studies elsewhere have shown that institutions provide good online education and that students also like the new learning experience. For instance, a successful pilot study on transition to online research in secondary schools in Nigeria, using Google classroom application, an easy, user-friendly digital platform that provides all online teaching and learning needs of the students and instructors; such as creating classes, distributing course materials, and posting assignment announcements and creating live class interaction and email responses, suggested the excellent possibility for acceptance of this technology to provide quality teaching and learning experience needed at all levels of education during the pandemic period (Noah & Gbemisola, 2020). In addition, studies show that Google Classroom has long been successively used as a teaching and learning platform for distance learning at the National Teachers' Institute Study Centers and that instructors at the Center possess a high level of competence in using the application for instructional delivery (Noah & Gbemisola, 2020). Students engaged in the new online learning modules use mobile data (Rafi et al., 2020) widely available to Nigerians (SDG, 2020b, 2021). Other popular meeting platforms worldwide included: Zoom, Microsoft Teams, Impartus, Cisco WebEx Meetings, and recorded YouTube videos, among the most popular instructional platforms (Rafi et al., 2020).

Finally, some of the main recommendations from these included: the need for a student-friendly guide to assist novice students with the process, Teachers should develop interactive online classes to limit student's distraction and improve satisfaction, and the Government, higher education administration, and the telecommunications industry should work together to reduce the cost of Internet access for students and instructors (Ebohon et al., 2021).

COVID-19 Pandemic and Sustainable Development.

The latest SDG report showed that the COVID-19 Pandemic has implications not only for the public health sector but also for economic, social stability, national, and global politics, as well as wide-ranging effects on the SDGs.

COVID-19 has shed more light on the vulnerability of our health services', surprisingly including the high-income countries such as the United States, which were considered the most equipped to tackle such pandemics. However, it seems countries that have made the most progress towards SDGs have also responded most effectively to the outbreak of COVID-19 (GBCHealth, 2020). Effectively, the Sustainable Development Report (SDR) suggests that efforts should be focused on the short-term priority of containing and suppressing the Pandemic because no economic or social recovery effort can succeed as long as the Pandemic is continuing (GBCHealth, 2020).

The Pandemic is projected to result in increasing inequality, which further undermines progress towards the SDGs (GBCHealth, 2020). The Bill and Melinda Gates Foundation affirmed that following the outbreak of the

COVID-19 Pandemic, poverty has increased globally. They revealed that 20 years of progress towards achieving the United Nations Sustainable Development Goals (Global Goals) had been stalled due to the Pandemic (*Goalkeepers | 2020 Report*, 2020).

Conspicuous "Economic damage incurred by COVID-19 is reinforcing inequalities. This Pandemic had a disproportionate impact on women, racial and ethnic minorities, and people living in severe poverty (Bill & Melinda Gates Foundation, 2020c). It also revealed that women around the world are facing increasing pressure as a result of growing demands for complete unpaid care jobs and are suffering the bulk of job losses (Bill & Melinda Gates Foundation, 2020c).

Given these circumstances, foundations such as the Bill and Melinda Gates Foundation offer a means to stop the Pandemic and restart momentum towards the Global Goals. These groups call on the world to collaborate on producing diagnostics, vaccines, and medication, producing testing and doses as quickly as possible and providing these resources equally based on need rather than the ability to pay. This proposition is currently contentiously being examined globally, even as the trial vaccines are being distributed and administered (Curator, 2020).

By and large, current data indicate that the world has deteriorated on almost every criterion. Severe poverty has increased by 7%; vaccine coverage, a robust analog test for how health services work, has declined to levels last seen in the 1990s, sending the world back by approximately 25 years in just the first 25 weeks of the Pandemic (Bill & Melinda Gates Foundation, 2020c, 2020b). Finally, it is evident that sustainable development has suffered a substantial setback due to the global Pandemic of COVID-19.

The Way Forward

As stated earlier, Nigeria's only reliable source of revenue generation has been through Crude Oil's export. Therefore, there is an urgent need for a paradigm shift to diversify the economy from oil and gas exports to finished, refined products. This provides a jobs multiplier effect and brings value addition to the economy. Furthermore, the country has a large informal sector contributing around 65 percent of its economic production. However, a large proportion of this population is concentrated along the poverty line, rendering it highly vulnerable to poverty due to any shocks (Ojo, n.d.). Recent government economic interventions such as the small-scale business payroll subsidies, zero-interest loans, and cash handouts to the public would substantially reduce the adverse effect of this Pandemic.

Nigeria's massive population of highly educated youths has very high untapped potentials, vital for diversifying the economy beyond oil and gas dependence through the digital economy (SDGNigeria, 2020b) The Digital economy refers to an economy based on digital computing technologies and allows for conducting business through Internet-based markets globally. It is structured mainly based on services related to the interconnectedness of people, organizations, and machines resulting from the Internet, mobile technology, and the Internet of things (IoT) (*Goalkeepers | 2020 Report*, 2020). This business model has the potential to alter the course of history and Nigeria can benefit immensely by playing active role in it by providing the required infrastructure. Nigeria stands to benefit the most from this business model's power to affect history by providing essential infrastructure for the populace.

Sustainable Development Report (SDR) suggested that governments should play a more central role in the economy through public investments. It directly implies that government spending would have to increase sharply in the next few years to alleviate the effects of both the health and economic problems of COVID-19. The study has identified five main steps to be aimed at multilateralism and coordination, which would be crucial for a favorable and rapid resolution of the Pandemic; rapid dissemination of best practices, improving of financing mechanisms for developing countries, tackling hunger hotspots, helping to ensure social welfare and developing new drugs and vaccines (GBCHealth, 2020).

Agriculture as an Option

It is a known fact that food is one of man's basic needs, the other two being shelter and clothing. Much of the Nigerian population depends on Agriculture as a source of livelihood.

During the global shutdown when all international borders were closed, domestic Agriculture provided a buffer for the effect of such extreme measures in Nigeria (Akuffo Amankwah et al., 2021; Farming First, 2015) However, this effect was lesser in the urban areas where agriculture is not practiced as much and supply chain disruption issues made access produce challenging (Gbadegesin & Olajiire-Ajayi, 2020). Agriculture in Nigeria is still primordial, not mechanized, and the value chain in Agriculture has not been accorded the needed attention.

The COVID-19 Pandemic also showed flaws in Nigeria's agricultural system, food supply chain, and capacity to absorb shocks caused by disease outbreaks (Gbadegesin & Olajiire-Ajayi, 2020; Niji Oni and CO, 2020). However, it was also reported that the COVID-19 lockdown and supply chain issues may have increased urban agriculture (UA) as many urban dwellers were motivated to grow their food in their homes (Gbadegesin & Olajiire-Ajayi, 2020).

More than half of the Sustainable Development Goals can be attained through Agriculture alone (Business Standard, 2021; Farming First, 2015). Accordingly, to ensure sustainable development in Nigeria, the Agricultural sector require more attention, diversifying the economy and reducing oil overdependence.

For instance, the Tiga Dam, constructed in the 1970s, during the era of Governor Audu Bako of Kano State, is today the primary source of livelihood for the Kano people. The majority of people living along this axis sustain all-year-round Agricultural Business, thus creating a sustainable development model. Apart from serving the specific needs of providing food and employment opportunities, a dam, when constructed and adequately utilized, can provide energy and control flood that ravages so many communities, thus addressing SDG 1 (No Poverty), SDG 2 (Zero hunger), SDG 6 (Clean Water and Sanitation), SDG 7 (Affordable and Clean Energy), SDG 8 (Decent Work and Economic Growth), SDG 14 (Life below Water), among others.

Finally, studies suggested that stakeholder involvement, unhindered logistics, and provision of loans and grants should be prioritized to mitigate the consequences of the COVID-19 Pandemic on Nigeria's agricultural value chain (Gbadegesin & Olajiire-Ajayi, 2020).

COVID-19 Vaccination in Nigeria

The Developing a vaccine against COVID-19 has been labeled the most pressing challenge of our time - and nobody wins the race until everyone wins (*COVAX Facility*, n.d.-a). About 126 vaccine candidates have

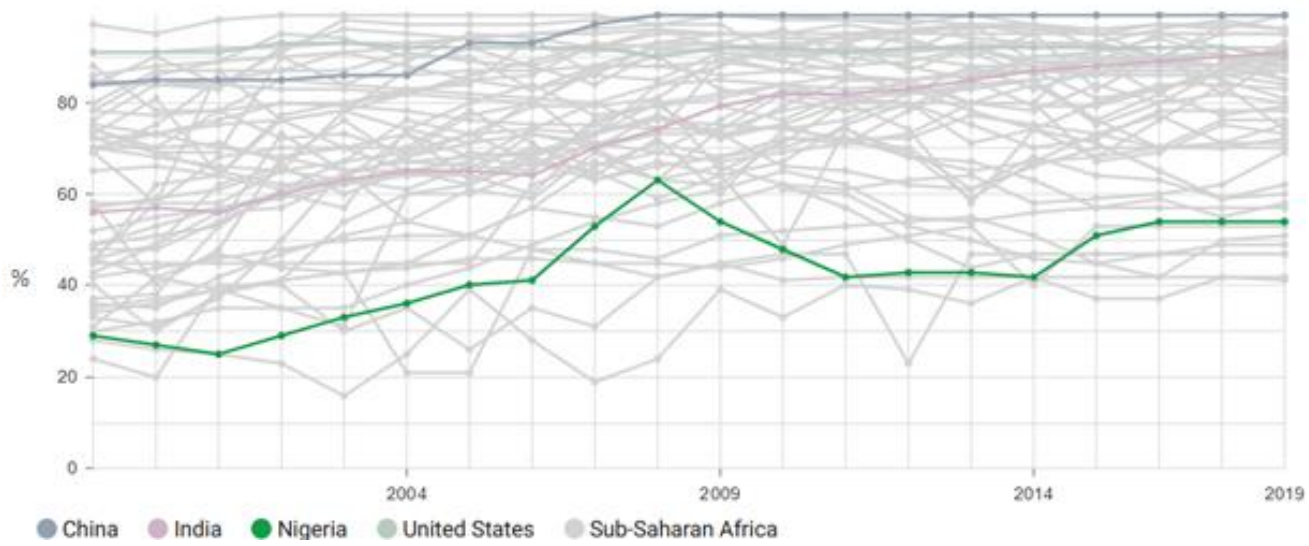
been considered for clinical trials (*COVID-19 Vaccine Tracker*, n.d.), and the Tozinameran (INN), codenamed BNT162b2, which was developed by BioNTech and manufactured and distributed by Pfizer and Fosun Pharmaceutical, has been authorized by a stringent regulatory authority for Emergency use in several countries including the USA (*Airtable - Milken Institute*, n.d.; Polack et al., 2020), and Nigeria.

More than 10 billion vaccine doses have already been pre-ordered by the world's wealthiest countries. However, the combined manufacturing capacity of the three vaccines that are closest to global distribution – Pfizer, Moderna, and AstraZeneca was estimated at 5.3 billion doses for the whole 2021 year, which could only vaccinate about 3 billion people since two or three doses of these vaccines are required to develop adequate immunity against the virus (Arbel et al., 2021). Such piers competition among the strongest nations for such a limited resource has left low-income developing countries scrambling for options. Even so, global efforts for equal access, including the Access to COVID-19 Tools Accelerator (ACT-Accelerator), also referred to as the Global Collaboration to Accelerate the Development, Production, and Equitable Access to New COVID-19 diagnostics, therapeutics, and vaccines, a joint initiative of the G20 nations, WHO, UN, and the European Union to supply vaccines equitably (*Access to COVID-19 Tools (ACT) Accelerator*, n.d.). Its initial aimed to raise $35 billion to procure 2 billion vaccine doses, 245 million treatments, and 500 million tests to shorten the Pandemic and speed global economic recovery (UN, 2020a). Such effort has found much support from some of the world's well-known philanthropic organizations, such as the Bill & Melinda Gates Foundation, which pledge about $226 million to the ACT Accelerator program, targeting 92 low-income countries (Bill & Melinda Gates Foundation, 2020a).

COVAX is the vaccines pillar of the Access to COVID-19 Tools (ACT) Accelerator. It is co-led by Gavi, the Coalition for Epidemic Preparedness Innovations (CEPI), WHO, and UNICEF (*COVAX Facility*, n.d.-b). Its aim is to accelerate the development and manufacture of COVID-19 vaccines and guarantee fair and equitable access for every country globally. Currently, 47 African countries have joined the COVAX facility. Specifically, it aims to vaccinate at least 20% of the population in Africa by providing up to 600 million doses by the end of 2021 (WHO, n.d.-b). As of December 6, 2021, more than 610 million COVAX vaccines have been rollout (*COVAX Facility*, n.d.-b).

Besides issues in securing the vaccines, Nigeria has been home to communities with the world's lowest Immunization rates (Ophori et al., 2014b). Nigeria was the last African country to be certified polio-free (JICA, 2020). The National Program on Immunization (NPI) has historically experienced many setbacks due to many factors, including ethnicity and religious beliefs. This may sometimes even lead to violence against vaccine workers, as in the shooting and killing of some polio vaccine workers in 2013 (BBC, 2013). As a result, thousands of infants became victims of vaccine-preventable diseases (Ophori et al., 2014a).

Even prior to the onset of the Pandemic, Nigeria's progress on infant vaccination has been little at best, with the WHO and UNICEF data showing that more than half of this age group were not receiving two doses of the WHO recommended vaccine (see Figure 3 below). The data also suggests Nigeria's performance was far A, China, and India, and even in sub-Saharan Africa, it remained among the worst-performing countries.



Source: WHO/UNICEF, and prepared on the SDGs index Data Explorer platform

Figure 3 *Percentage of Surviving Infant who received 2 WHO-recommended vaccines*

On this front, the widespread misinformation on social media, politics, and a general lack of understanding of the RNA vaccines has also contributed to the lack of trust in vaccines. As of December 9, 2021, Nigeria had administered more than 11 million doses of vaccine to 7.35 million people, or about 1.8% (Our World in Data, n.d.) of the population, falling far behind the 20% COVAX target for the end of 2021. Moreover, only about 10 percent of the African continent has received a dose of the vaccine so far. The wide gap in vaccine availability and vaccination rates in these countries is alarming.

Finally, another troubling sign in the country's Policy Efforts is that the Nigeria COVID-19 recovery plan did not mention the SDGs in the Government's main COVID-19 recovery plan (SDG, n.d.-f).

Conclusion

There is no doubt the unfortunate emergence of the COVID 19 pandemic has brought serious setbacks to achieving the whole of the 17 SDGs, which have other resultant adverse effects on the issue of development generally, especially in developing countries. Additionally, the Pandemic's negative impact on the economy, education, and healthcare development are jarring, as these sectors remain the central bedrock around which all other developments revolve. Developing nations like Nigeria, whose chances of achieving the Sustainable Development Goals (SDGs) by 2030 were bleak before the Pandemic, are again confronted with the enormous challenge of the Pandemic. Consequently, it appears that achieving the SDGs by the year 2030 to these countries may seem to be very difficult. However, the Pandemic serves as a wake-up call, as it reveals the status of our Economy, Education, and Healthcare systems, which all require immediate and significant improvements.

Furthermore, the Pandemic has brought to the surface all the vulnerabilities and inequalities in societies worldwide. Conceivably, it is fair to say that the Pandemic has had a substantial detrimental impact on most sustainable development goals targets and the prospects of meeting them in Nigeria. However, it has also shown the reliability, opportunity, and advantages of sustainable developments and the more critical need for economic diversity and youth involvement. Importantly, it emphasized the need to deploy online teaching-learning methods and other stakeholders' investments in health and education. Furthermore, it has catalyzed the coming together of more charitable groups and nations to work on global issues that would have otherwise been unlikely; such an alliance has enormous potential to evolve into more permanent, sustainable development agencies.

Data availability

Data sharing not applicable. All data analyzed in this study are included in the cited materials.

Author Contributions:

Shettima Abdulkadir Saidu conceived the presented idea and oversaw the project. The primary manuscript text was written by Abubakar Shettima Abdulkadir. Ahmed Abdullahi investigated Nigerian policy-related aspects and wrote the conclusion section while, Fatima Shettima prepared the part on the Effects of COVID-19 on Education. Additionally, Abubakar Shettima conducted data analysis and created all figures. Finally, the work was evaluated by all writers.

Conflicts of Interest: The authors declare no conflict of interest.

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