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## Role of Science Education and Emerging Technologies in Achieving the Sustainabe Development Goals.


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***ABSTRACT***

*The world in general is experiencing unprecedented technological innovation in order to meet the scientific aspirations of the global community through the Sustainable Development Goals. Hence, education is the greatest investment that a nation can make for the quick development of its economic, political, sociological and human resources. Education is the greatest force that can be used to bring about change. Education serves as a process through which the society transmits its culture to the young ones. Science Education is crucial to the pursuit of sustainable development goals. It is a pivot on which every nation rests to build an unshakable self-reliant manpower base for sustainable development. This paper examined the ways that science education and emerging technologies have contributed to achieving the Sustainable Development Goals (SDGs) in Nigeria. Challenges faced with the achievement of these goals are also reviewed. The sustainable development goal is a transformative plan of a nation towards improving its economy, social and environmental systems. Out of the seventeen sustainable goals identified in this paper, it discussed six of them that are relevant to science exhaustively. These include; hunger and food security, quality education, good health services, provision of clean water and sanitation among others. The implication to national development of the sustainable development goals was also stressed. To develop policies and programmes that are comprehensive by integrating all stakeholders so as to achieve sustainable development goals in Nigeria are among the recommendations made.*



**Keywords:** Education for All, Emerging Technologies, Development, Science Education, Sustainable Development Goals (SDGs)


## INTRODUCTION

In 2015 the world came together to figure out how to make a healthier, safer, peaceful, and more prosperous planet by 2030. The result was 17 Sustainable Development Goals (SDGs), intertwining environmental, economic, and social needs, knowing that one cannot thrive without the other (UNDP.org) These goals are crucial in sub-Saharan Africa especially Nigeria, where communities are most vulnerable to climate change. In Nigeria, agriculture and education are backbones of the economy. Education is the process of training in which an individual is actively involved with a view to bringing out talents that can be modified for his personal and societal benefits. It is further viewed as a transmission of cultural heritage through systematic change of human behaviour that are acceptable to society (Ada, 2016). The thrust of this paper is to assess the impact of science education on Sustainable Development Goals (SDGs) in Nigeria. This is to enable emerging technologies to

benefit from the environment that has favored sustainable education and has helped bring forth responsible and more intelligent students. To better achieve sustainable education, management institutions must have ethics internalized, to ensure sustainable development. The world officially began implementation of the 2030 Agenda for Sustainable Development on the first day of January 2016. A transformative plan of action was put in place to address urgent global challenges over the next 15 years (Ban, 2016). This agenda is a road map for people and the planet that will build on the planet that will build on the success of the Millennium Development Goals (MDGs) and ensure sustainable social and economic progress worldwide. It seeks not only to eradicate extreme poverty but also to integrate and balance the three dimensions of sustainable development, namely economy, social and environmental well-being in a comprehensive global vision (Ajiye, 2014).

Sustainable Development Goals amongst other benefits promotes energy efficiency, water conservation, improved indoor air quality, durability, better health, increased productivity, etc. It helps in ensuring a better life for present and future generations. SDGs also lowers the impact of the environment by reducing air, water and soil pollution and helps in achieving long term economic growth. The SDGs can be used to establish the problem of the study which is science education and emerging technology by offering a rationale for expanding our views of science education so that cultural and religious views that oppose scientific knowledge and technological innovation can be overcome that:

- maintain economic growth to achieve a higher level of productivity, through certification, improving the quality of technology and innovation which will improve the economic wellbeing and health of the people.
- Lives can be transformed by providing access to essential products and services in Nigeria, Africa and beyond
- Undertake the process o science through inquiry learning and part of the development of learning

The Major difference between the Millennium Development Goals (MDGs) and the Sustainable Development Goals (SDGs) is that while the former dealt mainly with less developed countries of the world, the later deals with the concept of development globally and addresses its sustainability (Lawranson, 2006; Vincent, &Kenneth, 2014). The latest data shows that about one in eight people live on extreme poverty globally, nearly 800 million people suffer from hunger, the birth of nearly one quarter of children under 5 had not been recorded (Ban, 2016). According to Ban, about one million people were living without electricity and water scarcity that affected more than two million people. The goals apply to all society, even the wealthiest countries are yet to fully empower or eliminate discrimination. The prevailing culture (religious beliefs and myths) of any society greatly impinges on how science is perceived and practiced in that society (Enema, 2004).

Science Education can be described as a culture. A way of perceiving and doing things. There is no doubt that the way a society perceives and does things is crucial

to the problem-solving capabilities of that society. Science Education is undoubtedly a key which has understanding and has answers to some of the most burdensome sustainability issues as it can bring about and suggest futures-oriented solutions to the problem of the decreasing quality in environmental conditions- air, water, wildlife, land and its resources. The SDGs in science is the strengthening of the scientific basis for sustainable management; enhancing scientific capacity and capability. Most arguments about how science can bring about development in human societies (that is, improvement in quality of lives of individuals such that they are able to attend their productive capabilities and aspirations) are based upon this purported link between science and development. The Sustainable Development Goals (SDGs) according to Beisheim (2015) include the following:

SDG 1: End poverty in all its forms everywhere

SDG 2: End hunger, achieve food security and improve nutrition and promote sustainable agriculture.

SDG 3: Ensure inclusive and equitable quality education and promote lifelong learning opportunity for all.

SDG 4: Ensure health lives and promote well-being for all ages.

SDG 5: Achieve gender equality and empower all women and girls.

SDG 6: Ensure availability and sustainable management of water sanitation for all.

SDG 7: Ensure access to of affordable, reliable, sustainable and modern energy for all

SDG 8: Promote sustainable inductive and sustainable economic growth, full and productive employment and decent work for all.

SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization foster innovation.

SDG 10: Reduces inequality within and among countries.

SDG 11: Make cities and human settlements inclusive, safe resilient and sustainable.

SDG 12: Ensure sustainable consumption and production patterns.

SDG 13: Take urgent action to combat change and its impact.

SDG 14: Conserved and sustainably use the oceans, seas and marine resources for sustainable development.

SDG 15: Protect, restore and promote sustainable use of tangential ecosystems, manage forests, combat desertification, and halt and reserve land degradation and halt biodiversity lose.

SDG 16: Promote peaceful and inclusive societies for sustainable development provide access to justice for all and build effective, accountable and inclusive institutions at all levels and

SDG 17: Strengthen the means of implementation and revitalized the global partnerships for sustainable development.

The Sustainable Development Goals are about sustainable development common to all nations of the world. What makes them special is that they come with specific target indicators for measuring achievements and dates for achieving these targets. Development is a gradual or progressive enhancement of human, natural, and material resources of community, nation, and the entire society. A nation's development potential depends upon its ability to continuously educate its citizens well as create armies of skilled manpower (lji & Agbule, 2006). The goals have their origin in the ideas universally shared by all

member nations of the United Nations Organization (UNO) to eliminate human misery, improve the quality of life of the member nations and to do so in an environmentally sustainable way. Within this context, therefore, a major theme, that could be usefully explored, is how science can play a role in expediting the achievement of these goals by the set target.

Scientific advancement has most of the time in the history of mankind, been an inherent by slow process that is demand-driven (Otor, Kayang & Bisong, 2015) Today, there so much human misery on our planet. Unless we do something now, the outlook is bleak. The demand-driven nature of scientific advancement, coupled with the fact that many nations of the UN are already highly scientifically advanced, gives hope, provided the will is there, it is possible to leverage science education in the achievement of the Sustainable Development Goals objectives. The Sustainable Development Goals that this paper discussed, because of their relevance to science education are goal numbers: 2, 3, 4, 7 and 9.

**End Hunger, Achieve Food Security and Improved Nutrition, and Promote Sustainable Agriculture**

The country's education system should seek to end hunger and all forms of malnutrition through high investment on agriculture. It is premised on the idea that everyone should have access to sufficient nutritious food, which will require widespread promotion of sustainable agriculture, a doubling of agriculture, productivity, increased investment and properly functioning food markets Kyari (2010) pointed out that; what is science education and what entry point does it provide for the achievement of Sustainable Development Goals? Science Education is the pursuit of knowledge and understanding of the natural and social world following a systematic methodology based on evidence.

**Ensure Inclusive and Equitable Quality Education and Promote Lifelong Learning Opportunity for All**

Science education in Nigeria should focus on the acquisition of foundational and higher-order skills, greater and more equitable access to technical and vocational education. Science Education in Nigeria should revolve around the knowledge that equip its citizenry with skills and values needed to function well and contribute meaningfully to the society. In agreement with this type of education the National Policy on Education (NPE, 2013), states that education maximizes the creative potentials and skills of the individual for self-fulfillment and general development of the society. The process of achieving this national competency using science education is itself a development exercise because of its inherent property in capacity building and the associated employment opportunities it creates (Adebayo, 2002 & Brinkerhoff, 2004).

**Ensure Health Lives and Promote Well-Being for All Ages**

Science education in Nigeria should be health driven. Science education should place emphasis on health issues: reproductive and maternal and child healthcare. Prevention of endemic health challenges such as Human Immune Virus, Acquired Immune Deficiency syndrome (HIV/AIDs), Malaria, Tuberculosis, environmental diseases among others. According to Omakase (2007), Nigeria is not in short supply of political will to

successfully implement these policies and programmes to tackle these challenges but lacks bold steps to properly manage its economy towards this direction.

**Ensure Availability and Sustainable Management of Water Sanitation for All**

The type of education that equips the citizenry with knowledge to manage water resources should be encouraged through science education. This goes beyond drinking water, sanitation and hygiene. It is the type of education that would address the quality and sustainability of water resources which are critical to the survival of people and the planet. This is because the 2030 agenda recognizes the centrality of water resources to sustainable development and the vital role that improved drinking water, sanitation and hygiene play in other areas, including health, education and poverty reduction. Bares (2010), shared the same opinion when he reported that poverty eradication should be given desired attention if any society is to attain global bench marks in its development.

**Ensure Access to Affordable, Reliable, Sustainable and Modern Energy for All**

It is an understatement to mention that energy is critical to human development and industrialization. Access to affordable and sustainable energy is crucial to achieving many of the Sustainable Development Goals from poverty eradication through advancements in health, education, water supply and industrialization to mitigating climate change. Energy access, however, varies widely across countries, and the current rate of progress in Nigeria falls short of what will be required to achieve this goal. Redoubled efforts are needed particularly for countries with large energy access deficits and high energy consumption (Ifeanyi, 2012). This calls for radical and proactive science education that would make this happen.

**Build Resilient Infrastructure, Promote inclusive and Sustainable Industrialization and Foster Innovation**

Education that could provide sustainable development should be dependable, reliable and innovative. Science education is the option because it could provide infrastructural materials that serve the basic physical facilities essential to business and society. This is very essential because industrialization drives economic growth and job creation, thereby reducing income inequality. Innovation is fundamental for human development because it expands the technological capabilities of industrial sectors and leads to the development of new skills (Ajiboye, 2011).

Science Education plays a key role in achieving the SDGs, particularly in targets that concern human well-being such as health, clean water and sanitation, climate change, clean energy, decent work, and responsible production among others. Science Education is also crucial to the pursuit of Sustainable Development Goals. It equips teachers, learners, and society with the knowledge, skills, equipment, and freedom to perform notable tasks that improve socio-economic standards. Without Science Education, Information and Communication Technology (ICT) would be impossible. For instance, engineering, medicine, architecture, etc. will not be possible if there is no one to teach the students the core subjects needed for those courses. Furthermore, Science education has the potential to help the development of the required abilities and understanding by focusing on developing powerful ideas of

science and ideas about the nature of scientific activity and its implications. Scientific literacy refers to an individual's scientific knowledge and its use. Also, Basic Science can quantify the value of ecosystem services and biodiversity of large estuaries for example, it enables us to explore multiple "what if" scenarios to inform the decision-making process. Scientists use climate models for implausible alternative futures. According to Uchechukwu Nwaike (2019), the study of science not only develops the capacity for critical thought but also problem-solving and decision-making, these skills are essential to all aspects of life.

**Possible Challenges that would Affect the Achievement of the Sustainable Development Goals**

The country's population is growing at geometrical progression without corresponding growth in basic infrastructure and social amenities such as electricity, good roads, potable water, adequate health services and educational facilities These pose dangers for effective planning, hence reduces sustainable goal objectives. It has been argued that commitment to sustainable development both for the present and future generations will be meaningless if a collaborative approach is not employed. This is where Nigeria differs from other countries in Africa, in the approaches of addressing the challenges of sustainable development. To achieve Sustainable Development Goals through Science Education in Nigeria, governance and improved popular participation in governance and partnership with national and international development partners are also mainstreamed into a national agenda for development. The Nigerian government must move along with global best practices in governance if Sustainable Development Goals are to be achieved. Onakuse (2007), argued that the major causes of the failure of these programmes and reforms hinge on corruption, political divide, lack of continuity, a weak private sector, absence of due process, and ethnicity. All the above, constitute indices for national development. Nigeria's government should therefore address these issues with hope for positive change, if the country desires for Sustainable Development Goals to have its place.

**Attainment of Sustainable Development Goals through Science Education**

Studies have shown that new technologies such as Artificial Intelligence (AI), Big Data, Block Chain, Internet of Things (IoT) have the potential to make an impact on the efforts of the Sustainable Development Goals (SDGs). Emerging Technologies affect every business process, function, organization and industry (Dwivedi et. al, 2021; Jha, 2008). Therefore, institutional and industrial competitiveness and strategic flexibility can be achieved significantly with the help of emerging technologies (Asim and Nasim, 2022: Momaya et. al, 2017). Emerging technologies can also reduce the cost of achieving the SDGs by as much as 55 trillion dollars, enabling 103 of the 169 SDG targets. The report estimates that the total cost of reaching the SDGs by 2030 at 195 trillion dollars out of the 450 trillion dollars of the world's total stock of liquid capital.

Emerging technologies often present new security and privacy challenges so it is important to address those challenges early in the adoption process. These may include implementing new security measures, conducting regular audits and ensuring

compliance with relevant regulations. Science education is especially in Nigeria is faced with challenges like inadequate funding, lack of infrastructure, equipment and materials, inability of teachers to effect the required innovations, etc. other constraints include, the non-availability of appropriate text books and classroom resources, non-availability of financial support and curriculum resources, inappropriate preparation and training of science teachers (including both pre-science training and in-service professionals)

Over the last decades, information and Communication Technology (ICT) in learning institutions has enhanced learning by greater heights. Technology-enhanced learning in both pre-schools and higher learning institutions serves as a supportive education tool to propagate learners' knowledge and skills. In most of the prior research carried out on the impact of technology on education, researchers have pointed out that technology-enhanced learning has facilitated knowledge and skill acquisition. One of the critical areas where technology has highly improved understanding is critical thinking, as students are empowered to approach and exploit opportunities with courage and potential. Furthermore, digitization has enabled students to move into an era of digital learning, spearheaded by ICT's adoption as an interconnected environment.

According to Kent and Facer (2004), the evolution of digital technologies began first with the invention of the Internet, this has made it possible for learners and other public members to access information without delay, Through ICT, there have been drastic changes in various fields, such as in energy and manufacturing. Education is another sector that is going to be significantly influenced, as we will see. After the Internet, the next wave will be the IoT (Internet of Things), in which everything is connected through networks of sensors and closely integrated Al. If education if placed to ride on the current wave and the next wave in ICT, we shall have sustainable education available by 2030. By allowing avenues for protecting the environment, emerging technologies has been key to improving society's development and economy. According to Brush (2008), one of the best means of attaining the SDG goal for education is ICT, as it has portrayed a very high potential. This is because it has led to an interconnection mound the globe, hence enhancing people-people interaction and used to accelerate and promote education in line with the SDGs. The development has been a highly scrutinized term, it refers to activities that have unfolded to fulfill human needs and demand. These demands have remained basic, however, as societies grow, more complexities arise (Brush, 2008). The scope of the three basic needs, food, shelter, and clothing, has increased and widened over time, and the efforts to accommodate such growth have been referred to as development goals.

Emerging Technology includes using the internet, computers, and other electronic delivery modes, such as radios and televisions. The education system, in general, has been an essential variable concerning the exposure of children to computers as they usually use computers more actively to participate in several activities, as noted by Kent and Facer (2004). Emerging technologies is an increasingly powerful tool used to teach,

learn, and perform assessments in the education sector, thus, changes and reforms must achieve sustainable education for all. According to Fu (2013), appropriate use of technologies would efficiently raise a said people's educational quality. Education does not have to be carried but in an enclosed space or a classroom as it is the norm. Still, it is a continuous process that is lifelong in which the learner will continue seeking knowledge through various sources, this means that ICT skills are increasingly being indispensable to them. Emerging technologies has been seen as a critical factor that expands access to education because, with it, education can occur at anytime and anywhere. Most educational material is available online at any time.

Technologies such as teleconferencing allow students and instructors to interact simultaneously, efficiently, and conveniently. There is a myriad of resources on a particular subject matter available on the internet today, these resources are of various materials: videos, audio podcasts, 3D visual representation, etc. The main task in achieving sustainable education for all by 2030 has been converting the environment into more learner-centered (Sanchez et al., 2011). This will enable them to be more decisive planners and thinkers (Lu, 2010). According to Chai et al. (2010), through emerging technologies, students' understanding and knowledge in several areas have been increased, thus creating an environment where creative learning has been taught. This is mainly through applications that have been designed purposefully to meet a variety of needs. There are some main characteristics that we will have to look into creativity, capability, and autonomy, Autonomy dictates that students take control of their learning, they tend to become used to working by themselves and in conjunction with others without necessarily having a teacher's input. Through this, students can then develop confidence in specific disciples hence nurturing their capabilities.

**Role of Science Education Integration**

Science education has been described as a fundamental tool for the implementation of the agenda for 2030 Sustainable Development Goals (SDGs). Under SDG4, the international community has pledged to ensure inclusive and equitable quality education, which includes science education and promotes lifelong learning opportunities for all. This will require tremendous efforts on the part of all the stakeholders, notably governments, donors, and international organizations. Quality Science education leads to the acquisition of relevant skills and knowledge required for sustainable development and could be achieved through formal and informal education.

Science education has also greatly influenced the development of any nation. With technology comes sustainable development, which leads to a fulfilled society of social ideas. Studies from time immemorial have documented that the role of technology on sustainable education is crucial and has significant leverage to reduce the carbon footprint in other industries. In the education sector, technologies have even been used to enhance the quality assurance procedures in Nigerian universities. If put into fair use, these tend to enhance and ensure that they align with the prescribed MAS – Minimum Academic Standards (Kazeem & Ige, 2010). According to Shaikh & Khojah (2011), most countries will be forced to inject tremendous

resources into the educational sector to achieve sustainable education for all. There have been notable changes in
improving educational standards, and ICT is one of them. With this, most countries aim to deliver lifelong learning efforts to tuck on the various educational areas ranging from technical to vocational education and training, Nigeria has started enhancing and readying its education system to use technologies for learning and teaching; this is being done through building an education system that can integrate ICT within its system. There are a seamless integration and communication framework set to aid in planning, management, and communication. Supporting factors such as teachers, student training technical support training, and others must be carried out to achieve the 2030 goal of sustainable education for all. The government has helped the schools design their customized education projects, which have further catapulted these ICT projects' success.

**Challenges to ICT for Sustainable Development Goals**

The challenges experienced in using sustainable ICT to achieve SDGs according to Fu et al. (2013) include the administrative and ICT infrastructure prospect challenges that have been faced as listed by, most administrators in the education system will focus more on the quantity of the education content being provided rather than on the ICT usage. This is also mainly because the educational institutions lack the appropriate administrative support from the relevant authority to ensure effective use. Even if ICT infrastructure is already set and put in place, the school administration usually focuses on education results, shifting focus from the usage and implementation for sustainability. The lack of proper and appropriate software, hardware, and materials has also been an enormous challenge so far.

Challenges are facing the implementation of ICT standards and protocols to meet sustainable education for all by 2030; these are inclusive of special needs, anxiety that comes from the use of electronic devices, and student's ability to move from one area to the next as identified by Frederick et al. (2006). Governments have been forced to emphasize curriculum development, infrastructure, building capacity, policy stipulation, and support to bring this goal to fruition.

Information technology equipment and tools must be made available to achieve the 2030 vision education goals. Emerging technologies has been considered to achieve this goal defectively because of the following factors: it spreads in a swift manner, which is best described but the number of mobile phones in this region today. ICT lowers costs very much, which is a big plus for the education sector. Low-cost online platforms have been established to educate the students regardless of where they are. Emerging technologies have enhanced the traditional teaching of various subjects as various teaching materials like multimedia presentations have been introduced. These implementations and integrations have focused solely on equipping the students and their teachers with the necessary skills. This has been vital since they also prepare individuals to access further employment opportunities as most countries like Nigeria focus on attaining the Sustainable Development Goals. According to Henderson (2011), the use and importance of technology in any country's

development efforts cannot be overemphasized in whatever aspect, be it economic, social, or economic. Emerging technologies in the education sector have made both teachers and students more sustainable, saving energy and precious resources, and creating more value. This value is derived from the fact that there is less physical input; there is an increase in life quality.

**Solutions to ICT for Sustainable Development Goals**

Some of the measures that can be taken to address these challenges regarding schools and higher learning institutions, mainly by providing the appropriate access to technology. In addition to this, the Nigerian schools will then need to formulate and implement policies that involve educators in the decision and planning process regarding ICT use in schools. The only way to establish a well-managed ICT-driven education system is that ICT tools must be readily available, procedures and policies effectively established, and efficient division of tasks after being well understood between learners and their instructors (Remenyi, 2017). By emphasizing these, learners will be engaged and capable of high-order thinking. According to Ether and Ottenbreit-Leftwich (2010), research on existing literature elements enabled instructors and teachers in the current educational system to use ICT as a tool to attain sustainability in education for all.

**The Implications to Nation Development**

The scientific method provides a thinking and planning model that could benefit the implementation of these goals. Appropriate application of science education in actualizing these sustainable development goals would stir up the development of this nation. Through science one would acquire greater knowledge of how things work in nature. It is therefore expected that through this knowledge, the people of the country are better equipped to implement and find effective and efficient ways of solving national issues. It is no longer in doubt to believe that national scientific competence and the quality of life of the citizens of a nation have a close correlation. A nation therefore needs to attain a high level of national scientific competence if it wishes to have a high quality of life similar to those enjoyed by western industrial nations. The process of achieving this national competence in science is itself is a development exercise because of its inherent property in capacity building and the associated employment opportunities it creates (Brinkerhoff, 2004), Sustainable Development Goals (SDGs) if achieved, would attract the following; generate employment, improved agricultural productivity, improve health services, ensure equitable and quality education. Also the benefits that might arise from SDGs include; availability and effective management of water supply, promote sustained energy supply, promote infrastructural industrialization among others.

A failure to achieve the SDGs is likely to negatively affect the billions of people round the world with sustainable damage to livelihoods, an exacerbation of poverty and the spread of diseases. These, in turn, will particularly affect people in developing counties which are especially vulnerable. The problems of unattained SDGs include:

1. Threat to environmental Sustainability: with accelerating growth in global greenhouse, gas emissions and

biodiversity loss, more than a billion people will be affected by global warming that rise the temperature of the atmosphere resulting in wild fires in forests. It also raises the sea levels resulting in floods.

2. Inability to adjust to people's well-being: which can cause serious problems to the future societies. As a result of the fast-moving unbalanced economic growth, the world's systems may lose the ability to adjust with people's well-being which will also significantly affect the environment. If the SDGs are not achieved, more landfills will pop up everywhere, more animal will go extinct due to deforestation and pollution and there will be an increase in respiratory diseases.

**Conclusion**

A sustainable world is one where people can escape poverty and enjoy decent work without harming earth's ecosystem and resources; where people can stay healthy and get the food and water, they need; where everyone can access clean energy that does not contribute to climate change; where woman and girls are afforded equal rights and equal opportunities. It is noted currently the world faces daunting challenges, Nigeria inclusive, rapid increase in human population and consumption is creating ripples that are fast changing the nature of our environment. Extreme poverty and hunger remain a plague. New disease are emerging and old ones are yet to be curtailed. The country is far from achieving food security, quality, education, stable energy supply, good governance among others. Science and technology may therefore provide the country with an indispensable avenue through which the country could address these problems. The SDGs may mark the starting point for the actions needed and provided the demand side for which our supply of science and technology should be based for the nation to meet its aspiration for a world in which human misery is reduced to the barest minimum. Every nation of the world including Nigeria should therefore initiate intellectual strategies to arrest these global ugly situations. These could be achieved by developing a large pool of scientifically literate and skilled workforce and enabling environment for her citizens.

Emerging technologies has help institutions make more informed decisions that have led to the adoption of measures responsible for upholding the economy and environments integrity. Through this, a transformative, comprehensive, and higher quality education system is brought forward. Learning has been made interactive and leaner-centered as result of ICT implementation in schools. By emerging technologies, students have been able to be agents of change and transformation in society. This research paper examined the role of science education and emerging technologies in realizing sustainable development goals by 2030 by using scientific methods.

Recommendations

The following recommendations were made in order to achieve the sustainable development goals in Nigeria:

1. Nigeria as a country should promote work and skills which are delivered in a way which minimizes any negative

impact on the economy, social and environment by Sustainable Development Trust Found (SDF).

2. The proposed SDF, with strategic aims should promote job and skills and target those with greatest need.

3. Nigeria should try establish the sustainable development trust found, the policy trust could be to establish a national body agency with a management tool and point of reference that will help it assess the progress report.

4. Policies and programmes designed to address the challenges of sustainable development should be comprehensive by involving all stakeholders.

5. There should be greater involvement and participation of Non-Governmental Organizations (NGOs), Civil Society Organisation (COS) and community groups in local government, greater transparency and accountability in both planning and implementation of local policy.

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