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## ACHIEVING SUSTAINABLE DEVELOPMENT GOALS THROUGH SCIENCE EDUCATION IN NIGERIA

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### **Abstract**

*Education is viewed as performing a transgenerational transmission of cultural heritage through systematic change of human behaviour that are acceptable to the society. It also serves as a process through which the society transmits its culture to the young ones. Science education on the hand is a pivot on which every nation rests to build an unshakable self-reliant manpower base for sustainable development. This work addressed the relevance of science education to the Sustainable Development Goals (SDGs) in Nigeria. The sustainable development goal is a transformative plan of a nation towards improving its economy, social and environmental systems. Out of the seventeen sustainable development 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. Recommendations to achieve sustainable development goal in Nigeria were made, among them is to develop*

*policies and programmes that are comprehensive by integrating all stakeholders.*

Education is the process of training in which an individual is actively involved with a view to bringing out latent 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 the society (Ada, 2016). The thrust of this paper is to assess the impact of science education on Sustainable Development Goals (SDGs) in Nigeria.

On first January 2016, the world officially began implementation of the 2030 Agenda for Sustainable Development, a transformative plan of action based on its sustainable development Goals (SDGs). This body 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 success of Millennium Development Goal (MDGs) and ensure sustainable social and economic progress world-wide. 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 in a comprehensive global vision. 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).

The latest data show that about one in eight people still lived in extreme poverty global, nearly 800 million people suffered from hunger, the birth of nearly 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 affected more than two million people. The goals apply to all society, even the wealthiest countries have 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. 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) are:

1. End poverty in all its forms everywhere
2. End hunger, achieve food security and improve nutrition and promote sustainable agriculture.

3. Ensure inclusive and equitable quality education and promote lifelong learning opportunity for all.
4. Ensure health lives and promote well-being for all ages.
5. Achieve gender equality and empower all women and girls.
6. Ensure availability and sustainable management of water sanitation for all.
7. Ensure access to of affordable, reliable, sustainable and modern energy for all
8. Promote sustainable inductive and sustainable economic growth, full and productive employment and decent work for all.
9. Build resilient infrastructure, promote inclusive and sustainable industrialization foster innovation.
10. Reduces inequality within and among countries.
11. Make cities and human settlements inclusive, safe resilient and sustainable.
12. Ensure sustainable consumption and production patterns.
13. Take urgent action to combat change and its impact.
14. Conserved and sustainably use the oceans, seas and marine resources for sustainable development.
15. Protect, restore and promote sustainable use of tangential ecosystems, manage forests, combat desertification, and halt and reserve land degradation and halt biodiversity lose.
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
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 as well as create armies of skilled manpower (Iji & Agbulu, 2006). The goals have their origin in the ideas universally shared by all member nations of the United Nation Organisation (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, being an inherent slow process demand driven (Otor, Kayang & Bisong, 2015). Today, there is so much human misery on your planet. Unless we do something now, the outlook is bleak. The demand driven nature of scientific advancement, coupled with the fact that many nations UN are already highly scientifically advanced gives hope, provided the

will is there, it is possible to leverage science 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 item numbers; 2, 3, 4, 6, 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 agricultural productivity, increased investment and properly functioning food markets. Kyari (2010) pointed out that; what is science 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. The 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 Nation 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**

The science education in Nigeria should be health driven. Science education should place emphasis on health issues reproductive and maternal and child healthcare. Prevention on endemic health challenges such as Human immune virus, Acquired immune deficiency syndrome (Hiv/Aids), Malaria, Tuberculosis, environmental disease among others. According Onakuse (2007) Nigerian is not in short supply of political will to successfully implement these policies and programmes to tackle these challenges but lacks bold step to properly manage its economy towards this direction.

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

The type of education that equip 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 progress in other areas, including health, education and poverty reduction. Barnes (2010) shared the same opinion when he reported that poverty eradication should be given desired attention if any society is to attain global benchmark 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 is 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).

### **The Possible Challenges that would Affect the Achievement of these 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 reduce sustainable goals objectives.

It has been argued that commitment to sustainable development both for the present and future generations will be meaningless if 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. Issues of good

governance and improved popular participation in governance and partnership with national and international development partners are also being mainstreamed in to national agenda for development. The Nigeria government must move along with the global best practices in governance if sustainable development goals is to be achieved.

Onakuse (2007) argued that the major causes of the failure of these programmes are 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 a sustainable development goals to have its place.

### **The Implications to Nation Development**

The scientific method provides 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 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.

### **Conclusion**

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 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 provide 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 situation. These could be achieved by developing a large pool of scientifically literate and skilled workforce and enabling environment for her citizens. This could be a plat form towards achieving an enviable country and a sustainable Nigeria.

### **Recommendations**

To achieve the sustainable development goals in Nigeria, the following recommendation are made

1. Policies and programmes designed to address the challenges of sustainable development should be comprehensive by integrating all stakeholders.
2. 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.
3. The 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).
4. The proposed SDF, with strategic aims should promote job and skills and target those with greatest need.
5. 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.

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