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Prácticas ecológicas situadas en el contexto de la agenda del desarrollo sostenible

Oludele Mayowa Solaja

Olabisi Onabanjo University, Ago-Iwoye, Nigeria, solaja.mayowa777@yahoo.com

Obatunde Bright Adetola

Olabisi Onabanjo University, Ago-Iwoye, Nigeria, octomay7@yahoo.com

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Situating green practices within the context of sustainable development agenda

Oludele Mayowa Solaja*

Obatunde Bright Adetola**

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Abstract

Ecological practices are essential for sustainable development. They cover technical innovations and responsible consumption of environmental resources, along with global efforts to ensure that progress does not impede future generations from achieving a desirable improvement of social and economic conditions based on this momentum. This article aims to place ecological practices in the context of a sustainable development agenda and discusses the conceptual meaning of the term *ecological practices*. It also examines the determinants of ecological practices in developing countries, including Nigeria. The text developed the Generational Development Framework (GDF) to analyze the connection between green practices and sustainable development. Finally, it concludes by emphasizing that ecological practices are a fundamental force to fulfill sustainable development programs, particularly in developing countries.

Keywords

Agenda, environment, green practices, Nigeria, sustainable development

JEL Codes

Q01, Q56, Q32

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* Department of Sociology, Olabisi Onabanjo University, Ago-Iwoye, Nigeria. E-mail: solaja.mayowa777@yahoo.com

** Department of Sociology, Olabisi Onabanjo University, Ago-Iwoye, Nigeria. E-mail: octomay07@yahoo.com

Prácticas ecológicas situadas en el contexto de la agenda del desarrollo sostenible

Resumen

Las prácticas ecológicas son esenciales para el desarrollo sostenible. Abarcan las innovaciones técnicas y el consumo responsable de los recursos ambientales, junto con los esfuerzos mundiales para asegurar que el progreso no niegue a las generaciones futuras la oportunidad de lograr una mejora deseable de las condiciones sociales y económicas basadas en este impulso. Este artículo intenta situar las prácticas ecológicas en el contexto de la agenda del desarrollo sostenible y discute el significado conceptual del término *prácticas ecológicas*. También, examina los factores determinantes de las prácticas ecológicas en los países en desarrollo, entre ellos Nigeria. El texto desarrolló el Generational Development Framework (GDF) para analizar la conexión entre las prácticas verdes y el desarrollo sostenible. Por último, concluye que las prácticas ecológicas son un motor fundamental para cumplir el programa de desarrollo sostenible, en particular en los países en desarrollo.

Palabras clave

Agenda, medio ambiente, prácticas verdes, Nigeria, desarrollo sostenible

Práticas ecológicas situadas no contexto da agenda do desenvolvimento sustentável

Resumo

As práticas ecológicas são essenciais para o desenvolvimento sustentável. Compreendem as inovações técnicas e o consumo responsável dos recursos ambientais, junto com os esforços mundiais para garantir que o progresso não negue às gerações futuras a oportunidade de conquistar uma melhora desejável das condições sociais e econômicas baseadas neste impulso. Este artigo tenta situar as práticas ecológicas no contexto da agenda do desenvolvimento sustentável e discute o significado conceitual do termo *práticas ecológicas*. Também examina os fatores determinantes das práticas ecológicas nos países em desenvolvimento, entre estes, a Nigéria. O texto desenvolveu o Generational Development Framework (GDF) para analisar a conexão entre as práticas verdes e o desenvolvimento sustentável. Por último, conclui destacando que as práticas ecológicas são um motor fundamental para cumprir o programa de desenvolvimento sustentável, principalmente nos países em desenvolvimento.

Palavras chave

Agenda, meio ambiente, práticas verdes, Nigéria, desenvolvimento sustentável

Introduction

One of the groundbreaking events of the twenty-first century is the emergence of sustainable development. As a policy goal, sustainable development can be attributed to the failure of old conceptual clarities and development prescriptions to improve the socio-economic conditions of people and to resolve development challenges in recent times (Schuftan, 2003). Most of the challenges faced by societies today arises from unplanned socio-economic activities of the past centuries, which resulted in contentious depletion of environmental resources, pollution, economic instability, low standard of living, food insecurity, disease outbreak, poverty, etc., with considerable impact on people's well-being and societal development (Adesiyan, 2005; Kan, 2009; Guti, Aji, & Magaji, 2012). It is on the basis of this fact that current development literature established that, in as much as sustainable development centered on the philosophy of inclusive growth, it therefore serves as a replacement to the Official Development Assistance (ODA), Structural Adjustment Policies (SAPs), and hosts of other bottom-up development proclamations that have failed to epitomize "true turning points" especially in quenching the heat of environmental degradation in the twenty-first century (Ho, Lin, & Tsai, 2014; Conding, Zubir, Hashim, & Lanang, 2012).

Consequently, studies have shown that every country today, irrespective of the ideological and modernity divides, support the notion that socio-economic growth must resonate with the environment in a friendly manner—that is, through sustainable development (Zhu, Sarkis, & Lai, 2008; Green Jr., Zelbst, Meachan, & Bhadauria, 2012; Shishi, Sashidharan, Nazry, & Jeannot, 2015). Essential to the sustainable development paradigm is the adoption of green practices as a change process from a conventional way of attaining socio-economic development at the expense of environment to a well-organized way of improving world ecosystem, people's well-being, livelihood and intergenerational access to the resources needed for sustainable socio-economic development (Zhu et al., 2008; Green Jr. et al., 2012). This is especially true because green practices includes a range of interconnected domains (economy, society, science, technology, politics, and the environment) that are factors of development and can guarantee continuity and sustenance of development process in today's global system (Green Jr. et al., 2012; Shishi, et al., 2015). For a fact, sustainable development can only be achieved by doing the right things and not just doing things right. Hence, the adoption of green practices is therefore a way of doing the right things that can translate to desirable and maintainable development.

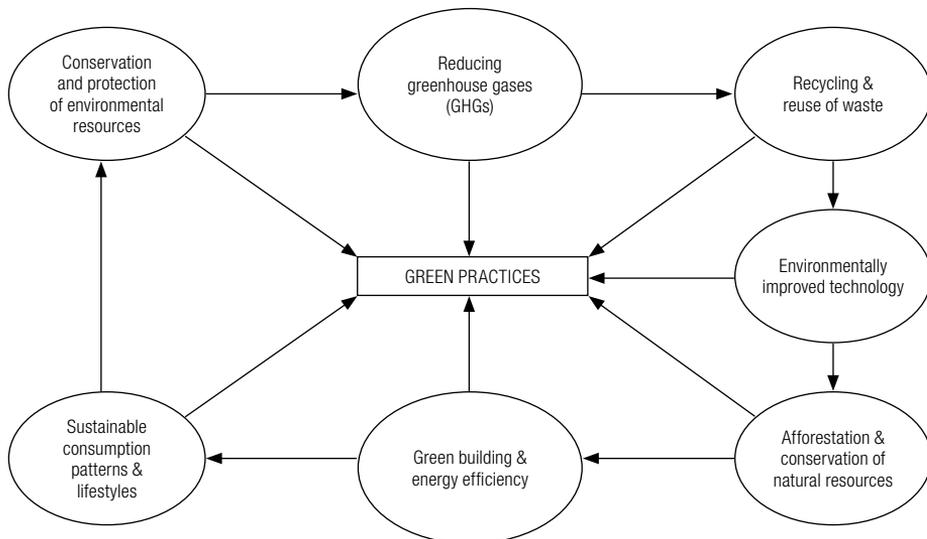
Based on the view above, a review of literature shows that countries such as Mexico, Brazil, India, Indonesia, and South Africa have implemented a series of policies and regulations to encourage organizations to embrace green practices as strategic approaches to enhance environmental performance, people's well-being and development processes in their respective societies (United Nation Commission, 1999; Studer, Welford, & Hills, 2006; Mohanram, 2014; Leimona et al., 2014). In the same vein, the Nigerian government introduced a green alternative agricultural promotion policy in 2016 as a way to restore the nation's agriculture sector to its earlier food production capacity and economic potential. In spite of these strategic or global engagements, an extensive examination of literature revealed that little or no attempt is made by scholars to situate green practices within the context of sustainable development agenda in order to assist developing countries, including Nigeria, in designing a development framework that will not compromise global efforts to achieve the predetermined 17 sustainable development goals (SDGs) come 2030. This gap in literature formed the essence of this paper. Also, for the development framework adopted in many developing countries to be effective in realizing the SDGs for developing countries, it is essential that we understand what green practices are, the prospects of green practices as a developmental paradigm in current global system, the theoretical explanation underlining the imperative of green practices in the pursuit of sustainable development, and the connection between green practices and the sustainable development agenda.

Concept of Green Practices: Examined

Mismanagement of environmental resources and the attendant environmental consequences prompt the global acceptance of the neo-Malthusian idea of environmental sustainability, which also brought the notion of green practices to the limelight. Inherent in contemporary development studies, green practices are eco-supported innovation, attitude and behavior developed by individuals or organizations to encourage responsible utilization of environmental resources through eco-friendly alternatives and principles (Ho, et al., 2012; Conding et al., 2012; Dallas, 2008). From another perspective, Bergmiller and McCright (2009), and Lin and Ho (2011) submitted that green practices are strategic tools such as clean technology, innovation and administrative knowledge used for the purpose of building livable world, economic and social development. This posture is in-

formed by Green Jr., Zelbst, Meachan and Bhadauria (2012), who are of the view that the adoption of green practices will facilitate responsible resource consumption, production, packaging, distribution and waste management that will assist in developing concrete sustainable development plan. Reiterating this view, green practices serve as processes to advance knowledge and practices that aimed to promote environmentally friendly and ecologically responsible decisions and lifestyles among individuals (Schaltegger, 2002; OED, 2011). However, based on the definitions provided above, we can construe that green practices to include strategic steps (whether big or small) taken to lessen the magnitude of harm caused to the environment in the course of pursuing human and social development. In order to achieve desirable human and social development, researches revealed that green practices encompasses five strategic steps which include efforts to reduce pollution, conservation and protection of environmental resources, clean/renewable energy, decent consumption pattern and effective waste management mechanism (Hamdouch & Depret, 2012; Chung & Wee, 2008). Constituents of green practices are diagrammatically presented in Figure 1 below.

Figure 1. Alliyu and Solaja's model for basic green practices



Source: Alliyu and Solaja (2016).

Following the illustration above, we can say that green practices revolve around human activities or efforts that will help to decrease the world pollution load and environmental degradation, or affect ecological balance in a positive manner. For instance, a shift toward sustainable consumption patterns and life-styles will discourage production of non-green products (i.e., shampoo, soap, and cleaning detergent) containing toxic chemicals capable of damaging water, soil and air quality. Also, green practices are attempts to promote afforestation and conservation of resources by discouraging the habit of cutting down trees to produce office paper or furniture, and for industries and domestic purposes. They support the idea of recycling and reusing waste materials (such as paper, plastic, bottles, etc.), as well as the creation of building infrastructure and equipment that are powered by renewable energy.

Benefits of Green Practices

Avalanche of studies have revealed that there are numerous benefits associated with green practices, and these benefits can be categorized under the following sub-headings:

- i. **Water quality:** Green practices can reduce storm water runoff volumes and pollutant discharges to lakes and rivers (Ho et al., 2014; Conding et al., 2012).
- ii. **Water conservation:** Green practices, cistern systems, and landscaping with native plants can significantly reduce use of treated public drinking water, conserving water and reducing utility costs (Hamdouch & Depret, 2012; Chung & Wee, 2008).
- iii. **Energy savings:** Green practices reduce consumption of energy resources, including, in particular, gas and electrical power used to heat and cool buildings (Schaltegger, 2002).
- iv. **Air quality:** Increased energy efficiency helps reduce emissions associated with generating electrical power. Trees can remove gaseous air pollution by uptake via leaf stomata (Lin & Ho, 2011).
- v. **Urban heat effects:** Trees and other green infrastructure features reduce heat island effects in urban areas.
- vi. **Materials management:** Recycling materials reduce disposal volumes and reduce consumption of raw materials (Hamdouch & Depret, 2012; Chung & Wee, 2008).

- vii. **Ecosystems:** Trees, native plants, and other features of sustainable sites provide valuable habitat for birds, butterflies, and a variety of other species (Hamdouch & Depret, 2012; Chung & Wee, 2008).
- viii. **Economic effects:** A research conducted by Parker (2003) a student from the University of Pennsylvania, found that, after some unsightly abandoned lots were transformed to “clean and green” landscapes, the surrounding housing values increased by as much as 30%.
- ix. **Public health:** Green practices can provide more healthy indoor environments, and green infrastructure and walkable communities can provide significant public health benefits (Hynes & Wang, 2012).
- x. **Social impacts:** Research conducted by Kuo, Sullivan, Coley and Brunson (1998) at the University of Illinois found relationships between green sites and neighborhoods and various social phenomena (Kuo et al., 1998).
- xi. **Corporate image booster:** Green practices incorporate technological improvements that save energy, prevent pollution, or enable waste recycling and can include green product design and corporate environmental management (Zhu, Sarkis, & Geng, 2005). This kind of environmentally enhancing practices potentially has a positive effect on business or corporate image (Zhu et al., 2005).

Determinants of Green Practices Adoption in Developing Countries

Many studies have argued that implementing green practices in developing countries is key to attaining global green growth in many ways (Zhu et al., 2005; Hynes & Wang, 2012; Ho, Lin, & Tsai, 2014). First is the assumption that the green practices have potential economic and social impacts that are very imperative for developing countries in mitigating the extent of environmental degradation in that part of the world (Zhu et al., 2005; Hynes & Wang, 2012; Ho et al., 2014). This assumption is also accompanied by the fact that developing countries are most vulnerable to climate change and tend to be more reliant on advanced economies for exploitation of natural resources for economic growth (Hynes & Wang, 2012). More so, reports have shown that a lot of developing countries contend with severe economic, social and ecological pressures, from energy, food and water insecurity to climate change and extreme weather risks, which affect the well-being of

the people (Zhu et al., 2005; Hynes & Wang, 2012; Ho et al., 2014). They also experience dangers from premature deaths due to pollution, poor water quality and diseases related with a changing climate (OECD, 2012). All of these factors undermine their development (Hynes & Wang, 2012). Second is the truth that most developing countries donate less significant shares to global greenhouse gas (GHG) emissions when compared to the OECD and major emerging economies of the world (OECD, 2012); however, their volume of emissions is likely to increase if they don't shift from the conventional economic growth patterns (OECD, 2012). Increasingly, current literature has emphasized that developing countries and the newly industrialized societies are becoming foundations of global economic growth, greenhouse emissions and intensive exploitation of natural resources (Hynes & Wang, 2012; OECD, 2012). In order to tackle many of the growth and development challenges mentioned above without endangering future growth and poverty reduction goals (OECD, 2012), developing countries, thus, need to embrace practices that support desirable socio-economic development, stimulate inclusive economic growth and promote environmental sustainability. It is on this premise that the concept of *green practices* emerged as a new paradigm to reframe the conventional growth framework and to re-assess many of the development decisions in meeting the imageries and visions of a better life for the populace.

The Concepts of *Development* and *Sustainable Development*: A Conjoint Approach

In order to examine the concept of sustainable development efficiently, it is imperative for us to understand the word *development*. According to literature, the word was first used to describe the progressive movement of the United States of America from a developing to a developed state in 1949 by the former US president, Harry Truman, in his statement:

We must embark on a bold new programme for making the benefits of our scientific advances and industrial progress available for the improvement and growth of underdeveloped areas... the old imperialism-exploitation for foreign profit-has no place in our plans. What we envisage is a program of development based on the concepts of democratic fair dealing. (Allen & Thomas, 1992, p. 06)

Meanwhile, the definition by the United Nations Development Programme (1990) presents the term *development* as an attempt to lead long and healthy lives, to be knowledgeable, to have access to the resources needed for a decent standard of living and to be able to participate actively in the life of the community. From an expansive view, Alliyu (2010) regards development as a state of being and a process. He stated that it is a state of being because society would have transcended above certain barriers and obstacles affecting its existence through judicious utilization and management of internal resources of the society with the ability to cope with external influence at any point in time. On the other hand, as a process, *development* means the various mechanisms consciously put together or harnessed by the people over a period, such that it causes transformation of the society from one state to another, which can be definable as “advanced state” More so, Obono (2010) conceived development as the improvement and attainment of core value of sustenance (that is the perpetual ability to meet basic needs), self-esteem (what it means to be, and to have respect for one’s being, a person), and freedom from servitude (or the ability to choose and change a particular lawful existential aspirations). Odufuwa and Wahab (2015) opined that development encapsulates the capacity of the government or system to manage resources efficiently, to enhance the well-being of the populace. Hence, government can either support or obstruct the process of development. Therefore, development is conceptualized at the levels of the individual, the social group, and the government (Iornumbe, 2005).

Similarly, a number of scholars have argued that development must take into account the qualitative improvement in employment, social justice and equality. Implicit in every use of the term *development*, however, is the notion that some countries and regions of the world are extremely poor, whereas others are very prosperous. For instance, one would agree that citizens of western developed countries enjoy more desirable life, while the citizens of third-world countries—and Nigeria, in particular—languished in poverty, as evidenced by the high prevalence of famine, disease, war and ignorance in spite of the plentiful economic resources (Matunhu, 2011; Olutayo & Bankole, 2002). This observation is also reiterated by Webster (1984), who believed that countries with high poverty rates are geographically located at the Southern Hemisphere while those on the Northern Hemisphere have very low levels of poverty. However, Olutayo and Bankole (2002) revealed the key rationale for variation in the poverty rates between the north and south regions of the world is the fact that countries from the earth’s southern hemisphere experienced serious colonial turmoil in the past, and they also have

a low Gross National Product (GNP) because they depend mostly on limited primary products for export, when compared with those from the earth's northern hemisphere. Thus, they are referred to as "third-world nations." Correspondingly, Ricupero (1997) and Tomlinson (2001) revealed that cultural interactions in the modern history of imperialism and post-colonialism, world-systems, underdevelopment or socio-economic change over the last five hundred years were also reasons for the high poverty rates in third-world countries, including Nigeria.

However, in this paper we claim that it is embarrassing to continue to attribute high poverty rate and the underdevelopment status of Nigeria to the country's colonial experience after several years of independence. Rather, it should be seen from the angle of the government's inability to manage and channel her stupendous natural and human wealth towards achieving reasonable development in social, economic and environmental conditions. To corroborate this assertion, Achimugu, Abubakar, Agboni, and Orokpo (2012) emphasized that given Nigeria's huge natural resources base, for which it earned over US\$ 300 billion (from crude oil alone) in the last three decades, as well as the promising options available in agriculture, tourism, and solid minerals, Nigeria indeed should have no business being poor. Thus, we can admit the assertion made by Akanle and Abayomi (2013) that "even when development is desirable, not all development and associated efforts are sustainable (p. 4)" This view takes us to the concept of *sustainable development*.

The term *sustainable development* has been explained from diverse viewpoints. Historically, the concept materialized from the theoretical postulations of modern economists like Malthus and Ricardo, who had predicted resource limitation as the major impediment to future economic growth. This instigates the report given by the World Conference on Environment and Development (WCED), known as Brundtland Commission, on the concept of sustainable development, which has gained international recognition (Stoddart, 2011). Sustainable development is a concept, goal and movement towards building the capacity of current generation to meet its needs and to develop without jeopardizing the opportunity of the future generations to meet their own needs and to develop (Brundtland, 1987; Stoddart, 2011; Akanle, 2014). It is a process of change in which the social and ecological resources consumed are not exhausted to the extent that they cannot be renewed and with the view that the creation of wealth within the community must consider the well-being of both human and natural environments in the community (Prucnal-Ogunsote, Okwoli, & Ude, 2010). In other words, sustainable development is a kind of developmental approach that promotes intergenerational equity, accessibility,

compatibility and quality control of the environment. It also includes concerted efforts to achieve an improved quality of life for all, and to enable multi-stakeholder groups to define their vision of sustainability and work towards it. This, according to Hill, McMillan, and Farina (2003), has the following features:

- Ethical, empowered and personally fulfilled individuals
- A well-defined community built on collaborative engagement, tolerance and equity
- A sound social system and institutions that are participatory, transparent and just
- The perception of environmental practices that value and sustain biodiversity and life-supporting ecological processes

Corroborating the view above, Botanic Garden Conservation International (1999) claimed that achieving sustainable development means adopting and implementing policies concerning issues such as recycling, energy efficiency, conservation and rehabilitation of damaged landscapes for the wealthy nations. Although, it means developing policies for equity, respect of the law, redistribution of wealth and wealth creation for the developing nations. More so, the essence of environment in the process of achieving sustainable development cannot be underrated. Proponents of sustainable development also stated that, without productive environment to provide a resource foundation, it would be difficult or impossible to envision attaining a sustainable society (Kate, Parris, & Leiserowitz, 2005; Morelli, 2011; Solaja, Omobowale, & Alliyu, 2015). It is with this view that sustainable development goals (SDGs) were established. Therefore, the next section takes a cursory look at the concept of *sustainable development goals*.

Sustainable Development Goals (SDGs): A Cursory Examination

Based on the lessons and the performance of the Millennium Development Goals (MDGs) in developing countries, the member states of the United Nations reached a consensus on 25 September 2015 to adopt Sustainable Development Goals (SDGs), a set of 17 aspirational objectives with 169 targets anticipated to channel the course of actions of governments, international agencies, civil society

and other institutions from the year 2016 to 2030 (United Nations, 2016). The primary goal for endorsing sustainable development goals lies in the global vision to sustain people's development, livable planet and long-term economic prosperity by 2030 (FAO, 2016). This global vision was broken down thematically into 17 SDGs and 168 intertwined targets with the leading focus on ending poverty and hunger, as well as the sustainable consumption of environmental resources. Sustainable development goals integrate the three indivisible pillars of sustainable development (i.e., social, economic and environment) and promote global collaboration and participatory approaches to human and social development (FAO, 2016; United Nations, 2016). These sustainable developmental goals are critical to the progress of socioeconomic development of the world system.

Table 1. Listing the seventeen sustainable development goals

Sustainable Development Goals	
Goal 1	End Poverty in all its forms everywhere
Goal 2	End hunger, achieve food security and improved nutrition and promote sustainable agriculture
Goal 3	Ensure healthy lives and promote well-being for all at all ages
Goal 4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
Goal 5	Achieve gender equality and empower all women and girls
Goal 6	Ensure availability and sustainable management of water and sanitation for all
Goal 7	Ensure access to affordable, reliable, sustainable and modern energy for all
Goal 8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
Goal 9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
Goal 10	Reduce inequality within and among countries
Goal 11	Make cities and human settlements inclusive, safe, resilient and sustainable
Goal 12	Ensure sustainable consumption and production patterns
Goal 13	Take urgent action to combat climate change and its impacts

Sustainable Development Goals	
Goal 14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development
Goal 15	Protect, restore and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
Goal 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
Goal 17	Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Source: United Nations Development Programmes (2016).

Detailed in table 1 above are the seventeen sustainable developmental goals set to be achieved in 193 Member States of the United Nations by 2030. Each of the 17 SDGs have at least 5 targets that serve as aspirational and universal targets through which each government would develop its own national targets based on national peculiarities and context-specific challenges to achieve sustainable development. This universal goal of attaining sustainable development also motivates governments in both developed and developing countries to provide an enabling environment (in terms of policies, institutions and governance) grounded in a sound evidence base for the realization of sustainable development goals come 2030. In the case of Nigeria, it was reported that the sustainable development agenda aligns with Nigeria's ambition to bring democratic dividends and improve standard of living of the poor and vulnerable people in the country. Hence, there have been immense efforts to meet the sustainable developmental goals and targets through domestication SDGs, integration and implementation with the support of public-private partnerships. In this regard, laudable considerations have been given toward the development of science, technology and innovation, information as well as human resources in partnership with the private sector. There is also establishment of required structure and mechanism for optimal implementation and realization of the SDGs in Nigeria. This is with the view that the attainment of the SDGs will bring about some of the much needed diversification of the Nigerian economy, thereby increasing wealth creation and revenue generation opportunities, improved child and maternal care and improved gender diversification and equality opportunities.

Theoretical Framework

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This study utilized sustainability theory as the theoretical guide to examine the interaction between green practices and sustainable development. The theory of sustainability emanated from the efforts to link the issues of socio-economic development and environmental stability together in a sustainable manner. Sustainability theory (ST), therefore, attempts to arrange and integrate social responses to environmental and cultural problems. In this regard, ST synthesizes polemic ideas about balancing the interaction between socio-economic factors and environmental resources in the context of attaining desirable development for present generation without denying future generations their opportunities to develop (Kate, Parris, & Leiserowitz, 2005; Morelli, 2011; Stoddart, 2011). It also emphasizes the idea of long-term stability of the economy and environment (Lazar & Lazar, 2008), which is only achievable through the integration and acknowledgement of economic, environmental, and social concerns throughout the decision-making process (Emas, 2015). Following the proposition of sustainability theory, socio-economic activity should be organized based on the principles of sustainable development (Popescu & Zamfir, 2011). That is, it should be done in a way that promotes positive improvement in the three distinct sustainability dimensions: environmental, social, and economic sustainability. As such, developmental activities carried out in contrast to sustainability principles will result in disorderliness or dysfunctionality of the interaction between environmental, socio-cultural and economic systems (Kiper, Ozdemir, & Saglam, 2011). It is thus imperative to assess the social, economic and environmental impacts of developmental activities and to ensure that they conform to sustainability standards and principles. To achieve this purpose, developmental activities that include green practices have been recognized as integral parts of the sustainability program in today's green revolution.

Methodology

Studies on green practices are often being carried out through the use of case studies (Conding et al., 2012; Kirkwood & Walton, 2010; Kearins, Collins, & Tregidga, 2010; Schaltegger, 2002; Pastakia, 1998). Case studies, according to Yin (1984) are very useful in in answering explanatory questions such as “how” and “why”

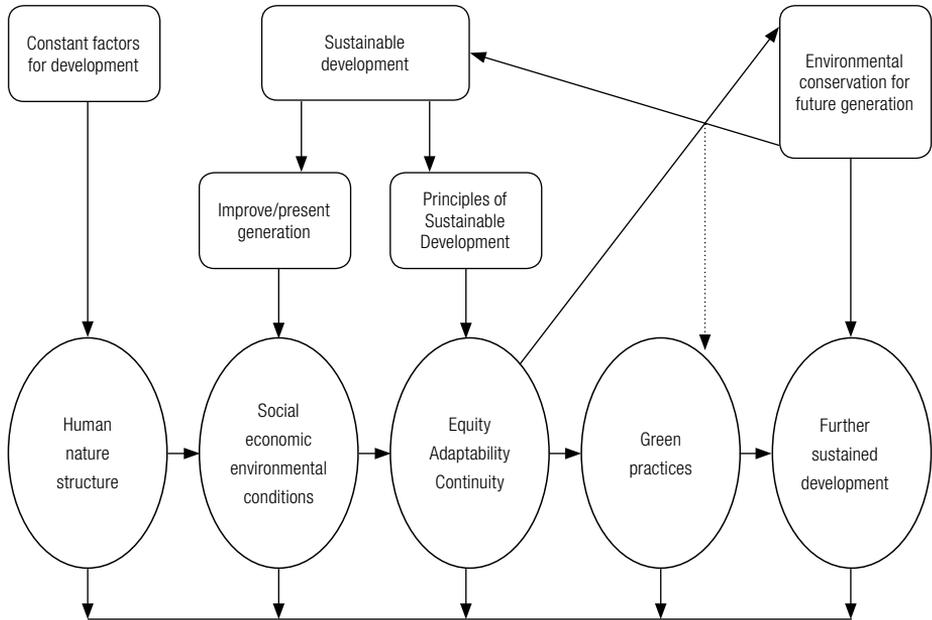
and “where” over time. Thus, an explanatory research design was adopted in this paper, as the purpose was to put together different ideas or perspectives relating to the subject under study in a bid to understand and explain “how” and “why” and “where” green practices translate to sustainable development. Although some authors believe that explanatory design has been feeble or challenging to reach appropriate conclusions on the basis that there is a wide range of factors or variables responsible for any social occurrence. However, in this paper efforts are geared toward attending to these limitations by relying on literature that captures every aspect of the subject matter. The literature utilized in this paper comprised of academic articles, journals, research working papers, sustainability reports collected from reputable sources. The following databases: EBSCOhost, ScienceDirect, ProQuest, FreePatentsOnline, SEAANZ, and the DSpace library, were employed in sourcing for the relevant literature. In collating the relevant literature, articles that undergo peer-review process before being published were included, while those that do not were excluded. Also, two types of articles were selected for the paper. The first were conceptual papers on green practices and sustainable development, which was used to develop the conceptual framework for the paper. The second set of papers selected discussed dimensions and indicators of green practices in developing countries, including Nigeria. Even more so, the paper adopts current information published in literature between 1999 and 2016.

Green practices and sustainable development: A conceptual analysis

The goal of this section is to present a conceptual explanation on the connection between green practices and sustainable development. However, to embark on these voyages of enquiry, this paper adopted the Generational Development Framework (GDF) as a tool to guide discussion and analysis. The Generation Development Framework is presented below (Figure 2).

Figure 2. Generational development framework

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Source: Solaja and Adetola Generational Development Framework.

The diagram above illustrates the connection between green practices and sustainable development. Contemporary studies on development, which form the basis of the conceptual approach, identify three key factors of development, including human, nature and structure (Booth, 2004). These factors are very crucial to achieving development in any given society. For example, human resource is the people (skilled and unskilled) who are the subject and object of development. They are the subject of development because development depends on people’s definition or insight. It is what the people conceive to be development that determines the form of development that will be pursued or achieved by them. That is to say, the people have an internal sense of what is good change or desirable targets that they work toward achieving. They are also the object of development because their perception and evaluation of human society determines the understanding

or knowledge they have about development. Interestingly to note here is the fact that people also possess subjective and objective indicators of developmental progress (Conceicao & Bandura, 2008). Both subjective and objective indicators must be incorporated in order to have a clear picture of what development should be. More so, nature (comprising of mineral and natural resources) predicts the level or dimension of development that can be attained in every society. Nature serves as the resource foundation upon which the edifice of development is built. The quality and quantity of resources available to drive development determine the extent to which improvement in social, economic and environmental conditions can be realized. However, empirical evidences have shown that most societies with a huge resource base experience a situation called- “resource cause,” which undermined their development process (Nigeria is a case on point). In the same way, the structure put in place by the people also play a vital role in the development process. Structure includes the processes, practices and institutions established by the people in transforming or utilizing the resources available to achieve development. The structure of development could be based on traditional subsistence agriculture or a more advanced, urbanized or industrially diverse manufacturing and service economy.

In order to ensure desirable improvement in social, economic and environmental conditions of the present and future generations, the idea of sustainable development was initiated and instituted in both developed and developing countries. Thus, sustainable development is a generational developmental process rooted in the principles of equity, adaptability and continuity. To buttress this assertion, the Bruntland commission defined *sustainable development* as a

"Nature serves as the resource foundation upon which the edifice of development is built. The quality and quantity of resources available to drive development determine the extent to which improvement in social, economic and environmental conditions can be realized. However, empirical evidences have shown that most societies with a huge resource base experience a situation called- “resource cause,” which undermined their development process (Nigeria is a case on point)".

process of change in which the exploitation of resources, the direction of investments, the orientation of technological development and institutional change are all in having and enhance both current and future potential to meet human needs and aspirations. With this definition, it can be inferred that sustainable development is built with three basic components, which are: equity, adaptability, and continuity. Equity depicts ability to minimize the consumption of natural resources for provision of adequate and affordable basic needs of life for the present generation in order not to jeopardize the prospects of subsequent generations to develop. Adaptability represents the notion for inclusiveness in the process of distributing basic needs of life so as to address the issue of poverty, deprivation, and inequality between and within people, communities and nations. Likewise, continuity illustrates the need for constant resource supply for the purpose of sustaining the pace of development from one generation to another. It is in this context, and in the pursuit of development that is socially, culturally, environmentally and structurally compatible, adaptable and sustainable lays the connection between green practices and sustainable development agenda.

Situating Green Practices within the Context of Sustainable Development Agenda

The Sustainable Development Agenda (SDA) is a plan of action to reduce poverty and hunger, protect the planet from degradation—including through sustainable consumption and production—, sustainably managing its natural resources and taking urgent action on climate change, as well as to ensure that all human beings enjoy prosperous lives with mutual improvement in economic, social and technological conditions (FAO, 2016; United Nations, 2016). However, to achieve the task of this section, we catalogued selected sustainable development goal targets to underscore the importance of green practices (Table 2).

Table 2. Selected sustainable development goal targets

Goal	Selected SDG targets
Goal 1 Reduce poverty	By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.
Goal 2 Zero hunger	By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality
Goal 3 Ensure healthy lives and promote well-being for all at all ages	By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination
Goal 4 Inclusive and equitable quality education	By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship
Goal 5 Achieve gender equality and empower all women and girls	Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws
Goal 6 Availability and sustainable management of water and sanitation	By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally
Goal 7 Ensure access to affordable, reliable, sustainable and modern energy	By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology
Goal 8 Promote sustained, inclusive and sustainable economic growth	Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labor-intensive sectors
Goal 9 Promote inclusive and sustainable industrialization and foster innovation	By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities
Goal 10 Reduce inequality within and among countries	By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status

Goal	Selected SDG targets
Goal 11 Make cities and human settlements inclusive, safe, resilient and sustainable	By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities
Goal 12 Ensure sustainable consumption and production patterns	By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse. Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle
Goal 13 Take urgent action to combat climate change and its impacts	Integrate climate change measures into national policies, strategies and planning
Goal 14 Conserve and sustainably use the oceans, seas and marine resources for sustainable development	By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution
Goal 15 Protect, restore and promote sustainable use of terrestrial ecosystems, forests, combat desertification, and halt land degradation and biodiversity loss	By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally
Goal 16 Promote peaceful and inclusive societies for sustainable development	Promote the rule of law at the national and international levels and ensure equal access to justice for all
Goal 17 Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development	Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection

Source: United Nations (2016).

The table 2 revealed that sustainable development agenda draws on activities and plans designed to achieve reliable generation-to-generation resource base (in terms of judicious utilization of material and natural resources, as well as conservation of natural environment). It also emphasizes the need for eco-friendly innovations and development of technologies that would significantly address climate change challenges, food insecurity, water and air contamination, as well as many other social problems facing contemporary world. Equally, there is a focus

on promotion of decent employment and provision of a suitable working environment in order to encourage the establishment of eco-supported industrialization, business activities, and employee's behavior. Even more so, the need for peace and security of lives and property were stressed in a bid to mitigate the magnitude of social injustice, inequality, marginalization and every other event that might degenerate into insurgencies or social violence. Apart from the aforementioned targets, the issue of poverty eradication was very pronounced and targeted through plan to increase standard of living, global partnership, taxation and social protection of vulnerable people in both developed and developing countries.

Having understood the rudiment of sustainable development agenda, there is no doubt that the major engine that can facilitate the accomplishment of sustainable development goals particularly in developing countries is adoption of green practices. This point is not being misplaced due to the fact that green practices involve activities and actions capable of resolving or reverting ecological hitches (i.e., climate change and pollution), resource scarcity as well as to promote mutual interactions between economic, social and environmental conditions with the view to build a livable world for current and future generations. Standing on this position, and to reiterate the view of Hamdouch and Depret (2012) and Chung and Wee (2008), who noted that green practices comprises five strategic steps that include efforts to promote:

- i. Eco-friendly innovation,
- ii. Conservation and protection of environmental resources,
- iii. Clean or renewable energy,
- iv. Decent consumption pattern, and
- v. Effective waste management mechanism

These strategic steps embedded in green practices, to a large extent, would drive home the 17 SDGs and targets come 2030, if efficiently applied in both developed and developing countries. For example, eco-friendly innovations will produce products and methods that would not negatively impact the environment or deplete natural resources (Robinson, 2008). In the same vein, responsible consumption of natural resources will encourage judicious utilization of environment resources and constant search for alternative sources that will have desirable outcomes, such as keeping the environmental footprint small, reducing waste and re-using materials as much as possible (Hamdouch & Depret, 2012; Chung & Wee, 2008;

Dallas, 2008). More so, it will result in using environment resources resourcefully, food security, poverty reduction, and establishment of eco-friendly jobs as well as preservation of the environment from harmful products and methods (Gunningham, Kagan, & Thornton, 2003). Thus, it is obvious that green practices are critical components of sustainable development that must also be implemented in the context of sustainable development agenda as engines to accomplish the set goals and targets in both developed and developing countries by 2030.

Conclusion

Based on the above discussion, it quite clear that sustainable development agenda is a monumental effort geared toward attaining 17 SDGs in both developed and developing countries by 2030. Sustainable development goals are the product of global consciousness and reactions to issues facing north and south regions of the world. The main concerns of sustainable development agenda are to eliminate poverty, hunger, insecurity, and resource deficiency, climate change, as well as economic challenges. In order to achieve these goals, sustainable development agenda (SDA) was set as a plan of action that the government of every country would adopt in developing its own developmental targets based on national peculiarities and context-specific issues influencing the process of achieving sustainable development in each country. Considering the prevalent issues affecting sustainable development goals in developing countries (including Nigeria), this paper advocates for the adoption and implementation of green practices as instruments to drive home the 17 SDGs set and the 169 targets come 2030. This notion was supported with evidences that green practices are verified developmental processes and methods designed to promote eco-friendly innovation, products, policies and lifestyles among individuals or organizations in a bid to protect people's well-being, economy growth, environment and its natural resources. Green practices are therefore developmental actions and activities that support desirable socio-economic development, stimulate inclusive economic growth and promote environmental sustainability. Hence, green practices are indispensable components of sustainable development agenda in contemporary societies. The adoption and implementation of green practices in developing countries is a prerequisite to further sustained development and to achieve sustainable development agenda by 2030.

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