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# Sustainable Entrepreneurship in Environmental Technology as a Panacea to Youth Restiveness in Bauchi: A Review

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## Abstract

The present concerns for the introduction of sustainable entrepreneurship in Environmental Technology (Architects, Artists, Builders, Industrial Designers, Planners, Land Surveyors, and Quantity Surveyors) have led to a revival on the rate of unemployed youths and also that of environmental practices. The professional practice of the environmentalists in actualizing various current national development issues can never be over overstated. In response to many challenges of national development in the government national programmes such as National Directorate of Employment (NDE), Technology Incubation Programme (TIP), New Partnership for African Development (NEPAD), National Poverty Eradication Programme (NAPEP), Millennium Development Goals (MDG), and EED, etc were formulated to address youth restiveness and unemployment with their gains, issues and challenges. This review work exhibits the potentials of the environmentalists as an entrepreneur. Findings in this work indicates the training programs carried out to empower Bauchi youths in providing them with access to material resources on how to attain self reliance. It was suggested that government, private and public entities would identify those environmental, economic and social impacts in order to put them into best practices for a developed Bauchi youths and Nigeria towards a sustainable development.

**Keywords:** *Architect, Education, Entrepreneur, Development, & Government*

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**Background to the Study**

Northeast Development Commission (NEDC) has set up an Education Endowment Fund worth N6billion. The Managing Director of the commission, Mohammed Alkali, who disclosed this at the inauguration of the NEDC-EEF Board of Trustees (BOT) in Abuja, said the endowment fund is aimed at resuscitating the region's devastated education sector and rebuild human capital (The Guardian, 2020). A youth is a person or groups of persons between the age of childhood and adulthood (www. definitions.com, 2020). While, the Nigeria National Youth Policy, 2009 narrated that a youth in the Nigerian context includes citizens of the Federal Republic of Nigeria aged 18-29 years according to the new youth policy. However, the African youth recognizes youth as people between 18-35. According to Furlong, 2013 variance in chronologies are used in defining youth and are addressed by members of the state in accordance to their particular society. The national unemployment rate is steadily climbing which includes architects. Aliyu (2008) described the rate of unemployment, among school leavers and graduates as alarming! As part of measures to ameliorate the ugly situation, Governments at all levels (Federal, State and Local) are making frantic efforts to encourage self-reliance initiatives through Entrepreneurship Development. Subsequent to this, there has been a call to introduce entrepreneurship training into Nigerian Universities, the reason being that the rate of unemployed graduates in Nigeria is outrageous. Nigerian graduates need to be well trained and educated as regards entrepreneurial skills, most graduates cannot even write a business proposal, or even manage a small scale business. lt is evident because we have a lot of graduates who are still dependent on their parents, this is very saddening, although the Nigerian factor is also involved, however the youth of this nation need to begin to see the reason for establishing their own private businesses. From the university days, the youth can harness their potential in the area of entrepreneurship and this in the long run will benefit them and in turn will increase the National Income of the Nation. With this mindset, soon we would begin to have initiatives for the production of new products and of course services. It would be something of great achievement if we the youth can spring up industries float companies, thereby reducing the level of importation into the country; this is the road to development as a result of an increase in GDP of the nation (http://nigerian-youth.blogspot.com/2011/01.html).

Jarna (2000) described the field of Entrepreneurship / Enterprise Education as quite heterogeneous at the moment. Enterprise Education is in most cases interpreted as a long-term attitude action-based education, which means that entrepreneurship is integrated to teaching and technology has enabled development of distance education and learning. Thus, the meaning of entrepreneurship means different things to different people in a narrower and wider sense. Sustainable development is receiving renewed global interest in recent years with an increasing number of firms reporting profitability from sustainability investments (Rohrbeck et al., 2013). As a result of these, Aliyu (2008) defined Entrepreneurship Development as a process of advancing or improving the entrepreneurial ability of an individual by means of the reorientation and reorganization of the entire economic and social systems. Technical education is the pillar for any national economic and political development and for it to take place; there must be an effective training in Technology (Birchi, 2006). Development means the ability of a country to improve the social welfare of the people

by providing social amenities like quality education, potable water, affordable housing, access to food, good transportation, adequate medical care and access to communication, etc. Hence, Mohammed (2011) narrated that technology is the yardstick on which national development is measured.

Most underdeveloped economies are endowed with natural resources but lack the required technologies for value addition, thereby making them to remain in poverty. Nigeria like all other countries has technological goals which must be strategized for short term benefits such as food security, jobs/wealth creation, poverty alleviation, etc as well as long term strategic plans, required to propel the country to rank amongst the fastest growing and top 2o World economies by the year 2020. Also, he said that in today's world, the competitions require entrepreneurships that can establish strong positions in the market through innovative products or services. The national innovation system of most nations comprises a network of Institutions in both public and private sectors that interact in the diffusion, production and use of new and economically useful knowledge. Innovation usually begins with research whose outcome progresses through the use of design, development and engineering tools that end with the introduction of new products and processes.

Architecture as a business in the environmental technology by Obinna (2002), suggested that the architects belong to the same society with his contemporaries competing under the same market forces. To actualize development, architects in practice of entrepreneurship, must be adequately prepared and equipped to face the current challenges in order to break through. Housing is defined more broadly than having a roof over one's head. It implies the protection from elements of weather, hygienic disposal of household and human waste, sufficient space for health and privacy, security of tenure of occupants, availability of safe drinking water, affordability and access to employment, recreation, education and other services (WHO, 2004). Sustainability is a broad and complex concept, which has grown to be one of the major issues in the construction industry (Akadiri, 2011). Sustainable development as defined by the World Commission on Environment and Development (1987) is ability of the future generations to meet their own needs from old to new. If we must overcome this sustainability challenge, we need to empower the youths to be self- reliance with a sustainable Architectural Entrepreneurship. The Nigerian government and policy makers have come up with various strategies over the years on how the nation's social and economic potentials can be harnessed (Isa and Jimoh, 2013). The nation is still in search of solutions to its health sector challenges and sustainable waste management practices has been advocated because it has succeeded in some other countries with similar challenges. Health facilities are not adequately maintained and where maintenance is attempted, reliability centered maintenance procedure is not adopted. In the same vein, (Martin, 2001) also contributed that the private sector should not be restricted to providing services after a public agency has been deemed to have "failed". Equally, successful public authorities should not be excluded from helping improve services delivered by other public providers. Architecture in relation to construction changes with situation and conditions, looking at economic recession and a move towards sustainable Architectural Entrepreneurship investment. With the current global trend for sustainable, energy-efficient housing, it has become necessary to go beyond the provision of prefabricated

housing and combine it with green architecture which would benefit the eco-system. Sustainable Development is about making sure that people throughout the world can satisfy their basic needs presently, while making sure that future generations can also look forward to the same quality of life. It therefore recognizes that the three 'pillars'-the economy, society and the environment – are inter connected. Sustainable development could therefore be termed as the use of renewable resources in a manner that does not eliminate or degrade them or otherwise diminish their renewable usefulness for future generation while maintaining effectively constant or non-declining stocks of natural resources such as soil, groundwater and biomass (Adedeji 2011).

**Methods**

The research method employed a review of primary sources of data. The primary sources of data comprise of expert opinion interviews to enhance qualitative assessment, in order to show case, the various potentials of the environmentalist as an entrepreneur and participating in the process of launching startups.

**Discussion**

The scope of this review study includes ways in which architect's cans showcase their professional prowess vis-à-vis entrepreneurship in a strategic and systematic order as follows:

1. Low Technologies such as hand crafts, calligraphy, model-making, upgrading of traditional building practices to Prefabricated, Modular and Industrialized buildings.
2. Medium Technologies such as Energy saving concepts, Recycling of household wastes, Electrical/Electronic components in buildings, Plastics and PVC technologies, etc.
3. High Technologies such as Bio technology processes and products, Information and Communication Technology applications, Intelligence Buildings, zero emission technologies, sustainability, climate change, virtual reality, augment reality. etc.
4. Emerging Technologies such as advanced construction materials and methods, robotics, simulations, automations, character recognitions, e-studio, three dimensional (3d) printing, nano and laser technologies applications in buildings, etc.

The complex nature of the construction industry as a building and transforming industry where different professionals including architects use different materials, equipment, tools and ideas coming together at different stages to form a unit whole. Some of the following practices will enable numerous unemployed graduates of architecture in the labour market; be it private, public and government agencies to be gainfully employed as entrepreneurs include:

**Low Technology Environmental Entrepreneurship Practices:** The form of enterprise formation at this level ranges between small scale and medium scale. Such practices include hand crafts, calligraphy (Encyclopædia Britannica) model-making, upgrading of traditional building practices to Prefabricated, Modular and Industrialized buildings. Hand crafts means an occupation requiring skill with the hands like greeting cards, textile, ceramics, and artistic impressions of interior and exterior while model making means an additive process of building up a true-life replica of forms in either reduced or enlarged scale using different

materials for various components and effects of building and related facilities. Calligraphy according to Encyclopædia Britannica is a term derived from the Greek words for "good" or "beautiful" and for "writing" or "drawing" and refers to what masters called the art of fair writing. It implies a sure knowledge of the correct form of letters—*i.e.,* the conventional signs by which language can be communicated—and the skill to inscribe them with such ordering of the various parts and harmony of proportions that the cultivated, knowing eye will recognize the compositions as a work of art. Industrialization as a process implies the organization or re-arrangement of labour, equipment or materials and other resources in a highly efficient process that out-performs previous craft- oriented methods. Industrialized buildings do take the forms of either panelized (2d), modular (3d) or mobile housing units. In this case, most buildings of the next decades have been predicted to include this technology. Hence, environmentalists will be involved in these efforts to contribute their quota as an entrepreneur.

**Medium Technology Environmental Entrepreneurship Practices:** The form of organizational set-up at this level ranges between medium scale and large scale. Such practices include Technologies such as Energy saving concepts with considerations to safe, eco friendly/green house, clean, natural energies like sun, water, tide, wind, wave, etc (Sanusi and AbdulMageed, 2008). Also, Recycling of household wastes with proper drainage systems always bring about a situation from waste to wealth if properly harnessed. Electrical/Electronic components in buildings nowadays have developed from standard definition to high definition like body character recognition systems, controls, sensors and alarms. Plastics and PVC technologies comprises of the use of composite building materials, and petrol-chemical compounds, such as polystyrene propylene and polyester for various building elements. Environmentalists function here are so enormous and as such a very specialized opportunity in entrepreneurship development.

**High Technology environmental entrepreneurship practices:** The nature of organizational set-up at this level basically large scale. Such practices include Technologies such as Bio technology applications in buildings like biomimicry processes and products. Another one is Information and Communication Technology applications where AbdulMageed et el (2008), projected future applications would include Actuators, Internet Intelligent agents, Advanced PDA, CNC, Internet of Everything, Mobile teleworking, Trackers, Expert systems, Real - Time Conferencing, Project Information Management- "The Virtual Reality Round table" etc are now in existence. Intelligence Buildings According to Wikipedia, is a building controlled by building automation system (BAS) which is an example of distributing controlling system. The control system is a computerized intelligent network of electronic devices, designed to monitor and control the mechanical and lighting system in building. A typical example of this is the Central Bank of Nigeria Head Office (BQ, 2011). Such of this and many others in this category can provide the environmentalists better opportunity as an entrepreneur.

**Emerging Technology Environmental Entrepreneurship Practices:** The mode of operation at this level is at extra large scale. Such practices include technologies such as advanced construction materials and methods in which on daily basis, new trend of materials and

methods are emerging into the construction industry. According to (BQ, 2010), a construction crew in the south-central Chinese city of Changsha completed a 15-storey hotel building in just 6 days! The work crew erected sound proofed hotel with all pre-fabricated materials, triple glazed plastic windows and roofs, light weight steel construction with 150mm, thermal insulation for walls, external solar shading, heat insulator, fresh air heat recovery and LED lighting structure built to withstand a magnitude 9 earthquake. The robotics, simulations, automations are also recent applications in the field of construction in which architects are greatly involved. Three dimensional (3d) printing, nano and laser technologies applications in buildings are also hi-tech in nature which requires practical involvement of the architects at all developmental stages, etc. Such among other amazing construction technologies can be well handled by the Environmentalists in relation to Entrepreneurship.

**Results**

For environmentalists to successfully achieve the full opportunities of entrepreneurship education development, the followings should be in place:

a. There should be a serious commitment on the part of government, council, senators, and all others stakeholders of tertiary education in Nigeria to appropriately fund the educational sector to ensure production of quality graduates in consonant with the curriculum, energy and supply of basic supporting facilities for Sustainable Development.
b. Another important area is that environmentalists in training and practice which are true mirror-reflection of the society should embark on researchable projects that will cover the socio-cultural, political and technological projects so as to meet up with the challenges of entrepreneurship.
c. Lastly, mass awareness education programmes should be introduced at all levels and the media houses should support Environmentalists to achieve the Transformation Agenda for a National Development.

**Conclusion and Recommendation**

As a way forward, continuity is a concept that is missing in our past regimes. However, some of the efforts and means to be used for Sustainable Environmental Entrepreneurs have been discussed in this paper with a view to addressing positive youths in Bauchi and for National Development such as:

1. The curriculum of the environmental programmes has fully equipped the youths to meet up with the technological challenges in the area of entrepreneurship development.
2. The existence of unlimited entrepreneurship opportunities in all architectural sector of the economy must be harnessed by architects to enable them acquire personal businesses, become their real masters and ultimately drivers as against passenger status.
3. There must be great involvement in real estate property development.
4. Necessary provision of expertise is needed to transform the youths in which emphasis has been laid on technical education application of Sustainable Environmental Entrepreneurship so that the current obstacles being faced with the youths would be greatly revamped in the recent future.

5. In conclusion, government alone cannot do everything as states will only progress with appropriate and adequate provisions for the teeming youths in Bauchi to embrace entrepreneurship.

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