

## Environmental Degradation as Constraint to Sustainable Rural Entrepreneurship in the Niger Delta, Nigeria

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### ABSTRACT

Recent trends have shown the persistence of environmental degradation arising from capitalist oil resource extraction in the rural Niger Delta, Nigeria. The adverse effects of degradation on rural entrepreneurship have not been adequately investigated. The objective of this study is to examine environmental degradation related constraints to sustainable rural entrepreneurship in the Niger Delta. The methodology for the study was a cross sectorial survey which used a sample of entrepreneurs engaged in non-formal small scale businesses in the rural Niger Delta. The aim was to understand the salient factors undermining rural entrepreneurship. The major findings suggest that rural entrepreneurship largely derives from the natural environment and beyond monetary constraints; environmental degradation in the region remains a key problem. In the alternative, the study made some recommendations.

**Keywords:** Sustainable Entrepreneurship, Economic Empowerment, Rural Development, Niger Delta;

### INTRODUCTION

In recent decades there have been scholarly interest in entrepreneurship research (Aldrich, 1999; Alvarez & Busenitz, 2001; Binks & Vale, 1990). Monetary economists and development experts suggest that entrepreneurship has played key roles in the economic development of most developing countries (Fayolle, 2007; Majid & Koe, 2012). This phenomenal growth in both formal and informal entrepreneurship has provided a set of novel interest and scholarly agenda on possible sustainability of entrepreneurship.

A number of studies have explored the challenges of entrepreneurship in Nigeria. Bamkole (2005) identified some of the challenges in the context of the "MISFIT Factor" which he examined within six key areas including market (M), infrastructure (I), support service(s) (S), information (I), and technology (T). Onugu (2005) investigated related entrepreneurship challenges in Nigeria and found that they include inadequate market research, narrow market base, poor planning, lack of record keeping, lack of experience, poor business strategy, lack of proper book keeping, inability to separate business and family or personal finances, inability to

distinguish between revenue and profit, inability to procure the right plant and machinery, inability to engage or employ the right caliber staff, unhealthy competition, lack of preference and patronage for locally produced goods and services, preference of foreign goods limited initiative and poor decision making with over reliance on the owner of the business.

There are also issues associated with irregular power supply and other infrastructural inadequacies (water, roads, etc.), unfavorable fiscal policies, policy inconsistencies, lack of funding, restricted market access etc. Patel and Chavda (2013) in their study found difficulties faced by rural entrepreneurs to include lack of finance to start business, low level of purchasing power of rural consumer resulting in insufficient sales volume for the entrepreneurs, poor records and lack of adequate financial statements, lack of credit facilities, challenges of dependence on small money lenders for loans with high interest rates

USAID in its 2005 report on SMEs constraints in Nigeria showed that the issue of enabling environment has been central. This enabling environment perhaps constitutes a central impediment to sustainable rural entrepreneurship in the Niger Delta which this study seeks to

investigate. The study is primarily concerned with rural entrepreneurship within the non-formal sector. This is because of research paucity linking the rural entrepreneurs with sustainable development policy initiatives to overcome the constraints posed by environmental or ecological factors.

Rural entrepreneurship includes predominantly rural based entrepreneurs. They largely operate within the non-formal sector. Patel and Chavda (2013) identified the basic principles of rural entrepreneurship which among others include; (i) Optimum utilization of local resources in an entrepreneurial venture by rural population - Better distributions of the farm produce results in the rural prosperity. (ii) Entrepreneurial occupation of rural population which reduces discrimination and provides alternative occupations as against the rural migration. (iii) To activate such system to provide basic '6 m'-manpower, money, material, machinery, management and market to the rural population.

In particular, dominant studies have emphasized monetary or financial constraints with less study on environmental and ecological factors affecting entrepreneurship within the rural settings. Chambers (1983) links rural development to entrepreneurship and contends that rural development is a strategy to enable a specific group of people, poor rural women and men, to gain for themselves and their children more of what they want and need. It involves helping the poorest among those who seek a livelihood in the rural areas to demand and control more of the benefits of development.

While a number of studies have documented the entrepreneurship potentials in development contexts including poverty alleviation, rural empowerment dynamics and organization of firms (Chambers, 1983; Gartner, Carter, & Reynolds, 2010), scant studies have examined the distortions of rural entrepreneurship in the Niger Delta arising from environmental degradation.

Since the discovery of crude oil in the region in the 1950s, several multinational oil companies have engaged in oil resource exploration and exploitation such as Shell, Total, Elf, Chevron, Agip, Schlumberger etc. The ecological breakdown arising from oil resource extraction activities of these multinationals and the particular ways such activities impact sustainable rural entrepreneurship is largely unknown.

While conventional wisdom of the 1970s held that crude oil resource endowment would result in attainment of higher rates of economic growth, today oil resource extraction continues to be regarded as a major source of environmental degradation in the region (UNEP, 2011). This includes water and land pollution, gas flaring, acid rain, mangrove deforestation etc. Beyond environmental degradation are challenges of persistent poverty and low human development index (UNDP, 2006).

Nevertheless, despite the proliferation of studies on entrepreneurship, the central problem of this study is the persistent degradation of the rural Niger Delta which undermines rural entrepreneurship and lack of policy response that links rural entrepreneurship with sustainability. The aim and purpose of this study is to fill the research gap on constraints to rural entrepreneurship arising from environmental degradation. This research paucity does not match the importance of rural entrepreneurship nor does it address the enormous problems and issues on rural poverty, ecological justice and resource equity.

The dominant assumption by policy makers and development strategists is that the oil economy which derives from the Niger Delta is the sole panacea to economic growth and development of Nigeria, leaving out the non-oil resources. This misleading notion suggests that adequate attention has not been given to strategies for sustainable rural entrepreneurship. Thus, rural entrepreneurship has rarely been seriously questioned on environmental sustainability grounds.

This points out that the notion that rural entrepreneurship cannot thrive under a degraded environment has never been challenged. Entrepreneurship goes beyond setting up a business. It involves modalities for identifying opportunities, allocation of resources, and creation of value. This value becomes relevant when it is beneficial to the wider human society and the environment other than the entrepreneur alone. This finds plausible extrapolation within the sustainability debate. Gnyawali and Fogel (1994) suggest that a key factor that determines the sustainability of rural entrepreneur in most areas is the environment. This is critical as the environment is the fulcrum of enterprises.

Against this background, this work makes a new contribution one which suggests that ecological breakdown taints the natural environment and

undermines sustainable rural entrepreneurship. A broader elucidation of environmental constraints to sustainable rural entrepreneurship will guide the overall objective of this study. This will be linked to the understanding of the core needs of rural entrepreneurs in setting up rural business outfits and how the processes involved in the business transaction could be tailored towards sustainable entrepreneurship. The study demonstrates that sustainable rural entrepreneurship scholarship had emerged as a recent field of enquiry to integrate rural entrepreneurship in the overall objective of sustainable development. In particular, this research makes an effort to advance knowledge on aspects of rural development. It aims to deepen knowledge on private sector development and wealth creation involving Small and Medium Scale Enterprises (SMEs) in rural areas largely conceived poor, deprived and economically alienated (Scorsone, 2003; Gibbs, 2009; Hockerts & Wüstenhagen, 2010; Kibert, et al; 2012).

Sustainable rural entrepreneurship agenda is significant for researchers, policy makers, business entrepreneurs, monetary economists and similar stake holders seeking for more efficient and resourceful strategies for inclusive growth and small and medium scale business development. It is also important for the overall efficient management of the natural resources where rural entrepreneur largely derives within the non-formal sector. Sustainability which maintains a development balance between human and natural resource interactions of present and future generations becomes important within rural entrepreneurial studies as it reflects the major significance of resource efficiency.

The study follows debates which argue that the environment affects entrepreneurship (Gnyawali & Fogel, 1994; Maes, 2003; Baran & Velickaite, 2008). The paper contends that the poor grasp of environmental degradation may jeopardize the development potential of sustainable rural entrepreneurship. In the alternative, the paper argues that the Niger Delta has the prospects for rural entrepreneurship, however what has remained understudied is how to counter the myriad ecological problems constricting the sustainability and maximization of rural entrepreneurial potentials of the region. The study posits that entrepreneurship should be understood as a development endeavor which has been confronted with sustainability

challenges arising from environmental degradation. The rest of the paper is structured as follows; conceptual issues, theoretical framework, research methodology, results and discussion, conclusion and recommendations.

### **Conceptual Issues**

The term sustainability was popularized by the Brundtland Commission report of 1987, *Our Common Future*, which provided the definition of sustainable development as development that meets the needs of the present generation without compromising the ability of the future generations from meeting their own needs (WCSD, 1987). Sustainability has in recent times emerged as one of the most widely deployed concepts in every facet of development studies (Davidson & Hatt, 2005). Sustainable development has three key pillars namely; environmental, social and economic. This suggests the resurgence of divergent perspectives on the concept of sustainability and in particular, its importance as an emerging development paradigm.

The initial postulations on sustainable development were primarily informed by persistent environment degradation envisaged as a threat to the future of humanity (Hart, 1997). Central argument is that sustainability will be a guiding agenda for the 21<sup>st</sup> century development discourse and practice. This articulation was reinforced and elaborated in Agenda 21 which provided the blue print for sustainable development (UNCED, 1992).

While some scholars conceptualize sustainability as a practice of preservation of both human and non-human species including life support system (Goodland, 1995), sustainability has also been examined as a tool for re-evaluation of neoliberal unsustainable consumption patterns (Driessen, 2003; Harvey, 2005).

Recent debates have located sustainability within the critique of Western consumption patterns and lifestyle (Kotten, 1995; Hobson, 2003; Kovel, 2004; Harvey, 2005). Within the development scholarship, novel interest in sustainability extends to a wide range of discourses such as eco-efficiency, ecological justice, triple bottom line, etc. The dynamics of eco-efficiency has provided more in-depth examination of the trends associated with sustainability debate especially in the context of corporate business transactions. This suggests the use of natural resources in business

transactions with ever less waste (Schmidheiny, 2000; Amadi, Igwe & Wordu, 2014). This strand is arguably linked to sustainable entrepreneurship. In this regard, sustainable entrepreneurship is aptly understood as that entrepreneurship that meets the enterprise needs of the present entrepreneurs without tainting the natural environment for future entrepreneurs.

Although conceptual explorations of sustainable entrepreneurship among the poor societies have been scant, despite these shortcomings, some studies point to the fact that policy measures can redirect the basis of sustainable entrepreneurship (Storey, 1994 ; EZ, 1999). In rural India, Patel and Chavda (2013) argue that effort should be made by the government to recognize rural entrepreneurs to check rural urban migration.

In development studies, while further insight has been created in understanding sustainability such concerns have also extended to the small and medium scale enterprises (SMEs) and the wider corporate world pointing to the need for sustainable entrepreneurship. Chick (2009) argued on the basis for “Green Entrepreneurship” as a fundamental sustainable development challenge. More recently sustainability has received international attention in a number of themes associated with entrepreneurship (Dean & McMullen, 2007; Dixon & Clifford, 2007; Elkington, 2004).

Beyond the growing number of literature deployed to describe sustainability, studies that examine sustainable entrepreneurship as a development practice, policy tool for SMEs and empowerment strategy for the rural households in the developing countries have been scant. This reinforces the saliency of sustained research agenda on rural entrepreneurial studies. The arguments for rural entrepreneurship suggest that the scheme helps to check rural/urban migration, empowerment of the rural populace, provides alternative means of rural livelihood and in particular strengthens participatory and sustainable rural development (Shepherd, 1998; Chambers, 2010).

A review of the literature suggests that studies that examine sustainability as a central thrust of entrepreneurship and remains at the forefront of entrepreneurial development theory have been scant. This dearth of research results in superficial engagement of entrepreneurial scholarship within the sustainable development research. However there are a handful of studies on aspects of entrepreneurship and development

(Carsrud & Brännback, 2007; Baron & Shane, 2008; Majid & Koe, 2012). Nonetheless, researches on sustainable rural entrepreneurship tend to suggest the need for a novel re-engagement with rural entrepreneurship scholarship to advance development theory and policy.

As a broadly deployed term in recent development studies, sustainable rural entrepreneurship creates novel scholarly interest to interrogate the patterns of interactions and relationship of rural entrepreneurs with their natural environment. The choice of the Niger Delta is premised on the historic evidence of environmental degradation arising from the multinational oil companies (MNOCs) and oil exploration in the region.

To critically explore linkages between sustainability and rural entrepreneurship, a definitional goal is apt. Although to achieve a definitional goal may not be very easy as there is no consensus among scholars on the meaning of the term entrepreneurship (Gartner, 1988; Veciana, 2007). Majid and Koe (2012) argue that enterprise has existed several centuries. They consider enterprise as the foundational basis of entrepreneurship.

The term “entrepreneurship” is derived from the French word “entreprendre”, which means “to undertake” or “to do something”. Binks and Vale (1990) contend that entrepreneurship is an unrehearsed combination of economic resources informed by the uncertain prospect of temporary monopoly profit. Early conceptual debates on entrepreneur is traced to the works of scholars such as Richard Cantillon, Jean-Baptiste, John Stuart Mill, Joseph Schumpeter, Israel Krizner, Knight, Peter Drucker among others (Cantillon, 1755; Schumpeter, 1942; Knight, 1967; Drucker, 1970; Krizner, 1973). The term has been used to indicate a range of activities from creation, founding, adapting to managing a venture (Cunningham & Lischeron, 1991).

Conceptual exploration of the term suggests that Schumpeter (1934), provided one of the commonly deployed definitions which stresses “innovative creative destruction”; in this context, novel business trends replace the traditional businesses considered old. Such conception on entrepreneurship as innovative enterprise gave rise to subsequent definitions both in organizational management and development theories of entrepreneurship (Drucker, 1970; Kirzner, 1973; Gartner 1988,

Stevenson & Jarillo 1990; Hisrich & Peters, 2002).

To some, entrepreneurship means primarily innovation, to others it means risk-taking. To others, a market stabilizing force and equally starting, owning and managing a small business. An entrepreneur is a person who either creates new combinations of production factors such as new methods of production, new products, new markets, finds new sources of supply and new organizational forms or as a person who is willing to take risks or a person who by exploiting market opportunities, eliminates disequilibrium between aggregate supply and aggregate demand or as one who owns and operates a business. The entrepreneur has been seen as an actor, innovator or a developer of technology.

Stokes, et al. (2010) provided a systemic exploration of entrepreneurship classified within three broad definitional categories notably; (i) Processes; (ii) Behaviors and (iii) Outcomes.

The first categorization examines how the entrepreneurs do what they do (strategies, objectives, vision, mission, targets, imputes, outcome, priorities and emerging challenges). The next categorization tries to explain the “character” of the entrepreneur, how does the entrepreneur interact with the immediate environment, relates with sector competitors, customers or colleagues. The third category which is outcome, centers on results and survival of the entrepreneurship, it addresses the question of how the entrepreneur is able to match targets with results, survive in a competitive sector and meet with priorities and set objectives. This is integral as it underscores the survival or otherwise of the entrepreneur, including what the entrepreneur produces (including services) while engaging in the enterprise (Gartner, 1988).

Inegbebor (1987) argues that entrepreneurship is the willingness and ability of an individual to seek out investment opportunities, establish and run an enterprise successfully. Low (2001, p.24) proposed that entrepreneurship as a scholarly field should seek to understand how opportunities bring into existence future goods and services that are discovered, created and exploited, by whom and with what consequences.

Entrepreneurship development Programme is increasingly recognized as important driver of

economic growth, generating employment, fostering innovation and poverty reduction through the empowerment of young men and women (UNCTAD, 2010). Thus, entrepreneurship has been examined from a number of perspectives. For instance, from the economic perspective Fayolle, (2007), Baron & Shane (2008) conceive entrepreneur largely as a venture informed by economic motives. Fayolle (2007) identified the contribution of entrepreneurship to economic development notably, job creation, business opportunities utilization and product innovation, provision of employment and overall economic development of a country. In their views, Baron and Shane (2008) argue that entrepreneurship is the “engine of economic growth”. This is further elaborated in recent studies which suggest that the wealth and poverty of developing countries are largely linked to the entrepreneurial nature of their economies (Landes, 1998).

In most countries in South East Asia notably Taiwan, Boulton and Turner (2005) underscored the significant role Small and Medium Enterprises (SMEs) play in systemic empowerment of the people. This reinforces the dominant notion held on the rise in enterprise which some scholars of entrepreneur research conceive as a distinctive domain (Venkataraman, 1997).

Beyond conceptual and definitional challenges, it is important for our purpose to provide a working definition of entrepreneur to advance a critical exploration of the divergent trends associated with sustainable rural entrepreneurship. For our purposes, it is enough to define sustainable rural entrepreneurship as rural economic activities that are aimed at providing profits and subsistence to the entrepreneur without tainting the natural environment for future entrepreneurs.

This perspective is suitable as it provides the springboard for a broader elucidation of the possible nexus between rural entrepreneurship and sustainability. It draws attention to “sustainable entrepreneurship” which is the thesis of this paper. Organizational theorists of entrepreneurial sustainability emphasize the need for sustainability driven organization (Parrish, 2010).

The concept of sustainable entrepreneurship derives largely from recent scholarship on sustainable development seeking for possible nexus between sustainability and entrepreneurship.

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Majid and Koe (2012) argue that sustainable entrepreneurship can also be considered as an umbrella term for environmental entrepreneurship, green entrepreneurship, ecopreneurship and social entrepreneurship. However they contend that much of this debate and its postulation remain rather unclear and ambiguous as most of the terms are rarely deployed in practical terms among entrepreneurs.

Rather than focus wholly on “environmental entrepreneurship” Kibert et al;(2012)suggest “ethics of sustainability” among entrepreneurs in which business transactions could be conducted along ethical lines. Thus, environmental and ecological issues associated with entrepreneurship encompass a broader dimension of terms such as ecological enterprise, entrepreneurial resource accounting and green entrepreneur.

Studies seeking for causal connections between sustainability and entrepreneurship centre on preserving the present business enterprise to meet future entrepreneurial needs. It is indeed the protection of both the entrepreneur and the environment where the resources are derived and importantly where the business thrives. Crals and Vereeck (2004) reinforce this perspective and demonstrate that sustainable entrepreneur involves the persistent dedication of business enterprises to ethical behaviors and contribution to economic development at the same time improving its own workforce, their households, the local and global community and the future generations. Thus, the entrepreneur does not jeopardize the chances of other stakeholders from meeting their own entrepreneurial needs and in particular, the protection of the ecology.

Beyond the ecological perspective, there are debates which examine sustainable entrepreneurship from a multidimensional strand(Tilley & Young, 2009).This includes a wide range of endeavors such as economic, social, cultural, political etc that are aimed at profit maximization, individual subsistence and survival.

Despite divergent studies and literature on entrepreneurship including research on rural entrepreneurship in Europe and America (Scorsone, 2003; Stathopoulou, Psaltopoulous & Skuras, 2004), few studies have looked at rural entrepreneurship in the developing areas. Scorsone (2003) argued that rurality is the influential entrepreneurial resources which can

provide both opportunities and constraints for rural entrepreneurs. He observed the traditional roles played by credit access and business counseling to entrepreneurial support systems. In the Nigerian context, the country is naturally gifted with both material, human and entrepreneurship skills .The realization of the full potential of these opportunities has been inhibited by the implementation of inappropriate and unsustainable policies (Thaddeus, 2012; Adebobola, 2014).There are several entrepreneurs both in the urban and rural settings. In a comparative study on rural and urban start-up entrepreneurs in Nigeria, Gadi, et al;(2014) found that the rural areas are marginalized as preference is given to urban entrepreneurs. To redress much of the anomalies, the federal government established a number of institutions and agencies to strengthen entrepreneurship and SMEs. These include:

- Micro Finance Banks
- The Nigerian Industrial Development Bank (NIDB).
- National Economy Reconstruction Fund(NERFUND)
- People’s Bank
- Community Banks
- Industrial Development Centres
- Second Tier Securities Market(STSM)
- World Bank SME I AND II Loan Schemes
- Fiscal and Monetary Policies
- National Poverty Alleviation Programme (Including State and Local government levels)
- Advisory Agencies
- Bank of Industry
- Small and Medium Industries Equity Investment Scheme(SMIEIS)
- The Nigerian Agricultural and Rural Development Bank
- The establishment of Entrepreneurship Development Centres (EDCs)in Nigeria’s six geo-political zones by the Central Bank of Nigeria (CBN).

Despite plethora of schemes outlined above, critiques of the dominant Nigerian entrepreneurship practice suggest that most of

these strategies have not been successful because they were largely alien resulting in distortion of rural entrepreneurship (Adebola, 2014). Thus, much of the critique of the debates on sustainable entrepreneurship centers on its reliance on Western model. Nurse (2006) raised some of the missing core issues such as the inclusion of culture, social equity, environmental responsibility and economic viability in the sustainable entrepreneurship debate. This forms part of the debate that suggests a possible link between sustainable entrepreneurship and value creation thus contributing to sustainable development of the wider socio-ecological system (O'Neill, et al.; 2009, p. 34). The brief conceptual exploration reveals research paucity on sustainable rural entrepreneurship in the Niger Delta. This suggests the urgency of possible causal linkages between rural entrepreneurship and sustainability.

### **Theoretical Framework**

Much of the academic debate on entrepreneurship over the last quarter of a century or more has concerned itself with entrepreneurial, behavioral and personal traits (McClelland, 1961; McClelland & Winter, 1969; Fraboni & Saltstone, 1990; Gibb, 1998). There is need to establish linkages between entrepreneurship and theoretical debates that provide a suitable framework to understand the constraints of sustainable rural entrepreneurship. Entrepreneurship is a relatively young academic field. This creates problems in determining plausible theoretical framework in the field and the scope of its research. There is also the lack of a unifying framework that distinguishes entrepreneurship from strategic management (Zahra & Dess, 2010).

Zimmerer and Scarborough (2006), argue that although the creation of business is certainly an important facet of entrepreneurship, it is not the complete picture. The entrepreneur as a person brings in overall change through innovation for the maximum social good.

This work builds on the "Motivation, Opportunity and Skills" (MOS) model. Developed by Lundström and Stevenson (2005). The framework argues that entrepreneurship is guided by motivation which explains the individual's inclinations to set up a business, this is often propelled by opportunities provided and framed within an enabling environment. In this regard, constraints posed by environmental

degradation in the Niger Delta could be at odds with the opportunity or tendency to actualize a sustainable rural entrepreneurship.

The next component of the model is skill. This explains aptitude of the entrepreneur which is brought to bear as he/she puts his business ideas into a productive mechanism. Thus, entrepreneurship could thrive amidst motivations and inclinations. Lundström and Stevenson (2005) argue that entrepreneurship constitutes a "system" which encompasses entrepreneurs, and similar institutions and government policies and actions, and outcome that could encourage entrepreneurial activity. They maintained that the primary responsibility of the government is to provide an enabling environment that could support the growth of entrepreneurs.

In a distinct manner, this framework and its model aptly captures some of the key policy gaps in the Niger Delta where the government has failed to integrate rural entrepreneurship into its rural empowerment programme and policies.

### **History of Study Area**

The Niger Delta is an oil rich coastal region in the Gulf of Guinea. It is bordered to the South by the Atlantic Ocean and to the East by Cameroun. It is a densely populated region with an area that covers about 70,000 km<sup>2</sup> (27,000 sq mi). The region constitutes up to 7.5% of Nigeria's land mass. It is home to approximately 30 million people. Since the discovery of crude oil in the region in the 1950s, several multinational oil companies have engaged in oil resource exploration and exploitation. The region is made up of Bayelsa, Delta, Rivers, Abia, Imo, Ondo, Edo, Akwa Ibom and Cross River States.

According to the 2006 Census figure of Nigeria, the region had a total population of 31.2 million persons. It is made up of more than 40 ethnic groups such as Ijaw, Efik, Ikwerre, Ogoni, Engene, Ibibio, Anang, Oron, Itsekiri, Urhobo, Kalabari, and Igbo (Harry, 2010).

The region is the 3rd largest wetland in the world and has a coastline spread of over 540km. Major oil and gas activities in Nigeria takes place in the Niger Delta. The area contributes over 80% of Nigeria's revenue (Uyigüe & Agho, 2007; Amadi & Igwe, 2015).

The Niger Delta has rich natural vegetation and reputed as one of the world's richest

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biodiversity centers. It is one of the largest rain forests in Nigeria with several mangrove swamps, savannahs, mountains and waterfalls and a number of rare plant and animal species, including endangered species. The Niger Delta like most wetlands has enormous tourist potentials (Amadi & Igwe, 2015).

Niger Delta has abundant natural resources which creates some meaningful insights into the livelihood and entrepreneurial potentials of the region. From agricultural value chains, including cassava, palm oil, etc, fishing, rural cooperatives and associational lives and non-farm entrepreneurship such as trading, building of canoes, production of local gin, crafts etc. This points to the fact that the Niger Delta is endowed with human and material resources as entrepreneurship has been a central survival and poverty alleviation strand of the region who are predominantly fishermen, farmers, and canoe builders.

The non-crude oil potentials of the regions have been document. Before the discovery of crude oil, Rivers State (one of the states in the Niger Delta) was known as 'Oil Rivers' for its palm oil potentials.

Other non-oil related entrepreneurship includes fishing which accounts for more than 70% of the total means of rural livelihood in the riverine areas. While farming is a dominant mode of subsistence in the upland areas. The rich vegetation of the region in areas such as Ogoni (an ethnic group in the region) accounts for massive rural farming and production of staple food crops such as grains, cassava, yam, vegetables, plantain etc.

Other means of rural livelihood include building of canoes, inland water way transportation, poultry, production of local gin, gathering of sea foods, logging of woods in places like Warri and Sapele in Delta State, palm produce, hunting, palm wine tapping, building of nets etc.

The fertile vegetation and vast agricultural potential make the Niger Delta a suitable area for a number of entrepreneurial activities. What has not been sufficiently studied is the sustainability of entrepreneurship in the Niger Delta as a number of factors such as environmental degradation arising from deleterious oil extraction by the multinational oil

companies (MNOCs) impact the environment. There are equally, non- environmental factors such as socio-economic and political factors, local conflicts, hostage taking by militants etc which are contributory factors.

Again, non- oil entrepreneurship which constitutes a substantial share and a leading position in rural subsistence continues to suffer major setbacks in the Niger Delta since the discovery of crude oil. Although non- oil entrepreneurship continues to occupy a dominant position in the region despite threats by increasing environmental degradation.

The paucity of research discussing how to strengthen rural entrepreneurship in the Niger Delta does not match the actual importance of sustainable entrepreneurship nor provide adequate insights in understanding the basis of private sector development potential of the region and in particular, blurs fuller understanding of the core dynamics of entrepreneurship in the changing world.

### Research Methodology

#### Research Design

This study is a cross sectorial survey which builds on Efi and Akpan (2012) and makes a new contribution which suggests that despite the entrepreneurial potentials of the region, environmental degradation has been a major constraint. Primary data for the study which included questionnaire and focus groups discussions (FGDs) were collected between 2010-2017. The initial three years (2010-2013) were devoted to the use of questionnaire directly administered by the researchers. The semi- structured questionnaire were administered to meet the research objectives, 500 questionnaires were administered to non-formal rural entrepreneurs and owners of Small and Medium Scale Enterprises (SMSEs) in the Niger Delta region. The study used purposive sampling method of selection and the Taro Yamane formula for sample size determination which is given as:  $n = N/1 + N(e)^2$ ; Where  $n$  = sample size,  $N$  = Population, and  $e$  = Error term, the sample size was derived as follows:  $265/1 + 265(0.05)^2 = 265/1.66 = 159.638 = 160$ . Entrepreneurial sustainability dimensions in the Niger Delta were also measured using a five-



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item scale within the scale of High (H), Very High (VH), Medium (M), Low (L), and Very Low (VL).



**Figure 2.** Map of Niger Delta Showing the Nine States

Source: NDDC, 2014

### RESULTS AND DISCUSSIONS

The major findings of the study are presented under environmental and non-environmental constraints to sustainable rural entrepreneurship. The aim is to substantiate both comparative and empirical data of the study. The findings suggest that environmental factors pose greater threat to sustainable rural entrepreneurship. This was made evident with the fact that rural entrepreneurship largely derives from the natural environment and forms part of rural livelihoods. The study found that a number of rural entrepreneurs were negatively impacted by environmental degradation.

Out of the total questionnaire administered, 350(75%) were returned while 150(15%) were discarded either as being void, partially answered or altered. It was followed by two focus group discussions (FGDs) directly targeted at purposively selected owners of Small and Medium Scale Enterprises (SMEs) in the Niger Delta region grouped into two clusters on the basis of their areas of entrepreneurship. Well-established multiple-item 5-point Likert scales were also adopted to measure the variables.

Several environmental factors were identified to have effects on rural entrepreneurship. Among the owners of domestic fish ponds, ecological factors associated with acid rain and water pollution were identified as factors to water source particularly those that relied on rain and flowing river. A recent report suggests the massive pollution of several rivers in the region

with presence of sheen a blue black oil substance on the water surface (UNEP,2011). And more recently black soot, which is a black substance emitted from artisanal refining pollutes air and water for consumption and undermine rural entrepreneurship.

Similarly, Goyer, et al; (1985) reported that acid rain has been on the increase in parts of the Niger Delta notably Rivers and Delta States. This includes the minute droplets of water in clouds which form sulfuric and nitric acids. The droplets are often toxic to humans and the ecosystem. Acid rains occur as a result of the infiltration of water with atmospheric carbon dioxide which could be toxic for human consumption and related commercial uses. The rain yields an average of a pH of 5.6–6.5, precipitation with a pH below 5.0 is a result of a significant anthropogenic contribution of pollutants, this largely results from sulfur dioxide and nitrogen oxide(Perhac,1992).

The experience in the Niger Delta has been intense (UNDP, 2006).This largely arises from anthropogenic activities linked to the multinational oil companies in the Delta resulting in various patterns of environmental degradation (Nduka, et al;2008).

Rural entrepreneurship is also affected by land Pollution. UNEP (2011) report provided a detailed soil contamination investigation in Ogoni community one of the most degraded communities in the Niger Delta. The community is composed of about 67% farm based rural entrepreneurs. This includes communities like

Baranyonwa Dere, Kegbara Dere, Kpor, Bodo, Mogho, Bomu, Lewe all in Gokana Local Government Area. Like similar parts of the rural Niger Delta contaminated by crude oil extraction, the report shows that more than 4,000 water samples from 69 sites including ground water from 142 wells and 780 boreholes revealed water contamination, which pose serious threats to human health and sustainable rural entrepreneurship.

Farm based entrepreneur such as garri processing, palm oil production, yam cultivation etc is threatened by gas flaring. The flaring of gas heats up the atmosphere and inhibits food crop production. Chilaka (2009) in a study stated that the Nigeria gas market lacked adequate infrastructure to produce natural gas and that a considerable quantity of the produced gas is flared. He reported that 94.9% of produced gas was flared in 1978 and about 79.2% was flared in 1984. Currently, Nigeria is flaring about 40% of produced gas and re-injecting 12% to enhance oil recovery (Onyekonwu, 2008).

Deforestation as a result of crude oil prospecting variously affects rural entrepreneurship. This includes failing of trees in places like Sapele in Delta State. In the mangrove forests where several entrepreneurs derive their subsistence including fishing in the creeks, hunting and harvesting of medicinal plants, the incidence of persistent deforestation beyond dominant lumbering in the region has resulted in the destruction of the flora and fauna. This negatively impacts rural entrepreneurship. In particular, the persistent tree harvesting for timber has resulted in shortage of hardwood for several entrepreneurial endeavors including carving, production of household utensils such as pestle and mortar, rural furniture, building of boats and nets for fishing (Okpo, 1996). The major trees fell for timber in the Niger Delta include *Chlorophora excelsa*, (Iroko or African teak) *Entandrophroma cylindruim* (Sapele wood), *Tripochitan scleroxylon* (Obeche), *Khaya spp* (Mahogany), *Mitragyna ciciata* (Abura), *Lovoa trichilioides* (African walnut), *Terminalia supeaba* (Afara), *Piptadeniastrum africanum*, *Pentacantha mycrophylla*, *Ceiba pentandra* and other hardwood species with straight trunks.

Tables 1 and 2 below provide broader elucidation of the constraints and challenges of sustainable entrepreneurship in the Niger Delta. Both the five point scale and the five point ranking were

interpreted in line with the over- all objective of the research.

Table 1; In a scale of Very High (VH), High (H), Medium (M), Low (L), Very Low (VL), the table shows that environmental factors affect sustainable rural entrepreneurship in the Niger Delta. This is evident from Table 1: Five Point rural Entrepreneurial Sustainability measurement Scale in the Niger Delta which shows that Acid Rain ranked 3.83, oil spill, Water/land Pollution ranked 3.90, Coastal Flooding/ Erosion 3.80, Gas Flaring 3.76, Oil Spill 3.92. Thus, oil spill has a Very High (VH) impact on the environment, this is corroborated with a number of studies (Uyigüe & Agho, 2007; UNEP, 2011, Amadi, et al. 2015).

The 5 point likert scale and the research questionnaires made similar insightful findings as part of test-retest analysis. This includes problems of gas flaring, acid rains, oil spill, mangrove deforestation etc. Equally, correlational aggregations of non-environmental factors were undertaken in table 2.

In table 2; a five point scale of non-environmental factors were tested for validity and correlation with a wide range composite indicators to identify non environmental factors affecting sustainable rural entrepreneurship in the Niger Delta, the scale indicated that lack of adequate government policy /funding ranked first with 74.38%. Problems of policy inertia by the government including non-policy framework on sustainable entrepreneurship have been interpreted from various perspectives. This encompasses issues of raising equity capital, providing adequate infrastructure and productive environment, incentives to entrepreneurs, provision of raw materials, issues of ecological challenges, poor technological know-how and persistent public corruption. There are issues of poor loan facilities where they exist as in the case of micro financing there are a lot of complexities.

Management was second with 73.13%. In recent years, a new perspective with regards to entrepreneurs' sustainability challenges has arisen, this includes corruption and disincentive to enterprise (Misangyi, Weaver & Elms, 2008; Anokhin & Schulze, 2009; Tonoyan, Strohmeier, & Habib, 2010). In Nigeria, the present administration has repeatedly recovered looted funds by the previous administration. Corruption has increasingly been a disincentive to entrepreneurship.

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Infrastructure ranked third with 71.88%. The challenges of infrastructure is critical as recent rural empowerment debate argue that sustainable entrepreneur is a useful tool for economic empowerment (Markley, 2005). It has also been seen as a strategy for inclusive economic growth. Shafeghat, et al; (2008) contend that there is no remarkable difference between rural and urban entrepreneur other than variation in location which might pose challenges to the rural entrepreneur. Infrastructural constraints include issues of good road network, storage facilities for goods and commodities, clean water supply, market facilities etc.

Security ranked fourth with 70.63%. The effects of communal conflicts on sustainable rural entrepreneurship have been documented. The Niger Delta is reputed as a volatile region (Peterside, 2005; Asuni, 2009; Osaghae, et al; 2011). Since the discovery of oil in 1956, a number of security threats ensued including the rise in militancy and hostage taking (Amadi, et al; 2016). This gave rise to the abduction of several expatriate oil workers, this has made sustainable entrepreneurship often challenging.

Persistent local conflicts have giving rise to proliferation of small Arms and Light Weapons (SALWs) with resurgence of local cult groups in

places like Rivers State notably the *Dee Bam* and *Dee Well* each fight for supremacy in the region. Aspects of challenges posed by militancy and ethnic minority tension which disrupt economic activities in the region were documented. The recent resurgence in militancy at post amnesty in the region such as the Niger Delta Avengers, the Ugbesu Red Sea Lions etc have equally been at issue in entrepreneurial sustainability.

While socio-economic factors ranked fifth with 70%. This includes gender inequality, which suggests that majority of the entrepreneurs were males which accounts for 70% while about 30% were females. Educationally about 30% had formal education while in the overall farming and fishing were the overall dominant rural entrepreneurship accounting for about 65% of rural entrepreneurship

Both tables suggest that environmental constraints pose greater challenges to sustainable rural entrepreneurship. However the long term aggregate effects of environmental factors were found to be higher. This suggests that sustainable rural entrepreneurship has strong linkages with the natural environment which increasingly calls for urgent policy attention.

**Table 1.** Five Point rural Entrepreneurial Sustainability measurement Scale in the Niger Delta

Rural Entrepreneur Sustainability Constraints	Rating and Weight Value						MI
	VH (5)	H (4)	M (3)	L (2)	VL (1)	SWV	
Acid Rain	56 35%	56 35%	20 12.5%	20 12.5%	8 5%	612	3.83
Water/land Pollution	58 36.25%	57 35.63%	26 16.15%	10 6.25	9 5.63%	625	3.90
Coastal Flooding/ Erosion	59 36.88%	58 36.25%	19 11.88%	8 5.00%	9 5.63%	609	3.80
Gas Flaring	57 35.63%	56 35.00%	19 11.88%	8 5.00%	20 12.5%	602	3.76
Oil Spill	60 37.5%	59 36.88%	20 12.5%	9 5.63%	12 7.5%	626	3.92

**Source:** Field Analysis, 2016

The following procedures were followed:

a. A weight value of 5,4,3,2 and 1 were respectively attached to Very High (VH), High (H), Medium (M), Low (L), Very Low (VL). Summation of Weight Value (SWV) which is the addition of the product of the number of responses to each entrepreneur sustainability constraint and the respective weight value attached to each rating.

b. The index for each entrepreneur sustainability constraint was arrived at by dividing the

Summation of Weight Value (SWV) by the total number of responses.

This is mathematically expressed as

$$SWV = \sum_{i=1}^5 x_i y_i \dots \dots \dots \quad (1)$$

Where: SWV= Summation of Weight value; xi= number of respondents to rating i; and yi=

The weight assigned to a value (i=1, 2, 3, 4, 5). SWV was then divided by the number of

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Respondents' to arrive at each Entrepreneur Sustainability

This is expressed mathematically as:

$$MI = \frac{SWV}{\sum_{i=1}^5 i = X_i \dots \dots} \quad (2)$$

The index for each management statements / questions thus takes a value of between 5 and 1.

**Table2.** Ranking of Non -Environmental factors Affecting sustainable rural Entrepreneurship in the Niger Delta

Factors	SUM (VH+H)	Percentage	Ranking
Infrastructure	115	71.88	3
Funding/policy issues	119	74.38	1
Management	117	73.13	2
Socio-cultural factors	112	70.00	5
Security	113	70.63	4

Source: Field Data, 2016

### RECOMMENDATIONS

The constraints posed by environmental degradation are indication of challenges of sustainable rural entrepreneurship. Despite the constraints, non- oil entrepreneurship continues to thrive in the region. What is needed is a policy dynamic and collaboration that could mitigate ecological constraints and strengthen sustainable rural entrepreneurship. Whereas a number of proponents had suggested the basis of sustainable rural entrepreneurship as integral to inclusive economic development of most developing societies (Fayolle, 2007; Majid & Koe, 2012), it is important to note that much of these development potentials have not been maximized in the Niger Delta (Amadi & Igwe, 2015).

There is need to organize rural cooperative extension service that will directly engage the rural entrepreneurs on their core existential challenges. It equally important to set up innovative small business development centers which could be a one stop shop for rural entrepreneurial consulting. The centres could provide technical assistance, while banks, community development corporations, and local governments provide credit access (Scorsone, 2003).

There is rich natural resources including fertile soil for agriculture, aquatic resources encompassing fishing and similar sea foods such as periwinkles, crayfish, crabs etc, palm

produce, garri processing, local gin production, plantain, snails etc. These constitute means of livelihood for rural entrepreneurs. However these appear not to have been maximized since the discovery of petroleum. A broad based bottom-top rural entrepreneurship will stimulate the need for inclusive participation beyond the parochial strategy of the Nigerian government which rarely prioritize existential and development needs of the rural entrepreneurs. Inclusive rural entrepreneurship development programme has various components such as financial assistance, training, technology, marketing, general research services, institutional brokering, raw materials and other inputs/services supply (Goldmark & Rosengard, 1981).

Proponents of entrepreneurship development suggest that in any given economy, entrepreneurship development always give birth to job creation which will force people to do something that will better their lives and the country at large (Taiwo, 2014). Thus, a collective strategy of rural entrepreneurship one which is predominantly participatory will add value to rural empowerment and job creation. The sustainability of such initiative is periodic appraisal and status reports where government at the local level is directly involved.

Value creation is integral to sustainable rural entrepreneurship. This suggests that entrepreneurship goes beyond setting up a business. In particular, it involves modalities for identifying opportunities, allocation of resources, and creation of value. This value becomes relevant when it is collectively beneficial to the wider human society and the environment other than the entrepreneur alone. To create value implies inclusive usefulness of the services rendered.

Basic infrastructure and amenities should be provided in the rural areas. There is need to check increasing rural/urban dichotomy to mitigate some of the dominant challenges of rural entrepreneurship. This includes funding such as micro credits or loans, creating market for entrepreneurs. Onugu (2005) pointed out the constraints posed by some of the challenges to entrepreneurship in Nigeria notably inadequate market research, narrow market base, poor planning, lack of record keeping, lack of experience, poor business strategy, lack of proper book keeping, inability to separate business and family or personal finances,

inability to distinguish between revenue and profit, inability to procure the right plant and machinery, inability to engage or employ the right caliber staff, unhealthy competition, lack of preference and patronage for locally produced goods and services, preference of foreign goods limited initiative and poor decision making with over reliance on the owner of the business.

Rural entrepreneurial training centers are suggested within specific locations in the region. The aim is to strengthen the capacity of rural entrepreneurs. These specialized centers could provide innovative skills and strategies to sustainable entrepreneurs. This will be an inclusive programme for women, the physically challenged, the girl child and youths. This takes several forms such as rural craft centers, skills shop and trainings etc. This addresses gender inequality in rural entrepreneurship and accounts for the need to enlarge the choices of women in entrepreneurial activities such as hair dressing, bead making, baking, decoration, catering, hat making etc. This suggests the need for the provision of professional guidance or mentorship, including support services which could redirect the entrepreneurs within the context of their business preferences.

Entrepreneurial information is central to sustainability. This includes response to novel trends in entrepreneurship including ecological, technological, social and economic factors which could facilitate the advancement of rural entrepreneurship.

Analysis of SMEs constraints in the Niger Delta suggests that the issue of enabling environment has been central. Most of the issues raised include, poor government policy, issues of inadequate access to finance, poor infrastructure, the legal system, and foreign competition.

In the particular case of the Niger Delta, we recommend closer government response to meet the various needs of the rural entrepreneurs. Again, there is need for periodic updates on rural entrepreneurial skills and awareness, through participation in rural skill shops and capacity building programmes. This must be distinguished from the non-participatory orientation of most rural development schemes, which, can be strengthened by a wider integration of such schemes within rural contexts.

## **CONCLUSION**

It appears there are a number of consequences of rural entrepreneurial transformation in the Niger Delta. The sustainability map of rural entrepreneurial development points to a number of useful development insights. The point this study has been making is that these entrepreneurial strands could only be sustainable when the environmental factors constricting their attainment is transformed. Thus, a number of ecological factors as the study outlined are contributory to the challenges of sustainable rural entrepreneurship. The argument is that sustainable entrepreneurship should operate as both institutional and development paraphernalia, providing a basis from which the rural entrepreneurs including SMEs and non-formal entrepreneurs could build their empowerment schemes.

In a distinct manner, this aims to meet the entrepreneurial needs of the present without undermining the future. Thus, studies in sustainable rural entrepreneurship can proceed with the understanding of the questions around the patterns of environmental degradation within anthropogenic and non-anthropogenic contexts as well as policy interventions that could strengthen proactive response towards mitigation.

Furthermore, the orientation towards sustainable rural entrepreneurship provides a rationale for strengthening rural livelihoods and bridge rural urban dichotomy to impact the rural poor. This has symbolic relevance as the rural poor are largely vulnerable and confronted with livelihoods vulnerability challenges. There is need to define sustainable rural entrepreneurship as a distinct area of inquiry, constituted by the systemic empowerment of the rural poor households. This forms part of the basis of the debate propagated in this study and related ideas and actions which suggest how sustainable entrepreneurship could be institutionalized. This includes institutional capacity building, environmental and ecological awareness to check lethal capitalist natural resource extraction that constraints rural entrepreneurship.

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