

Revitalizing Infrastructure for Rural Growth and Sustainable Development

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Abstract

The development of extensive and effective programs and processes for rural growth and sustainable development has been viewed as a factor for economic development. This is said to be enhanced through the provision and availability of technical and critical infrastructures on which the Small and Medium Manufacturing Enterprises (SMMEs) thrived positively. The SMMEs represents agents of economic transformation to the society on wealth and employment creation, thus representing well over 90% of all manufacturing enterprises in the world. However, it is also a common occurrence that every year many of these small firms are forced to close their doors. Most of the SMMES do prefer the urban centres due to the availability of some critical infrastructure and there exist dearth of technical and critical infrastructures for Manufacturing and technology development in the rural areas. This paper provides an insight towards the sustainability of SMMEs activities in Nigeria especially in the areas of manufacturing development and Rural growth, owing to the vast natural raw materials available, with the discussion anchoring around local manufacturers which has not been really encouraged in meeting the desired aims of trade and investment liberation, a major source of export via the concept of the provision, sustenance and maintenance of critical and technical infrastructures as part of the strategy.

Keywords: Infrastructure, rural development, sustainable development, SMEs, maintenance management, Nigeria

1. Introduction

Infrastructure growth and development has ever been an on-going, though with high need of attention especially in developing economies like Nigeria. With the ever growing population, urbanisation menace, the need for creating environments for business growth and provision of a sustainable environment has called for the need and immediate attention to the state of infrastructure in Nigeria, most especially to the development of the economy and particularly the rural areas. Most infrastructures in Nigeria are said to be in poor state owing to various factors like poor maintenance culture, poor or inadequate funding and also neglects over a long period of time by government and its different agencies that are to provide and maintain the infrastructure.

According to Akinyosoye (2013a), infrastructures defined by social-economist are instruments considered as factors of production, increasing aggregate output and driving economic growth. From a development stand point: they are seen to enhance quality of life, improving average living standards. Furthermore, Akinyosoye (2013a) expressed that the demand for infrastructure is driven largely by economic and population growth. Looming energy crises and environmental factors are other but less pertinent reasons. Though many governments struggle with funding and procurement strategies aimed at addressing growing demand, infrastructure is not something that can be ignored or wished away by any government.

Rural development has been a common lexicon in achieving sustainability in Nigeria in the recent times, which have being attracting different stakeholders in the achievements of the desired goals and strategies for proper implementations in achieving a technology driven nation as being proposed by the nation's present administration.

The development of extensive and effective programs and processes for rural growth and sustainable development has been viewed as a factor for economic development. This is said to be enhanced through the provision and availability of technical and critical infrastructures on which the Small and Medium Manufacturer Enterprises (SMMEs) thrived positively. In fact, infrastructure is critical to industrial development because SMMEs in developing countries of Africa cannot really thrive without infrastructural support (Bubou et al., 2013). The required basic infrastructure needed by the rural areas in leapfrogging towards a sustainable

environment can be said to be in the form of clean energy, good transportation facilities, good water systems, ICT and education. As quoted by Federal Ministry of Water Resources (2004), the 1999 UNICEFs Knowledge, Attitude and Practice study (1999 identified that the major problems constraining the productivity of the rural household of Nigeria as – water (77%), electricity (53%), poverty (46%), healthcare (40%), roads (26%), fertilizers and education (22% respectively) and latrines (19%).

Acknowledging the importance of infrastructure especially in the African region in the areas of transportation, Energy/ power, Water, Communication, Health and Education (Akinwale, 2010), which positively contributes significantly towards economic growth and poverty reduction has significantly boost growth and sustainability in the Africa setting. The unavailability of infrastructures according to the SOFRECO Reports 2011, affects productivity and raises production and transaction cost.

The Small and Medium Manufacturing Enterprises (SMMEs), represents agents of economic transformation to the society on wealth and employment creation, thus representing well over 90% of all Manufacturing Enterprises in the world. However, it is also a common occurrence that every year many of these small firms are forced to close their doors. Most of the SMMES do prefer the urban centres due to the availability of some critical infrastructure and there exist dearth of technical and critical infrastructures for Manufacturing and technology development in the rural areas.

2. Importance of Infrastructure to Industrial Development

Infrastructure serves as an incentive to increasing economic efficiency and productivity (Egbetokun, 2009). Thus, investments in infrastructure will contribute to increased productivity and economic growth in developing countries where infrastructure is still insufficient (Kim, 2006). Equally, such infrastructural amenities enhance the quality of life (Akinyosoye, 2013b). Likewise, the development of physical as well as social infrastructure plays an important role in the overall advancement of the rural economy. Form the work of Oyedele (2012) infrastructure development is the basis of measuring the performance of democratic leaders and it is the foundation of good democratic governance. Infrastructure is the medium, the tools and techniques of a project or program or strategy. Demand for infrastructural development is higher and resources used in provision of infrastructure are limited. Equally, Oyedele (2012), citing the American Heritage Dictionary, (2009), viewed functionally, that infrastructure facilitates the production of goods and services, and also the distribution of finished products to end-users (markets), as well as basic social services such as schools and hospitals; for example, roads enable the transport of raw materials to a factory. Okeola & Salami (2012) maintain that many years of underinvestment and poor maintenance have left Nigeria with a significant infrastructure deficit that is holding back her development and economic growth.

Poor performance of infrastructural facilities, characterised by frequent disruption in electric power and water supplies and inefficient telecommunication and transportation systems, is a major constraint on productivity (Anyawu, 1997). As firms have to invest huge capital to provide alternative infrastructural facilities to run their businesses, enterprises are forced to carry high cost structure which reduces efficiency and results in loss of competitiveness for their products.

On one side, looking at the works of Apilu & Ige (2011) the Nigerian SMEs utilisation of ICT is relatively low and it is due to lack of electricity, a leading factor among other factors hindering the utilisation process.

While Nigeria's economy continues to grow, strategic investment in infrastructure is an important element of that growth and must be encouraged by government. Government, on the other hand, need to concede that they lack the resource to acquire the infrastructure base required to support or sustain economic development (Akinyosoye, 2013b).

Strategic investment in infrastructures, especially in region of low population to harness the operationability of the SMEs offers a solution to overcoming goods and services constraints and unemployment. Apilu & Ige (2011) also identified the need for and the relationship between infrastructures and tourism development, as tourism has been identified as a critical sector in the service industry having high prospect of generating economic growth and development. The authors further revealed the link between the infrastructure and tourism, as the former contributed positively towards tourist arrivals and the transportation providing the strongest impact.

2.1 Need for Rural Infrastructure

Abumere (2002) defined rural infrastructure to include the system of physical, human, and institutional forms of capital which enables rural residents to better perform their production, processing, and distribution activities, as well as help to improve the overall quality of life. Some of these infrastructures are roads communication

network, irrigation, storage facilities, market facilities, research and extension institutions, schools and universities which train and turn out a variety of skilled agricultural workers.

2.2 Energy

A country's per capita consumption of energy is said to say a lot about that country's level of development. It implies that Nigeria low per capita consumption of energy tells of a weak industrial base. Unfortunately too, the poor energy infrastructure leads to low productivity in firms, drains capital meant for other investment. Electricity contributes to economic growth by supporting industrial, semi- industrial, commercial, and agricultural activities according to Energy Sector management Assistance Program (1993). No meaningful development can be observed without access to modern energy services especially electricity (Eleri, 2002) for such activities like radio and television for extension programs which according to Zhan et al. (2003) pursue the overall goals of technology transfer and human resource development through efficient information delivery to the targeted clients, and for powering of appropriate technologies required for capacity development in the rural areas.

2.3 Transportation

Transport is a key necessity for specialization- allowing products and consumption of products to occur at different locations. Aderamo & Magaji (2010) observed that transportations plays an important role in political, economic and social development of any society by providing avenues through which different parts of any society is being linked together and making the rural areas not being isolated from the main stream of modern society. The authors further insisted that, with lack of good transport infrastructure has resulted in low productivity, low income and fall in standard of living of rural residents and also high rate of poverty. Good transportation system as well-known will facilitate enhanced marketing and rapid industrializations to the rural areas. This will enhance improved productivity through increase in export of processed goods from the small and medium companies.

2.4 Processing technologies

According to Adekoya & Babaleye (2009) processing technologies are about improving farm incomes and reducing rural poverty by empowering farmers and small and medium enterprises especially in the production and agribusiness, and as It also offers employment, often in rural communities, and it is an opportunity to package and brand products in an attractive manner using local resources.

2.5 Information communications technology (ICT)

The role of ICT in rural development as being highlighted by Caspary & O'Connor (2003) is to increase the attractiveness of merchandise trade and entrepreneurial activities with the reduction of isolating the area as in the case of crop price information to the nearest urban centres. ICTs are ubiquitous and with diverse uses. They have become indispensable tools to SMMEs, especially in developing country.

To survive in the global economy SMEs have to improve their products and processes exploiting their intellectual capital in a dynamic network of knowledge-intensive relations inside and outside their borders (Ebrahim et al., 2009; Corso et al., 2003) SMEs need appropriate and up-to-date knowledge in order to compete and there is a strong need to create, share and disseminate knowledge within SMEs (Ebrahim et al., 2009; Nunes et al., 2006). Especially in the emerging and dynamic markets the shared knowledge creation and innovation may speed up market development (Ebrahim et al., 2009); Blomqvist & Levy, 2006). Also according to Osanna et al. (2009) meeting high level demand both from industrial and from private customers in the future required more flexibility and that the organisations must be agile to respond to global market demands.

3. Infrastructure Development Challenges in Nigeria

Nigeria currently has a population of 140 million people. The population is growing at a rate of 3% annually and urbanizing at 5.5% per annum and with a per capita income of US\$1,011 . Nigeria provides large market potentials for enterprises that can identify opportunities for investment that is rooted in the resources of the land. Infrastructure is a generic but huge problem of developing countries. But it is worse for some countries compared to others. For instance, report by World Economic Forum (2013) indicated that the Program for Infrastructure Development in Africa (PIDA) forecasts investments of US\$ 360 billion up to 2040 and priority investments of US\$ 67.9 billion up to the year 2020 in the critical infrastructure sectors of energy, trans-boundary water supply, transport and ICT. However, Nigeria's infrastructure deficits dwarf the above mentioned figures. For instance, the National Integrated Infrastructure Master Plan (NIIMP) estimates Nigeria's infrastructure needs at \$2.9 trillion over the next 30 years, beginning from 2014 (The Economy, 2014). Likewise, the African Development Bank's Infrastructure Action Plan (IAP) for Nigeria estimates \$350 billion of

investment in infrastructure for the next 10 years, implying yearly investments of \$35 billion in infrastructure equivalent to 13 per cent of Nigeria's GDP and over a third of sub-Saharan Africa's annual infrastructure needs (The Economy, 2014).

Despite the huge investment on the provision of infrastructures through various efforts by the various arms of the government, programs and bodies/agencies, sometimes with the help of foreign partners, the state of infrastructures still falls in the poor rankings (Alabi & Ocholi, 2010). The level of the stock of infrastructures in Nigeria remains below the international bench mark of 70% of the GDP and with Nigeria's still between 35-40% of the GDP (Business Day, 2014). Olujimi (2010) also identified the problems of deteriorating infrastructures as being particularly pronounced in the old, indigenous core areas of the cities, while the non-availability of infrastructures is peculiar to the outer spontaneous settlement that accommodate the low income population.

Today, the infrastructure and methodologies for enabling the quick formation and adaptation of fast and flexible design and manufacturing processes are missing (Johnsen et al., 2007). According to Onuoha (2012) Nigeria's manufacturing sector has been operating under very unfavourable environments and contribution little to the nation's GDP. Okeola & Salami (2012) equally highlighted the poor performance of public utility services in Nigeria that has been a subject of considerable discussion, and in furtherance, that Nigeria is faced with the challenge of sustenance and maintenance of inadequate infrastructure due to years of under investment and poor maintenance culture. Due to the recent trends in the current global market, the need for the SMMEs especially in developing countries like Nigeria to be viable and visible, and also more competitive, plus the concept of their survival to continuing producing the advantages accrue to them in any economy. Knowing the nature and the capital based of the SMMEs and the category of available man power, the need to create a sustainable atmosphere for their existence is of importance.

As providing adequate infrastructure is difficult for the public sector to achieve, countries are, more and more resorting to other means of funding. Nigeria is experimenting with Public-Private Partnerships (PPPs) and infrastructure concessioning, foreign direct investment and debt funding through the capital market. Nevertheless, concessioners and private partners provide more efficient procurement, focus on consumer satisfaction and life cycle maintenance, and provide new sources of investment, in particular through limited recourse debt (Amobi, 2013).

4. Small and Medium-Sized Enterprises

Even though Fatai (2011) claims that SMEs have long believed to be catalyst for economic growth and national development both in developed and developing countries. These enterprises are being given increasing policy attention in recent years, particularly in third world countries partly because of growing disappointment with results of development strategies focusing on large scale capital intensive and high import dependent industrial plants.

In defining the small and medium enterprises, Zeng et al in Casal (2010) defined a SME is not an easy task. Its definition varies among countries and has changed during time. Micro, Small and Medium Enterprises are organisations whose headcount or turnover falls below certain limits (Evbuomwan et al., 2012). SMES definitions comes in different ways based on the region and environment, according to the European settings, SMEs was defined as organization that employs less than 250 workers with financial base/ or generate income of about 50 million dollar.

According to OECD (2013), the impact of SMEs is felt in the following ways: Greater utilization of local raw materials, employment generation, encouragement of rural development, development of entrepreneurship, mobilization of local savings, linkages with bigger industries, provision of regional balance by spreading investments more evenly, provision of avenue for self-employment and provision of opportunity for training managers and semi-skilled workers. Over 95% of OECD enterprises are SMEs, which account for 60%-70% of employment in most countries. As larger firms downsize and outsource more functions, the weight of SMEs in the economy is increasing.

SMMEs forms part of any nation manufacturing system and also a strong member of the SMEs, facing challenges attributed to the two areas. As already known, in today's manufacturing environment, the general attempts is to introduce flexible manufacturing systems as their strategy to adapt to the changing competitive market (Gecevaska et al., 2006). Manufacturing remains one of the most powerful engines for economic growth and development which acts as catalyst of transformation of the economic process of a nation, which is also a driver of technology and innovation. It will be easy to observe the benefits as they include their contributions to

the economy in terms of good and services, employment and wealth creation at relative low capital cost. Manufacturing enterprise according to Aburukba et al. (2007), is facing a frequent change in enterprises, as well as increasing global competition between enterprises. This rapid changing requires unprecedented level of knowledge sharing and collaboration among organizations coupled with the availability of the critical and many infrastructures. Manufacturing companies are increasingly challenged by the global competitive environment. Businesses are re-structuring and re-engineering their business models, services and internal structures in order to meet customer demands, like high-quality low-cost products adapted to their specific, rapidly changing requirements and that the Manufacturing challenges for 2010 include the need for more effective (i.e. faster and cheaper) manufacturing processes that will be carried out inexpensively by collaborative networks of enterprises and quickly adapt to market demands (Johnsen et al., 2011).

Small Manufacturing firms play a very important role of jobs and wealth creation in the economics of both developed and developing countries, representing well over 90% of all manufacturing enterprises in the world. However, it is also a common occurrence that every year many of these small firms are forced to close their doors. Most small businesses engage in informal economic activities that possessed high risk and low wages for those who engage as labour.

It was reported that a total of 834 manufacturing companies' closed shop in 2009 as a result of their inability to continue to cope with the challenges posed by the harsh operating environment in Nigeria. Besides, about half of the remaining operating firms have been classified as ailing, a situation that poses a great threat to the survival of manufacturing in the country in the next few years. Oluwabunwa (2010) noted that low technology among others factors is responsible for the inability of local industry to produce capital goods such as raw materials, spare parts and machinery. Export performance of Nigerian firms has been relatively small especially since the early 1970s when crude oil became the major source of export earnings (Adeoti, 2012).

5. Maintenance and the impact of a Good Maintenance Cultures on Infrastructure Sustainability

Most programs developed in Nigeria, as a developing country example, do poise a good and long term effect on the economy, but with most lacking the planning of maintenance system at the inception and some die at the instance of change in government (lack of continuity), which might deny the funding of the projects.

Bulus & Adefila (2014) opined that one of the critical problems facing developing countries like Nigeria is the inadequate provision and maintenance of rural of infrastructure. Infrastructural facilities maintenance plays a strategic role in the achievement of sustainable development, as huge investments are committed towards the process of industrializing a nation. In other to achieve consistent and prolonged improvement on our machineries, the issue of adequately and properly addressing maintenance and the management aspect is of importance.

Maintenance of the built environment has impacts on the whole nation. All man-made systems do have a definite function and purpose in which the adequate performance of the system is crucial for its long term survival (Visser, 1998). Maintenance of equipment depends not just on those who undertake the maintenance function but also on designers, purchasers and operators (Eti et al., 2004). Using the Nigeria power sector as a case example, Eti et al. (2004) enumerate the maintenance problems facing Nigerian power sector as part of the problem hindering the optimal performance of the sector as: maintenance not being treated seriously at the board level or even by local management; lack of business culture in the maintenance process; lack of adequate management skills by maintenance technicians and even team leaders; isolation of the maintenance operation with little or no integration with the activities of other departments; absence of adequate planned preventive maintenance methods; pre-occupation with introduction of advanced maintenance methods while relevant basic maintenance practices are not being implemented. The situation is nearly the same for all other sectors of Nigeria's economy. Iruobe (2011) citing the works of Oyefeko (1999) noted that, of the factors affecting the poor maintenance cultures on the Nigerian infrastructures as: the knowledge of appreciation of maintenance dynamics is lacking in most establishments. This according to Iruobe (2011) has prevented the application of sound professional approach to maintenance activities; the quality of management in a given organization influences the scale of efforts, extent of facilities and resources; establishments that de-emphasize training, retraining and continuing education can hardly possess an effective maintenance; indiscipline and ignorance on the part of users of equipment soften lead to persistent equipment break-down. In such situations, maintenance becomes problematic; some establishments are unwilling or reluctant to support innovations. As a result no incentives are employed to motivate or encourage staff towards innovative maintenance. Absence of rewards results to deteriorating work ethics and declined performance/commitment; Absence of efficient inventory system leads to frequent shortage of materials and spare parts; Lack of data and poor information processing handicap effective maintenance; Unavailability of funds to procure spare parts or finance maintenance facilities limit the potentials of an

establishment to undertake successful maintenance program. This view is shared by (Abdulahi Taiwo Co., 1993) as expressed by Iruobe (2011) who opines that: a) most establishments have erroneous conception of maintenance as a task meant for technicians alone – the result is that professionals who possess expert knowledge and skills consider themselves “too big” for maintenance jobs; and b) utilization of poor technology results in poor maintenance output and high cost.

6. Conclusion

It is also a common occurrence that every year many of the small firms are forced to close their doors. Most of the SMMES do prefer the urban centres due to the availability of some critical infrastructure and there exist dearth of technical and critical infrastructures for manufacturing and technology development in the rural area. Most of the rural infrastructures do lack adequate maintenance practice and cultures as most of the programs do possess poor maintenance practice programs at the inception, thereby making it difficult to achieve. The need for proper identification of the critical success factors i.e. the handful key areas especially in the provision of the rural infrastructures must be carried out to attract investors to the region and also allow for the growth and development in the small businesses that will help to boost their productivity and prolonging their life span. In tackling the challenge of infrastructure, government at all levels should have a substantial amount set aside for the provision, maintenance and upgrading of infrastructures with proper policy frameworks put in place to ensure that continuity (Egbetokun, 2009).

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