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Prospects and Challenges of Managing Clusters as Entrepreneurship Development Interventions for Sustainable Development in Nigeria: A Discourse Analysis

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Introduction

Clusters have played a significant role in the technological progress, new innovations and economic prosperity in industrial districts such as Silicon Valley, California and Route 128, Boston, Massachusetts in the USA, Bangalore in India and Hsinchu Science Park in Taiwan (Cai et al. 2007). Learning from the industrial experiences of the world, Nigeria vigorously pursued the establishment of clusters as an industrial development strategy, but these clusters were later abandoned by the military government, to be reactivated again by successive governments in Nigeria. Policy reversal is a common feature not only in Nigeria but in the whole of Africa as a result of a defective political philosophy in this part of the globe Mazrui (1986:16) laments:

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A. Ahmed (ed.), *Managing Knowledge and Innovation for Business Sustainability in Africa*, DOI 10.1007/978-3-319-41090-6_4

> *… in a technologically underdeveloped society in the twentieth century, ultimate power resides not in those who controlled the means of production (entrepreneurs and capitalists contrary to the mindsets of many), but in those who controlled the means of destruction (political class with powers, ammunitions and who have final say on matters of the states).*

Refocusing on clusters as entrepreneurship development intervention (EDI) after years of neglect fits perfectly into Nigeria's extant agenda; this agenda seeks to revamp Nigeria's industrial development strategy with a view to making it one of the top economies by the year 2020. One of the industrial strategies that has fast-tracked the technological progress of America, Europe and emerging economies like Brazil, Russia, India and China is official development and promotion of industrial clusters by both the public and private sectors. At the Annual Continental Conference of the Pan African Competitiveness Forum in Abuja, Nigeria in 2013, the Ministry of Science and Technology (MS&T) stated that the Federal Government had approved the establishment of 9,555 industrial clusters in the country based on comparative advantage and natural resource endowment in the identified districts. The management of the 9,555 will be in collaboration with the various state and local governments, as well as the involvement of non-governmental organisations (NGOs), local development partners, financial institutions and multinational companies (Amaefule 2012).

The eagerness to promote clusters for strong industrial development has attracted the attention of academics, leading practitioners and international organisations because of the inherent opportunities of clusters (Kuah 2002; Iwuagwu 2011). The economic benefits of clusters include reduced operational costs; emergence of new businesses/spin-offs; emergence of new innovations; cheaper technologies; increased specialisation/division of labour and collaboration among companies in the clusters; leveraging of social infrastructure; and consistent knowledge sharing for greater competitiveness (Porter 1998; Ellison and Glaeser 1999). These benefits will be further elaborated in the subsequent discussion.

Apart from the introduction above, the chapter is organised in five parts. The first part focuses on the conceptualisation of clusters. The second part discusses the rationale for clusters. The third part examines

the rationale for clusters development. The fourth part examines the plausibility of developing clusters in the packaged food industry vis-à-vis the opportunities and challenges. The last part concludes with recommendations and policy prescriptions on sustainable clusters in Nigeria.

Conceptual Issues

The term 'cluster' emerged from the works of Alfred Marshall and Michael Porter. According to Kuah (2002), Alfred Marshall articulated the cluster theory in 1890 as a concentration of specialised industries operating in districts or localities for mutually beneficial economic interests, or agglomeration economies. Michael Porter popularised the clusters concept in both in theory and practice. Porter (1990, 1998) prescribed clusters as a desirable and worthwhile industrial strategy based on competitive advantages or agglomeration economies. These competitive advantages will be discussed in the relevant part of this chapter.

Furthermore, the Department of Trade and Industry (1998:22) defined clusters as the 'concentration of competing, collaborating and interdependent companies and institutions which are connected by a system of market and non-market links'. From another perspective, clusters are defined as geographic concentrations of interconnected businesses, specialised suppliers, service providers, firms in related industries and other organisations that peacefully cooperate and compete with one another in particular industries (Martin and Sunley 2003; Porter 1998). Similarly, Boja (2011) defined clusters as geographical areas with competitive advantage where companies simultaneously compete and collaborate to gain economic advantages which are not available in other regions.

Summing up the various definitions above, the term cluster could be operationalised as the geographical concentration of interrelated small and large companies in the same value chain, which together collaborate to promote technological development, wealth creation, regional competitiveness and export of goods and services for long-term relationships.

In all clusters across the globe, the outputs of some companies are the inputs of others, like a circular food chain. The large and multinational

companies operating in industrial clusters get their raw material, components and value-added services cheaper and more quickly from the smaller companies in what could be described a symbiotic relationship.

Some classic examples of model clusters include the wine clusters in California (USA), the textiles industry in northern Italy, shipbuilding clusters in Glasgow (Scotland, UK), steel clusters in Pittsburgh (Pennsylvania, USA) and car manufacturing clusters in Detroit (Michigan, USA) (Kuah 2002; Mueller et al. 2006). In Nigeria, there are a number of clusters in industrial cities such as Nnewi, Aba, Enugu and Owerri. The Nnewi Automotive Parts Industrial Cluster in particular is known for exports of fabricated automotive parts to West African countries, while in Latin America, the Brazilian Shoe Cluster of Sinos Valley is the world's leading leather shoes cluster, where leather shoes are produced and exported to other parts of the world (Amobi 2006).

Beyond the above discourse, the meaning of clusters extends to knowledge-based institutions and financial institutions that cluster together in a particular location, providing training, research and consulting services in various disciplines to society.

Rationale for Clusters Development

The cluster is a model of industrialisation which has economic justification both in theory and in practice. Theorists and practitioners argue that when several companies in related fields or industries cluster together, their costs of production decline; they enjoy access to multiple suppliers of raw materials at reduced costs; and they enjoy increased specialisation and division of labour (Amobi 2006; Ellison and Glaeser 1999; Kuah 2002; Porter 1998). Furthermore, Glaeser (2010:1) restates that:

> *Agglomeration economies are the benefits that come when firms and people locate near one another together in cities and industrial clusters. These benefits all ultimately come from transport costs savings: the only real difference between a nearby firm and one across the continent is that it is easier to connect with a neighbour.*

Several years back, Michael Porter justified the importance of clusters in his treatise *The Competitive Advantage of Nations*. He argued that clusters

serving different industries have the potential to stimulate competitiveness in three ways: firstly, they increase the productivity of companies operating in the clusters; secondly, clusters propel products and services innovation; and thirdly, clusters stimulate the emergence of new businesses or spin-offs within the industrial clusters (Porter 1990, 1998; Amobi 2006).

On the strength of the reviewed literature, there are seven justifications for the development of clusters in clear terms. The first is that clusters as industrial strategies reduce transaction costs and lower risk premiums on the capital of companies (i.e., cost of production is lower in clusters than elsewhere). Secondly, clusters foster productivity and specialisation among collaborating small and large companies operating in a particular industry. Thirdly, clusters afford companies opportunities to exploit their specialties, thereby fostering innovation, the emergence of new businesses or spin-offs, and technological improvements of process and products. Furthermore, companies that operate in well-established clusters are in a position to work out joint solutions to common operational challenges. The fifth justification is that clusters give companies the opportunity to build a labour pool, technology, infrastructure and knowledge sharing, and team competitiveness. The sixth justification rests on the argument that clusters located in areas where there is greater factor endowment provide opportunities for utilisation of abundant natural resources, access to markets and fostering increased upstream and downstream employment for the growing number of unemployed people. Finally, clusters offer lower barriers to entry and exit for companies (Porter 1990, 1998; Boja 2011; Kuah 2002; Amaefule 2012).

Having understood the rationale and justification for clusters development in both developed and developing countries, it is important to identify the types of clusters that exist across the globe.

Cluster Typologies Across the Globe

There are different cluster typologies across the globe, namely: (a) Sectoral clusters, (b) High-tech clusters, (c) Historic know-how-based clusters, (d) Factor endowment clusters, (e) Horizontal clusters, (f) Vertical clusters, (g) Low-cost manufacturing clusters and (h) Knowledge services clusters.

(a) **Sectoral clusters:** These are clusters formed on the basis of the sectors of the economy where the companies operate. For instance, media clusters accommodate newspaper houses, TV stations, the film industry and so on, while commercial clusters house supermarket chains, bookshops and so forth.
(b) **High-tech clusters:** The high-technology-oriented clusters are found in most developed countries where products like ships, aircraft, arms and armaments, cars and so on are produced. Such clusters are often supported by research institutions and specialised universities. Some examples of high-tech clusters are Silicon Valley, the East London Tech City, Paris-Saclay and several other locations in Germany and France.
(c) **Historic know-how-based clusters**: These are clusters where expertise, mastery of certain skills and historical advantage in the production of certain products and services have been centred for centuries. Notable examples are the London financial clusters, leather clusters in northern Nigeria, shoe and spare-part fabrication clusters in Aba and so on.
(d) **Factor endowment clusters:** These are specialised clusters created to gain competitive advantage as a result of their presence in certain geographical districts. For example, Burgundy and Champagne clusters in France have for years enjoyed comparative advantages in wine production over other places because they are located in mountainous districts, where quality grapes are found and grown.
(e) **Horizontal clusters:** These are clusters that accommodate many companies in the same industry, producing the same or similar products and competing for the same market, but deliberately cooperating and acting like a jointly owned business. Examples are many companies producing different brands of shoes in the shoe clusters, compute clusters and wrist watches clusters.
(f) **Vertical clusters:** These are clusters which accommodate many companies producing different but related products/services that could be integrated. In these clusters, the products of some companies are the inputs of others within the industry's value chain. An example is car clusters, where companies produce related products like car tyres, auto engines, upholstery products, iron doors and so on which are assembled as a complete car.

(g) **Low-cost manufacturing clusters:** These are clusters that emerged in certain regions of the world because of access to cheap labour, land/rent, low-cost consulting services and affordable energy/overhead costs. These types of clusters are often found in developing countries such as in rural China, Mexico, Argentina, Africa, Eastern Europe and Latin America, where factor inputs are extremely cheap.
(h) **Knowledge services clusters:** These clusters are established because of collaborative linkages with institutions that provide low-cost engineers, unhindered access to the low-cost services of other experts/professionals and low-cost consultancy fees from knowledge-based institutions.

Developing Clusters in the Packaged Food Industry: The Opportunities

The thrust of Nigeria's extant industrial policy is to accelerate economic growth and sustainable development through active involvement in agriculture, semi-processing, full-fledged manufacturing, construction and services, thereby making Nigeria one of the Top 20 economies with 'a minimum GDP of $900 billion and a per capita income of no less than $4000 per annum' (Vision 2020 Blueprint 2009:9). To achieve the industrial target above, the clusters offer a realistic and workable model for actualising Nigeria's industrial policy. Clusters have the capacity to boost the total factor productivity of collaborating companies through knowledge sharing, risk pooling, cost sharing and skill-intensive production. In the developed countries and emerging economies where clusters have formed the foundation of their industrial development strategy, forward and backward clusters that span different industries are encouraged (Amobi 2006). Nigeria, like the rest of Africa, suffers from food insecurity. Therefore, an attempt to establish clusters for the food industry will create a number of opportunities. These include:

(a) Development of food industry clusters would strengthen Nigeria's food industry by making it strong enough to produce made-in-Nigeria semi-finished products and finished products such as fruit

juices, dairy products, cornflakes, milk, packaged eggs and beverages, thereby enhancing the industry's competitiveness. Other associated opportunities include reduction of imports, conservation of wasted foreign exchange, import substitution, avoidance of dumping and control over the quality of food consumed by the public.

(b) Establishment of food industry clusters is a proactive strategy for harnessing the potentials of the Nigerian food industry. The food clusters, when established, would afford interaction and collaboration among farmers, food processing and packaging companies, marketing agents and distributors/retailers to pursue mutually beneficial interests.

(c) Food industry clusters could serve as an effective mechanism for attaining food sustainability, that is, attainment of cheap, quality and regular processed food for Nigerians in the face of hunger, endemic poverty and extreme deprivation. Other inherent opportunities in food clusters include the prospect of stimulating more employment, wealth creation, growth of local technology, poverty reduction and sustainable economic development.

(d) When food industry clusters are established, Nigerians as entrepreneurs will be well positioned to take advantage of investment incentives offered by the National Investment Promotion Council (NIPC) with a view to acquiring the required machines and equipment for processing the nation's abundant food resource endowments into intermediate raw materials or finished goods for local consumption and export to earn foreign exchange. Annually, the nation's rich vegetables, fruits, cereals, tubers and grains are wasted because of poor processing and preservation methods.

Forward Integration Cluster in the Agriculture and Food Value Chain

The forward integration cluster in the food industry entails transformation of raw materials from the farms or agro-allied companies into semi-finished and finished foods ready for the supermarkets and open markets

for onward dispatch to the final consumers. A typical forward integration cluster in the agriculture and food value chain is depicted in Fig. 4.1 below.

In Fig. 4.1 above, the products of companies in the agriculture and food industry clusters such as seeds, fertilisers, crop protection chemicals, food ingredients, agricultural services and so on are utilised by the farmers at the second stage in the value chain for producing agricultural crops, meat and dairy products. At the third stage, the outputs of the farmers are sold to traders, who process them into semi-finished products (like crops, meat and biofuels) which are supplied to the food company for further processing. At the fourth stage, the food companies process the semi-finished supplies into finished products such as packaged meat, dairy products, snacks and beverages, which are sold to retailers in the various supermarkets, hypermarkets and corner shops. At the fifth stage, the retailers sell the finished products in smaller units to the final consumers in the neighbourhood.

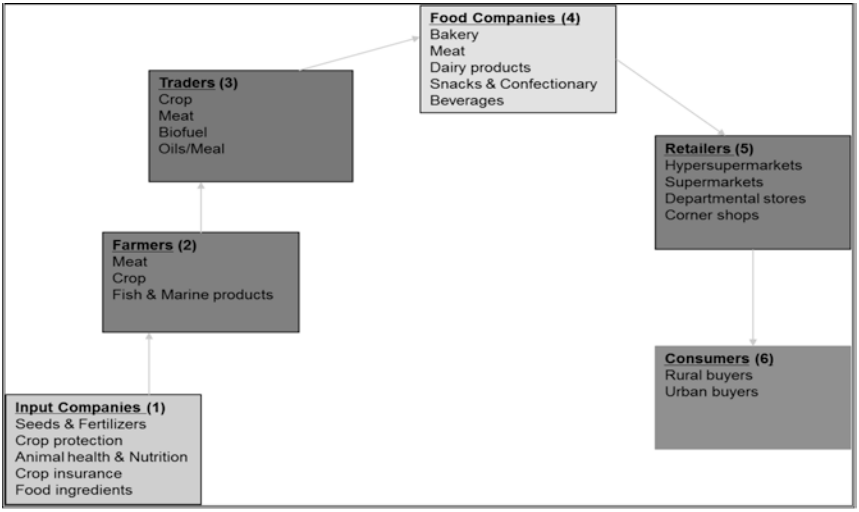

Fig. 4.1 Agriculture and food value chain (*Source*: Adapted from: Food Value Chain KPMG (2013))

Challenges of Food Industry Clusters

In spite of the limitless opportunities in cluster development, there are obvious challenges which must be addressed when they surface or avoided outright. The first challenge that the proposed food industry clusters are likely to encounter is the inability to gain international competitiveness. Existing clusters in Nigeria have not gone beyond producing goods for local markets. This challenge of poor competitiveness is traceable to weak institutional backing and policy inconsistency. Nigerian Institute of Food Science and Technology (NIFST) should therefore take cognisance of this fact in its resolve to pursue clusters development in the food industry. Secondly, establishing clusters in the food industry poses a big challenge as such projects require cheap and reliable infrastructural backbones and an enabling business environment to reap economies of large-scale production. Unfortunately, Nigeria has unreliable power/electricity supplies, bad roads and highways increase the cost of transportation, the water supply is often irregular, and multiple tax systems discourage investment in the industrial sector. Poor infrastructure and an unfriendly business environment could mar the beautiful proposal of food industry clusters. The third challenge is situated within the confines of the weak regulatory environment. In Nigeria the civil and commercial laws are weak, and enterprises cannot thrive in an economy where the civil and commercial laws are weak, inconsistent and anti-business. Without a sound regulatory environment, the clusters, instead of pursuing collaboration, may be engrossed in cut-throat competition through price wars and cost-cutting as well as disregarding environmental and labour standards to gain a competitive edge over other companies. Another critical challenge that food industry clusters may face is outdated and environmentally hazardous technologies. It is a fact that shortages in infrastructure and basic services would inhibit and limit clusters' ability to produce the quality products and services required to take advantage of emerging market opportunities locally and internationally. Finally, the challenge of finance must not be underestimated, because Nigerian commercial banks are reluctant to give loans to small businesses and new spin-offs without the required collateral securities, whereas the model clusters across the globe thrive because of unhindered access to financial resources from banks and other financial institutions in the form of loans and joint venture partnerships.

Recommendations and Policy Prescriptions

From the foregoing discourse, it is clear that clusters are important intervention projects required to accelerate industrial development in Nigeria. The following policy prescriptions are critical for leveraging clusters as mechanisms for industrial and technological development in Nigeria.

Firstly, there is an urgent need to increase awareness of clusters development through workshops, stakeholders' meetings, retreats and public lectures on the meaning and essence of clusters and procedures/modalities for establishing and managing clusters in the food industry.

Related to the first recommendation above, there is a need for the Ministry of Science and Technology and NIFST to establish food clusters in Nigeria through a private–public partnership (PPP), because most government-led programmes for industrial development have been ineffective in actualising their set objectives.

Thirdly, it is suggested that clusters development, especially the government-led model, should provide organised, high-quality entrepreneurship training and capacity-building workshops for small and medium enterprises (SMEs) operating in the various sectors of the food industry and other industries, through provision of appropriate technologies and infrastructural facilities to designated skills acquisition centres (SACs) in the industrial cluster for the purpose of promoting greater cluster competitiveness.

For long-term sustainability and competitiveness, it is recommended that there should be periodic partnership dialogue among all cluster companies and participants for ideas/knowledge sharing, risk pooling, strategic networking and government engagement for mutually beneficial policies/programmes in the clusters.

It is one thing to establish food clusters; it is another thing to have effective coordination in the industry concerned. It is therefore suggested that effective coordination is needed in the food industry in order to achieve the set objectives discussed above. Particular attention should be paid to business communication, leadership and conflict management, which are all critical issues for building sustainable cluster synergy.

Lastly, before venturing into food industry clusters development, there is a need for macroeconomic and political stability in terms of

stable and sound policies on clusters, an effective and transparent regulatory framework and institutions under the Ministry of Science and Technology, improved infrastructure, sustainable rules and incentives for competition, friendly tax policies, a fair legal system, and security for lives and property in the industrial clusters.

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