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The ISMED Model and Public - Private
Partnerships in the Promotion of Agro-Industrial
Clusters in Nigeria
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Abstract

Several studies on African small enterprises have analysed the growth constraints of small firms in the region (Hansohm, 1992; Mead, 1994). Some studies show that small enterprises in the region cannot sustain employment creation because they tend to generate low income (Livingstone, 1996; Daniel and Mead, 1998). In a comparative analysis of relative firms size and economic growth, Beck et al (2005) findings revealed that the contribution of SMEs in economic growth in the transition and sub-Saharan African economies are relatively weak compare to SMEs in Latin America and South East Asian countries. With exemption of South Africa, SMEs in sub-Saharan Africa have been marginalised from the share of global income because they lack the capabilities to improve performance or sustain competition (Wohlmuth, 1991, Fafchamps, 1994). The study conducted between 2003 and 2008 in South Eastern Nigeria used different approaches and empirical methods to investigate these claims and counter-claims in four agro-industrial sectors. Three unique findings emerged from the study: a) small enterprises cluster with high degree of informality characteristics can be active and as well be competitive in local market by using different strategies to overcome external competitive pressure. b) Regionalisation processes and liberalisation of the market in sub-Saharan African countries have led to increased trading networks across the borders of Anglo and Franco phone countries in African sub-regional market. c) Innovative activity in small enterprises in sub-Saharan Africa is a survival strategy in an open economy. The major problems identified in the study are weak firm technological capability, low skilled labour force and Absence of linkage with large firms.

Key Words: Clusters, Investment, Agro-industries, Public-Private Partnership

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Abbreviations and Acronyms

ACGSF	Agricultural Credit Guarantee Scheme Fund
ADB	Asian Development Bank
Agglom.	Agglomeration
CACCI	Confederation of Asian-Pacific Chambers of Commerce and Industry
CBN	Central Bank of Nigeria
CEC	Commission of the European Communities
CSAE	The Centre for the Study of African Economies
D&F	Domestic and Foreign Direct Investment
Edu	Education
FDI	Foreign Direct Investment
Fed.	Federal
GDP	Foreign Direct Investment
H-Capital	Human Capital
IBRD	The International Bank for Reconstruction and Development
ICT	Information and Communication Technology
INC.	Incentives
Inv. Conds.	Investment Conditions
IAP	Information Age Publishing
ISMED-Model	Investment and SME Development Model
LIS	Local Innovation System
M&E	Monitoring and Evaluation
MNCs	Multinational Corporations
NBB	National Bank of Belgium

NBER	National Bureau of Economic Research
NCCIMA	Nigerian Chambers of Commerce, Industry, Mines and Agriculture
N-Equ.	Nature of Equipment
NGOs	Non-Governmental Organisation
NIS	National Innovation System
N-Labour	Nature of Labour
NPC	National Planning Commission
NSO	Nigerian Standard Organisation
OECD	Organisation for Economic Cooperation and Development
OP	Openness
PPP	Public-Private Partnership
PSOs	Private Sector Organisations
R&D	Research and Development
SAI	Sustainable Agriculture Initiative Platform
SEAM	Systemic Enterprise Architecture Methodology
SMEDAN	Small and Medium Enterprises Development Agency of Nigeria
SMEs	Small and Medium scale Enterprises
TFP	Total Factor Productivity
UNCTAD	United Nations Conference on Trade and Development
UNIDO	United Nations Industrial Development Organisation
US\$	United States of America Dollar

1. Introduction

In the last three decades, there has been steady growth in the industrialisation efforts in South East Asian countries and some countries in Latin America. While in the same period, African countries are experiencing de-industrialisation. The socio-economic structural changes in the region have led to increased employment generation and income earning in micro- and small scale enterprises in informal sector. Furthermore, as globalisation pressure continues to intensify, the small enterprises in the region which operate under harsh business environment, have limited capacity to compete. The weak capacity of the SMEs has implicit negative impact on the economy in general.

The relevance of small enterprises clustering in African industrialisation efforts is arguably overwhelming because most entrepreneurship activities are concentrated in sector. Hence the study looked not only into the institutional problems SMEs face in Nigeria but also small firms' strategies to overcome the problems. As countries liberalise their market, the study also looked into how small firms compete in the local and regional markets.

The relevant questions the study tries to address to are: is there significant difference in firm performance in clustered areas and those located elsewhere? To what extent external economies and joint action have explained the small firm performance? Is there any positive correlation between employment change and increase in firms' sales? To analyse the influence of networks on SMEs' business activities, two approaches were considered. The first approach is to investigate the structure of enterprise networks and the density of interactions in the networks. This provides an insight into the extent the contacts the entrepreneurs made have reduced costs, risks or promote firms' performance. The second approach is the analysis that focused on network functions. This will help the readers to understand more the behavioural patterns of entrepreneurs.

As the economies in Africa are being liberalised, the study investigated the innovative activities in small enterprises. This is to verify how small enterprises survive despite low product quality and weak technological capability in a competitive market; to verify if the innovative activity in small enterprises has contributed to firms'

productivity growth and poverty reduction? Care was taken in formulating the hypothesis about innovation because SMEs in agro-industrial processing use local fabricated machines and hand tools. Innovative activity in small enterprises can be viewed either as a survival strategy or as a growth strategy? The argument is if the innovative activity of small enterprises is a survival strategy, “price and quality” are two factors that can influence competition in the local market. On the other hand, if the innovative activity in small enterprise in Africa is a growth strategy, then innovative activity in small enterprises in the Africa has implicit relationship to the goals of poverty alleviation.

The aims of the paper therefore are first to present the synopsis of the research findings. Second is to present the analytical framework of the solutions to the capability problems in African SMEs. The third is to present and analyse the Investment and SME Development (ISMED) Model. The fourth is to show the relevance of public-private partnership (PPP) in the implementation of ISMED model and in the promotion of SME clusters, networks and innovation in Nigerian agro-industries. The paper is divided further into five sections. The next section provides the synopsis of the research findings and the framework of ISMED model. Section 3 focuses on the analysis of the ISMED model and the application of the ISMED model in agro-industrial processing. The policy matrix for PPP in agro-industrial projects are discussed in section 4 while section 5 concludes the paper.

2. The Synopsis of the Research Findings and the Framework of the ISMED Model

The study started by analysing the controversies surrounding African SMEs. Some literature analyses argue that SMEs in sub-Saharan African countries possess the potential to create employment and generate income. The counter claims suggest that SMEs in Africa cannot sustain employment creation because they generate low income. While some argue that SMEs in Africa are marginalised and lack the potential individually to improve performance or sustain competition (the missing link). The economic globalisation literature argues that the capabilities of SMEs in Africa are very weak and lack the potential to play their role in economic development and in

the ongoing globalisation process. The empirical findings of the study revealed that SMEs in Nigerian agro-industrial processing possess the potential to create employment and generate income. However, the employment created cannot be sustained because the incomes generated across the sectors are below monthly wage of US\$50 stipulated for private sector in Nigeria. There are evidences of high degree of unskilled and unpaid labour in production. The implication is that with low skilled workers and low wages, productivity will be very low. There is also evidence of underemployment in terms of underutilisation of labour in the sense that qualified workers were engaged in low-wage job. This suggests that there could be high incidence of workers leaving their jobs suddenly when there are better alternatives. Three empirical outcomes explained why Nigerian SMEs are marginalised from the share of global income. The first is the capability gap reflecting low technological capacity and human capital development. The second is poor domestic investment reflecting low capital base which resulted to low quality of input and outputs. The third factor is poor institutional development and poor policy environment in which SMEs operate. The resultant effect of these lapses is weak FDI inflow in agro-industrial sectors in Nigeria.

The research findings also revealed some conventional results similar to previous studies on African SMEs in terms of small firm characteristics. There is high degree of informality, dominance of micro and small enterprises, low education background of enterprises heads and workers, poor book-keeping and accounting system, poor technological application and etc. Three unique findings emerged from the study: a) small enterprises cluster with high degree of informality characteristics can be active and as well be competitive in local market by using different marketing strategies to overcome external competitive pressure. b) Regionalisation processes and liberalisation of the market in sub-Saharan African countries have increased trading networks across the borders of Anglo and Franco phone countries in African sub-regional market. c) Innovative activity in small agro-industrial clusters in sub-Saharan Africa is a survival strategy in an open economy. In general, the empirical findings revealed some weaknesses and limitations of SMEs similar to the findings of previous studies in Africa. The limitations include among others, low skilled labour force, weak technological base resulting to absence of linkages with large firms.

The motivation of the ISMED- Model is centred on how to confront these

limitations. The basic concept of Investment and SME Development (ISMED) model is to show why and how investment relates to SME development. The role of investment in this context is to bridge the capability gaps and impact transformation in SMEs in Nigerian agro-industries. The model explained why investment in human and physical capital is necessary for aggregate production efficiency. The aggregate effects of investment strategies of the state and firms can be measured in terms of transformation effect on the small enterprises and transmission effects on the economy. The ISMED model is not strictly for Nigerian SMEs only rather specifically designed for the promotion of SMEs in Africa. The model is also not restricted to any particular industrial sector but can be more effective in the sectors where countries have comparative advantage. For African economies that have comparative advantage in agricultural production, the model will assist governments and private firms in the region in their process of rehabilitating and developing selected agro-industrial enterprises in food, beverage, textile, furniture making, leather, and other tradable goods for exports. The model serves as basic instrument for promotion of value addition, employment creation, and integration of the region in the global market. It also provides the measures on how to enhance the behavioural and functional factors for innovative activities at firm level. The modalities for investment in human capital development, modern technology and process upgrading through improvement of interior factory capabilities in agro-industrial processing were analysed in the model.

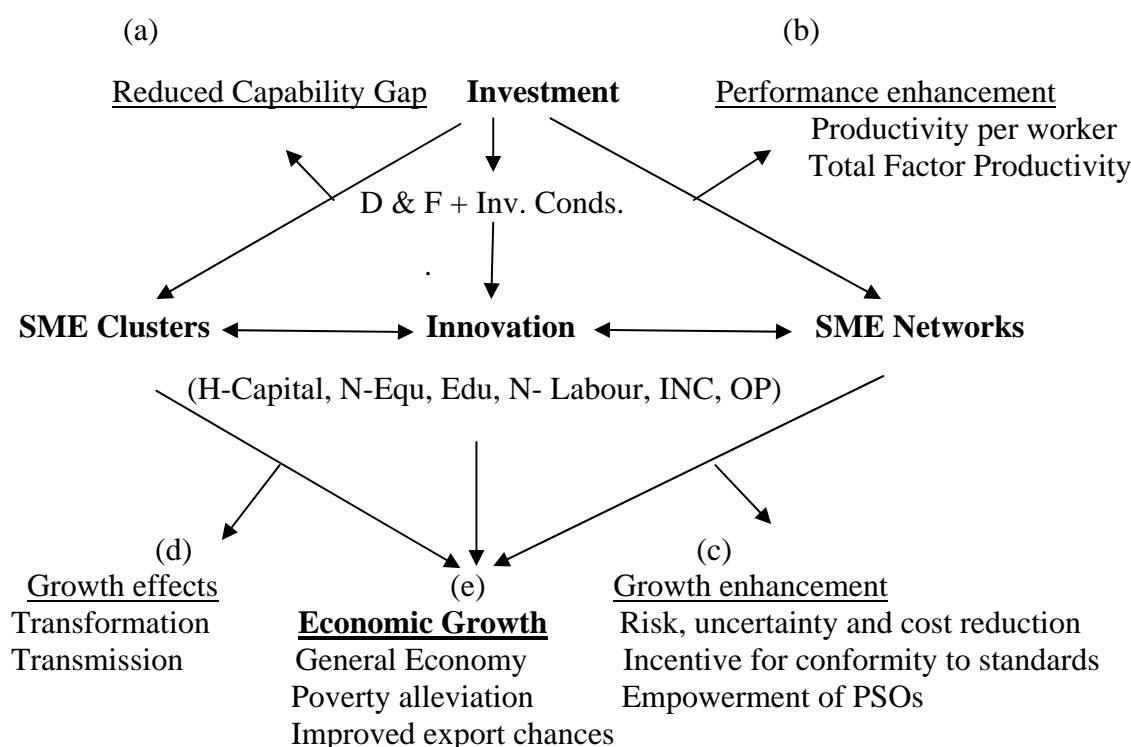
3. The Investment and SME Development (ISMED) Model

3.1 The ISMED Model

The ISMED model seeks to provide solution to capability problems in African SMEs. The argument here is that domestic investment supported by FDI and pro-active industrial policy can stimulate growth in African agro-industries. The model is a simple interactive process and seeks to analyse the followings problems: how technological disadvantages in the SMEs can be reduced to foster linkages with large firms; how the institutional and policy environment can be strengthened to improve the capabilities of the SMEs, how domestic investment supported by FDI can impact capability up-

grading in Nigerian SMEs. As shown in Figure 1, the model illustrates systematically how the three SME operational structures namely clustering, innovation and networking are linked together. It also shows the interdependencies in the operational structures which require different policy approaches.

Figure 1: The Investment and SME Development (ISMED Model)



Key: D&F = Domestic and Foreign Direct Investment; Inv. Conds. = Investment Conditions; H-Capital = Human Capital; N-Equ. = Nature of Equipment; Edu. = Education; N-Labour = Nature of Labour; INC. = Incentives; OP = Openness; PSOs = Private Sector Organisations

Source: Uzor, 2009

The basic assumption in ISMED model is that SME development is path dependent and a function of domestic investment. FDI can only stimulate SMEs growth if there is an improvement in domestic investment and if an effective industrial policy strategy is in place. For example, since SMEs represents 95 per cent of Nigeria's industrial structure, growth in SME sector in terms of size and capacity will have multiplier effect on the entire economy. The model is build upon the concept of new growth theory which explains the relationship between stock of knowledge and firms growth;

how accumulation of human and physical capital explains differences in growth rate across nations. The central argument of the ISMD model is that mobilisation of domestic investment and investment in human capital supported by FDI will stimulate growth in the economy.

The model recognises the impact of openness and incentives for firms' technological upgrading. The preposition is that relative international prices can be reflected on the international marginal rate of transformation. This can be equated to domestic prices for an efficient allocation of resources. Resource allocation can affect growth positively especially in developing countries through an increased effective investment on imported capital goods. This will promote the ability of the firms to expand at a constant rate rather than at diminishing returns in longer period through access to larger market (Berg and Krueger, 2003, p. 176). The second preposition is that institutions provide the incentive structures that make human environment to be more productive. This is because human environment sets the rules for interactions and motivate firms to facilitate wealth creation (Dunning and Zhang, 2007, p. 2). This implies that social networks are important factors but not sufficiently enough to support market development.

3.2 Analysis of the ISMED Model

3.2.1 Investment and Capability Gap Reduction

The empirical results of the study revealed that the impact of local technological application on output is very weak. The skill labour force, institutional and physical infrastructures are very weak (Uzor, 2009). The findings show that the financial base of the firms is also very weak hence the firms cannot invest in modern technology or hire qualify skilled workers². These weaknesses arguably explain the increasing mar-

² This is similar to UNCTAD, (2007, p. 7) report which revealed among others; low technological capabilities underdeveloped skilled workforce needed in modern production, ineffective domestic institutions which could have supported technology acquisition and diffusion are the major problems in the domestic firms in the sub-Saharan Africa.

ginalization of Nigerian SMEs in agro-industries in the globalisation process. Reducing the deficiencies in physical and institutional infrastructure, improving the human capital is crucial in SME development because technological progress will not occur without improving these factors (UNCTAD, 2007, p. 5). This also suggests that investment strategies adopted by the government and local firms can stimulate the interest of the MNCs to invest in Nigerian agro-industrial sectors. This will in turn induce structural transformation in the local SMEs and in the entire economy. Linkages with MNCs can facilitate innovation through learning and imitations (Kim, 1997). The intensity of linkages and increased technology learning will generate competitive environment. Li and Liu, (2005, p. 404) study revealed that technological gap has been the problem in terms of effective interaction between the MNCs and local firms in developing countries. Positive effect of FDI is such that the local firms may try to upgrade their technology so that they can be qualified for sub-contracting activities with large firms (Michie, 2001, p. 3). This suggests that if Nigerian small and medium entrepreneurs can invest in the factors which enhance productivity growth and quality improvement, they can engage in sub-contracting or joint venture activities with MNCs. Oyelaran-Oyeyinka (1997, p. 225) argues that since Africa is in an early industrialisation process and the entrepreneurs in SMEs are highly imitative innovators, to catch up with the trend, productive investment made by the local firms will explicitly modify the process and product which can lead to learning and competition.

Furthermore, knowledge has become increasingly important in recent times due to rapid increase in technological advancement. This has put pressure on workers to upgrade their skills constantly (Yusuf, et al, 2003, p. 216). Information and Communication Technology (ICT) play central role in learning dynamics because it can widen the opportunities for individuals to further their learning (Yusuf, et al, 2003, p. 218). Domestic investment and FDI therefore play an important role in generating the much needed ICT for the reduction of capability gap. ICT has direct positive impact on people's lives through better information flows and communication. Better information and communication can enhance business opportunities and improve firm productivity (Juma und Yee-Cheong, 2005, pp. 48-9). The impact of improved productivity growth due to reduced capability gap is such that SMEs will not only gain by upgrading the quality of output and capacity but also diversify their activities to other frontiers (UNIDO, 2005, p. 5). An improve product quality may lead to increased ex-

port possibilities or offer the possible channels for integration of the local SMEs into the global value chains.

3.2.2 Investment and Performance Enhancement

Performance enhancement as put forward in the ISMED model focuses on how to improve the productivity of workers and growth in Total Factor Productivity (TFP). Investment as performance enhancement strategy can be seen as the basic measure that supports long term sustainability of small and medium scale enterprises and the economy in general. The growth in output per worker is associated with the accumulation of physical capital, skill development and technological change (Baier et al, 2002, p. 29). Policies targeting improvement of skill and physical infrastructure in Nigeria will attract FDI inflow and foster transfer of technology effectively. Effective technology transfer depends on the nature of the technology that is in line with the level of skill labour available (Michie, 2001, p. 5). For example, transfer of technology was effective in Thailand because the majority of the FDI inflows in Thailand were focused on low and medium technology industries that do not require relatively highly specialised skilled labour (Michie, 2001, p. 5).

Furthermore, the factors which determine the efficiency of labour include education per worker, knowledge, economic, political, and social systems. Education has scale of measurement in terms of years of schooling. The differences in the efficiency of labour across time and countries can be explained by differences in the average years of schooling per worker (Benhabib and Spiegel, 1994, p. 144). Investing in education is deemed to upgrade the output per worker in a competitive environment. However, education alone is not the overwhelming factor that determines efficiency of labour. Knowledge which can be scientific, technical and tacit is also an important factor that explains differences in efficiency of labour over time. The learning mechanism of different kinds is the significant determinants of growth in labour productivity (World Bank 2002, p. 21).

TFP measures the improvement and efficiency in terms of quality aspects of labour and capital. In other words, it is the measure that relates output to all inputs in

the production process (Söderborn and Teal, 2002, p. 24). Productivity growth in SMEs is interrelated with wage and non-wage working conditions. In Malaysia for example, SMEs compete extensively with large companies because entrepreneurs in the sector focus on producing high quality products. They invest strongly on new technology and know-how through licensing, and engaging in joint venture activities. This is supported by investing in different capacity building programmes for their workers (World Bank, 1997). SMEs in Nigerian agro-industries continue to face intense international competition as result of market liberalisation, investing in modern equipments and capacity building programmes for workers could facilitate upgrading in agro industrial sub-sector.

3.2.3 Investment and Institutions in Growth Enhancement

Uncertainty is a problem in investment decision making because investment is subject to time and cost during planning and implementation. Firms consider all available information and uncertainty associated with investment during decision making process. If investment expenditures are irreversible, there would be an option to postpone investment when uncertainty persists. This allows the decision makers to obtain further information about the future market conditions (Butzen et al, 2002, p. 2). However, the option to postpone investment has its own price in terms of opportunity cost of investing today. Hence, firms will only invest when the net present value of the investment project covers the value of opportunity cost of postponing investment. This is because cost increases with uncertainty and irreversibility increases the cost associated with investment. According to the real option theory, uncertainty and irreversibility tend to deter current investment, and as well delay investment projects (Butzen et al, 2002. pp. 1-3). The role of network in this context is such that uncertainty can be reduced when network ties are created by coherent groups with strong interdependencies. Entrepreneurs can then streamline information accurately and timely according to their specific needs. This is only effective when market and the economy are small. As the market expands and the economy deepens, institutional stability comes into play in terms of reducing uncertainty (World Bank, 2002, p. 179).

In an economy with stable institutions, information about the market conditions

across borders can be tracked down easily; transaction cost arising from the cost of coordinating and formalisation of business ventures can be effectively reduced. Transaction costs are not only the costs of coordinating increasingly complex interdependent groups in an economy but also the costs of enforcing agreements and making credible commitments across time and space (North, 1990, p. 7). In other words, legal system which cannot enforce property rights effectively arguably creates the impression of investment high risk area. Imperfect enforcement of property rights may be part of the causes of growth failures in developing countries (Zak, 2001). If insecurity in property rights persists, the economy of the country can be reduced to rent-seeking such that investment opportunities are driven away. Consequently, the majority of the country's population can be exposed to poverty trap because investments are not channelled to productive activities. The risk can as well be high when rent-seeking is high even when government policy to enforce property rights is optimal (Zak, 2001, p. 11). Hence, effective legal system is the basic instrument for protecting investment. Countries with poor investor protection mechanisms have smaller and narrower financial markets relative to the size of the economy. Individuals in these countries trade less in financial markets and the value of publicly traded securities is always lower; and the overall number of market participants is also very low (La Porta et al. 1997, p. 1149). To enhance growth in the economy, there is need for effective market institution necessary to protect investment.

In this regards, the role of the state in the economy has been widely discussed in development paradigm since 1997. As put forward by the World Bank (1997a, p. 1), in economic and social development, the State should not act as a direct provider of growth rather as a partner, catalyst, and facilitator. The central issue here is that in economic development, there is the need for participation of groups, non-governmental organisation (NGOs) and other private actors in the economy. According to Hartwig (1999, p. 57), "one hand no fit tie bundles"- this means that you cannot tie a bundle with one hand only. In development policy and practice, self-help activities are predominant in poverty alleviation. This is because an individual or group can design and implement its own strategy effectively in order to improve his/her situation or the situation of the group members (Cullison, 1993, p. 6). This raises the question on the capability of the state in terms of the ability to perform. The capability in this context is considered to be the ability of the state to undertake and promote collective

actions effectively. It includes also the ability of the state to use its available resources effectively to provide social services. To promote collective action effectively demands an improvement in public institutions that facilitate the effective rules and restrain as well as checking corruptive actions in the system (World Bank, 1997a, p. 3).

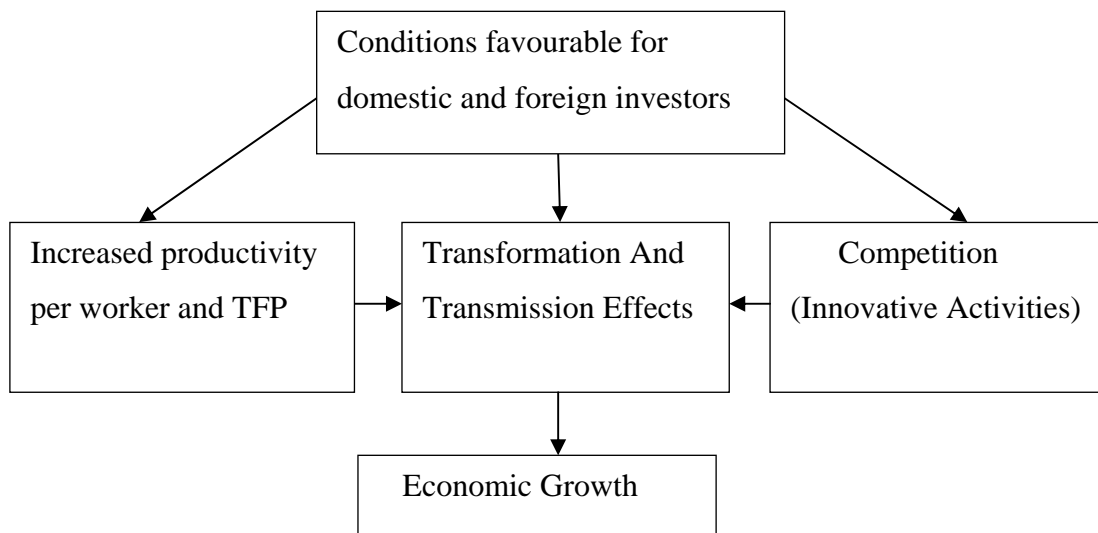
In this respect, empowerment has become a central issue in development economic discourse because it leads to decentralisation of functions and upholds the principle of civil liberty. It also fosters the stability of democracy and creates checks and balances as well as promoting collective actions for private sector development. Effective participation of private sector organisations (PSOs) such as Chambers of Commerce, Industry, Mines and Agriculture and various business associations is crucial in industrialisation process. The central objective of the PSOs is to serve the interest of the firms in the organisation. PSOs have an inbuilt self-adjusting mechanism directed towards efficiency and profitability in the sense that they have two headed structures. One headed structure is made up of unpaid politically elected management structure and the other is full-time paid administrative staffs (Krief, 2007, p. 174). The functions of the PSOs go beyond serving the interest of their members. The functions include reinforcing business community's commitment to the society, and as well foster cooperation with related national and foreign actors. They also provide advisory services to government because they understand the problems firms face. They lobby as and when required in the formulation and execution of business and industry related policies (Krief, 2007, p. 174). PSOs also provide an up-to-date information services to business, government and the community at large. For example, through networking, national chambers of commerce and industry can be linked with local and international sectoral organisations. The linkages will provide small entrepreneurs the opportunity to learn how small and medium enterprises in developed countries run their businesses. They can also learn how government policies in developed countries help to promote the growth and development of SMEs. This will at the same time support the promotion of trade and investment across borders³.

³ The Country Reports presented by the participants to the CACCI Chamber Operations Course held in November 18-30, 2007 in Taiwan

3.2.4 Growth Effects

As shown in figure 1 above, the ISMED model seek to improve a, b and c in order to realise d and e. If the outcome in a, b and c are significantly positive then d and e can be realised otherwise the outcome in d and e will be poor. As indicated in Figure 2, growth effects are the transformation and transmission processes which firms and the economy will experience as a result of the investment strategies adopted by the state and firms. Transformation process is the outcome associated with rapid growth (Cook, 2006, p. 57).

Figure 2: The Expected Outcome of the ISMED Model



Source: Uzor, 2009

Transformation in terms of structure is often analysed as a shift in economic structure e.g. from agriculture to industrial production. Hence, transformation effect in this context is the extent at which public and private investment has impacted structural transformation in SMEs and economic growth (Sackey, 2007, p. 6). It is the changes that occur in the internal production process that allow individual small enterprises to achieve economies of scale and scope. This is also referred to as the growth process in terms of size structure or scale experienced overtime in micro and small enterprises. This argument reflects Anderson's (1982, p. 917) observation in respect to enterprises development in Africa, where transformation in size and capability remain static. One

can then argue that small firm's growth is a function of policy and investment in new technology and skill training as well.

Policy in this case covers not only the macroeconomic policy but also government trade policy that recognises the importance of openness and incentives. The outcome of effective policy is the long run positive changes in employment and productivity. The measure of transformation effect can be classified in two forms namely increase in employment share and the degree of externalities. Employment shares are the parameter used to define SMEs and every country has its own threshold in scaling the firm size. Transformation in this context suggests that if the threshold increases overtime due to technological changes, then the share of SMEs in total employment generation increases too. The degree of externalities is a reflection of changes in economies of scale and scope which the small firm enjoy due to increase in productivity. This implies that low productivity trap and slow in economic growth in Africa is as a result of relatively smallness of firm size and domestic markets which failed to exploit economies of scale (Collier and Gunning, 1999, p. 9).

In light of this, there is positive association between the incidence of investment in new machinery and the growth of SME. Economies of scale and scope would increase if there is increased investment in new machinery and linkages between small and large firms in the region (Sackey, 2007, p. 15). Firms investing in new machinery relative to non-investing firms are more likely to record net additions to employment. SMEs currently using faster communication methods in interacting with their clients and suppliers will have higher probability of net additions to employment. Such firms are likely to minimize delays in dealing with suppliers and clients and therefore less loss of potential revenues from sales. Higher growth in sales will induce more employment than otherwise (Sackey, 2007, p. 17). Consequently, policy measures tailored towards access to new technology and skilled development will be the effective policy that promotes development and economic growth in Nigeria.

Transmission effects include among others, the externalities generated by the investment during transformation process. For example, SME which can adopt new technology earlier and faster will gain more economies of scale than the late adopters. The non-adopters will be forced out of the system as a result of new competitive force or they may be forced to adopt through incentives. This will generate a scenario of

industrial learning by imitation such that a generation of new adopters will emerge in the process. In general, the system will be skewed into a dynamic economic development trajectory that can be sustainable over time. Since industrial structure in Nigeria is relatively small in size, industrial policy should focus on access to technology, skill development which will affect the growth rate per capita income positively. Upgrading the capabilities of SMEs will generate the transmission effect in the economy. Government investment in the social and physical infrastructure will support the investment efforts of the SMEs in uplifting the economy.

3.2.5 ISMED and Economic Growth

The main objective of the ISMED model is to provide the modalities on how to add values and productivity growth through competitiveness. Productivity growth is an important determinant of long run economic performance in terms of GDP growth while accumulation of machinery is a prime determinant of national rates of productivity growth (De Long and Summers, 1995, p. 1). High rate of investment in equipment is regarded as the key factor for rapid economic growth (De Long and Summers, 1992, p. 38)⁴. The positive effect of externalities is learning-by-doing that increases workers' skills and organizations' capacities to handle technologies. In this case, technological accumulation is crucial for firms and capital market play the major role in financing the accumulation process. If the local capital market is developed, it will be easier for credit constrained entrepreneurs to start their own firms, expand their businesses by acquiring varieties of intermediate goods. An increase in the number of varieties of intermediate goods leads to positive spillovers in the final goods sector (Alfaro et al, 2006, p. 3). The growth of domestic investment therefore depends on the level of domestic stock market. A stable stock market serves as signal and basis for linkages in international capital markets. There are three plausible effects of capital market on local SMEs. During capitalisation in stock market, firms are forced to improve their managerial capabilities by hiring qualified workers. Firms can improve

⁴For example, if government strategy targets productivity growth of three percent per year, then the income per worker will increase eight fold over a lifetime and the income itself will also double if annual growth is one percent (De Long and Summers, 1992, p. 19).

their human and capital stock through capitalisation. Firms can acquire good will and reputation which can easily facilitate joint venture initiatives between local and foreign partners.

The general effect of the investment strategies is reflected on the improved value added to the GDP growth. GDP growth has explicit impact on aggregate employment and income changes in the sense that firms employ more workers during the boom period. Investment in education and capacity building leads to better income such that workers are open for alternatives and opportunities. The empirical evidence revealed that educational level of the workers is very low, technological know-how is also very low. In this context, productive investment means targeting how to upgrade knowledge, process and product quantity. This can facilitate linkage with international firms and open opportunities for international sub-contracting and integration of local firms in the global value chains.

The significance of ISMED model is how investment can lead to general economic upgrading. The empirical analysis shows not only the weaknesses in Nigerian small enterprises but also provides an insight into the position of Nigerian SMEs in the ongoing globalisation. The outcome of the empirical analysis shows that Nigerian SMEs do not have the capacity to compete in an open economy. In spite of the controversies surrounding the theory of openness in development politics, the general consensus is that restriction is counter-productive in terms of access to capital goods needed for economic upgrading. The concept of new growth theory introduced in the ISMED model explains the impact of externalities generated by new technological application in the economy. This suggests that technological learning in Nigeria is feasible only when there is effective policy that recognises the importance of access to modern technology. Since investment expenditures are irreversible, measures regarding uncertainties are crucial to domestic and foreign investors. Social networks only are not sufficiently enough to reduce uncertainty in an unstable and developing economy that needed foreign assistance in terms of technology transfer. A developed and stable market institution is crucial in confidence building for domestic and foreign investors.

3.3 The ISMED Model and Agro-Industrial Processing in Nigeria

By definition, agro-industrial processing is the process of transforming agricultural produce into a different chemical or physical state. The process involves numerous activities that take place between harvest and production of the final products. An Agro-industry is an enterprise that processes agricultural raw materials including ground and tree crops, livestock and fisheries (ADB, 1994, p 10). The basic idea in engaging in agro-processing is to enhance the nutritive value of the agricultural products and transforms the products into transportable form for local and distance market. The agro-industry provides the crucial farm-industry linkage and contributes to rapid development of agricultural sector. The development occurs through induced backward linkages such as supply of credit and inputs as well as forward linkages in terms of processing and marketing. Other economic advantages of Agro-processing are value addition to the farmer's produce, creating opportunities for employment, and increasing the farmer's net income. Consequently, the process opens up possibilities for agricultural development because the farmers will be motivated to increase production.

The ISMED model is designed to improve productivity along the value chains in such a form that upgrading can occur at every stage in the agro-industrial value chains. Upgrading involves not only the strategies that enhance increase in the volume for exports, but also the strategies that aimed at transforming the nature of the commodity into a higher quality value. Upgrading in terms of quality provides an incentive for possible integration of the products or commodities into the global value chains (Gibbon, 2001, p. 359). Subsequently, integration efforts induced by global value chains have implicit effects on economic development in terms of industrial upgrading, employment creation and economic linkages (Uzor, 2007). The ISMED model can be used to identify the key problems in the entire production system in agro-industry. It can be used to generate the methods and analyse the process through which upgrading can occur at each stage in agro-industrial processing.

3.4 Public-Private Partnership (PPP) in the Promotion of Agro- Industrial Processing in Enugu State, Nigeria (An ISMED Model Approach)

The most important agro-industries in Enugu State of Nigeria are oil palm, wood/furniture and fruits/vegetable products. The oil palm industry alone employs more than 300,000 growers, with an estimate of over 2000 micro, small and medium scale enterprises involved in logistics and processing of palm oil and palm kernel oil in the region. Employment in the wood and furniture is about 40,000 in Enugu state while over 100,000 micro enterprises mostly women are engaged in production and marketing of fruit and vegetable products in Enugu.

Promoting the agro industries in Enugu state of Nigeria would be an important means of reducing unemployment and poverty as well as increasing value addition in agricultural produce for export. PPP approach would be an effective strategy in the promotion of agro-industrial development in Enugu state. As shown in Table 1, the first step in the promotion strategy is to define the public policy objective with corresponding policy instruments. The public policy objective in this context should reflect the measures aimed at enhancing sectoral transformation through competitiveness. The transformation effect will be measured in terms of increased output volume, employment creation, income generation, sustainability of the environment and value addition. The policy instruments are specific intervention tools aimed to promote competition. They include among others, non capital restrictions for foreign firms investing in agro processing; tax incentives in terms of granting pioneer status to agro industries with 100 per cent 5 years tax free period; increased farmers' access to central bank of Nigeria Agricultural Credit Guarantee Scheme Fund (ACGSF), improving rural transportation system, attitudinal changes and use of information technology.

Other measures include the selection of machinery with proper knowledge of options or technical justification for farmers and local firms. Promoting linkages among firms and providing institutional support are the most important step in upgrading the agricultural sector in Enugu state of Nigeria. The second step is to identify and analyse sector specific constraints along the value chains as well as designing strategies to reduce the constraints. The sector specific constraints are the constraints that can limit competitiveness in terms of investment, production, storage and marketing. To improve competitiveness, firms' specific limitations such as technological capabili-

ties, human capital and financial needs have to be identified and analysed. This is followed by analysing the measures on how to promote commercial farming. This includes among others, resolving the problems associated with land use and increased access to agricultural loan and credit schemes. In this case, the role of investment promotion agency is to identify and facilitate investment processes by forging joint venture initiative between local and foreign investors. Nigerian investment promotion agency, ministry of commerce and industry in partnership with chambers of commerce and industry as well as the legal department will provide the modalities necessary for joint venture formation between local and foreign partner.

The third step is to recognise that agro-industrial processing provides the linkage between rural and urban economies therefore hence greater public investment should be channelled to rural infrastructure such as access roads, public utility supply and schools to make rural attractive for better living. To make agro-industrial business attractive for domestic investors, the access to finance and technical support services must be clearly defined. To improve performance, credit corridors must be opened to potential domestic investors for the purchase of equipment and working capital for running the day to day business activities. For example, domestic credit to private sectors in Nigeria in 2006 was 15 per cent of the GDP as against 78.0 per cent and 160.8 per cent in Mauritius and South Africa respectively (World Bank, 2008, pp. 169-170). Furthermore, public investment in training of young farmers, technical education and vocational training is very important in agro industrial processing. Massive training of different young professional farmers at local level on modern farming techniques are the foundation of industrialisation based on agriculture.

Lack of technical manpower is a major factor that can limit investment in agro-industries in Enugu state. This means that a potential foreign investor will be compelled to hire more expensive foreign technicians which will increase investment costs. On the other side, a local investor with limited resources cannot employ foreign trained or hire qualified local technicians. In this context, the assistance of donor countries in promoting the agro-industrial processing in Enugu state is perceived to be crucial. Donors can support in the promotion of technical education in the state, supporting technical cooperation by helping to define development goal and providing technical assistance during designing and implementation of PPP arrangement in agro-industrial processing projects.

Table 1: Public-Private Partnerships in the Promotion of Agro - Industrial Processing in Nigeria

Category	Activity	Description
Public policy	Promotion of agro-processing firms	<ul style="list-style-type: none"> - Identifying the impact of Agro-processing on employment, income and environment sustainability - Application of the policy instruments: Tax incentives; non capital restrictions for foreign, tax free period as pioneer status for agro-industries and entrepreneurship - Land use reform and trade policy for access to equipment.
Investment Strategies	<p>Public</p> <ul style="list-style-type: none"> - Public sector's investment in input for capability gap reduction along the entire value chains - Promoting basic technology and access to modern equipment - Investment in research and development <p>Private</p> <ul style="list-style-type: none"> - FDI in Agro industry - Increased investment in commercial farming technology and skill - Investment in research and development <p>Donors</p> <ul style="list-style-type: none"> Technical support on trade and investment 	<ul style="list-style-type: none"> - Promoting investment and facilitating investment processes through a targeted investment promotion programme, for potential investors both local and foreign - Investment in rural infrastructure - Acknowledging the special requirements of the domestic Investors with respect to access to financing and technical support services. - Investment in technical education and skill development - Identify how Foreign Direct Investment (FDI) can impact domestic investment and vice versa in agro-industry - Identify the particular needs of the small and medium-sized agri-business enterprise when it comes to investment decisions Promoting capacity building on investment, trade and policy dialogue
Agro-industries for Enugu State (Oil Palm; Wood/- Furniture and Fruits/-Vegetable Products)	Sustainable Agriculture Initiative (SAI) Platform comprising e.g. multinational companies in food processing facilitating linkages with SMEs (e.g. Unilever, McDonalds)	Processing of the Oil Palm and fruits /vegetable products. Establishing linkages with local SMEs and rural farmers along the value chains

Source: Uzor, 2009

Table 1: Continues

Category	Activity	Description
	Public	Improving the famers' access to credit
		Access to CBN ACGSF (guarantee of raw material supply)
Financing	Private	Review of commercial bank interest rates and Strengthen the role of capital markets
		Increased access to bank credit and loans Mobilisation of the domestic capital through capital market.
	Donors	Supporting feasibility studies and initial financial assistance to reduce the sunk cost on productive investment
		-Foreign Aid for agricultural development (guarantee of raw material supply) -Grants to firms for capability improvement (i.e. technology sourcing)

Education/ Research	Promoting research institutions and skill development centres. Promoting technical education	- Promoting successful technological upgrading through collaboration - Training in industrial processing and machine operation and maintenance, - Training in artisanal (vocational) skills

Marketing	Identifying the methods of marketing and distributing channels	Identifying the consumers, Niches and Networking

Environment	Integrating the environmental agencies and waste disposal firms and forestry department	Collaboration of institutions in environmental impact assessments

Source: Uzor, 2009

The fourth step is the sustainability of agro-industrial processing in Enugu state. Promoting sustainable agro-industrial processing in Enugu state requires a platform such as Sustainable Agriculture Initiative Platform (SAI) that involves multinational companies in agro-processing. By definition, sustainable agriculture is a productive, competitive and efficient way to produce agricultural products, while at the same time protecting and improving the natural environment and social conditions of the local communities (CEC 1999, p. 6). The role of the SAI in this respect is diverse in the sense that the platform can encourage linkages with SMEs and foster best agricultural practices for higher value crops. The activities of SAI are also geared towards supporting the interest of farmers by increasing farmers' income and output, upgrading

the entire value chains, protecting the environment as well as sustaining social responsibility.

Agro-industrial development is frequently promoted by governments and development agencies as strategic components of rural development programs. Following the ISMED model, financing agro industrial processing project in Enugu state can be divided into three critical dimensions in the form of public-private partnership, private firm financial contribution and the crucial donor countries' support. Two issues are involved here, first is the initial sunk costs for provision of technology infrastructure. The second is the operational cost which has influence on project viability along the agro industrial value chains namely: raw material supply, processing and marketing. However, there is the need for analytical techniques on how to finance the agro-industrial project and assessment of financial/ technological viability of enterprises in the chain. Therefore, the research institute play an important role in this context.

The function of the research institute in the agro industrial project is to identify the requirement for successful technological and innovative processes in the entire value chain. The processes include among others, how to improve capacity and ensure standards through collaboration with Nigerian Standard Organisation (NSO), ensure engineering capacity, designing and testing as well as guarantee of food safety. The activities of technical institutions should focus on providing training on industrial processing, machine operations and maintenance as well as training in artisanal (vocational) skills.

Marketing of the final products will involve not only on how to identify consumers, niches or establishing networks but also the participation of private sector and cooperative wholesales in overall marketing strategies. Agro-industrial wastes and wastes from agriculture, food processing could be converted into potential renewable source of energy. Hence integration of environmental agencies, alternative energy firms and forestry department in the value chain will help to add value and support sustainable development of agro-processing in Enugu State. In general, the impact of SAI in the value chains and in the economy can be effective if the policy environment is favourable; if the policy framework for the promotion of SMEs and enterprise clusters, networks and innovation are directed towards improving the capabilities of the SMEs; towards linkages with large firms.

4 Policy Matrix and Public Private Partnerships in the Promotion of SME Clusters, Networks and Innovation in Nigeria

4.1 Policy Matrix for Promotion of SME Clusters, Networks and Innovation in Nigeria

The ISMED model is a combination of *bottom-top and top-bottom* industrial development model. The model provides that steps aimed at improving the dynamic factors in industrial development at micro level and strengthen the enabling environment at meso- and macro levels. Table 2 represents the policy matrix indicating the policy issues, policy areas and policy actions. The policy issues comprise not only the policy objectives and current status of the target area but also the classification of actions into general and sector specific measures.

Policy issues also cover the measures aimed at successful implementation of policy objectives in terms of timing, costing, monitoring and evaluation. The responsibilities of central, regional and local governments as well as the donor countries are specified in the policy issues. The policy areas and actions describe operational actions reflecting measures for SME cluster development, network facilitation and promotion of innovative activities in Nigerian agro-industries. The policy objectives are concrete measures defined according to the policy areas. The policy objectives must be clearly defined and provide specifications for policy evaluation. For example, policy objective on social capital in SME cluster development programme should be different from policy objective aimed at facilitating SME networks or innovative activities in SME clusters. This is because cluster development programme is a dynamic and require time frame, while networks can be discontinuous. The policy objective should specify each policy action and target area to be accomplished, steps or methods on how to arrive at each policy target should be outlined. The policy objective should be as specific as possible so that the potential impact of the policy measure can be evaluated.

The current status of the target area should be analysed through baseline study before formulating and implementing the strategy. For examples, policy aiming at upgrading an incipient cluster should be different from capacity building programme

designed to strengthen capabilities in organised cluster. Policy action promoting knowledge networks should be different from policy action promoting resource networks. This is crucial because policy targeting recognises the heterogeneity in SMEs and differential capabilities in the sector. Policy targeting helps in the creation of appropriate benchmark for monitoring and evaluation.

Table 2: Policy Matrix for the Promotion of SME Clusters, Networks and Innovation in Nigeria

Policy Issue	Policy Areas and Actions		
	Clusters	Networks	Innovation
Policy Objectives	Promoting – Collective efficiency, Social Capital; Linkages & Investment	Promoting-Social Capital, Linkages, Strengthen formal institutions	Promoting –Investment, Social Capital, Local technological capability building
Current Status	Incipient/Informal Organised Clusters	Personal Organizational Knowledge Network - Strong - weak - Absence	As a survival Strategy
Priority Actions	<p>General</p> <ul style="list-style-type: none"> Identifying the Agglomeration Effects -Education Reform that linked to productivity growth <p>Specific</p> <ul style="list-style-type: none"> - Targeting sectors with growth Potential Promoting: <ul style="list-style-type: none"> - Technical Education - Skill development - Linkages - Microfinance 	<ul style="list-style-type: none"> - Social Capital - Commercial Law - Contract enforcement - Protection of property rights <p>Targeting collaboration among coherent groups</p> <p>Promoting:</p> <ul style="list-style-type: none"> -Linkages -Partnership with large firms -Local stock exchange 	<ul style="list-style-type: none"> -Promoting innovation climate -Improving the welfare conditions of the citizens -building institutional <p>Promoting</p> <ul style="list-style-type: none"> - Product and Process upgrading, -Skill development, -Micro-financing, - Local stock exchange
Implementation Schedule	Time frame :Dynamic; Specific project with specific time frame	Dynamic Depending on the project	Dynamic Depending on the project
Implementation Agencies	PSOs, or Associations in the Cluster with Ministry of Labour and Education and a Research Institute or Ministry of Industry and Ministry of Environment	Ministry of Justice, Labour and Industry, PSOs A research institute	Science and Technology institutions Research Institutes Ministry of Industry
Costing	Cost estimates of programs and actions must be as specific as possible	Cost estimates of programs and actions must be as specific as possible	Cost estimates of programs and actions must be as specific as possible

Key: Agglom. = Agglomeration; PSOs = Private Sector Organisations; NIS = National Innovation System; LIS = Local Innovation System; Fed. = Federal

Source: Uzor, 2009.

Table 2: Continues

Policy Issue	Policy Areas and Actions			
	Clusters	Networks	Innovation	
Monitoring	A Research Institute, Cluster Brokers	A Research Institute, Network Brokers	A Research Institutes Network/Cluster Brokers	
Levels/Areas of Intervention by the government	Local	- Skill Development - Vocational Educational Social Capital	Skill Development	
	State	- Identifying the Agglomeration Effects - Promoting cluster development projects - Skill development - Technical education	Social Infrastructure Promoting Transparency Reducing Corruption through Checks and Balances Promoting Democracy	Local technological capability building -Technical Education -Adult Education Promoting partnership of Promoting LIS
	Fed.	- Education reform - Funding cluster Development projects -Providing Technical Support	Social Infrastructure Promoting Civil Liberty Promoting Checks and Balances	Promoting: - Local technological capability building, NIS Promoting - Skill Development, - Small and large firms linkages
	Donor Agencies	-Technical & Financial Assistance in Cluster Development -Targeting the Meso–Level	Targeting Meso-level Supporting Democracy	-Promoting partnership in small and large firms -promoting collaborations in international research works

Key: Agglom. = Agglomeration; PSOs = Private Sector Organisations; NIS = National Innovation System; LIS = Local Innovation System; Fed. = Federal

Source: Uzor, 2009.

Priority actions must identify and show how the policy actions will impact outcomes. Cost estimate of the policy actions should provide adequate information and guidance on cost determinants. In projecting the cost of policy actions, simple costing model program which must reflect unit cost estimates must be developed. The responsible agencies for each priority action must be identified. Furthermore, there should be time frame and deadline to complete each priority actions to allow observation and evaluation of outcomes. At each stage of implementation, concrete benchmarks have to be established. Evaluating policy outcomes must be linked to poverty reduction or growth with specified monitoring mechanism. In general, the most important aspect

of the policy design is to identify the responsibility of each level of government and inclusion of the coordination mechanism. Policy design must explain which policy areas should be assigned to central, regional and local level? Finally, an important aspect of accomplishing a policy strategy is the mobilisation of own and donor resources for program implementation. Policy implementation is not possible without clearly identifying sources of funding. Therefore, it is important to achieve a high degree of inter-sector coordination in order to determine all available resources. In general, implementation of projects in agro-industrial clusters demands participatory approach in terms of Public-Private Partnership (PPP).

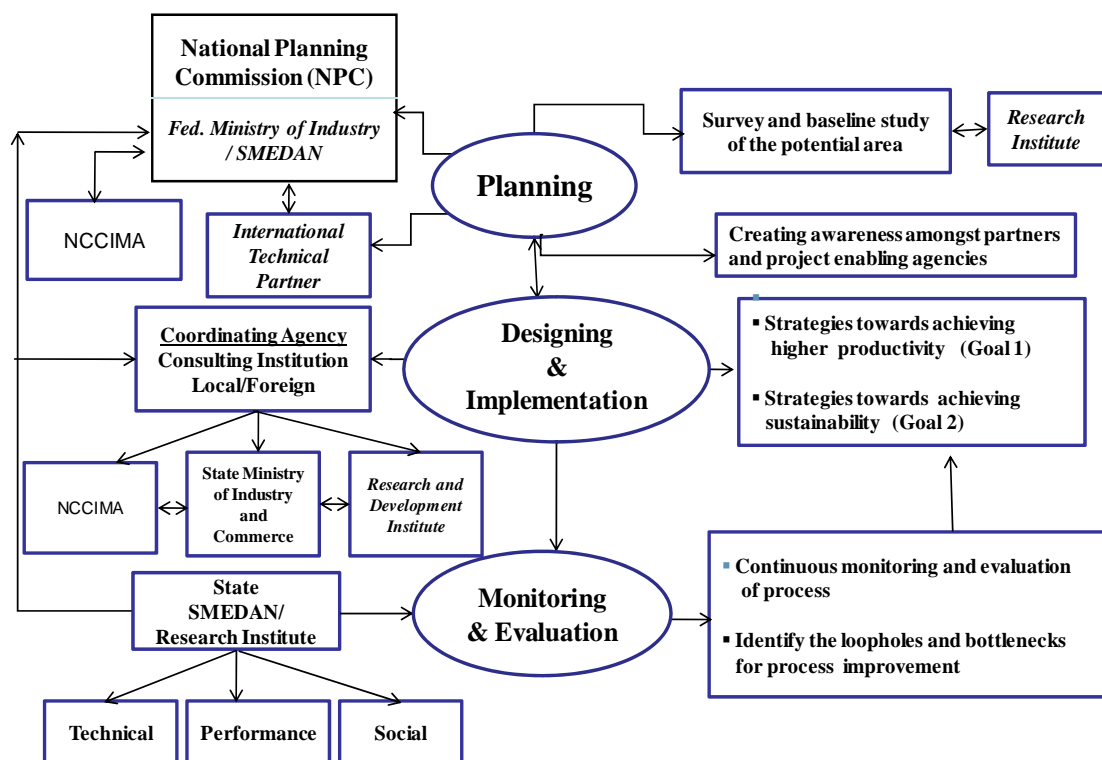
4.2 Public-Private Partnerships in the Implementation of Agro-industrial Projects in Nigeria

Figure 3 provides the logical steps on how projects in agro-industrial development can be implemented in Nigeria. In a PPP project initiative, three interdependent units namely; designing and implementing unit, the project planning/coordinating unit and monitoring/evaluating unit are necessary. A consulting institute or firm is the central organ of the project and is responsible for designing and implementing the project. The consulting institute initiates and design the appropriate project and send the draft to the national planning commission for approval. The national planning commission examines the relevance of the projects and conducts the impact assessment of the project. Members of the project planning commission include the national planning commission, the representatives of the Federal Ministry of Industry, SMEDAN, Nigerian Chambers of Commerce Industry, Mines and Agriculture (NCCIMA), and International Technical Partner. The planning commission will work in conjunction with a research institute to conduct the base line survey of the potential project area.

The function of the independent consulting institute is to design project concept and guide the implementation. The institute sets the goal, objective and activities involve in the project. For examples, the goal of the project can be to improve technical capacity of the entrepreneurs in the cluster in order to achieve higher productivity. The objective in this context could be to increase by 60 per cent, the number of entrepreneurs that have access and be able to apply modern equipment in their production.

The activities of the consulting institute over a period of one year for example will include among others, dissemination of information concerning access to new technology, training of entrepreneurs and workers on the new equipment, sourcing finance for equipment procurement. In agro-industrial processing, it is the responsibility of the consulting institute to design the project system plan and implementation processes as put forward by ISMED model. The consulting institute must collaborate with the local chapter of NCCIMA which covers the interest of entrepreneurs and famers, as well as research institute and State Ministry of Industry, land Matters and Rural Development during the designing and implementation processes.

Figure 3: Public-Private Partnership in the Implementation of Projects on SME Clusters, Networks and Innovation in Nigerian Agro-Industries



Key: NCCIMA = Nigerian Chambers of Commerce Industry, Mines and Agriculture

Source: Author's own compilation

An independent monitoring and evaluation team will not only act as a monitoring and

control unit but also identify loopholes and bottlenecks for process improvement in order to realise the goals and objectives of the project. In this case, the Small and Medium scale Enterprises Development Agency of Nigeria (SMEDAN) which is a government agency and international technical partner will appoint different external monitoring/evaluation agencies. The external M&E agencies should be responsible for identification of the loopholes, bottlenecks along the value chains and make periodical report to the NPC and consulting institute for process improvement.

5 Conclusions

This paper argues that despite the production structure which represents different micro and small enterprises forged into a production process; competitive factors such as human capital, linkages, technological capability and firms' financial base are very weak in Nigerian agro-industrial sector. The paper provided a model which seeks to restructure and strengthen the small and medium scale enterprises in Nigeria and Africa in general. The central arguments are: the improving the competitive factors such as human capital, technological capability and linkages is the most dynamic form of promoting SMEs in agro-industrial processing. Improved domestic investment supported by FDI inflow will stimulate SME growth in terms of transformation. The productivity growth and efficiency in SMEs will lead to general economic growth. Domestic investment is fundamental in the sense that improved capabilities of the local SMEs will serve as means of improving linkages with large foreign firms. The ISMED model therefore seeks to analyse how improved capabilities, inter-firm and sectoral linkages can lead to SME development and economic growth. The assumption here is that government must invest intensively in human capital development, technological accumulation, infrastructure development and security.

The Nigeria industrialisation strategy failed to lay much emphasis on grass-roots industrial development or provide specific policy measures which reflect the heterogeneity in SMEs. To address these issues, the paper provided the policy measures reflecting the three segments of entrepreneurial operational structure namely: clustering, networking and innovation which tend to encourage sectoral and inter-firm linkages. The objective here is to provide policy measures that aimed at promoting

productivity at grassroots' level, encourage interdependencies and learning. The policy matrix outlined the strategic implementation of the policies at local, regional and federal levels. The article also argues that government cannot act alone as the economy expands and the globalisation pressure increases. Therefore, empowerment of independent local business organisations is very crucial. Empowering the local chambers of commerce and industry, and other business and sub-sectoral associations will not only facilitate flexibility but also induce efficiency in the implementation of industrial policy in Nigeria. For example, farmer empowerment and increased number of commercially active farmers, and agriculture-related rural and urban entrepreneurs are the crucial steps in the promotion of agro-industrial processing in Nigeria.

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