

Full Length Research Paper

The role of engineers in agro-industrial development in Nigeria

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Abstract

The role of Engineers and Agro-Industry planners are routinely challenged. The expanding population, rising living standard and resilient poverty among rural families, poverty among rural family population, unsustainable pressure on natural resources, poor and outdated technology, low-educational standards, lack of investment in small scale, contribute to the poor performance of Agro Industry. As a result the Nigerian population basic standard and needs cannot be met. The role of Nigerian Engineers in the Industry specifically in the Modern Technology to return the industry to its position in the national economy disappears due to lack of harmonization of investment between farm produce and Agro –Industry. The co-ordination of development between the urban and rural communities, rural investment in small scale Agro-Industry becomes necessary to meet the social needs of the populace. The purpose of this study is to highlight the role of engineers to boost Agro-industrial food production using modern technology.

Keywords: Agro-industry, urban and rural communities, engineers, investment, technology.

INTRODUCTION

It is globally recognized that agro-industrialization is very important to a nation's growth. In other well coordinated advanced countries, 15% of their national earnings are generated from agriculture/Agro industries while in Nigeria, less than 10% of their national earnings is generated from agriculture/Agro- Industries. Despite public outcry, agricultural participation in the economy continues to decline when compared to the contribution of other non-agriculture sectors of the economy such as energy and tourism to gross domestic product (GDP). Reasons for the decline cannot be far-fetched. It is believed that poor economic planning, co-ordinated system initiatives, lack of political economic initiatives are responsible for the failure of investing in small-scale agroindustry in Nigeria. (Adeoti et al., 2006; FAO, 2006; Steele, 2010). As it can be seen in the figure 1 below, in the last three years, 2010 - 2012 budgets a 50%

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reduction is detected in the Federal Government's allocation to the agricultural sector compare to other nonagricultural sectors of the economy. In the developed world, Agro-industry is well developed, co-ordinated and incorporated into their economy and the progress is well noted all over the entire states including new technology. In Nigeria, Agro-industry is underdeveloped even neglected and not acknowledged as part of the economy.

Lack of political and economic will and understanding the importance of Agro-Industry position in the economy are major reasons for failure of both public and private participate actively in developing agro-Industry in Nigeria. In the western world the role and position of Agro-Industry is very important in their economy. In the same western world there are varieties of Agro products available in their markets nationally and as well as in Nigerian markets. These products are imported to Nigeria, despite that all raw materials (farm produce) are available in Nigeria. Nigerian governments ignore to seize the opportunity to process and convert all these materials into Agro-products and make them available in Nigerian market possibly for export. Nigerian Public and Private Investors lack the political and economic will to take the advantage. In Nigerian markets there are varieties of Agro products from Britain, South Africa, Brazil, Germany, Morocco and others available. The mockery side of the story is that these farm produce are exported from Nigeria to developed countries and sent back to Nigeria as finished Agro-products, consumed in Nigeria in large quantities. Nigeria is a country which used to be a giant supplier of cash crops now a giant importer of all types of farm produce to feed its citizens. The aim of this paper is to review the roles of Engineers in the agro-industry in Nigeria Figure 1.

Overview of Agro-Industries

In the past few years, the federal and state governments in Nigeria have outlined and proposed series of rural development programmes. Some of the prominent rural development programmes includes, the farm settlements schemes such as that of the 1950s and 1960s; which was the basis for the National Food Production Programme (NAFPP) established in 1973; the Directorate of Food, Roads and Rural Infrastructures (DFRRI) formed 1985: and the Rural Agro-Based Industrial in Development (RAID) in 1981. The Rural Agro-Based Industrial Development Programme (RAID) was established in collaboration with the World Bank. RAID was charged with the responsibility of researching into and developing small-scale Agro Industry using local materials for food processing techniques until final products are achieved. Under this basic scheme engineers have major role to play, in developing new innovated sensitive machineries to drive the new technology needed for the proposed Agro-Industry in Nigeria (Olayiwola and Adeleye, 2005; Okereke and Onyeabor, 2011).

Unquestionably, agriculture plays a vital and integral role in the nation's economy. In an organized society, agriculture provides at least 20-25 percent of GDP annually, with estimated 30 percent of the population of 34.5M engaged full-time or part-time in agricultural activities (Maisamari, 2002; Wakatsuki et al., 2010).

METHODOLOGY

A mail questionnaire was selected as means of data collection and responses were analysed using a standard statistical package Microsoft Excel. The study is limited to Ondo State. A total number of 120 mail questionnaires were sent to professional Engineers, Agriculturists and professional local farmers around Ondo State and a total number of 110 responses were received, this indicates about 92% of questionnaires were returned with comments, it means the study was highly supported by the populace in the state.

RESULTS AND DISCUSSION

The data collated from the questionnaire showed that 100% of respondents established that the roles of the Engineers are important in the development of agroindustry in Nigeria, although 55% of them reported that their role was very important while the remaining 45% reported that their role was just important (figure 3). 66% of them believed that their roles should be on the design and manufacture of machineries and equipment for food processing, while the remaining 34% believed that their roles should be in research and technological development (figure 4). Also, 100% of the respondents agreed that the role engineers will lead to an increase in the quality of agro-industrial products in Nigeria. Furthermore, 100% of the respondents believed that Engineers should be involved in the coordination of agroindustrial activities around the country. In addition, 90% of the respondents agreed that lack of engineering participation contributed to the failure of agro-industry in Nigeria (with 55% strongly agreeing and the remaining 35% just agreeing), while the remaining 10% disagreed to that (figure 2). On the strength of the foregoing, it is strongly established that the engineers have a vital role to play in the development of agro-industry in Nigeria.

However, 91% of the respondents believed that the current state of agro-industry in Nigeria is fair, while the 9% of them believed that the state is poor. Although, the result showed that the current state of agro-industry in Nigeria is fair, it is clear to see that state of agro-industry in Nigeria is poor because most of the varieties of diaries and food crops are being imported.

The role of engineers to agro-industries in Nigeria

Engineering is a major component of human development. Sub-Saharan Africa (which includes Nigeria) has a very small engineering capacity which results in many African nations being unable to develop important infrastructure without foreign assistance. The attainment of many of the Millennium Development Goals requires the achievement of sufficient engineering capacity to develop infrastructure and sustainable technological development. Engineers on one hand have equally neglected most of their responsibilities towards the promotion and support for agro-industry in the country. The Engineers can directly and indirectly influence the small scale agro-industry and the large scale agro-industry in the following ways:

Research and Development

An Engineer can offer more resources both in education and research and development in support for food production and agro-industries. They can also offer



Figure 1. the different sector of Nigerians economy, more emphasizes on Agric sector. (source: http://www.budgetoffice.gov.ng/budget_update/20102012%20MTEF%20&%20FSP).



Figure 2. Chart showing the respondents agreement to the failure of agro-industry due to lack of engineering participation.



Figure 3. Chart showing how important is the role of Engineering to the development of agro-industry in Nigeria.



Figure 4. Chart showing the different roles of the engineer in the development of agro-industry

detailed advice in the development of agri-business, the establishment of SMEs and the resources required to attract investors into the sector (Steele, 2010: Oladipo, 2008).

Food quality

The Engineers can also proffer advices on good agricultural practices and sustainable manufacturing practices within a context of safe and high quality food production. These practices include the food service laboratories, centres, technologies and systems that have become part of all food industries worldwide. It is paramount for Engineers to address these issues, failure to tackle this problems locally produced food will continually decline and if care is not taken we may not be able to develop our technology that can drive the proposed Agro-Industry in Nigeria. If we succeed farm produce and farmers succeed import Agro-products coming to will be reduced to minimal quantity Nigeria economy and employment will grow. If we fail, people's expectations and confidence in locally made products will be lost and also subsequently leading to a shift to imported Agro-products with no guaranteed standards of quality and safety (Steele, 2010: Mckeller and Smardon, 2012).

Responsibilities

The Engineer can organize a podium where all the key players (the government, public-private partnership, to participate in both large and small scale) in the agroindustries to express their interests and issues affecting the growth of Agro-industry in Nigeria. Also the Engineers can define their roles and responsibilities to assist participating or joint partners in both the value chain; mutual agreements, contracts and methods that will provide fair trading and transparency within the value chain (Steele, 2010: FAO, 2006: Adeoti and Adeoti, 2010).

Coordination

Engineers are required to develop a well coordinated system with the different mechanisms required for public and private partnerships in the value chain; established within guidelines and practices established by public authorities. These systems should be constant reappraised for proper effectiveness (Olayiwola and Adeleye, 2005: Steele, 2010).

CONCLUSION

This paper has produced insights on the role of Engineers in the development of Agro-industries in Nigeria. The study identified a decline in the funding and involvement in the Agro-industry as indicated in figure 1 where over 50% decrease in the budgetary allocation to the agricultural sector within the last three years (2010-2012). Also, the results showed that majority of the respondent agreed that the Engineers should be more involved in the planning and coordination of agroindustrial activities.

The study proposed that Engineers should spend more time in developing methods to improve and promote the technology that will support agro-industry livelihoods systems (both small and large scale).

Previous studies have shown that there are no interlinkages (both forward and backward) connecting all the partners involved in the agro-industries, therefore national support programmes are required to improve the inter-linkages and deliveries of the agro-industry produce. These programmes may include promotion of an enabling environment, provision of financial support for the industry, creation of strong public-private sector partnerships, investment in the infrastructure required for agro-production and agro-industries.

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