



Agriculture and Transportation in Rural Social Transformation

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Abstract

This paper theoretically evaluated the role of agriculture in rural social transformation. Agricultural development in most countries is a necessary precondition for economic development whereas Nigeria has lost its value for agricultural production because of the oil boom. We argue that the potential of agricultural technology in form of fertilization and irrigation techniques, depends on the extent to which governments can formulate and implement adequate policies that will create employment for national development.

Keywords: Agriculture, Transportation, Rural, Social, Transformation, Economy, Employment, Nigeria

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INTRODUCTION

In most developing countries, agricultural and food productions have fallen behind rising demand (Eghbal, 2009). Nigeria is one such country, where agricultural output has decreased not only relatively but also almost absolutely. Between 1970 and 1977, per capita agricultural production fell by 1.5 percent per annum and food production per person declined by 13 percent. This sharp decline in agricultural output is accompanied by an attending productivity decline from 82 percent (excluding oil) in 1960 to 66 percent in 1977-1979. These declines in production and productivity suggest that the average level of food consumption has also decreased. Agricultural development in most countries is a necessary precondition for economic development unless countries are fortunate enough to have other resources that can be used to finance food imports. While Nigeria does have oil resources, the high-level economic activity generated by oil revenues has not ameliorated the overall weaknesses in the economy. Nonetheless, since the late 1960s, the country has developed a mono-economy based on oil, a non-renewable resource (Filani, 1993).

Employment in the capital-intensive oil sector is limited. Thus, it is important to recognize the significance of agricultural sector employment on which the vast majority (nearly 70 percent) of the poorest people depend. These people are generally found in rural areas and engaged in subsistence agriculture. Given the centrality of this sector to

so many, if development is to take place and become self-sustaining, it will have to start with agriculture. An adequate food base is also a necessary precondition of such development (Madu & Umebali, 1993).

The purpose of this paper is to highlight the role that agriculture is expected to play in development and to examine patterns of agriculture in Nigeria. This paper looked at the constraints that inhibit the agriculture sector and examine the transportation of agricultural products from rural areas where they are produced to different parts of the country. It should be noted that in this paper agricultural products refer to crops like cotton, cocoa and palm kernel that are produced mainly for export; while food products refer to those crops grown and consumed as staple foods within a country. In the case of Nigeria, food crops include maize and cassava, among others. There are also a number of overlapping items like rice and groundnut that are used for both internal consumption and export.

The Role of Agriculture

While the importance of agriculture in development has been dealt with extensively in development literature, there are differences of opinion as to the role that agriculture should play. The prevailing view, that which can be deemed the integrative approach, sees agriculture as an equal partner of industry and other sectors of the economy. When agriculture becomes more efficient and production is increased, a release of labour from the agricultural sector requires a reciprocal ability by the industrial sector to absorb this labour. If the release of agricultural labour is not absorbed by industry, development problems can occur (Isabio, 2009). The United States and Japan are demonstrative of this view in which agriculture is often said to bear the burden for the capitalization of industry (Filani, 1993).

In their study of the role of agriculture in economic development, Tsigas and Ehui (2006), find that agricultural development supports economic development in five major ways. First, economic development increases the demand for food, and the failure of the agricultural sector to increase the food supply can impede development. Second, the export of agricultural products can garner the foreign exchange and currency necessary for development. Third, in the case of peasant economies and dominant economy, agriculture provides the necessary capital for investments in social investments and industry. Fourth, the agricultural sector supplies a major portion of the increased labour needed at times by the industrial sector. Fifth, the cash income of the agricultural population can enlarge the size of the domestic market for the manufacturing sector. The United States, a highly developed country, is again illustrative of this approach.

In contrast to the integrative view, most developing countries embrace what might be called an exploitive perspective. Rather than emphasizing agriculture or accepting it as an equal partner with other sectors, agriculture is viewed as a subservient sector to be exploited for urban industrialization. The urban industrial sector depends on rurally-produced food and agricultural supplies, yet the agricultural sector is otherwise ignored. The income earned by farmers is meagre compared to that of their counterparts in urban sectors; an income disparity that results in the out-migration of rural masses to urban areas in search of better economic opportunities (Isabio, 2009; Tsigas & Ehui, 2006).

According to Dimaranan and McDougall (2006), the rural sector requires sufficient investment so as to maintain healthy development, and unless this investment is made, the exploited agricultural sector will deteriorate and create serious obstacles to development. African governments have spent pitifully small portions of their expenditures on rural and agricultural development” and even when they do allocate funds to agricultural and food programmes, they expect quick results. They fail to understand that development is a gradual process which needs not only investment but also a concrete foundation which itself requires time to mature. The unhealthy or lagging development in many developing countries in Africa can be seen as one of the consequences of inadequate investment in the agricultural sector. This appears to be the case for Nigeria. This will be elaborated on later.

Another approach related to agriculture and development that merits consideration is the “Stage theory of development” propounded by Organski (1965) and Reston (1971). This approach has gained broad recognition and influence in development literature. It has also been subject to much criticism, particularly the “take-off” point of development. For developing countries currently pursuing the exploitive approach, Rostow’s stage theories of development may have some bearing.

Fishlow (1996) has summarized Rostow’s propositions as: (a) successful industrialization is unbalanced in the sense that a single, or limited number of industries, are the source from which an initial acceleration ramifies through the economy. There is a consequent discontinuity in manufacturing production; (b) leading sectors have three paths of influence on the economy: forward, lateral and backward linkages, of which the latter has dominated historically; (c) certain industries have played the role of leading sector in a number of different countries, notably the railroad; (d) the development of certain subsidiary activities - coal, iron and machinery - is a good index of the extent of industrialization and the probability of its continuation; and (e) industrial, rather than agricultural, growth affords the initial basis for sustained development (Fishlow, 1996). Fishlow goes on to point out that the examples used by Rostow to establish one or more of his points are grossly miscalculated, and that the aggregate approach to take-off has likewise not fared well. Similarly.

In his notion of the nature of the transition, apart from the problem of 'take-off,' Rostow (1971) states that a society dominated by agricultural, with 75 percent or more of its work force in agriculture, must shift towards industry, communications, trade and services. Such propositions from the stage theories have seemingly influenced many African countries that have opted for the exploitive approach to development. From the perspective of comparative advantage, they may have assumed without proper assessment, that it would be better to invest in industry than in agriculture in order to industrialize and so the agricultural sector was neglected.

From Rostow's work it is important to grasp that now developed nations, in their process of development, sequentially passed through the stages of development (as a process). They moved from nation building, to industrialization, to welfare states as in Britain, or social security states as in United States, to advanced technological societies. Adjustment to each stage occurred gradually during the process of development.

Less developed countries (LDCs), such as those in Africa are experiencing telescopic development in which all the stages are taking place at the same time. This limits investment in any particular sector and creates inefficiency in all of them. The development of all the sectors simultaneously does not permit a proper adjustment between various sectors of the economy because the resources required by each are limited given the generally struggling LDC economies and the competition for resources. As such, it is essential to determine which sector will most benefit a developing country, such as Nigeria, in the allocation of limited resources. The starting point of African countries, including Nigeria, is different from that of developed countries in that most developed countries have passed through feudalism and had well established agricultural systems before industrialization occurred. Most African countries and those that are south of the Sahara, in particular, began their drive for industrialization at a time when their agricultural sectors had not yet emerged from a subsistence system of agriculture. At the same time these countries face a number of other problems in agriculture including inadequate education, pollution, the use of primitive implements, and poor soil and climates, all of which also require immediate attention.

Patterns of Agricultural Change

In discussing the role of agriculture in development, most developing countries, as noted above, have opted for the exploitive approach in which agriculture is rendered subservient to the urban industrial sector. It has also been noted that the neglect of agriculture is far from an advantageous strategy for improving the social and economic welfare of the population. This is because population growth is often higher in less developed countries necessitating more food and food production. Since economic resources are limited, inadequate investment in agriculture might result in a decline in both production and consumption; or at best an inadequate increase in production. At this juncture it is important to examine patterns of Nigerian agricultural change so as to be able to assess the role of agriculture in Nigeria. Agriculture was Nigeria's primary economic resource before the discovery of oil in 1956. The production of export crops by peasant farmers was the mainspring of economic growth from 1900 to 1965. This growth was made possible because of colonial trade which led to the construction of railroads and seaports to coordinate easy transportation of export crops and staple foods from the hinterland (Guglar & Flanagan, 1978). By the early 1970s agriculture still contributed about half of the national income and provided employment for 70 to 80 percent of the labour force. Agricultural commodities provided 48 to 56 percent of export income and were important sources of public revenue through the taxation of these crops, the profits of marketing boards, the cattle tax, and other taxes in general. The country's economic needs and foreign exchange requirements were met almost entirely by peasant farmers, whose earnings financed the development of infrastructure, built schools and hospitals, and supplied capital for new industry. As communication was improved by the colonial administration, production for internal trade expanded with an persistent emphasis on the production of crops for export (Mongabay, [n.d]; Collins, 2010).

A study of Nigeria between 1948 and 1952 identified four types of agricultural economy during this period: the (1) basic subsistence economy; (2) internal exchange economy; (3) peasant export-production economy; and (4) plantation economy. The subsistence economy was and still is found throughout regions of Nigeria, but its relative significance varies. The importance of the subsistence economy was greatest in the Benue and Plateau (former middle belt) areas of the North, and least important in the cocoa areas of the Western region. The cocoa areas depended on food grown elsewhere in Nigeria. The Yoruba cocoa belt, especially, has long been food-deficient which may be explained by the fact that the region was and still is predominantly engaged in cocoa production. It should be noted that the contrasting environment and climate in the North and South parts of Nigeria also influenced variations in the types of agricultural products grown in these areas. Improvements in transport facilities rapidly changed the mining centres and encouraged the internal exchange economy (Collins, 2010). Commodities produced for internal trade included guinea corn and cattle in the upper North and yams in the Benue/Plateau areas. Palm oil was produced in the East and Kola-nut in the West. More specialized crops such as rice and fruit were grown in both the North and South. According to Buchanan and Pugh's findings, the prosperity of areas depended entirely upon production for the internal market. Miscellaneous agricultural products, like beans and onions, worth 3,000 and 1,000 tons of yarns respectively, were often railed from station to station for sale. The main crops of the export-production economy included: (1)

cotton and groundnut centred in Kano city; and (2) bean seed and soy beans in the Benue province of the Northern region. In the South they produced perennial tree crops, such as cocoa in the West, and palm produce and rubber in the East. The fourth and last type of agricultural economy, the plantation economy, was of minor importance and was developed only in the coastal districts of the delta areas of Nigeria. These small estates were largely owned by European trading companies (e.g. United African Company) and a few Nigerians.

Generally speaking, most Nigerians are still peasant farmers producing their own food crops and deriving income from one or more cash crops as well as from the sale of surplus food crops. The main food crops grown in the South and Middle Belt are yams, cassava, rice, and maize, while the main subsistence crops of the far North are guinea corn, millet, cassava, and rice. Export crops, such as oil palm, cocoa, and rubber, are grown in the South while groundnut and cotton are grown in the North. It is important to mention as well that fishing is mainly done in the delta parts of the South and the demand for fish in Nigeria is estimated at over two million tons a year (Nwabueze, 2010). Since fish has high protein content and since there is marked protein deficiency in the Nigerian diet, there is a great need to step up local fish production. Unfortunately, oil exploration and pollution have created a situation such that most fish historically found in the creeks have migrated to deep sea waters. This has meant much smaller catches for local fishermen who cannot participate in deep-sea fishing. The local fishermen lack both the implements and knowledge needed to use the technology that deep-sea fishing demands.

The agricultural sector in Nigeria largely consists of smallholder families, estimated to number between five and six million, who in the 1990s produced 90 percent or more of the country's agricultural output (Ogbuigwe, 1996). Farming methods followed traditional practices, and productivity was low relative to the country's potential. This is because most farmers still used traditional techniques and farming implements generally consisted of the hoe, the axe and the machete. While the contribution of the smallholders was significant, it does not imply that they met the country's total food needs. The supply was still far less than the demand. The average area cultivated by a smallholder ranged from less than half a hectare to over two hectares. The size depended largely on the amount of land that could be cleared and farmed by a family and the type of crop grown. Mixed cropping on the fields, which rarely exceeds 0.4 hectares (one acre) in the South or 1.2 hectares (three acres) in the North and extreme dispersal of holdings are characteristic features of farming in the country. In some areas with agricultural extension services, the use of fertilizers and pesticides was introduced, but even then the individual illiterate farmer was not taught how to use the inputs properly. As of 1981, the total number of farmers who used inputs remained small. The system which most farmers still employ is primitive, and includes clearing the farmland by fire, fertilization by wood ash, cultivation with simple hand tools, the absence of stumping, and usually the absence of draft animals or other livestock. They also employ forest fallows or field forest cultivation instead of true shifting cultivation. True shifting differs from forest fallows in that in the former, fields are rotated around a settlement and the cultivator generally does not shift his place of abode. This is practiced in most parts of Africa, including Nigeria (Whitaker, 1982).

Government and Agricultural Development in Nigeria

Thus far, this paper has looked at the general role of agriculture in development and patterns of agriculture in Nigeria. It has shown the contributions of agriculture to the Nigerian economy, those of offering employment to many, producing the greater part of the food consumed by the nation, and generating foreign exchange in the 1950s and late 1960. Given adequate attention and improvement, the sector still stands to recoup a great deal of the funds currently spent on importing essential food commodities (Todaro, 1977). That is, adequate encouragement of the agricultural sector would increase production so that only those food items in short supply or not available would need to be imported. This is not to suggest that the government has failed to give the sector any consideration, rather that it has given it relatively little consideration compared to other sectors of the economy. Consequently, it is necessary at this point to briefly examine the developmental efforts made by the government.

In 1966 the Food and Agricultural Organization (FAO) (1966) concluded that the prevailing system of bush fallow in Nigeria is too slow for the future needs of the country in light of increased population densities, the rising need for foodstuffs, and the need to improve rural incomes and living standards. With respect to agricultural crops, the agency stated that even though Nigeria barely maintained its position as a world supplier of cocoa, there might be an outlet for nearly 200,000 additional long tons of cocoa by 2000; with a vigorous production campaign, its share of world exports might be increased.

Thus, in 1976, the then Federal Military government launched Operation Feed the Nation (OFN), a food production development programme. The basic objectives behind the development effort were:

- (a) Ensure the supply of food for the human population and feed for animals;
- (b) Increase agricultural incomes with agricultural programmes such as the National Accelerated Food Production Programme (NAFFP); and
- (c) Earn foreign exchange (NYSC, 1979).

The first objective stands as the major motivating factor behind the introduction of Feed the Nation. The second objective involved making improved technologies readily and easily available to the farming population. Adoption of these technologies was expected to result in increased yields for crops and livestock, thereby making more produce available for the farmers to eat and sell. This, in turn, would create the rural purchasing power required to buy new manufactured goods and generate rural savings, which could be mobilized by direct or indirect means to finance industrial development. In terms of the final objective, the produce obtained from Operation Feed the Nation was to serve as a foreign exchange earner by increasing the nation's export power while keeping down importation of essential food crops. It was hoped that inputs such as fertilizers and machinery could be used to produce essential food items cheaply and in this way money would be saved for additional future investments. This assumed, however, that the inputs were adequately utilized. Unfortunately, despite the planning and expenses, the OFN programme was declared a failure. This will be dealt with in greater detail in the Problems of Agriculture section below.

In early 1980, the civilian government of President Alhaji Shehu Shagari announced a new agricultural plan. The plan was drawn up by the Nigerian and International Bank for Reconstruction and Development (Alhaji Gusau, 1981) and labelled the "Green Revolution." The effort was designed to make Nigeria self-sufficient in food crops in five years and industrial crops in seven years. Increased expenditures on agriculture (about 13 percent of the total capital investment of federal and state governments) were projected in the fourth national development plan announced in early 1981 (Federal Republic of Nigeria, 1981). This plan was expected to generate an annual production growth of four percent. This being a reasonable investment, Nigerians would have to wait to see if it produced results given the prevailing problematic circumstances.

Agricultural Sector Problems

The factors negatively affecting Nigeria's agricultural production and food self-sufficiency are many, but certainly include (1) inadequate investment in agriculture compared to manufacturing; (2) a lack of education and training among smallhold farmers; (3) population drift from rural to urban areas, leaving an aging farm labour force; (4) disruption caused by drought; (5) inadequate and ineffective extension services including the inadequate supply and erratic availability of inputs and other farm-support services; (6) inadequate infrastructure; (7) wastages incurred; (8) unpreparedness and confusion; (9) population pressure; (10) land tenure; and (11) inadequate credits and capital. These challenges are by no means exhaustive, for there are many others that have linkages in the Nigerian developmental structure. What we shall do here is attempt to discuss some of the problems already noted in this limited paper.

Nigerian government, like other African governments, favours Rostow's stage theories of industrialization over developing a solid agricultural base. This might be explained, in part, by the fact that since indigenous rule in 1960, when agriculture was handed over by the colonial administration, the emphasis has clearly been on the petroleum industry. This emphasis contributed to mass rural unemployment (Todaro, 1977; Mongabay, [n.d]), since urban areas were more favoured in terms of incomes and social amenities. Many young graduates migrated to urban centres to look for better employment, leaving agriculture to the aging labour force. These factors were instrumental in the resulting short fall in agricultural and food production. Rejuvenated investment in, and adequate encouragement of, rural agriculture today would play a major role in revamping the much needed food production. By adequate encouragement we mean education and training of the smallhold farmers, incentives for young graduates to participate in the sector, and the importation and equitable distribution of inputs to farmers.

In a December 1981 conference organized by the Nigerian British Chamber of Commerce in London, Dr. John Stevens of Knight, Frank and Rutley stated that the blame for sectorial failure was often, and unfairly, laid at the door of the small farmer. He went on to say, "in my experience, and this is a point that should not be lost on British suppliers, the traditional farmer is receptive to new ideas when he can be shown the improvement they bring," (West Africa, January 4, 1982: p. 17). He concludes that Nigeria's future lay in the hands of its small farmers who were once responsible for 90 percent of all agricultural production. Output can once again be increased with the introduction of modern farming techniques that can be applied to both large and small farming units. Indeed, education and training, "in which British suppliers could play a major part," and better marketing and distribution are vitally important. Large farmers alone will not be able to ameliorate the continuing food shortages (Norman, 1981).

It is important to note that the literacy rate in 1970 was estimated at 25 percent in Lagos and Western Nigeria, and among some sections of the Eastern States of Southern Nigeria. Estimates for the country as a whole put the literacy rate at this time at 10 percent (Area Handbook, 1972). The higher literacy rates in Lagos and Western Nigeria can be attributed, in part, to their comparatively higher urbanization levels (Adepoju, 1980). The low level of literacy for Nigeria as a whole clearly shows that most people do not have any (or have very little) formal education. As such, learning about fertilizer application, the operation of new machinery and other modern techniques without any further training may be problematic. Thus, what is required is an integrated adult education programme whereby an application of agricultural inputs and farming techniques would be taught and rendered understandable to those with

low literacy and/or little formal education. Rather than such programmes, the government has, to date, been emphasizing large-scale farming which requires high level manpower. While necessary, this alone will not engender a long term agricultural transformation. A long term programme is needed that addresses both the needs of the nation in terms of food production and exports and the needs of farmers (both large and small).

Rapidly growing population densities are also having a profound effect on farming systems (Norman, 1981). Initially, farmers responded to governmental incentives to increase exports (as indicated earlier) and cash crops by expanding the area cultivated. However, in many areas of the South, rising population densities eventually placed a limitation on this strategy. Thus, increasing population densities not only mean more mouths to feed but progressively greater pressure on farming systems that were originally designed for abundant land. Under the pressure of increasing population, there has been a shift in recent decades from more extensive to more intensive systems of land use in virtually every part of the underdeveloped regions. In some parts of the world, cultivators under the forest-fallow system have been unable to find sufficient secondary forest (Boserup, 1965, p. 16). She goes on to say, however, that even with a rapidly growing population, there are ways in which the fertility of the land can be changed or improved. These include irrigation and fertilization, or simply put agricultural technology. While Boserup is accurate in her observations, she does depend on adequate simplified agricultural technology that can be understood by the vast uneducated rural population. The simplification of farming processes and transformations, in contrast to what most developing countries habitually apply, in turn depends on good planning, education, incentives and training of the small farmer. Unless this latter path is followed, growing populations will undoubtedly continue to wreak havoc on traditional farming outputs.

Lack of agricultural credit is increasingly also singled out as a major handicap. While institutional credit has been available to farmers for the past two or three decades, it has met with little success. The institutions that allegedly help to improve farming technologies and support systems - input distribution systems, extension and credit services, and product marketing programmes - have favoured export cash crop production to the exclusion of domestic food crop production. According to the World Bank (1994), commercial banks have extended credit to some large-scale plantations but not to small farmers and agricultural cooperatives reach less than five percent of the farming population. It is very difficult for poor farmers in rural areas to obtain loans from commercial banks, when the individual farmer often lacks adequate security in the form of land, personal dwellings or other assets. There is a National Agricultural Credit Bank administered by the government (World Bank, 1994), and designed to lend money to farming projects with credit to be administered by the states or state institutions. While the idea is impressive, such loans most often go to political supporters of the government in power who may or may not pay back the loans. Thus, in most regards rural farmers do not benefit from the government or from commercial banks. It is consequently reasonable to suggest that small farmers should organize to form local cooperative societies to generate credit on their own and to amass the potential to obtain loans needed from commercial banks or the government.

Another significant challenge is the land tenure system in Nigeria. Land tenure systems vary among ethnic groups but a common feature is the absence of individual ownership. In the coastal states of the South, land is regarded as the joint property of the community and the right to cultivate is given to individuals by the traditional head of the community (World Bank, 1994). In the fallow period, land reverts back to the community, although trees are regarded as the property of the man who plants them. Such a system can discourage individual investment in conservation and improvement. This also makes it difficult for a farmer to obtain loans using his land as security. In the Northern states, land is owned by the state and tenure is based on the custom whereby the emir has the authority, a system that leads to friction between herders and farmers (World Bank, 1994). Today there is a need to change land legislation so as to help the transition to individual tenure and policies to promote improvement of commercial grazing areas. There has been a land use decree promulgated by the Military regime, but it does not protect the small farmers as authority is still vested in either the emirs or the community.

In our discussion of government development efforts we noted that Operation Feed the Nation was deemed unsuccessful. This was due to wastage incurred, inadequate resources, and a lack of preparedness, including the fact that the launching of the programme by the federal military government took most people by surprise. The time between the conception of the programme and its inception was so short that no adequate planning was possible. The main problem resulting from this was the wastage that was incurred during the first year of operation. For instance, apart from the awareness of the food shortage problem that was created, full benefit was not realized from the over six million naira (Nigerian currency) spent on student salaries. As soon as the programme was announced and launched, university students were drafted to go to the farms. They were each paid two hundred naira a month. Unfortunately most of them were not interested, while others did not know how to cultivate. The result was a great deal of money for very little productivity. Apart from this, a colossal amount of imported fertilizers went unused. Had the programme been directed at small farmers with good incentives, the results would likely have been more positive.

The organization of the programme appears to be good insofar as it conformed to extension principles, but it was not well planned or implemented. There were also inadequacies of resources, including capital, manpower, time and material inputs such as seeds, experienced by the many committees created for the execution of the programme.

The result of the overall poor planning was a general sense of confusion throughout the period. Some committee members did not know what to do, while others just hung around waiting for seeds. It is logical to expect that since the planning was deficient, the implementation would be equally lacking. There was generally a lack of preparedness and confusion. It was the failure of that programme that led the civilian government (that took over from the military government) to change the plan and rename it the “Green Revolution”. The Green Revolution programme has been executed elsewhere (e.g. Latin America, Asia, and Mexico) under different names since the 1950s (Norman, 1981). It is fair to expect that if the programme is well planned and executed (by considering the small farmer as an important part of the programme) it will give a solid base to national agricultural productivity. The training of the small farmer on how to use inputs, the importation of more inputs, and the distribution of them to the farmers are all essential here.

Transportation

This paper has so far examined agriculture as a basic source of rural employment and a provider of food and income. This paper now moves on to discuss agricultural transportation in Nigeria. Agricultural products cannot be spread without an effective transport system. However, Nigeria is still a developing country and so has not perfected its present transportation system. While the majority of the population still lives in the rural areas, with the construction of modern roads, linkage between the urban and rural areas are being created. However, there are many rural areas that have not been connected to towns because of a lack of motorable roads. This is due, in part, to the high cost of road construction materials, and in part to the systems of waterways in some areas. People in these areas still depend on locally made canoes/boats to travel/move from their villages to the nearest urban centre. Transportation systems must be further improved so that the people in these areas can acquire modern and adequate standards and quality of living.

In examining the role of transportation in moving agricultural products from the rural areas of production to markets and other points that they are needed, the questions that emerge include what is transportation; what are the different transport systems; and what are their different roles in Nigeria’s rural social transformation? Transportation can be defined as the means or system of conveying goods and services as well as passengers from one place to another. Such movements from one place to another can be through land using the roads and rail, through the sea using canoes, boats, launches and ships as well as the use of the air.

Road Transportation

Road transport has been one of the major means of moving goods from place to place. It plays a vital role in the evacuation of agricultural produce to the ports, and links villages and towns as well as other settlements for easy communication. Road transport continues to be the major means of transferring passengers and goods in Nigeria for the following reasons:

- (a) There are sizeable and diverse vehicles for use by road, including bicycles, motorcycles, cars, buses, lorries and tippers both for hire and individual purchase.
- (b) Roads connect many parts of the country, although there are still many villages that are yet to be connected by this means.
- (c) Even though the cost of road construction is high, efforts are being made to build more roads for the easy movement of people and goods.
- (d) Road transport is faster in conveying goods and passengers across short distances.

Nonetheless, the food producing rural areas are still isolated to the extent that there is a wide disparity in the prices of food stuff, especially between rural villages and urban towns. This is because many villages are yet to be connected with accessible roads to the towns. Also, as a result of the topography of the roads, accidents occur often, especially on the highways.

Apart from cars, lorries, and buses used on the road, there is rail transport in Nigeria. Rail networks link many part of the country with the two major ports at Lagos and Port Harcourt. The major towns linked with rail lines include Lagos, Abeokuta, Ibadan, Ilorin, Kaduna, Zaria, Kaura Namoda, Maiduguri, Makurdi, Enugu and Port Harcourt. The advantages of the rail transport are that:

- (a) Accidents are not common;
- (b) Trains carry a large quantity of goods and people;
- (c) Goods are weighed and charges are standardized;
- (d) Goods are transported by experts;
- (e) Transport fares are relatively cheap; and

- (f) Trains are good for transporting bulky goods over long distances.

Air Transportation

One of the most efficient and reliable means of transport in Nigeria is air transport. The impact of this means of transportation has been great. As a result of its inherent advantage of speed, the system has played a great role in the movement of goods and people and this has contributed to the country's socio-economic development. This system of transport includes both cargo and passenger planes. While air transport is a relatively new means of transport in Nigeria and it can be very costly, its advantages include speed, smooth journeys, a reduction in the handling of goods, success in carrying fragile goods, and its utility for long journeys.

The Relationship between Transport and Rural Economic Transformation

There are three major conflicting views on the relationship between transport and rural economic development. The first school of thought sees transport as a precondition for economic transformation. This argument is based on the following:

- i. Transport facilities help to promote the marketing of products by linking production and consumption centres.
- ii. Transport helps to open up new areas by overcoming the friction of distance
- iii. Good transport systems make the distribution of goods and services easy and reduce the costs involved in the exercise.
- iv. The extension of transport facilities to rural areas helps to communicate awareness of new capabilities to a greater proportion of the population.

The second school of thought holds that transport improvement is a concomitant of economic development. This means that, like any other movement, transport facilities expand in response to the needs of development not as a precondition. The proponents of this view therefore caution against "overinvestment" in transport facilities. The third view sees transport investments as constraints on development. This view believes that transport becomes an impediment to economic progress when it absorbs funds that can be more productively utilized in other sectors that are likewise starved for funding. While divergent, these schools of thought all highlight the interrelationship between transport and economic development.

Sea Transportation

The sea transport system is a major area of transportation and enables movements of goods and services as well as human populations from one area to another. This system allows both local movements and international movements. People who live in the south-south and to some extent the south-west and parts of the north tend to use the sea transport system in Nigeria locally.

The sea transport system involves the use of locally made canoes as well as modern ships. In the riverine areas of Nigeria, communities like the Ijaws continue to rely on locally made canoes for travel and fishing. Paddles are used to move the canoes from one place to another. While these small boats can ply small creeks and the banks of some deep seas, they are not used in the oceans. Those who travel beyond certain nautical miles into the deep sea, use bigger canoes that can withstand the waves of the rougher deep seas. As stated earlier, fishing, trading and some commercial activities are transacted between towns and villages that are not too far apart. This is made possible by locally made boats. Apart from these local boats, transportation is also undertaken by modern ships. Modern ships carry heavy goods from overseas to Nigerian ports and vice versa. Although people use ships for transport, this system is mainly used for the transportation of heavy goods.

CONCLUSION

This paper has endeavoured to present the role of agriculture in development in general with a specific focus on agricultural patterns in Nigeria. This paper has examined different approaches to agriculture and contended that the integrative approach (where agriculture and industry are considered equal partners) is embraced by the now developed countries, while developing countries still seem to emphasize the exploitive approach. This latter approach encourages the exploitation of rural agriculture for the benefit of urban industrialization. As a result, rural areas are neglected and young people feel compelled to migrate to the cities in search of improved economic conditions. Following this out-migration, agriculture is left to the aging labour force.

This condition, the aging rural labour force, as well as a lack of proper investment, the ongoing use of primitive methods of farming, population pressures, climate, and land tenure systems have all contributed to a decline in per capita agricultural and per person food production. This paper has illustrated that investment in agriculture was comparatively lower than investment in manufacturing. Despite these statistics, the government has put some effort into trying to improve the country's agricultural systems. Due to a lack of planning and subsequent poor implementation, however, this effort was not successful.

Citing Boserup's argument, which posits the potential of agricultural technology in form of fertilization and irrigation techniques, the authors of this paper opined that this potential depends on the extent to which governments can formulate and implement adequate policies. That is, adequate policies and programmes that will enable the uneducated masses to understand new farming techniques. Such a transformation will be a gradual process rather than a quick solution, as the military government sought. The training and education of farmers should not be seen in terms of short term goals, but in terms of long range benefits and goals.

While it may be argued that agriculture and industry should be seen as equals, such a perspective appears inappropriate for Nigeria and other developing countries. This is because of the chronic and severe scarcity of resources. Limited resources cannot produce significant result. For instance, under the prevailing poor economic conditions, the piecemeal allocation of resources guarantees insufficient production. Emphasis must be placed on agriculture where most people will reap both immediate and long time benefits. As agriculture is gradually transformed, other sectors will slowly follow.

Transport is essential to the movement of agricultural produce from the rural areas to urban centres. This paper has argued that the road networks linking rural areas to cities and towns are inadequate for the marketing and circulation of food products. We therefore call on federal, state and local governments to improve the condition and extent of roads for the easy movement of these necessary commodities. As the use of planes for the circulation of foodstuffs will be too expensive, rail transport also needs to be emphasized and encouraged. Locally made canoes should also be encouraged, possibly with the application of modern engines to enhance the boats. This will hasten the movement of foodstuff from non-road areas to urban markets and centres.

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