Article

The Need for Appropriate Technology for Meaningful Rural Development in Nigeria

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Introduction

Since the end of the Second World War, development (in contrast to growth) has become a topical issue especially among the less developed countries of the World. The success of the Soviets at regional development and planning has had the effect of introducing direct government intervention in the development process in most developing nations.

Nigeria as a nation has had its own share of national development effects. Since the 1960s, Nigeria has undertaken four development plans notably the 1st, 2nd, 3rd and 4th National Development Plans spanning collectively over a period of nearly a quarter of a century. (1962-1985).

The fifth National development plan which was supposed to come into play in 1986 and to last till 1990 was shelved completely by the Babangida administration (1985-1993). The administration introduced economic plans or polling and programme which was generally known as the Structural Adjustment Programme (SAP).

The Structural Adjustment Programme for them replaced the period five-year development plans. When closely examined, it had as one of its cardinal objectives the desire for meaningful rural and agricultural development so as to increase the local raw material base for Nigeria's teaming industries. This in turn was expected lead to an increase in rural income.

That administration's interest in rural development was not in doubt. The then government further demonstrated her belief in rural transformation and growth by establishing the Directorate for Food, Roads, and Rural Infrastructure (DFFRI) under the office of the then military President. That directorate was charged solely with the broad goals and transforming Nigeria's rural environment. DFFRI actually swung into action and recorded some successes in some parts of the Federation and not much success in some other parts. Subsequent administrations successive to the Babangida era never really had any serious programmes for rural development. These were die short-lived Shonekan administration (August-November, 1993); the tyrannic Abacha administration (Nov. 1993-June 1998); the popular Abubakar administration (June 1998-May 1999). The Abubakar administration handed over power to the present

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democratic set-up with Olusegun Obasanjo a former military Head of State and retired army general as civilian President.

A little mention may be made of the -Petroleum (Special) Trust Fund (PTF) efforts during the Abacha and Abubakar administrations towards massive rehabilitation of roads and^ other infrastructure in Nigeria between the period 1996 to 1999. However, these road rehabilitation programmes were carried out without any specific rural development strategy; thrust or programme. Even the present civilian administration that has eventually wound up the activities of the PTF has not been able to come out with a pragmatic rural development programme or strategy. In effect, the Babangida administration's efforts (through DFFRL, Better Life for Rural Women, etc.) stood out as specific or clear cut rural development programmes embarked upon by any federal government administration in recent times.

This paper intends to explore the trends in rural development, in Nigeria till date, especially in the areas of agricultural and infrastructural development, including roads, water supply and industrialization.

The paper tries to make a case for integrated technology approach to rural development positing a blending of imported with indigenous technology which it believes should be adopted as an appropriate technology to ensure rapid development of the Nigeria rural landscape. See Fig. 1

Aspects of rural development in Nigeria

Rural development is an integrated package of agricultural, infrastructural, industrial and other development aimed solely at opening up the nation's hitherland with a view to increasing the economic base of the country. As an integrated package, the various aspects of rural development cannot possibly be divorced one from me other. However, components which though are inter-dependent will be discussed separately.

Rural agriculture

Agriculture has been defined as the main stay of the economy of the rural areas m most countries world wide (both developing and developed countries). This is not surprising since "economic activities" according to Ajayi (1987) "in the rural sector depend directly or indirectly on the exploitation of the land". It centers principally around farming, animal. husbandry, poultry, fishing, forestry, food processing and cottage industry". It is estimated that agricultural activity occupies four-fifths of the rural population of Nigeria which itself constitute nearly 80% (another four-fifth) of the country's total population estimated at about 100 million.

On an analytical basis, four-fifth of 100 million Nigerians (about 80 million) residing in rural area are engaged in agriculture. Thus agriculture which is die main economic activity in the rural areas engages no less than 80 million Nigerians viz an estimated 80% of the entire population. See Fig 2.

But the agricultural sub-sector of rural development has been encountering a number of problems in the past three decades. What about the rural-urban migration which was more prominent in the mid 1970s and still prevalent today? What about the depletion of its youthful population in search of elusive white-collar jobs in the urban centers? What about the resultant decline in rural economic activities (of rural urban migration) especially agriculture, thus leading to weak economic base and rural poverty? These and some other factors have been affecting agricultural development in the rural areas in recent years. It

has been said that the introduction of mechanization will lead to a boost to our agricultural production. Such mechanisation will also result in a lower percentage of Nigeria's labour force to be engaged in agriculture. Nevertheless, mechanisation of agriculture will definitely involve technology, probably appropriate technology.

Rural Infrastructure

Infrastructure as a general term refers to roads, water supply, electricity, etc. These infrastructures are often necessary before any meaningful development can take place whether in rural or urban areas. Prior to the advent of the present civilian administration, the state of infrastructure in Nigeria's rural areas had been slightly improved by both the DFFRI of the Babangida era and the PTF of both the Abacha and Abubakar administrations. This section will discuss the state of rival infrastructures a Nigeria as well as possible efforts to improve on the existing condition/ situation.

Roads

According to Filani and Osayimwese (1979:4) out of a total 96375 kilometers of roads in Nigeria, 10.607 kilometers (or 11.1%) belonged to the Federal Government. 21.168 kilometers (or 22,2%) were owned by State Governments while the remaining 64,600 kilometers (or 66.7%) were Local Government roads.

For the fact that the greater percentage of roads in Nigeria (which are rural roads) are to be maintained by the Local Government, these roads are often in bad conditions, unpaved, unwinding and in some case unmotorable. It is necessary to observe that "the current agriculture and other rural development programmes can remarkably be improved by a properly integrated rural road development programme. This will lead to inputs of fertilizers, insecticides, new and improved seeds, and machinery actually reaching the remote farms while the increase outputs thus generated can easily be evacuated to the urban centers (Ibeakuzie 1987).

Water Supply

Water supply can be in form of pipe-borne water, boreholes, wells and any other appropriate type. Water supply is very vital for rural development. Most agro based industries which are believed will enhance the development of Nigeria's rural districts normally require water to operate. Such water needs are not easy to come by. Rural water supply in most cases are from local sources of stream, springs, rivers, etc. Pure and treated water is scarce. With the increased sinking of boreholes in Nigeria's rural districts through the efforts of DFFRI and communal self help projects, there is bound to be an improvement in rural supply of pure water. However, the sinking of boreholes still requires technology probably appropriate technology.

Appropriate technology may even be needed in the transportation of water from rural streams, springs or ponds to homes for domestic purposes by the use of hand drawn or machine operated carts utilising in this case indigenous technology.

Electricity

Electric power supply is another ingredient for rural development. Apart from its encouragement of rural industrialization, inhabitants of the rural districts of this country equally need electricity to improve upon

their standard of living. There have been some efforts on rural electrification even during the last civilian administration. These efforts have been yielding some positive results in some rural communities while much needs to be done in some others. Again, it needs to be remarked that the installation of rural electrification facilities still require technology even if it is modern or improved technology.

Technology

It is in this area of technology that this paper is trying to make a case for a shift from imported technology which may not easily be adoptable by our illiterate and ignorant masses to an appropriate local or indigenous technology which will be easily adoptable to our rural masses.

The development of rural areas centers on the integration of agriculture, industry and services (Olumese, 1987). The more highly developed an economy is the closer the links between agriculture, industry and services (primary, secondary and tertiary sectors). Therefore, in order to have an effective rural development, there is the serious need for the establishment of industries in the rural districts of this nation. Such industries agro based, cottage and food processing industries etc. will contribute immensely to enhancing rural transformation.

The establishment of industries involve the erection of industrial buildings and structures, installation of industrial equipment and machinery all of which will entail technology. The various kinds of technology required for rural industrialization, rural road construction, water supply, electrification etc. will be the subject of discussion in the next section.

Technology for rural development

Omuta (1987) has stressed that "differences in the social, economic, technical and administrative capacities of communities of different sizes and at different stages of development, suggest that Nigeria needs a variety of technologies. No technological innovation will successfully and meaningfully promote social and economic transformation in Nigeria, unless it is appropriate to local needs and conditions and is acceptable to the segment of society concerned".

It has to be mentioned, that technology must be spatially and functionally integrated if it is to transform and permeate the entire structure of society. Therefore, at any level of resolution, technology must be linked to both higher and lower levels, and related inputs. No matter the level of technological sophistication that may be acquired by the society, our indigenous technology must not only be recognized and respected but in fact be actively encouraged and integrated into the mainstream of national technological pursuit.

At our level of development, it is the mechanic, the panel beater, the iron bender, the tailor, the carpenter, the electrician, the battery charger, the vulcanizer and so on that serve as the technological link between the manufacturer and the ultimate consumer whose access to higher level of technology is several steps removed from the sources (Omuta, 1987).

The above view is the position of this paper. The paper proposes the adoption of appropriate technology for the rural development of our rural areas. Appropriate technology in this sense is a blend of imported or modern technology with the existing indigenous technology in all its ramifications.

Indigenous technology already exists for rural road and bridges construction, water supply, cottage and other industries. For example, tree trunks are used in some case to construct bridges in some rural roads. Palm oil and kernel is extracted in some rural areas with the use of local technology from other nations. Our indigenous technology needs to be improved. We should not discard our local technology in place of imported modern technology. Rather we should strike a balance between our indigenous technology and the imported ones.

Already, Nigeria has produced enough engineers and technologists in the various fields of engineering and technology. What is needed at present is to encourage these technological experts to research and improve on our indigenous technology. Every aspect of our indigenous technology should be researched or investigated and subsequently improved, whether local black smithing for the production of hoes and cutlasses (agricultural implements) to the extraction of palm oil through indigenous machines and equipment.

The blending of indigenous and modem (imported) technology will produce a type of intermediate and appropriate technology which will be cheap and easily accessible to the various rural communities in Nigeria. Such cheap and accessible technology will go a long way to transforming Nigeria's rural landscape where the greater percentage of the country's estimated 100 million inhabitants reside. See fig 2.

Conclusion

An attempt has been made in this paper to survey the efforts of the various administrations at the Federal level at rural development. The survey discovered that only the Babangida administration actually mapped out specific rural development strategy programmes. The administration set up several bodies such as DFRRI, Better Life, etc. to implement her rural development goals, policies and programmes. The paper further examined the need for the adoption of appropriate or suitable technology for meaningful rural development in Nigeria. While concluding, it has to be observed that rural development no matter the form it takes requires technology. There can be rapid rural development, slow or gradual rural development. There can also be spontaneous rural development. Whichever form rural development will take, it does not only require technology but the appropriate or suitable technology. This paper has tried to make a case for Mending of indigenous and imported technology m order to produce a cheap and easily accessible technology for rural development The adoption of this type of technology is believed will enhance the several rural development efforts initiated by the federal, state and local governments as well as the various communities that span Nigeria's rural landscape.

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