

Effective Indigenous Technology for Self-Reliance and Sustainable Economic Development

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Abstract: -Technology in its broadest context, as referring to all activities geared to social production and distribution and includes market and non-market activities. Sustainable development as meeting the needs of the present generation without compromising the needs of the future generation. Economic development must be sustainable which means that it should keep going. The aspect of our indigenous and local technology development has been examined in this research work. This research study actively presents options open to developing countries or nations that wish to become technology self-reliance. It further looked into certain areas, which are yet to be explored to our systematic development of relevant technology in Nigeria. It is noted in the study that self-reliance program has no inherent magic wand to catapult a nation host pursues it into a technologically giant nation overnight. This research work therefore, submit that a relatively higher-level utilization of certain local skill towards greater or higher self-reliance and sustainable technology development in the country. Sustainable development has many objectives. Besides increasing economic growth and meeting basic needs, the aim of lifting living standards includes a number of more specific goals: bothering people's health, educational opportunities, giving everyone the chance to participate in public life, helping to ensure a clean environment, promoting intergenerational equity and much more.

Keywords: Indigenous Technology, Nigeria, Self-Reliance, Technology Capital

I. INTRODUCTION

Nigeria is one of the developing countries which depends on the developed nations of the world. Nigeria is gradually recognizing the important roles of science and technology as the primary vehicle for the economic growth and promoting development. For our great nation Nigeria to depend on developed nations is of no benefits because it will make us to be small in terms of infrastructural facilities, manufactures, productions, even in terms of drugs like this time of COVID 19. Technology is an interdependent social activity in which man and woman act for sustenance and maintenance of the society Okojie (1985). But this recognition has not been matched with investment in the necessary resources, both human and material resources. Humans have the distinct and innate instinct to subdue, control and dominate their environment. This instinct which appears to be of divine origin is rooted in the holy book of some religions. In the scripture Genesis 1: 28 states ... " And God blessed them (Adam and his wife Eve) and God said unto them be

fruitful and multiply and replenish the earth and subdue it and have dominion over ... and over every living thing that moves upon the earth Okongwu (2007).

Control, domination, subjugation, manipulation and transformation of environments by human have been going on since ages (as evidenced by archeology), and organized way through the use of devices, tools, resources or systems of one form or the other. Even when sometimes a process occurs serendipitously, it is put into some organized way to achieve an objective. This organized way of doing things, often by means of external systems or artifacts is a human trait that all races, people and societies are endowed with. Indeed, humans and the entire universe appeared to have been so designed by the creator to ensure humans can only survive, prosper and progress in the universe by imposing control on environments, events and systems. It is vital to note that what every democratic society and a responsible government would do is to free human beings by providing a solution (Kelly 2015). Moreso, research and development (R&D) at the level of operations at the subsidiary have some spillover effects on the economy. This research study is aim on effective indigenous technology as a life wire or vehicle for self-reliance and sustainable technological advancement in Nigeria.

II. CONCEPTUAL FRAMEWORK

Technology is a vital tool or vehicle for self-reliance and development of any economy, since man first learned to wield an animal bone and kill his prey more efficiently, technology has progressively changed our activities and attitudes towards our environment. Some technology is directed at altering the world around us for our comfort (Augustine and Okon 2018). Technology in the broadest sense, is the human creation of physical systems that performs work. Some definitions of technology emphasize its effects in terms of the human attempt to control nature and the environment, other definition focus on technology as the processes by which things are done or made by man. There are several definitions of technology massively abound in the literature. According to Date (1981), technology is often identified with the hardware of production and distribution whether in the form of machine, factories, roads, storage facilities, telephone, know how, experience, education, organizational forms and management techniques are also included in the definition of technology. Most development experts on technology tend to have a growing

consensus today as regards the view that technology be regarded as innovations and adaptation on technical model of behavior applied to the solution of man and his environment in peace or war Aminu (1979).

Indigenous Technology

Indigenous technology is an outgrowth of the utilization of many local skills and resources to satisfy basic needs of a people and taking a cognizance their yearnings, aspiration as well as their socio-cultural background.

Indigenous technology has been variously referred to as "relevant" socially appropriate and progressive technology Baron (1978). Indigenous technology in Nigeria has its roots as far back as the pre-colonial period before the arrival of European traders, business men and civil servants who were completely in charge. It is sometimes cited that traditional technology even in the pre-colonial Nigeria has attained some considerable level of development.

Interaction between Science, Technology and Society

Science is a systematic enterprise that builds and organizes knowledge in the form of testable explanations and predictions about an issue. The existence of science has an inter play between technology and society is sometimes discounted even in some seemingly enlightened discourse. It has to be appreciated at large in the society due to the vital role it plays. It must be applied to the solution of problem and satisfaction of needs for the material and or social benefits of the people. It is vital to note that if technology must be put into appropriate and productive use the value of the society must be understood, adopted and or changed Odekunle (1989).

The main purpose of the present evaluation is its deliberate emphasis on the significance of the researching and understanding the human and social contexts of the production of technology, the effects of technological change on the society, its members and socio-cultural values, as well as the response of the people of such change and their implications on the entire social system (belief, values, culture, religion and tradition). From the above evaluation there exist importance of linkages between an economy and its science and technology system has been well established. It is vital to note that a capacity to innovate is usually the result of complex relationships between available capital, skills, communication, information and scientific infrastructures. As a result of patterns social economic and cultural interaction in industrial countries there are strong linkages that exist between an economy and its science and technology system and these are required for enhancing national capacity for innovation Ali et al (1989). It is importance to note that the technology and production system of the Nigerian economy are dualistic, having a large traditional sector which is characterized by very low technology (agrarian technology) and a modern sector science and medium to high-level technology (Siddaram 2017). It is importance, perhaps to add

the ownership of modern production system is made up of local and foreign investors. There is an existing emerging fairly strong relationship between local science and technology system and locally owned companies.

Needs for Indigenous Technology Development as a Basis for Self-Reliance in Nigeria

The rationales for the relative growth of indigenous technology in Nigeria as in most developing countries of the third world are not far-fetched. According to Udoaka (1983), Agriculture, which was the main stay of Nigeria's economy was neglected in 1980's becoming as it were, dependent on oil revenue. The country's gross domestic product (GDP) suffered a decisive set back. It has been erroneously assumed that foreign government would be willing to provide the money and technology for the development and growth of the country. They were proved wrong as no country was willing to part with its own technological expertise in order to develop another country at its own expense. Such a practice would jeopardize the chance of its technological products on the international market. There is absolutely nothing wrong to seek for aid but there should have been a comprehensive indigenous development plan to create and engender local technology so as to provide the substitute for foreign markets Alademomo (1989).

It should be noted that, the country cannot be technologically great through the purchase or transfer of advanced technology products from developed nations of the world. It is importance to note as well that most of these products are clearly beyond our technological capacity to maintain and service not to talk of their manufacture. In many locations or companies across the country a lot of them are now lying in ruins in the country. High dependence on imports for food, consumer goods, parts for replacement etc., inevitably brought along rising bills and making the country quite susceptible to international upheavals. However, technological self-reliance in all rationalities is vital aspect of self-reliance. Development and growth can be ensured through technological progress if and when the production possibilities of an economy are increased or through increased efficiency in the production process Singer (1975). In a world that is virtually divided into technology producing and technology borrowing countries, there is a growing awareness even in the developing nation or countries that employment-oriental development should be based on technology available in developed countries. The reason is that such technology is capital and skill intensive, whereas it is more of labor-intensive technology that developing countries actually need.

Self-Reliance and Economic Development of Indigenous Technology Capacity

Self-reliance can be defined as the act of making use of one's own resources to bring about improved and accelerate social, political and economic development Oladosu (1990). Self-reliance, indeed is the act of harnessing and channeling one's resources towards socio-political and economic advancement

at an accelerated pace. It is a conscious policy of promoting economic development and thus enhancing the collective welfare of the vast majority of a nation's citizenry by its own "sweat" self-reliance as a development strategy is aimed at providing solutions to a nation's socio economic and technological problems through its own pace and on her own volition, consistent with its own long term interest.

In Nigeria, self-reliance implies the use of local raw materials for industries, the harmonization of consumption with local productions and the use of domestic endowment of human and material resources. Secondly, the concept also implies the avoidance of unwholesome dependence on foreigners and foreign goods and services. Included in this perspective is the view that even technology used for producing goods and services have to be indigenous (Oladosu (1990)).

It should be appreciated, however, that self-reliance does not mean isolation or separation or total exclusiveness; such isolation will be inconceivable in an interdependent world such as this. This interdependence of the world clearly manifests itself in such area of life as the economic military, access to capital technology, raw materials, manufactured goods, drillings; steel rolling, mills and services. In actual sense no country can be said to be completely independent of others. It could be either in terms of furnished materials, raw material sources, middle class, again services are not rolled out the practice of international trade lend inducement to this assertion.

However, self-reliance recognizes the effects of the interdependence of the global world or community while reflecting a dependence economy per excellence. To reduce the influence of technology and place Nigeria on the good path to technological self-reliance, there seems to be an urgent need to create indigenous technological capacity to make proper choices from existing technology for desired industrial development. If this is employed will reduce technological dependence. Beside, it appears this is one of the known crucial or vital or core development strategies that would really address the issues of poverty and unemployment in Nigeria often we talk about growth and development, no development policy would be vital or deemed meaningful in today's world where such a policy facts to reduce or curb poverty and unemployment or where it fails to fulfill basic needs of foods, shelter, education and health.

Nigeria as a country has applied various types of technology in the past few decades but found to have failed to bring the country nearer her goal of self-reliance makes the growth and development of indigenous technology capacity an urgent option. Neither the so-called transfer of technology. Copy technology (imitation technology), stealing technology and purchase technology etc., has been found suitable for our social, cultural economic in lieu. Development of an indigenous technical capability is importance or necessary for evolving appropriate technology for sustainable development indigenous technology if appropriately, truthfully and

purposefully applied can assist us to get of the perpetual nations. A good foundation of indigenous technology especially at the training institutions will reflect in all areas of life in the country. It will widen and strengthen our industrial and productive base thus leading to increased productivity and a consequent appreciation of the values of the Naira or currencies. If we can emulate the dedication to work, the love of science, technology and productive capacity of Japan, China and other G20 nations, Naira will begin an upward climb in both faces internal and external values.

III. CONCLUSION

Self-reliance concept recognize the interdependence of the global community while neglecting a dependence economy per excellence. The choices open to developing nations in dire need to become technological self-reliance have been tersely appraised in this research paper or study. Developing nation like Nigeria may either embrace unwarily imported technology (transfer of technology) from advanced nations or become technologically self-reliance though the seemingly dreary, tortuous route of developing their own indigenous technology. The option "A" appears irresistible for most developing nations because of the apparent opportunities it offers in terms of income and high living standards in those advanced countries associated with modern technology. The research work of this nature has contended the long term affects of this option "A" are usually not in the interest of the developing countries. A case is, therefore being made in this analysis for a systematic development of a relevant technology in Nigeria. This is obtainable first by creating and expanding indigenous technology technological capacity. This technology does not downplay the factor of appropriateness of technology to its socio-cultural background (environment). The neglect of this has caused Nigeria a lot of financial and material losses in some of her key or vital projects, such as steel rolling mills, iron, building and road construction, communication systems, oil and Petro-chemical industries and agriculture Erukora (1990). Even though self-reliance as a conscious development strategy does not interdependent of the global nation.

It is vital to be noted, however, that the self-reliance program parse has inherent magic wand to catapult a nation that purses it, into a technologically or industrially advanced nations over night. For developing nation like Nigeria to success, much still depends on the extent to which managers of such technology are able to have indent examination and appreciation of both rural and urban communities with respect to social systems, cultural practices, attitudinal disposition, social psychology and social organization.

Research and Development (R&D) is an integral part of relevant appropriate technology. For self-reliance to be archived efforts should be geared towards understanding socio-cultural, culture, tradition, belief, social system, soil condition and temperance. These factors are very crucial to sustain the indigenous technology and subsequently self-

reliance. This is one of the paths which some third world countries like Japan and India, had adopted and adapted for diffusion of innovations.

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