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ON THE TOPIC:

**ENGINEERING PRACTICE AND ECONOMIC DEVELOPMENT
IN NIGERIA**

BY

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PREAMBLE (INTENDING QUESTIONS)

- (a)** What is Economic Development?
- (b)** How do we explain and define Engineering and its Practice in the Nigeria clime?
- (c)** Has Engineering Practice impacted favourably or adversely on Economic Development in Nigeria?
- (d)** What are the factors that facilitate these impacts?
- (e)** What constraints and challenges do we recognize as solvable imperatives for Engineering Practice in Nigeria to yield optimal economic benefits?
- (f)** In what ways can Engineering Practice advance to National Economic Development?
- (g)** Are there identifiable engineering resources the country is not tapping technologically to enhance citizens well-being?
- (h)** On a global scale, are there lessons Engineering Practice in Nigeria can draw to improve on her impact on economic development?
- (i)** What other factors can advance these global lessons for Nigerian Economic development?

DEFINITION OF ECONOMIC DEVELOPMENT

Economic development is a generic term involving a gamut of activities for the production, distribution and consumption of goods and services aimed at increasing the standard and quality of living of people

It is also a process of planned efforts to move people and human communities from poverty, ignorance and disease to a state of full employment, adequate wealth, prosperity, knowledge and good health. Economic development therefore, creates wealth, jobs and a decent civilized environment with personable healthy citizenry. Apart from creating these, it continuously maintains and sustains the good prosperous life of human communities.

Thus sustainability, of economic development is an essential ingredient of all worthwhile endeavours, efforts or processes for national economic prosperity. However, for economic development to be fruitfully sustainable, it must be;

- a) People-oriented
- b) Inclusive
- c) Efficient and effective
- d) Timely and cost-effective
- e) Environmentally-friendly
- f) Qualitative
- g) Technologically-driven

Engineering and Technology are the chief creating force and agent in economic development. It also underlines the necessity for Technological Empowerment of Nigeria. Engineering and Technology are the muscle and weapons advanced economies use to maintain their social and diplomatic superiority.

In canvassing for this authentically proven necessity, I posited in my title Patriotic imperatives for the Great Nigeria Dream (1997), that "in the US and Europe, Engineering Technology has a living tradition and happy testimony of holding the key for constant improvements in the life of modernity, surplus and progress now available in those parts of the world. If Nigeria must catch up with them or indeed attain the desirable height of modern medium world power, it is necessary for the nation to promote Engineering and Technology in all its ramifications". This can practically, fasttracked through sound Engineering Practice in Nigeria .

Engineering Practice is the authentic vessel for achieving this feat. Engineering Practice is the process and activities that exploit the forces, energy and materials of nature efficiently, innovatively and purposefully to create structures, goods and service to satisfy human and societal needs. It is in the vanguard to achieve sustainable socio-economic and industrial development of nations. Nigeria cannot be an exemption.

Engineering is a distinguished profession with four cadres in over two hundred disciplines for its professional practice.

These four cadres are:

- (i) Craftsmen (Artisan) (ii) Technicians (iii) Technologists
- (iv) Engineers.

The Engineer is at the head of this Engineering family and must lead the family team to achieve national, societal, private and public developmental goals. This stands Engineers out as transformative resource managers who must propel economic development . Each member of the family has distinct qualification, training and background that equip her for distinct roles and duties.

WAYS ENGINEERING PRACTICE ADVANCES ECONOMIC DEVELOPMENT

1) Infrastructural development

The wide range of infrastructure covered by our NSE-powered National Infrastructure Scorecard is revealing. They range from roads, bridges, airports, seaports, schools, houses, telecommunications, digital infrastructure, sanitation, health facilities, water, dams, power, energy and waste management. Each of these elements of infrastructure improves quality of life.

2) Increased productivity

Engineering Practice in driving economic development creates facilities and systems for efficient production, distribution, travels , leisure and agriculture. It enhances efficiency in business and industry. Industrial productivity is enhanced by Engineering Practice and leads to massive and efficient creation of goods and services. It also enables these goods to reach target markets very efficiently and promptly. Here, the place of good roads, bridges and communication facilities cannot be overemphasized. It is noteworthy that of the five productivity improvement skills, four are Engineering and Technology based viz; materials, processes, products, computer-aided. Engineering Practice stimulates economic development by promoting efficiency and effectiveness for high productivity in schools, homes, businesses, markets and industries while avoiding wastes and defects.

3) Facilitation of timely decision-making in commerce and industries.

Sound decision-making and timely execution of decisions are given fillip by sound Engineering Practice. Engineering Practice transforms the 7Ms innovatively and positively. The 7Ms are money, man, materials, methods, market, management and maintenance. These 7Ms positively affect production, distribution and consumption in society. In Nigeria, the maintenance challenge will be drastically reduced by sound Engineering Practice with a boost and leapfrog to economic development.

4) Leap-frog in value of Annual Goods Produced and Services Provided (GDP) Plus net income from foreign investment (GNP)

There is a correlation between provision of infrastructure through Engineering Practice and GDP. Results from interplay of Engineering Practice in advancing economic development increases the annual stock value of goods and services, including infrastructure. This is increased GDP . Increased GDP and GNP are the direct results of productive activities of motivated healthy citizens with high productivity. This in turn impacts positively on other economic factors such as interest rates, inflationary rates and exchange rates. I make bold to say that unless Engineering Practice is given centre stage in all physical and agricultural projects in Nigeria, the wobbling and fumbling of these three economic rates will continue to torment our development.

5) Enhanced leisure, entertainment and sports are advanced by professional Engineering Practice by setting high standards in the design and provision of facilities for these relaxation and life-enhancement areas of human and societal activities. We need to plan not only to construct these facilities but use Engineering Practice duties to maintain and sustain them.



GLOBAL LESSONS OF ENGINEERING PRACTICE FOR NIGERIA ECONOMIC DEVELOPMENT

From the global experience of Industrial Revolution (1771), Railways and Steam Transportation Revolution (1829), etc., the roles and impact of Engineering Practice including research in sustaining economic development have been exponential. Their impacts increased human wellbeing in the world in geometric progression. Thus, Nigeria must come of age in mass industrial production of goods and efficient services including rail, automobile, electricity and steel , as well as Heavy Engineering and ICT Communication Revolution.

Some of these lessons to be derived entails:

- i. mutuality is boasted when proper incentives, recognition and national respect are accorded practitioners of professional engineering family.
- ii. Regulatory agencies in Nigeria must wisely follow world standards of promoting, regulating and harmonizing the profession without in-fighting and self-defeating injuries that retard national economic development.
- iii. Furthermore, the national professional practice regulatory regimes, styles and outlooks should cooperate with Government to yield efficient infrastructure, enhanced production and effective communication, distribution as well as national prosperity for optimal benefits to all Nigerians.

What other factors can advance these global lessons for Nigerians economic development?

- i. Consider the following critical ones. All moribund and stalling industries must be revived. Nigeria must revert to a country that produces what she consumes industrially and agriculturally.
- ii. Iron and Steel Plants in Nigeria must function and serve as her industrial bedrock. In this connection, the Integrated Ajaokuta Steel Plant and the Delta Steel Co. Aladja must be fully commissioned to produce and shape liquid steel. This is a paramount necessity.
- iii. All official vehicles and other means of communication in Nigeria must originate majorly in-country as Nigeria brands. We must revive our Vehicle Assembly Plants for possible future upgrade to Vehicle Manufacturing Companies. The breakthrough in the Telecommunications in Nigeria is heartwarming. However, we must move to Telecom component manufacturing in the country.
- iv. Other transportation systems the country must bear her national flag, strongly nationally supported for viability, safety and cost-effectiveness. We must commercially revive our rail and aviation systems.
- v. National energy and Power systems should be deliberately enhanced and decentralized. State Government should be empowered to generate their power needs. This will make power supply affordable and lend heavy support towards economic diversification in the country.

CONCLUDING REMARKS

- i. To create wealth, jobs and prosperity in Nigeria, Engineering Practice ,without quackery, must be accorded high priority by Government and people of Nigeria in order to facilitate the genuine well-being of her citizens and advance her economic development.
- ii. There is a mutual symbiosis between Engineering Practice and Economic Development. Without robust Engineering Practice, there will be only little or negative economic development. To promote the latent strategic mutuality between Engineering Practice and Economic Development for the optimal benefits of Nigerians, the lessons from global evolution of Engineering Practice must be embibed by national leaders and all Nigerians.

- iii. Nigeria must produce liquid steel and shape it. She must strive to produce all that she consumes in the country by industrialization, high productivity, good maintenance culture and Agricultural revolution.
- iv. The Executive Order No. 5 by President Buhari should be jointly embraced by all employers and clients in Nigeria with NSE and COREN visibly, strongly and harmoniously championing its implementation in liaison with the Presidential Monitoring and Evaluation Council .
- v. The project trilogy of Client, Consultant and Contractors can only be patriotically played by those in Engineering Practice. Thus, Engineering Practitioners should be deliberately supported and encouraged to play leadership roles in the Nigerian society.
- vi. They provide efficient infrastructural facilities, enhance productivity, increase Gross Domestic Products, enforce planning discipline for maximal exploitation of the 7Ms. The creative resource exploitation done by Nigeria Engineering Practitioners drive and propel economic development and adds value to goods and services produced annually. They should be empowered to constantly do this in a transparent and effective manner.

THANK YOU FOR
LISTENING!!!
I APPRECIATE YOUR
INVITATION.