**Topic; Engineering Law and Managerial Economics for Infrastructural Development in Nigeria: Challenges and Way Forward**

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**ABSTRACT**

This term paper seeks to critically analyse contextually the infrastructural challenges faced in Nigeria, how these issues are currently being addressed by the government and possible solutions to these problems through the knowledge of engineering law and managerial economics. Nigerians are faced with major challenges hindering them from living quality lives. These infrastructural challenges are as a result of the status of the country’s infrastructure. Asides corruption, they are several factors which have contributed to these problems. These factors could be tackled if the importance of law and order is preached and it art of economizing is practiced.

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**INTRODUCTION**

Infrastructure generally refers to basic structures, systems and facilities that enable accomplishment of social and economic goals, while governance encompasses the state’s institutional and structural arrangements, decision-making processes, and policy formulation and implementation capacity to make this happen. Despite these fundamentals, Nigeria has found it difficult to convert her unique advantages into economic and social benefits for the country and the majority of her citizens.

Over the past years, the government on seat allocates huge sums of money to the development of the country’s infrastructural sector but to no avail. In fact, the country’s infrastructure is in a decline. Here underneath are the major sectors of the country’s infrastructure. We will discuss the problems each of these sectors face and of course, how these problems could be tackled with Engineering Law and managerial economics.

**LITERATURE REVIEW**

**Engineering;** This is the use of scientific principles to design and build machines, structures, and other items, including bridges, tunnels, roads, vehicles, and buildings

**Engineering Law;** This is the application of laws applying to the practice of professional engineering. Engineering law is the study of how ethics and legal frameworks should be adopted to ensure public safety surrounding the practice of engineering

**Managerial Economics;** This deals with the application of economic concepts, theories, tools and methodologies to solve practical problems in a business. In other words, managerial economics is the combination of economics theory and managerial theory

**Infrastructure**; The basic physical and organizational structures and facilities (buildings, roads, power supplies) needed for the operation of a society or enterprise.

**MAJOR INFRASTRUCTURAL PROBLEMS IN NIGERIA**

**POWER**; Nigeria is the largest economy in sub-Saharan Africa but limitations in the power sector constrain growth. Nigeria is endowed with large oil, gas, hydro and solar resource, and it already has the potential to produce 12522 megawatts of electric power from existing plants, but most days is only able to produce about 4000 MW, which is very insufficient. Nigeria has privatized its distribution companies, so there is a wide range of tariffs. Currently, only 40% of Nigeria’s population is connected to the energy grid whilst power supply problems are encountered about 60% of the time. At best, average daily power supply is estimated at four hours, although several days can go without any power at all.



*FIG.3.1. PEOPLE QUEING UP TO CHARGE PHONES IN ONLY AVAILABLE LIGHT SOURCE*

**TRANSPORTATION**; In Nigeria today, the transportation system includes, road, railway, air and sea transportation. Of all these modes of transport, the most used by Nigerians is road transport. However, the state of road transportation in the country is very poor. One of the major problems of road transport in Nigeria is the state of most road networks. Some of the recently constructed road infrastructures are constructed with fairly built materials. This is majorly as a result of corruption from both the people awarding the contracts and the construction companies. Most of the paved roads networks have lost their asphalt surface and are in very bad shape. Some of these roads are almost becoming gravel surfaces. Travelling is very difficult and sometimes almost impossible especially during the raining season due to lots of uneven surfaces, potholes, and eroded areas. Some of the roads are covered by water during the raining season because of lack of proper drainage. The poor state of a lot of Nigerian road networks has most areas dead zones due to the number of accidents that are recorded daily on these roads.



*FIG.3.2 THE STATE OF A MAJOR ROAD IN NIGERIA*

**WATER**; The Nigerian Government has long considered the provision of water supply and sanitation services to be the domain of the federal, state and local governments. However, the public sector has not been successful in meeting more than a small portion of the demand for water and sanitation of residential and commercial users. Services are in critically short supply. For example, out of the 85 million people living in urban and semi-urban areas, less than half have reasonable access to reliable water supply. Many households, often the poorest, end up purchasing water from private vendors much more expensively than from the public supply. Water supply services, where they exist, are unreliable and of low quality and are not sustainable because of difficulties in management, operation and pricing and failure to recover costs. Many water supply systems show extensive deterioration and poor utilization of existing capacities, due to under-maintenance and lack of funds for operation. This work has been carefully carried out to show the way forward in the Nigeria Water Sector; Reviewing the current situation of Nigeria Water Sector, the huge investments that has been made by The Nigerian Government and External Partners alike, the benefits the populace stand to derive by making the a healthy one, and liberalization of the Water Sector Administration. It is the keen interest of the writer to bring forward the various challenges of the sector and probable solutions. It has been said, for the system to come alive, every mechanism of the system needs to be forthcoming. The Government should be the Referee; the policy making and implementing arm, the various investors and finally the populace, who doubles as the costumer and also the consumer. It is the expectation this work would generate the interest of the various Organs of the Nigerian Government, Water Sector Investors, NGOs, External Partners and the entire populace that we need to play our individual role to make the Sector a worthy one, thereby eradicating poverty, unemployment and various ills that seems to be contributed by this vague negligence and mass failure. Key words: Water, Development, Challenges, Government, Nigeria.



*FIG.3.3 STATE OF. WATER AVAILABLE TO THOSE IN RURAL AREAS*

**SECURITY**; **Nigeria in recent times has witnessed an unprecedented level of insecurity. This has made national security threat to be a major issue for the government and has prompted huge allocation of the national budget to security. In order to ameliorate the incidence of crime, the federal government has embarked on criminalization of terrorism by passing the Anti-Terrorism Act in 2011, fundamental surveillance as well as investigation of criminal related offences, heightening of physical security measures around the country aimed at deterring or disrupting potential attacks, strengthening of security agencies through the provision of security facilities and the development and broadcast of security tips in mass media. Despite these efforts, the level of insecurity in the country is still high. In addition, Nigeria has consistently ranked low in the Global Peace Index (GPI, 2012), signifying a worsened state of insecurity in the country.**

**With the lingering security challenges and the inability of the security apparatus of the government to guarantee safety and security in the country, the question that borders everyone in Nigeria today is “can there be security?” Is security of lives and properties achievable? He opined that government at all levels has not done enough by not confronting frontally the situation head on and dealing with it decisively, others have argued that the situation has a political undertone or inclination calculated to serve the interest of certain political gods, who have been dissatisfied and disgruntled about the political manifestations in the country.**

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***FIG.3.4 PUBLIC DISPLAY OF AMMUNITION BY THE NIGER DELTA TERRORISTS GROUP***

**POOR EDUCATION;** Public education problems in Nigeria are so many but here are the major ones. We have prepared a list of problems in education for your attention. One thing that has crippled most sectors in Nigeria today is poor governance. The educational sector is not an exception. The government's attitude towards crucial problems of education, especially its quality, is lackadaisical. This situation can be noticed on every level of government. Basic universal education suffers most because primary education is neither fully controlled by the federal government, nor by the state or the local government. Poor funding and neglect of the education sector Education in Nigeria is poorly funded. United Nations Educational, Scientific, and Cultural Organization (UNESCO) recommends that 26% of the nation’s budget should be allocated to the educational sector. This way, the educational sector will have a good impact on the national development. According to the analysis done by a leading media outlet “Daily Trust” in 2016, the joint expenditure of the federal and 33 state governments on education is 8.44% of their total budget for the year. Also, there is a huge gap in the funding of education at the different levels of the government. Corruption in Nigeria affects every sector of the government including the educational sector. This occurs in the educational system and a high rate at every level. Taking bribes is practiced not only by politicians but also by people in the educational system including school authorities. Funds meant for education infrastructure, salary payments, maintenance, and running of schools and institutions are being diverted and mismanaged. Also, the collection of bribes by lecturers and teachers is not a secret anymore. According to the report by the Independent Corrupt Practices and Other Related Offences Commission (ICPC), corruption is endemic in Nigerian Universities today and there is a lack of political will to deal with it



*FIG.3.5 STATE OF NIGERIA’S PRIMARY EDUCATION*

**POOR HEALTH SYSTEM;** Despite its launch in 2005, Nigeria Health Insurance Scheme, NHIS covers less than 10% of the Nigerian population leaving the most vulnerable populations at the mercy of health care services that are not affordable. This means the most vulnerable populations in Nigeria are not provided with social and financial risk protection. Poor people constitutes about 70% of the Nigerian population. They lack access to basic health services, which social and financial risk protection should provide, because they cannot afford it.

CBSHIP was expected to meet their health needs as well as provide social and financial risk protection to this group, which mostly reside in rural areas. As evidenced in the high rate of out of pocket payments for health care services, poor people financially contribute more to health care than official care and funds programs in Nigeria. Out of pocket payments for health care services limit the poor from accessing and utilizing basic health care services, hence, the low coverage of basic health services for the poor.

The quality of health care services delivered is poor and remains a huge source of concern. Most of the PHC facilities that are supposed to meet the health needs of the poor and rural dwellers are in a poor state due to poor budgetary allocation.



*FIG.3.6 NIGERIA’S HEALTHCARE IN ONE PICTURE*

**ENGINEERING LAW AND MANAGERIAL ECONOMICS AS THE WAY FORWARD**

Majority of the infrastructural challenges in Nigeria, and the world at large can be solved by engineering. In countries where engineering is given priority attention, most infrastructural problems are unheard of. In fact, in countries like China, electricity is a cheap service available to the most remote areas. It isn’t just about the availability of resources and manpower. The most important key to their development is the strict laws that guide their engineering practices.

Projects in Nigeria are often affected by the corruption of our leaders. When money is issued by the government for tasks, offices with access to these funds tend to take their share and allocate remnants to construction companies to work with. As expected, these construction companies accept these projects and in order to maximise profit, use cheap materials. In the long run, these materials fail causing the whole project to be a waste. We then wait on the government to release more funds for that same failed project. This way the cycle continues. From the above instance, we can see how materials that could have been used to make many more projects get wasted on just one. This is where managerial economics comes in. Nigeria is blessed with a lot of natural resources but we find it very hard to use them effectively. Sustainability is not preached so no one really cares about the future of those resources. In this section, we will discuss ways by which engineering law and managerial economics can aid national development.

* With working engineering law, contracts in the country will be well funded so as to produce results of high quality. Contracts which aren’t funded properly should not be started at all.
* With proper practice of managerial economics, the optimum amount of natural resources needed for infrastructural developmental projects should be allocated to contractors. This way, proper projects will be executed and materials won’t be wasted.
* With proper practice of managerial economics, each government should have predetermined tasks they are meant to achieve under an issued time frame. This way, there will be a way to check for fraudulent activities.
* With working engineering law, before contracts are given, the contractors should inform the government of the minimum time that the project is meant to remain intact under normal conditions. If these projects don’t meet up the requirement in the long run, the contractors are imprisoned.

**RECOMMENDATIONS**

1. Engineering Law should be strictly written out in the country as part of its constitution. Punishment for culprits should also be stated.
2. All tertiary institutions should add engineering law to their curriculum to create awareness for prospecting engineers in the country.
3. Managerial economics programs should be held nationwide to teach people the importance of proper utilization of resources available to them.

**CONCLUSION**

With the above points, we have been able to discuss the infrastructural problems in Nigeria today and how engineering law and managerial economics can help solve these problems.