ENGINEERING LAW & MANAGERIAL ECONOMICS FOR INFRASTRUCTURAL DEVELOPMENT IN NIGERIA: CHALLENGES & WAY FORWARD

*PRESENTED*

*BY*

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ABSTRACT

Engineers are faced with a lot of challenges and the Nigerian engineers are no exception. This paper draws light on engineering law and managerial economics and challenges faced in Nigeria. Firstly, this paper discusses engineering law, managerial economics and its importance. Secondly, this paper identifies and discusses key topics or major scopes of both engineering law and managerial economics. Lastly, it also highlights challenges faced in Nigeria and task ahead for development. Overall, I concluded that proper management and strictly adhering to law is crucial to success of projects.

INTRODUCTION

Engineering law (or law in engineering) is the empirical study of the application of laws and legal strategy in engineering. The knowledge of engineering law is important to every engineer as we are involved in construction, contracts, consultancy services on capital projects, design, analysis, fabrications, adjudication of tender, bill of engineering measurements and evaluation.

 Managerial economics deals with the application of the 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. It helps the manager in decision-making and acts as a link between practice and theory. It is possible to compare the professions of law and engineering, just as courts must maintain a certain order or decorum for a fair trial to proceed so too engineering must be conducted in an orderly fashion with a certain method or procedure. When this order breaks down disasters may occur.

 The Federal Republic of Nigeria has a written constitution. The Constitution of the Federal Republic of Nigeria 1999 (Nigerian Constitution) is the main constitutional law of Nigeria.

The fundamental features of the Nigerian Constitution are as follows:

* Presidential form of government.
* Separation of powers.
* Federalism.
* Rule of law.
* The supremacy of the constitution.

The legislative, executive and judicial powers of government are separated under the Nigerian Constitution. Chapter II of the Nigerian Constitution clearly divides these powers among the three branches of government:

* Those who pass laws (legislature)
* Those who apply laws (judiciary)
* Those who enforce laws (executive)

The legal systems of nearly all countries are generally modeled upon elements of five main types of law: **civil law** (including French law, the Napoleonic Code, Roman law, Roman-Dutch law, and Spanish law); **common law** (including United State law); **customary law**; **mixed or pluralistic law**; and **religious law** (including Islamic law).

There are two main kinds of law: Criminal law AND

Civil lawWith respect to civil trials, the Nigerian Constitution specifically provides that in the determination of his or her civil rights and obligations, a person will be entitled to a fair hearing within a reasonable time by a court or other tribunal established by law and constituted in such a manner as to secure its independence and impartiality. The proceedings of the court or tribunal (including the announcement of the decisions of the court or tribunal) are held in public.

Criminal trials are also open to the public, subject to certain exceptions. The Nigerian Constitution states that if any person is charged with a criminal offence, then, unless the charge is withdrawn, they will be entitled to a fair hearing in public within a reasonable time by a court or tribunal established by law. However, the court can exclude from its proceedings persons other than the parties and their legal representatives.

 Examples of criminal law include cases of burglary, assault, battery and cases of murder. Civil law applies to cases of negligence or malpractice.

SCOPES OF ENGINEERING LAW

Below are some key topics in Engineering Law;

ETHICS

Engineering has a direct and vital impact on the quality of life for all people. Accordingly, the services provided by engineers require honesty, impartiality, fairness, and equity, and must be dedicated to the protection of the public health, safety, and welfare.

CIVIL ENGINEERING CONTRACTS

The law relating to civil engineering contracts is one aspect of the law relating to contract and tort or civil wrongs. It is therefore desirable to have some knowledge of the law relating to contracts generally before the main characteristics and requirements of civil engineering contracts are considered. A simple **'contract'** consists of an agreement entered into by two or more parties, whereby one of the parties undertakes to do something in return for something to be undertaken by the other. A **'contract'** has been defined as an agreement which directly creates and contemplates an obligation. The word is derived from the Latin contractum, meaning drawn together.

Discharge of Contract;

A contract is said to be discharged when the agreement has been performed to the satisfaction of both parties. The contracting parties can agree at any time that the contract has been discharged. It can be discharged if it becomes impossible to perform due to circumstances outside the control of the contracting parties, e.g., force majeure. However, extreme difficulty in executing the contract does not discharge it even if it becomes more costly to carry out than originally anticipated.

Breach of Contract;

If a party, under the terms of the contract, fails to perform one or more obligations, it is said to be the defaulting party and it has breached the contract with the innocent party. The breach of an obligation may result in damages to the innocent party for which the innocent party may seek a remedy, but it requires a breach of a condition for the innocent party to consider the contract discharged by the breach.

Tort Law;

Tort law is integral to assigning blame and penalties after engineering failures. In engineering, laws about tort primarily deal with civil injuries resulting from negligence. Courts measure the damages resulting from these injuries in monetary amounts. Liability issues can be complex, but engineers should learn the basics to protect themselves and their companies. Tort suits involving engineers usually fall under one of the following actions: Misrepresentation, Nuisance, Negligence, and Product Liability.

Product liability law for manufactured products;

"Product liability law" is the set of legal rules concerning who is responsible for defective or dangerous products but they are different from ordinary injury law. This set of rules sometimes makes it easier for an injured person to recover damages. Product liability refers to a manufacturer or seller being held liable for placing a defective product into the hands of a consumer. Responsibility for a product defect that causes injury lies with all sellers of the product who are in the distribution chain. In general terms, the law requires that a product meet the ordinary expectations of the consumer. When a product has an unexpected defect or danger, the product cannot be said to meet the ordinary expectations of the consumer.

SCOPES OF MANAGERIAL ECONOMICS

Below are the scopes of Managerial Economics in Engineering Perspective

Demand Analysis and Forecasting;

A business firm is the economic unit which operates to transform productive resources into goods and services for sales in a market. Thus the first task in the managerial decision-making is to get accurate estimates of demand for the product of the firm. Until the firm has clear idea of the demand for its product it is not possible to prepare production schedules and employ resources for management, as it highlights the factor on which demand for their product depends.

Product policy, sales promotion and market strategy;

The scope of managerial economics extends to some of the core managerial aspects of the firm because the decision in this regard play a very significant role in the success of the firm. If the economics aspects of these decision are not taken care of, it may prove to be disastrous. Some of these are, the product policy which explains how and what quality a product should be. The expenditure on sales promotion and its benefits also required to be studied. Market strategy has also to be planned keeping in view the economics aspects.

Cost analysis;

The managerial economics identifies the factors causing cost uncertainty exists because all the factors determine costs are not clearly known.

Production analysis;

Given the technology and the nature of the product, the managerial economist studies the production function of the firm-the economies and diseconomies of scale, the minimum efficient scale of the plant etc. The behavior of costs of a firm depends directly on the nature of its production function.

Pricing decisions, policies and practices;

Besides the knowledge of fixed and variable costs of inputs, a scientific decision about price needs the knowledge of various elasticity of demand and the potential rivals who may enter the market. The price policy of a firm is based on such analysis. The area of study deals with the analysis of market structures, pricing methods, differential pricing, product pricing and pricing forecasting.

CHALLENGES IN ENGINEERING LAW &MANAGERIAL ECONOMICS AND WAY FORWARD

Weak engineering law can cause a variety of problems regarding public safety. The safety culture of an organization of practitioners is often dictated by ethics clauses in engineering law. If there is no engineering law or weak engineering law there is no control of safety culture afforded by the law. Also, in most government and private establishments in Nigeria, engineering personnel are assuming to know all. A civil engineer can be employed to do the work of an electrical engineer, chemical engineer, Mechanical Engineer etc. at the same time. Instead of seeking the services of engineering professionals in these other areas of engineering. There should be a clear distinction between engineers differentiated by the laws they are practicing under and the license they carry. The way to go about resolving this issue is, different engineering personnel in various fields should be employed in all engineering departments in both government and private establishments, so that specific jobs can be given to an engineer in his/her chosen area of specialization. That is, there should be division of labor.

*CONCLUSION*

Proper project management and adhering to law of engineers is crucial for timely completion of projects. Economists, engineering managers, project managers, and indeed any person involved in decision making must be able to analyze the financial outcome of his or her decision. Even though my submissions here may not be all inclusive, it is my candid opinion that if the engineer upholds the values of truth, honesty and trust-worthiness, human life will be safeguarded.

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