

Factors Affecting Quality Control in Building Construction

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ABSTRACT

Challenges exist of Poor construction quality requiring positive and prompt attention from stakeholders in the construction industry. Standards are not adhered to and clients are, many times, dissatisfied with projects executed. Stakeholders in the construction industry have different perceptions of quality control; this has contributed to the quality of construction projects in Nigeria leading to increasing cases of building collapse. This study focuses on the factors that hinder the adherence to quality control in construction projects and the perceptions of stakeholders on quality control in the FCT. Data were collected through a structured questionnaire distributed to 30 construction companies and 116 stakeholders in both the FCT, focus group discussions were also held with relevant authorities. It was observed that; 30.17% of the respondents believed that greedy contractors are the main factor responsible for non-adherence to quality, 12.07% have the opinion that inadequate regulatory framework is the most important factor. To other (23.28%), quackery is the hindrance to quality, 19.83% opined that insufficient quality control laboratories/personnel is the main cause, while 14.66% believed that inadequate budgetary allocation is responsible for non-adherence to quality. This study concluded by suggesting that; reprimanding building designers, contractors and approving agencies for defects in building projects and violation of building regulations will go a long way in reducing this menace. Also, appropriate Agencies/Institutions should withdraw the licenses of erring professionals, there should be strict site supervision and enforcement of quality control measures by relevant agencies especially in the states.

Keywords: Quality, management, Quality Control, Performance, Standards, Construction.

1.0 BACKGROUND

Construction activities in Nigeria represent 70% of the capital base of the national economy and generate about 65% of her employment opportunities; this is an indication of the significance of the industry within the economy. [1]. Abdul Kareem, Y.A et. al., and Abimbola, O. W et. al., stressed that the growth of a nation and its development status is generally determined by the quality of its infrastructure and construction projects [1-2]

However, despite its significant position within the national economy, its performance, in terms of quality, within the economy has been very poor [3]. Ademeso Olatunji et. al., and Ademoroti, G stressed that quality has become an important means of competition in the world market and a strategic weapon in the fight for market shares, thereby improving profitability [4]. Ademoroti, G and Adze, E.Y observed that aggressive competition, both at the regional and international levels, has imposed higher standard levels in almost all business activities and sectors 4-[5]. Construction industry through ISO 9000 and ISO 14000 are also actively engaged in achieving international standard level. In Nigeria, the standard organization of Nigeria (SON), the activities of which are similar to that of British Standard Institution (BSI) and International Standard Organization (ISO), has officially adopted ISO 9000 standard for quality management in Nigeria

Quality in the construction industry refers to strict adherence to standards and the degree of excellence. It can also be defined as the attainment of acceptable levels of performance from construction activities. This performance would be attained when the activity meets or exceeds the requirement of the client or the owner. The quality of any product or service is achieved when it conforms to the desired specifications.

A construction project is said to be successful when there is a balance between cost, time and quality. It is possible to have high quality and low cost, but at the expense of time, and conversely to have high quality and a fast project, but at a cost. If both time and money are restricted, then quality is likely to suffer.

1.1 Statement of The Problem

Poor construction quality constitutes major challenges, requiring rapid and positive attention from stakeholders. Standards are not adhered to, and construction clients are, many a times, dissatisfied with projects done. Stakeholders in the building construction industry have different perception of quality standards; this has adversely affected quality standards in the industry. Major cause of building collapse in Nigeria is lack of adherence to standards. Barriers exist that hinders the adherence to quality standards in the Nigeria construction industry.

1.2 Significance Of The Study

Both the public and private sector should place more emphasis in quality than cost and time, this study assesses the major factors that hinder the adherence to quality control in the construction industry, and tries to proffer solutions to the hindrances. It is hoped that the recommendations in this study will be used by stakeholders in the building construction industry in addressing the ugly menace of building collapse that has bedeviled our dear country, Nigeria.

1.3 Aim and Objectives

This research assesses the factors militating against the adherence to quality control in the Nigerian construction industry. This will be achieved through the following objectives;

- i. To assess the perception of quality Control by stakeholders in the construction industry.
- ii. To evaluate the extent to which construction materials influence quality of building construction projects.
- iii. To assess the influence of project funding on quality of building construction projects.
- iv. To determine the problems associated with quality control implementation on construction projects.

1.4 Scope

This study focuses on the factors responsible for the non-compliance to quality control in the industry with a view to proffering solutions.

2.0 LITERATURE REVIEW

Quality Control is concerned with the totality of the attributes of a building which enables it to satisfy needs. According to Aina and Wahab (2011), any client would want to construct a facility of the highest quality and it is the goal of the design team to maximize quality while minimizing cost and time [5-6] There is a need for structural and formal systems of construction management to address the aspect of performance, workmanship and quality.

Construction projects have the involvement of many participants including the owner, designer, contractor and many other professionals from construction-related industries. Each of these participants is involved in implementing quality in construction projects. These participants are both influenced by and depend on each other in addition to other players [6]

Seelay (1996) assert that it has been estimated that as many as one in four workers produce nothing at all because they spend their entire day rectifying the mistakes made by others. 6-15% of construction cost is found to be wasted due to rework of defective components detected late during construction and 5% of construction cost is wasted due to rework of defective components detected during maintenance [7-9]

Ashworth (2004) stressed that defects in construction projects are a persistently worrying problem despite continually improving technology and education. The construction industry has too often in the past been discredited by bad publicity resulting from sometimes dramatic features of both the design and the construction of its products.

According to Abdulkareem and Adeoti (2011), the major problems identified in their research are inadequate budgetary allocation for quality control, non-conformance to quality control clauses by authorized agencies, insufficient quality control laboratory and personnel.

Rumane (2010) asserts that quality concepts, principles, methods and processes, along with quality systems, environmental systems, health and safety provisions are integrated to create a new quality concept known as the integrated quality management systems.

Similarly, Gangas and Adogbo (2011) observed that previous researches indicated that total quality management has been in use since the 1980s in Nigeria, despite its potential benefits to the industry, there is little usage of Total Quality Management (TQM).

It is evident that researches in the construction industry has proved that utilization of quality management concept has a great influence on the cost-effectiveness results of construction projects and achieving successful project performance [10-12]

The achievement of an acceptable standard in building is a combination of quality of design and quality of construction. In the former, quality is determined by the engineer or architect in terms of their skills and by promoters in what they are prepared to pay. In the latter, quality is determined by the management and operative capabilities of the constructor, and by the supervision capabilities provided by the designer with regards to the standards required.

Building clients often want the best possible quality but are not prepared to pay for it. Cornick (1991) stressed that the need to manage quality in briefing, designing and specification phases of a building projects, rather than trying to merely control quality in the construction phase, stems from the proposition that prevention is better than cure.

It is now recognized that in the construction industry, that the lowest price can cost more in the long run. According to Ashworth (2006), there is often poor management and supervision and that study in U.k. indicated that about:

- a) 50% of faults originate in the design in office.
- b) 30% on site.
- c) 20% in the manufacture of materials and components.

Adze (2009) observed that price is no longer the determinant factor, building clients are becoming more conscious and are insisting on quality construction from the contractors. Idoro (2010) stressed that project quality is the most important yardstick for patronage by clients, it is an indication that delays in project delivery and increases in project final costs are not as important as project quality to clients.

Despite the significance of quality in the construction industry, there are some factors that affect quality which Ashworth (2004) classified as "M" factors affecting quality:

- a. Market: Compatibility between standards provided by different firms.
- b. Men: This is perhaps the single most important factor in achieving quality, having the right people to do the job which is required.
- c. Money: Quality costs money. If an inadequate amount of money is included in a budget, then the required quality will be difficult to obtain.
- d. Management: It is the function of management to set a company's quality policy, and this will in turn form the basis of the company's reputation in this respect.
- e. Materials: These must have been specified correctly, properly delivered to and checked on site and then stored in accordance with the manufacturer's instructions.
- f. Methods: The methods specified must be capable of being executed in practice to the tolerance and finishes required. Specifications which do not take into account these factors are likely not to achieve their desired objectives.
- g. Machines: The correct machines for the work being carried out must be carefully selected, and to work efficiently it must be properly maintained

3.0 METHODOLOGY

The research approach adopted for this paper was both quantitative and qualitative method based on semi-structured questionnaire to interview and interact with the stakeholders of indigenous construction firms in Nigeria on how quality control was adopted in their organization and its effects on construction processes. The population considered consists of thirty five indigenous contracting organizations in the FCT registered with the Corporate Affairs Commission of Nigeria that are of medium and large size. 116 (77.33%) of the questionnaires were returned and used for analysis.

4.0 RESULTS AND DISCUSSION

Based on the questionnaires distributed, 130 (89.23%) and retrieved, 116 (10.77%), it can be deduced that, most of the respondents (33) have a working experience of 16-20 years, which represents 25.86%. It was also observed that the number of engineers (39) who responded to the questionnaire outnumbered other professions (33.62%). 31 of the respondents are building designers representing 26.72%, 22.41% construct buildings, 19.83% are building project supervisors, 6.03% project management personnel while 7.76% are developers.

It was observed that all the Building Construction Industries visited are aware of quality control and management.

4.1 Existence Of Quality Management Unit/Department In Organization.

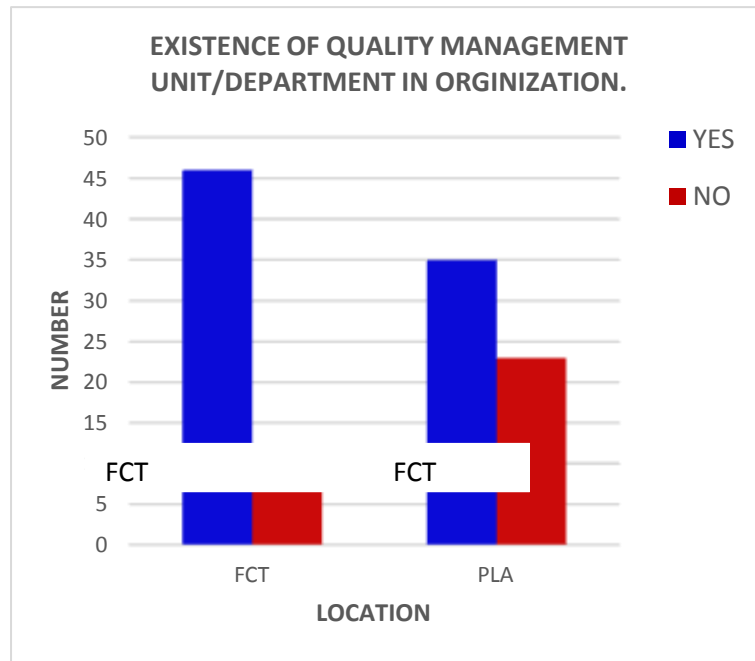


Figure1: Existence of quality management in Organization

More of the building construction industries are found in the FCT as seen in Figure 1. 79.31%, have a functional quality management department/unit, maybe because of the existence and presence of SON and the effectiveness of their activities. Despite the fact that a good number of building industries in the FCT has a functional quality management department/unit, there are still a few industries, 20.69%, that do not have a functional quality management department/unit.

4.2 PERCEPTION OF RESPONDENTS ON QUALITY IN THE BUILDING CONSTRUCTION INDUSTRY

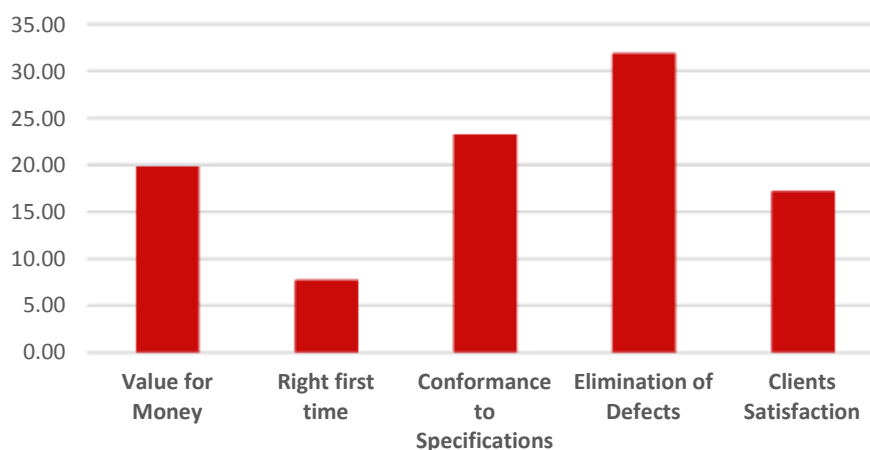


Figure 2: Quality in the building construction industry

Stakeholders in the building construction industry have different perception of quality in building construction projects as shown in Figure 2. 23.28% of the respondents believed that quality is all about conformance to building specifications, 7.76% have the opinion that quality is all about getting it right the first time. To other stakeholders (19.83%), the client’s value for money is the hallmark of quality. While 31.90% of the stakeholders are of the opinion that elimination of defects in building projects is what quality is all about, 17.24% looked at quality from the perception of the client’s satisfaction.

4.3 Perception Of Respondents On Barriers Against Adherence Of Quality

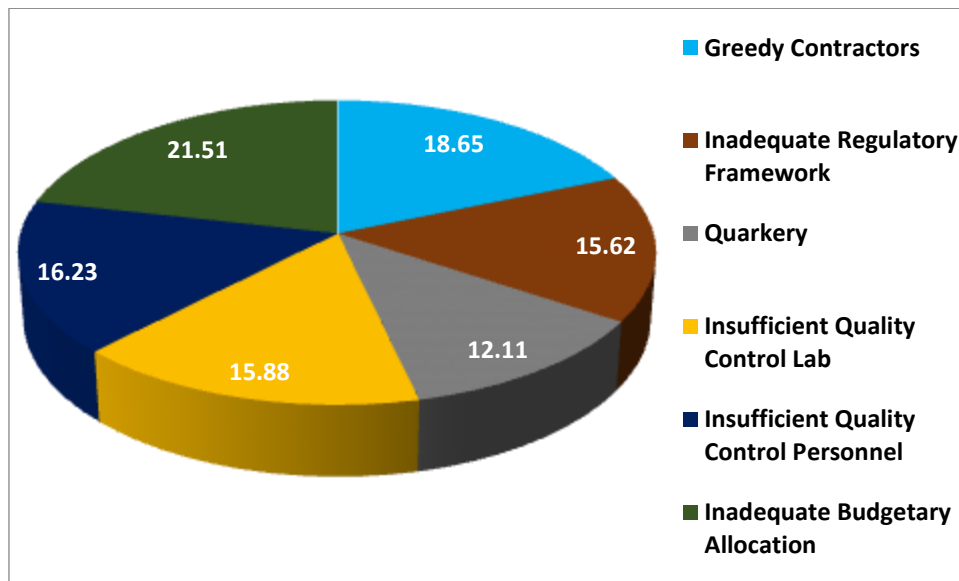


Figure 3. Barriers against adherence of quality

From Figure 3 above, corruption in the part of the contractors most significant barrier for adhering to quality standards on building construction projects. Quackery and inadequate regulatory framework is the second most significant factor for not adhering to standards. Lack of sanctions to offenders and inadequate budgetary allocations is ranked third as a factor for non-adherence to quality on building construction projects.

On the other hand, extra cost and shortage of quality management staff are the less significant factors militating against the adherence of quality control.

4.4 Respondents Perception Of Strategies For Overcoming The Barriers

Table 1:Strategies of overcoming the barriers

S/NO	STRATEGIES	FREQUENCY	PERCENTAGE	RANK
1.	Enforcement of quality control clauses by authorized agencies	33	28.45	1
2.	Designers, contractors and approving agencies should be reprimanded for defects and violation of building regulations	23	19.83	2
3.	Withdrawal of licenses of professionals for any defects in construction	18	15.52	3
4.	Provision of adequate budgetary allocation	17	14.66	4
5.	Carrying out laboratory test on materials	14	12.07	5
6.	General awareness, training and change in attitude of workers	11	9.48	6
7.	TOTAL	116	100	-

Table 1 above shows the perception of stakeholders in the building construction industry on the strategies to overcoming the barriers of adhering to quality. These solutions as perceived by professionals in the construction industry are in ranked order.

5.0 CONCLUSION AND RECOMMENDATION

5.1 Conclusion

This study assessed the factors militating against the adherence to construction quality standards in Nigeria. This has shown that the most significant factors are;

1. Greedy contractor (corruption).
2. Inadequate regulatory framework.
3. Quackery.
4. Lack of sanctions for offenders
5. Inadequate budgetary allocation

This study has also shown that there's high compliance to standards in the building construction companies in FCT.

5.2 Recommendations.

The most important strategies of overcoming the menace of factors affecting lack of adherence to standards in the building construction industry are;

1. Building designers, contractors and approving agencies should be reprimanded for defects on building projects and violation of building regulations.
2. Appropriate Agencies/Organizations/Institutions/Associations should, as a matter of seriousness, withdraw the license of any professional that is found wanting as regards defects in building construction and introduce award of excellence for quality building construction.
3. Strict enforcement of quality control clauses by authorized agencies.
4. Provision of adequate budgetary allocations establish more quality testing laboratories and to equip the existing one with modern equipment, e.g. NBRRI laboratory for Testing Materials.
5. Authorized agencies should ensure that quality management department should be present in every building construction industry.
6. Training and retraining of professionals and artisans in the construction industries should be emphasized.

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