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Research Article

The Enforcement of Project Quality Management Plan (QMP), an Antidote to Building Failure in Nigeria

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Abstract: Poor quality work and materials liter the entire construction landscape in Nigeria, yet there is an excellently prepared Quality Management Plan (QMP) that if implemented, will go a long way in reducing the menace of building failure in Nigeria, but the case is not so. This paper looks at the enforcement of project quality management plan as an antidote to building failure in Nigeria with the view to finding out if site supervisors have the knowledge of the existence of QMP, are in possession of it and implementing its enforcement in their sites, if any professional body or government agency visit construction sites to implement QMP, and to fashion out the ways for the enforcement of QMP on construction sites. The methodology used was the Quantitative approach where the instrument of questionnaire and interview were used for data collection. One hundred (100) questionnaires were administered and seventy-one (71) were received back which was a good response. Findings showed that the quality management plan is neither a document at the development control department nor is it a document at the site, since over seventy percent (70%) of the respondents are not in possession of it or know its contents. It is not part of the documents given to developers when approval is granted. The paper concludes that QMP should be made available to site supervisors to implement, should be made a part of the design/working drawings and documents to be submitted to the Development Control before approval is granted and from time to time an enforcement team by either Council of Registered Builders of Nigeria (CORBON) or Council of Registered Engineers of Nigeria (COREN) or both be made to go around to enforce the QMP at construction sites.
Keywords: Antidote, Building Failure, Enforcement, Quality Management Plan, Nigeria

INTRODUCTION

Quality is believed to mean producing a product or service that is of high standard [1]. When applied to the construction process, it is generally understood that quality means that the product or building meets the customer's needs, is fit for purpose (meaning that it does what it is suppose to do) and - in many cases – provides value for money.

Quality Assurance, (QA) is also defined by Ref. [2] as the process of verifying or determining whether products or services meet or exceed customer expectation. QA verified that any product being offered to customer, regardless of whether it is new, modified or evolved, is produced and offered with the best possible materials, in the most comprehensive way, with the highest standards.

Ref. [2] further said that the goal to exceed customer expectations in a measurable and accountable process is provided by quality assurance. Hence, quality assurance is a process-driven approach with specific steps to help define and attain goals that encapsulate customer's requirements. This process considers design, development, production and service.

The introduction of the Quality Management Plan (QMP) by the Nigerian Institute of Building (NIOB)/Council of Registered Builders of Nigeria (CORBON) was meant to solve the problem of poor building production where buildings that lack integrity were being produced everywhere leading to building failure in Nigeria.

The plan is well articulated with provisions of standards, methods and specifications for the achievement of minimum standards/quality of buildings during the building production process. Unfortunately, in spite of this good effort, the QPM seems to be lying inside files and in computer systems' hard discs rather than being made available and enforced on construction sites.

If buildings of integrity are to be produced, then there should be a move away from the reactionary posture where people wait for problems to occur before

reacting and moving on to being pro-active , by putting in place modalities towards the enforcement of the QMP so that building failure can be reduced to the barest minimum.

Buildings everywhere in Nigeria are collapsing, yet there is an excellently prepared document which can greatly reduce the incidences of building failure. The question now is what is happening to the document. Is it lying fallow or unimplemented and with no one taking the initiative to get it implemented or enforced on construction sites?

Experience has show that the development control office in Abuja who is to implement the QMP is more particular about design details as spelled out in their regulations. No one wants to know how buildings are constructed. Or rather, there is no document instructing the developer on minimum standards to be adhered to in the production of building elements on site, such as concrete, block work, masonry, etc apart from the specifications given in the structural design by the Engineer. So approved designs are collected and construction begins at the site without any reference to QMP document.

It is mentioned in Ref. [3] that Building failure is the resultant negative difference between achieved results in building element(s), component or structure and the expected or preferred performance. Sometimes, this may result in the collapse of the building. In other words, a failure can occur when a component of or the whole building is unable to perform the function for which it was designed/ or constructed.

According to Ref. [4], the matter of quality in the construction industry that inordinate or deliberate desire by a contractor to maximize profit at the expense of quality and standard thereby, exposing the building to the danger of collapse. This kind of situation has been aggravated by the rapid huge urbanization with a huge shortfall in housing, general high cost of building materials leading to the influx of inferior materials in the market and compounded by "quacks" at all levels in the construction industry. He added that many structures collapse when design of such structures fails to specify in the drawings the assumed minimum strength of materials to be used in the project. He further said we observed that many developers do not take time to check the quality of sand, blocks, iron bars and the grade of concrete mixture on site.

Ref. [5] identified the causes of building failure as lack of adherence to specification by the unqualified and unskilled personnel, poor and bad construction practices, the use of substandard building materials and inadequate enforcement of the existing enabling building regulations.

According to Ref. [6], low quality building materials coupled with employment of incompetent artisans and wrong construction methodology are the major causes of building failure.

Aside poor quality materials and quacks in the construction of building, experts from the Nigerian Institute of Building (NIOB) have identified lack of total quality management and site development errors as factors responsible for building collapse in the country Ref. [7].

Similarly, Mr Micah Obiegbu identified the lack of Total Quality Management (TQM) as responsible for most building collapse Ref. [7]. He argued that failure to adhere to TQM lead to usage of poor building materials which in turn affect the duration of the project. Mr Obiegbu noted that over the years, building materials and workmanship specifications have grown to be part of the condition of contract procedures for accepting or rejecting materials and workmanship. Unfortunately, because of greed, a lot of professionals have compromised standards and are risking the lives of individuals, who ccupy buildings that are poorly constructed. He however advocated for a Project Quality Management Plan adding, "it should be the desire of all building constructors to apply total quality management systems on their products with a view to achieving compliance".

Gaps in the regulatory framework in the building industry have been blamed for building collapse in Nigeria by experts in the building industry Ref. [8]. The experts told the News Agency of Nigeria (NAN) in Lagos that the existing regulatory process of buildings was very defective and this had resulted to collapse of buildings without any disciplinary action against the contractors.

Mr Chucks Omeife, the President, Nigerian Institute of Building (NIOB), said that ineffective regulatory framework in the sector was as result of poor enforcement of the National Building Code Ref. [8].

Mr Akomolafe Ademola, Secretary, Nigerian Institution of Surveyors (NIS), said that approval requirements should include Quality Management Plan, Health and Safety Plan, and Construction Programme, to be prepared by a professional builder Ref. [8].

It is in view of the above, that this paper set out to find out if QMP is being enforced at the construction sites in Abuja, the Federal Capital of Nigeria, with the view to fashioning out the ways for the enforcement of the QMP. Among the objectives to be achieved is to find out if site supervisors have the knowledge of the existence QMP, whether the site supervisors are in possession of QMP and are implementing its enforcement in their sites, if any professional body or

government agency visit construction sites to implement QMP, and to fashion out the ways for the enforcement of QMP on construction sites.

RESEARCH METHODOLOGY:

The data used in this research were collected via the administration of well-structured questionnaires to site supervisors of different professions in selected construction sites with Abuja. The sampling frame for this research was fragmented amongst the following professionals in the selected construction sites: Architects, Civil Engineers, Builders, Quantity Surveyors, Town Planners, land Surveyors, Estate Surveyors, Electrical Engineers and others. These groups of professionals constitute the target population. Since the population of study for this research is clearly defined, every respondent in the defined population was given equal chance during the administration of the questionnaire.

Tables were used for data presentations. The analysis of the collected data was carried out using the quantitative approach.

One hundred (100) questionnaires were administered and seventy-one (71) were received back which is a good response.

RESULTS AND DISCUSSION:

Respondent' profession

The respondent's professions are given in Table 1. From the table, it can be seen that 18.31% of the respondents are Architects, 22.5% was allocated to Civil Engineers and 28.17% to Builders because they are the principal actors in site supervision. Quantity Surveyors, Town Planners, Land Surveyors, Estate Surveyors Electrical Engineers and others were allocated 9.86%, 5.60%, 2.80%, 4.20%, 5.60% and 2.80% respectively.

The distribution above is a fair representation of built environment professionals supervising projects on site. By training, Architects, Builders and Civil Engineers are the ones responsible for site supervision of construction works which is 65.98% of the respondents. The remaining 34.02% of the respondents are not supposed to supervise buildings production on site.

Table 1 Respondents' Profession

	Profession	**Frequency**	**Percentage (%)**
1.	Architects	13	18.31
2.	Civil Engineers	16	22.5
3.	Builders	20	28.17
4.	Quantity Surveyors	07	9.86
5.	Town Planners	04	5.6
6.	Land Surveyors	02	2.8
7.	Estate Surveyors	03	4.2
8.	Electrical Engineers	04	5.6
9.	Others	02	2.8
	TOTAL	**71**	**100%**

Source: Researcher's Field work

Respondents' Qualification

The respondents' qualifications are presented in Table 2. It is seen clearly that 31% of the respondents have National Diploma (ND) and Federal Technical Certificates (FTC), 58% have Higher national Diploma (HND) and Degrees and 11% have Masters degrees and above. This means that HND/Degree and Masters degree and above accounted for 69% of the total respondents. This is a fair/good qualification, indicating that a good number of the site supervisors are reasonably trained. This leaves 31% of the respondents as having only Diploma/FTC.

Table- 2 Respondents' Qualification

Qualification	**Frequency**	**Percentage (%)**
ND/FTC	22	31
HND/DEGREE	41	58
MASTERS & ABOVE	08	11
TOTAL	**71**	**100%**

Source: Researcher's Field work

Knowledge about the Existence of QMP

Table 3 shows the respondents' answers to the question as to whether the respondents have the knowledge of the existence of QMP and if they are in possession of it.

Table-3: The Question as to whether the Site Supervisors have the Knowledge of the Existence of QMP and if they Possess it

Profession	Frequency		Percentage (%)	
	Yes	No	Yes	No
Architects	4	9	5.63	12.68
Civil Engineers	8	8	11.27	11.27
Builders	18	2	25.35	2.82
Quantity Surveyors	3	4	4.23	5.63
Town Planners	0	4	0	5.63
Land Surveyors	0	2	0	2.82
Estate Surveyors	0	3	0	4.22
Electrical Engineers	1	3	1.41	4.22
Others	0	2	0	2.82
	34	**37**	**47.89**	**52.11**
TOTAL	**71**		**100%**	

Source: Researcher's Field work

For the table, it is seen that out of the 34 professionals who said they are aware of its existence, only the 18 Builders claim to know and possess its contents. This gives 25.35% of the 71 respondents who are supervising projects within Abuja metropolis as the only people in possession of the QMP.

On the whole 47.89% of the respondents are aware of the existence of the QMP while 52.11% have no knowledge of the existence of the QMP. This is bad, because those who are supposed to implement the QMP are the very ones not aware of its existence.

The results above show the severity of the obscurity of the QMP among construction professionals. It is an alien document to site supervisors who should be the very people implementing it. It can also be seen from the planning regulations of the department of development control that there is no mention of how quality can be achieved in the production of building components on site. Quality is completely silent in their documents indicating that quality is left in the hands of the developer who in most cases is more interested in maximizing profit which will always be against achieving quality.

If building failure is to be stopped or reduced, then quality implementation and enforcement must be taken away from the profit focused developer and placed in the hands of someone else whose interest will be to produce buildings of integrity or else will remain in this condition of building failure for a very long time.

The Question as to Whether the Site Supervisors are Implementing the Enforcement of QMP in Their Sites

The respondents' answers to the question as to whether the site supervisors are implementing the enforcement of QMP in their sites are presented in Table 4.

Table-4: The Question as to Whether the Site Supervisors are Implementing the Enforcement of QMP in Their Sites

Profession	Frequency		Percentage (%)	
	Yes	No	Yes	No
Architects	0	13	0	18.32
Civil Engineers	0	16	0	22.52
Builders	11	09	15.49	12.68
Quantity Surveyors	0	07	0	9.86
Town Planners	0	04	0	5.63
Land Surveyors	0	02	0	2.82
Estate Surveyors	0	03	0	4.23
Electrical Engineers	0	04	0	5.63
Others	0	02	0	2.82
	11	**60**	**15.49**	**84.51**
TOTAL	**71**		**100%**	

Source: Researcher's Field work

It can be seen from the table that only 15.49% of the respondents said they try to enforce QMP in their construction works on site while the remaining 84.51% do not. This is a clear indication that QMP is not being enforced in most of the construction sites in Abuja metropolis. No wonder there has been frequent cases of building collapse in Abuja.

The Question as to Whether There is Any Professional Body or Government Agency that Visits the Construction Sites to Implement QMP

Table 5 gives the respondents answers to the question as to whether there is any professional body or government agency that visits the construction sites to implement QMP.

Table- 5: The Question as to Whether There is Any Professional Body or Government Agency that Visits the Construction Sites to Implement QMP

Profession	Frequency		Percentage (%)	
	Yes	No	Yes	No
Architects	4	9	5.63	12.68
Civil Engineers	5	11	7.04	15.49
Builders	4	16	5.63	22.54
Quantity Surveyors	2	5	2.82	7.04
Town Planners	2	2	2.82	2.82
Land Surveyors	1	1	1.41	1.41
Estate Surveyors	1	2	1.41	2.82
Electrical Engineers	1	3	1.41	4.23
Others	1	1	1.41	1.41
	21	**50**	**29.58**	**70.42**
TOTAL	**71**		**100%**	

Source: Researcher's Field work

It is seen from the table that 29.58% of the respondents said their sites were visited by the development control team on their routine checks, but emphasis was more on whether building was set out as given in design and whether set backs are not violated as set out in the site layout plan. Little is said about mix ratio, materials testing and the like. 70.42% of the respondents said their sites were never visited by any professional body or government agency to enforce QMP.

The Question as to How QMP can be Implemented or Enforced on Construction Sites

The respondents were asked to choose from among the following options as how they think the QMP can be implemented or enforced on their sites.

- By providing us with QMP to implement or enforce
- By making QMP a part of documents submitted to Development Control for approval alongside designs
- By a consistent visit to sites by an enforcement team from CORBON/COREN
- All of the above

All the respondents ticked option (4) above giving 100% agreement that the QMP should be made available to them on site to implement, it should be made a part of the design/working drawings and documents to be submitted to the Development Control before approval is granted and from time to time an enforcement team by either CORBON OR COREN or both be made to come around to enforce the QMP.
In this way, Quality Building will be constructed and hence a reduction in building failure.

CONCLUSION AND RECOMMENDATION:

The following conclusions were fashioned out from the findings in this research:

- About 48% of the respondents are aware of the existence of the QMP while 52% have no knowledge of the existence of the QMP.
- About 15% of the respondents said they try to enforce QMP in their construction works on site while the remaining 85% do not
- .About 30% of the respondents said their construction sites were visited by the development control team on their routine checks, but emphasis was more on whether building was set out as given in design and whether set backs are not violated as set out in the site layout plan rather than on QMP while about 70% of the respondents said their sites were never visited by any professional body or government agency to enforce QMP.

It is recommended that QMP should be made available to site supervisors to implement, should be made a part of the design/working drawings and documents to be submitted to the Development Control before approval is granted and from time to time an enforcement team by either Council of Registered Builders of Nigeria (CORBON) or Council of Registered Engineers of Nigeria (COREN) or both be

made to go around to enforce the QMP at construction sites.

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