



## An Appraisal of Quantity Surveying Profession in the Nigerian Construction Industry

Oladimeji, A. B.\* & Adebisi, H. O.

Department of Quantity Surveying,

Federal Polytechnic Ede,

Osun State, Nigeria.

Email: aboladimeji2014@gmail.com

**Abstract-***The increasing magnitude of size and technical complexity of construction projects, contract arrangements, rising cost, rapid changes in technology and specialization with ever increasing number of roles to be managed; have resulted in ever more pressing need to properly manage these variables. The paper therefore intended to evaluate the level of the involvement of quantity surveyors in management of construction projects in Nigeria, towards enhancing public awareness. To achieve this aim, some objectives were made the focus of the research, which included; to identify factors affecting utilization of quantity surveyors in execution of projects and to examine the contribution of quantity surveying profession to the Nigerian construction project performance. The design for this study was by survey research method while the instrument for collection of primary data was through structured questionnaire administration. Data collected were analyzed using statistical tools mainly Percentile and Relative Importance Index (RII). The study revealed the followings among others; insufficient number of qualified quantity surveyors; reluctance to change; insufficient number of professionally qualified quantity surveyors; and inter-professional rivalries were notable factors militating against quantity surveyors involvement in projects. The study concluded that the utilization of quantity surveyor in the execution of construction projects, particularly civil engineering works was very low. There was therefore the need to adequately involve quantity surveyors in construction projects. The paper recommended the followings among others; government should evolve new policy instruments clearly allocating responsibility with matching authority to the relevant professionals, in the sector. Quantity surveyors should be brought in to take charge of cost management, right from the inception of projects to achieve Value-for-Money.*

**Keywords:** *Appraisal, Contract Arrangements, Construction Industry, Involvement, Performance Variables, Quantity Surveying.*

### 1.0 Introduction

According to NIQS (2012); Organizations are generally shaped by the internal and external environments in which they operate. Our profession as an organization is shaped by the effects of international forums on quantity surveying, cost management and project management science. Professional services are largely created and sustained by the continued interest, expectations and demand of the public. Moreover, professionalism is imperative of certain core values; competencies, responsibility and willingness to serve public interest. The view of the public determine the continuous recourse to demand for and continued existence of quantity surveying profession through trust, confidence as well as the pride and respect for the quality performance of service rendered. (Oladapo, 2001).

The increasing complexity of construction contract arrangements, rising cost, rapid changes in technology and specialization with ever increasing number of roles to be managed as well as the correspondingly increasing volumes and values of construction output, have resulted in ever more pressing need to properly manage these variables. The huge budgetary allocation to the construction sector and the problem of cost and time overrun in Nigeria therefore, calls for effective administration of construction activities so that investors and the whole nation in general, can get the best value for the financial resources at their disposal.

The research work focuses on the involvement of quantity surveyors in the execution of both private and public sector projects in Nigeria, with a view to enhancing public awareness on the potentiality of quantity surveyor towards effective project performance. To achieve this aim, the following objectives form the focus of this research; to identify the level of involvement of quantity surveyors in projects execution in the study area; to identify the factors affecting the utilization of quantity surveyors in the execution of projects in the study area; to determine the adequacy of total number of quantity surveyors in the study area; to examine the contributions of quantity surveying in the Nigerian construction project performance.

Akintoye, (2001), Aje (2002), Ogunsemi (2002), Adebayo (2006) and Owojori (2010); among other authors have assessed the impact of quantity surveyor on construction contract administration, in Nigeria. The result shows that quantity surveyor has made significant impact on construction cost administration and also contributed positively to the growth of Nigeria building industry in the area of financial accountability, management of inflation and risk factors and ensuring value for money for client. However, high construction cost and time overrun have become a major pointer to the malfunction of the construction industry in Nigeria today; manifesting in low construction activities and abandoned projects. The study intends to evaluate the involvement of quantity surveyors in Nigeria Construction performance viz the highlighted shortcomings. The study, will no doubt, further the charts on the need to involve quantity surveyors in all construction works.

For the purpose of representation, generalization and meaningful result, a research of this nature requires the study of involvement of quantity surveyors in capital project development cutting across, consultancy, contracting, client's in-house professionals, and in both private and public sectors. All over the whole country. However, the study will be delimited to Osun and Oyo States, as a case study.

## **2.0 Quantity Surveying Profession In Nigeria**

Wikipedia (2013) reports that, a quantity surveyor may work for either the client or the contractor, working in an office or on-site. They are involved in project from the starting point preparing estimate and costs of the works to the final figures to complete the projects.

Ayodele (2004), and Adebayo (2006) describe a sustainable socio-economic development as a situation where the following attributes do not decrease over time; real income: improved healthcare and nutritional status; educational achievement; access to good infrastructures; fair income; distribution and increase in basic freedom. Evidently, infrastructures development has been identified as one of the pre-requisites for attracting foreign investment, involving business environment and promoting the much desirable socio-economic development. While the construction industry is generally considered to be the most important sector required for their procurement, the extent of this developmental need can be better appreciated by considering the state of Nigeria's economy.

Poon, (2004); asserts that Quantity Surveying practice enjoys uniqueness and ubiquitous expertise in construction cost management to generate value for clients' money, all through the construction process and other duties, wherever adaptable. Despite Quantity Surveyors traditional expertise in feasibility and viability appraisal of construction investments, drafting, compilation and documentation of construction contracts, preparation and subsequent analysis of construction contract bids, quote or tenders; contractor selection advice and financial management of all construction works and allied reporting, including auditing, cost planning, cost indexing etc, they are also very relevant in construction project management, value management, facilities management, management contracting construction dispute resolution, research consultancy (Nkado, 2000).

Takubu (2005); reports that interestingly, Quantity Surveying practice is gaining more relevance in asset management, project management, taxation, law, insurance, banking and manufacturing especially oil and gas. Yet the profession still needs a lot of publicity through enterprising packaging and marketing of n attractive image of professionalism, not only in technicalities but in ethical discipline. (RICS, 2002).

The main heart of Quantity Surveying function is the control of cost of construction project. Construction cost, construction management, construction communication all are key problem areas for the client with an important building or engineering project to ensure its steering to a successful completion. The quantity surveyor is the expert professionally trained and experienced in dealing with these entire problems for the client. (NIQS, 2012).

### *2.1 Roles Of Quantity Surveyor In Civil Engineering And Building Projects, Generally:*

NIQS, (2012); defines the quantity surveyor as a cost and procurement management expert who is concerned with financial probity and achieving value for money in the conceptualization, planning and execution of building, civil and other heavy engineering projects. At the Pre- Contract Stages of any Project, quantity surveyor performs the following roles: Project development advice; Estimating and cost advice; Advice on tendering procedure and contractual arrangements; Cost planning; Preparation of bills of quantities; Insurance of civil engineering projects.

At Post contract Stages of civil engineering and building projects, quantity surveyor performs the following roles: Interim valuation/final valuation; Arbitrator/expert witness; Measurement of variation and agreeing claims; Preparing and setting final account with contractors; Construction cost and Contract audit. (Wikipedia, 2013).

According to Oladapo, (2001); Competency is defined as the ability to perform activities within an occupation to the standard expected for employment. Each unit of competency describes in broad terms a particular element of a quantity surveyor's or construction cost engineer's function in terms of performance criteria, range indicators and evidence guide. Performance criteria specify the outcomes to demonstrate acceptable performance achieved for each element of competency. Range indicators frame the boundaries within which performance criteria apply. Evidence guides give an indication of tangible results that confirm satisfactory demonstration of competence.

Owojori (2010); reports that Advancing Quantity Surveying body of knowledge, which is based on ten core competencies adopted by PAQS (1999) as follows: Unit 1 – Strategic planning, Unit 2 – Budgetary process, Unit 3 – Cost estimating, Unit 4 – Cost planning, Unit 5– Procurement advice, Unit 6 – Contract documentation, Unit 7 – Tendering process, Unit 8 – Construction account management, Unit 9 – Construction change management and Unit 10 – Feasibility studies; Quantity surveyors have developed sophisticated skills, models and techniques, which have been applied in construction procurement in diverse projects in Nigeria. Refining the services of quantity surveyors to play an effective and pro-active role throughout the development cycle of project, is therefore very important. (Citing Brummer, 2004).

### *2.2 Quantity Surveyors Involvement In Civil Engineering Works In Nigeria*

Opawole, Awodele, Babatunde and Awodele (2012); reports that in Great Britain and in almost all the British Commonwealth nations, quantity surveyors services are fully appreciated for all forms of engineering projects. The situation is different in Nigeria, where their involvement is fully appreciated for building engineering constructions but at seemingly low level in other engineering projects.

NIQS,(2012): In view of the billions of naira annually spent by the government on construction work as evident from the Annual National Budget and of which Civil Engineering projects/works, takes the lion share, it has become absolutely necessary for some form of quantity surveyors involvement both at the pre-and post-contract stages of these projects to ensure strict control and value-for-money. It is disheartening therefore, to mention that presently in Nigeria, most of the functions to be performed by the quantity surveyor in civil engineering works are carried out by engineers themselves. Few quantity surveyors involved in civil engineering projects are usually employed by the contractors; as civil engineering consultants tend to be both the design and measurement engineers. Thus the non-features of the quantity surveyor at the pre-tender stage; according to Mogbo (2000), does not provide professional guideline on cost to the design team. At construction stages problems often arise, as to the interpretation of the standard forms of contract and qualified specification, if any and more importantly the associated problem of documentation and processing of volumes of emergent-variations and fluctuations, daywork and other complicating claims, should the quantity surveyor not be brought in to help solve such sensitive and professional problems. (Ogunsemi, 2002).

### 2.3 Quantity Surveyor's Involvement As Project Managers

According to Burger and Jorkers (2013); Quantity surveying as a specialized field that primarily lends itself to financial and contractual management of construction project, offering a distinct service in the built environment. However, in addition to this, it also has a broad spectrum of services that can be offered by the individual going into the field of study.

Clients look to many construction professionals including the quantity surveyor for the provision of project management services in this regards. Generally, however, the quantity surveyors' expertise regarding cost advice and planning attracts a client to use their services for the project management role, more so the reputation for multi-disciplinary knowledge and skills.

In particular, knowledge of construction combined with site experience and other management skills are important for effective project management and need to be acquired by the quantity surveyors. The rise of project management as a separate profession coupled with the decline in the role of an architect as the project leader has created stiff competition in the market for project management services to be provided. There is therefore the urgent need for quantity surveyors to embrace capacity building and competences, to effectively provide project management services.

### 3.0 Data Presentation and Analysis

The design adopted for this study was the field survey research while the instrument for collection of primary data was structured questionnaire.

Sample size of 72 was determined through the formula:

$$n = \frac{N}{1+N(e)^2}$$

n = sample size ; N = Total Population ; e = Level of Precision (0.05)

OR

$$k = \frac{N}{n}$$

Where K = Interval ; n = Sample Size ; N = Total Population;

While administration of questionnaires was determined by Purposive Simple Random Sampling technique. Respondents included quantity surveyor, architect, builders, an engineers from both public and private sectors; out of which only 50 were return. The data collected were analyzed employing statistic tools of Percentile and Relative Impotents Index (RII); evaluated using the formula/expression;

$$RII = \sum \frac{w_i}{AN} \quad (0 \leq \text{Index} \leq 1)$$

The measure scale of the degree of significance means 5 = Highest/Most, while 1 = Least or Never. (Adepkpe and Oladimeji, 2012)

### 3.1 Data Presentation and Analysis

**Table 1 Engagement of Surveyor in your Organization/Ministry**

Variable	Frequency	Percentage (%)
Yes	22	44%
No	28	56%

Source: Field Survey (2014)

**Table 2: Utilization Level of Quantity Surveyor In The Execution Of your Projects.**

Profession	Frequency	Percentage (%)	Ranking
Always	13	26	2 <sup>nd</sup>
Very often	4	8	5 <sup>th</sup>
Often	6	12	4 <sup>th</sup>
Seldom	14	28	1 <sup>st</sup>
Never	13	26	2 <sup>nd</sup>

Source: Field Survey (2014)

**Table 3: Professional that Often Performs the Quantity Surveyor's Functions In Your**

**Organization.**

Profession	Frequency	Percentage (%)
Builder	26	52
Civil engineer	16	32
Architect	1	2
Accountant	-	-
Quantity surveyor	7	14

Source: Field Survey (2014)

**Table 4: Stage At Which Quantity Surveyor Is Involved In Your Organization**

Stages	Frequency	Percentage	Ranking
Pre-contract stage only	13	26	2 <sup>nd</sup>
Pre-contract stage & post contract stage (inception to completion)	16	32	1 <sup>st</sup>
Post contract stage only	2	4	5 <sup>th</sup>
All of the above	9	18	4 <sup>th</sup>
None of the above	10	20	3 <sup>rd</sup>

Source: Field Survey (2014)

**Table 5: Specific Aspects of Your Projects for Which Quantity Surveyor is Involved**

ASPECT OF INVOLVEMENT	5	4	3	2	1	RII	RANKING
Preliminary Estimate/Budget -Preparation.	34	9	0	0	7	0.85	1 <sup>st</sup>
Preparation of Tender Documents & Evaluation And Analysis of Tenders.	26	9	6	2	7	0.78	2 <sup>nd</sup>
Supervision Of Post-Contract Stage/Work In Progress.	11	11	12	12	14	0.61	4 <sup>th</sup>
Arbitration: Settlement of Disputes.					20		
Cost Control Functions From Inception To Completion.	3	6	17	4	11	0.47	5 <sup>th</sup>
	24	9	17	4		0.75	3 <sup>th</sup>

Source: Field Survey (2014)

**Table 6: Factors Affecting The Involvement Of Quantity Surveyor In Project Execution**

No.	FACTORS	5	4	3	2	1	RII	RANK
1	Lack of Awareness Of Quantity Surveying	17	18	10	3	2	0.78	3 <sup>rd</sup>
2	Profession.	8	6	25	6	15	0.62	6 <sup>th</sup>
3.	Skepticism About The Relevance Of Quantity Surveying Profession.	14	28	4	2	2	0.80	1 <sup>st</sup>
4.	Reluctance To Change.	10	11	5	20	4	0.61	7 <sup>th</sup>
5.	Type Of Project.	17	10	20	1	2	0.76	5 <sup>th</sup>
6.	Technical Expertise Required/Complexity Of	10	1	9	15	16	0.51	10 <sup>th</sup>
7.	Project.	21	18	5	2	4	0.80	1 <sup>st</sup>
8	Political Influence/ Government Policies.	14	21	12	1	2	0.78	3 <sup>rd</sup>
9.	Insufficient Number Of Qualified Quantity	12	6	4	18	10	0.57	5 <sup>th</sup>
10.	Surveyors.	9	4	15	10	12	0.55	7 <sup>th</sup>
	Inter-Professional Rivalries.							
	Inadequate Education Of Professionals.							
	Corrupt Practices By Parties Involved On Projects							

Source: Field Survey (2014)

**Table 7: Showing the Population of Professionally Qualified Quantity Surveyors In Study Area As At Year 2014**

Areas of Occupation	Osun State	Oyo State
Ministry of Works, Department	16	9
Agencies, Corporations, etc.	6	37
Consultancy	2	2
Contracting	19	7
Academics		
<b>Total</b>	<b>43</b>	<b>65</b>

Source: Field Survey (2014)

**Table 8: Involvement Of Q/S has Improved The Overall Project Delivery In Your Organization.**

Variable	Frequency	Percentage
Yes	37	74
No	13	26
<b>Total</b>	<b>50</b>	<b>100</b>

Source: Field Survey (2014)

**Table 9: The Extent of Contribution of Quantity Surveyor In The Overall Project Performance**

Variable	5	4	3	2	1	RII	RANK
Costs of Projects are Reduced Substantially	20	16	4	6	8	0.78	1 <sup>st</sup>
Project are Delivered on Time and to Cost	20	9	12	-	9	0.72	2 <sup>nd</sup>
The Overall Project Management is Faster & More Efficient.	20	7	7	5	8	0.64	3 <sup>rd</sup>
Reduction in Conflict	14	6	10	10	10	0.616	4 <sup>th</sup>

Source: Field Survey (2014)

#### 4.0 Summary Of Findings

The study has succeeded in establishing the following facts:

Table 2; reveals that builders & civil engineers are the ones that perform the role of Quantity surveying, where there is no quantity surveyor.

Table 3; reveals succinctly, that the level of engagement of quantity surveyors in construction projects in Nigeria, is very low.

Table 4; reveals that, in Osun and Oyo States, where engaged, quantity surveyors are mostly involved at both pre-contract and post-contract stages, in the execution of projects while their utilization level for post-contract stage only, is very low.

Table 5; reveals that where quantity surveyors are engaged most frequently, is for preliminary estimate and budget preparation; followed by preparation of tender documents and evaluation and analysis of tenders; followed by cost control while it also shows that quantity surveyors are involved less frequently in arbitration.

Table 6; reveals the ranking of the ten (10) major factors responsible for the low level of involvement of quantity surveyor in the execution of projects in Osun and Oyo State are: Reluctance to change and Insufficient number of quantity surveyors are ranked first; closely followed by inter-professional rivalries and lack of awareness of quantity surveyor profession; Political Interference/Government policies are ranked last as 10th position.

Table 7; reveals that the total population of professionally qualified Quantity Surveyor as at year 2014 were 43 in Osun State and 65 in Oyo State respectively. These are personnel that have passed through the Nigerian Institute of Quantity Surveyors qualifying examinations and attained membership (MNIQS & FNIQS) status. The Quantity Surveyors Registration Board of Nigeria' status has not even been considered.

The sources of this information are State Chapters of NIQS, Osun and Oyo States.

Implication of these low figures, is that if the Federal Government directive that every local government council should engage at least one Quantity Surveyor each, were to be implemented; there would be no resource persons to fill such vacancies without depleting other sectors; considering Osun State having 30 Local Government Council Areas plus 1 Area Office and Oyo State having 33 Local Government Council Areas, respectively.

Table 8; reveals that 74% of the respondents believe there is improvement in the overall management of projects in their organizations; while 26% believed there is no improvement (as they do not involve quantity surveyor in the execution of projects in their organizations).

Table 9; reveals that, on ranking of extent of contribution of the quantity surveyor's involvement; costs of projects are reduced substantially comes first; while reduction in conflict is ranked as least.

## **5.0 Conclusion**

The study concludes that quantity surveyors are the professional saddled with the responsibilities of ensuring financial probity and achieve value-for-money in the conceptualization, planning and execution of building, civil and other heavy engineering projects in Nigeria.

This study has also established the fact that the utilization level of quantity surveyor in the execution of construction projects, particularly Civil engineering works, is very low.

The study further concludes that there are four major factors responsible for the low patronage of quantity surveyors in execution of construction project in Nigeria; Reluctance to change; insufficient number of quantity surveyors; Lack of awareness of quantity surveying profession; Inter-professional rivalries.

The study concludes that even as the very low level of utilization; beneficial impact of quantity surveyors to effective project performance is noted to include: Costs of projects are substantially reduced; project delivery to time and cost; faster and more effective project management; as well as reduction in disputes.

Therefore, towards enforcing public accountability concept, the quantity surveyors must be adequately introduced into civil engineering, heavy engineering and building works in Nigeria at large, to ensure the use of financial resources; as civil engineers, services engineers and builders cannot be both the 'judge and jury' in their own case.

Based on the above findings and conclusions, the following recommendations are being proposed, towards achieving public accountability and transparency:

Government should evolve new policy instruments clearly allocating professional responsibility with matching authority. A situation where on a project for instance, the engineer plans, designs, estimates, prepares contract documents vets tenders recommends the award of contract, supervises the contract, verifies payment and act as a quasi-arbitrator; is clearly destructive of transparency and accountability.

Quantity surveyor should be brought in, to moderate the cost aspects of projects (civil or building), which take the lion share of the total budgeting allocations to capital projects. Regulatory bodies such as Quantity Surveyors Registration Board of Nigeria (QSRBN), should as much as possible enforce/the various disciplinary provision against unprofessional conduct enshrined in the enabling instruments of the various professions, as well as eradicating the activities of quacks in the profession.

Since lack of awareness of the services of quantity surveyor has been identified as a strong factor militating against involvement of quantity surveyors, in projects, the Nigerian Institute of Quantity Surveyor (NIQS) should pursue private-sector relevance through marketing infomercials and should not rely on government patronage alone, most especially now when government is shifting development role to the hand of private sector. NIQS should dialogue with other stakeholders in the construction industry; such rapport will create awareness and the issue of inter-professional rivalry if not eliminated, will be reduced drastically.

The Nigerian Institute of Quantity Surveyors (NIQS) and the Quantity Surveyors Registration Board of Nigeria (QSRBN) should fashion out a concerted collaboration with the tertiary Institutions of

learning, on how to achieve not only higher standard products but also higher quantities of products. This will gradually take care of the dearth in population of qualified personnel.

Research Development; Professional bodies/universities/polytechnics should sponsor researches in Quantity Surveying which could launch the profession to greater height and wider acceptability. This is a direct investment into the future of the profession. The QS Educators' Forum, should take up the challenge of spearheading Quantity Surveying researches. Research areas could be in Estimating, Cost planning, Information technology, Cost data-life cycle costing, Facility management, etc.

The huge budgetary allocation to the construction sector for the provision of infrastructural facilities in Nigeria, calls for effective administration of construction activities, so that investors and the nation in general, can get the best value for money. There is therefore the urgent need to involve quantity surveyors in all types, forms or sizes of construction project in Nigeria. Quantity surveyors must therefore, look beyond our traditional service to imbibe core competence for strategic roles in the current economic reformation. Such roles should add value to the skill, services and image of the quantity surveyor. Particular interest must be invested in specific areas of specialization like – Valuation for Insurance, Asset Management, Project Management and Arbitration.

Finally, Nigerian Institute Of Quantity Surveyors (NIQS) should also continue its aggressive continuing professional development programmes through seminars, workshop e.t.c. also individual quantity surveyor should aggressively pursue education and training program to bridge perceive knowledge-gaps and equally acquire new skills and broaden knowledge spectrum. The new QS Academy may be well equipped and positioned to serve the purposes of this requirement.

## **References**

1. Adebayo, M.O.; Quantity Surveying And Nation Building For Sustainable Economy. *Journal of Sciences, Engineering and Environmental Technology*, Maiden Edition, 2006; pp. 128-130.
2. Adegoke, B.F. and Oladimeji, A.B.: *Research Methodology Made Easy*. Adebayo Supergraphic, Osogbo, Osun State, Nigeria. ISBN: 978-978-44215-7-4, November, 2012; pp. 30.
3. Aje, O.I.: The Impact of Quantity Surveyors on Construction Contracts Administration in Nigeria. *The Quantity Surveyor* : Journal of the N.I.Q.S. 2002; Vol. 41 No. 4 pp. 2-7
4. Akintoye, A.: Quantity Surveying: An Art or Science? A Research Paper at Quantity Surveying and Total Management Colloquium. The Nigerian Institute of Quantity Surveyors, Lagos. 2001; pp. 19-41
5. Ayodele, A.S.; Nigeria And The Crisis of Economic Development. A Paper delivered at the 21st Biennial Conference of Nigerian Institute of Quality Surveyors, Mokola, Ibadan, Nigeria. 2004.
6. Burgers, M. and Jorkers, R.: Quantity Surveyors' Career Potential As Construction Managers. *Business Management; Advanced Research in Scientific Areas*. December 2-6, 2013; pp. 27-33 retrieved from <http://www.arsa.conf.com>
7. NIQS: QS Connect. Bulletin of Nigerian Institute of Quantity Surveyors. 2012.
8. Nkado, R.W.: Competencies Required By Quantity Surveyors In South Africa. Proceedings of ARCOM. 2000; Glasgow Caledonian University.
9. Ogunsemi D.R.: Cost And Time Performance of Construction Projects In South-Western Nigeria. Ph.D. Thesis, Department of Quantity Surveying, federal University of Technology, Akure. 2002; (Unpublished).
10. Oladapo, M.A.; *Nigerian Quantity Surveying Profession – The Third Way Quantity Surveying and Total Cost Management (Contexts, Issues and National Development)*. Published by Nigeria Institute of Quantity Surveyors, ISBN: 978-047-954-6, 2001; pp. 151-173.

11. Oladimeji, A.B.; *General Conditions for Contract in The Construction Industry*. Published by Adebayo Supergraphics, Osogbo, Osun State, Nigeria, ISBN: 978-978-43212-2-9, 2012; pp. 3-9.
  12. Opawole, A., Awodele, O.A., Babatunde, S.O. and Awodele, O.O.P.: Review of Correlation of Quantity Surveyors' Education in Nigeria to Skill Requirements for Administration of Civil Engineering Projects. *Journal of Education and Practice*. ISSN 2222-3735 (Paper). ISSN 2222-258x (Online). 2012; www.litte.org
  13. Owojori, T. A.; Quantity Surveying Profession In Nigeria. A Seminar Paper, Department of Quantity Surveying, Federal Polytechnic Ede, Osun State, Nigeria, August, 2010; (Unpublished).
  14. Poom, J.: The Study of Ethical Perceptions of Construction Managers. Proceedings of Association of Researchers in Construction Management (ARCOM) Conference, Edinburgh Heriot-Watt University, UK. 2004.
  15. RICS; The Challenge of Change Quantity Surveyors Think Tank 1989 Questioning the Future Profession. Royal Institute of Chartered Surveyors London: RICS. 2002.
  16. Yakub, A.: Keynote Address: Quantity Surveyors' (Biennial) Convention On Sustaining The Profession – Towards Diversification. University of Malaya, Malaysia, 2005.
  17. PAQS: Pacific Association Of Quantity Surveyors. Newsletter, Issue 4. December, 1999.
- Wikipedia: Quantity Surveyor. The Free Encyclopedia, 2013; retrieved on 29<sup>th</sup> January, 2016.  
<http://www.en.m.wikipedia.org/wiki/quantitysurveyor///filec/documens>.