## 

## BENEFITS OF CONTRACT AUDITING IN PUBLIC CONSTRUCTION PROJECTS DELIVERY IN NIGER STATE, NIGERIA

Danlamin Abdulmajeed YAMAN[[1]](#footnote-1) and Abdulganiyu Adebayo OKE2

1 MTech Candidate, Dept of Quantity Surveying, Federal University of Technology Minna

2 Lecturer, Dept of Quantity Surveying, Federal University of Technology Minna

###### ABSTRACT

The provision of infrastructure has been the focal point of the current administration in Nigeria (2015 – 2023), nothwithstanding the volume of abandoned projects across regions. This study assessed the awareness of contract auditing in public construction projects delivery amongst construction stakeholders in Bida LGA of Niger State. The objectives were to determine the level of awareness of contract auditing, identify the factors affecting the level of awareness and to recommend measures to improve the use of contract auditing in the public sector. A quantitative research design approach based on the use of structured questionnaires was adopted. Data was collected from a purposive sample of 51 construction project professionals involved in the construction of rural public construction projects in Bida LGA. Mean Item Score and Relative Importance Index were employed in the analysis of the data. The findings shows that the level of awareness of contract auditing amongst construction professionals is very low. The best determinants of how well awareness of contract auditing can be increased on construction projects are policy factors followed by resource factors such as materials, labour and time. In addition, there must be independence of auditors, a policy or contractual backing for how the auditing will be carried out, and Information Technology (IT) tools provided for contract auditors. The paper recommends that given the very low level of awareness about contract auditing discovered in the study area, sensitisation activities about contract auditing targeted at construction professionals should be carried out.

**Keywords:** auditing, construction, contract, Local government area, public projects.

### INTRODUCTION

The provision of infrastructure has been the focal point of the Mohammadu Buhari administration (2015 – 2023). Nothwithstanding this stand of the government, there are abandoned rail roads, buildings, roads, ports and other infrastructural projects initiated by the governments at all levels, including the local government level (Olalusi and Otunola, 2012). Project abandonment creates a host of social problems including disease infestation, poor environmental aesthetics, violent social vices such as armed robbery, accidents and hideout for miscreants (Amade et al., 2015, Ezenekwe and Uzonwanne, 2017). Lopes (2012) asserted that the construction industry forms a large part of the economy of every country and accounts for between 5 and 10 percent of gross domestic product (GDP). The reality about grassroots construction projects at the local government level has been that the majority of such projects are not completed on time and within budget. Some have never been completed at all. The quality aspect is also below par, whether for new or refurbishment projects (Ahmad, 2021). As a measure to ensure that clients (including local government authorities) obtain what they set out to achieve, contract audits have been routinely employed by clients. A contract audit systematically and independently examines specific things, procedures and systems in order to ascertain whether such things, procedures and systems together with the associated end results conform to what was originally planned, in terms of scope, efficiency and goals (United Nations Environment Programme (UNEP), 2002).

There is no country without some examples of abandoned infrastructures (Yap 2013), but the Nigerian situation approaches the extreme. Studies by Ayodele and Alabi (2011), Amade *et al.* (2015) and Okafor *et al.* (2018) estimate that there are a total of 4000 uncompleted, deserted public projects throughout Nigeria. Despite attempts to curb the occurrences of abandoned and incomplete infrastructure projects, the problem persists (Yap 2013). Only limited attempts have been made to investigate how the adoption of contract auditing of construction projects can help forestall abandonment, especially at the local government level. Hence, this study focuses on contract auditing at the local government area level, which is one of the relatively less explored areas in construction project delivery. The aim of this study was to assess the awareness of contract auditing for public construction projects delivery amongst construction stakeholders in Bida LGA of Niger State. The objectives of the paper include determining the level of awareness of contract auditing; identifying the factors that determine the level of awareness of contract auditing; and recommending measures to improve the use of contract auditing on public projects at the local government (grassroots) level.

**LITERATURE REVIEW**

**Awareness of contract auditing on construction projects for local authorities**

Contract audits examine how well the project cost has been allocated relative to the provisions of the construction contract; it also identifies lessons learned from problems to be avoided in future projects. The United Nations (1978) observed that many development plans failed because the people who are direct beneficiaries are not effectively engaged in need and resources assessments of projects carried out under such development plans. Such stakeholder participation could be accommodated within an audit of construction project contracts.

Researchers have investigated the challenges associated with audits in the public sector in developing countries such as South Africa, Sudan and Ethiopia (Van der Schyf, 2000; Brierley *et al*., 2001; Mihret andYismaw, 2007; Unegbu and Kida, 2011; Mihret *et al*., 2012). The dominant theme has been that of audit ineffectiveness, attributable to a host of factors that vary according to the study locale. Although construction contract auditing is a popular aspect of construction management, it does not enjoy widespread awareness and adoption in the Nigerian construction industry (Usman and Sani, 2015). This is similar to the low public participation observed in construction project review and implementation (Maroula *et al*., 2016) in most developing countries (Muse, 2014).

**Factors that determine the level of awareness of contract auditing**

There are a lot of factors that impact sustainability negatively; some of these factors are applicable to contract auditing as well, since it is concerned with ensuring sustainability of construction projects. Alvarez *et al.* (2019) identified 175 of such factors in small and medium enterprises from a range of industries. Such factors can originate from either inside or outside of organisations. and domains. The intra-organisational domain focuses on the internal processes, structures, and tools that organisations employ to approach sustainability while the extra-organisational domain emphasizes the role of external stakeholders and their impact on sustainability initiatives (Gelderman *et al.,* 2017).

The management of contract auditing requires proper use of resources both inside and outside of organizations. Without resources such as financial capital and access to expert human resources, there may be major problems in contract audit management (Nowotarski and Paslawski, 2015). Neto *et al.* (2017) added outdated equipment and tools as an important resource-related obstacle while Alvarez *et al.* (2019) identified low-quality logistics infrastructure as another factor that directly affects the sustainability of audit management.

In a construction organisation, the commitment of senior managers to adopting proper policies can encourage the whole body of the organisation to practice contract auditing (Wijethilake and Lama, 2019). Otherwise, different levels of an organisation might resist the implementation of contract audits (Ghazilla *et al.,* 2015). The absence of policies for the implementation of sustainability has been asserted as a key obstacle hindering contract audit management (Ghadge *et al.,*2017).

To be effective, policies dealing with the management of contract audits must be tied to timely enforcement of rules and regulations (Bamgbade *et al.,* 2017). An example of this is the incorporation of regulations regarding contract audits in the contractual agreements with contractors; this enables clients to ensure adherence to sustainability requirements by third parties involved in the procurement process (Alvarez *et al.,* 2019). Lack of laws that regulate contract auditing (Ghadge *et al.,* 2017) and non-awareness about regulations have been acknowledged as barriers (Lewis *et al.,* 2015). Sustainability culture is the combination of beliefs, values, norms, and attitudes at the organizational or industry level. An improved industry culture supports the implementation of contract auditing through the construction supply chain. The absence of perceived benefits and values among stakeholders is also considered as a culture-related barrier hindering auditing management objectives (Hasan, 2016). sustainable auditing is a collaborative process that requires close coordination. Various teams may be involved in the auditing management process and their effective communication is necessary to ensure the achievement of its goals. Lack of stakeholder involvement is also a barrier acknowledged in the literature (Alvarez *et al.,* 2019).

**Strategies for Improving the Use of Contract Auditing**

There are many approaches that may be followed in order to improve the use of contract auditing on construction projects. Independence of contract audit allows auditors to be able to state their opinions honestly, without fear that this may threaten their position. Provision of rules and regulations (laws) on the use of contract auditing for public construction projects. Utilization of Information Technology can reduce costs, improve operational efficiency, execute faster transactions and minimize human error. Motivation of contract audit staff, which can arise from tangible incentives or intangible reward from performing the activity (Xiuzhen , 2016).

Creation of awareness of the benefits of contract auditing through organizing of workshops, seminars and the like. Competence of internal auditors, capability of an individual to perform a specific task or execute a job in an appropriate way; possession of a specific set of skills, knowledge and behaviour. Reporting Structure; to avoid any objectivity issues or conflicts of interest, it is best practice that auditors should not report directly to heads of organizations, but rather to an Audit Committee. Quality versus Quantity focus requires that audits should have clearly defined parameters and time durations to prevent efforts from being diluted (Xiuzhen , 2016).

**METHODOLOGY**

This study focused on the perceptions of the key construction professionals that work for Bida local government authority. The study evaluated the awareness, influence factors and strategies to improve contract auditing on public grassroots construction projects. This research work adopted the survey approach because a large number of these professionals can be reached within a relatively short period of time. A quantitative research design approach based on the use of structured questionnaires containing six sections was adopted. Five of the sections dealt with research questions, through the use of a 5 – item Likert scale, while the sixth was used to collect demographic data of the respondents. Data was collected through purposive sampling of 51 construction project professionals involved with construction of rural public construction projects within the study area. Mean Item Score and Relative Importance Index (RII) were employed in the analysis of the data. The use of RII was justified because the paper was interested in respondents’ awareness of the benefits of contract auditing. The relevant mathematical formula employed is RII = ΣW / (A\*N), where W is the weighting given to each factor by the respondents (ranging from 1 to 5), A is the highest weight (i.e. 5 in this case), and N is the total number of respondents. Higher values of RII indicate greater levels of awareness. The results obtained were presented in tables.

**RESULTS AND DISCUSSION**

**Demographics of survey respondents**

The respondents were from six different professional backgrounds; quantity surveyors at 27.5% of the sample were the most numerous, while engineers were fewest at 7.8%. These results are presented in Table 1. Only ten out of 51 respondents were female, reflecting the general perception of construction as a male preserve. Most of the respondents had obtained bachelor degrees or equivalent certifications (54.9%).

**Table 1: Respondent demographics**

| **Aspect** | **(n)** | **(%)** | **Aspect** | **(n)** | **(%)** |
| --- | --- | --- | --- | --- | --- |
| **Profession of respondent** |  |  | **Gender of respondent** |  |  |
| Architect | 7 | 13.7 | Female | 10 | 19.6 |
| Builder | 5 | 9.8 | Male | 41 | 80.4 |
| Engineer | 4 | 7.8 |  |  |  |
| Estate Surveyor | 7 | 13.7 | **Work experience of respondent** |  |  |
| Quantity Surveyor | 14 | 27.5 | Less than 5 yrs | 3 | 8.8 |
| Town Planner | 11 | 21.6 | 5 yrs – 15 yrs | 15 | 44.1 |
| Other (specify) | 3 | 5.9 | 16 yrs – 25 yrs | 12 | 35.3 |
|  |  |  | More than 25 yrs | 4 | 11.8 |
| **Educational attainments** |  |  |  |  |  |
| OND/NCE | 4 | 7.8 | **Employer** |  |  |
| HND/B.Sc | 28 | 54.9 | Client | 13 | 25.5 |
| M.Sc | 16 | 31.4 | Consultant | 13 | 25.5 |
| Ph.D | 3 | 5.9 | Contractor | 9 | 17.6 |
|  |  |  | Others (please specify) | 16 | 31.4 |

**Awareness of contract auditing**

The results of analysis of the data reveal that respondents are highly aware of 2 out of the 7 listed statements about awareness of contract auditing on construction projects. The level of awareness for the rest 5 statements is moderate. The two statements that respondents are highly aware of were (‘public construction projects can be audited with regard to their compliance with statutory, regulatory and corporate guidelines’; RII=0.73; ranked 1st) and (‘government agencies use contract auditing to find solution to troubled public construction projects or public projects under suspicion’; RII-0.73; ranked 2nd).

Respondents are only moderately aware of any government regulations regarding the use of Contract Auditing (‘are you aware of any government regulations regarding the use of Contract Auditing for public construction projects?’; RII=0.67; ranked 4th). The same was true of participation in any contract auditing exercise (‘are you aware if Contract Auditing has been carried out on any public construction project that you have participated on?’; RII=0.59; ranked 7th). From the results as presented in Table 2, it is apparent that respondents considered their level of awareness of contract auditing to be low; the only statement dealing categorically with participation in a contract auditing exercise was ranked 7th out of 7 statements. In all, respondents were only fully aware of 2 out of 7 statements about awareness of contract auditing on construction projects.

**Table 2: Awareness of contract auditing**

| **Awareness of contract auditing** | **Mean Score** | **SD** | **RII** | **Rank** | **Average Level of Awareness** |
| --- | --- | --- | --- | --- | --- |
| Public construction projects can be audited with regard to their compliance with statutory, regulatory and corporate guidelines. | 3.67 | 1.05 | 0.73 | 1st | Highly Aware |
| Government agencies use contract auditing to find solution to troubled public construction projects or public projects under suspicion. | 3.63 | 1.02 | 0.73 | 2nd | Highly Aware |
| Contract auditing is more comprehensive than simple technical, financial, and managerial auditing of public construction projects. | 3.41 | 1.1 | 0.68 | 3rd | Moderately Aware |
| Are you aware of any government regulations regarding the use of Contract Auditing for public construction projects? | 3.37 | 1.34 | 0.67 | 4th | Moderately Aware |
| Contract auditing, unlike financial auditing, is a customized audit that has no specific procedure which makes it suitable for public construction projects. | 3.29 | 1.19 | 0.66 | 5th | Moderately Aware |
| Contract auditing is more than a compliance checklist for public construction projects. | 3.31 | 0.97 | 0.66 | 6th | Moderately Aware |
| Are you aware if Contract Auditing has been carried out on any public construction project that you have participated on? | 2.94 | 1.3 | 0.59 | 7th | Moderately Aware |

**Factors that determine the level of awareness of contract auditing**

The results of analysis of the data as presented in Table 3 reveal that the top three factors that affect the level of awareness of contract auditing on rural public construction projects are (‘lack of clear policies for implementation of contract auditing for public construction projects at the local government level’; RII = 0.80; ranked 1st); (‘inserting contract auditing clauses into contractual agreements for public construction projects’; RII=0.79; ranked 2nd) and (‘commitment of top management to contract auditing of public construction projects’; RII=0.78; ranked 3rd). The first and third are issues of policy, while the second is a ‘compliance’ issue. The highest ranked ‘resource’ issue is (‘obtaining necessary finance and access to expert human resources for contract auditing of public construction projects’; RII=0.76; ranked 5th).

From the results, it is apparent that respondents considered that policy factors would determine best how well awareness of contract auditing can be increased on construction projects. Such policy factors could be expressed in the form of contractual clauses (such as conditions of contract that bind the contractor to participating in audits of the contract at specified intervals of time). Only after clear policies have been established for the implementation of contract auditing can the attention now shift to whether the necessary resources (materials, labour and time) are available. Concerns as to whether contract auditing will be gain the support of existing organisational cultures appeared to be muted, since the statement dealing with this isuue is ranked 8th out of 16 (‘organisational culture, (roughly defined as ‘how we do things around here’), especially within government agencies, has a great impact on contract auditing for public construction projects’; RII=3.73). In all, respondents fully agreed on 13 out of 16 factors that determine the level of awareness of contract auditing on construction projects at the local government level.

**Table 3: Determinants of level of awareness/adoption of contract auditing**

| **Category** | **Factors that determine the level of awareness/adoption of contract auditing** | **Mean Score** | **SD** | **RII** | **Rank** | **Average Level of Agreement** |
| --- | --- | --- | --- | --- | --- | --- |
| Policies | Lack of clear policies for implementation of contract auditing for public construction projects at the local government level. | 3.9804 | 0.95 | 0.8 | 1st | Agree |
| Compliance | Inserting contract auditing clauses into contractual agreements for public construction projects. | 3.9608 | 0.82 | 0.79 | 2nd | Agree |
| Policies | Commitment of top management to contract auditing of public construction projects. | 3.902 | 0.98 | 0.78 | 3rd | Agree |
| Compliance | Lack of Legislation (Acts, Decrees, Edicts) that regulate contract auditing for public construction projects, especially at the local government level. | 3.8235 | 0.95 | 0.76 | 4th | Agree |
| Resources | Obtaining necessary finance and access to expert human resources for contract auditing of public construction projects. | 3.8039 | 0.72 | 0.76 | 5th | Agree |
| Resources | Planning of public construction projects has a high impact on whether or not contract auditing will be carried out. | 3.7843 | 1.06 | 0.76 | 6th | Agree |
| Resources | Availability of both internal and external resources for carrying out contract auditing of public construction projects. | 3.7647 | 1.01 | 0.75 | 7th | Agree |
| Culture | Organisational culture, (roughly defined as ‘how we do things around here’), especially within government agencies, has a great impact on contract auditing for public construction projects. | 3.7255 | 1.08 | 0.75 | 8th | Agree |
| Communication | Lack of stakeholder involvement in contract auditing for public construction projects. | 3.6863 | 0.81 | 0.74 | 9th | Agree |
| Compliance | Timely enforcement of rules, regulations and sanctions, after contract auditing of public construction projects. | 3.6275 | 1.18 | 0.73 | 10th | Agree |
| Communication | Lack of effective communication among the various persons involved in contract auditing of public construction projects. | 3.6275 | 0.94 | 0.73 | 11th | Agree |
| Culture | General societal culture highly influences Organisational Culture, which then influences the use of contract auditing for public construction projects. | 3.6078 | 1.04 | 0.72 | 12th | Agree |
| Communication | Lack of collaboration between the private and public sectors on contract auditing for public construction projects. | 3.549 | 1.01 | 0.71 | 13th | Agree |
| Compliance | Ignorance about any laws/regulations guiding contract auditing for public construction projects, especially at the local government level. | 3.3725 | 1.09 | 0.67 | 14th | Somewhat Agree |
| Culture | Absence of perceived benefits of contract auditing by stakeholders of public construction projects. | 3.3333 | 1.19 | 0.67 | 15th | Somewhat Agree |
| Policies | Adopting contract auditing policies at top level of management without input from lower levels of management. | 3.1765 | 1.28 | 0.64 | 16th | Somewhat Agree |

**Strategies to improve the use of contract auditing on public grassroots projects**

The results of analysis of the data as presented in Table 4 reveal that the top measure that could be adopted in order to improve the use of contract auditing on public grassroots projects is (‘independence of contract audit; allows auditors to be able to state their opinions honestly, without fear that this may threaten their position’; RII=0.82; ranked 1st). Respondents ranked the provision of rules and guidelines on the use of contract auditing as the 2nd most important strategy (‘provision of rules and regulations (laws) on the use of contract auditing for public construction projects’; RII=0.82; ranked 2nd), while the importance of Information Technology (IT) was shown by the fact that it was ranked 3rd (‘utilization of Information Technology; can reduce costs, improve operational efficiency, execute faster transactions and minimize human error’; RII=0.81; ranked 3rd).

**Table 4: Strategies for the completion of audited large construction projects**

| **Strategies to improve the use of contract auditing on public construction projects** | **Mean Score** | **SD** | **RII** | **Rank** | **Average Level of Agreement** |
| --- | --- | --- | --- | --- | --- |
| Independence of contract audit; allows auditors to be able to state their opinions honestly, without fear that this may threaten their position. | 4.098 | 0.94 | 0.82 | 1st | Agree |
| Provision of rules and regulations (laws) on the use of contract auditing for public construction projects. | 4.098 | 0.85 | 0.82 | 2nd | Agree |
| Utilization of Information Technology; can reduce costs, improve operational efficiency, execute faster transactions and minimize human error. | 4.0392 | 0.72 | 0.808 | 3rd | Agree |
| Motivation of contract audit staff; Motivation can arise from tangible incentives or intangible reward from performing the activity. | 4.0392 | 0.69 | 0.808 | 4th | Agree |
| Size of the contract audit team; the audit team must be equipped with adequate resources to effectively perform its responsibilities, number of contract audit staff compared to the amount of work responsibilities. | 3.9804 | 0.79 | 0.796 | 5th | Agree |
| Creation of awareness of the benefits of contract auditing through organizing of workshops, seminars and the like. | 3.9608 | 0.89 | 0.792 | 6th | Agree |
| Quality versus Quantity; audit should have clearly defined parameters and time durations to prevent efforts from being diluted | 3.8824 | 0.86 | 0.776 | 7th | Agree |
| Competence of internal auditors; capability of an individual to perform a specific task or execute a job in an appropriate way; possession of a specific set of skills, knowledge and behaviour. | 3.8627 | 0.8 | 0.773 | 8th | Agree |
| Contract Audit investigations should be strengthened through the collection of objective evidence. | 3.7843 | 1.01 | 0.757 | 9th | Agree |
| Top management support; auditors need to maintain a close relationship with the organization’s management | 3.7647 | 1.07 | 0.753 | 10th | Agree |
| Reporting Structure; to avoid any objectivity issues or conflicts of interest, it is best practice that auditors should not report directly to heads of organizations, but rather to an Audit Committee; | 3.5686 | 1.01 | 0.714 | 11th | Agree |

The results as presented in Table 4 showed that all of the 11 measures/strategies are valid, and can be employed to improve the use of contract auditing on public construction projects at the local government level. This was because respondents fully agreed on all 11 out of 11 strategies. However in terms of the order in which these strategies should be adopted, the ranking provided in Table 4 should be employed. Thus the independence of auditors must be guaranteed, there must be policy or contractual backing for how the auditing will be carried out, and IT must be employed to make the taks of the auditors easier and improve transparency.

**Discussion of Results**

This paper has established that the level of awareness of contract auditing amongst construction professionals in Bida LGA is very much on the low side. This was based on the discovery that the only statement dealing categorically with participation in a contract auditing exercise was ranked 7th out of 7 statements. This finding disagreed with that of Usman and Sani (2015) that was carried out amongst construction professionals in Gombe State, Nigeria; their study found that 88% of their sample was aware of contract auditing. The divergence of this study from the finding of the earlier study might be attributable to the fact that this study is sited in a local government area, unlike other studies that were sited in larger metropolitan settings.

This study has found that policy factors would determine best how well awareness of contract auditing can be increased on construction projects, followed by resource factors such as materials, labour and time. Mihret and Yismaw (2007) identified management support as impacting the effectiveness of internal audit; without such management support, policies to guide the practice of auditing cannot be developed. In their own study, Usman and Sani (2015) found that in 62% of their sample, the service of contract auditing needed to be a top management role for it to be successful. This study was thus in agreement with other studies on the subject of what would influence awareness of contract auditing among construction professionals.

Usman and Sani (2015) found that 96% of their sample favoured the provision of an enforceable statutory policy making it compulsory for all construction projects to professionally audited. This is similar to the finding of this study on the measures/strategies that can best be employed to improve the use of contract auditing on public construction projects at the local government level. All of 11 strategies identified in this study could form the main contents of a statutory policy on contract auditing. The finding that the independence of auditors must be guaranteed, there must be policy or contractual backing for how the auditing will be carried out, and IT must be employed to make the task of the auditors easier and improve transparency agree with that of Ahmad *et al. (*2009) in Malaysia.

**CONCLUSION**

This study set out to assess the awareness of contract auditing for public construction projects delivery amongst construction stakeholders in Niger State; this was achieved by determining the level of awareness; identifying the factors that determine the level of awareness; and recommending measures to improve the use of contract auditing on public projects at the local government (grassroots) level. In conclusion, this paper has found that the level of awareness of contract auditing amongst construction professionals in Bida LGA is very low; participation in any contract auditing exercise ranked 7th out of 7 statements about contract auditing awareness. The best determinants of how well awareness of contract auditing can be increased on construction projects are policy factors followed by resource factors such as materials, labour and time. In addition, there must be independence of auditors, a policy or contractual backing for how the auditing will be carried out, and IT tools provided for contract auditors.

The main recommendations of this paper include the following:

1. Given the very low level of awareness about contract auditing discovered in the study area, it was recommended that sensitization activities be carried out in Bida LGA about contract auditing. This should be targeted at construction professionals, and should broaden their knowledge of the benefits derivable from a professionally handled contract auditing exercise, especially given the paucity of resources available to the LGA.
2. Construction professionals who have an understanding of the benefits of contract auditing and are in positions of authority should push for the setting out of clear-cut policies on the conduct of contract auditing on public construction projects in Bida LGA. Such policies in the form of guidelines and practice notes could be made a mandatory part of all construction projects funded by the LGA.
3. The top echelons of government in Bida LGA need to ensure that even when a policy on contract auditing is established, independence of auditors and provision of IT tools for auditors are made an unalienable part of such policy..

**REFERENCES**

Ahmad, R. (2021). Niger gov investigates commissioner, MD over condition of IBB hospital. Punch newspaper of 3/10/21, accessed at <https://punchng.com/niger-gov-investigates-commissioner-md-over-condition-of-ibb-hospital/> on 03/10/21.

Alvarez ´ Jaramillo, J., Zartha Sossa, J.W., Orozco Mendoza, G.L., (2019). Barriers to sustainability for small and medium enterprises in the framework of sustainable development L iterature review. *Bus. Strat. Environ*. 28, 512–524.

Amade, B., Ubani, E. C., Omajeh, E. O. M., & Njoku, U. A. (2015). Critical success factors for public sector construction project delivery: A case of Owerri, Imo State. *International Journal of Research in Management, Science & Technology*, 3(1), 11-21.

Ayodele, E. O., & Alabi, M. O. (2014). Effect of cost control on building projects delivery in Nigeria. *Civil and Environmental Research*, 6(2), 76-79.

Bamgbade, J., Nawi, M., Kamaruddeen, A., (2017). Construction firms’ sustainability compliance level. *J. Eng. Sci. Technol*. 12, 126–136.

Bondarki V.A. and Tamkuvich J.A. (1995), Construction Technology, Second Edition publish by Mir Publishers, Moscow.

Brierley, J. A., El‐Nafabi, H. M., & Gwilliam, D. R. (2001). The problems of establishing internal audit in the Sudanese public sector. *International Journal of Auditing*, 5(1), 73-87.

Ezenekwe, U., & Uzonwanne, M. (2017). Effects of abandoned highway construction project in the Nigerian economy: A case study of Enugu-Onitsha highway road. *Journal of Economics and Sustainable Development*, 8(10).

Gelderman, C.J., Semeijn, J., Vluggen, R., (2017). Development of sustainability in public sector procurement. *Publ. Money Manag*. 37, 435–442.

Ghadge, A., Kaklamanou, M., Choudhary, S., Bourlakis, M., (2017). Implementing environmental practices within the Greek dairy supply chain. *Ind. Manag. Data Syst*. 117, 1995–2014.

Ghazilla, R.a.R., Sakundarini, N., Abdul-Rashid, S.H., Ayub, N.S., Olugu, E.U., Musa, S. N., (2015). Drivers and barriers analysis for green manufacturing practices in Malaysian SMEs: a preliminary findings. *Procedia CIRP* 26, 658–663.

Hasan, M.N., (2016). Measuring and understanding the engagement of Bangladeshi SMEs with sustainable and socially responsible business practices: an ISO 26000 perspective. *Soc. Responsib. J*. 12, 584–610.

Lewis, K.V., Cassells, S., Roxas, H., (2015). SMEs and the potential for a collaborative path to environmental responsibility. Bus. Strat. Environ. 24, 750–764.

Lopes, J. M. R. (2012). *A evolução da formação em auditoria: o caso OROC* (Doctoral dissertation, Instituto Superior de Economia e Gestão).

Maroula, A., Diofantos, H., Phaedon, K. & Konstantinos, S., 2016: Smart City Planning from a “Bottom-Up” Approach: Local Communities’ Intervention for a Smarter Urban Environment. Conference paper, 1-12.

Mihret, D. G & Yismaw, A.W. (2007). ‘Internal audit effectiveness: an Ethiopian public sector case study’, Managerial Auditing Journal, vol. 22, no. 5, pp. 470-484.

Mihret, DG, Mula, JM & James, K (2012). ‘The development of internal auditing in Ethiopia: the role of institutional norms’, Journal of Financial Reporting and Accounting, vol. 10, no. 2, pp. 153-170.

Muse, S. A., 2014: Military Rule: Consequences on Public Participation in Nigeria. *Journal of Humanities and Social* *Science*s. *2* (3), 113–124.

Neto, G.C.O., Leite, R.R., Shibao, F.Y., Lucato, W.C., (2017). Framework to overcome barriers in the implementation of cleaner production in small and medium-sized enterprises: multiple case studies in Brazil. *J. Clean. Prod*. 142, 50–62.

Nowotarski, P., Paslawski, J., (2015). Barriers in running construction SME–case study on introduction of agile methodology to electrical subcontractor. *Procedia Engineering* 122, 47–56.

Okafor, F. O., Osadebe, N. N., & Sylvester, I. J. (2018). Abandoned projects-implication on the strength of exposed steel and concrete in the Southern region of Nigeria. *Nigerian Journal of Technology*, *37*(3), 562-569.

Olalusi, O., & Otunola, A. (2012). Abandonment of building projects in Nigeria-a review of causes and solutions. *Politics*, *50*(20), 2.

Unegbu, A.O & Kida, M.I. (2011). ‘Effectiveness of internal audit as instrument of  
improving public sector management’, Journal of Emerging Trends in Economicsand Management Sciences, vol. 2, no. 4, pp. 304-309.

United Nations Environment Programme (UNEP) With a Foreword by Kofi Annan, UN Secretary‐General. (2002). Global Environment Outlook 3: past, present and future perspectives. *Environmental Management and Health*, 13(5), 560-561.

United Nations. Economic Commission for Europe. (1978). *Factors of Growth and Investment Policies: An International Approach: Proceedings of a Seminar of the United Nations Economic Commission for Europe; Organised by the Senior Economic Advisers to ECE Governments, Budapest, 13-18 December, 1976*. Pergamon.

Usman, N., & Sani, A. (2015). An Evaluation Of Contract Auditing Practice In Nigerian Building Construction Projects. *International Journal of Economics, Commerce and Management*, *3*(4), 1-8.

Van der Schyf, D (2000). ‘Obstacles in establishing and operating a public sector internal auditing function in a developing country: the South African experience’, Meditari: Research Journal of the School of Accounting Sciences, vol. 8, no. 1, pp. 145-181.

Wijethilake, C., Lama, T., (2019). Sustainability core values and sustainability risk  
management: moderating effects of top management commitment and stakeholder pressure. Bus. Strat. Environ. 28, 143–154.

Xiuzhen D. (2016). Analysis and solution of common problems in construction project audit[J].Research on Modern State-owned Enterprise. (20)： 214-215.

Yap, E. H. (2013). Causes of abandoned construction projects in Malaysia (Doctoral dissertation, UTAR).

1. 1 [abdulmajiddanlamin@gmail.com](mailto:abdulmajiddanlamin@gmail.com)

   2 [abdganioke@futminna.edu.ng](mailto:abdganioke@futminna.edu.ng) [↑](#footnote-ref-1)