

# Assessment of causative factors for project abandonment in Nigerian public tertiary educational institutions

Assessment  
of causative  
factors

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## Abstract

**Purpose** – Abandonment of construction projects is still a burning issue in Nigeria. Beside the poor financing of educational infrastructure, abandonment of construction projects remains a significant contributor to the inadequacy of facilities in Nigerian public tertiary educational institutions. The purpose of this paper is, therefore, to assess the causes of abandoned projects specific to public institutions of tertiary education in Nigeria, with a view to providing empirical data that are generalizable to enhancing successful delivery of teaching and research facilities.

**Design/methodology/approach** – Primary data used for the study were obtained through questionnaires administered to 47 professionals comprising 8 architects, 12 mechanical and electrical engineers, 15 civil/structural engineers, 4 builders and 8 quantity surveyors who were involved in physical development of construction projects in public tertiary educational institutions in Osun State. The data were analyzed using mean analysis, factor analysis and the Kruskal-Wallis (K-W) test.

**Findings** – The factors most significant to abandonment of tertiary educational institutional projects were delayed payments, fund mismanagement, inadequate budgetary allocation, inadequacy of finance, inflation and bankruptcy of the contractor. Findings also showed that not all factors causing abandonment were significant to tertiary institutional projects. The significant factors clustered under stakeholders' response capacity, poor financial management, inadequate planning and monitoring, and unexpected occurrences. The K-W test showed significant differences among the categories of tertiary institutions on the ranking of the most significant causes of abandoned projects.

**Research limitations/implications** – The study was limited to public tertiary educational institutions in Osun State. Further studies could focus on public health institution projects and private tertiary educational projects to improve the body of knowledge on the subject of causative factors for project abandonment.

**Practical implications** – The study provided implications for effective contract management of public tertiary educational institutional projects, which is a significant step to improving the available teaching and research facilities in Nigerian tertiary institutions.

**Originality/value** – The study provides implications for effective contract management systems of projects for public tertiary educational institutions, thereby improving the available teaching and research facilities.

**Keywords** Public, Education, Institutions, Abandonment, Tertiary

**Paper type** Research paper

## Introduction

Abandonment of construction projects represents uncompleted projects. It is one of the six critical factors for construction delay (Aibinu and Jagboro, 2002; Sambasivan and Soon, 2006). Historically, it dates back to the proposed tower of Babel, which was recorded to be divinely orchestrated to be abandoned because of communication breakdown (*The Holy Bible*, 1989, Genesis 11 verse 8). Thereafter, the issue of abandonment of construction projects has irrevocably manifested in all human endeavors to date, with numerous projects being abandoned all over the world for different reasons beyond force majeure. However, its occurrence has highly reduced in developed countries when compared with the developing counterparts, including Nigeria.

In Nigeria, abandonment of construction projects is still a burning issue as it seems to be on the increase with successive governments. Kotangora (1993), cited in Ayodele and Alabi (2011), submitted that there were about 4,000 uncompleted or abandoned projects belonging



to the Federal Government of Nigeria (FGN) with an estimated cost of over ₦300 billion (being the sum spent on projects that cannot perform the functions for which they were initiated). After almost two decades, in 2011, Presidential Projects Assessment Committee reported that there were 11,886 ongoing or abandoned FGN projects all over the country whose estimated cost of completion was ₦7.78 trillion (\$47.9billion). Furthermore, *Daily Trust* (a Nigerian newspaper) reported in 2015 that a total sum of ₦12 trillion was claimed by the Chartered Institute of Project Management of Nigeria committee to have been spent on 56,000 currently abandoned government projects across the county.

Abandonment of construction projects cuts across all categories of clients. Abandoned projects financed by corporate organizations, religious organizations, non-governmental organizations, financial institutions, the World Bank, developers and individuals litter the Nigerian landscape. The establishment of an educational institution comes with demand for physical infrastructure for teaching and learning in the form of administrative building(s), faculty buildings/staff offices, lecture theaters/auditoria, classrooms, libraries, laboratories, workshops/studios/gymnasias, hostels and staff quarters (if residential) to mention a few. These facilities, though required in commensurate number to the students and staff population, have been in short supply in most Nigerian public educational institutions. In recent times, sizeable numbers of these projects being undertaken in tertiary institutions are characterized by delays, suspension and eventual abandonment. Needs Assessment of Nigerian Public Universities (2012) revealed that 163 of the 701 uncompleted projects have been abandoned, with an average of four abandoned projects in each of the Nigerian public universities. The persistent spate of construction project abandonment for more than two decades has contributed to the current infrastructure deficit and the consequent inadequacy of teaching facilities in Nigerian tertiary institutions. The most perturbing issue is that not only are newly awarded projects in short supply to match the growing demand but they also have a tendency to be abandoned. These situations have triggered a number of studies relating to abandoned projects in Nigeria (Public and Private Development Centre, 2011; Ayodele and Alabi, 2011; Olalusi and Otunola, 2012; Hanachor, 2012; Ubani and Ononuju, 2013; Ewa, 2013; Ihuah and Benebo, 2014; Okwudili, 2014). However, there seems to be minimal focus on the facilities in tertiary institutions.

Abandonment of construction projects has become a great concern for stakeholders involved in construction project deliveries. In 2012, the Nigerian Institute of Quantity Surveyors at a two-day Mandatory Leadership Development Programme workshop called for a policy that would take a critical look into abandoned projects in Nigeria. Similarly, the Nigeria Institute of Building workshop in 2013 sought to find ways of solving the problem of abandoned projects that litter the landscape of Nigeria (Omeife, 2013). Furthermore, the National Assembly once debated a motion seeking to tackle abandoned projects in Nigeria (Shakir, 2012). Construction project execution often involves substantial funds. The loss of such capital through failure or abandonment has a crippling effect on the capabilities of the investors or the financier(s) because, once a decision is taken to execute a project, scarce resources are tied down for a long time (Nwachukwu and Emoh, 2010; Ogege, 2011) and other likely investment opportunities are foregone. The ₦1.3 trillion special intervention fund promised by the Federal Government to revitalize the university system for six years effective 2013 (Federal Ministry of Education, 2013) might end up commencing many projects and commissioning few or none if information on what is bedeviling the education sector with abandoned projects is not unraveled. Whereas studies on causes and effects of abandoned projects abound in the literature, research works on project abandonment in tertiary educational institutions are scarcely available with professionals as primary respondents. Although the generalization of findings of earlier studies on abandonment of

tertiary educational institutional projects in the Nigerian construction industry would demand further empirical assessment for peculiarity of funding, the aim is to examine the state and causes of project abandonment in public tertiary educational institutions in Nigeria with a view to enhancing project delivery. The study is expected to provide implications for an effective management system for public tertiary educational institutional projects, thereby improving the availability of teaching and research facilities.

### Concept of project abandonment

Morckel (2014) asserted that there is no general consensus on the definition of an abandoned project. Earlier, Khalid (2010) noted that the word “housing abandonment” in the UK refers to empty properties that are in low demand. Furthermore, abandoned housing projects in the UK or the USA refer to buildings that are unoccupied and show visible signs of physical distress (i.e. boarded up, burned, exposed to the elements or deteriorated) (Jacobson, 2007 cited in Abdul Rahman *et al.*, 2013). It can be inferred that what constitutes an abandoned project is both subjective and based on the location of discussants. An understanding of what constitutes an abandoned project is necessary for proper documentation though, which is the first step to revive abandoned projects.

There are proponents who opined that projects are only suspended but not abandoned. Onaikan (2013) opined that public projects are not abandoned but suspended. This agrees with Akindoyeni’s (2005) assertion, cited in Olalusi and Otunola (2012), that a project is never considered abandoned, rather the project may have been put in abeyance as a result of the proprietor lacking funds to continue in the meantime. These submissions failed to define the status of projects that are put on hold due to non-compliance with planning regulation, land dispute, circumstances beyond control (terrorism, natural disaster, etc.) and a lot more. The projects in these instances cannot be said to have been abandoned. They are at best classified as suspended projects due to prevailing circumstances. Invariably, suspension and abandonment could be considered different concepts. This agrees with Hornby’s (2010) definition of abandonment, which states that “abandonment is the act of giving up an idea or stopping an activity with no intention of returning to it.”

Moreover, the Malaysian Ministry of Housing and Local Government took exception to the fact that projects are not abandoned but suspended. The MHLG considered a housing project as abandoned if there are no construction activities on site for six months or more, the developer has wound up his operations, the developer has declared an inability to complete the project, or the MHLG has declared the project as abandoned pursuant to the Housing Development Act (118) (Abdul Rahman *et al.*, 2013; Cheong, 2012; Hussin and Omran, 2011). Rahmat (1994), cited in Khalid (2010), identified two MHLG definitions: one before 1990 and one for the year after 1990. The latter defines housing abandonment in 1991 as “any housing scheme where activities at the construction site have been stopped for more than 1 year after the expiration of the scheduled completion period of 24 months or if the developer has collected 10 percent payment from the buyer, and the Sales and Purchase Agreement (SPA) has been signed, but the developer has not carried out any activity at the construction site after a lapse of one year from the date of signing of Sales and Purchase Agreement (S&P).”

Definitions of abandoned projects seem elusive in the Nigerian context, hence the claims by public clients or government officials that the work is ongoing even when no visible work can be noticed on the site for more than six months. Based on these facts, it may be difficult to generalize the concept of abandonment. In the Nigerian context, it is imperative to first of all define what will form abandoned projects. Nwachukwu and Emoh (2010) asserted that project abandonment is the unplanned suspension of the work’s progress, especially at the execution stage, such as refusal or failure to complete a contract after practical completion

time period. According to Olalusi and Otunola (2012) and Ubani and Ononuju (2013), abandoned projects refer to projects that have started at an earlier date but in which the construction work has stopped for one reason or another. In other words, it refers to projects in which some money has been spent and the physical work has stopped before being commissioned.

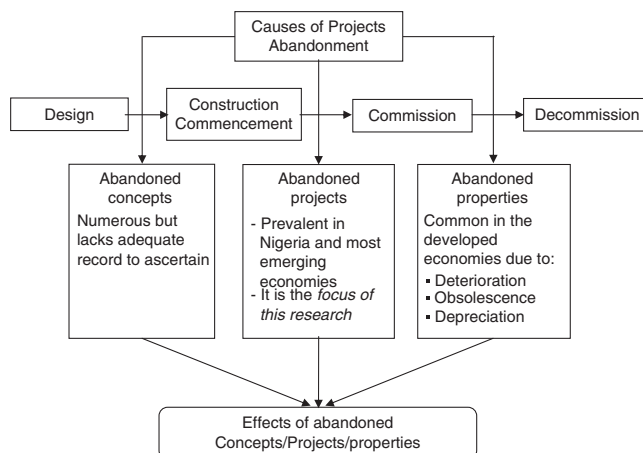
Furthermore, in New Jersey, for the purpose of creating an abandoned property list and also for judicial proceedings under the Abandoned Property Rehabilitation Act, a property is adjudged abandoned if it has not been legally occupied for six months prior to the time the municipal public officer makes a determination that the property is abandoned. It must also meet any one of the following criteria:

[...] it is in need of rehabilitation in the reasonable judgment of the public officer, and no work has taken place during that six-month period, construction began, but was discontinued before the building was suitable for occupancy or use, and no construction has taken place during that six-month period, at least one installment of property tax is delinquent at the time the public officer makes the determination, or the property has been determined to be a nuisance by the public officer.

Following the construct of the existing literature, project abandonment is conceptualized as shown in Figure 1. There are three types of project abandonment: abandoned concepts (projects that have been initiated but not commenced), abandoned projects (projects that have commenced but have not been commissioned) and abandoned properties (projects that have outlived their life span or have been desolated). For the purpose of this study, the term “abandoned project” refers to a project that is incomplete and the construction work has stopped or is indefinitely delayed.

### Causes of project abandonment

Previous studies on the causes of project abandonment seem not to have considered the peculiarity associated with tertiary educational institutions. Studies on the subject of project abandonment in Nigeria have revealed a sizeable number of causes (Ayodele and Alabi, 2011; Hanachor, 2012; Olalusi and Otunola, 2012; Ewa, 2013; Ubani and Ononuju, 2013; Okwudili, 2014). However, further empirical studies would be necessary to understand the generalization of the findings of these studies to tertiary educational institutional projects. Off-shore studies include those by Otim *et al.* (2012), Twumasi-Ampofo *et al.* (2014),



**Figure 1.**  
Conceptual framework of abandonment in development process

Khalid (2010) and Yap (2013), conducted in Uganda, Ghana and Malaysia, respectively. The specific knowledge of these causes as they relate to particular types of projects is imperative for unambiguous solutions.

Ayodele and Alabi (2011) identified the following significant causes of project abandonment: inadequate planning, inadequate finance, inflation, bankruptcy of the contractor, variation of project scope, political factor, death of the client, delay in payment and incompetent project manager. Other less significant causes are as follows: wrong estimate, faulty design, inadequate cost control, change of priority, improper documentation, unqualified/inexperienced consultants, administrative/legal action, dispute and natural disaster. It may not be possible to generalize these causes to all types of projects. For instance, ineffective project planning was found to be moderately significant to cause abandonment of tertiary institution and civil engineering projects by Ewa (2013) and Ubani and Ononuju (2013), respectively. Although the work of Ewa (2013) showed that inadequate finance and inflation were not significant causes of project abandonment, the study by Ihuah and Benebo (2014) and Otim *et al.* (2012) agreed with Ayodele and Alabi (2011). However, the study on real property values by Ihuah and Benebo (2014) indicated that dispute (Odeyemi, 2013), wrong estimate (Otim *et al.*, 2012) and change of priority (Ewa, 2013) were significant causes of abandoned projects, contrary to the submission by Ayodele and Alabi (2011).

Furthermore, Adeleke (2005), Makalah (2008) and Oyelola (2010), cited in Olalusi and Otunola (2012), opined that poor risk management, misunderstanding of work requirements, poor quality control by regulatory agencies, corruption, communication gap among the personnel, inconsistent government policies, lack of accountability, incompetent contractors, non-availability of building materials, lack of utilities or infrastructure facilities, and wrong location may also cause construction project abandonment. Affare (2012) asserted that poor communication resulted in project delays, project cost overrun and project abandonment. Moreover, it is well established in the literature that poor communication causes delays (Sambasivan and Soon, 2006) and disputes (Odeyemi, 2013). Communication gaps among project personnel is one critical cause identified in Ewa (2013), Ubani and Ononuju (2013) and Yap (2013). The work of Ihuah and Benebo (2014), however, showed that communication gap is a significant but not critical cause of project abandonment. Hanachor (2012) also identified embarking on projects without need analysis, lack of social analysis of projects, project imposition, improper financial analysis, underbidding of projects and lack of technical analysis as major and contemporary causes of project abandonment.

According to Ewa (2013), additional causes include the following: lack/deficiency of clear/well-defined vision/objective, lack of direction in project management, widespread institutional mediocrity, effects of international economy, peer group syndrome and egoistic syndrome. Others are non-issuance of white paper on reports by investigation panels on abandoned projects, granting of ex parte injunction to defaulting contractors, inefficient/ineffective legal system, inadequate/lack of budgetary allocation, project mismatch, high cost of financing capital projects, lack of true leaders and lack of a strategic plan to aid project planning. Ubani and Ononuju (2013) further identified designers' and contractors' inability to do the work, contractors' failure to obtain vital inputs, capacity constraint, pre-qualification procedure and militancy as factors capable of causing project abandonment.

Off-shore studies by Khalid (2010), Otim *et al.* (2012), Yap (2013) and Twumasi-Ampofo *et al.* (2014) on the causes of abandoned projects indicated similar causes to those already identified in Nigeria, but their significance and criticality appear to be different. Studies on abandoned projects from developed countries would on average provide background information because their focus is on abandoned properties' reuse (Abandoned Houses Work Group, 2004; Mallach, 2004, 2006; The United States Conference of Mayors, 2008). The identified causes presented in Table I are arranged in order of their frequency of

**Table I.**  
Summary of literature  
on the causes of  
abandoned projects

| Sl. no. | Causes                                      | Ayodele and Alabi (2011) | Hanachor (2012) | Olalusi and Otunola (2012) | Source Ewa (2013) | Ubani and Ononuju (2013) | Ihuah and Benebo (2014) | Okwudili (2014) |
|---------|---|--------------------------|-----------------|----------------------------|-------------------|--------------------------|-------------------------|-----------------|
| 1.      | Political factor                            | ✓                        |                 | ✓                          | ✓                 | ✓                        | ✓                       | ✓               |
| 2.      | Delayed payments                            | ✓                        |                 | ✓                          | ✓                 | ✓                        | ✓                       | ✓               |
| 3.      | Inadequate planning                         | ✓                        |                 | ✓                          | ✓                 | ✓                        | ✓                       |                 |
| 4.      | Wrong estimate                              | ✓                        |                 | ✓                          | ✓                 | ✓                        | ✓                       |                 |
| 5.      | Inadequate finance                          | ✓                        |                 | ✓                          | ✓                 | ✓                        | ✓                       |                 |
| 6.      | Mismanagement                               | ✓                        | ✓               | ✓                          | ✓                 | ✓                        | ✓                       | ✓               |
| 7.      | Unqualified/inexperience consultants        | ✓                        |                 | ✓                          | ✓                 | ✓                        | ✓                       |                 |
| 8.      | Incompetent project manager                 | ✓                        |                 | ✓                          | ✓                 | ✓                        | ✓                       |                 |
| 9.      | Inconsistent government policies            |                          |                 | ✓                          | ✓                 | ✓                        | ✓                       |                 |
| 10.     | Communication gaps among project personnel  |                          |                 | ✓                          | ✓                 | ✓                        | ✓                       |                 |
| 11.     | Inflation                                   | ✓                        |                 | ✓                          | ✓                 | ✓                        | ✓                       |                 |
| 12.     | Change of priority                          | ✓                        |                 | ✓                          | ✓                 | ✓                        | ✓                       |                 |
| 13.     | Natural disaster                            | ✓                        |                 | ✓                          | ✓                 | ✓                        | ✓                       |                 |
| 14.     | Dispute                                     | ✓                        |                 | ✓                          | ✓                 | ✓                        | ✓                       |                 |
| 15.     | Variation of project scope                  | ✓                        |                 | ✓                          | ✓                 | ✓                        | ✓                       |                 |
| 16.     | Administrative/legal action                 | ✓                        |                 | ✓                          | ✓                 | ✓                        | ✓                       |                 |
| 17.     | Wrong location                              | ✓                        | ✓               | ✓                          | ✓                 | ✓                        | ✓                       |                 |
| 18.     | Poor quality control by regulatory agencies |                          |                 | ✓                          | ✓                 | ✓                        | ✓                       |                 |
| 19.     | Poor risk management                        |                          |                 | ✓                          | ✓                 | ✓                        | ✓                       |                 |
| 20.     | Capacity constraint                         |                          |                 | ✓                          | ✓                 | ✓                        | ✓                       |                 |
| 21.     | Pre-qualification procedure                 |                          |                 | ✓                          | ✓                 | ✓                        | ✓                       | ✓               |
| 22.     | Faulty design                               | ✓                        |                 | ✓                          | ✓                 | ✓                        | ✓                       | ✓               |
| 23.     | Improper documentation                      | ✓                        |                 | ✓                          | ✓                 | ✓                        | ✓                       |                 |
| 24.     | Death of client                             | ✓                        |                 | ✓                          | ✓                 | ✓                        | ✓                       |                 |
| 25.     | Underbidding of projects                    |                          | ✓               | ✓                          | ✓                 | ✓                        | ✓                       |                 |
| 26.     | Embarking on projects without need analysis |                          | ✓               | ✓                          | ✓                 | ✓                        | ✓                       |                 |
| 27.     | Misunderstanding of the work requirement    |                          | ✓               | ✓                          | ✓                 | ✓                        | ✓                       |                 |
| 28.     | Non-availability of building materials      |                          |                 | ✓                          | ✓                 | ✓                        | ✓                       |                 |

(continued)

| Sl. no. | Causes   | Ayodele and Alabi (2011) | Hanachor (2012) | Olalusi and Otunola (2012) | Source Ewa (2013) | Ubani and Ononuju (2013) | Ihuah and Benebo (2014) | Okwudili (2014) |
|---------|--|--------------------------|-----------------|----------------------------|-------------------|--------------------------|-------------------------|-----------------|
| 29.     | Lack of utilities or infrastructure facilities                                       |                          |                 | ✓                          | ✓                 |                          |                         |                 |
| 30.     | Inadequate/lack of budgetary allocation  |                          |                 |                            | ✓                 |                          | ✓                       |                 |
| 31.     | Lack/deficiency of clear/well-defined vision/objective                               |                          |                 |                            | ✓                 |                          | ✓                       |                 |
| 32.     | Bankruptcy of contractor   | ✓                        |                 |                            |                   |                          |                         |                 |
| 33.     | Inadequate cost control  | ✓                        |                 |                            |                   |                          |                         |                 |
| 34.     | Lack of social analysis of a project   |                          | ✓               |                            |                   |                          |                         |                 |
| 35.     | Project imposition   |                          | ✓               |                            |                   |                          |                         |                 |
| 36.     | Lack of technical analysis   |                          | ✓               |                            |                   |                          |                         |                 |
| 37.     | Lack of accountability   |                          |                 | ✓                          |                   |                          |                         |                 |
| 38.     | Incompetent contractors  |                          |                 | ✓                          |                   |                          |                         |                 |
| 39.     | Lack of direction in project management  |                          |                 |                            | ✓                 |                          |                         |                 |
| 40.     | Widespread institutional mediocrity  |                          |                 |                            | ✓                 |                          |                         |                 |
| 41.     | Effect of international economy  |                          |                 |                            | ✓                 |                          |                         |                 |
| 42.     | Peer group syndrome  |                          |                 |                            | ✓                 |                          |                         |                 |
| 43.     | Egoistic syndrome  |                          |                 |                            | ✓                 |                          |                         |                 |
| 44.     | Inefficient/ineffective legal system   |                          |                 |                            | ✓                 |                          |                         |                 |
| 45.     | Non-issuance of white paper on reports on abandoned projects by investigation panels |                          |                 |                            | ✓                 |                          |                         |                 |
| 46.     | Project mismatch   |                          |                 |                            | ✓                 |                          |                         |                 |
| 47.     | Lack of true leaders   |                          |                 |                            | ✓                 |                          |                         |                 |
| 48.     | Lack of a strategic plan to aid project planning                                     |                          |                 |                            | ✓                 |                          |                         |                 |
| 49.     | Designers' and contractors' inability to do the work                                 |                          |                 |                            |                   | ✓                        |                         |                 |
| 50.     | Contractors' failure to obtain vital inputs  |                          |                 |                            |                   | ✓                        |                         |                 |
| 51.     | Community interference   |                          |                 |                            |                   |                          |                         |                 |
| 52.     | Climatic conditions  |                          |                 |                            |                   |                          |                         |                 |
| 53.     | Lack of stakeholders' involvement  |                          |                 |                            |                   |                          |                         |                 |
| 54.     | Bureaucratic bottleneck  |                          |                 |                            |                   |                          |                         |                 |
|         | Total causes   | 18                       | 7               | 20                         | 30                | 21                       | 21                      | 5               |

Table I.

occurrence in the reviewed literature. The review identified 54 causes of construction project abandonment. In total, 31 of these causes, which were found to have occurred at least twice, and nine others, which occurred once but were significant in the reviewed literature, formed the variables for the questionnaire for the study.

**Research methodology**

The study area for the research was Osun State, Southwestern Nigeria. Osun State is one of the states with the highest concentration of tertiary institutions in Nigeria (Osun Defender, 2013). The target population comprised the sixteen tertiary educational institutions in Osun State (Joint Admission and Matriculation Board, 2012; Directory of Accredited Programmes Offered in Polytechnics, Technical and Vocational Institutions in Nigeria, 2016) and the key stakeholders involved in the development of construction projects in the institutions. There are seven public and nine private institutions in Osun State. The public tertiary institutions include two universities (Obafemi Awolowo University, Ile-Ife, and Osun State University (UNIOSUN), Osogbo), three polytechnics (Federal Polytechnic (FEDPOEDE), Ede, Osun State Polytechnic (OSPOIREE), Iree, and Osun State College of Technology (OSCOTECH), Esa-Oke and two colleges of education (Osun State College of Education (OSCOED), Ila-Orangun and OSCOED Ilesha). The private institutions include six universities and three polytechnics. The private institutions were excluded from this study as they were recently established, most of them being less than ten years old. In addition, private institutional projects might not be well documented because they are not constrained by transparency and accountability (Cartlidge, 2013). Primary data used for the study were collected through a questionnaire survey administered to institutions’ in-house stakeholders involved in the administration and development of construction projects in the selected institutions. The sampling technique adopted was total enumeration, which entails selecting the entire target population (taking a census) because of the small/finite population. In order to properly capture the view of those that are specifically involved in physical development, the sample size for this study comprised all 25 professionals in Physical Planning Units (PPU) and 52 in PPU/works units (excluding 17 professionals in Osun State University satellite campuses and four others in OSCOED, Ila-Orangun, who are only involved in maintenance). All the works and maintenance unit professionals were excluded because they were presumed to be into maintenance of the physical properties after development, except the nine professionals in the works and maintenance unit of Osun State Polytechnic, Iree, who were co-opted into physical development when necessary. Table II shows the sample size for the study by their units.

The survey questionnaire was divided into two parts. Part 1 was designed to obtain the respondent’s personal profile to guarantee the reliability and genuineness of the information, whereas Part 2 of the questionnaire related to the objectives of the study. Questions were of closed type, where typical features from literature review were identified and listed for respondents to evaluate. Close-ended questions are easy to ask and can be

**Table II.**  
Relevant professionals involved in physical development of Osun State public tertiary educational institutions

| Professionals | Architect | M&E engineer | Sample size               |         |    | Quantity surveyor | Total | %  | Sample size |
|---------------|-----------|--------------|---------------------------|---------|----|-------------------|-------|----|-------------|
|               |           |              | Civil/structural engineer | Builder |    |                   |       |    |             |
| <i>Units</i>  |           |              |                           |         |    |                   |       |    |             |
| PPU           | 7         | 6            | 6                         | 1       | 5  | 25                | 100   | 25 |             |
| PPU/works     | 2         | 16           | 14                        | 3       | 5  | 40                | 100   | 40 |             |
| Total         | 9         | 22           | 20                        | 4       | 10 | 65                |       | 65 |             |

**Note:** PPU, physical planning unit



answered quickly (Fellow and Liu, 2008); they require no writing and their analysis is straightforward. Likert-type scale ranging from 1 to 5 was used, where 1 represents the least score and 5 the highest. The internal consistency reliability of the scale showed a Cronbach's  $\alpha$  of 0.955. This is considered adequate according to Nunnally and Bernstein (1994), cited in Minimax Consulting, LLC (2008), because the closer the Cronbach's  $\alpha$  coefficient is to 1.0 the greater the internal consistency of the items on the scale. Both descriptive and inferential statistics comprising mean analysis, factor analysis and the Kruskal-Wallis (K-W) test were employed to analyze the data obtained. The K-W test is a non-parametric test appropriate for comparing three or more independent groups of sampled data that are not normally distributed (see the Appendix). A mean cut-off point  $> 2.50$  on a five-point Likert-type scale has been adjudged to be reasonable to determine important or significant factors. Leung (2008) recommended a 3.50 cut-off point on a seven-point Likert-type scale (being mid-point). Moreover, for a five-point Likert-type scale, Muhwezi *et al.* (2014) regarded variables with  $RII < 0.599$  (i.e.  $MS < 2.995$ ) to be insignificant. Although Opawole and Jagboro (2015) recommended a 3.50 cut-off point on a five-point Likert-type scale, this was considered to be high when compared with other submissions. Therefore, a MS cut-off point  $\geq 3.00$  was recommended for this study. However, a *t*-test mean of 3.20 was significantly different from 3.00. Hence, a 3.20 cut-off point was adopted. The questionnaire was self-administered with assistance from the institutions' staff members who served as field coordinators, from March to July 2015. The close-ended nature of the questionnaire enabled completion within an average of 35 minutes.

## Results and discussion

A total of 65 copies of the questionnaire were administered to the respondents across the seven public tertiary institutions. The total response received was 45, which represents a 69.2 percent response rate. The general information about the respondents is presented in Table III. In total, 22 (48.9 percent) of the total duly completed copies of the questionnaire retrieved were obtained from the universities, and 14 (31.1 percent) and 9 (20 percent) were obtained from polytechnics and colleges of education, respectively. It was established that architects and quantity surveyors that responded to the questionnaire represented 17 percent each, whereas 8.5 percent were builders. Mechanical and electrical engineers constituted 25.5 percent, whereas 31.9 percent of respondents were civil/structural engineers. The analysis of respondents' highest academic qualification showed that 28.9 percent were polytechnic graduates. The highest number of respondents were those with postgraduate degrees, which represented 48.9 percent, whereas 22.2 percent were university graduates.

Furthermore, the analysis of the respondents' professional qualifications showed that 64.5 percent of the respondents were corporate members of their professional bodies. Besides, 64.5 percent of the respondents were senior-level officers of their respective establishments. In addition, 80 percent of the respondents had over ten years' working experience. From the information on the academic qualifications of the respondents, it can be concluded that these relevant professionals possessed satisfactory academic training to supply data for this study. It also showed that the respondents had adequate working experience to provide information for the study.

## Assessment of causes of abandonment in tertiary educational institutional projects

Assessment of causes of abandonment in tertiary educational institutional projects showed that delayed payment with a MS of 4.20 was the factor most significant to project abandonment, as presented in Table IV. This is not unexpected because construction

| Background characteristics                                      | Frequency    | %    |
|---|--------------|------|
| <i>Organization of respondents</i>                              |              |      |
| University  | 22           | 48.9 |
| Polytechnic   | 14           | 31.1 |
| Colleges of education   | 9            | 20.0 |
| <i>Respondents' area of work</i>                                |              |      |
| Physical planning/work and maintenance unit                     | 18           | 40.0 |
| Physical planning unit  | 20           | 44.4 |
| Work and maintenance unit                                       | 7            | 15.6 |
| <i>Profession</i>   |              |      |
| Architect   | 8            | 17.0 |
| M&E engineer  | 12           | 25.5 |
| Civil/structural engineer                                       | 15           | 31.9 |
| Builder   | 4            | 8.5  |
| Quantity surveyor   | 8            | 17.0 |
| <i>Educational qualification</i>                                |              |      |
| Polytechnic graduate (ND, HND)                                  | 13           | 28.9 |
| First degree (BSc/BTech)  | 10           | 22.2 |
| Postgraduate (PGD, MSc/MBA/MPA, PhD)                            | 22           | 48.9 |
| <i>Professional membership status</i>                           |              |      |
| Graduate/probationer  | 14           | 31.1 |
| Corporate   | 26           | 57.8 |
| Fellow  | 3            | 6.7  |
| No response   | 2            | 4.4  |
| <i>Official cadre of respondents</i>                            |              |      |
| Director/chief  | 10           | 22.3 |
| Assistant chief/principal/senior                                | 19           | 42.2 |
| Engineer I /QS I /higher technical officer                      | 10           | 22.2 |
| Engineer II/QS II/technical officer                             | 6            | 13.3 |
| <i>Age (years)</i>  |              |      |
| < 40  | 14           | 31.1 |
| 40-49   | 16           | 35.6 |
| ≥ 50  | 15           | 33.3 |
| Mean age (mean ± SD)  | 43.67 ± 9.45 |      |
| <i>Work experience (years)</i>                                  |              |      |
| < 10  | 9            | 20.0 |
| 10-19   | 18           | 40.0 |
| 20-29   | 12           | 26.7 |
| ≥30   | 6            | 13.3 |
| Mean years of work experience (mean ± SD)                       | 17.02 ± 9.91 |      |
| <i>Work experience in higher institutional projects (years)</i> |              |      |
| < 10  | 22           | 48.9 |
| 10-19   | 11           | 24.4 |
| 20-29   | 8            | 17.8 |
| ≥ 30  | 4            | 8.9  |
| Mean years of work experience (mean ± SD)                       | 12.18 ± 9.89 |      |
| <i>Gender</i>   |              |      |
| Male  | 37           | 82.2 |
| Female  | 8            | 17.8 |

**Table III.**  
Profile of the  
respondents

**Note:** n = 45

| Sl. no. | Factors causing project abandonment                        | University |    | Polytechnic |    | College |    | Overall |    | K-W Test |         |
|---------|--|------------|----|-------------|----|---------|----|---------|----|----------|---------|
|         |  | MS         | R  | MS          | R  | MS      | R  | MS      | R  | K-W      | p       |
| 1.      | Delayed payments   | 477        | 1  | 321         | 5  | 433     | 1  | 420     | 1  | 17605    | < 0.001 |
| 2.      | Bankruptcy of contractor                                   | 400        | 4  | 271         | 20 | 389     | 3  | 358     | 2  | 7801     | 0.020   |
| 3.      | Inflation  | 405        | 3  | 271         | 20 | 378     | 4  | 358     | 2  | 12584    | 0.002   |
| 4.      | Fund mismanagement   | 386        | 5  | 336         | 1  | 322     | 19 | 358     | 2  | 2557     | 0.279   |
| 5.      | Inadequate budgetary allocation                            | 386        | 5  | 336         | 1  | 322     | 19 | 358     | 2  | 2913     | 0.233   |
| 6.      | Inadequacy of finance                                      | 427        | 2  | 271         | 20 | 322     | 19 | 358     | 2  | 11779    | 0.003   |
| 7.      | Contractor's incompetence                                  | 377        | 7  | 257         | 28 | 378     | 4  | 340     | 7  | 11770    | 0.003   |
| 8.      | Death of client  | 309        | 35 | 336         | 1  | 400     | 2  | 336     | 8  | 2066     | 0.356   |
| 9.      | Underbidding of projects                                   | 345        | 14 | 293         | 12 | 367     | 7  | 333     | 9  | 3219     | 0.200   |
| 10.     | Community interference                                     | 327        | 27 | 329         | 4  | 356     | 8  | 333     | 9  | 4063     | 0.793   |
| 11.     | Consultant inexperience                                    | 345        | 14 | 293         | 12 | 333     | 12 | 327     | 11 | 2733     | 0.255   |
| 12.     | Inconsistent government policy                             | 368        | 8  | 293         | 12 | 278     | 40 | 327     | 11 | 6446     | 0.040   |
| 13.     | Pre-qualification procedure                                | 359        | 9  | 264         | 26 | 333     | 12 | 324     | 13 | 5538     | 0.063   |
| 14.     | Variation of project scope                                 | 355        | 10 | 286         | 15 | 311     | 24 | 324     | 13 | 5356     | 0.069   |
| 15.     | Project manager's incompetence                             | 350        | 11 | 264         | 26 | 344     | 10 | 322     | 15 | 3677     | 0.159   |
| 16.     | Political factor   | 350        | 11 | 279         | 17 | 311     | 24 | 320     | 16 | 2901     | 0.234   |
| 17.     | Inadequate cost control                                    | 341        | 17 | 307         | 6  | 289     | 37 | 320     | 16 | 1585     | 0.453   |
| 18.     | Inaccuracy of estimate                                     | 350        | 11 | 229         | 40 | 378     | 4  | 318     | 18 | 11903    | 0.003   |
| 19.     | Faulty design  | 345        | 14 | 257         | 28 | 344     | 10 | 318     | 18 | 6562     | 0.038   |
| 20.     | Poor quality control by regulatory agencies                | 323        | 29 | 300         | 8  | 333     | 12 | 318     | 18 | 0901     | 0.637   |
| 21.     | Dispute  | 341        | 17 | 257         | 28 | 333     | 12 | 313     | 21 | 4550     | 0.103   |
| 22.     | Effect of international economy                            | 295        | 38 | 307         | 6  | 356     | 8  | 311     | 22 | 2247     | 0.325   |
| 23.     | Project imposition   | 332        | 24 | 279         | 17 | 311     | 24 | 311     | 22 | 1463     | 0.481   |
| 24.     | Non-issuance of white paper on investigation panel reports | 323        | 29 | 300         | 8  | 300     | 31 | 311     | 22 | 0335     | 0.846   |
| 25.     | Change of priority   | 336        | 23 | 250         | 34 | 333     | 12 | 309     | 25 | 5657     | 0.059   |
| 26.     | Communication gaps among project personnel                 | 341        | 17 | 243         | 37 | 333     | 12 | 309     | 25 | 8882     | 0.012   |
| 27.     | Non-availability of building materials                     | 341        | 17 | 257         | 28 | 311     | 24 | 309     | 25 | 3562     | 0.168   |
| 28.     | Embarking on project without needs analysis                | 341        | 17 | 271         | 20 | 289     | 37 | 309     | 25 | 3250     | 0.197   |
| 29.     | Poor risk management                                       | 318        | 31 | 286         | 15 | 311     | 24 | 307     | 29 | 0629     | 0.730   |

(continued)

**Table IV.**  
Causative factors of abandoned projects

Table IV.

| Sl. no. | Factors causing project abandonment                | University |    | Polytechnic |    | College |    | Overall |    | K-W Test |       |
|---------|--|------------|----|-------------|----|---------|----|---------|----|----------|-------|
|         |  | MS         | R  | MS          | R  | MS      | R  | MS      | R  | K-W      | p     |
| 30.     | Misunderstanding of the work requirement           | 3.41       | 17 | 2.57        | 28 | 3.11    | 24 | 3.07    | 29 | 4.339    | 0.114 |
| 31.     | Natural disaster                                   | 3.14       | 32 | 3.00        | 8  | 3.00    | 31 | 3.07    | 29 | 0.131    | 0.937 |
| 32.     | Inefficient/ineffective legal system               | 3.14       | 32 | 3.00        | 8  | 3.00    | 31 | 3.07    | 29 | 0.215    | 0.898 |
| 33.     | Inadequate utilities or infrastructural facilities | 3.32       | 24 | 2.50        | 34 | 3.22    | 19 | 3.04    | 33 | 4.779    | 0.092 |
| 34.     | Improper documentation                             | 3.14       | 32 | 2.57        | 28 | 3.33    | 12 | 3.00    | 34 | 4.426    | 0.109 |
| 35.     | Administrative/legal action                        | 3.32       | 24 | 2.50        | 34 | 2.89    | 37 | 2.98    | 35 | 4.673    | 0.097 |
| 36.     | Wrong location                                     | 3.09       | 35 | 2.71        | 20 | 3.00    | 31 | 2.96    | 36 | 0.599    | 0.741 |
| 37.     | Clear/well definition of vision/objective          | 3.27       | 27 | 2.43        | 37 | 3.00    | 31 | 2.96    | 36 | 4.520    | 0.104 |
| 38.     | Capacity constraints                               | 2.95       | 38 | 2.79        | 17 | 3.00    | 31 | 2.91    | 38 | 0.464    | 0.793 |
| 39.     | Inadequate planning                                | 3.05       | 37 | 2.43        | 37 | 3.22    | 19 | 2.89    | 39 | 3.991    | 0.136 |
| 40.     | Lack of social analysis of the project             | 2.82       | 40 | 2.71        | 20 | 3.11    | 24 | 2.84    | 40 | 2.023    | 0.364 |

Notes: n = 45. MS, mean score; R, rank; K-W, Kruskal-Wallis

projects are capital intensive and whatever affects the mode/system of funding can stall the development of projects, though not immediately. This agrees with the submission of Emeka Eze, Former Bureau of Public Procurement Director General, that abandonment of projects occurred mainly because of non-payment of interim certificate for the work done (Umoru and Erunke, 2016). Other more significant factors were fund mismanagement (MS = 3.58), inadequate budgetary allocation (MS = 3.58), inadequacy of finance (MS = 3.58), inflation (MS = 3.58) and bankruptcy of contractors (MS = 3.58), which were financial issues. The findings agreed with previous studies by Asniah (2007), Oladapo and Onabanjo (2009), Ogunde (2011), Ayodele and Alabi (2011), AbdulRazaq *et al.* (2012), Olalusi and Otunola (2012), Ewa (2013); Yap (2013), Ihuah and Benebo (2014) and Okwudili (2014). It can be inferred that sourcing, disbursement and management of funds for construction will continue to be a burning issue as terms of payment define the construction contract.

The less significant factors were found to be inadequate cost control and political factors, with MS = 3.20 each. The result showed that ten of the 40 variables with MS < 3.20 were not significant enough to cause abandonment of university projects. In total, 35 of them were not significant enough to cause project abandonment in polytechnics, whereas 17 were not significant enough to cause abandonment of college projects. However, based on average ranking, 23 were not significant enough to cause project abandonment in public tertiary institutions in the study area.

The results obtained for clear/well-defined vision/objective and inadequate planning were unexpected. They were not in agreement with the findings of Ayodele and Alabi (2011), Otim *et al.* (2012), Ewa (2013), Yap (2013) and Ihuah and Benebo (2014), who depicted them as one of the most critical causes of abandoned projects. Inadequate planning was moderately significant in the work of Ubani and Ononuju (2013) though, was on civil engineering projects. This contrast showed that “planning” is too broad a subject to be a mere factor. It is encompassing and embedded in all aspects of construction activities. According to Ubani and Ononuju (2013), poor planning entails inadequate time plan, inadequate resource plan, inadequate equipment supply plan, unanticipated interlinking, poor organization and poor cost planning.

The K-W test was used to assess the respondents’ agreement on causative factors for project abandonment based on institutions. The result showed that there was relative agreement in the ranking of the factors, except in nine of them, which were found to be significant among the institution categories (see Table IV). The significant factors were delayed payments ( $p < 0.001$ ), inflation ( $p < 0.002$ ), inadequacy of finance ( $p < 0.003$ ), contractor’s incompetence ( $p < 0.003$ ) and inaccuracy of estimate ( $p < 0.003$ ). Others are communication among project personnel ( $p < 0.012$ ), bankruptcy of the contractor ( $p < 0.020$ ), faulty design ( $p < 0.038$ ) and inconsistent government policy ( $p < 0.040$ ). This implied that there is no agreement in the perception of respondents on these factors among the institution categories. Five of these factors are among the top seven critical causes for abandoned projects in the study area. These findings showed that the ranking of these nine variables are significant in the study area but their level of significance varies across institutions. Furthermore, the level of agreement among categories of institution showed that the ranking of polytechnics differs from that of universities and colleges. The reasons for these disagreements in perception by the respondents from polytechnics might be attributable to the administration or bureaucracy of project delivery in polytechnics. It can also be inferred that there is better management of construction projects in polytechnics or a limited number of projects are being undertaken there; hence, the reasons for project abandonment in polytechnics are limited and specific.

### Results of factor analysis

The 17 significant factors with MS  $\geq 3.20$  were reduced to principal components with factor analysis as used by Khalid (2010) and Yap (2013). Variables (fund mismanagement, pre-qualification procedure and underbidding of projects) with communalities below 0.600 were

excluded. For sampling adequacy testing, the Kaiser-Meyer-Olkin (KMO, 0.685) in Table V showed that data collected were adequate for the analysis and the Bartlett test of sphericity ( $p < 0.001$ ) for correlation adequacy between the variables was highly significant. The reliability of factor analysis for usage further depends on the sample size and the number of variables (Field, 2005 cited in Khalid, 2010; Yap, 2013) and communalities. The subject-to-variable ratio was 3.21:1 (45/14). The minimum and maximum values of all communalities were 0.609 and 0.840, respectively; the mean value of communalities was 0.742. The high communalities indicate that the extracted components represented the variables well. The analysis of correlation matrix for factor extraction revealed five underlying factors with eigenvalues  $> 1$  (Table V). However, the fifth factor was dropped because one variable was loaded under it; hence the variable would be insufficient to identify the name of the factor. Four factors were thus identified (Table V), instead of factors whose eigenvalues exceeded 1.000. One of the factors had four loaded variables and three had three loaded variables apart from the one with one loaded variable. Figure 2 shows the scree plot of loading of the factors causing project abandonment.

The four extracted factors explain 66.287 percent of the total variance (Table V). This shows that 66.287 percent of the common variance shared by 14 variables can be accounted for by the four factors. Stevens (2009), cited in Yap (2013), recommended interpreting only factor loadings  $> 0.4$  for substantial importance of a variable to a factor. Therefore, factor loadings  $< 0.4$  are not displayed in Table V. Based on the results in Table V, the four factors revealed are as follows: stakeholders' response capacity, poor financial management, inadequate planning and monitoring and unexpected occurrences. There is no specific scientific procedure for naming the factors. It is a subjective exercise that depends on the background and training of the analyst. Therefore, the thoughtful naming of these factors was deemed appropriate for this study.

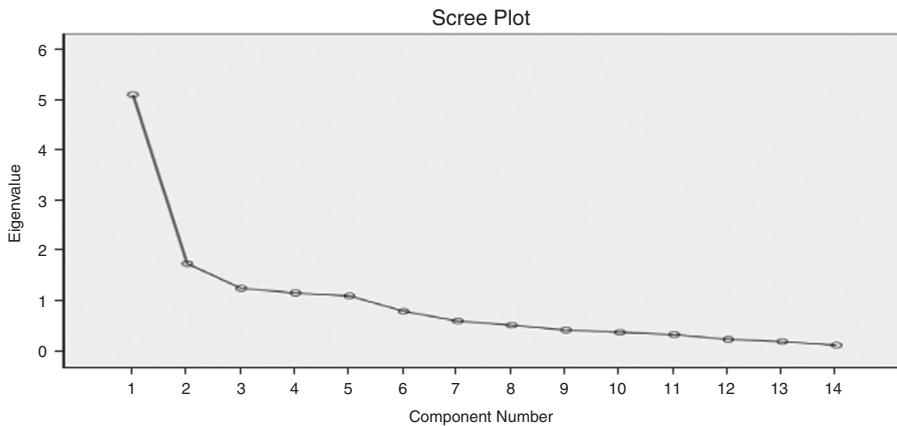
The first factor (F1) was stakeholders' response capacity and it accounted for 36.57 percent of the observed variance. The second factor (F2), poor financial management, accounted for 12.46 percent, whereas the third (inadequate planning and monitoring) and fourth factors (unexpected occurrences) accounted for 8.95 and 8.31 percent, respectively.

| Sl. no. | Factors causing project abandonment | Component |        |       |       | Com.  | MS rank |
|---------|-------------------------------------|-----------|--------|-------|-------|-------|---------|
|         |                                     | F1        | F2     | F3    | F4    |       |         |
| 1.      | Inconsistent government policy      | 0.785     |        |       |       | 0.719 | 11      |
| 2.      | Consultant inexperience             | 0.757     |        |       |       | 0.609 | 11      |
| 3.      | Project manager's incompetence      | 0.757     |        |       |       | 0.717 | 15      |
| 4.      | Inflation                           | 0.723     |        |       |       | 0.641 | 2       |
| 5.      | Delay Payments                      |           | 0.850  |       |       | 0.784 | 1       |
| 6.      | Inadequacy of finance               |           | 0.800  |       |       | 0.791 | 2       |
| 7.      | Contractor's incompetence           |           | 0.611  |       |       | 0.715 | 7       |
| 8.      | Inadequate budgetary allocation     |           |        | 0.871 |       | 0.809 | 2       |
| 9.      | Inadequate cost control             |           |        | 0.808 |       | 0.808 | 16      |
| 10.     | Bankruptcy of contractor            |           |        | 0.523 |       | 0.765 | 2       |
| 11.     | Death of client                     |           |        |       | 0.893 | 0.840 | 8       |
| 12.     | Community interference              |           |        |       | 0.812 | 0.758 | 9       |
| 13.     | Variation of project scope          |           |        |       | 0.481 | 0.676 | 13      |
|         | Eigenvalue                          | 5.120     | 1.744  | 1.253 | 1.163 |       |         |
|         | % of total variance                 | 36.571    | 12.459 | 8.950 | 8.307 |       |         |

**Table V.**  
Factor analysis of  
the causes of project  
abandonment

Total % of variance explained = 66.287  
Kaiser-Meyer-Olkin Measure (KMO) of sampling adequacy = 0.602  
Bartlett's test of sphericity:  $\chi^2 = 263.199$ ;  $df = 91$ ;  $p < 0.001$

**Notes:** Com., communalities; MS, mean score



**Figure 2.**  
Scree plot of loaded  
items of factors  
causing project  
abandonment

### Stakeholders' response capacity

This is the first extracted component. The component explains 36.57 percent of the total variance and is highly correlated with inconsistent government policy (0.785), consultant inexperience (0.757), project manager's incompetence (0.757) and inflation (0.723). The inconsistent government policy is related to systemic instability, and inflation is associated with market forces that tend to increase the cost of project execution. These are variables that define the competence of construction stakeholders. They are elements of project execution that cannot be perfectly modeled due to the uniqueness and peculiarity of projects. The project manager and the consultants are expected to be skilled in the management of changing government policies and potential inflation. The project manager's competence and the consultant's experience will inform a timely and cost-saving decision/response to these project peculiarities. These findings agreed with Ayodele and Alabi (2011) and Ewa (2013) that an incompetent project manager is a significant cause of project abandonment. It can be deduced that the ability of the consultant and project manager to respond to these undefined elements (government policy and inflation) of project execution will determine the success of the project.

### Poor financial management

The second component that explained 12.46 percent of the total variance is correlated with delayed payment (0.850), inadequate finance (0.800) and contractor's incompetence (0.611). The factor contains intrinsic and extrinsic variables capable of influencing the client's and contractor's cash flow. The three variables under this component were revealed by mean analysis to be among the ten highly significant causes of project abandonment. The findings agreed with Ayodele and Alabi (2011), AbdulRazaq *et al.* (2012), Olalusi and Otunola (2012), Ewa (2013), Yap (2013), Ihuah and Benebo (2014) and Okwudili (2014) that financial challenges cause cash-flow problems. Moreover, the findings corroborate Asniah (2007), Oladapo and Onabanjo (2009) and Ogunde (2011) that financial issues are most responsible for construction project disputes. The contractor's ability to manage delayed payment, the most critical cause of dispute (Construction Industry Development Board, 2015), will definitely minimize dispute and save the project from possible abandonment. Financial issues are the center of capital projects. The estimating, sourcing, disbursement and management of funds are the root causes of most challenges in construction projects. A correct estimate coupled with a timely release of funds by the client and appropriate use of released funds by the contractor will in no small measure minimize the possibility of project abandonment.

**Lack of proper planning and monitoring**

The third component explains 8.95 percent of the total variance and is highly correlated with lack of proper planning and monitoring. This component has inadequate budgetary allocation (0.871), inadequate cost control (0.808) and bankruptcy of the contractor (0.523). Adequate planning of cost and materials required to deliver the project precedes successful completion of the construction project. Allocation of funds for execution of the project must be well harmonized with available resources meant to deliver the project so as to check cost overrun. Ayodele and Alabi (2011), Otim *et al.* (2012), Yap (2013) and Ihuah and Benebo (2014) have identified improper planning as a critical cause of project abandonment. Improper planning for materials that cannot be easily accessed or unavailability of resources will require additional funds, if it can be sourced. Otherwise, it will stall the project if an alternative is not improvised. This underscores the need for a sound pre-qualification exercise that will enhance firm price from tendering contractors. This finding buttressed the submission of Anyanwu (2013) that effective cost management and control is a solution to project abandonment, and the submission of Ayodele and Alabi (2014) that private developers who failed to apply cost control techniques had over 88 percent of their projects abandoned before they were later revived and completed. The contractors should not be made to enter into an unachievable contract when the lowest tender is used for recommendation.

**Unexpected occurrences**

The fourth component in the analysis is unexpected occurrences. The component explained 8.31 percent of the total variance and was loaded with death of the client (0.893), community interference (0.812) and variation of project scope (0.481). The highest ranked variable under this component is death of the client, with  $MS = 3.36$  (see Table V). It means non-existence of the financier (private projects), unwillingness of the promoter(s) (donor projects) and change in administration (public projects). Hence, death of the client is a very significant cause of abandonment of public and private projects because it affects the project cash flow. Although the death of either party (client or contractor) to a contract can lead to project abandonment, that of the client has a more significant impact.

**Conclusions**

The study assessed the causes of project abandonment in public tertiary institutions in Osun State. Factors most significant to tertiary educational institutional projects were delayed payments, fund mismanagement, inadequate budgetary allocation, inadequacy of finance, inflation and bankruptcy of the contractor. Findings also showed that not all factors capable of causing project abandonment were significant to tertiary institutions. The significant factors clustered as stakeholders' response capacity, poor financial management, lack of proper planning and monitoring and unexpected occurrences. The K-W test showed that there were disagreements among the categories of institutions on the ranking of the most significant causes of abandoned projects. It is imperative that factors causing project abandonment should not just be in the contract particulars but must be seen to clearly and carefully address payment factors. In this regard, administrators of tertiary institutions should undertake an adequate planning for proposed projects at inception on the basis of detailed design, costing and timelines and ensure adequacy of funds and budgetary allocation in compliance with the Public Procurement Act 2007, which is the government-approved framework for such projects. It is also evident from the study that the spate of abandonment being currently witnessed is in part due to inability of construction teams to manage project peculiarities or uniqueness. This submission is premised on the findings from the causative factors that showed stakeholders' response capacity as the component factor that contributed most significantly to project abandonment.



The envisaged life cycle of existing facilities and the convenience of users at large stands a chance of being jeopardized if abandoned projects are not completed before undertaking new ones, which may also be abandoned.

It is recommended that:

- (1) Efforts of administration to rid the environment of abandoned projects should focus on avoidance of delayed payment, fund mismanagement, inadequate budgetary allocation, inadequacy of finance, inflation and bankruptcy, which are the specific causes of abandonment in the institutions.
- (2) Financing of projects should clearly be defined and adequately managed to forestall unexpected cash-flow challenges, which is one critical cause of dispute and subsequently the cause of abandonment.
- (3) Tertiary institutions should be administered on the basis of strategic planning that is not subject to unjustifiable periodic change by new administrators. This will ensure completion of ongoing projects and commencement of inclusive projects.
- (4) Abandoned projects in the tertiary institutions should be considered for completion in preference to commission of new projects.
- (5) There should be proper auditing of accounts of all abandoned projects and the report published. This will ensure defaulters are prosecuted and will serve as a deterrent to relentless compromisers.

The study provides implications for effective contract management of public tertiary educational institutional projects, which is a significant step to improving the available teaching and research facilities in Nigerian tertiary institutions. Notwithstanding, a more robust result is expected by using a mixed approach comprising questionnaire and interview surveys for assessment.

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(The Appendix follows overleaf.)

| Sl. no. | Causes of abandonment   | Normal parameters <sup>a,b</sup> |       | Most extreme differences |       |        | K-S Z | Asymp. Sig. (2-tailed) |
|---------|---|----------------------------------|-------|--------------------------|-------|--------|-------|------------------------|
|         |   | Mean                             | SD    | Absolute                 | +ve   | -ve    |       |                        |
| 1.      | Political factor  | 3.20                             | 1.217 | 0.210                    | 0.210 | -0.168 | 1.407 | 0.038*                 |
| 2.      | Delayed payments  | 4.20                             | 1.036 | 0.336                    | 0.220 | -0.336 | 2.251 | 0.000*                 |
| 3.      | Inadequate planning   | 2.89                             | 1.071 | 0.252                    | 0.214 | -0.252 | 1.693 | 0.006*                 |
| 4.      | Wrong estimate  | 3.18                             | 1.134 | 0.229                    | 0.229 | -0.215 | 1.536 | 0.018*                 |
| 5.      | Inadequate finance  | 3.58                             | 1.323 | 0.203                    | 0.141 | -0.203 | 1.362 | 0.049*                 |
| 6.      | Fund mismanagement  | 3.58                             | 1.305 | 0.240                    | 0.182 | -0.240 | 1.609 | 0.011*                 |
| 7.      | Unqualified/inexperience consultants  | 3.27                             | 1.116 | 0.189                    | 0.150 | -0.189 | 1.267 | 0.081                  |
| 8.      | Incompetent project manager   | 3.22                             | 1.166 | 0.202                    | 0.153 | -0.202 | 1.356 | 0.051                  |
| 9.      | Inconsistent government policies  | 3.27                             | 1.116 | 0.194                    | 0.194 | -0.183 | 1.304 | 0.067                  |
| 10.     | Communication gaps among project personnel                                      | 3.09                             | 1.019 | 0.224                    | 0.224 | -0.221 | 1.500 | 0.022*                 |
| 11.     | Inflation   | 3.58                             | 1.118 | 0.208                    | 0.208 | -0.187 | 1.399 | 0.040*                 |
| 12.     | Change of priority  | 3.09                             | 1.104 | 0.199                    | 0.199 | -0.135 | 1.333 | 0.057                  |
| 13.     | Natural disaster  | 3.07                             | 1.214 | 0.189                    | 0.189 | -0.167 | 1.265 | 0.081                  |
| 14.     | Dispute   | 3.13                             | 1.198 | 0.233                    | 0.233 | -0.211 | 1.564 | 0.015*                 |
| 15.     | Variation of project scope  | 3.24                             | 0.933 | 0.270                    | 0.270 | -0.219 | 1.811 | 0.003*                 |
| 16.     | Administrative/legal action   | 2.98                             | 1.158 | 0.201                    | 0.201 | -0.133 | 1.347 | 0.053                  |
| 17.     | Wrong location  | 2.96                             | 1.242 | 0.157                    | 0.157 | -0.136 | 1.052 | 0.218                  |
| 18.     | Poor quality control by regulatory agencies                                     | 3.18                             | 0.960 | 0.262                    | 0.262 | -0.204 | 1.760 | 0.004*                 |
| 19.     | Poor risk management  | 3.07                             | 1.074 | 0.214                    | 0.214 | -0.138 | 1.433 | 0.033*                 |
| 20.     | Capacity constraint   | 2.91                             | 0.821 | 0.279                    | 0.279 | -0.254 | 1.872 | 0.002*                 |
| 21.     | Pre-qualification procedure   | 3.24                             | 1.090 | 0.178                    | 0.166 | -0.178 | 1.194 | 0.115                  |
| 22.     | Faulty design   | 3.18                             | 1.029 | 0.235                    | 0.235 | -0.231 | 1.578 | 0.014*                 |
| 23.     | Improper documentation  | 3.00                             | 0.953 | 0.256                    | 0.256 | -0.256 | 1.714 | 0.006*                 |
| 24.     | Death of client   | 3.36                             | 1.433 | 0.251                    | 0.128 | -0.251 | 1.686 | 0.007*                 |
| 25.     | Underbidding of projects  | 3.33                             | 1.168 | 0.190                    | 0.190 | -0.165 | 1.275 | 0.077                  |
| 26.     | Embarking on projects without need analysis                                     | 3.09                             | 1.145 | 0.220                    | 0.220 | -0.158 | 1.475 | 0.026*                 |
| 27.     | Misunderstanding of the work requirement  | 3.09                             | 1.145 | 0.165                    | 0.153 | -0.165 | 1.105 | 0.174                  |
| 28.     | Non-availability of building materials  | 3.09                             | 1.258 | 0.161                    | 0.150 | -0.161 | 1.078 | 0.195                  |
| 29.     | Lack of utilities or infrastructure facilities                                  | 3.04                             | 1.127 | 0.182                    | 0.182 | -0.173 | 1.224 | 0.100                  |
| 30.     | Inadequate/lack of budgetary allocation   | 3.58                             | 1.118 | 0.181                    | 0.164 | -0.181 | 1.211 | 0.106                  |
| 31.     | Lack/deficiency of clear/well-defined vision/objective                          | 2.96                             | 1.167 | 0.204                    | 0.196 | -0.204 | 1.369 | 0.047*                 |
| 32.     | Bankruptcy of contractor  | 3.58                             | 1.270 | 0.275                    | 0.131 | -0.275 | 1.843 | 0.002*                 |
| 33.     | Inadequate cost control   | 3.20                             | 0.869 | 0.258                    | 0.258 | -0.231 | 1.729 | 0.005*                 |
| 34.     | Lack of social analysis of a projects   | 2.84                             | 0.673 | 0.280                    | 0.253 | -0.280 | 1.880 | 0.002*                 |
| 35.     | Project imposition  | 3.11                             | 1.049 | 0.275                    | 0.275 | -0.169 | 1.848 | 0.002*                 |
| 36.     | Incompetent contractors   | 3.40                             | 1.053 | 0.226                    | 0.226 | -0.196 | 1.514 | 0.020*                 |
| 37.     | Effect of international economy   | 3.11                             | 1.049 | 0.202                    | 0.144 | -0.202 | 1.352 | 0.052                  |
| 38.     | Non-issuance of white paper on abandoned projects investigation panels' reports | 3.11                             | 1.210 | 0.159                    | 0.159 | -0.146 | 1.065 | 0.206                  |
| 39.     | Inefficient/ineffective legal system  | 3.07                             | 0.963 | 0.283                    | 0.283 | -0.272 | 1.899 | 0.001*                 |
| 40.     | Community interference  | 3.33                             | 1.279 | 0.166                    | 0.136 | -0.166 | 1.110 | 0.170                  |

**Table A1.**  
One-sample  
Kolmogorov-Smirnov  
test for causes of  
abandoned projects

Notes: *n* = 45. K-S Z, Kolmogorov-Smirnov Z. <sup>a</sup>Test distribution is Normal; <sup>b</sup>calculated from data. \*Significant at 5 percent level

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