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received: 2 September 2021
accepted: 24 February 2022

pages: 93-102

Investigation of factors responsible for delays in the execution of adequately funded construction projects

Edoghogho Ogbeifun Jan-Harm C Pretorius

ABSTRACT
Many research efforts have identified funding as a critical factor responsible for the delays in the execution of construction projects. These funding challenges affect the client and contractors alike. However, there is limited information on why delays occur in sponsored projects with evidently adequate funding. Therefore, the study focuses on exploring the factors that impact the cash flow during the execution of sponsored construction projects. The multiple-site case-study method of qualitative research was adopted, involving five universities benefiting from the infrastructure funding provided by a government agency in Nigeria. The Delphi technique was used for data collection and analysis, complemented with interviews. The findings identified six factors causing the delays. They were divided into internal and external factors. The internal factors are faulty contractor selection processes resulting in delays by contractors and the failure to complete appropriate phases of a project. The external factors include the delays in the project management system of the funding agency in terms of inspection, monitoring, evaluation and progress certification. The research identified that the combined effect of internal and external factors negatively impacts the project cash flow, which in turn influences project delivery delays. Therefore, this study recommends improvements in the in-house contractor selection processes and the decentralisation of the project inspection, monitoring and evaluation operations of the funding agency. This will facilitate timely inspection, audit, and progress certification, enabling the early release of the second tranche of the project fund. This will ameliorate the negative effects arising due to low cash flow and associated delays in project delivery.

KEY WORDS
adequate funding, construction projects, delays, Delphi technique, funding agency, internal and external factors

10.2478/emj-2022-0008

Edoghogho Ogbeifun

University of Johannesburg,
South Africa
ORCID 0000-0002-6804-0637

Corresponding author:
e-mail: edobunmi@gmail.com

Jan-Harm C Pretorius

University of Johannesburg,
South Africa
ORCID 0000-0002-2023-749X

Introduction

Research efforts aimed at exploring the factors responsible for the delays in the execution of construction projects have continued to attract the attention of academics and practitioners of the engineering, construction, and built environment professions. The delays are experienced in developed and developing economies, and the size of construction projects does not limit the delays. The effects and severity of delays are influenced by the factors responsible for the delay

Ogbeifun, E., & Pretorius, J. H. C. (2022). Investigation of factors responsible for delays in the execution of adequately funded construction projects. *Engineering Management in Production and Services, 14*(1), 93-102. doi: 10.2478/emj-2022-0008

(Durdyev & Hosseini, 2020). Most research efforts have identified funding as one of the critical factors responsible for project delays. These financial concerns include the client's inability to pay for work completed by the project execution team (PET), low cash flow to the contractor, its negative effects in meeting site obligations, and the inability of contractors to access credit facilities (Yalini & Alan, 2015; Turkar & Apte, 2016). Assumingly, if the funding problem is addressed, the construction project could run smoothly. Unfortunately, even the sponsored construction projects with evidently adequate funding experience delays. Therefore, it is important to explore the factors that impact the cash flow during the project execution, and which are responsible for the associated delays when the funding issue has been addressed.

This paper reports on a pilot study that explored the factors responsible for the delays in executing construction projects funded by the tertiary education trust fund (TETFUND) in Nigeria. The study involved five universities. Six factors were identified as responsible for the delays. These factors were classified as internal or involving the in-house operations of the benefiting universities and external, which emerged from the deficiencies in project-management systems of the funding agency. To ameliorate the negative effects of the cash flow during construction projects and improve infrastructure delivery, recommendations were made to address the observed deficiencies in the in-house operations of the benefiting universities and the funding agency.

1. Literature review

The literature review provides an opportunity for new research to be based on previous efforts by harnessing existing information, models, and methodologies to support new endeavours. The reviewed literature explores the general delay causes, the influence of procurement systems, funding administration, project inspection, monitoring and evaluation of construction projects and how each sub-section impacts the cash flow during the construction project execution.

Delays in construction projects simply mean project slip-over, time overrun, the inability of the PET to achieve definite milestones or complete a part of or deliver the whole project on schedule (Yalini & Alan, 2015; Turkar & Apte, 2016). This happens in small and large construction projects in developed and developing economies. Nevertheless, the level, the causes, and the severity of delays vary from project to project and between project types (Durdyev & Hosseini, 2020;). Delays have varied effects on different project stakeholders, i.e., the client, end-user, and contractor. To the client, it means the delayed realisation of project objectives; immense capital is tied down, resulting in the loss of revenue, cost overrun and failure to receive value for money (Yalini & Alan, 2015). In the case of the end-users, any delay in completing a planned construction project has multi-dimensional effects on their operations. It means stunted growth, the inability to implement planned expansions, new products or programmes, low productivity and downsizing in extreme cases (Turkar & Apte, 2016). Yalini and Alan (2015, p. 3221) discussed the effects of contractor delays and suggested that "delay means higher overhead costs because of [a] longer work period, higher material costs through inflation, and increase in labour cost". Summarised below are other factors that cause delays resulting from the negative impacts of a low cash flow identified by different research teams:

- Delay in honouring certificates; underestimation of the project costs; difficulty in accessing bank credit; poor supervision; underestimation of time for completion of projects by contractors (Fugar & Agyakwah-Baah, 2010, p. 113).
- Delay in payment from the head office; frequent staff turnover; poor site management; improper management of the engineers; delay in supply of materials and the lack of workforce (Indhu & Ajai, 2014, p. 112).
- Poor quality of construction materials; low motivation and morale of labour; labour shortage; labour injuries on-site; and shortage of construction materials resulting in low productivity (Yalini & Alan, 2015, p. 3223),
- With respect to the research efforts, Turkar and Apte (2016, p. 864) identified the following delay factors caused by clients, contractors, or consultants:
- Owner (client) related: delay in approving shop drawings; slow decision-making; suspension of work; changed orders.
- Contractor related: rework due to errors during construction; poor site management; poor communication and coordination; improper implemented construction methods; delay in site mobilisation.
- Consultant related: delay in producing design documents; the complexity of project design;

insufficient data collection and survey before design; misunderstood owner requirements by design consultants.

In addition, the role of the human factor (client's specialisation and competence of the project team leader) should not be brushed over when discussing the factors responsible for the delays in the execution of construction projects and their impacts on cash flow (Durdyev & Hosseini, 2020).

Notwithstanding the volume of available information on the causes of delays and proposed solutions, the construction industry is still experiencing project delays. However, the construction procurement system, the mode of execution and the method of selecting PET members for a construction project may help ameliorate the possible causes of delays.

The level of success achieved during the execution of any construction project is influenced by a combination of factors, including the project procurement method (Pourrashidi et al., 2017). In many developing economies, two common project procurement methods used in public and private sectors are the traditional procurement system and, in some selected situations, the relationship-based procurement system (Babatunde et al., 2010; Jefferies et al., 2014). Whichever procurement system is adopted, the selection of the PET members and especially contractors is critical. In practice, the contractor selection follows a two-stage process known as the pre-qualification and post-qualification stages (Jafari, 2013).

The pre-qualification process involves inviting many contractors to submit the information required by the procurer. The information required during the pre-qualification stage should be comprehensive. The study should include the examination of the submitted documents and physical verifications. The categories of contractors to be invited for pre-qualification should be specified to ensure that the shortlisted contractors possess adequate capacity, capability, equipment, personnel and experience suitable for the infrastructure project. Sifting through the provided information helps identify an array of eligible contractors possessing approximately identical capacities (Jafari, 2013). After the pre-qualification evaluation, a shortlist of suitable contractors is produced. In the second stage — the post-qualification — the shortlisted contractors are invited to tender for the construction project. Their bids are examined and evaluated. This process helps establish their technical competency, balanced pricing and workable schedule or the project timeline (Jafari, 2013; Deep et al., 2017). The outcome of the bid analysis leads to selecting the contractor with the most "responsible bid" and not necessarily the lowest bidder (Deep et al., 2017). A suitable procurement system and a thorough selection of suitable PET members are expected to facilitate effective project execution. However, the fund administration policies and practices significantly impact the cash flow during the project execution, which may determine the timely or delayed project delivery.

The construction project funds can be administered by the client or a funding agency. Their policies dictate how the allocated funds can be accessed and utilised, specifying the required deliverables and reports. Implementing these policies significantly influences the cash flow during the project execution, the project completion time, and the cause of delays in most cases (Olatunji, 2019; Omopariola et al., 2020). Finance-related factors have been identified as a major cause of delays in construction projects because available funds dictate the robustness of the project cash flow (Fugar & Agyakwah-Baah, 2010).

The cash flow issue is the combined effect of the contractor progress, the release of interim certificates for payment by the consultant and the time lag for honouring the payment by the client (Olatunji, 2019). Furthermore, the ability of the client or beneficiary (when the project is funded through an agency) to meet the payment obligations for executed work on time depends on the operational policies of the funding agencies. Some of these policies include the progress payment duration, progress payment condition, and the release of retention (Zayed & Liu, 2014).

Omopariola et al. (2020) identified the payment delays for completed work as the major source of cash flow problems for contractors, responsible for "project delays, reduced profit margins and in the worst scenarios, abandoned projects" (Omopariola et al., 2020, p. 308). Contractor satisfaction has an overarching influence on the successful execution of construction projects and is influenced by the payment regularity for the executed work (Olatunji, 2019; Steinerowska-Streb & Głód, 2020; Zamojska & Próchniak, 2017). To ameliorate the cash flow burden, it is important to manage project inspection, monitoring and evaluation (IM&E), valuation intervals for executed work and the actual time payments made to the contractor (Olatunji, 2019). In practice, delays in any of the payment process steps culminate and cause a strain in the contractor's cash flow and delays in the execution of the construction project

(Al-Joburi et al., 2012; Omopariola et al., 2020). Therefore, it is important to adopt a pragmatic approach to project IM&E.

Effective project IM&E provides suitable project performance reports, which educate all stakeholders on the current project scope, schedule, cost, resources, quality, and risk. IM&E includes status reporting, progress measurement, and the forecast of the expected project progresses (Kamau & Mohammed, 2015). Furthermore, the authors identified three components of effective IM&E: the strength of the IM&E team, approaches to IM&E and stages for IM&E in the project life cycle. These three components must be effectively integrated for IM&E operations to be successful. Therefore, when setting up an IM&E department, the organisation should ensure adequate finances, human capacity in terms of the number and skill for the effective operation of the unit (Magondu, 2013). Without relevant skills, it is hard to master the rules of any game. Therefore, adequate finance and equipped human capacity are essential for effective IM&E performance and success. If IM&E depends on the initiative of the client or the funding agency, their role should be clearly defined as it affects the valuation certificates and funds released for paying for the completed work. It is the seamless operation of the IM&E and the cooperation of relevant consultants that will guarantee adequate cash flow during the project execution. Deficiencies in the relationship and operations of IM&E, the consultants and contractors, have negative impacts on the release of project funds and cash flow during the project execution (Al-Joburi et al., 2012; Magondu, 2013; Olatunji, 2019).

The literature reviewed showed how generally different factors impact the cash flow during the execution of construction projects. Therefore, this study explores the factors impacting the low cash flow that causes a delay during the execution of sponsored construction projects with evidently adequate funding.

2. Research method

The multi-site case study was adopted as a qualitative research approach, involving five federal universities chosen at random. A small sample of Nigerian universities was chosen for a pilot study. The case-study approach allows the detailed and in-depth investigation of situations or phenomena in their context (Yin, 2014). It also enables the contextual relationship with the officials directly involved in the investigated subject matter. The Delphi technique was used as a data-collection instrument, complemented by interviews.

The Delphi technique is a hybrid method that combines the qualitative and quantitative approaches in a single exercise (Sekayi & Keeney, 2017). As a tool for consensus building, the technique hinges on the concept that "several people are less likely to arrive at a wrong decision than a single individual" (Hasson et al., 2000, p. 1013). The participants in a Delphi exercise are experts or knowledgeable persons in the research field. They are chosen purposively after measuring them against clearly defined pre-qualification selection criteria. Depending on the research objective, they can be few or as many as possible (Förster & Gracht, 2014).

In this research, the participants were Directors of Physical Planning (DPP) and the Directors of Work (DOW). They coordinate the execution of construction projects and are knowledgeable about the delays experienced in the execution of sponsored construction projects. To qualify, a participant had to be a registered engineering or built environment professional and had been employed as DPP or DOW for not less the three years.

Ten officers from five universities participated in Round 1. However, before Round 2, one of the DPPs died, and another declined to continue participating. Similarly, two DOW members declined to continue with the study for personal reasons. Table 1 provides

Tab 1. Participants in the Delphi exercise

S/No	Participants	Round 1		Round 2		Round 3	
		Yes	No	Yes	No	Yes	No
1	DPP	5	-	3	2	3	-
2	DOW	5	-	3	2	3	-
3	Total	10	0	6	4	6	0

the summary of participants in the three rounds of the research.

2.1. Data collection

The classical Delphi technique variant was used for data collection. In this variant, the first round is open-ended questions, which allow participants to provide qualitative responses to research questions (Franklin & Hart, 2007). Ten participants offered 29 suggestions for possible causes of delays. In the second round, 29 suggestions were circulated to the participants.

They were requested to score the factors according to the level of importance using the Likert scale of 1–5, where 1 was the lowest rating, and 5 was the highest. It was agreed that after the analysis, only those items that scored 3.0 and above were to be escalated to the next rounds. The exercise had two more rounds of data collection and iteration before achieving equilibrium (Day & Bobeva, 2005).

2.2. Data analysis

Considering data size, the arithmetic mean was used for the analysis of consensus. Twenty-nine items from Round 1 were sent to participants in Round 2. After analysis, only eight items satisfied the benchmark of 3.0 and above. Items that failed to meet the benchmark were marked in red.

The list with 29 items and red highlights was recirculated to participants together with the list of eight items that had met the threshold. This step served as Round 3. The participants were requested to examine the items marked red in the list from Round 1 and see if there were any items they felt should be reconsidered. When the document returned in the third round, only eight items from Round 2 were scored.

After the analysis, two more items (25 %) did not meet the benchmark, and they were discarded. The literature suggests that consensus can be achieved if participants no longer change their opinion or attain between 51 % and 80 % agreement on the suggested solutions to the research question (Hasson et al., 2000).

Therefore, having attained a 75 % consensus, the exercise was discontinued. The six resulting factors were discussed with the participants through telephone conversations, which enabled participants to provide additional information. The details of the results are shown in the findings and the discussion.

3. Research results

This section provides the background information on the funding agency used for this research, the results from the analysed data, interviews, and the contextual discussions on the causes of delays in the execution of sponsored construction projects.

3.1. Background to the research

The funding agency used for this research is known as the TETFUND, an agency of the government of Nigeria. The agency's mandate is to support infrastructure development and upgrades, the provision of equipment and human capacity development in all public higher education (HE) institutions in Nigeria. In any given intervention year, each institution is allocated a fixed amount, divided into appropriate sub-headings, with a template specifying the areas where the allocated amount should be spent. No institution can transfer funds from one sub-heading to another or introduce projects outside the template provided for that year. However, an institution may be allowed to accumulate its allocation for any subheading for a maximum of four years to enable the institution to execute a major project. The agency does not accept the idea of co-funding projects. Instead, institutions are encouraged to adopt the concept of phased development.

When the allocation for each intervention year is communicated to the institution, each institution develops appropriate projects within the given template, submits and defends them before the funding agency. Once approved, the agency communicates with each institution through a memo known as "Approval in Principle" (AIP). Upon receipt of the AIP, the institution commences the procurement process and applies for the release of the first tranche of fifty per cent (50 %) of the approved cost estimate for each specific project. The selected contractors from the procurement process are commissioned and paid fifty per cent (50 %) as a mobilisation fee. Once this amount is exhausted, the agency demands that a comprehensive report should be prepared and submitted to the project inspection, monitoring and evaluation (IM&E) unit of the funding agency, and the IM&E department is officially invited to inspect the projects. If the IM&E unit is satisfied, the second tranche of thirty-five per cent (35 %) is released. The final fifteen per cent (15 %) of the approved project cost is released when all the projects bundled together

in an intervention year are completed. Theoretically, all approved projects should be executed within twelve months, within the approved cost estimate, and no variation is allowed.

3.2. Analysis of results

The first round of data collection (using the Delphi technique) was a qualitative response to this open-ended question: "What are the factors responsible for delays in the execution of TETFUND projects?" Each participant was requested to identify between three and five factors. Table 2 represents the collation of responses from all ten respondents, showing 29 factors. This list was circulated to all participants for rating on the Linkert scale of 1 – 5 in Round 2.

After the analysis (the arithmetic mean), tthe items marked in bold black highlight did not meet the benchmark. Eight factors remained. Table 3 shows the eight items that satisfied the benchmark of 3.0 and above. However, Tables 2 and 3 were circulated to all participants, with the request that the participants could review the items marked red. If

Tab. 2. Analysis of round 2

S/No	Suggested reasons	Mean	To round 3
1	Delay in receiving a letter of allocation	2.5	
2	Delay in receiving AIP	3.25	3.25
3	Delay in mandatory monitoring, evaluation and project inspection	3.0	3.0
4	Delay in receiving first tranches	4.75	4.75
5	Delay in receiving the second tranche	3.5	3.5
6	The economic factor of the contractor	2.25	
7	Ill-conceived project	1.5	
8	Delay in the harmony of payment certificates	2.0	
9	The contract awarded to an incompetent contractor	4.0	4.0
10	Inability to meet conditions of release of funds by beneficiaries on time	2.75	
11	Frequent changes in design	1.5	
12	The hostility of the host community	1.25	
13	Late honouring of certificate by the client	2.0	
14	Force majeure	1.25	
15	Incomplete architect's instruction	1.75	
16	Contractors not receiving instruction/drawing/other details on time	3.25	3.25
17	Requesting gratification from contractors	1.5	
18	Incompetent technical in-house staff	2.0	
19	Using inferior materials	1.75	
20	Bad workmanship requiring reworks	2.25	
21	Non-completion of tranches before the release of another by the institution	1.0	
22	Non-submission of observation by the institution when requested by TETFUND	1.5	
23	Delay in calling TETFUND for inspection to access next tranche	2.25	
24	Delay may be caused by the contractor	4.25	4.25
25	Wrong contractor selection method	1.75	
26	Lack of flexibility of fund utilisation (market realities)	2.25	
27	Non-completion of the project affects accessing future funds	3.25	3.25
28	The contractor always holds the client ransom	1.5	
29	Time taken to obtain approvals always attract fluctuation of price	2.25	

Tab. 3. Analysis of Round 3

S/No	Factors	Mean	Accepted results
1	Delay in receiving AIP	2.75	
2	Delay in mandatory monitoring, evaluation and project inspection	3.0	3.0
3	Delay in receiving the first tranche	3.0	3.0
4	Delay in receiving the second tranche	3.5	3.5
5	The contract awarded to an incompetent contractor	3.0	3.0
6	Contractors not receiving instruction/drawing/other details on time	2.5	
7	Delay may be caused by the contractor	4.0	4.0
8	Non-completion of the project affects accessing future funds	3.75	3.75

Tab. 4. Classification of the causes of delay

S/No	Internal factors	External factors
1	The contract awarded to an incompetent contractor	Delay in receiving the first tranche
2	Delay may be caused by the contractor	Delay in receiving the second tranche
3	Non-completion of the project affects accessing future funds	Delay in mandatory monitoring, evaluation, and project inspection

they felt strongly that any should be reconsidered, they could escalate and score them accordingly. When returning the document for Round 3, only the eight items were scored.

After the analysis, two more items scored below the benchmark and were discarded. Only six items satisfied the research objectives as key factors responsible for the delays in the execution of the sponsored construction projects. The resulting six factors were classified as internal and external, as shown in Table 4. During the interview sessions, participants provided additional information, which further explained the other attributes of these factors.

3.3. Synthesis of interview data

The result of the Delphi exercise was circulated to the participants, with this question: "What are the procedural or administrative processes that culminate in the internal and external factors responsible for the delays in the execution of these sponsored projects?"

4. Discussion of results

The findings from the Delphi exercise and the synthesis of the interview response led to the devel-

Tab. 5. Synthesis of interview data

S/No	The factors	Participants' response	Suitable theme
1	Internal factors	• Compromised contractor selection during pre-qualification due to overt stakeholder interests, • Some of the contractors are not competent, • Slow pace of work, frequent reworks, low quality of products and not keeping to the construction schedule	Quality contractor
2	External factors	• The project completion time commences with the receipt of the first tranche, • The delay is mostly in receiving the second tranche, • Precipitated by the structured and over-centralised operation of the project inspection, monitoring and evaluation department	Fund administration; Project inspection, monitoring and evaluation

opment of suitable themes, which are discussed below.

4.1. Quality contractor

The internal factors responsible for the delays in the execution of TETFUND projects revolve around the contractor selection process. However, if the wrong contractor is selected, the process snowballs into construction projects awarded to incompetent contractors, resulting in the slow pace and poor quality of work, leading to delays and non-completion of work within the schedule. The literature suggests that the successful execution of any construction project depends on the selection and use of good-quality contractors (Doloi, 2009). If the two-stage process of contractor selection (pre-qualification and post-qualification) is judiciously followed, it is possible to select good-quality contractors who can deliver infrastructure projects on schedule (Jafari, 2013). As observed by the participants, in many cases, this process is compromised due to the "undue interference of some of the key stakeholders", initially through the promotion of poorly resourced contractors during the pre-qualification selection. This group of contractors usually produces deficient bid documents, who naturally should fail the critical bid evaluation processes (Jafari, 2013; Deep et al., 2017). Again, due to the interest of key stakeholders, this group of contractors is patronised. During project execution, these low-skilled contractors fail to keep to the construction schedule, produce poor quality work requiring frequent reworks, and hinder effective supervision and quality control by PET members. Their performance negatively impacts project supervision, the issuing of appropriate payment certificates and the IM&E certification. This, in turn, significantly impacts the release of funds for the second tranche, low cash flow and causes delays in effective project delivery.

4.2. Fund administration

Fund administration involves the release of funds for project execution. This process influences the contractor cash flow, their ability to honour construction time schedules or delays (Al-Joburi et al., 2012). During the interview session, the participants agreed that although the funding agency has an attractive schedule for releasing funds, there is a significant "time lag in the release of the second tranche/instalment of 35 %". The operational policy of the funding agency is that the first instalment of 50 % (of the approved project estimate) must be exhausted and have produced acceptable progress reports to the funding agency. When the agency is satisfied with the progress report, the benefiting institution can apply for the release of the second instalment of 35 %. In the words of the participants, "the bureaucracies and the structured implementation of the requirements for IM&E, contribute significantly to the delays in the release of the second instalment". There is no gainsaying that implementing any funding policy that impairs the cash flow is a recipe for delays in the construction project execution (Olatunji, 2019; Omopariola et al., 2020).

4.3. Project inspection, monitoring and evaluation

Project IM&E is a standard management practice for every successful project. The IM&E process includes tracking and reviewing the work progress, relating the progress to planned schedules, comparing financial disbursement with the actual progress, and regulating the progress to meet the performance objectives (Kamau & Mohammed, 2015). However, the IM&E execution mode influences the cash flow rate for the relevant project implementation team and the ability to meet the construction project's timeline (Kamau & Mohammed, 2015). The IM&E department of the funding agency, TETFUND, is domiciled at the agency's headquarters in Abuja. The department claims that it has scheduled periods for project inspection. However, this schedule is not known to any of the benefiting institutions. The implications are that the submission of reports and requests for project inspections from any institution may be received early; however, they had no control over when the next inspection would occur. One of the participants observed that "the waiting time may be as short as one month and sometimes longer than four months". Another drawback in the IM&E process is the auditing and certification of progress reports. If discrepancies are observed (which happens often), the reports are returned and amended multiple times. Until the IM&E department is satisfied with the project execution report and is corroborated by physical inspections, the second instalment of 35 % is not released. During these periods, "if the contractor does not have access to alternative sources of funds, the project will be on hold", as observed by the participants. This confirms the postulation of many researchers that the inability of the contractors to

access additional funding sources is a major factor responsible for limiting the cash flow, which results in construction project delays (Al-Joburi et al., 2012; Omopariola et al., 2020).

Therefore, the external factors manifest in the implementation of the operational policies of the funding agency. The fund administration and IM&E have over-arching impacts on the low cash flow for project execution, causing delays and denying the benefiting institutions the privilege of having value for money for the projects being executed (Yalini & Alan, 2015; Turkar & Apte, 2016). Although the funding agency's policies aim to develop good-quality infrastructure, ensure accountability and reduce the risk of abandoned projects, the policies require a pragmatic implementation of IM&E processes to facilitate the timely release of project funds.

Conclusions

Delays of different degrees seem to be synonymous with many construction projects. They have negative effects on different stakeholders involved in a construction project. Major causes of delays were identified by several studies in the form of insufficient funding, client failure to meet the financial obligations for services rendered, low cash flow or contractors having difficulties in accessing credit. Since the issue of adequate funding has been addressed in sponsored construction projects, it was important to explore the factors responsible for delays during project execution, which impacted an effective cash flow.

The case-study method of qualitative research was adopted in this study; the Delphi technique and interviews were used as data-collection instruments. The main stakeholders involved in the coordination of construction projects in HE institutions in Nigeria — the DPPs and the DOWs — were the participants in this research. Initially, 29 reasons for project delays were collated from the participants. After two additional data collection and analysis rounds, the initial 29 factors were reduced to six (6) and classified as internal and external factors. The internal factors amplified the need to improve on the contractor selection process as it significantly influences the quality of contractors engaged in the execution of construction projects. This is against the backdrop that the performance of contractors has overarching effects on the cash flow and the successful execution of construction projects. The external factors showed some deficiencies in the project management system of the funding agency, which includes the fund administration and IM&E policies and procedures. The structured and over-centralised procedure of the IM&E department negatively affects the timely release of the second instalment of the project fund. This, in turn, affects the low cash flow, especially for the contractors. When the contractors do not have access to alternative sources of funds, and the waiting period results in the delayed implementation of construction processes.

Therefore, this study concludes that the causes of delays in the execution of sponsored construction projects with evidently adequate funding are the combined effects of the internal and external factors, which negatively impact the project cash flow. This suggests that the operatives in both the in-house structure of the respective HE institutions and the funding agency have their fair share of responsibilities. This research recommends the decentralisation of IM&E department operations to operational offices in the six geopolitical zones of the Nigerian Federation. This practice will improve responses to project inspections and the auditing of reports, which in turn will fast track the release of the second tranche and therefore improve the project cash flow. Furthermore, extended investigations involving more HE institutions should be conducted to validate the findings of this study and to identify more possible reasons for delays to enable the development of holistic solutions.

Acknowledgements

The authors acknowledge with gratitude the financial contribution to this research from the University of Johannesburg and the University of Jos through their collaborative relationship.

The publication of the article for 11th International Conference on Engineering, Project, and Production Management - EPPM2021 was financed in the framework of the contract no. DNK/SN/465770/2020 by the Ministry of Science and Higher Education within the "Excellent Science" programme.

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