ASSESSMENT OF THE TRIGGER OF DELAYS OF PUBLIC BUILDING PROJECTS DELIVERY.

(A Case Study of TETFUND Building Projects in Auchi Polytechnic)

A PROJECT SUBMITTEDTO THE DEPARTMENT OF BUILDING TECHNOLOGY, AUCHI POLYTECHNIC, AUCHI IN PARTIAL FUDILLMENT OF THE REQUIRMENT FOR THE AWARD OF HIGHER NATIONAL DIPLOMA (HND) DEGREE IN BUILDING TECHNOLOGY

BY

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CERTIFICATION

This is to certify that this research work was carried out by**ITSEUWA MICHAEL OSIGBEMHE,** matriculation number **ENV/2032050096,** of the Department of Building Technology, Auchi Polytechnic, Auchi. Edo state.

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DEDICATION

This research work is dedicated to GOD Almighty, my creator, the secret behind my success, the one whose mercy and grace has kept me this far despite my unfaithfulness, yet he has proven himself to be the compassionate and loving father.

ACKNOWLEDGEMENT

I give all praise to GOD ALMIGHTY,

ABSTRACT

The research aimed at assessing the trigger of delays of tetfund building projects delivery in Auchi Polytechnic with a view to enhance prompt delivery of tetfund building projects in the institution**.** Thus, in order to achieve this aim, the following objectives were put forth to; assess the factors that triggers delay in tetfund building project delivery; evaluate the effect of delay on tetfund building project delivery; and suggest possible measures for mitigating against the triggers of delay in tetfund building project delivery. The population for the study include construction stake holders such as clients, consultants and contractors. Questionnaires were used as a means of data collection. The datas collected were analyzed using statistical tools such as percentage and Mean Item Score. This study was able to establish that; Site management,Kick back,Poor Communication,Variationand Inaccurate estimating are the major factors that trigger delay in the delivery of tetfund Building Projects in Auchi Polytechnic. Meanwhile, once there is delay in the execution of tetfund projects, it can be observed from the study that; Loss of contractors reputation, Inconvenience to the beneficiaries, Time overrun, Unavailability of basic goods and services, Wastage of Equipment and materials on Site, Increase in the final cost of the project and Unemployment of construction workers are the major effect it would have on both the project beneficiary and the contractor. Hence, There has to be the installation of good and proper communication channel to forestall effective communication in order to enhance the delivery of tetfund projects, tetfund projects must be awarded to contractors who have adequate knowledge in its execution, tetfund bodies and administrators should ensure that contractors are well monitored and payments are made promptly in order to avoid construction project delay and Host communities and contractors must have clear brief and understanding of their specifications before construction projects are being executed in order to avoid delay.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Construction industry is an industry that involves complex and dynamic processes. It consists of successful coordination of multiple discrete business entities such as professionals, tradesmen, manufacturers, trade unions, investors, local authorities, trade contractors and others that have great impact on a nation's economy (Wetherill, 2003). Successful completion of construction projects leads to wealth creation; socio-economic growth and improved standard of living (Ali, Khahro, Memon, Moriyani, Siddiqui & Khahro, 2018). This is in agreement with the findings of Koshe & Jha, (2016) who also posited that Nations are evaluated as "developed", "developing" and "underdeveloped" based on the quantity and quality of completed construction projects in their domain and their education system. A delay in construction of school building therefore has impact on the economic projections of a nation.

Earlier researchers have different definitions for construction projects due to multidisciplinary concept. For instance, Project definition according to Xia, Xiong, Skitmore, Wu and Hu, (2016) "is a temporary activity or endeavour that is undertaken mainly to create a unique product or service within budget, time and standards. Turner and Muller (2003) described project as a systematic organization of human materials and financial resources in a novel way, to undertake a unique scope of work at a given specification, within constraints of cost and time. This implies that every endeavor in life is a project and there must be some mechanisms put in place for a project to be successful. Hence, in achieving project objectives one of such measure to ensure its success is timely delivery within the set scope.

Mangvwat, Ewuga and Izam, (2020) posited that most TETFUND building projects suffer delays. The effects of these delays may be of considerable magnitude on the efficiency of the project.However,Aghimien and Awodele, (2017) suggests thatit is possible to reduce these delays through recognition of their real causes. Definitions of delays in construction can be presented in several ways. Delay could be defined as the time overrun beyond the accomplishment time in the agreement or beyond the time the contract parties agree upon for the delivery of the project (Aibinu & Odeyinka, 2006). Also, it can be defined as the distinction between the real finish date and the estimated date. Moreso, delay could be defined as the period during which the project or part of it has been extended or not completed due to unexpected conditions**(**Muhwezi, Acai & Otim, 2014**)**. Therefore the delay in construction project can be expressed as the time overrun or extension of time behind the date agreed upon by the contract parties.

In the delivery of TETFUNDconstruction projects, time and performance have strong relationships with each other. Changes that occur in these areas have strong impacts on project performance Mukhtar, Abdussalam and Mustapha, (2021) opined that delay is one of the major factors influencing on TETFUND construction projects because it is directly linked with increase in the project cost and often time may even result to poor project output. Meanwhile,Kado, Dandajeh and Azeez, (2018) affirms that it is valuable for all stakeholders, like consultant, contractor, client of construction project to complete their work on time. Therefore, it is essential to identify delay factors of construction projects in general and for specific project type (TETFUND Building Projects) in particular because delay is considered costly for both owner who serves as the end users of the projects and construction firms who can both be affected with time-overrun, re-negotiations, cost overrun, and possibly disputes like court cases. Meanwhile,

some of the projects are even abandoned and this inturn affect the infrastructural development of the tertiary institutions who serves as the host or beneficiaries of this projects.

1.2 Statement of Research Problem

Construction Project in Nigeria have suffered from time and cost overruns which have led to so many projects abandonment and failure. It has resulted to loss of multiplier effect on the economy of the country due to loss of scarce resources and poor infrastructural development.A typical example is Tertiary Education Trust Fund TETfund -sponsored project at Auchi Polytechnic awarded at 2008 and constructed at 2016. This invariably leads to time and cost overruns. These problems could be attributed to certain factors which need to be identified and examined critically. If the situation is left untreated, it will lead to more serious problems in construction project in Nigeria. Furthermore, if these problems continue, those working in the construction industry will be facing numerous challenges such as slow decision making by the client; improper project planning and scheduling; poor site management and supervision; inaccurate cost estimate to mention a few.

Despite the benefits of capital projects implementation, most projects exerted no economic impact on the economic of Nigeria and most were abandoned half way in almost all tertiary Institutions in Nigeria. The consequence of the above is inadequate infrastructures and laboratories in the tertiary institutions across the country. This has negatively manifested in the deteriorating state of Nigeria's higher educational standards. Thus, there is dearth of skilled manpower in the country as most of the science graduates have no practical knowledge to operate optimally.

Numerous studies in various countries has been conducted on delay factors of public construction projects like: investigation of the delivery of Malaysian construction building projects (Sambasivan, 2007), knowledge and effects on construction projects in Taiwan (Chou et al., 2012), and a case study of Chinese contractor (Deng et al., 2014). (Shaikh, 2010) assessed the factors related with delay-causes in construction projects of Pakistan. However, they did not measure the relationship related with cause and effect of the construction projects especially basic projects with special funding arrangement such as TETFUND. This study seeks to contribute, verify, and enhance the existing knowledge of project delays by analyzing antecedents and outcomes of delay through cause and effect relationship on Tetfund building projects in Auchi Polytechnic.

1.3 Research Questions

The following research questions were put forth;

1. What are the factors that triggers delay in public building project delivery?
2. What are the effect of delay on public building project delivery?
3. What are the measures for mitigating against the triggers of delay in public building project delivery?

1.4 Aim and Objectives of the Study

The aim of the study is to assess the trigger of delays of public building projects delivery in Auchi Polytechnic with a view to enhance prompt delivery of public building projects in the institution**.** Thus, in order to achieve this aim, the following objectives were put forth To;

1. Assess the factors that triggers delay in public building project delivery;
2. Evaluate the effect of delay on public building project delivery; and

3. suggest possible measures for mitigating against the triggers of delay in public building project delivery.

1.5 Significance of the Study

The client and the end users of TETFund building projects suffers from delay in the execution of public projects.Project delays are caused byvarious factors such as project type, amidst others and sometimes it arises as a result of faults and weaknesses of the owner and the contractor.(Agyekum-Mensah & Knight, 2017)It is therefore imperative to conduct detailed investigation and identification of sources or triggers ofthese delayso as to unveil a framework for selecting the right actions to improve cost and maintain quality.

Umar, Rizeiqi and Badr, (2020).posited that Faults and errors due to the contractor cause delays and waste of capital and time. Delay can also occur due to the incapability of the contractor of project and properly use of the capital (Gidado & Niazai, (2012). Meanwhile, all these has significant impact on the delivery and overall performance of such projects. However,there are several valuable benefits expected by implementing this study. The significance of this studywill provide a greater insight and understanding on the causes of delays particularly among the main project players: contractors, clients and consultants, including the end uer of thee tertiary institution projects.

It is also expected that this research will provide some good empirical data on the extent and ways to reduce delay in construction projects. The reasons for these delays will also be documented with an overall aim to provide guidelines for future owners, builders, designers, and

managers of construction projects on the dos and don'ts for devising effective systems to deliver projects on time, within budget, and to quality standards, which fully satisfy the clients as well as the intended end-users.

The study is expected to be beneficial to the Nigerian construction sector and tertiary institutions since it would educate them on the dangers of project or construction delays by demonstrating the effect of delay on project delivery. The study will also be valuable to contractors who are given construction contracts in tertiary institutions, as the study emphasizes the importance of TETFund project completion and delivery on schedule. The study will also be useful to academics who want to do research on a similar topic because it will act as a guide for their research. Finally, the research will benefit both academic students and the general public.

1.6 Scope and Limitation of the study

Construction projects range in scope from building projects to industrial engineering projects, the causes of delay on these projects are virtually the same, though the cost/time implications may be greater in some than others due to a lack of detailed documentation and expertise. As a result, the research will be limited to TETFund building projects completed over the last ten years in Auchi Polytechnic, Auchi.. The data gathered would be limited to the professionals in TETFund Unit Auchi Polytechnic and contractors who have handled TETFund Projects in the institutions with some categories of staffs and students who are classified as end users or host.

1.7 Definition of Terms

Trigger: Trigger is to cause or make something happen

Delay: he act of postponing, hindering, or causing something to occur more slowly than normal **:** the state of being delayed. (Zhu, Li, Yong& Zhuang, 2008).

Public building: A public building is a building that belongs to a town or state, and is used by the public. (Shear, 2016)

Project delivery: Project delivery refers to the comprehensive process of carrying out and completing projects such as the construction or renovation of a facility or building, among others. It requires careful planning, design, and construction measures from different actors. The project delivery system requires multiple roles, standards, and a defined set of procedures to proceed.(Forbes & Ahmed, 2010)

Tetfund projects: It is an intervention agency set up to provide supplementary support to all level of public tertiary institutions with the main objective of using funding alongside project management for the rehabilitation, restoration and consolidation of Tertiary Education in Nigeria

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Construction is defined as a process that consists of the building or assembling of infrastructure. (Ofori, 2000). "On the other hand, a Construction Project "includes all material and work necessary for the construction of a finished structure for occupancy by End Customer. This includes site preparation, foundations, mechanical works, electrical works, and any other work necessary to complete the project.Zigurs, Khazanchi & Mametjanov, (2008) also categorized the projects into three types based on their complexity. The complexity is defined in terms of attributes of team size, culture, language, gender composition, personal characteristics, resources and knowledge (Ofori, 2000).

2.2 Overview of Construction Project

A project is a series of related a tasks which when they are carried in the correct order will lead to the completion of the project. (Guo, Yiu & González, 2016). Projects are temporary, generally resulting in the creation of a tangible product or outcome. A **construction project**, sometimes just referred to as a 'project', is the organised process of constructing, renovating and refurbishing a building, structure or infrastructure.The project process typically starts with an overarching requirement which is developed through the creation of a brief, feasibility studies, option studies, design, financing and construction.**Construction projects** are typically one off's. That

is, a project team, brief and financing are put together to produce a unique design that delivers a single project.

2.3 Types of Construction Projects

Construction Projects may be Public or Private Construction projects

A 'private project' is one that is financed, controlled or commissioned by a private party, i.e. one that is not a government. Private parties can include individuals, corporations, charities, privately-funded institutions, schools, hospitals, and so on. (Mosey, 2009).

Some projects involve both public and private entities. Public Private Partnerships (PPPs) are a very broad range of partnerships in which the public and private sectors collaborate for some mutual benefit, which can include the completion of a **construction project**.

The term 'public project' is an ambiguous one, but in very broad terms, it refers to a project that is financed by a government and is typically owned, and may be operated by the government. This can include major infrastructure works such as roads, bridges, dams, railways, tunnels, and so on, or public facilities such as hospitals, schools, prisons, libraries, leisure centres, and so on.(Pryke, 2009).A 'public project' is one that is financed by the government and is typically owned, and may be operated by the government. This can include major infrastructure works such as roads, bridges, dams, railways, tunnels, and so on, or public facilities suchas hospitals, schools, prisons, libraries, leisure centres, and so on. For more information, see Public project definition.

As public projects are generally funded by tax revenue, they are typically subject to a greater level of scrutiny, and greater transparency is required in the bidding and contract

award procedures. Public projects often publish their requirements and request bids openly, with received bids considered in an open and transparent way. The government can also stipulate certain criteria that a supplier must fulfil in order to be awarded a public contract, such as; minimum wage levels, reporting procedures, and so on.

2.4 Historical Background and Development of TETFund in Nigeria

Tertiary Education Trust Fund is a scheme established by the Federal Government of Nigeria in 2011 to disburse, manage, and monitor education tax to government-owned tertiary institutions in Nigeria.

The TETFUND scheme was formed as a product of the Education Tax Act of 1993. This Act repeals the Education Tax Act Cap. E4, Laws of the Federation of Nigeria, 2004 and Education Tax Fund Act No. 17, 2003 and establishes the Tertiary Education Trust Fund charged with the responsibility for imposing, managing and disbursing the tax to public tertiary institutions in Nigeria. Before the establishment of the scheme in 2011, government-owned tertiary institutions were poorly funded. The scheme was designed to improve the management of funds disbursed to these institutions.

From the 1980s and beyond, the decay of all tiers of education was monumental. Facilities had almost collapsed, teachers and lecturers morale was at its lowest. Enabling environment for conducive teaching and learning was absent. The administration of President, Ibrahim Babangida mindful of the reality of the situation took measures to arrest the rot. In December 1990 the Federal Government constituted the Commission on the Review of Higher Education in Nigeria (the Gray Longe Commission) to review the post-independence Nigerian Higher Education after Lord Ashby's Commission of 1959. The Longe Commission recommended among others the

funding of higher education through earmarked tax to be borne by companies operating in Nigeria. An implementation committee under the chairmanship of Professor Olu O. Akinkugbe was constituted to implement Grey Longe's Commission report recommendations also an Agreement was signed between the Federal Government and ASUU on the 3rd September 1992 on funding of universities. In January 1993, the Education Tax Act No7 of 1993 was promulgated alongside other education-related Decrees. The Decree imposed a 2% tax on the assessable profits of all companies in Nigeria. This was a homegrown solution to address issues of funding to rehabilitate decaying infrastructure, restore the lost glory of education and confidence in the system as well as consolidate the gains thereto; build the capacity of teachers and lecturers; teacher development; development of prototype designs; etc. The Education Tax Act of No7 of 1993 mandated the Fund to operate as an Intervention Fund to all levels of public education (Federal, State and Local). This mandate was faithfully discharged between 1999 to May 2011 when the ET Act was repealed and replaced by the Tertiary Education Trust Fund Act, due to lapses and challenges in operating the Education Trust Fund. These lapses and challenges include:

- The ETF was overburdened and overstretched and could only render palliative support to all levels of public educational institutions in Nigeria;
- Duplication of functions and mandate of other Agencies set up after the ETF, such as Universal Basic Education (UBE) and Millennium Development Goals (MDGs);
- The decay, rot and dilapidation of facilities issues in the tertiary education continued to be irritating as Funds are only thinly spread.

2.5 Establishment of the Tertiary Education Fund

The Tertiary Education Trust Fund was originally established as Education Trust Fund (ETF) by Act No 7 of 1993 as amended by Act No 40 of 1998 (now repealed and replaced with Tertiary Education Trust Fund Act 2011). It is an intervention agency set up to provide supplementary support to all levels of public tertiary institutions with the main objective of using funding alongside project management for the rehabilitation, restoration and consolidation of Tertiary Education in Nigeria. The main source of income available to the Fund is the two per cent education tax paid from the assessable profit of companies registered in Nigeria. The Federal Inland Revenue Services (FIRS) assesses collects the tax on behalf of the Fund. The funds are disbursed for the general improvement of education in federal and state tertiary educations specifically for the provision or maintenance of:

- Essential physical infrastructure for teaching and learning;
- Institutional material and equipment;
- Research and publications;
- Academic staff training and development, and;
- Any other need which, in the opinion of the Board of Trustees, is critical and essential for the improvement and maintenance of standards in higher educational institutions.

The fund is managed by an eleven-member board with members drawn from the six geopolitical zones of the country as well as representative of the Federal Ministry of Education, Federal Ministry of Finance and the Federal Inland Revenue Services. The board has the following responsibilities as stated in the act:

- Monitoring and ensuring collection of Tax by the Federal Inland Revenue Services and ensure transfer to the Fund;

- Manage and disburse the Tax;
- Liaise with appropriate ministries and bodies responsible for the collection or safekeeping of the Tax;
- Receive request and approve admit table projects after due consideration;
- Endure disbursement to various public tertiary education institutions in Nigeria;
- Monitor and evaluate the execution of projects;
- Invest funds in appropriate and safe securities;
- Update the Federal Government on its activities and progress through annual audited reports among the states of the Federation in case of regular intervention;
- Review progress and suggest improvement within the provisions of the Act;
- Do such other things that are necessary or incidental to the objective of the Fund under these Acts or as may be assigned by the Federal Government;
- Make any issue guidelines, from time to time, to all beneficiaries on disbursement of monies from the Fund on the use of monies received from the Fund;
- Generally to regulate the administration, application and disbursement of monies from the Fund under this Act.

The Board of Trustees shall administer, manage and disburse the tax imposed by this Act based on:

A. Funding of all public tertiary educational institutions

B. Equality among the six geo-political zones of the Federal in case of special intervention

C. Equality among the states of the Federation in case of regular intervention

- The distribution shall be on the ratio of 2:1:1 as between Universities, Polytechnics and the College of Education.

- The BOT shall have the power to give due consideration to the peculiarities of each geo-political zones in the disbursement and management of the Tax imposed by this Act between the various levels of tertiary education.

2.6 Funding of TETFund Building Projects in Nigeria

The funding of public tertiary education in Nigeria has long emerged as a critical challenge to the promotion of good tertiary educational standard, maintenance of physical infrastructure, training of lecturers and funding of research in the country, among others. These issues have caused friction between the staff of tertiary institutions and the government, leading to the obstruction in academic work. Higher institutions in the country have often resorted to strike actions to press home their demands for better working conditions and funding of education. The seeds of Academic Staff Union of Nigerian Universities (ASUU) strikes were sown in 1981 when the first agreement with the Federal Government was signed with plan to review after three years. This was not fully implemented leading to the subsequent series of strikes and other agreements in 1992, 1999, 2001 and 2009, amongst others (Bamiro, 2012). The Education Tax Fund (ETF), which was established by Education Tax Act 1993 as a home grown solution to the myriad problems of education, especially funding is a product of an agreement signed in 1992 between the Federal Government of Nigeria and ASUU.

Education is a pre-requisite for national development because it affects other sectors of the national economy (Okebukola, 2002). Consequently, the neglect of the educational sector has implications for other sectors in the country. According to Mgbekem (2006) the major challenge facing the management of university system in Nigeria is inadequate funding. To address the problem of funding specifically tertiary education, TETFund was established as an intervention

agency under the TETFund ACT - Tertiary Education Trust Fund (Establishment Act, 2011. The Act repeals the Education Tax Act Cap. E4, Laws of the Federation of Nigeria, 2004 and Education Tax Fund.

Act No. 17, 2003, which were the enabling legal foundations for ETF (TETFund, 2017). Its areas of intervention include sponsorship of lecturers for postgraduate studies, funding constructions and refurbishment of educational facilities, promoting creative and innovative approach to learning; provision of higher educational books and funding of libraries, and provision of learning equipment. TETFund was established at a time when the educational sector at the tertiary level had suffered many years of neglect by successive governments. According to the guidelines for accessing TETFund interventions funds, it is "mandated to administer, manage and disburse the 2% Education Tax collected from the registered companies in Nigeria for the primary purpose of providing auxiliary support for the general improvement of education in Public Tertiary Institutions" (TETFund, 2015). Accordingly, TETFund disburses its funds to all public tertiary institutions in Nigeria, whether at federal, state or local government levels. All that the public tertiary institution needs to do is to follow the guidelines for accessing funds from TETFund by presenting a viable proposal (s) for the project it wants to execute. This poses lots of challenges in the management of the funds to meet the number of problems facing the sector. Beneficiaries of the funds have to use it properly for rehabilitation, restoration and consolidation of education infrastructure and facilities and other learning resources including manpower, libraries and laboratories, amongst others. To access the funds, institutions that had previously benefited from the Fund are required to render a satisfactory and credible account of previous funding as a yardstick to qualify for more funding. This is to ensure the development of the educational sector, with specific focus on public tertiary institutions in Nigeria (TETFund, 2015).

The central issue is this research is that despite some significant improvements in funding tertiary institutions following the establishment of TETFund from inception to date, most public tertiary institutions in the country are still confronted with serious funding challenges. Some public tertiary institutions experience delay in the execution of projects and programmes due to the bureaucratic bottlenecks involved in accessing TETFund. This has remained an issue confronting the institutions over the years, even in the face of funding challenges coupled with the expanding student population and attendant infrastructural demands. On the other hand, TETfund has argued that the inability for some tertiary institutions to access funds on time is due to failure to follow the guidelines for accessing the funds. Following this line of argument, then Executive Secretary, TETFund, Abdullahi Baffa submitted that out of the N1 trillion (one trillion naira) allocated to the institutions between 2011 and 2015, about N175 billion (One hundred and seventy-five billion naira) had remained un-accessed (The Guardian News, 2 June, 2017). Thus, there is a gap between expected results and reality arising from the interventions of TETFund in public tertiary institutions in the country.

2.7 Functions of the Tetfund Department of Physical Infrastructure Development in Nigeria

The main functions of the Department of Physical Infrastructure Development are as enumerated below:

1. To determine admissible projects submitted by beneficiary institutions in line with the policy direction of the Board of Trustees (BOTs);
2. Vet and reconcile project proposal submissions in line with given allocations and obtainable best practices;

3. Recommend projects for Approval-in-principle, if okay;
4. Monitor the due process for consultants/contractors' engagement through attendance of bid openings at beneficiary institutions;
5. Recommend funds disbursement of First Tranche after compliance with the due process by beneficiary institutions;
6. Making professional input on beneficiary institutions' submission and offering professional advice whenever required for proper guidance and implementation of TETFund projects;
7. Corresponding with beneficiary institutions on issues about their submissions;
8. Market surveying of key construction materials, furniture and educational equipment, and maintaining cost data;
9. Develop position papers on projects and present to the Board of Trustees (BOT);
10. Translating Board Policies to action as concerns project development/intervention;
11. Formulation of standards;
12. Acts as secretariat of the Projects Committee of the Board under the direction of the Executive Secretary;
13. Documents and archives project information in digitized database;
14. Do such other things as may be directed by the Executive Secretary from time to time;

The function of the Department starts from the receipt of project proposal from Beneficiary Institution and processing of same up to first tranche release stage. Subsequent monitoring during implementation by the benefitting institutions and processing for second and final tranches, etc are taken up by Monitoring and Evaluation Department to complete the project cycle.

2.8 Intervention Lines Under the Tetfund Department Of Physical Infrastructure Development

In line with the mandate of the Fund, the Department of Physical Infrastructure Development administers the following categories of intervention to the Benefitting Institutions are Annual Intervention and Special Intervention

i. **Annual Intervention** – These are statutory projects intervention which all TETFund beneficiary institutions can access annually.This intervention category has the following intervention lines:

A. Physical Infrastructure/Programme Upgrade

B. Entrepreneurship (Universities only)

C. Equipment Fabrication (Polytechnics only)

D. TETFund Project Maintenance

ii. **Special/Designated Intervention** – These are complementary intervention either directed by Mr. President or identified by the Board of Trustees targeted at correcting imbalances or deficiencies in critical areas. Such interventions are delivered to institutions in the Six (6) geo-political zones to address identified peculiarities. They are:

a. Special High Impact Intervention (SHIP),

b. Other Special Intervention, such as take-off grant to newly established Federal institutions, Disaster Recovery Intervention, other designated special project intervention, etc.

2.10 Factors Affecting Time Performance of TETFUND Construction Projects in Nigeria

Several studies have been carried out to identify factors affecting time performance of construction projects. Study conducted by Assaf and Al-Hejji (2006), revealed 73 causes of delay in large construction projects. The identified causes were categorized into nine groups namely: factors related to project, client, contractor, consultant, design-team, materials, equipment, manpower (labor), and external factors. The study identified the most important causes of delay as shortage of labour, unqualified work force, inadequate contractors experience, difficulties in financing project by contractor, ineffective planning and scheduling of project by contractor, low productivity level of labour, rework due to errors during construction, delay in progress payments by client, original contract duration is too short, shortage of labour, delay in material delivery, poor site management and supervision by contractor, type of project bidding and award, poor qualification of the contractor's technical staff, change order by client during construction, slowness in decision making process by the client, late procurement of materials, mistakes and discrepancies in contract documents.

Chan and Kumaraswamy (2002) presented the following as major factors causing delays in construction projects. These are: inclement weather, labour shortage/ labour low productivity, poor subcontractors' performance, variation, unforeseen ground condition, materials shortage/ late materials delivery, inadequate construction planning, financial difficulties of contractor, delays in design work, poor site management, impractical design, poor communication, inappropriate type of contract used, lack of designer's experience, and inaccurate estimating. Gambo et al. (2017) identified the following as factors affecting the successful completion of some selected TETFund projects. These are increase in materials price, inadequate supply of materials, lack of quality control of material, difficulties in receiving progress payment from

client, lack of technical skill of the project manager, lack of experience of the project manager, lack of managerial skills of the project manager, lack of motivating skills of the project manager, lack of commitment of project team members, and economic environment. Omoregie and Radford (2006) classified the following as factors responsible for project delay, namely, poor contract management, financing and payment of completed work, changes in site conditions, weather, shortages of materials, mistakes and discrepancies in contract document, subcontractors and nominated suppliers, non-adherence to contract conditions, mistakes during construction, inaccurate estimates, delays, shortening of contract periods and design changes. Dlakwa and Culpin (1990) presented the following factors as responsible for time overrun in public sector construction projects in Nigeria. These are contractors' difficulties in receiving interim payments from public agencies, contractors' financial difficulties, inadequate public agencies' budgets, deficiencies in contractors' organizations, deficiencies in planning and scheduling, frequent variation/change orders, difficulties in obtaining construction materials, deficiencies in public agencies' organizations, contractors' unrealistic tenders, design-related, unrealistic, contract durations imposed by public agencies, large quantities of extra work, unexpected natural and social events, deficiencies attributed to construction plant and equipment, inadequacy of site inspection, shortage of qualified workers, disagreement related to interpretation of contract specification and clauses etc. Elinwa and Joshuwa (2001) reported the following factors as causes of time overrun in construction projects in Nigeria. These are: non-compliance with conditions of contract, mode of financing and payment for completed work, improper planning, frequent changes in design and materials (variation), underestimation of time for projects, lack of coordination between contractor and design team, preparation and approval of variation orders, poor site management, relationship between management and labor, choice of materials not

readily available, mistakes during construction, delays caused by subcontractors and suppliers, inadequate supply of labor, government policy, disputes on site, maintenance work on machinery/plant, inclement (severe) weather conditions, contractor handling work on more than one site, transportation of materials and plant to site, changing construction techniques to unfamiliar ones, lack of proper incentives to operatives, litigation, off-site manufacture of items/building components/ items. Enshassi et al. (2009) identified 110 factors causing delays in construction projects in the Gaza Strip, the factors were categorized into 12 groups namely project related factors, contractors related factors, consultants related factors, clients related factors, professional management related factors, design and documentation related factors, materials related factors, execution related factors, labour and equipment related factors, contractual relationship related factors, government relation related factors, and external factors.

Tendering Process: The tendering process is a structured process, in order to be fair and transparent; including a stringent selection process, expressions of interest from bidders, through to the request for tender and the evaluation process. The kind of tendering process adopted for Tetfund projects usually prolongs project duration

Sources Of Funds: The type of source for a project fund may also affect the project duration. This often leads to Delayed payment is a universal phenomenon, since a major problem in the construction industry is delayed payment. Delayed payment is a major cause in project delay and over bloated cost in the construction industry. The causes of delayed payment in Nigeria are considered an important topic that has plagued stakeholders in the construction sector. These problems actually need to be examined in depth, so as to identify the causes that occur in the process of construction execution in the industry. Delayed payment occurs in construction project and the size varies from work to work

Procurement System: The five different procurement methods in construction are general contracting, design and build, construction management, joint venture, and private financing. Each method has its advantages and disadvantages and is best suited for a particular type of project.

Pre-Qualification Criteria: Pre-Qualification Requirements means the criteria which a Prospective Bidder must meet in order to pre-qualify to submit a Bid for the Project, as described in Section I-09, and includes Legal Qualification Requirements, Technical Qualification Requirements, and Financial Qualification Requirements.

Project Documentation: Project documentation is the process of recording the key project details and producing the documents that are required to implement it successfully. Simply put, it's an umbrella term which includes all the documents created over the course of the project.

2.11 Performance of TETFund Construction Project in Nigeria

The performance of project remains a front-end issue because every project have defined expectation that must be met (Takim & Akintoye, 2002). Prime project performance criteria remain an integral part of project management theory. The early definitions of project management encapsulated the popular 'iron triangle'. Project management may not have changed these measurement criteria in the last 50 years to meet the needs of modernization; Atkinson (1999) suggested the 'Square Route' measurement criteria. This divergent only witnessed the incorporation of qualitative parameters rather than quantitative as it was. The added dimension makes frontiers such as users' satisfaction popular in project management effectiveness evaluation. Two other perspectives emerge in Atkinson's performance evaluation: organisational and stakeholders' satisfaction. The implication is that, performing projects must

emphasize project organizational needs and end users' satisfaction. Accordingly, several performance factors have been studied. Yacob, Saruwono & Ismail, (2019) developed 250 factors, and Ling (2004) evaluated 70 potential factors for assessing project performance (Idoro, 2012). However, two broad measurement criteria are popular among project management literatures: objective and subjective. The objective criteria are quantitative in nature while subjective measurement depends on stakeholders' perception. Earlier classification by Idoro, (2012) adopted internal (schedule, cost and quality) and external (perceived project organisation effectiveness and stakeholders' satisfaction). Several other models lean towards the systems identified in this section. However, the iron triangle is popular and widely used among researchers in construction project management

2.12 Causes of delays in Public Building Projects in Nigeria

Construction delays is defined as the time that exceeds the contractual agreed completion date stated in the contract agreement (Adebowale, Kukoyi, Olagoke & Ademola, 2020). The society of construction law (SCL) protocol in its definition breaks delays into two categories - Employer delay to completion and Contractor delay to completion (SCL Protocol, 2017). However, there are numerous causes of delays outside those attributable to the client and the contractor (Vasques, Teixeira & Brandão, 2007). There are delays resulting from force majeure, consultants, suppliers, subcontractors, statutory authority and parties external to the contract (Idoro & Bamidele, 2011). Delay causes prolongation and prolongation leads to increased cost (SCL Protocol, 2017). KPMG's 2019 Annual global construction survey found that for the middle 60% of companies, cost and time overruns still remained a major challenge (KPMG, 2019). At the global level, an analysis of over 104 published research articles related to delays across 45 countries with the intention of identifying the universal top 10 causes of delays revealed that change orders, delays in

payments to contractors, poor planning and scheduling, poor site management and supervision, incomplete design, inexperienced contractors, contractor's financial difficulties, owners financial difficulties, resource shortages, and poor labour productivity/shortage of skills were the top universal causes of construction delays (Dobresco, Holm, Låstbom, Mjärdner, Ottosson, Josephson & Lindström, 2007). Idoro, (2012) have questioned the 'intentionality' of studying project delays, arguing that researchers are unaware of the intents of the planners involved in planning the schedule for projects. The authors urge researchers to look beyond the simple cause-and effect ideology which currently manifests across current delay studies. A similar argument has been posited by Flyvbjerg (2009) indicating that planners are sometimes 'deceptive' and hide the complexity involved in projects in order to get the projects approved. However, the first step in minimizing delays is to identify the causes that may lead to delays (Tafazzoli and Shrestha, 2017). While it may be difficult to discern the intentions of planners, it cannot be argued that the clients and contractors would hope for delays on their project despite all the negative consequences that come with delays. Hence, if for their sake only, it behooves the industry and researchers to continue seeking to identify the causes of delays within their localities and proffer solutions to them. A recent study of the universal causes of construction delays found the top 10 causes included: change orders, delays in contractor payments, poor planning and scheduling, poor site management and supervision, design issues, inexperienced contractors, contractors financial difficulties, clients' financial difficulties, resource shortages, and poor labour productivity (Zidane and Andersen, 2018). In addition to the top 10 universal causes above, two other causes which are very significant within the GCC include 'unrealistic contract duration'

(Tafazzoli & Shrestha, 2017; Lind & Brunes, 2015) and Inclement weather (Alnuaimi and Mohsin, 2013; Gluszak and Lesniak, 2015). Inclement weather is an issue in tropical environments.

However, in the GCC with its arid climate, temperatures have been known to cross the 50 degrees Celsius mark. During the summer months, GCC rules prohibit construction workers from working outside between 12 PM and 3 PM. This prohibition impacts productivity when the workers return to work at 3 PM. Researchers into delays have also categorised the causes of delays according to the source. In one study, the culprits were ranked with the client, labour and equipment related causes found to contribute to delays than contractor, materials and designer related issues (Shahsavand et al., 2018). In other studies, the client was found to be the major source of delays (Alnuaimi and Mohsin, 2013; Rachid et al., 2018); while another study found the contractor to be the major source of delays (Albogamy et al., 2012). Comparing the most recent publications on delays across the GCC against the universal top 10 causes by Zidane and Andersen, (2018) revealed something very interesting. As can be seen in Table 1 below, Oman and the UAE had 5 of its top 10 causes reflected in the universal top 10 while Kuwait and Qatar had only 3 each with Saudi Arabia having 4 of its top 10 delay causes reflected in the universal top 10. A very interesting observation across Saudi Arabia, Qatar and Kuwait publications is that "Clients financial difficulties" was not an issue across these three countries. Furthermore, Qatar and Kuwait publications on construction delays showed that "contractor financial difficulties" was also not an issue, hence was not a factor assessed in their studies.

Delay Factors relevant to Clients (Government)

Causes of delay in large construction projects as relevant to clients which is majorly the Government are; Economic ability/ Economically arrangement for the project Previous working relationship Category (Public, Private), Main concern construction time Specified sequence of completion, Possible changes to initial design, Unclear perception of demand, Not definite about material, Not property time decision, Late payment of bills, insufficient funding after award of

project by the government, Government interference with project performance, A delay in passage of year's appropriation bill by the N/Assembly, Impractical allocation of resources by the government, Political interference, Introduction of new government policies, regulations, and laws, Choice of Consultants and contractors due to political consideration, Slow decision making could be caused by government's bureaucracy,

Delay Factors relevant to Consultants

Causes of delay in large construction projects include; Completeness and timeliness of project information, Build ability of design, Provision for ease of communication, Previous working relationships, Priority on construction time, Missing some detail in drawing and Not completely understand the client requirements

Delay Factors relevant to Contractors

Causes of delay in large construction projects include; Material used in construction Lack of acquiring new equipments Unfair relationship subcontractor with employees Difficulties in project financing Errors during construction Improper planning and preparation during construction project Poor site management and coordination Underestimation or overestimation of the project cost Conflicts between contractor and other parties Delays in the mobilization of workers Regular change of sub-contractor's technical staff Conflicts in sub-contractor's schedule in execution of project Underestimation of the project durations

Delay Factors relevant to Contract Form

Causes of delay in large construction projects Suitability to project time Use of standard form of contract

Delay Factors relevant to Labor

Causes of delay in large construction projects, Nationality of labors, Labors personal conflict, Low productivity level of work, Shortage of labors

Injuries of labors

Delay Factors relevant to Project Conditions

Causes of delay in large construction projects relevant to project conditions are; Function or end use (Office, residential industrial), Complexity and Location

Host community-related causes of delay

Causes of delay in large construction projects related to host community related causes of delay include; Unrealizable conditions given to contractor by host community, Hostility towards contractors and other workers in project site, Economic clashes with host communities where project is residing, Lack of community buy-into the project, Unrest in the community which the project is situated and Stopping work due to Delay in payments or non-payments of compensation to community

External Delay Factors

Causes of external delay in large construction projects include; Statutory undertakes (gas, water, etc), Regulations, Weather, Natural disasters (earthquake, flood, etc), Rain, Changes in government regulation and laws and Effects of subsurface conditions

2.13 Effect of Delay on the Performance of TETFund Building Project

A research work carried out by Bekr, (2018).reveals six effects of delay on project performance in Nigeria. These effects are time and cost overruns, disputes, arbitration, litigation and total

abandonment. In another study in Malaysia, Gebrehiwet & Luo, (2017). found the same effect of delays in Malaysian construction industry. A study carried out by Alinaitwe, Apolot & Tindiwensi, (2013) concentrated on the effect of delay in the construction industry. Their study revealed that the clash, claims, total abandonment and slowing down the growth of the construction industry. The relationship between causes and effects are of two types. These are direct and indirect relationships. These relationships are studied by many authors. Alinaitwe,*et. Al.,* (2013) in their study linked the material-related causes with effects of cost and time overruns in construction projects. Moreso, connected the causes related to contractor and causes related to labour with the time overrun of the project. The other study carried out by AlKharashi & Skitmore, (2009). connected the causes related to contract with the disputes and negotiations occurred among the parties participating in the project. So many other links can connect between other causes and items of performance. Time and cost overruns can be linked with the finance related causes and material related causes. The causes related to labour or finance can be connected with disputes and negotiation. Causes related to finance, relationship between parties, external circumstances are connected with time overrun and may abandonment of the project.

Cost Overrun: Inaccurate forecasts about costs, resources, benefits, and estimated durations can bring project risks that could impact your organization's profitability and growth opportunities. Cost overrun is an unexpected change in the project budget that ends up increasing the total project cost. It can happen due to three primary reasons:Economic factors that occur due to inaccuracies in project budget or scope, Technical reasons, including erroneous estimates or incorrect data gathering and Psychological causes, including the presence of scope creep or any decrease in project commitment levels

Time Overrun: Time overrun can be defined as " a condition where a construction project does not complete within the designed schedule ".However, one of the criticisms against the industry has been its penchant for delay. According to Idoro (2009), delay in the delivery of projects remained the major problem confronting the construction industry in Nigeria.

Quality Performance: A number of scholars affirmed the importance of quality in projects. Time and cost are the primary areas of focus in project management, while quality is a secondary one (Jha and Iyer, 2006). Construction projects and quality cannot exist without each other (Modi et al., 2017). Focusing on quality will result in guiding the project management toward strategic viewpoint (Ganesh, 2016; Jugdev and Müller, 2005). It is essential to guarantee quality due to the high cost of buildings (Davidkumar and Kathirvel, 2015). Quality is one of the vital factors in any construction project. Besides, poor quality leads to problems in cost, time and safety (Modi et al. ,2017), which in turn influence the construction industry and the country economy (Abd El-Karim et al., 2017).

Life Span/Durability: Delay often times affect the durability of construction projects as the time expended on such projects would have altered the original quality set for the construction project.

Stake Holders Satisfaction: Stakeholder satisfaction is important because it influences the choices those stakeholders make about their involvement in an organization. Stakeholders include anyone that a company affects with its actions, including investors, business partners, employees and consumers. Delay most times affect the satisfaction of relevant stakeholders on a construction project.Other effect of delay include: Non-Environment Friendly, Lack of project Empowerment/Employment, low Technology Transfer and lack of Sustainability.

2.14 The Remedial Measures for Government Related Causes of Delays in Public Project Delivery

The Remedial Measures for Government Related Causes of Delay Delays in Public Project Delivery in a Sustainable Built Environment include; sufficient funding after award of project by the government could enhance project delivery, Non- interference with project performance by the government could enhance project delivery Timely passage of the year's appropriation bill by the National Assembly could enhance project delivery, Adequate allocation of resources to a given project by the government will enhance project delivery, Setting aside political sentiment in awarding projects to competent and experienced contractors will enhance project delivery, Effective strategic planning and systematic control mechanism will enhance project delivery and Strict adherence to the procurement laws of the Federal Government will enhance project delivery. (Sunjka & Jacob, 2013).

2.15 Remedial Measures for Contractors Related Causes of Delay in Public Project Delivery

Remedial Measures for Contractors Related Causes of Delay include; Reliable sources of funding for project and consistent payment of interim certificates as and when due, Adequate geotechnical investigation at the feasibility stage of any project will prevent errors during construction, proper planning and preparation by contractors before embarking on construction project, Provision of infrastructure for efficient project manage-ment by all stakeholders through Value Engineering, Setting up framework for cash management at the planning stage and Proper estimation of the project durations before commencement (Sunjka & Jacob, 2013).

2.16 Remedial Measures for Host Community Related Causes of Delay in Public Project Delivery

Remedial Measures for Host Community Related Causes of Delay include; Proper agreement between contractor and host community will enhance project delivery, Peaceful working environment for contractors and other workers in project site will enhance project delivery, Employment of youth in the host communities where the project is residing will enhance project delivery, Adequately consult with the expected beneficiaries of developmental projects will enhance their buy-ins and Early payments of compensation to communitySunjka & Jacob, 2013).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Supino & Borer, (2012) opined that accurate and reliable findings can only be established and added to the body of knowledge through the use of appropriate methodology and research method. This chapter discussed the techniques employed in gathering relevant data considered for purpose of the research work. In order to achieve the specific objective of this study, Issues such as population, sampling technique, instrument and method of data analysis were also discussed

3.2 Research Design

In this study, Survey research design will be adopted. This is considered suitable because survey research method helps in collecting data from a predefined group of respondents to gain information and insights into the research topic. Surveys also serve as a great method of opinion sampling and finding out what people think about different contexts and situations. Applying this to research means you can gather first-hand information from persons affected by specific contexts.

3.3 Research Population

A population refers to an entire group of persons, events or elements of interest that a researcher wishes to investigate. (Ab, Rubin & Zhengyi, 2013). It is the larger group from which the sample is taken. The target population refers to the total number of subjects of interest to the research. The population in this study shall consist of construction professionals such as (Architects, Civil Engineers, Project Managers and Quantity Surveyors at works department, Auchi Polytechnic) who serves as consultants on these public (TETFund) projects, administrative personnel in TETFund Unit and those construction professionals in private practice which include

(contractors, Architects, Civil Engineers and Quantity Surveyors) who have handled public (TETFund) building projects in Auchi Polytechnic. Members of management staffs too will be assessed (This serves as the host or beneficiary)

3.4 Sampling Frame

Sampling frame consists of a list of items from which the sample is to be drawn. West, (2016). This frame is either constructed by a researcher for the purpose of his study or may consist of some existing list of the population. The sample frame shall consist of construction professionals such as (Architects, Civil Engineers, Project Managers and Quantity Surveyors at works department, Auchi Polytechnic) who serves as consultants on these public (TETFund) projects, administrative personnel in TETFund Unit and those construction professionals in private practice which include (contractors, Architects, Civil Engineers and Quantity Surveyors) who have handled public (TETFund) building projects in Auchi Polytechnic. Members of management staffs too will be assessed (This serves as the host or beneficiary)

LIST OF TETFUND BUILDING PROJECTS FROM 2012 – 2021

S/N	Project title	Name of contractor	Expected date of delivery	Actual date of delivery	Remark
	AREA 1				
1	Remodeling of four Nos. block of classrooms for school ICT	Virgit International Limited	24 weeks		
2.	Construction of six Nos of classroom block for Art and Industrial Design.	Virgit International Limited	24 weeks		
3.	Construction of academic staff office	Pibe Nig Ltd	24 weeks		
	AREA 2				
1.	Construction of furnishing of 250 seat capacity twin lecture theatre for school of business studies	Calabian Sleet Nig.	24 weeks	25 July, 2018.	
2.	Construction of Male and female toilet facility	Consolidated Shelter Services Nig. Ltd	24 weeks	2018	
3.	Construction of school of Applied Science Building	Yisab Nig. Ltd	24 weeks		
4.	Construction of Block of 6 Nos. Classrooms	Riths Global Venture Nig. Ltd	24 weeks		
5.	Tetfund Special intervention pojects proposed library development	Kap Integrated Ltd	24 weeks		
	AREA 3				
1.	Construction of block of classroom for school of environmental studies	Yisab Nig. Ltd/Vegit.	24 weeks		
2.	Construction of 12 Nos. classrooms.	Multi engineering Ltd.	24 weeks	25 July, 2018.	
3.	Block of office and studio for school of environmental studies merge project	JRB Nig. Ltd	24 weeks	25 July, 2018.	
4.	Construction, Furnishing of 250 seat capacity, twin lecture theater for school of environmental studies.	UYK Construction Nig. Ltd	24 weeks	25 July, 2018.	

3.5 Sample Frame of Respondents

construction professionals such as (Architects, Civil Engineers, Project Managers and Quantity Surveyors at works department, Auchi Polytechnic) who serves as consultants on these public (TETFund) projects, administrative personnel in TETFund Unit and those construction professionals in private practice which include (contractors, Architects, Civil Engineers and Quantity Surveyors) who have handled public (TETFund) building projects in Auchi Polytechnic. Members of management staffs too will be assessed (This serves as the host or beneficiary)

Table 3.2: Sample Frame of Respondents

		Public Projects				
		Client Representatives *(Nos.)*			**Contractors**	
S/N	**Respondents**	Works Department, Auchi Polytechnic	Administrative Personnels at TETFund Office	**Staffs**	**Representatives (Consultants)**	**Total**
1	Architects,	6	-	-	11	16
2	Civil Engineers,	9	-	-	10	19
3	Builder	7	-	-	9	16
4	Quantity Surveyors	5	-	-	8	13
5	Administrative personn	5	9	-	-	14
6	Contractors	-	-	-	5	5
7	Host/Beneficiary	-	-	6	-	6
	Total	**32**	**9**	**6**	**57**	**89**

3.6 Sample Size

Sample size refers to the number of participants or observations included in a study. This number is usually represented by n. The size of a sample influences two statistical properties: 1) the precision of our estimates and 2) the power of the study to draw conclusions

The Taro Yamane method for sample size calculation was adopted to get the sample size. It is mathematically represented as : n = N/(1+N(e)2)

Where: n= sample size, N = Population and e = Error

Table 3.3: Sample Size of Respondents

		Public Projects				
		Client Representatives *(Nos.)*			**Contractors**	
S/N	**Respondents**	Works Department, Auchi Polytechnic	Administrative Personnels at TETFund Office	**Staffs**	**Representatives (Consultants)**	**Total**
1	Architects,	3	-	-	19	22
2	Civil Engineers,	5	-	-	18	23
3	Builder	2	-	-	5	7
4	Quantity Surveyors	1	-	-	7	8
5	Administrative personnel	5	4	-	-	9
6	Contractors	-	-	-	3	3
7	Host/Beneficiary	-	-	3	-	3
	Total	**16**	**4**	**3**	**32**	**75**

3.7 Sampling Technique

Sampling techniques are divided into Probabilistic and non-probabilistic methods. Non-probabilistic sampling methods have samples selected through non-random methods which include judgment sampling, snowball sampling, purposive, convenient, and accidental sampling. Probabilistic sampling is a situation where every element selected has a known probability of being included in the sample. These include systematic sampling, random sampling, and stratified sampling, census sampling, etc. (Pandey & Pandey, 2015).

This study adopt census sampling technique. Census method is the method of statistical enumeration where **all members of the population** are studied. This sampling technique is considered suitable because it provides a true measure of the population (no sampling error) and benchmark data may be obtained for future studies. Moreso, detailed information about

small sub-groups within the population is more likely to be available since the number of TETFund projects are known.

3.8 Data Collection Instruments

Self-administered structured questionnaire was used as the research instrument. The well-structured questionnaire was a multiple-choice type of different tables and checkboxes. The preliminary section of the questionnaires was designed to collect general background information of the respondents (personal characteristics, name of firm, profession, qualification, year of experience, etc.). This is to check for the quality of the data acquired from the field before embarking on statistical analysis. Other sections like B, D, and E will be to obtain relevant information to which the respondent is to give his opinion by ticking the appropriate box. Meanwhile, the self-administered questionnaires have the advantage of being flexible because they contain both open and closed-ended questions. (Kombo & Tromp, 2006). In addition, questionnaire was selected for efficient data collection mechanism to ensure relevancy and consistency of information that was gathered as the responses were objective, standardized and comparable. Each question in the questionnaire was developed to address a specific objective or research question of the study.

3.9 Procedure for Data Collection

The researcher will personally visit the selected areas during data collection. This will be done in order to make it possible to assess relevant datas which will form the basis of the findings in this research. This method is preferred because personal visitation by the researcher will make it possible to get more accurate data than collecting information by other means. In addition, this method will facilitate the high rates of return of questionnaires.

3.10 Methods for Data Analysis and Presentation

Data analysis involves reducing accumulated data to a manageable size, developing summaries, looking for patterns and applying statistical techniques while data presentation

includes editing, coding, and data entry which is an activity that ensures the accuracy of the data and their conversion from raw form to reduced and classified form that are more appropriate for analysis. (Blaikie, 2003). The statistical method used was descriptive statistics. Data collected from the respondents will be analyzed in a simple percentage proportion depicted in tabular form showing the number and proportion of the respondents' opinions to the questions raised in the questionnaires. Besides, a frequency distribution arranged in a tabular form with the corresponding frequency of appearance was used in analyzing the data collected from the respondents. The quantitative statistical analysis was done using Statistical Package for Social Sciences (SPSS) version 23.0 and Excel sheet. The following statistical tools will be used to analyze the data and the results will then be interpreted and presented in tables

i. Frequencies and Percentages
ii. Mean Item Score (MIS)
iii. Simple regression analysis

3.10.1 Frequencies and Percentage

Percentile was used to analyze the profile of respondents (personal characteristics, profession, qualification, year of experience, etc.). Percentiles are ratios multiplied by 100 and help in rating several factors according to the degree of occurrence attached to them. The higher the percentage rating the higher or the more significant the importance attached to such factor(s). The essence of the percentile was to allocate a value ranging from 0 to 100 to a factor (where 100 is the highest possible value) using factor size and the total size. (Laryea, 2011).

It is represented Mathematically as;

$$\mathbf{P}\ (\%) = \frac{n \times 100}{N}$$

Where: P = percentage, n = Value of the item and N = Total value of the Population.

3.10.2 Mean Item Score

The mean item score (MIS) was employed to assess all the objectives; (assess the factors that triggers delay in public building project delivery and suggest possible measures for mitigating against the triggers of delay in public building project delivery and to determine the effect of delay on public building project delivery). The mean item score will be used to obtain a quantitative equivalent of the average response that was provided by respondents following a 5-point Likert scale. The highest mean item score "MIS" was ranked 1st and others in such subsequent descending order. Using a 5-point Likert scale where 5 is the highest score and 1 being the lowest score; the mean item score formula is given below;

$$\text{Mean} = \frac{\Sigma fw}{\Sigma f}$$

Where $\sum fw$ connotes the sum of the product of all weights and the frequency of respondents opting for such weights, while $\sum f$ is the total number of respondents

3.10.3 Standard Deviation

The Standard Deviation (SD) is a measure of the spread of scores within a set of a variable. Standard deviation was used for each of the identified variables relating to the outcome of the mean to determine the extent of deviation from the mean. Mean Item Score was used to rank each item while SD will be used for cases where two factors have the same MIS value.

$$\text{SD} = \sqrt{\frac{\Sigma(x-\mu)^2}{n}}$$

Where: SD= standard deviation, ∑= sum of variable, μ= population mean, n= number of sample.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND DISCUSSION

4.1 Data Analysis

This chapter presents the analysis of the data collected based on the research questions formulated for the study and the discussion of the results obtained.

4.2 Demographic Information of Respondents

Table 4.1: Response Rate from respondents

Questionnaires	Frequency	Percentage
Number Distributed	75	100
Total Number Collected	63	84.00

Table 4.1 above shows that Seventy Five (75) questionnaires were administered, and Sixty Three (63) were retrieved and good enough for analysis, with a response rate of 84.00%. Hence the findings are reliable.

4.2 Summary of Background Information of Respondents

Table 4.2: Type of Organization

Organization Type	Frequency	Percentage
Contracting firm	21	33.33
Consulting firm	23	36.51
Government parastatals	19	30.16
Total	**63**	**100.00**

Source: Analysis of Field Data (2022)

Table 4.2 above shows the frequency distribution of organization types. It revealed that 58.00% of the respondents belong to contracting firms, while 29.45% work with consulting firms and 11.64% works in Government parastatals and non of them belong to other types of organization..

Table 4.3 : Company or Firm Size

Size	Frequency	Percentage
Small	32	50.79
Medium	12	19.05
Large	19	30.16
Total	**63**	**100.00**

Source: Analysis of Field Data (2022)

The table above shows the firm or size of the company. It can be seen that 54.11% of the respondents company/firm is small, 29.45% are medium, 14.38% are large and 2.05% are neither small nor medium nor large.

Table 4.4 : Category of Projects Undertaken

Project Category	Frequency	Percentage
Building Projects	20	31.75
Civil Engineering projects	12	19.05
Heavy Engineering projects	12	19.05
Other	19	30.16
Total	**63**	**100.00**

Source: Analysis of Field Data (2022)

Table 4.3 above shows the category of projects undertaken by the respondents firm. It can be seen that 56.11% undertakes building projects, 31.45% undertakes civil engineering projects, 10.38% undertakes heavy engineering projects with 6.05% do not involve in any of the afore listed projects.

Table 4.5 : Respondents Years of Experience

Years	Frequency	Percentage
1-5 years	12	19.05
6 -10 years	11	17.46
11 – 15 years	13	20.63
16 – 20 years	9	14.29
Above 20 years	18	28.57
Total	**63**	**100.00**

Source: Analysis of Field Data (2022)

Table 4.4 above revealed that 41.78% of the respondents has 1-5 years of experience, 35.62% has 6-10 years of experience, 23.29% has about 11-15 years of experience, while 26.71% has up to 16-20 years of experience. Meanwhile, only 14.38% of the respondents has above 20 years experience.

Table 4.6 : Year of operation of Firm

Years	Frequency	Percentage
1-5 years	8	40.78
6 -10 years	12	36.62
11 – 15 years	14	20.29
16 – 20 years	15	29.71
Above 20 years	14	14.38
Total	**63**	**100.00**

Source: Analysis of Field Data (2022)

Table 4.5 above revealed that 40.78% of the respondents firms has operated for about 1-5 years of experience, 36.62% of the respondents firms has operated for about 6-10 years, 20.29% of the respondents firms has operated for about 11-15 years, while 29.71% has has operated for about 16-20 years. Meanwhile, only 14.38% of the respondents firms has operated for about 20 years and above.

Table 4.7 : Discipline of Respondents

Discipline	Frequency	Percentage
Architects,	5	7.94
Civil Engineers,	9	14.29
Builder	8	12.70
Quantity Surveyors	7	11.11
Administrative personnel	3	4.76
Contractors	4	6.35
Host/Beneficiary	9	14.29
Architects,	18	28.57
Total	**63**	**100.00**

Source: Analysis of Field Data (2022)

Table 4.6 above shows the frequency distribution of the respondents discipline. It can be seen from the table that 7.94 % of the respondents are Architects. Moreso, 14.29% of the respondents areCivil Engineers,Again, 12.70% of the respondents are Builders, 11.11 % of the respondents areQuantity Surveyors, 4.76 % of the respondents areAdministrative personnel, 6.35 % of the respondents are Contractors, 14.29 % of the respondents areHost/Beneficiary and 28.57 % of the respondents areArchitects,

Table 4.8 Academic Qualification of Respondents

Category	Classification	Frequency	Percentage
Academic qualification	SSCE	14	9.80
	ND	13	18.63
	HND	12	22.55
	B.Sc/B.Tech	11	40.20
	M.Sc/M.Tech	6	5.88
	Ph.D	7	3.29
	Total	**63**	**100.0**

Source: Analysis of Field Data (2022)

From Table 4.7 above, 9.80 percent of the respondents has Senior Secondary Certificate, 18.63 percent of the respondents have National Diploma Certificate, 22.55 percent are Higher

National Diploma holders, 40.20 percent of the respondents have a B.sc/B.Tech degree, 5.88 percent have a M.Sc/M.Tech Degree Certificate, while about 3.29 percent are a Ph.D holders.

Table 4.9 : Professional Qualification of Respondents

Professional Qualification	Frequency	Percentage
Probationer Member	39	53.42
Corporate Member	15	28.77
Fellow Member	9	17.81
Total	**63**	**100.00**

Source: Analysis of Field Data (2022)

Table 4.9 above revealed that out of the 146respondents, 53.43% are probationer members, 28.77% are Corporate members and 17.81% are fellow Members

4.3: Factors That Triggers Delay In Tetfund Building Project Delivery

Table 4.10: Factors That Triggers Delay In TetfundBuilding Project Delivery

Identified Factors	Mean Score	Ranking
Poor site management	3.70	1st
Kick back	3.52	2nd
Poor Communication	3.49	3rd
Variation	3.49	3rd
Inaccurate estimating.	3.45	5th
impractical design	3.35	6th
Inappropriate type of contract used	3.17	7th
Poor subcontractors' performance	3.15	8th
Materials shortage	3.09	9th
Payment methods	2.92	10th
Financial difficulties of contractor	2.90	11th
Delays in design work	2.88	12th
Unforeseen ground condition	2.80	13th
Inclement weather	2.75	14th
Lack of designer's experience	2.70	15th
Contractual arrangement	2.65	16th
Labour shortage/ labour low productivity	2.65	16th
Corruption	2.65	18th
Inadequate construction planning,	2.51	19th
Project complexity	2.47	20th

Source: Analysis of Field Data (2022)

The table Above shows the Factors That Triggers Delay In TetfundBuilding Project Delivery. It can be seen from the table that; Poor site management with Mean Item Score of 3.70 was ranked first. Next to this was Kick back ranked second with Mean Item Score of 3.52.

Moreso, Poor Communication and Variation with Mean Item Score of 3.49 respectively were ranked third and Inaccurate estimating with Mean Item Score of 3.45 was ranked fifth. impractical design was ranked sixth with Mean Item Score of 3.35, in addition, Inappropriate type of contract used with Mean Item Score of 3.17 was ranked seventh. In addition, Poor subcontractors' performance was ranked eight with Mean Item Score of 3.15. next to this is Materials shortage ranked ninth with Mean Item Score of 3.09 and Payment methods was ranked tenth with Mean Item Score of 2.92. Meanwhile, Financial difficulties of contractor was ranked eleventh with Mean Item Score of 2.90. Delays in design work, Unforeseen ground condition, Inclement weather, Lack of designer's experience, Contractual arrangement Labour shortage/ labour low productivity Corruption Inadequate construction planning and Project complexity all with Mean Item Score of 2.88; 2.80; 2.75; 2.70; 2.65; 2.51 and 2.47 respectively were ranked twelfth, thirteenth, fourteenth, fifteenth, sixteenth, nineteenth and twentieth respectively.

4.4 Effect of Delay on Tetfund Building Project Delivery

The objective here is to determine the effect of delay on Tetfund building project delivery in Auchi Polytechnic. In an attempt to achieve this objective, Multiple Regression Analysis was used to test the effect of delay on Tetfund building project delivery in Auchi Polytechnic(independent variables) on the dependent variable (Tetfund building project delivery). The result is shown in table below.

Table 4.11: Analysis of variance for Effect of Delay on Public Building Project Delivery

Model	Sum of Squares	Df	Mean square	F	Sig
Regression	2.173	5	.479	3.458	.027[b]
Residual	14.647	101	.187		
Total	21.140	106			
R = .329					
R^2 = .153					
Adj. R^2 = 064					
Std. Error =.341					

Source: Analysis of field data, (2022)

Table 4.11 above shows that the coefficient of determination (R square) is 0.153 which shows the model accounted for 14.6%. This means that the combined influence of the predictor variables that is independent variable. The correlation coefficient of 32.9% indicates that the combined influence of the predictor variables has a positive correlation with the performance of Tetfund Building project in the study area.

Analysis of variance (ANOVA) depicts that the combined effect of delay on the delivery of Tetfund building projects in Auchi Polytechnicis demonstrated by a significant value of 0.038 which is less than the acceptable significant value of 0.05.

Table 4.12: Effect Of Delay On TetfundBuilding Project Delivery

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	**Std. Error**	**Beta**	**T**	**Sig.**
(Constant)	6.294	.682		9.231	.000
Unemployment of construction workers	-.082	.215	-.130	-.381	.706
Cost overrun	.288	.248	.575	1.163	.253
Wastage of Equipment and materials on Site	-.095	.168	-.179	-.568	.574
Increase in the final cost of the project	-.022	.094	-.047	-.230	.820
Difficulties in assessing more funds	.448	.094	1.315	4.774	.000
Reduction in construction investment	.099	.093	.207	1.063	.296
Time overrun	-.104	.051	-.266	-2.037	.050
Reduction in quality	.074	.051	.216	1.433	.161
Unavailability of basic goods and services	-.118	.307	-.159	-.384	.703
Increasing number of abandoned projects	.007	.117	.016	.063	.950
Decrease in cash flow	.371	.193	.714	1.923	.063
Loss of contractors reputation	-.168	.049	-.422	-3.402	.002
Building collapse	.713	.300	1.289	2.379	.024
Denied timely occupation of the building	.121	.070	.239	1.715	.096
Inconvenience to the beneficiaries	-.634	.327	-1.007	-1.941	.061

a. Dependent Variable: Tetfund Building Project Delivery

Source: Field Data Survey (2022).

The table above shows the correlation coefficient of the effect of delay on the delivery of Tetfund building projects in the study area. From the table, it can be seen that Variables like Cost overrun 1.163, Difficulties in assessing more funds 4.774, Reduction in construction investment 1.063, Reduction in quality 1.433, Increasing number of abandoned projects

.063, Decrease in cash flow 1.923, Building collapse 2.379, Denied timely occupation of the building 1.715all have positive T Values. This means that these variables are having positive effect on dependent variable (Tetfund Building Project Delivery), that is an increase in these independent variables will lead to increase in the dependent variable, While

independent variables such as;Loss of contractors reputation -3.402, Inconvenience to the beneficiaries -1.941, Time overrun -2.037, Unavailability of basic goods and services -.384, Wastage of Equipment and materials on Site -.568, Increase in the final cost of the project -.230 and Unemployment of construction workers -.381having negative coefficients. An increase in these independent variables with negative coefficient will lead to a decrease in dependent variable.

4.5 Measures For Mitigating The challenges of the delay In Tetfund Building Project Delivery

Table 4.13: Measures For Mitigating Against The Triggers Of Delay In Public Building Projects

Mitigating Measures	Mean	Std. Dev.	Rank
Training of labour force,	4.40	.759	1st
Proper understanding of clients specification,	4.37	.778	2nd
Adequate contractors experience,	4.37	.800	3rd
Alternative financing options of project by contractor,	4.26	.879	4th
Effective planning and scheduling of project by contractor,	4.25	.673	5th
Team work among professionals,	4.23	.776	6th
Prompt payments by client,	4.21	.778	7th
Well planned and managed contract duration,	4.13	.707	8th
Quick material delivery,	4.06	.830	9th
Adequate site management and supervision by contractor,	4.05	.759	10th
Prompt decision making process by the client,	4.04	1.02	11th
Early procurement of materials,	4.03	.868	12th
Synergy/agreement between all contract documents,	4.03	.826	13th
Correct estimation before commencement of work	4.01	1.01	14th
Adherence to contract conditions.	3.96	.977	15th
Choosing the right contractual arrangement	3.93	.934	16th
Privatization	3.89	.886	17th
Involvement of host community in the decision making	3.86	1.09	18th
Use of contractors within the polytechnic environment	3.86	1.07	19th
Stiff penalty to defaulting contractors	3.79	.969	20th
Payment of certificate issued	3.70	.955	21st
Release of funds as at when due	3.63	1.08	22nd

Source: Analysis of Field Data (2022)

Table 4.13 above shows the various Measures For Mitigating Against The Triggers Of Delay In Public Building Projects. It can be seen from the table that Training of labour force with a mean item score of 4.40 was ranked first, Proper understanding of clients specification with a mean item score of 4.37 was ranked second Adequate contractors experience with a mean item score of 4.37 was ranked third, Alternative financing options of project by contractor with a mean item score of 4.26 was ranked fourth, Effective planning and scheduling of project by contractor with a mean item score of 4.25 was ranked fifth, Team work among professionals with a mean item score of 4.23 was ranked sixth, Prompt payments by client with a mean item score of 4.21 was

ranked seventh, Well planned and managed contract duration with a mean item score of 4.13 was ranked eight, Quick material delivery with a mean item score of 4.06 was ranked ninth, Adequate site management and supervision by contractor with a mean item score of 4.05 was ranked tenth, Prompt decision making process by the client with a mean item score of 4.04 was ranked eleventh, Early procurement of materials with a mean item score of 4.03 was ranked twelvth, Synergy/agreement between all contract documents with a mean item score of 4.03 was ranked thirteenth, Correctestimation before commencement of work with a mean item score of 4.01 was ranked fourteenth, Adherence to contract conditions with a mean item score of 3.96 was ranked fifteenth, Choosing the right contractual arrangement with a mean item score of 3.93 was ranked sixteenth, Privatization with a mean item score of 3.89 was ranked seventeenth, Involvement of host community in the decision making with a mean item score of 3.86 was ranked eighteenth, Use of contractors within the polytechnic environment with a mean item score of 3.86 was ranked nineteenth, Stiff penalty to defaulting contractors with a mean item score of 3.79 was ranked twentieth, Payment of certificate issued with a mean item score of 3.70 was ranked twenty first, Release of funds as at when due with a mean item score of 3.63 was ranked twenty second

4.6 Discussion of Findings

This section discusses the findings from the study on the impact of Delay on Tetfund construction project delivery in line with previous studies on similar and relevant areas. The discussion is based on the result from the analysis above as obtained from the distributed questionnaires. Relationships are drawn between the observations made on the results and past studies similar to the research work to examine the agreement or otherwise of the studies in contributing to the body of knowledge.

4.6.1Factors That Triggers Delay In Tetfund Building Project Delivery

The objective here was to identify the key factors that trigger delay in the delivery of Tetfund Building Projects in Auchi Polytechnic. This section discusses the finding on the factors that trigger delay in the delivery of Tetfund Building Projects in Auchi Polytechnic. The findings on the factors that trigger delay in the delivery of tetfund Building Projects in Auchi Polytechnic show that; Poor site management, Kick back, Poor Communication, Variation and Inaccurate estimating are the major factors that trigger delay in the delivery of tetfund Building Projects in Auchi Polytechnic.

Poor Site Management:

Site management is a function of the project manager or contractor. Once there is laxity or deficiency in the administration of a site, there is bound to be delay or even oif care is not taken, abandonment. This was ranked as the greatest factor that triggers delay in the execution of Tetfund building projects in the study area. Most contractors lacks necessary skills and administrative capacity to handle large government projects. This has caused delays in many Tetfund projects and even abandonment in the study area. Again, poor site management in terms of contractors labour force and management of materials on site can lead to loss on the contractor and this may lead to shortage of funds in the execution of such projects.

Kick Back: The Nigerian economy and political atmosphere has been proliferated with kickbacks and best to say corruption. It can be seen that before a project is awarded to a contractor, almost half of the money would have been deducted by hierarchical political persons before the contract gets to the contactors. In a cade where about 40% of a contract sum has been used to kick back before getting a project. Such a project will suffer from delay or even

abandonment, low quality and substandard work. This is one of the major triggers of delay in the execution of Tetfund building projects in the study area.

Poor Communication:

For a construction project to be successful, there has to be effective communication between the contractor and the client. Once there is a gap in communication, such projects is bound to suffer from delay. Tetfund projects are not left out of this menace as there are many people and bodies that are set up to oversee a project. These person has to certify each stage and submit their reports before a project can move on to the next stage. This inturn affects communication as a contractor is saddled with the responsibility of reporting to too many people at the same time.

4.6.2: Effect Of Delay On Tetfund Building Project Delivery in Auchi Polytechnic

The objective here was to identify the effect of delay on Tetfund building project delivery in Auchi Polytechnic. This section discusses the finding on the effect of delay on Tetfund building project delivery in Auchi Polytechnic. The findings on the effect of delay on Tetfund building project delivery in Auchi Polytechnic show that; Loss of contractors reputation, Inconvenience to the beneficiaries, Time overrun, Unavailability of basic goods and services, Wastage of Equipment and materials on Site, Increase in the final cost of the project and Unemployment of construction workers are the major effect of delay on tetfund building project delivery in Auchi Polytechnic

Loss Of Contractors Reputation;

The main aim of all contractors is to make profit, make good reputations and get more job. This can only be achievable when a project is properly executed within the specified time and cost and quality perceived without delay so that recommendations can come from the past projects in order to get future projects. However, this was ranked as one of the major effect of delay in the delivery of Tetfund projects on its delivery. Once there is delay, contractors handling such projects loses

their reputation, not minding where the cause of the delay is emanating from. This is a bad business reputation for any contractor.

Inconvenience To The Beneficiaries;

Every Tetfund projects in an institution is to solve a specific need or problem for the host community. Hence, when the supposed building that should solve a specific problem is delayed, we can observe that such even will lead to inconvenience to the beneficiary or host community. This was ranked by the respondents as the second effect of delay in the execution of Tetfund projects in the study area.

Time Overrun;

Time overrun is the shift or excess over the specific time that a project is supposed to be completed. Once there is delay, it is a fact that the normal time for a project will be exceeded, and time overrun leads to many complicating issues in project execution as cost overrun, inflation or rise in the price of building materials, wastage of materials on site amidst others.

4.6.3: Measures For Mitigating Against The Triggers Of Delay In Public Building Projects

The objective here was to identify measures for mitigating against the triggers of delay in public building projects. This section discusses the finding on the measures for mitigating against the triggers of delay in public building projects. The findings on the measures for mitigating against the triggers of delay in public building projects show that; Training of labour force, Proper understanding of clients specification, Adequate contractors experience, Alternative financing options of project by contractor and Effective planning and scheduling of project by contractor are the best ways to mitigate against the triggers of delay in Tetfund Building Project delivery.

Alternative Financing Options Of Project By Contractor;

Finance is one of the problem that affects the delivery of both private and public construction projects in Nigeria. Meanwhile, Tetfund projects are not left out of this as government policies and change in government can affect the budgets made on many of the approved Tetfund projects. Again, the method of payment in approving valuations in the execution of Tetfund projects is very complex and it involved different stages of recommendation by various parties before payments are being made. This inturns affect the quick delivery of such projects. However, alternative financing options include bank loans and intervention loans to cushion this effect.

Proper Understanding Of Clients Specification;

Before the project execution stage, all the client and contractors has to have clear understanding of the project and its specifications. There has to be clear term and ambiguity must be avoided in such projects. This would help to avoid conflict at the execution stage, avoid alteration and reworks and thereby speed up the delivery of Tetfund projects in tertiary institutions.

Adequate Contractors Experience;

Tetfund building projects are special kinds of public building projects due to its scope and nature of job execution and payment options. From the study, it can be seen that this was ranked as one of the major ways to mitigate against delay triggers. Once a contractor has necessary experience in the delivery of Tetfund projects, he will be aware of the necessary steps and action to be taken if delay should arise in the course of the project execution. Again, adequate experience of contractors will enable them to do what is right at the right time. Hence, the clients representative do not need to start complaining of bad work on site and the project is therefore executed smoothly and delivered thereafter.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction.

The study has assessed the trigger of delays of public building projects delivery in Auchi Polytechnic. It assessed the factors that triggers delay in public building project delivery, evaluated the effect of delay on public building project delivery; and suggest possible measures for mitigating against the triggers of delay in public building project delivery.

In this closing chapter, the study summarizes the research findings, posited appropriate recommendations, and suggested areas for further studies.

5.2 Conclusion.

This study was able to establish that; Site management, Kick back, Poor Communication, Variation and Inaccurate estimating are the major factors that trigger delay in the delivery of tetfund Building Projects in Auchi Polytechnic.

TEntfund release money on trenches. Before payment are maid to contractors, the money are usually released in three trenches (1) 50% this one is released after the approval of the contract for the commencement of the work.

The second trenches of money is released after the total expenditure or utilization of the first trenches, and it take time for ten Tfund officers to visit the site for project inspection and report such project back to tentfund office before payment is maid to institution, the last one goes through the same process as the first one. This is the major cause of delay in tentfund building project in auchi polytechnic Auchi.

Meanwhile, once there is delay in the execution of Tetfund projects, it can be observed from the study that;Loss of contractors reputation, Inconvenience to the beneficiaries, Time overrun, Unavailability of basic goods and services, Wastage of Equipment and materials on Site, Increase in the final cost of the project and Unemployment of construction workers are the major effect it would have on both the project beneficiary and the contractor.

However, Training of labour force, Proper understanding of clients specification, Adequate contractors experience, Alternative financing options of project by contractor and Effective planning and scheduling of project by contractor are the best ways to mitigate against the triggers of delay in Tetfund Building Project delivery.

5.3 Recommendations

Based on the findings of this research the following recommendations are made:

1. There has to be the installation of good and proper communication channel to forestall effective communication in order to enhance the delivery of Tetfund projects
2. Tetfund projects must be awarded to contractors who have adequate knowledge in its execution.
3. Tetfund bodies and administrators should ensure that contractors are well monitored and payments are made promptly in order to avoid construction project delay.
4. Host communities and contractors must have clear brief and understanding of their specifications before construction projects are being executed in order to avoid delay.

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APPENDIX

Department of Building Technology,
Auchi Polytechnic,
Auchi.
Edo State.
September, 2017.

Dear Respondent,

REQUEST TO COMPLETE QUESTIONNAIRE

I am a final year student of the Department of Building Technology, Federal Polytechnic, Auchi. currently carrying out a research on a topic titled: **"ASSESSMENT OF THE TRIGGER OF DELAYS OF PUBLIC BUILDING PROJECTS DELIVERY IN AUCHI POLYTECHNIC"** in partial fulfillment for the award of Higher National Diploma (HND) in Building Technology.

The attached questionnaire is designed to solicit information from you or your organization so that the objectives of the research can be achieved. The information supplied shall be treated confidentially and used for academic purpose only.

Thank you for your anticipated co-operation and understanding.

Yours faithfully,

…….....

SECTION A: BACKGROUND INFORMATION

(Please Tick where applicable)

1. Academic Qualification of Respondent**:** (i) SSCE [ ] (ii) ND [ ] (iii) HND [ ] (iv) B.Sc/B.Tech [ ] (v) M.Sc/M.Tech [ ] (vi) Ph.D. [ ]
2. Level of respondent : (a) General manager [ ] (b) Assistant manager [ ](c)Head of Department [ ] (d) Director of works
3. How many projects have you been involved in since you assume office? (A) 1-5 (B) 6-10 (C) 11-15 (D) 16-20 (E) 20 and above
4. Years of Experience of respondents (A) 1-5 years (B) 6 -10 years (C) 11 – 15 years (D) 16 – 20 years (E) above 20 years
5. Profession Of Respondents (a) Builder { } (B) Quantity Surveyor { } (C) Architect { } (D) Contractor { } (E) Project Manager { } (F) Civil Engineer
6. Professional Qualification Of Respondents

S/N	**PROFESSIONALS**	**Probation Member**	**Registered member**	**Fellow**
1	Builder			
2	Quantity Surveyor			
3	Architect			
4	Contractor			
6	Civil Engineer			

7. Year of Establishment (**Applicable to firms/Organization only) (A)** 1-5 [ ] (b) 6-10 [ ] (c) 11-15 [ ] (d) 16-20 [ ] (e) 21 – 30 [ ] (f) 31 and above [ ]

SECTION B

TO ASSESS THE FACTORS THAT TRIGGERS DELAY IN PUBLIC BUILDING PROJECT DELIVERY

8. The following are factors that triggers delay in public building projects. Kindly rate the causes using the scale below

1= Very High 2 = High 3 = Neutral 4 = Low 5 = Very Low

S/N	**Triggers of Delay of TetFund Projects**	**Rate of Occurrence**				
		1	**2**	**3**	**4**	**5**
1.	Inclement weather					
2.	Labour shortage/ labour low productivity					
3.	Poor subcontractors' performance					
4.	Variation					
5.	Unforeseen ground condition					
6.	Materials shortage					
7.	Inadequate construction planning,					
8.	Financial difficulties of contractor					
9.	Delays in design work					
10.	Poor site management					

11.	impractical design					
12.	Poor Communication					
13.	Inappropriate type of contract used					
14.	Lack of designer's experience					
15.	Inaccurate estimating.					
16.	Contractual arrangement					
17.	Kick back					
18.	Corruption					
19.	Payment methods					
20.	Project complexity					

SECTION C

TO EVALUATE THE EFFECT OF DELAY ON PUBLIC BUILDING PROJECT DELIVERY

9. What are the effects of project delay on public building project delivery? Please rate the following statement on a scale of 1-5 by ticking the appropriate box. using the scale below;

5=VERY HIGH, 4=HIGH, 3= NEUTRAL, 2=LOW, 1=VERY LOW

S/N	Effect of Delay on TETFund Projects	Level of Impact				
		5	4	3	2	1
1.	Unemployment of construction workers					
2.	Cost overrun					
3.	Wastage of Equipment and materials on Site					
4.	Increase in the final cost of the project					
5.	Difficulties in assessing more funds					
6.	Reduction in construction investment					
7.	Time overrun					
8.	Reduction in quality					
9.	Unavailability of basic goods and services					
10.	Increasing number of abandoned projects					
11.	Decrease in cash flow					
12.	Loss of contractors reputation					
13.	Building collapse					
14.	Denied timely occupation of the building					
15.	Inconvenience to the beneficiaries					

SECTION D

TO SUGGEST POSSIBLE MEASURES FOR MITIGATING AGAINST THE TRIGGERS OF DELAY IN PUBLIC BUILDING PROJECT DELIVERY.

10. The following are possible measures for mitigating against the triggers of delay in public building project delivery. Kindly rate using the scale below

5=VERY HIGH 4=HIGH, 3= NEUTRAL, 2=LOW, 1=VERY LOW

S/N	Mitigating Measures Against Delay Triggers	Rate of Occurrence				
		1	2	3	4	5
1.	Training of labour force,					
2.	Proper understanding of clients specification,					
3.	Adequate contractors experience,					
4.	Alternative financing options of project by contractor,					
5.	Effective planning and scheduling of project by contractor,					
6.	Team work among professionals,					
7.	Prompt payments by client,					
8.	Well planned and managed contract duration,					
9.	Quick material delivery,					
10.	Adequate site management and supervision by contractor,					
11.	Prompt decision making process by the client,					
12.	Early procurement of materials,					
13.	Synergy/agreement between all contract documents,					
14.	Correct estimation before commencement of work					
15.	Adherence to contract conditions.					
16.	Choosing the right contractual arrangement					
17.	Privatization					
18.	Involvement of host community in the decision making					
19.	Use of contractors within the polytechnic environment					
20.	Stiff penalty to defaulting contractors					
21.	Payment of certificate issued					
22.	Release of funds as at when due					
23.	Evolution of project monitoring units					