

**FINANCING MUNICIPAL PROJECTS IN UPPER DENKYIRA EAST
MUNICIPAL ASSEMBLY: A COMPARISON OF BUILD-OPERATE-
TRANSFER AND TRADITIONAL PROCUREMENT METHODS**

By

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DECLARATION

I hereby declare that this submission is my own work towards the Masters of Business Administration and that, to the best to my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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(Head, Department of Accounting and Finance) Signature

Date

DEDICATION

This work is dedicated to my wife and children

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I am very thankful to the almighty God whose inspiring words gave me the needed motivation for this work and the entire course.

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ABSTRACT

This study assesses the financing of municipal projects in the Upper Denkyira East Municipal Assembly (UDEMA): a comparison of Build- Operate- Transfer (BOT) system and Traditional Procurement Methods (TPM). The study employed a cross sectional survey research design. A purposive sampling approach was adopted in selecting the respondents who are the main participants in the procurement process. In all a total of 50 respondents were sampled. The study employed a well-structured questionnaire. The study reveals that among the factors causing delay of BOT projects include political risk, environmental concerns and restriction, delay in obtaining permission and financial risk. On the traditionally procured projects, contractors experience in planning and controlling, delays in the approval of design documents and delays in payment by owner and difficulties in financing are the causes of delays of projects. A comparison of the effectiveness of BOT and TPM indicate BOT is more effective than TPM on the basis of time taken to negotiate/award of contract, time taken to deliver the asset, cheaper transaction cost, funding arrangement and budget certainty, whole life maintenance and construction innovation. Critical success factors of BOT projections outweighs that of TPM projects in terms of strong construction and financial market. It was also revealed that clients, cost, time, risk, project characteristics and external environment statistically and significantly influence the selection of procurement methods. It can be conclude that the BOT as a variant of public private partnership has proved to be a viable alternative in financing municipal projects apart from the traditional procurement methods.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Public infrastructure are essential to a country's production and distribution of economic output as well as the populace quality of life. Infrastructure defines the urban environment physically, socially, politically, economically and environmentally and may be seen as the pivot on which urban society is built (Jones et al., 2004). Infrastructure includes highways, bridges, mass transportation systems, power plants, water supply municipal facilities and similar public facilities with the primary role of serving public needs, providing social services and advancing private economic activities (Shen et al., 1996). Taking in adequate infrastructure requires having enough financing to build and sustain the infrastructure (Jones et al., 2004). In general, implementation of such projects requires huge capital investment (Shen & Wu, 2005). The immediate demand for such projects coupled with chronic budget shortage experiences of public agencies encourage the utilization of alternative financing (Zhang, 2004).

The concept of financial federalism allocates the communal funding, role of resource allocation to local governments, while holding back the fiscal balance and income distribution roles at the federal level. Consequently, only immobile tax bases such as property taxes are typically attributed to local jurisdictions (Oates, 1993). The matching principle of local finances emphasizes that the financial capacity of local authorities should be harmonized with functional responsibilities assigned to them. To that effect, operating expenditures were required to be met by locally raised revenues, and capital expenditures through intergovernmental transfers, grants and donor funds (Bird, 2001). Borrowing at

the local level is not encouraged, especially in developing countries, as the traditional mode of capital financing professed that local government borrowing is irresponsible and should be open to considerable restrictions (Bahl, 1981).

In the growing vertical fiscal imbalance between function and finance, government grants and donor funds have proved unequal to take on local capital spending. Hence, key governments are gradually adopting the idea of local governments accessing private finance for investments in public infrastructure and services.

Public-private partnership (PPP) is a joint venture effort between government and the private sector for accomplishing and executing projects. It involves changing some or all of the public assets and our operations into private work force. A basic characteristics of a PPP are the ultimate public sector ownership of and responsibility for assets, allocation of risk and sharing of responsibilities between private and public participants, existence of a partnership and a contractual agreement and contribution of needed resources by both sectors (World Bank, 2003).

A number of reasons have been given by governments for pursuing PPP. A major reason given is the achievement of improved value for money (Grimsey & Lewis, 2005). This is to say that better value for money is created compared to the case where a service is delivered by government using the traditional public procurement (OECD, 2008). This implies that if a project is not able to prove the attainment of value for money, a government is better off pursuing such project through other delivery means. However, a number of arguments have been put across as motives for the use of PPPs in governments response to the demand of infrastructure. This include the need to shift capital expenditure to the private

sector and to contribute to enhance efficiency in infrastructure and service delivery (Asian Development Bank, 2008).

Sustaining and improving on the existing infrastructure in the various MMDAs are appropriate to the central government. In an attempt to complement government initiative for economic liberalisation, privatisation and commercialisation have been done in other to encourage their contribution to the industrial and economic sector.

1.2 Problem Statement

Local government and hence MMDAs in Ghana face a challenge of providing infrastructure and delivering services due to limited financial resources to meet the increasing demand. As an alternative to the tradition procurement method, the publicprivate partnership (PPP) financing mechanism has been embraced as a viable option to deliver infrastructure and provide services. However, the implementation of PPP (especially BOT) in municipal projects have been characterized by challenges. Evidence indicates that the untimely completion of projects and their desertion that result as a consequence of inadequate funds demand the necessity for the approval of the private funding initiative towards financing projects. Notwithstanding the acceptance of this procurement method and is postulated attempt through a mixture of indicators that introduce an element of uncertainty on its virtual efficiency and strength, compared with traditional procurement methods call for a critical examination. Thus the study examines stakeholder's perception the effectiveness of BOT as a private funding/alternative procurement method in comparison with the traditional procurement method.

1.3 Objectives of the Study

The main objective of the study is to assess the financing of municipal projects in the

Upper Denkyira East Municipal Assembly (UDEMA): a comparison of BOT system and Traditional Procurement Methods. The specific objectives are;

1. To identify the principal causes of delay of BOT and Traditional Municipal projects in UDEMA
2. To examine the effectiveness of BOT and Traditional Municipal projects in UDEMA
3. To assess and rank the critical success factors for BOT and Traditional Municipal projects based on accumulative knowledge and judgement of stakeholders and experts.
4. To examine the factor that influence the selection of procurement methods by UDEMA

1.4 Research Questions

The study seeks to address the following research questions;

1. What are the principal causes of delay of BOT and Traditional Municipal projects in UDEMA?
2. What is the effectiveness of BOT and Traditional Municipal projects in UDEMA?
3. How are BOT and Traditional Municipal projects fairing based on accumulative knowledge and judgement of stakeholders and experts?
4. What are the factors that influence the selection of procurement method by the UDEMA?

1.5 Significance of the Study

Local governments in Ghana are saddled with the problem of providing infrastructure to the public in the advent of rapid urbanization and globalization. PPPs have been recognized

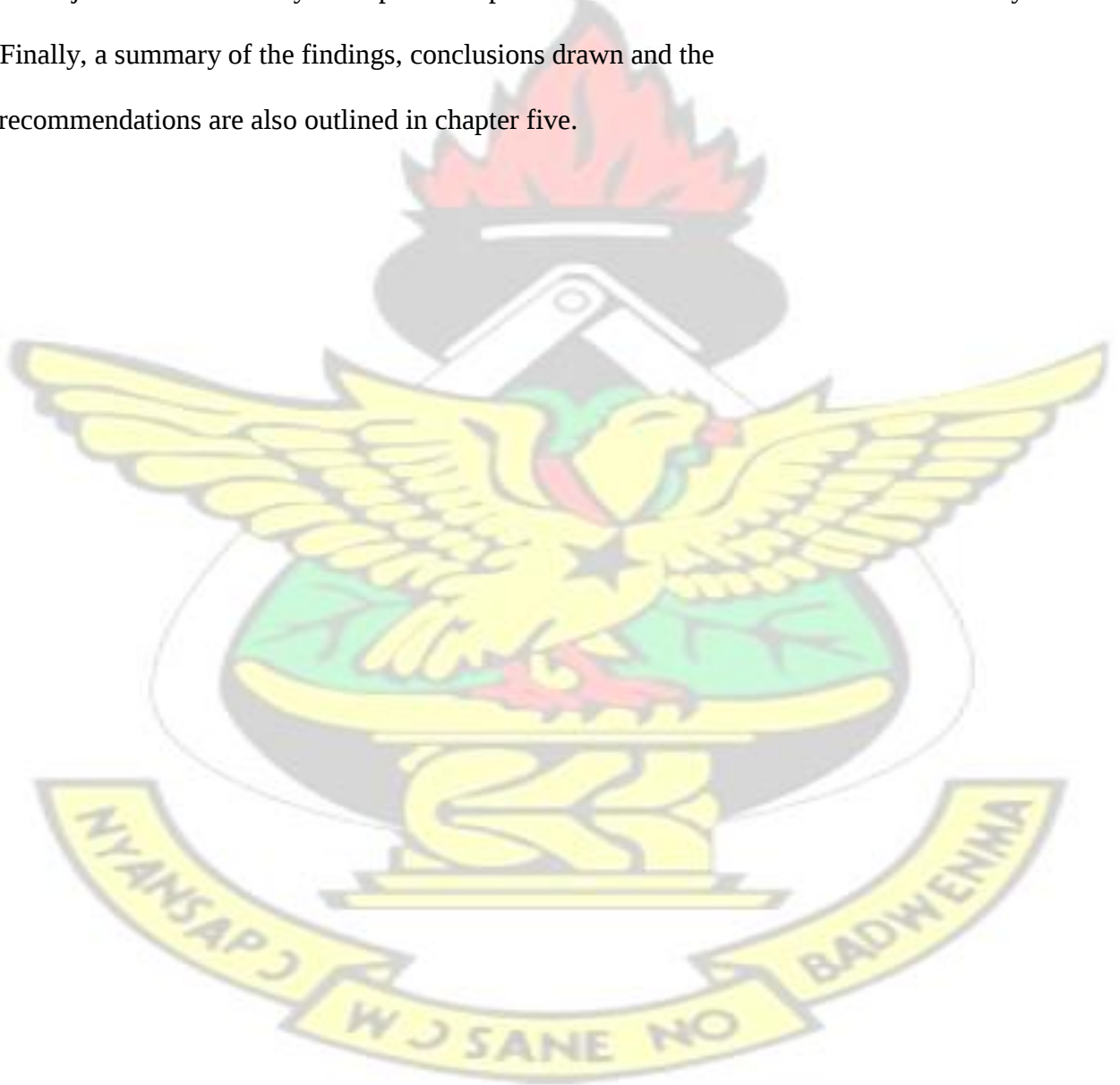
as a viable option through which infrastructure could be delivered. The study will help us to get insights on the achievement of value for money considering the BOT and the tradition method of procurement. The conclusion drawn about the comparison of these two methods of procurement will help stakeholders as to how to enhance and/or maintain projects undertaken using these methods. Again, the study will help stakeholders to work hand in hand with government to deliver projects on time and always work within specified budget by encouraging the private sector into partnership with government. The study will also help stakeholders to improve efficiency of project delivery. Since PPPs are new to local governments and policy makers in Ghana, the findings from the study will help choose among the various procurement methods of project delivery. The research will help stakeholders in managing factors such as accountability, economic, environment, political and client factor of projects.

1.6 Scope of the Study

This study targets the eight main participants in the procurement process. This includes financial institutions, lawyers, accountants, investors, policy makers, contractors, the public/users and civil engineers. Civil engineers represent an intersection of them all. It is expected that the civil engineer will coordinate all the activities of the participants, even though he or she is not expected to be an epitome of all the knowledge that will be needed in the process. He is expected to communicate well and understand the various positions of the various stakeholders in the process. All these personnel will be drawn from the Upper Denkyira East Municipality.

1.7 Organization of the Study

This study consists of five chapters. The background of the study, problem statement, objectives of the study, research questions, significance of the study and the delimitation of the study are presented in chapter one. Chapter two discusses literature relevant to the subject matter being studied. Chapter three reviews the methodology employed in attaining the objectives of the study. Chapter four presents and discusses the results of the study. Finally, a summary of the findings, conclusions drawn and the recommendations are also outlined in chapter five.



CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews literature related to this study. It begins with the concept of infrastructure and procurement. It talks about the various types of procurement and highlight more on the traditional procurement method and the build-operate-transfer. It also discusses the factors that influences the choice of procurement methods for a particular project. It concludes with a review of empirical literature on procurements methods and their application to various projects.

2.1 Concept of Infrastructure

The economic and social development of every nation is pivoted on infrastructure (OECD, 2006). Infrastructure are the physical facilities, institutions and organizational structure, or the social and economic foundations for the operations of society (United Nations, 2008). Yescombe (2007) asserts that public infrastructure are facilities that are relevant for the proper functioning of the economy and society. It is a way of supporting the economic and social activities of a nation but not an end in itself. OECD defines infrastructure as “means of ensuring the delivery of goods and services that promote prosperity and growth and contribute to the quality of life including the social well-being, health and safety of citizens and the quality of life” (OECD, 2007). This entails sectors such as roads, market, water, transport and telecommunication

2.2 Concept of Procurement

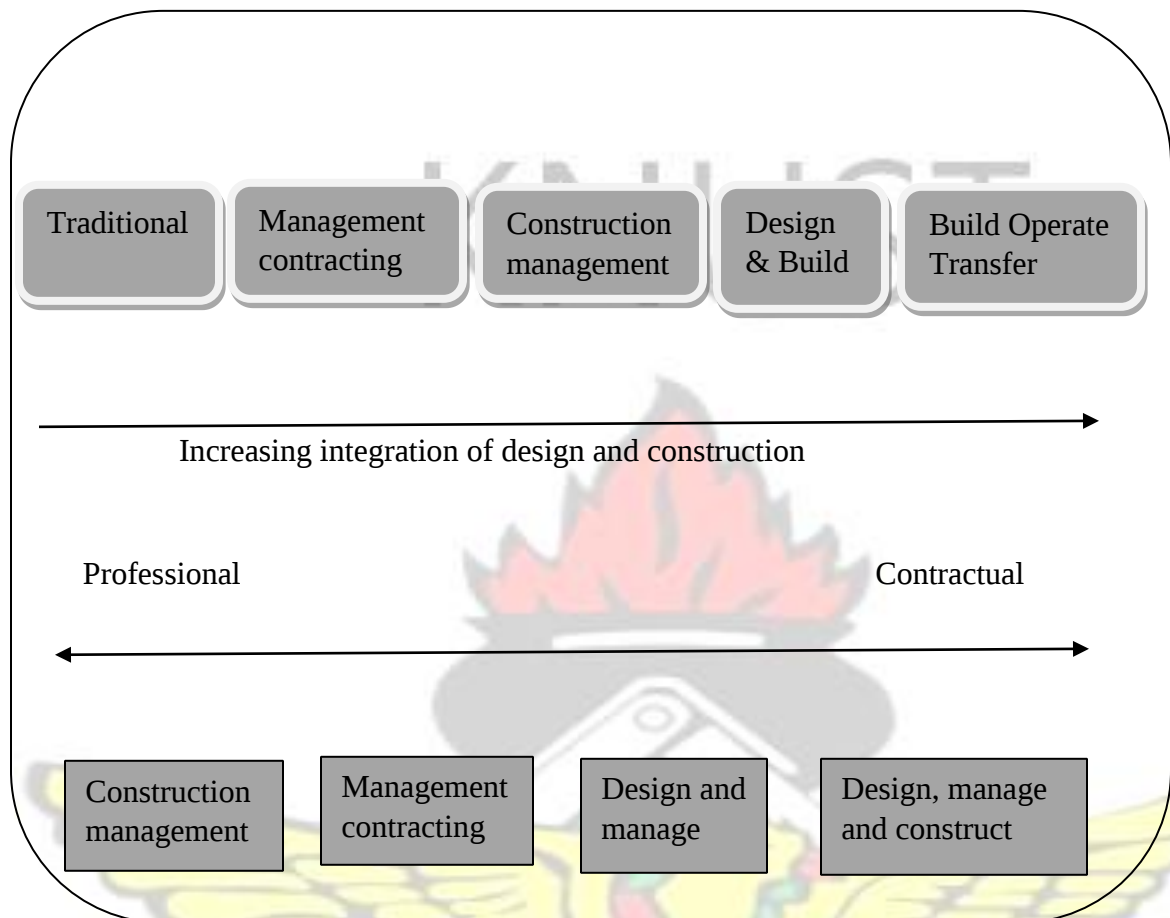
Procurement as a concept encompasses all the activities undertaken by clients seeking to bring about infrastructural development to aid society to achieve certain goals to lessen the

burdens of society (JCT, 2008). This arises as a result of the need to provide adequate, efficient and effective infrastructure to better the social and economic wellbeing and increase a country's capital.

2.2.1 Procurement Methods

There are a number of variants of procurement strategies being adopted worldwide by clients to meet their specific project needs. According to Davis et al (2008), determining on which technique to adopt for a necessary venture is a daunting undertaking as clients' goals and objectives need to be weighed with the selected strategy in order to ensure the successful delivery of the project. The choice of procurement method should be done at the early stage of the project and this should take into cognizance the potential risk and how it will affect the successful delivery of the project. Davis et al (2008) categorized procurement methods into two, namely the traditional and non-traditional procurement methods.

Figure 2.1: Procurement method characteristics



Source: Rowlinson et al., (1999)

2.3 Traditional Procurement Method

This procurement method involves the acquisition of a facility or infrastructure using funds accruing from taxes or through public borrowing (Yescombe, 2007) and intergovernmental transfers such as Common Fund in the case of MMDAs. TPM is characterized by the contractor not being responsible for the design or the paper documentation (Goldfayl, 1999) and a clear cut between project design and the implementation process responsibilities (Rowlinson, 1999). This normally leads to bureaucracies and poor management of contracts.

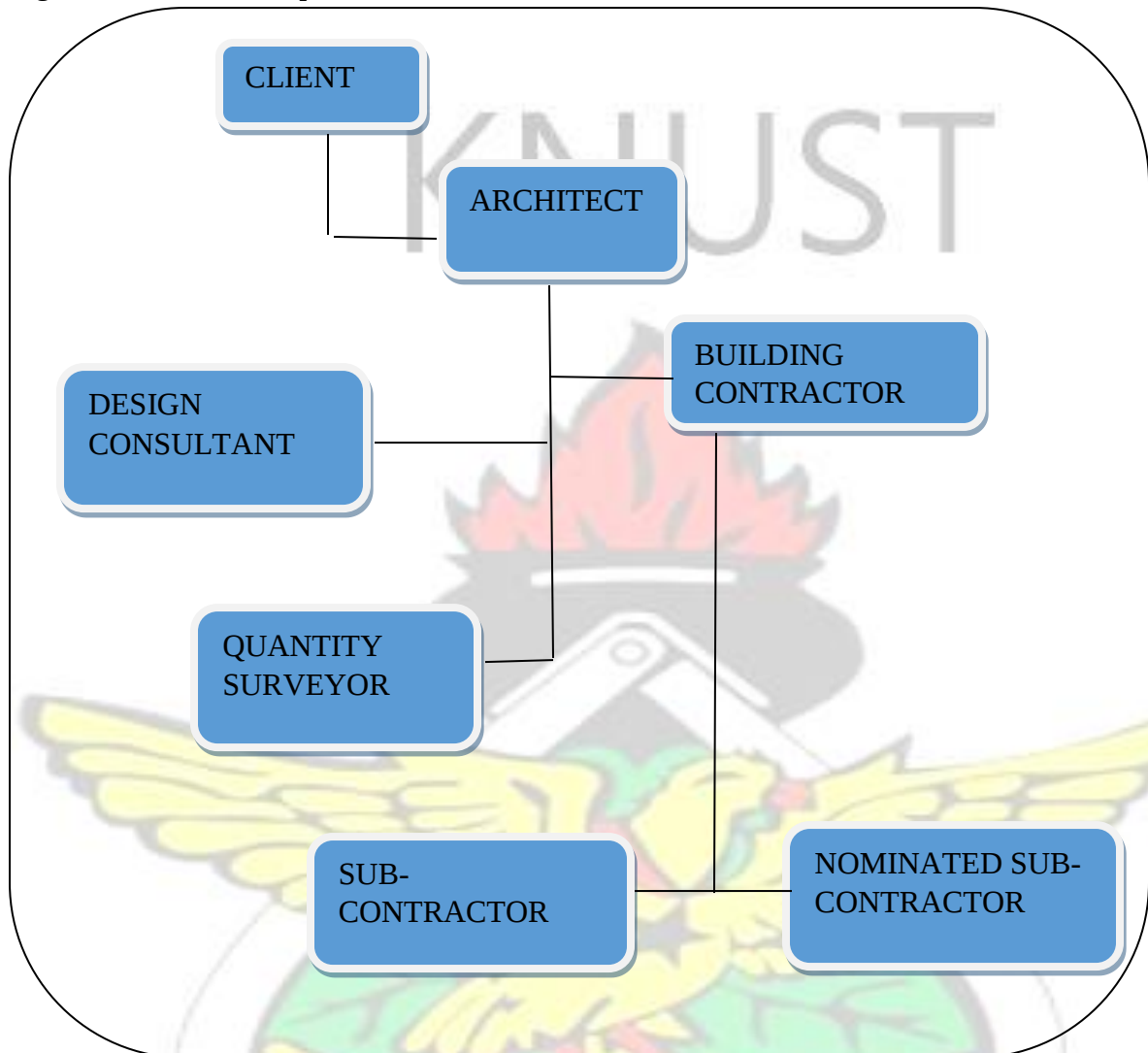
According to Yescombe (2007), the justification for the traditional system of procurement are, private sector cannot take of externalities; public infrastructure are not attractive to the private sector as they are business oriented seeking profit, hence the involvement by government; the need for public control in monopolistic provisions and most infrastructure involves lump sum with long term returns, which private sector capital may be difficult to attract, thus the need for public sector procurement.

Traditional procurement method entails an association among the public or private organization and the project funding rests on the organization of the client. Nevertheless, self-determining consultants on behalf of customer group commence the supervision of the job to the end (Ojo & Gbadebo, 2012). Burger and Hawkersworth (2011) underscored the fact that in TPM, governments gives specification in terms of the quantity and quality of the services to be rendered by the contractor, although the project is executed by individual entities to whom the implementation is typically awarded through tender. After the project execution, the infrastructure is conveyed to and run by the government. All the construction cost as well as the overrun cost are borne by the public sector. The operational and maintenance demands are entirely the responsibility of the public sector.

In the TPM the risks is usually borne by the government and even if there's sharing, it does not range outside the construction phase of the task.

The invention and construction can be given in parallel to a limited extent and this is called Accelerated TPM and this requires a two-stage tendering or negotiated tendering. Even though this involves less certainty about cost, it allows an early commencement of the project (Davis et al., 2008).

Figure 2.2: Traditional procurement method



Source: Davis et al., (2008)

2.3.1 Merits and Demerits of Traditional Procurement Method

The chief virtues of using TPM are answerability due to a competitive selection; competitive equity as all tendering contractors bid on the same base; design lead and the client are able to sustain a direct influence which can facilitate a high degree of functionality and improve the quality in the overall plan; price certainty at the award of the contract; variances to the contract are relatively comfortable to set up and supervise; a strained and proven method of procurement which the marketplace is real intimate with

and this method provides good checks and balances between the customers, the advisers and the contractor.

The main demerits of using a TPM can be a timely process to develop the full contract documentation. Tender documents from incomplete design can be produced, but can contribute to less cost time certainty and may contribute to conflicts; overall duration of the task may be longer than other procurement methods as the strategy is sequential and construction cannot be commenced prior to the culmination of the design; no input into the intent or planning of the project by the contractor as they are nominated during the invention phase; customers usually have no contractual relationship with subcontractors and contractors, having procured the job probably on a lower tender may attempt to gain profit from the mutations.

2.4 Public Private Partnership Procurement Method

Private-public partnership (PPP) is gaining attention and popularity as a form of privatesector finance for the procurement and maintenance of public-sector infrastructure. PPP is formed as a result of a consortium between the government and private-sector for executing projects. PPP promotes the sharing of skills and hence resource allocation becomes more efficient. According to Schwartz et al., (2008), three main reasons exist for using PPP as a form of procurement procedure. These are superiority in management capabilities in the private sector makes it likely to be more efficient than the public sector; most infrastructural services such as markets and roads are of public in nature and resorting to private financing helps governments to undertake projects without having to finance the overall cost of investment at a go.

2.4.1 Concept of Build-Operate-Transfer

According to Kumaraswamy and Zhang (2001), under the Build-Operate-Transfer (BOT) the private sector is responsible for the finance, design, operation and maintenance of the project along concession period. At the end, the asset is transferred back to the government at the end of the concession period.

Jefferies et al (2002) defined BOT as a partnership designed to provide infrastructure for a client for which there's a concession agreement made by the client to fund the project until ownership is reassigned to the client. Numerous variants of BOT have emerged to echo different public sector or governmental interest and preference and industrial features in acquiring infrastructure (Akintoye & Beck, 2009). The advent of various forms of BOT is as a result of the problem of scarcity of funds to provide infrastructure for nations without adversely affecting the already overstretched budgets of various governments. The modules of BOT are : Build-operate-own (BOO); Build-own-operate-transfer (BOOT); Build-transfer (BT); Build-own-operate (BOO); Build-lease-transfer (BLT); Build-transfer-operate (BTO); Design-build-finance-operate (DBFO); Design-build-operate-maintain (DBOM); Develop-operate-transfer (DOT); Lease-develop-operate (LDO); Modernize-operate-transfer (MOT); Rehabilitate-own-operate (ROO); Rehabilitate-operate-transfer (ROT) and Transfer-own-transfer (TOT). This indicates that the various forms of BOT is on the basis of ownership, usage, rights and obligations.

2.4.4 Merits and Demerits of BOT system of Financing Projects

The main merits of BOT system of financing projects are, private firms are more efficient; private firms are more innovative in selection of design and operation phases of project or service; private sector invests directly in the development of infrastructure, thereby

reducing public debt, balancing the budget deficit and reduced role of public sector; BOT projects create business opportunities for the local private sector, create employment avenues as well as attract substantial foreign direct investment and BOT in facilitating transfer of technology by introducing international contractors in the host countries.

The demerits of BOT system of financing projects are; high transaction cost; not suitable for smaller projects; success depends upon successful raising of finance and projects are more successful only when substantial revenues are generated during the operation.

2.4.5 Risks of BOT System of Financing

Unquestionably, there exist some level of risk in every single project and this may vary in nature and size depending on the project. BOT project risk are solitary and different but somehow always linked to the phases in the project namely; initiation, implementation and operational phase. How these risks will be managed is the most important issue in project management. Risks are bound to every project, either systematic or unsystematic risks. A number of risk commonly associated with BOT system of financing of projects include; completion risk, performance and operating risk, economic risk, inflation and foreign exchange risk, insurable and uninsurable risk and political risk (Morris, 1994). Wang et al (2000) also enumerated a number of risk associated with BOT system; political risk such as expropriation, revoke, sequestration exclusivity, reliability and credit worthiness of local parties, provision of utilities, increase in taxes, political majeure events, termination of concession by government and payment failure by government.

2.5 Factors Affecting the Selection of Procurement Methods

The selection of what procurement method to adopt should be reached early and this should be maneuvered by the client's interest and objectives (Davis et al., 2008). Again, the risk that goes with each procurement method and how they can impress the customer should be given a thought. Internal and external factors influence the choice of the type of procurement method that is embraced by a client (JCT, 2008). These yardsticks could be assigned to the project objectives, quality and cost among other ingredients. Mason et al., (2006) argued that picking out a procurement method can be an unnerving task for the customer.

The choice and employment of a suitable procurement method are very necessary for the success of the task. Dong (2011) postulated that the most significant ingredient for the choice of a procurement method is to satisfy the need of a client for budget /cost need is solely the most convincing factor.

In a study by Shafik and Martin (2006) on the factors that determine the choice of procurement strategy for building homes in Scotland, it was observed that the speed and level of character is the highest ranked factor by clients than project nature and followed by level of jeopardy and monetary value. Thomas (2001) also indicated that the selection and usage of the suitable procurement procedure are vital for the success of any task. Elements such as completion date and price were even forecasted beforehand by the node.

2.6 Comparison of Traditional and BOT Procurement Methods of Financing of Projects

With the advent of private finance initiatives, the performance of infrastructure in terms of project completion on time and budget has seen much enhancement as to traditionally

procured projects. Even though governments has increasingly preferred to adopt one form of PPP or the other to provide infrastructure, TPM are still being utilized by most nations to deliver most projects. According to Davies and Eustice (2005) about 85% of UK public projects are still delivered through TPM notwithstanding the numerous forms of PPPs such as BOT in place. Table 2.1 illustrates a comparison of TPM to BOT as a form of PPP in the procurement of infrastructure.



Table 2.1: Comparison of Traditional Procurement Method and Build-Operate-Transfer

Traditional Procurement Method	Build-Operate-Transfer (PPP)

The public sector procures an asset not service from the private sector

The public sector concentrate on defining the objectives to be achieved by procuring the asset

The assets are input specified. That is the public sector designs the project prior to procurement

There is emphasis on output specifications and not the asset

The private sector delivers assets based not on their long term performance beyond the standard warrant period

There relatively long relationship involving cooperation between the public sector and the private party

Project management mainly remains with the public sector including risk if integrating successfully multiple works contracts

The private party plays an important role in all stages of the project. That is designing, construction, operation and financing

Risk is mainly borne by the private sector

There's distribution of risk between the public sector and the private party

Source: Davies and Eustice (2005)

2.7 Empirical Literature on the Causes of Delays of Projects

Finishing projects on time is a measure of efficiency, but project execution is subject to many variables and unexpected factors which arise from different sources. Literature identifies various causal factors of project delays.

A study by Ayman and Al-Momani (2000) in the construction industry identified factors related to designers, user changes, weather, site conditions, late deliveries, economic conditions and increased in quantity as some of the causes of delay of projects.

Chan and Kumaraswamy (1997) also did a comparative study on the causes of delays of projects in Hong Kong construction sector. It was revealed that poor site management and supervision, unforeseen ground condition, low speed of decision making involving all project team, client-initiated variations and necessary changes in the project. They also revealed different perceptions on the causes of project delays.

Noulmanee et al (1999) also assess the determinants of project delays in the highway in Thailand. They posit that delays in projects may arise among parties involved in the project, insufficiency of sub-contractors, institutional lack of resources, incomplete and ambiguous drawing and lack of expertise.

Ubaid (1991) also found lack of experience, poor estimation practices, bad decisions in regulating company's policy's and national slump in the economy are the worse determinants of project delays.

2.8 Empirical Literature on the Critical Success Factors of BOT and Traditional Procurement Method

Rocket (1982) defines critical success factors as those few regions of an endeavor in which good outcomes are absolutely necessary for a project manager to accomplish his or her objectives. These success factors encompass effective procurement; project implementability; government guarantee; favorable economic conditions and available

financial markets. Several subject areas have identified several critical success factors in the procurement of labor in various sectors yet similarities exist among them.

Qiao et al (2001) studied eight separate critical success factors in BOT projects in China. Appropriate project identification; stable political and economic situation; attractive financial package; acceptable toll/tariff levels; reasonable risk allocation; selection of suitable subcontractors; management control and technology transfer.

Jefferies et al (2002) also conducted a similar study on sports stadium projects in Australia. They found critical success factors as solid consortium with a number of expertise; considerable reputation; an efficient approval process that assisted the stakeholders in a very tight time frame and innovation in the financing procedures of the consortium.

Sound organization and government funding was too identified by Badshah (1998) and Zhang et al (1998) respectively. Sound economic policy (European Investment Bank, 2000) including available market (Akintoye et al, 2001) and effective risk allocation (Grant, 1996) are also seen as a critical element for the success of projects.

2.9 Empirical Literature on the Effectiveness of BOT and TPM Procurement Methods of Financing of Projects

In 2001, the Netherlands developed a BOT with a consortium led by Siemens Corporation to design, manufacture, finance and maintain the superstructure of a highspeed rail system that will start from Amsterdam in Belgium.

BOT arrangement have also been extensively used in Malaysia and Turkey to build telecommunications system and the system operate under a concession from the government. Debt financing is highly leveraged and the private consortium takes a small

equity position. It also seeks loans for international financial agencies and commercial banks using future revenues from the trade union movement to repay them. In Australia, the federal and state governments have used BOOs expand public hospital (Rondinelli, 2003).

Tam (1999) picked out some lessons in Asian projects through the selections of case studies. He concluded that BOT would be a full answer to overcome the lack of funds and technology. According to Nishimatsu (2006) in Hong Kong the Western Harbour Crossing is a case of BOT procured projects. This project was the third underwater roadway tunnel to connect Hong Kong Island with Kowloon Peninsula. Under the contract agreement of 30 year period, the consortium can adjust the cost depending on the running out of revenue. If the revenue is underestimated, the toll can be increased to meet targets and on the other hand the toll can also be taken down if the price exceeds the expected receipts.

Kwarteng (2015) also examined ways PPP can enable the Accra Metropolitan Assembly (AMA) accelerate development. The survey brings out that PPP is being used by AMA often in the field of environmental management and at times in road and building construction or revenue collection.

Ojo and Gbadebo (2012) investigated the existence and importance of specific genes that are thought to infrastructural projects are vital to economic development and their acquisition often take suitable procedures which are key process and conditions clients create for successful accomplishment of project specific aims. The survey found a slight disparity in the mean of rank criteria while the t-statistics indicated that there is no significant dispute in the criteria practiced by clients and advisors.

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CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter entails the research methodology employed in achieving the objectives of the study. It includes the research design, the study area, sample size and sampling procedure. It concludes with the data collection procedure, data analysis, research instrument and ethical considerations.

3.1 Research Design

Descriptive research is used to obtain information concerning the current status of the phenomena and to describe "what exists" with respect to variables or conditions in a situation. In every case descriptive studies examines a situation as it is. It does not involve changing or modifying the situation under investigation. Fundamentally this method of research involves identifying the characteristics of an observed phenomenon or observing possible correlations among two or more variables (Leedy & Ormrod, 2010).

The study employed a survey research design. This design is used as it identifies trends, determines individual's opinions and identify important beliefs and attitudes of individuals (Creswell, 2012). Surveys may be used to obtain descriptive information about a target population or to examine relationships between factors. Survey design can produce not only descriptive summary, but also generalized statements based on large databases (Cohen et al., 2000). Survey has internal and external validity, efficient and can cover geographical samples; may have ethical merits and are flexible. It is also good at collecting data on

groups too large to observe directly (Babbie, 2004). Data collection instruments, especially data from questionnaires, can be used to gather data in a relatively short period.

3.2 Population of the Study

The target population include the main participants in the procurement process at the Upper Denkyira East Municipality. These include in engineers, contractors, public/users, investors and policy makers. This population is limited in number as most of them are technocrats that are not employed in large number in each district.

3.3 Sampling Size and Sampling Technique

A total of 50 respondents were sampled. Pallant (2007) posits that there is no agree rule on what constitute a suitable sample size in research The respondents are the main stakeholders in project implementation in the various MMDAs. They are shown in Table 3.1. A purposive sampling approach was adopted in selecting the respondents who are the main participants in the procurement process in the various MMDAs. According to Kumar (2011) the primary consideration in purpose sampling is your judgement as to who can provide the best information to achieve the objectives of the study. These officers were chosen because they are basically involved in project implementation and execution in Upper Denkyira East Municipal Assembly.

Table 3.1: Sampled officers

Sample	Number
Civil engineer	1
Finance officer	1
Principal accountant	1
Building inspector	1
Environmental officer	1
Coordinating director	1
Budget officer	1
Planning officer	1
Assembly members	42
Total	50

3.4 Data Collection

Data for this study was of primary and secondary source. Secondary data from the various agencies in the Municipality to get an in-depth knowledge of the procurement process when it comes to the procurement of civil infrastructure in the various MMDA's was obtained. These secondary data includes reports on procurement, manuals for procurement and monitoring and evaluation reports of civil infrastructure in the municipality these information helped to shape the quantitative discourse of the research work.

A well-structured questionnaire was employed to gather the primary data. The instrument was divided into sections. Section A talked about the socio-economic characteristics which include age, educational level, years of experience on their job, and the type of projects implemented by their organizations. Section B entails the causes of delay of BOT and TPM projects with Section C discussing the effectiveness of BOT and

TPM projects. The critical success factors of BOT and TPM projects and the factors influencing the selection of procurement methods are also treated in Section C and D respectively.

In administering the research instruments a face-to-face interview procedure was adopted. This was done to help give clarity to questions and also offer opportunity for the researcher to be educated.

3.5 Data Analysis

Descriptive analysis in the form of tables were adopted in the analysis of the responses received in the study. These include frequencies, percentages and paired t-test. The relative importance index and factor analysis was also employed. The analysis was done using the SPSS software.

3.6 Ethical Considerations

To safeguard and protect the privacy and dignity of the participants, the following were employed. Written permission to conduct the study with the selected participants was sought and granted. Participants were assured of the non-compulsory nature of the study and hence are at liberty to withdraw at any point in time.

Participants of the study were assured their confidentiality. This was done to protect of the participants personal information. This was specified in the introductory part of the research instrument. The names, contact and institutional affiliation of the participants were not disclosed and are not part of the report. Participants were not asked to provide any information that will make them easily traced by other who have access to the report.

Participants were told that they have the right to keep information about their personal circumstances to themselves. This was not taken for granted especially when the information was considered sensitive. Finally, the researcher did not conceal the true purposes as well as the conditions under which the study will take place in order to get the participant to participate in the study.

3.7 Study Area

The Upper Denkyira East, Municipality is one of the thirteen Administrative Districts of the Central Region. The municipality has about 71,519 inhabitants as at the conclusion of the 2010 census. A map of the study area is shown in figure 3.1. Females represent the dominant gender in the municipality, constituting 50.4 percent of the population whilst males make up 49.6 percent. This throws a gender ratio of 98.3 males to 100 females.

The predominant type of lodging in the municipality is the compound house type. Nevertheless, there are a few self-contained houses, mostly in the new settlement areas built mostly by citizens living abroad. Physical planning in its technical sense is generally non-existent, as houses are built at random without any recourse to lay-down physical planning requirements and rules. Some other environmental problem connected with the built environment is poor sanitary conditions within settlements. There are only few collection sites. While these are unequal and not strategically distributed in the township, at that place are numerous uncontrolled and indiscriminate disposal of solid waste. Drainage channelling domestic effluent is inadequate in most suburban areas. Stagnant and pools of dirty water around dwelling units are common settings in the municipality.

Two primary cases of waste collection services are offered by the Municipality; the communal and house-to-house collection methods. The solid waste collection is a

publicprivate managed system. It is the assembly which contracts the individual company for solid waste accumulation. The only private waste collection company in the Municipality is Zoomlion Ghana Limited. Health delivery system in the town is made up of the orthodox and traditional scheme. The latter is underdeveloped and is built up of herbalists, fetish priests and spiritualist. Under the orthodox system in the town exists up to Level C under the countries primary health maintenance organization. The township can boast of one public and one private hospital.

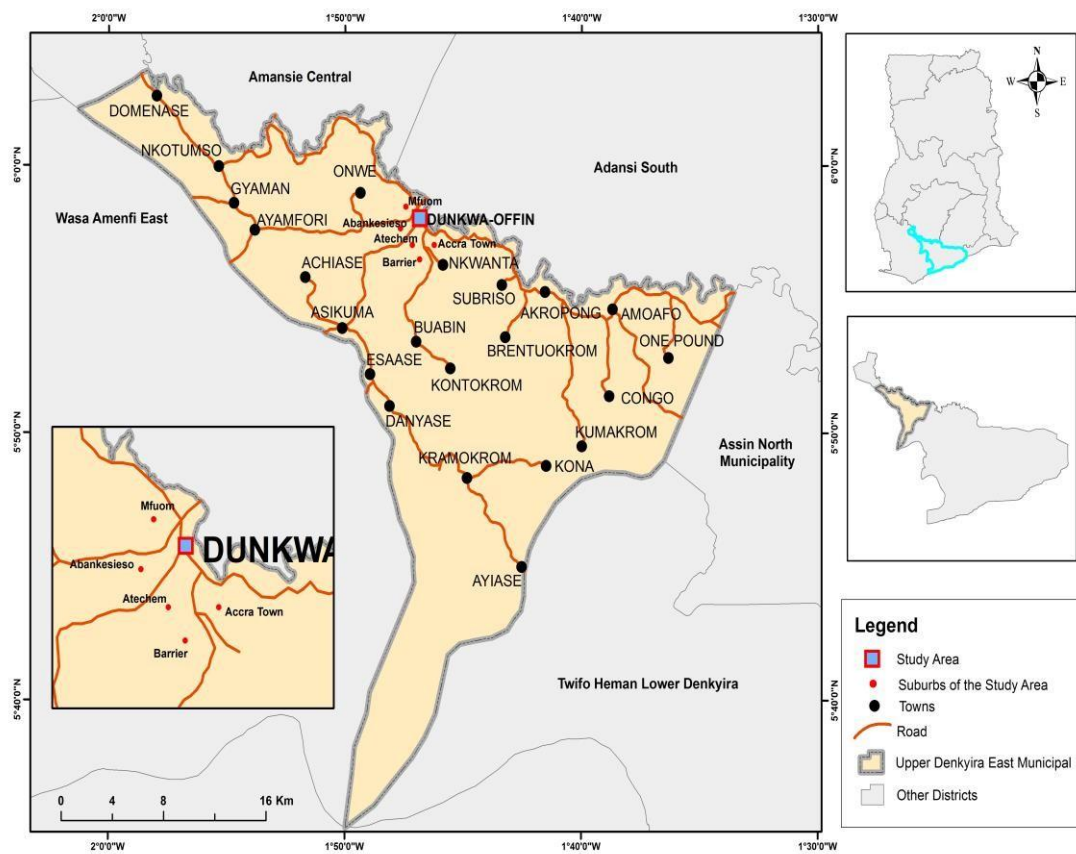


Figure 4.1: The Study Area

Source: GIS/Remote Sensing Unit, Department of Geography & Regional Planning, UCC, 2015

CHAPTER FOUR

DATA PRESENTATION AND DISCUSSIONS

4.0 Introduction

This chapter presents the results and discussions in relation to the specific objectives. First, the socio-economic characteristics of the respondents are discussed. It also discusses the causes of delay of TPM and BOT projects. A comparison of the effectiveness of BOT and TPM procurement method is also outlined. Finally the critical success factor of the two procurement methods are outlined and that factors that influence the selection of procurement methods are also discussed.

4.1 Socio-economic characteristics of Respondents

4.1.1 Age of Respondents

Table 4.1: Age of respondents

Description	Frequency	Percentage
20-30	15	30
31-40	22	44
41-50	5	10
51-60	8	15
Total	50	100

Source: Survey data, 2016

Table 4.1 shows the age distribution of the respondents. Most (44%) of the respondents are the age group 31-40 with 30 percent of them in the age group of 20-30. This is an indication that most of the respondents are matured and can assess projects executed using the various methods of procurement.

With respect to the most implemented projects by the various organizations, buildings represented 90 percent. On the hand water and sewage represent 10 percent of the projects implemented. The majority (94%) of the projected implemented by the various organization was worth more than GHS50, 000 with only 6 percent of them representing less than GHS50, 000.

4.1.2 Educational level of Respondents

Table 4.2: Education level of Respondents

Description	Frequency	Percentage
Masters	6	12
Bachelors	22	44
Diploma/HND	18	36
Others	4	8
Total	50	100

Source: Survey data, 2016

Table 4.2 presents the educational distribution of the respondents. On the educational status of the respondents, most (44%) of the respondents have a bachelors certificate whereas 36 percent of the respondents possess Diploma/HND certificates. On the master level 12 percent out of the total respondents do hold such educational qualification. This gives an idea about the level of know-how and expertise of the respondents involved in one way or the other in the procurement process.

4.1.3 Types of projects organization has been dealing

Table 4.3: Type of projects organization has been dealing with

Description	Frequency	Percentage
Buildings	45	90
Water and sewage	5	10
Total	50	100

Source: Survey data, 2016

Table 4.3 shows the kind of projects the transition of the respondents have been dealing with. The majority (90%) of projects have been building projects with water and sewage representing 10 percent. The type of projects the organization have been dealing with will also influence the type of procurement method to adopt. One will attempt to adopt a technique which will give value for the kind of funds invested.

4.1.4 Value of projects implemented within the past five years

Table 4.4: Value of projects implemented within the past five years

Description	Frequency	Percentage
Less than GHS 50, 000	3	6
Greater than GHS 50, 000	47	94
Total	50	100

Source: Survey data, 2016

Table 4.4 presents the value of projects implemented within the past five years. The majority (94%) of the projects implemented are worth more than GHS 50,000 with 6

percent of the projects less than that. This is very important in influencing the kind of procurement method to adopt. For instance will the investor or financier be able to mobilize such an amount and recover it to encourage public private partnership or to go for the traditional procurement method.

4.1.5 Years of Experience

Table 4.5: Years of experience of respondents

Description	Frequency	Percentage
1-10	37	74
11-20	7	14
21-30	1	2
31-40	5	10
Total	50	100

Source: Survey data, 2016

The majority (74%) of the respondents have been on their job for between 1-10 years with 14 percent of them with a job experience of 11-20 years. Once experience on the job in terms of working with projects procured with various methods will influence the choice and selection of procurement methods for different projects. People with more years of experience is also bound to know the various inherent weakness and strength of the various procurement methods.

4.2 Causes of Delay of Projects

4.2.1 Causes of Delay of Traditionally Procured Projects

Table 4.6: Causes of delay of traditionally procured projects

	<u>Agree</u>	<u>Neutral</u>	<u>Disagree</u>
Contractor experience in planning and controlling	27(54%)	12(24%)	14(22%)
Delay in approval of design documents	26(52%)	7(14%)	17(34%)
Delay in payments by owner	32(64%)	9(18%)	9(18%)
Speed of decision making involving all project teams	19(38%)	18(36%)	13(26%)
Site management and supervision	24(48%)	10(20%)	16(32%)
Variations during construction	32(64%)	7(14%)	11(22%)
Difficulties in financing project	40(80%)	7(14%)	3(6%)
Unrealistic contract duration	27(54%)	14(28%)	9(18%)
<u>Type of project bidding and award</u>	<u>19(38%)</u>	<u>17(34%)</u>	<u>14(28%)</u>

Source: Survey data, 2016

KEY: strong agree and agree= Agree; strongly disagree and disagree= Disagree. This was done so their combination points to the same perception but with different emphasizes on degree.

Table 4.6 displays the causes of delay of traditionally procured projects. The majority of the respondents agree that contractor experience in planning and controlling (54%); delay in approval of design documents (52%) and delays in payments by owner (64%) as causes of delay of traditionally procured projects whereas 22 percent, 34 percent and 18 disagree respectively to statements. These findings are consistent with the findings of Ayam and Al-Momani (2000) who posited that factors related to designs and economics conditions among others leads to project delays.

Difficulties in financing projects also had the majority (80%) of the respondents agreeing that it causes a delay in the delivery of traditionally procured projects. This is the cause in this modern times where the limited financial resources at the disposal of governments are

being pushed to the limits with the ever increasing demands of the population. This is consistent with the findings of Noulmanee et al (1999) who asserted that project may delay due to institutional lack of resources to execute the project. Another statement worth mentioning is the unrealistic contract duration of traditionally procured projects. This saw the majority (54%) of the respondents agreeing that unrealistic contract duration causes a delay in most traditional procurement methods. This is normally the case as most contract duration are normally determined by politicians instead of technocrats. Hence most projects normally do not meet their implementation deadlines. This findings also leads credence to the work of Ubaid (1991) who asserted that poor estimation practices is also a factor in project delay.

4.2 2 Causes of Delay of BOT Procured Projects

Table 4.7: Causes of delay of BOT projects

	<u>Agree</u>	<u>Neutral</u>	<u>Disagree</u>
Market risk	21(42%)	12(26%)	16(32%)
Political risk	34(68%)	7(14%)	9(18%)
Environmental concerns and restriction	35(70%)	6(12%)	9(18%)
Delay in obtaining permissions	26(52%)	8(16%)	16(32%)
Financial risk	28(56%)	14(28%)	8(16%)
Changes in rules and regulations	21(42%)	12(24%)	17(34%)
Severe weather conditions	17(34%)	19(38%)	14(28%)
Accident during construction	14(28%)	22(44%)	14(28%)
Non-availability of utilities on site	25(50%)	10(20%)	15(30%)
<u>Delay in award of contract</u>	<u>19(38%)</u>	<u>13(26%)</u>	<u>18(26%)</u>

Source: Survey data, 2016

KEY: strong agree and agree= Agree; strongly disagree and disagree= Disagree. This was done so their combination points to the same perception but with different emphasizes on degree.

Table 4.7 also presents the causes of delay of BOT procured projects. The majority of the respondents do believe that political risk (68%), environmental concerns and restriction (70%), delay in obtaining permissions (52%) and financial risk (56%) agree that these causes a delay in BOT procurements. Political risk is a very pertinent issue when it comes to procurement of projects under the public private initiative. Change in government will tend to witch hunt financier as they might think that they are their opponent's financiers and hence will sabotage them for political expediency. This finds lead credence to the findings of Ubaid (1991). Environmental concerns and restriction also causes delay of projects. This is even worse nowadays with awareness and sensitization of the public about the environment. Projects that the public see as a threat to their survival is bound to meet stiff opposition and hence cause project delays. This is consistent to the findings of Chan and Kumaraswamy (1997) who posited that low speed of decision making involving all project team members will cause delay of projects. The non-availability of utilities on site is also a major variable that causes a delay in BOT projects. The execution of projects are mostly done in areas where development is lacking or developing areas where most utilities that are needed in executing projects are non-existent. This will cause delay in projects as most often than not ample time is needed to secure those resources to help in the execution of the projects. This consistent to the findings of Ayman and Al-Momani (2000) who asserted that site conditions influence project delivery on time.

Delays in obtaining permission also causes projects to delay. This is very critical and at times disheartening as the bureaucratic procedures project manager go through may serve as stumbling blocks in the execution of projects. This is very pertinent as we are the part of the world signing of documents by various authorities normally goes with the greasing of

the palm which normally not spelt out to clients. This additional cost inherently will cause project delay. This findings leads credence to the findings of Ubaid (1991). Financial risk in BOT projects are bound to cause delays in the execution of project. This comes in form of parties involved being unable to raise the needed funds to execution the project. This normally arise from factors being their control arising in the cause of the execution of the projects. Chan and Kumaraswany (1997) described these conditions as unforeseen ground conditions.

4.3 Effectiveness of Procurements Methods

A comparison of the effectiveness of BOT and TPM procurement are shown in Table 4.8.

This was assessed using various indicators or scales with them having sub-scales to serve as a yardstick in assessing the effectiveness of the two procurement methods.

Table 4.8: Effectiveness of BOT and TPM procurement methods

	BOT		TPM		t-value
	Mean	SD	Mean	SD	
DURATION / TIMING FACTOR					
1. Time taken to negotiate/ award contract	3.34	1.19	2.80	1.05	2.98***
2. Time taken to deliver the asset	3.68	0.71	2.84	0.89	5.43***
3. Time taken to organize for finance	3.28	1.40	2.86	1.29	1.44
Average	3.43		2.83		
COST / FINANCING FACTOR					
1. Cheaper transaction cost	3.34	1.24	2.80	0.93	2.34**
2. Cost certainty	3.24	0.92	3.18	0.85	0.32
3. Funding arrangement	3.34	1.02	2.88	1.06	2.25***

4. Budget certainty	3.78	1.08	3.06	1.22	2.99***
Average	3.43		2.98		

NATURE OF PROJECT FACTOR

1. Whole of life maintenance	3.26	1.03	2.70	0.89	3.02***
2. Design innovation	3.62	0.92	3.36	1.19	1.36
3. Construction innovation	3.40	0.70	2.88	0.77	3.21***
4. Size and technical complexity of the project	3.20	1.03	3.08	0.94	0.69
5. Flexibility of the design	3.68	1.06	3.28	0.99	2.51**
Average	3.43		3.06		

ACCOUNTABILITY /DUE PROCESS FACTOR

1. Due diligence	3.24	0.94	3.56	1.05	-1.66
2. Due process	3.50	0.86	3.48	1.04	0.12
3. Relative level of accountability/transparency	3.28	0.86	3.42	0.86	-0.88
Average	3.34		3.49		

ECONOMIC / ENVIRONMENT COMPLIANCE FACTOR

1. Availability of resources	3.84	1.06	3.20	0.95	4.50***
2. Competition	3.70	1.04	2.92	1.05	4.15***
3. Market/economic compliance	3.52	1.00	3.28	0.88	1.35
4. Environmental approval	3.66	0.87	3.50	1.25	0.76
5. Change in performance requirement	3.88	1.00	2.94	0.84	6.07***
Average	3.72		3.17		

POLITICAL INFLUENCE / POLICY FACTOR

1. Positive political influence	3.50	1.00	3.50	1.09	0.00
2. Political support	3.34	1.00	3.34	1.00	0.00
3. Affirmative action/ policies	2.90	0.86	3.28	0.83	-1.99*

Average	3.25	3.37
CLIENT KNOWLEDGE /RISK DISTRIBUTION FACTOR		
1. Familiarity of procurement system	3.60	0.78 3.38 0.97 1.18
2. Client's specific requirement	3.62	0.86 3.30 0.91 2.31**
3. Risk allocation/ reduction	3.52	1.09 3.34 0.92 1.12
4. Client's level of knowledge	3.82	0.66 3.80 0.93 0.13
Average	3.64	3.46

Source: Survey data, 2016. ***, ** and * denotes 1%, 5% and 10 % level of significance

On the duration/timing factor of the project as a measure utilized three items in assessing the effectiveness of the procurement methods. Time taken to negotiate/award of contract scores were significantly ($t=2.98$, $p < 0.001$) higher for BOT projects than TPM. This is an indication that time taken to negotiate/award contract for BOT project is better compared to TPM. That is to say that most BOT projects do not go through much bureaucratic stages of procurement. The time taken to deliver the asset value for the BOT is also statistically significant ($t=2.98$, $p < 0.001$) and higher than TPM. Hence most BOT projects comparatively are delivered on time. These findings leads credence to the findings of Gbadegesin and Oyewole (2014) and Cheng et al (2010) who had similar results in using duration/ timing as a measure of BOT and TPM delivered projects.

Cost / financing factor as a measure of the effectiveness of the projects also used four sub-scales. Cheaper transaction cost saw BOT projects being significantly higher ($t=2.34$, $p < 0.05$) than TPM projects. This is not surprising as most of these BOT projects do not go through the hands of most government officials. Funding arrangement ($t=2.25$, $p < 0.001$)

and budget certainty ($t=2.99$, $p< 0.001$) for BOT was also statistically higher than TPM projects. This happens as estimates and budget are normally done with certainty and without much political interference. These findings leads credence to the findings of Davies and Eustices (2005).

With respect to the nature of project factor saw the use of five items in assessing the effectiveness of the procurement methods. The whole of life maintenance saw BOT projects being statistically and significantly higher ($t=3.02$, $p< 0.001$) than TPM projects with construction innovation being also greater ($t=3.21$, $p< 0.001$) and significant for BOT than TPM projects as well. To add to the success of the nature of project factor is the flexibility and design which is also statistically and significantly higher ($t=2.51$, $p< 0.05$) for BOT projects than TPM ones. This is problematic in TPM project when there is the need for changes to be made in the design of the project. One needs to go through hell to effect those changes as compared to BOT project where the private man can easily go around it. These findings leads credence to the findings of Zhang (2005) and Li (2003).

On the accountability/ due process factor also utilities three sub-scales in comparing BOT and TPM procurement methods. However, none of the scales were statistically significant in the comparison of the two procurement methods.

The issue of economic /environmental compliance was also used to assess the effectiveness of the two procurement methods. Availability of resources as an item is statistically significant and higher ($t=4.50$, $p< 0.001$) for BOT project than TPM projects. On the other hand competition ($t=4.15$, $p< 0.001$) and change in performance requirement ($t=6.07$ $p<$

0.001) were also significantly for BOT project than its counterpart. Performance is as measure to meet the needs of clients is very much held in high esteem among private entities as one is faced with a lot of competitors who needs to outwit the market. These findings leads credence with the findings of Cheung et al (2010) and Li (2003).

Affirmative action/ policies ($t=-1.99$, $p< 0.10$) on the contrary adversely influence BOT projects as compared to TPM. This is the case as most politicians do not support this initiative as it does not encourage money trickling into their pockets. Client specific requirement of the other hand was higher and statistically significant ($t=2.51$, $p< 0.05$) for BOT projects than its counterparts. These lead credence to the findings of Mathonsi and Thwala (2012).

It can be deduced from most of the indicators that the BOT system of procurement is more effective than TPM system of procurement financing municipal projects.

4.4 Critical Success Factors of Procurement Methods

The critical success factors of the various procurement methods used in financing projects serve as indicator used in their selection and measure. This is so as various procurement methods are being weighed in an attempt to find suitable financing alternative to the high demands from governments in terms financing projects. A comparison of the critical success factors of the BOT and TPM are presented in Table

4.9.

Table 4.9: Critical success factors of BOT and TPM procurement methods

		BOT		TPM		t-value
		Mean	SD	Mean	SD	
EFFECTIVE PROCUREMENT						
1.	transparency in the procurement process	3.46	1.01	3.34	1.00	0.65
2.	competitive procurement process	3.34	0.98	3.68	1.04	-1.78*
3.	good governance,	3.22	0.93	3.70	1.04	-3.16**
4.	well-organized and committed public agency	3.38	0.81	3.52	1.05	-0.77
5.	social support,	3.26	0.85	3.30	0.89	-0.23
6.	shared authority between public and private sectors, and	3.32	1.10	3.40	0.93	-0.51
7.	Thorough and realistic assessment of the costs and benefits.	3.58	0.99	3.32	0.98	1.17
Average		3.38		3.47		
PROJECT IMPLEMENTABILITY						
1.	favorable legal framework	3.52	1.04	3.66	0.94	-0.85
2.	project technical feasibility	3.30	1.02	3.40	1.03	-0.52
3.	appropriate risk allocation and risk sharing,	3.30	0.86	3.24	0.94	0.30
4.	commitment and responsibility of public and private sectors,	3.33	0.90	3.42	1.05	-0.19
5.	strong private consortium	3.56	0.88	3.06	0.89	2.57***
Average		3.40		3.36		
GOVERNMENT GUARANTEE						
1.	Government involvement by providing guarantees	3.40	1.07	3.60	0.93	-0.94
2.	Multi-benefit objectives	3.30	1.00	3.10	0.89	1.09
3.	Political support	3.40	0.93	3.76	0.77	-2.14**
Average		3.37		3.49		
FAVOURABLE ECONOMIC CONDITIONS						
1.	Stable macro-economic conditions	3.34	0.63	3.48	0.86	-0.88
2.	Sound economic policy	3.58	0.88	3.42	1.01	1.02
Average		3.46		3.45		

AVAILABLE FINANCIAL MARKETS

1. Available financial market	3.64	1.06	3.18	0.85	2.25**
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Source: Survey data, 2016. ***, ** and * denotes 1%, 5% and 10 % level of significance

On effective procurement, competitive procurement process negatively ($t=-1.78$, $p<0.10$) influence BOT procurement as compared to TPM procurement methods and this is statistically significant. This contradicts the findings of Jefferies et al (2012) who asserts that competitive procurement process is a critical success factor for public private partnership projects. Again, good governance also adversely and significantly ($t= -3.16$, $p<0.05$) influence BOT procurement as compared to their TPM counterparts. This result is also contrary to the findings of Qiao et al (2001).

A strong consortium ($t=2.57$, $p<0.001$) on the part of BOT is a plus in the procurement of projects and is statistically significant as compared to the TPM. This is worth noting as a strong consortium involves bring on board a variety of resources together in achieving the objectives of the intended project. These are consistent with the findings of Jefferies et al (2012). However experience from the past indicate that BOT project has not received much political support as compared to the traditional procurement methods. This is statistically significant ($t=-2.14$, $p<0.05$). This contradicts the results of Qiao et al (2001).

The available financial market statistically, positively and significantly influence BOT ($t=2.25$, $p<0.05$) projects as compared to the TPM as an indicator in measuring the success of projects. This findings leads credence with the findings of Qiao et al (2001).

4.5 Factors Influencing the Selection of Procurement Methods

4.5.1 Major factors influencing the selection of procurement methods

Table 4.10 represent the relative importance index and the rank of the main factors influencing the selection of procurement methods. It was observed that all the factors are statistically significant in influencing the selection of procurement methods. However, upon ranking risk as a factor received the highest rank with client being the least ranked.

Table 4.10: Relative importance index and rank of the major factors that influence the selection of procurement methods

Factor	Mean	RII (%)	P-Value	Rank
Client	2.53	100.0	0.000***	6
Cost	2.52	101.0	0.000***	5
Time	2.69	107.7	0.000***	2
Risk	2.72	108.6	0.000***	1
Project characteristics	2.56	102.4	0.000***	3
External environment	2.15	101.5	0.000***	4

Source: Survey data, 2016. ***Correlates are significant at 1 percent level of significance

4.5.2 Itemized Factors affecting the Selection of Procurement Methods

4.5.2.1 Construct One: Client

Table 4.11 denotes the relative importance index and rank of the items that fall under client. It is observed that all the items are significant and positive and hence contribute to the client factor in the selection of procurement methods.

Table 4.11: Relative importance index and rank of the item that fall under client

Item	Mean	RII (%)	P-Value	Rank
Client's nature and culture	2.34	93.6	0.000***	5
Client reputation	2.7	108.6	0.000***	2
Client's experience in procurement				

methods	2.4	96	0.000***	4
Clients' trust in other parties	2.56	102.4	0.000***	3
Flexibility for changes and variations	3.04	121.6	0.000***	1
Client's financial capability	2.14	85.6	0.000***	6

Source: Survey data, 2016. ***denotes 1 percent level of significance

4.5.2.2 Construct Two: Cost

Table 4.12 denotes the relative importance index and rank of the items that fall under cost.

It is observed that all the items are significant and positive and hence contribute to the cost as a variable in the selection of procurement methods.

Table 4.12: Relative importance index and rank of the item that fall under cost

Item	Mean	RII (%)	P-Value	Rank
Price competition	2.04	81.6	0.000***	5
Design cost	2.34	93.6	0.000***	4
Consultant fees	2.66	106.4	0.000***	3
Price certainty prior to commencement	2.78	112.2	0.000***	1
Cost control	2.78	112.2	0.000***	1

Source: Survey data, 2016. *** denotes 1 percent level of significance

4.5.2.3 Construct Three: Time

Table 4.13 denotes the relative importance index and rank of the items that fall under time.

It emanated that all the items are significant and positive and hence contribute to the time factor in the selection of procurement methods.

Table 4.13: Relative importance index and rank of the item that fall under time

<u>Item</u>	<u>Mean</u>	<u>RII (%)</u>	<u>P-Value</u>	<u>Rank</u>
Speed	2.44	97.6	0.000***	5

Minimize design time	2.64	105.6	0.000***	3
Time constrains of project	2.54	101.6	0.000***	4
Time control	2.88	115.2	0.000***	2
Delay in the project completion time	2.96	118.4	0.000***	1

Source: Survey data, 2016. ***denotes 1 percent level of significance

4.5.2.4 Construct Four: Risk

Table 4.14 denotes the relative importance index and rank of the items that fall under risk.

It is observed that all the items are significant and positive and hence contribute to the risk factor in the selection of procurement methods.

Table 4.14: Relative importance index and rank of the item that fall under risk

Item	Mean	RII (%)	P-Value	Rank
Risk avoidance/allocation	2.60	104.0	0.000***	3
Responsibility allocation	2.60	104.0	0.000***	3
Disputes and arbitration	2.70	108.0	0.000***	2
Geotechnical investigation	2.96	118.4	0.000***	1

Source: Survey data, 2016. ***denotes 1 percent level of significance

4.5.2.5 Construct Five: Project Characteristics

Table 4.15 denotes the relative importance index and rank of the item that fall under project characteristics. It was noticed that all the items are significant and positive and hence contribute to the project characteristics variable in the selection of procurement methods.

Table 4.15: Relative importance index and rank of the item that fall under project characteristics

Item	Mean	RII (%)	P-Value	Rank
Degree of project complexity	2.44	97.6	0.000***	4

Project type and nature	2.34	93.6	0.000***	5
Project site location	2.88	115.2	0.000***	1
Quality level of project	2.50	100.2	0.000***	3
Available resources of project	2.64	105.6	0.000***	2

Source: Survey data, 2016. *** denotes 1 percent level of significance

4.5.2.6 Construct Six: External Environment

Table 4.16 denotes the relative importance index and rank of the item that fall under client.

It is observed that all the items are significant and positive and hence contribute to the client factor in the selection of procurement methods.

Table 4.16: Relative importance index and rank of the item that fall under external environment

<u>Item</u>	<u>Mean</u>	<u>RII (%)</u>	<u>P-Value</u>	<u>Rank</u>
Economic conditions	2.34	93.6	0.000***	5
Political considerations	2.46	98.4	0.000***	2
Social factors	2.48	98.2	0.000***	4
Market competitiveness	2.74	109.6	0.000***	3
Legal issues/factors	2.46	98.4	0.000***	1
Number of competitors	2.14	109.6	0.000***	6

Source: Survey data, 2016. ***Correlates are significant at 1 percent level of significance

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

5.0 Introduction

This chapter entails the summary of findings, conclusion, recommendations, limitations of the study and suggestions for further research.

5.1 Summary of Findings

This study assesses financing of municipal projects in the Upper Denkyira East

Municipal Assembly (UDEMA): a comparison of BOT system and Traditional Procurement Methods. The study employed a cross sectional survey research design. A purposive sampling approach was adopted in selecting the respondents who are the main participants in the procurement process. In all a total of 50 respondents were interviewed. Qualitative and quantitative data was employed in this study. The study employed a structured questionnaire.

The majority of the respondents agree that contractor experience in planning and controlling; delay in approval of design documents; variations during construction; difficulties financing project; unrealistic contract duration and delays in payments by owner are some of the causes of delay of traditionally procured projects. The majority of the respondents do believe that political risk; environmental concerns and restriction; delay in obtaining permissions; non-availability of utilities on site and financial risk are also the causes of delay in BOT procurements.

In assessing the effectiveness of the BOT and TPM various indicators were used. Time taken to negotiate/award of contract and the time taken to deliver the asset values for the BOT are statistically significant and higher than TPM. Cheaper transaction cost saw BOT projects being significantly higher TPM projects. Funding arrangement and budget certainty for BOT was also statistically higher than TPM projects. The whole of life maintenance saw BOT projects being statistically and significantly higher than TPM projects with construction innovation being also greater and significant for BOT than TPM projects as well. To add to the success of the nature of project factor is the flexibility and design which is also statistically and significantly higher for BOT projects than TPM ones. Availability of resources as an item is statistically significant and higher for BOT project

than TPM projects. On the other hand competition and change in performance requirement were also significantly for BOT project than its counterpart. Affirmative action/ policies on the contrary adversely influence BOT projects as compared to TPM. This is the case as most politicians do not support this initiative as it does not encourage money trickling into their pockets. Client specific requirement of the other hand was higher and statistically significant for BOT projects than its counterparts.

A comparison of the critical success factors of the BOT and TPM was also done. On effective procurement, competitive procurement process negatively influence BOT procurement as compared to TPM procurement methods and this is statistically significant. Again, good governance also adversely and significantly influence BOT procurement as compared to their TPM counterparts. A strong consortium on the part of BOT is a plus in the procurement of projects and is statistically significant as compared to the TPM. This is worth noting as a strong consortium involves bring on board a variety of resources together in achieving the objectives of the intended project. However experience from the past indicate that BOT project has not received much political support as compared to the traditional procurement methods. This is statistically significant.

The relative importance index and the rank of the main factors influencing the selection of procurement methods saw that all the factors used were statistically significant in influencing the selection of procurement methods. However upon ranking, risk as a factor received the highest rank with client being the least ranked.

5.2 Conclusion

Public private partnership projects are looking up to be financed, designed, implemented and operated in the same way as the traditional procurement in the government or public sector. The central government of Ghana is encouraging PPP to increase infrastructural development as the finances of central government is hard pressed with a lot of finances. Notwithstanding, there exist an infrastructural financing gap which is so precarious that living standards of the citizenry are being comprised. This vacuum needs to be filled by domestic as well as foreign and private initiatives. Domestic investors are normally scared that if there's a change in government their investment will be affected.

Delays in the execution of projects is a major problem in the procurement of projects. Various factors have been documented to influences project delays include environmental issues, land acquisition, political risk, financing and delays in obtain permits among others. It is worth to know that this is also dependent on the type of project being executed

The choice of a procurement method over the other requires a critical analysis and comparison of the weakness and strength of the various methods. Effectiveness of the methods in terms of duration/timing, cost/financing, nature of project, accountability/due process, economic/environmental compliance, political influence/ policy and client knowledge/risk distribution are good indicators in assessing the appropriateness of the various procurements methods. This is again supplemented with the success factors critical to project execution such effective procurement, project implementability, government guarantee, favorable economic conditions and available financial markets.

Base on the findings of this study it can be concluded that the BOT as a variant of public private partnership procurement has proved to be a viable alternative in financing municipal projects apart from the traditional procurement methods.

5.3 Recommendations

Based on the findings of the study, the following recommendations are made;

1. The causes of delay of BOT should be addressed and looked into to make it an attractive option in projecting financing. Clients should be encouraged to pay contractors on time to avoid delays. Much attention should also be given to the planning and design stages of project to ensure well defined scope and reduce any future changes during project execution.
2. There should be penalties given to contractors who fail to deliver projects on time and rewards for those who are timely.
3. It is necessary for the central government to do broader stakeholder consultation during procurement than to give projects to cohorts to avoid delays and promote effective project delivery.

5.4 Suggestions for Further Research

1. Further research can include others districts to share more light on the various procurement methods being adopted the various MMDAs.

2. Further research should also explore other variants of public private partnership methods of procurement to decide which them fits various situations as far as financing municipal projects are concern.



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KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF BUSINESS

**“FINANCING MUNICIPAL PROJECTS IN UPPER DENKYIRA EAST
MUNICIPAL ASSEMBLY: A COMPARISON OF BUILD-OPERATE-TRANSFER
AND TRADITIONAL PROCUREMENT METHODS”**

Questionnaire for Respondents

A. SOCIO –ECONOMIC CHARACTERISTICS

1. Age Years
2. Educational level/Qualification (a) PhD [] (b) Masters [] (c) Bachelors []
[] (d) Diploma/HND [] (e) Others (Specify).....
3. Years of experience on job.....
4. Type of projects your organization has been dealing with (a) Buildings [] (b)
Roads
[] (c) Water and Sewage [] (d) others (specify).....
5. Value of projects implemented during the last five years. (a) less than GHC50,000
[] (b) greater than GHC50,000 []

B. CAUSES OF DELAY OF PROJECTS

Please complete all information and tick (✓) the most appropriate answer to each question based on the scale below.

1	2	3	4	5
Strongly agree(SA)	Agree (A)	Neutral (N)	Disagree (D)	Strongly disagree (SD)

TRADITIONAL PROJECTS	SA	A	N	D	SD
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1. Contractor experience in planning and controlling					
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2. Delay in approval of design documents					
3. Delay in payments by owner					
4. Speed of decision making involving all project teams					
5. Unforeseen ground conditions					
6. Site management and supervision					
7. Variations during construction					
8. Difficulties in financing project					
9. Unrealistic contract duration					
10. Type of project bidding and award					
BOT PROJECTS	SA	A	N	D	SD
1. Market risk					
2. Political risk					
3. Environmental concerns and restrictions					
4. Delay in obtaining permissions					
5. Financial risk					
6. Changes in rules & regulations					
7. Severe weather conditions					
8. Accident during construction					
9. Non-availability of utilities on site					
10. Delay in award of contract					

C. EFFECTIVENESS OF BOT AND TRADITIONAL PROCUREMENT METHODS

Please weight these procurement method from 1-5(1 being the least to 5 being the highest) in terms of the effectiveness of these procurement methods based on the factors and the items below

	BOT	TPM
DURATION/TIMING FACTOR		
4. Time taken to negotiate/ award contract		
5. Time taken to deliver the asset		
6. Time taken to organize for finance		
COST/FINANCING FACTOR		
5. Cheaper transaction cost		
6. Cost certainty		
7. Funding arrangement		
8. Budget certainty		
NATURE OF PROJECT FACTOR		
6. Whole of life maintenance		
7. Design innovation		
8. Construction innovation		
9. Size and technical complexity of the project		

10. Flexibility of the design		
ACCOUNTABILITY/DUE PROCESS FACTOR		
4. Due diligence		
5. Due process		
6. Relative level of accountability/transparency		
ECONOMIC/ENVIRONMENT COMPLIANCE FACTOR		
6. Availability of resources		
7. Competition		
8. Market/economic compliance		
9. Environmental approval		
10. Change in performance requirement		
POLITICAL INFLUENCE/POLICY FACTOR		
4. Positive political influence		
5. Political support		
6. Affirmative action/ policies		
CLIENT KNOWLEDGE /RISK DISTRIBUTION FACTOR		
5. Familiarity of procurement system		
6. Client's specific requirement		
7. Risk allocation/ reduction		
8. Client's level of knowledge		

D. CRITICAL SUCCESS FACTORS

Please weight these success factors from 1-5(1 being the least to 5 being the highest) in terms of the ways of enhancing procurement of projects with the BOT and TPM based on the factors and the items below

	BOT	TPM
EFFECTIVE PROCUREMENT		
8. transparency in the procurement process		
9. competitive procurement process		
10. good governance,		
11. well-organised and committed public agency		
12. social support,		
13. shared authority between public and private sectors, and		
14. Thorough and realistic assessment of the costs and benefits.		
PROJECT IMPLEMENTABILITY		
6. favorable legal framework		
7. project technical feasibility		
8. appropriate risk allocation and risk sharing,		
9. commitment and responsibility of public and private sectors,		
10. strong private consortium		
GOVERNMENT GUARANTEE		
4. Government involvement by providing guarantees		

5. Multi-benefit objectives		
6. Political support		
FAVOURABLE ECONOMIC CONDITIONS		
3. Stable macro-economic conditions		
4. Sound economic policy		
AVAILABLE FINANCIAL MARKETS		
2. Available financial market		

E. FACTORS INFLUENCING THE SELECTION OF PROCUREMENT OF METHODS

Please complete all information and tick (√) the most appropriate answer to each question based on the scale below

FACTOR	Degree of Importance				
	Very high	High	Medium	Low	Very Low
CLIENT	VH	H	M	L	VL
1. Client's nature and culture (public or private)					
2. Client reputation					
3. Client's experience in procurement methods					
7. Client's trust in other parties					
8. Flexibility for changes and variations					
9. Client's financial capability					

COST	VH	H	M	L	VL
1. Price competition					
2. Design cost					
3. Consultant fees					
4. Price certainly prior to commencement					
5. Cost control					
TIME	VH	H	M	L	VL
1. Speed					
2. Minimize design time					
3. Time constrains of project					
4. Time control					
5. Delay in the project completion time					
RISK	VH	H	M	L	VL
1. Risk avoidance/allocation					
2. Responsibility allocation					
3. Disputes & arbitration					
4. Geotechnical investigation					
PROJECT CHARACTERISTICS	VH	H	M	L	VL
1. Degree of project complexity					
2. Project type and nature					
3. Project site location					

4. Quality level of project					
5. Available resources of project					
EXTERNAL ENVIRONMENT	VH	H	M	L	VL
1. Economic conditions					
2. Political considerations					
3. Social factors					
4. Market competitiveness					
5. Legal issues/factors					
6. Number of competitors					

