

Master thesis

*Looking at the Public Private Partnerships and the Traditional way of construction of
Projects*

By

George Owusu Afriyie

The Master's thesis is carried out as a part of the education at the University of Agder and is therefore approved as such. However, this does not imply that the University answers for the methods that are used or the conclusions that are drawn.

Supervisor:

Professor Øystein Husefest Meland

The University of Agder, Kristiansand

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Abstract

There has been increasing demand for infrastructure development and service delivery both in developed and developing countries. The traditional way of construction of projects continue to be used in Ghana which results in cost and budget overruns, delays in delivering projects, abandoned projects for lack of finance, lack of quality and increase in the level of corruption among heads and leaders of institutions who see to the implementation of government projects. The study aims to find other possible and relevant alternative in establishing projects and hence look at the Public Private Partnerships (PPP) and the traditional way of construction of projects.

The methodology that I used in the research study was more of qualitative approach specifically a case study design in addition to other methods in gathering data which included interviews and documents to obtain enough findings about reasons leading to government projects constructed not within budgets, on time and are of good quality. The theoretical framework of contract model and contracting strategies which dealt with projects delivered on owner`s objectives and goals, guided the data analysis.

The study found that the government alone could not deliver effective and valuable deliverables. The traditional construction of projects did not produce deliverables in a timely and cost effective manner. There should be another alternative of construction of project which could reduce the challenges to the barest minimum

Hence the research argues for a change in the standard way of construction of projects. With the introduction of Public Private Partnerships in Ghana a developing nation, the private contractor would design, build, finance, operate and transfer the project deliverables to the government. The partner could also supply some public services more effectively, cheaper and more reliably than the public sector.

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1. INTRODUCTION

Ghana, a nation in the sub-Saharan Africa was formerly called Gold Coast. It assumed that name because a lot of gold was found by the Portuguese Merchants during the 15th century who travelled along the rivers near the coast in the country. "Gold Coast" was seen as an area in the shore of Gulf of Guinea that stretched from River Tano in the west to the river Volta in the east where the Europeans travelled and settled during the fifteen century and traded for gold. They put up their castles and forts along the coastal areas of Ghana and began to engage in the trading activities of exporting slaves to the American Continent when it was at its peak. By settling at the coastal areas, it enabled easy transportation of slaves and gold to other nations. At a certain point in time, all but the British had flourishing business and started extending their territories to other parts of Gold Coast (www.ghanadistricts.com). They built forts along coastal areas in Cape Coast in the central region in 1874 and constructed dungeons to help them ship slaves across the sea to abroad and through the British, Gold Coast became colonized.

Before the country became colonized, Ghana comprised very many different states and kingdoms which were entirely independent of one another. Some of these states were merely city states but others like the Asante, Bono, Denkyira, and Akwamu were very powerful kingdoms. The Asante began to engage in a nefarious activities and the last straw that broke the camel's back was the beheading of a British Officer. The British therefore decided to extend their influence to Asante and beyond. They planned towards the annexation to Asante as they were persuaded to respond to the pressures from the business house in the United Kingdom who urged them to remove the obstacles in the way of expansion of trade in Asante and beyond. They agreed on the expansion because it was also the time when European powers were intensifying the scramble for territories in Africa and as they were planning, the Germans extended their influence in the North. In January 1902, both *Asante* (what is now comprising the *Ashanti* and *Brong Ahafo* regions) and the Northern Territories (now involving the *Northern*, *Upper East* and *Upper West* regions) were annexed by the British as a British Colony and Protectorate Territory respectively. The part of the northern section that was annexed by Germans as part of Togo, following the Berlin Conference of 1884/1885 in 1921, went to the British under the mandate system of the League of Nations (Buah, F.K. 1970).

The territory north together with the eastern portion of present Northern and Upper Regions was known as Trans -Volta Togoland. The Gold Coast ex servicemen who went to fight for India and Burma's Independence and had returned home helped the people and struggled for Independence. After the attainment of independence on the 6th of March 1957 under the leadership of Dr. Kwame Nkrumah, the name "Gold Coast" was changed to **Ghana** and the capital was moved from Cape Coast in the Central Region to Accra which continues to be the seat of the Government of Ghana. There were two major ethnic languages in the then Gold Coast. Those living in the north spoke a language called *Gur* whilst in the south, the major language identified was called *kwa* (JD Fage 1959) In looking at it now, the people living in the territory where Gold Coast was located, speak the ethnic language *kwa*

The nation has witnessed different leadership after independence. Dr Kwame Nkrumah through whom Ghana became independent wanted to unify the native Africans and those Africans in the Diaspora into a global African community. He is remembered today as the father of Pan-Africanism and that could be seen in his speech that he made during the celebration as

"The independence of Ghana is meaningless unless it is linked up with the total liberation of African continent".

The idea of Kwame Nkrumah was later considered by coup plotters as someone who was ruling the nation as "his own personal property (Gocking, R. S. 2004). He was overthrown by the military under auspices of Major Akwasi Amankwaa Afrifa in 1966. Power was shared between the police headed by Colonel Kotoka and military headed by Major A. A. Afrifa who initiated major role leading to the coup. In 1969, Dr. K.A. Busia was elected as a Prime Minister but in 1972, a military coup was staged that ushered in General I.K Acheampong. Another bloodless coup occurred that brought in Lieutenant General F.W.K. Akuffo in 1978 who was Chief of Defense Staff and second in command during Acheampong's regime. He wanted to continue the policies of the previous military regime. Another coup was plotted again by a military officer Flight Jerry John Rawlings in May 1979 which was faulted and he was arrested but in June 1979, he was released from jail by junior officers of the army who later put to death officers including heads of states by firing squad in June 16, 1979 and June 26, 1979. The time was considered as the *dark days* of the revolution. Among those killed were General I.K. Acheampong (1972), Colonel Utuka, General A. A. Afrifa (1969), General Fred Akuffo Addo (1978-1979), Air vice Marshal G.Y. Boakye, General R.E.A. Kotei,

Colonel Roger Felli former commissioner of Foreign Affairs and Real Admiral Joy Amedume former chief of defense staff. In September 24 1979, Dr Hilla Limann was elected as the President of the Third Republic but on 31st December 1981, the former coup plotter (Rawlings) staged another coup that ousted the Dr. Hilla Limann and on June 30 1982, three high court judges and a retired army officer were kidnapped and shot dead at Teshie Military Range in Accra. Former Flight Jerry John Rawlings ruled the nation from 31st December 1981 and later became the President of the fourth republic of Ghana when the country decided to have a civilian rule. Mr. John Kuffour came to power in 2000 when his party National Patriotic Party won massively during the election and after his eight year tenure of presidency, the National Democratic Congress Party headed by Professor John Atta Mills came to power in 2009 and continues to be the President of Republic of Ghana.

Ghana shares borders with three countries namely: Togo, Burkina Faso and Cote D`ivoire. Both Togo and Cote D`ivoire are Francophone countries to the east and west of Ghana respectively. The Gulf of Guinea the sea is found on the south of Ghana. Burkina Faso is the nation to the North that often ships its consignments to Ghana`s ports and harbor and transports them by land. Ghana has a population of 23,350,927 (www.doingbusiness.org) with total area of 238,540 square kilometers. The nation is divided into ten regions and its vegetation differs. In the south, it is mainly tropical rain forest whilst in the north; it is characterized by savannah and open with flat plains. In Ghana, there are two weather conditions: namely Wet and Dry Seasons. The former starts from the month of March and November in the forest zone but much rain in July, August and September in the savannah regions. The nation is endowed with natural and mineral resources. The country is agricultural with 60 percent of the total work force engaged in it. The agricultural land constitutes 13,628 million hectares which is about 57 percent of the land available; however 44 percent is suitable for cultivation and 2% used in irrigation (ghanaweb.com). The agricultural sector contributes 40 percent of the Gross Domestic Product (GDP) and accounts for 30 percent of export earnings. It is easily seen that agriculture is the backbone of Ghana`s economy.

1.1 Background of the problem

Project management as a discipline has for some decades been spreading in construction and engineering industries and getting enlarged and becoming acceptable as a way of planning and managing work in organizations (Knutson 2001 p3). In these days, as individuals and

nations have been receiving knowledge of managing projects, there is dramatic growth in the membership of professional bodies including Project Management Institute and managing projects (Harrison and Lock 2004 p1). What used to be a part time job for a worker is now a full time work because organizations are now conducting their activities in a project mode which clearly indicates that organizations are becoming more of project driven, but projects that are constructed produce unsatisfying outcome. The results of projects undertaken by some governments without partnering and partnership, are not encouraging and there are some disappointing results of project deliverables because there are delays, abandoned, standstill, cost overruns and budget overruns in the construction of projects. In April 2009, a report was issued at Boston, Massachusetts in the United States of America by the chairman of Standish Group about how some projects (CHAOS summary 2009 report) have been failing to meet the owner's satisfaction (www.standishgroup.com). According to the report, 32% of projects were successful because they were able to be delivered on time, within budget and with expected performance of degree of quality, 44% of projects were delivered late, over budget and with less features and functions and a result were challenged and 24% of projects were also cancelled before they were delivered because they failed.

In Ghana, the ultimate responsibility of development of regions in the management and construction of projects rests with the state or the government. In an effort to satisfy one of the requirements of the Millennium Development Goals that requests governments to find ways of implementing poverty reduction interventions at the district levels, the central government offers financial assistance to the local governments to implement projects. Rural and urban development has been encouraged and construction of buildings for education and health purposes has been the concern of the government of Ghana. Previous governments of Ghana have been endeavoring to provide the basic necessities of life and among them; provision of shelter has been their priority. Through the Ministry of Local Government, development projects are carried out in the ten regions of Ghana. Projects are normally constructed in two of the regions where a greater percentage of the total population lives. The *Greater* and *Ashanti* regions with Accra and Kumasi as the capital respectively are the places the previous governments have been undertaking a lot of projects. About a tenth of the total population of Ghanaians lives in Accra, which is also the capital of Ghana. Some of those projects are left uncompleted whilst others are partly completed and the government has taken a number of years to complete few of them. Most of the projects are not completed at the specified time. The "Tetteh Quarshie" interchange (road infrastructure) in Accra that was

supposed to have been completed within two years, took more than three and half years to be completed. The Tetteh Quarshie to Mallam Atta (road construction) which started during the National Democratic Congress (N.D.C) government era in 1999 and planned to have been completed within five years was abandoned and as at February 1st 2010, it has not been completed. Building projects constructed in the Universities in Ghana have not been completed at the time planned. A change of government made any government that came to power in Ghana pursues its own objectives without continuing projects undertaken by previous governments. They often did that for political reasons and with the aim of winning the support of the masses during presidential elections. In addition to that, the coffers of the nation are drained and as the incumbent government takes over, lack of finance hinders development or continuation of ongoing of projects.

Any government project that has to continue to its completion is done at a cost to the nation. Government functionaries are bribed either in cash or in kind in order to authorize the formal continuation of the abandoned projects in any region. In 2000, when the previous President of Ghana John Agyekum Kuffuor assumed office, it was his priority to implement what he called a “zero tolerance” for corruption (country report 2001). The implication of the zero tolerance for corruption was that efforts would be made so that workers and individuals in all sectors of the economy would avoid receiving some form of assistance either in cash or in kind for performing a duty that would be paid for by the government or the state. An unfortunate incidence that occurred was that some of his cabinet ministers received bribes from private companies that wanted to bid for construction projects. By the time the projects are completed the cost of the projects will be twice the expected cost.

There are cost overruns in these projects and the purpose for which some projects are established or constructed are of no need again after the completion to be delivered. A project constructed for Government Hospital in the Brong Ahafo Region of Ghana as Maternity Ward in the year 1999 could not be completed by the government in power (National Patriotic Party) until 2007 which was reconstructed as a Mortuary for the hospital which meant that rooms where pregnant women could give birth when the time is due, were serving as rooms where corpses are parked. Projects are often delayed from the construction to the completion stage. A resident hall for students in the University of Cape Coast in Ghana that started in 2001 which should have been completed in the year 2005 is still not completed and as at this year 2010, it is still under construction. The traditional way of construction of projects has

become an issue of concern and that has drawn my attention to it owing to the fact that they are not delivered at the time needed and would be glad to find out whether government involvement with other public private partnerships could help avoid or reduce the problem of abandoned, delays, cost overruns and corruption in construction projects.

1.2 Statement of the problem

The central government undertakes projects without any form of partnership. It authorizes the local government institutions to allocate land for such projects. Some chiefs who are the custodians of the land in Ghana receive huge sums of money before an area of land is demarcated for such a purpose. When government projects are constructed, the objectives are sometimes not met at all. It is the requirement to make it known to the customer or the owner about what kind of deliverables is to be delivered. A building to be used as hospital was at the end of the completion used as morgue. University buildings that were constructed and hoping to be delivered at the time needed was delayed and at the end of it there was a cost overrun. The traditional way of constructing projects have not been auguring well especially for the entire nation and also for development purposes. Users and customers are not assured of the delivery date promises which put them at a disadvantage position. It would be interesting to know whether partnership with the government in the construction of projects could be the best way to address those problems.

1.3 Objectives of the study

The purpose of this study is to review the traditional way of construction of projects. The study aims at examining the effects in order to help find an alternative and best way of putting up projects so that projects could be completed and delivered within budget, at the right time and of good quality. The intention is also to make an objective and comprehensive analysis of the importance of partnership in project construction. In order to achieve the objective of the study, effort will be made in an attempt to answer some questions about traditional projects construction in relation to public-private partnership. The following questions should be addressed:

- Is the construction of projects by government alone effective and produce valuable deliverables at the end?

- Are the expected results of the projects produced in a timely, cost effective manner?
- Could Public-Private Partnership be a way out instead of the traditional projects?

1.4 Significance of the study

When projects constructed, managed and delivered are within budget, at the time specified and of good quality, the owner's objectives are achieved. The reason for studying this research is to help the governments or the state to bring to the barest minimum the problems associated with construction of traditional projects. The government often stops a project during the construction which may be due to lack of finance but continues later only to realize that there has been cost overruns, delays and corruption among some senior officers who see to the implementation of the project. When the government enters into partnership, delays are avoided as enough resources for the construction of the projects may have been provided. Private sector participation in the project means that the skills and knowledge of experts are brought into the execution of the contract and that enhances the speedy process and quality deliverables provided at the delivery date.

1.5 Organization of the study

The remainder of the paper is organized as follows: The next section presents the theoretical background on projects contract models and strategies. Public private partnership between the public contracting party or the government and the private sector contractor will be emphasized. Methodology of the study follows next in section 3. Section 4 will present discussions and findings. The last section will present conclusion

2. THEORETICAL BACKGROUND

In our everyday life around the world, individuals, industries, organizations and governments are engaged in projects. It has been widely spreading and cutting across all professions and that confirmed the prediction made that in the 21st century the project-based management would erode the traditional functional management (Gray and Larsson 2004, p3). Project management which used to be seen mostly in construction industries is now taught in schools and universities. A decade ago, little was taught but now it has changed and almost in all kinds of disciplines in the educational faculties, students often take this course which has given them the opportunity of getting employment in private and public sectors. It also assists to plan, organize, direct and control activities so that the objective for which projects were established could be achieved.

A project is defined as a “complex, non-routine, one-time effort limited by time, budget, resources and performance specifications designed to meet customer needs” (Gray and Larsson 2008, p5)

Projects that are established have reasons why they are constructed. Projects are not as easy as it is to be constructed because they do not occur in terms of its frequency. A project is a major task which has some features and among them is that it has an established objective. The purpose for which a project is undertaken and has not been done before must be specified. The organization that is involved in performing the task has to be terminated after the task has been completed. A project has to be implemented within some range and limits pertaining to the personnel to be used, resources availability and duration. The nature and size of projects may differ from one another but may have the same objectives, looking at the definition above.

Project objectives could be seen in terms of performance, time and cost. When a project is to be established, it has to be made known the nature of the deliverable to be produced (Meredith and Mantel 2010 p3). As technological advancement keeps on increasing day in day out, the outcome of project is significant in terms of achieving the success and timely deliverables. To be able to deliver it, time is essential and that planning is a necessary tool in projects which cannot be ignored. Planning is crucial to the success of project as experience and knowledge gained in previous tasks of the project could be applied in new projects. When delivery time set for the completion of the project is delayed, it could have adverse impact on the outcome which eventually affects quality and reliability of the scope. Cost as an objective

needs to be carefully looked at. Project managers, who do not take into consideration the available financial and material resources in producing the project deliverable, do have cost and budget overruns which in turn affect the quality and performance of the project. The figure below shows how the primary objectives aim at and contribute to the success and outcome of the project which in turn has to satisfy the needs of the client.

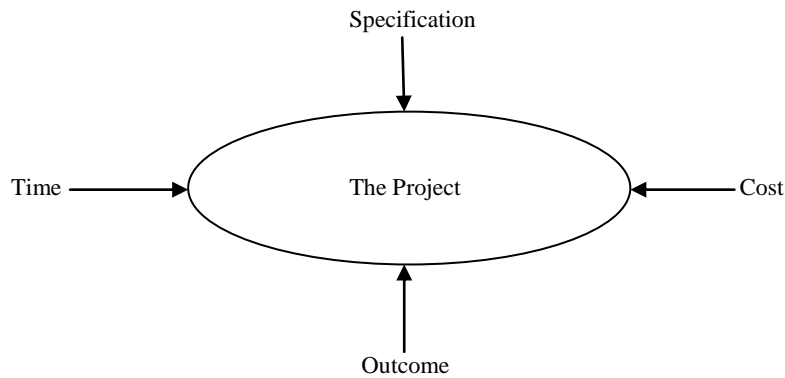


Figure 2-1 Balancing the three primary project objectives
(Harrison and Lock 2004)

The objectives have to be dependent upon the other and balanced. However, there could be in situations where one objective needs more attention than the other especially where preference has to be given to the objective. Certain projects are for instance needed at the right time and project deliverables may not serve the purpose when they are produced at different times other than what has been planned. For instance projects undertaken to be used during trade exhibitions at specified season will be a failure when they are provided after that period. Projects are carried out in an environment full of uncertainties. The project manager in order to have a successful deliverable needs to take precautions to meet those risks to be able to satisfy his client, customer or the stakeholders.

Industries, organizations and institutions including governments have different requirements when it comes to delivering contracts. It is therefore significant to be familiarized with some forms of strategies and models in project contract deliveries. Successful projects managers satisfy the demands and meet the aspirations and objectives of the owner or the customer in their contract and all those occur when the right models are chosen. In the Construction Industry Institute at the University of Texas at Austin, a Project Delivery and Contract Strategy (PDCS) Research Team published procedures in October 2003 that enabled capital projects to be used on projects by selecting an integrated project delivery and contract strategy

(Construction Industry Institute, 2003). The aim of that was to enhance maximum achievement of owner's objectives. This brings us to the fact that projects and managers are successful when the deliverables satisfy the needs of the end user (Kharbanda and Pinto, 1995). A selection factor that would be recognized for project to be considered should be based on the owner's objectives. As a project is deemed to be successfully completed, any other factors that will contribute to successful project execution should be noted in the selection factors. The Research Team provided 12 integrated project delivery contract strategy alternatives with their compensations packages and any alternative chosen will derive a default compensation approach which clearly identifies the contractual relationship, however, when there is a more preferable approach which is suitable to the project that is initiated than the default, then the latter is taken.

Project Delivery Contract Strategy assists the owner to have a set of project delivery methods which he may adopt for delivering projects. It enhances the owner to achieve the project objectives. A change to the strategy may involve a broadening or a lessening of delivery options including significant modifications to both the work processes and the existing organizational structure. These adjustments include many different aspects of the owner's responsibilities for instance providing selection procedures, standard contractual documentation, project organization and staffing, data or information interchange and communications procedures which allow the owner to establish new working relationships with contractors, suppliers and consultants.

2.1 Contract Models and Contracting Strategies

For projects to be constructed and delivered based on the objectives and goals of the owner, some parties are to be involved. The owners, designers and contractors participate in the construction and the delivery process. Certain decisions have to be taken by the owner whilst designers offer some services and contractors perform the work needed for the project deliverables to be completed. The level of integration of design, construction and on-going maintenance for a given project should be in line with the objective of the main project. In case of construction industry, it is incumbent upon the client to take into consideration the design, construction, operation and maintenance of the facility and how it can also be funded.

The following models and strategies will be discussed: Traditional Design-Bid Build, Design-Build, CM @ Risk, Traditional with Project Manager and Fast Track

2.1.1 Project Delivery and Contract Strategies no.1 – PDCS 1: Traditional Design-Build-Bid

The PDCS 1 is model in which the agency or owner contracts separately for the design and construction of a project. It is a traditional method for project delivery and includes the design, bid and construction phases. The owner seeks the assistance of architects and engineers to design and produce documents for the contractors to bid whereby the qualified bidder may participate.

Table 2-1 Traditional Design-Bid-Build

PDCS Number	PDCS Name	Description
PDCS 1	Traditional D-B-B	Serial sequence of design and construction phases; procurement begins with construction; owner contracts separately with designers and constructors

Source: Construction Industry Institute Report 2003

The architect and engineer will work with the owner to know his or her needs in a situation where the project involves putting up building. When the needs are identified, professionals are brought in to make the necessary drawings and tender documents after which the contractors begin to bid. The architects and engineers go through the bidding process with the owner to know the qualified and most competent contractors to award the contract to. The owner is not always obliged to accept the lowest bid.

The weakness of the model is that when the design team is not abreast with the prevailing market prices of items or construction costs, then any increase of the cost could delay the project for instance where documents should be re-written to reduce costs. In addition, design and construction organization may be hard pressed and that can lead to disputes between the architect / engineer and the general contractor. As the owner can choose the lowest bidder, that is paying the least amount of money for the project, a problem that can arise is that the general contractor who is offered the contract may produce shoddy work and also provide deliverables that are not of good quality. The strength associated with this is that it helps the owner to establish a reasonable price for the project. It also ensures that bidding becomes fair and helps the owner in making a proper decision making. Moreover, the bid is open and a

qualified bidder is selected to undertake the contract. The relationship between the owner and the architects / engineers is seen in the figure below:

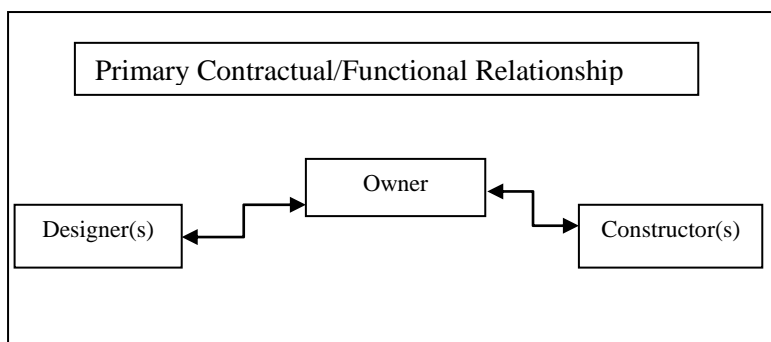


Figure 2-2 Project Team Relationships 1
Source: Construction Industry Institute Report 2003

The PDCS 1 is the second among the two preferred contracting strategies mostly used in the building and construction industries in Ghana. Projects of this nature are not completed within budget. They incur cost overruns due to variations and price fluctuations.

2.1.2 Project Delivery and Contracting Strategies no. 7 – PDCS 7: Design-Build

The PDCS 7 is a model that combines the procurement of construction services with engineering services under one contract. The procurement Design-Build involves two parties which include the owner and the design build firm. The contractor does all design (including construction drawings) and adds construction practicality to design imagination. Owners receive an enforceable price for construction sooner and can the contractor can fast-track the project.

PDCS Number	PDCS Name	Description
PDCS 7	Design-Build	Overlapping sequence of design and construction phases; procurement begins during design; owner contracts with Design-Build (or EPC) contractor

Source: CII Report 2003

The contractor can negotiate subcontracts methodically so the owner can benefit from good prices, reliable subcontractors, better technology and tighter contracts. But it is difficult to

formulate an enforceable price before design begins. Some of the strengths associated with the design-build are that the owner has just one to deal with in this case as design and construction are in the hands of a single entity which allows little degree of flexibility for the owner. Again, it removes the problem of “finger pointing” because the contract is between the owner and organization responsible for design and no other organization could be accused of providing any shoddy work or delivering a bad quality deliverable. The disadvantage to be seen is that the design-builder is given a great deal of control over the entire process of both how the project is configured, and how it is completed. With no third-party observer such as an independent architect to administer the process, design-builder may sacrifice the quality of materials and systems in order to increase his own profits at the expense of the owner. When an error occurs during the drawings, the contractor cannot apportion blame to anyone but to its own team that will be held responsible. The relationship between the owner and the contractor can be found below:

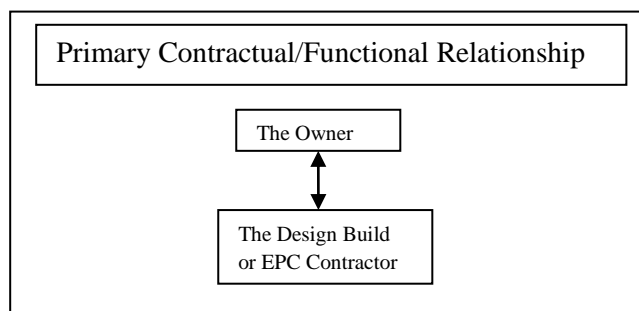


Figure 2-3 Project Team Relationships 2
Source: CII Report 2003

This kind of contracting strategy is the first among the two forms used in building and construction industries in Ghana especially in Accra which is the capital of Ghana. Study has revealed that a lot of projects of such nature are completed within time and budget. Time performance comparison in Design Build was also better than Design Bid Build in Ghana.

2.1.3 Project Delivery and Contracting Strategies no. 6 - PDCS 6: Construction managers @ Risk

The model involves the owner (client), designer who is the engineer or / and the architect and the constructors. Contract occurs between the owners and designer and allows the client to choose the Construction Manager before the design stage is complete. The construction

project manager acts as an advisor by giving construction advice to the designer and design advice to the constructor.

Table 2-3 CM @ Risk)

PDCS Number	PDCS Name	Description
PDCS 6	CM @ Risk	Overlapped sequence of design and construction phases; procurement begins during design; owner contracts separately with Designer and CM @Risk (constructor).

Source: Construction Industry Institute Report 2003

In the table 2.3, the construction manager assists so that projects are delivered within the guaranteed maximum price. The contractor is remunerated for the cost incurred by giving him in addition a fixed fee subject to the guaranteed maximum price. By hiring the Construction Manager during the design phase, early coordination is possible, which can increase the speed of the project and strengthen coordination between the Architect and the Construction Manager. The conceptual design needs more time to be developed before it is awarded. The cm@ risk eliminates bidding and contract execution time and bidding can be made prior to completion of design. The strength in using this is that the owner’s budget risk is reduced and that the risk is shifted from the owner to the CM firm, this partly occurs in Norway.

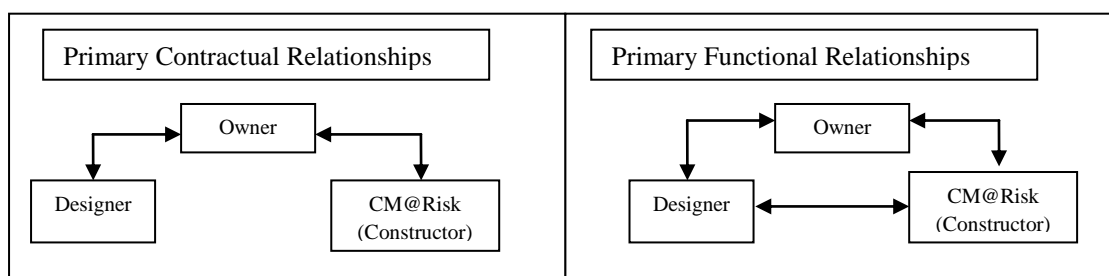


Figure 2-4 Project Team Relationships 3
 Source: Construction Industry Institute Report 2003

CM-at-risk is popular for owners of private projects.

2.1.4 Project Delivery and Contracting Strategies - PDCS 3: Traditional with Project Manager

The PDCS 3 is a kind of model that occurs when the owner engages the designer(s) and the constructor(s) and often includes the project organization to lessen the traditional flaws

Table 2-4 Traditional with Project Manager

PDCS Number	PDCS Name	Description
PDCS 3	Traditional with PM	Serial sequence of design and construction phases; procurement begins with construction; owner contracts separately with designer and constructor; PM (Agent) assists owner in managing project

Source: CII Report 2003

In view of that an organization with experience is selected in the construction to improve cost, schedule and quality. Construction and design contracts are unbundled by the project manager. The project of this nature may have different architects for different aspects which are selected by the owner and the project manager and assigned to lead architect. Project Manager may negotiate for equipment, subcontracts and assign to selected general contractors which help to maintain a single bonded price for construction but also permits direct negotiation with other subcontractors and manufacturers. In view of that procurement provides cost feedback and reduces possibility of a bust on bid day

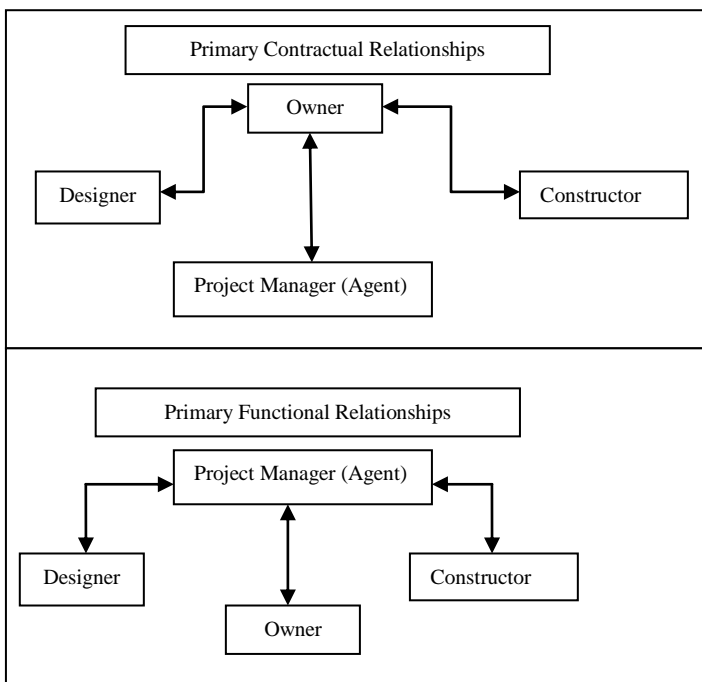


Figure 2-5 Project Team Relationships 4
 Source: CII Report 2003

2.1.5 Project Delivery and Contracting Strategies no. 12 - PDCS 12: Fast Track

Fast Track is one of the project delivery and contract strategies where construction starts before design gets to an end. The owner contracts separately with the designer and the constructor and may have a construction manager to help bid the project in stages with complete contract documents.

Table 2-5 Fast Track

PDCS Number	PDCS Name	Description
PDCS 12	Fast Track	Overlapping sequence of design and construction phases; procurement begins during design; owner contracts separately with Designer and constructor

Source: Construction Industry Institute Report 2003

PDCS 12 has some level of weakness. In applying this project delivery and contracting strategy, the owner’s controlling effort in design contract to the overall project may be relatively small. Moreover, owner may not have a secured fixed price based on the completed construction work. However, it can be said that there is strength of using the model because it

saves time. Figure 2.6 shows the project team relationship between the owner and the other parties involved in Fast Track.

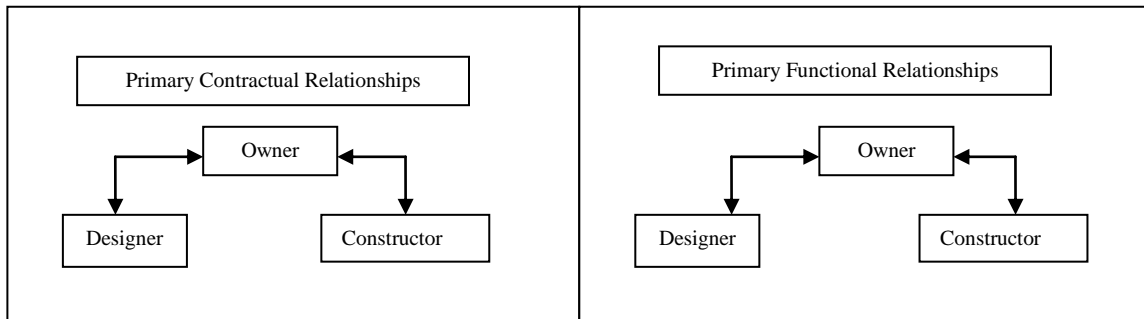


Figure 2-6 Project Team Relationships 5
Source: Construction Industry Institute Report 2003

Fast track is more successful on projects which have a high level of predictability. Using fast track will again be successful on projects which are straightforward. There are steps to be followed when a project contracting strategy is to be selected. It helps to obtain the best compensation package even though there may be a default compensation approach. Figure 2-7 below offers a guideline as to how integrated project delivery contract strategy for a capital project can be selected

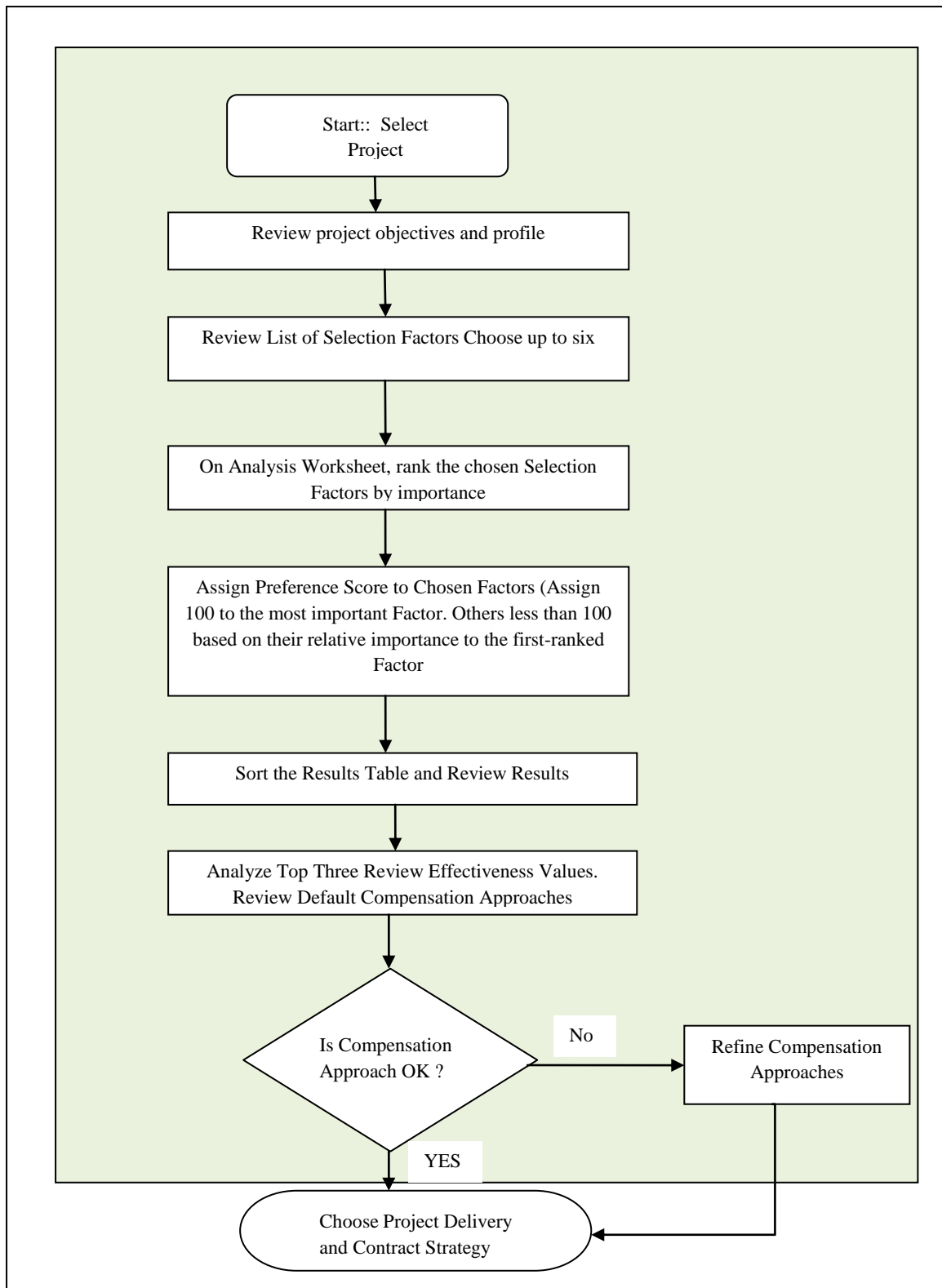


Figure 2-7 Process Flowchart
Source: CII Report 2003

2.2 Public Private Partnerships

In this increasingly competitive environment, nations and their governments have been endeavoring to find opportunities and new ways of putting up and delivering projects for the interest of the public. Public Private Partnership (PPP or P³) are used throughout the world to improve the public enterprises of the economy. Skills from public and private sectors are effectively combined in delivering the projects deliverables that meet client requirements and that completion of the projects are on time, within cost and with the required quality standards. In situations where either the private sector or public sector provides public infrastructure alone with associated problems of not delivering the projects at the right time, operating far and over the budget cost and using inferior materials, with public private partnerships, those are reduced to the barest minimum due to the use of combination of government and the private partner in providing a public good.

Public Private Partnership is an association of the government and one or more private sector consortium to provide a public good infrastructure. The government and the private sector come together to provide the project deliverable and also bear some of the traditional areas of uncertainty on a project (Gray and Larsson 2008 p157). The level of responsibility in operation, maintenance, financing and taking a share of the risk and rewards by the private sector is known as well as the government involvement in taking responsibility. Technical, operational and financial risks are some of the uncertainties the private companies bear. Risk breakdown and work breakdown structures are often used by personnel from the project office to assist in examining the potential risks in the project.

The government provides subsidy to the private investors when the public good or the project to construct is of infrastructure in nature, for instance roads and building projects. The private sector company has its financial advisors, building and maintenance contractors who will negotiate with the government and the subcontractor so that contracts are signed to build, maintain and operate the completed project at a stipulated time before it is handed over to the owner. For instance, a public private partnership will be a project where the private sector company constructs a hospital, maintain the building excluding medical services and the hospital provides the medical services. PPP assist the public because it provides more essential services and at a higher standard than it would have been done by either the government or the private company alone in the sense that they provide their own skills, capital and experience in delivering the project and they are directly held accountable for the

work done in meeting customers' needs and expectations. However, in some areas some experts say that when private sector contractors finance the project, they are more interested in shareholder's value than the interest of the public.

2.2.1 Models of Public Private Partnership

Public private partnership models are of different variations from a short-term simple management contracts to long-term and to a complex form. The variations could be seen in terms of:

- Responsibility for investment : Contracts should be carefully structured to ensure that the government does not abandon its responsibility for provision of services to the public but should assume a facilitated and transparent responsibility
- Assumption of risks: Substantial arrangements to contracts are to be made to identify and allocate risks to the parties that can efficiently manage them. While planning and regulatory risks are normally born by the government, design construction and operation are borne by the private provider.
- Duration of contracts: Avoidance of time and cost overruns during design and build phase through fixed price and date certain for the provision of the facility in the contract and ownership of capital assets

There are options of the model that enable the relationship between the public contracting authority and the private sector party to be structured (Institute Report 2004 p1). The following assist the relationship between parties to be structured: Service contracts, Management Contracts, Leases, Build-Own-Operate-Transfer (BOOT), Concessions and Divestiture.

2.2.1.1 Service Contracts

It is a form of outsourcing that the government authority and the private sector enter into negotiation whereby the private sector will provide a task for a fee. This contract has a short term period which ranges between six months and two years. The public authority sees to the

control and supervision of the facility pertaining to the contract and also provides any capital investment. As the duration is very short, the lowest bidder most of the times receives the contract as many bidders are involved in securing the contract and that cost is reduced in the provision of the service. There is an adverse effect in this contract because employees are redundant after the contract has ended and some governments offer severances pay to the employees.

2.2.1.2 Management Contracts

The routing operational and maintenance of management is the responsibility of the private sector partner. It also takes care of management control and supervision owing to the skills of its experts that are used to deliver the deliverables whilst the public sector owns the facility and the equipment. The period could be between three years and five years. The reward to the private sector contractor are either a fixed or performance based pay. Personnel used in the management are experts and that they receive fixed pay. The private sector authority also receives the performance-based pay system when profits accrue. Owing to this, any commercial risk is borne by them whilst the government bears the financial risks because it is responsible for capital investment. This helps to improve the operational efficiency of the task.

2.2.1.3 Leases

Some specific rights are offered by the public contracting authority to the private contractor to build and operate a project for a stipulated period of time and the government will maintain the ownership of the facility. Duration of the contract could range between 5 and 50 years. As the private company is given specific right, payments are made to the government for the right given to it whilst the government also makes payment to the private company

2.2.1.4 Build Own Operate Transfer (BOOT) and Build-Operate-Transfer (BOT)

The Build Own Operate Transfer (BOOT) and Build Operate Transfer (BOT) are contracts designed for investment in infrastructure. The public contracting authority and the private sector contractor come into agreement to provide a public good infrastructure. The private contractor designs, constructs and operates the facility (and users are charged a fee) for some time usually for a period from 15 to 30 years and then ownership is transferred to the government. The government offers some payment to the private sector contractor basing it on the life of the contract, which assists in covering its operating and construction costs. One adverse effect of this contract is that sometimes during negotiation of the contract, the government often bears much of the risks, for instance where the BOT customer pays for predetermined amount of output like power and treated water and whether he or she uses it or not. Build-Own-Operate-Transfer (BOOT) and Build-Operate-Transfer (BOT) are types of public private partnership and the difference could arise in terms of risk, ownership and duration. In Australia, BOOT is preferable to BOT as they mean the same in the country and The OECD Secretariat of World Bank Report (2005) published the same suggestion but with slight change especially in the mode of entry seen below:

Table 2-6 Characteristics of Main Types of Public Private Partnership (PPP)

Types of PPPs	Mode of Entry	Operation and Maintenance	Investment	Ultimate Ownership	Market Risk
Build, Own and Transfer	Greenfield	Private	Private	Semi-private	Private
Build, Own, Operate and Transfer					Private
Build, Own and Operate				Private	Private
Build, Lease and Own					Private
Rehabilitate, Operate and Transfer	Concession			Public	Semi-private
Rehabilitate, Lease/Rent and Transfer					More private
Build, Rehabilitate, Operate and Transfer					Private

Source: Thomsen (2005), OECD Secretariat, World Bank's PPI database.

2.2.1.5 Concessions Contract

The private contractor enters into partnership with the public contracting party to construct projects. The public authority or the government grants the right to the private contractor to build and operate the facility for specified period of time which may be between 20 and 30 years. The Government takes care of the ownership of the facility, pays the private contractor called the “concessionaire” for what is provided whilst the concessionaire also pays the government the concession right.

2.2.1.6 Build-Operate-Transfer (BOT) versus Concession

The Build-Operate -Transfer (BOT) contracts are similar to concessions, looking at the options carefully. However with the Build-Operate-Transfer it occurs when something *new* is built whereas with the concession, it happens when the concessionaire assumes *responsibility* of the facility. The table below shows how responsibilities and options are structured between the public sector contracting party (the government) and the private sector contractor

Table 2-7 Options and responsibilities between Public and Private Partners

PPP Options/Activities	Service Contract	Management Contract	Lease Contract	Build Operate Transfer	Concession Contract
<i>Financing investment</i>	Public Sector	Public Sector	Public Sector	Private Sector	Private sector
<i>Financing working capital</i>	Public Sector	Public Sector	Private Sector	Private Sector	Private sector
<i>Contractual relations with retail customers</i>	Public Sector	Private Sector on behalf of Public Sector	Private Sector	Public Sector	Private sector
<i>Private sector responsibility and autonomy</i>	Low	Low	Low to Medium	Medium to high	High
<i>Need for private capital</i>	Low	Low	Low	High	High
<i>Financial risks for private sector</i>	Low	Low	Low to Medium	High	High
<i>Duration of contract/license</i>	6 months- 2 years	3-5 years	5-15 years	15 to 30 years	20-50 years
<i>Ownership</i>	Public Sector	Public Sector	Public Sector	Private then Public sector	Public sector
<i>Management</i>	Public Sector	Public Sector	Private Sector	Private Sector	Private sector
<i>Setting Prices</i>	Public Sector	Public Sector	Contract and regulator	Public Sector	Contract and Regulator
<i>Collecting Bills</i>	Public Sector	Private Sector	Private Sector	Public Sector	Private Sector
Main objectives of PPP	Improve operating efficiency	Improve technical efficiency	Improve technical efficiency	Mobilise Private capital and / expertise	Mobilise Private capital and / expertise

Source: Idelovitch and Ringskog (1995) and Tasman Asia Pacific.

In looking at the models, there are responsibilities that every partner has to undertake in terms of funding them. The table below illustrates how tasks and responsibilities in terms of funding between a government contracting party and a private contractor are assigned.

Table 2-8 Responsibility for funding between private and Public Partners

	Responsibility for:				
	Operation	Maintenance	Renewals	Rehabilitation	System Expansion
<i>Service Contract</i>	Private	Public	Public	Public	Public
<i>Management Contract</i>	Private	Private	Public	Public	Public
<i>Leases</i>	Private	Private	Private	Public	Public
<i>BOT</i>	Private	Private	Private	Private	Public
<i>Concession</i>	Private	Private	Private	Private	Private

Institute of Public Private Partnership Report 2004

From the models seen above, it can be seen that there is a principle that makes it possible for the company that can manage well to bear the risks. When the company in this case the private sector partner decides to design and construct the project, for it to be held accountable for quality of the deliverable, it has to be responsible for its maintenance. It avoids shoddy work done and helps to find that projects deliverables are of better quality. There is transparency in the bidding process as many competitors are involved. Competition is a helpful element in the public private partnership. Outputs are also specified and are delivered by the private sector at the time required.

2.3 Hypotheses

There are reasons that have adverse affect on construction and delivery of projects. In this study, I will assume that projects deliveries are hindered. Thus I will develop a model that analyses some of the issues and factors which affect traditional project construction but may be avoided when public contracting party or the government comes into partnership with one or more of the private sector contractors. As the research problem highlights some of the effects, the basic formulation of a model could be tested as follows:

$$\text{TPRC} = F(\text{COR}, \text{DL}, \text{CBO}, \text{ST}, \text{LQD}, \text{AB})$$

Stated differently, traditional project construction is adversely affected by:

- Corruption
- Delays
- Cost & Budget overruns
- Stopping on-going projects
- Lack of quality deliverables
- Abandoned facilities

Traditional projects construction will be looked at and discussed in relation to public-private partnership. When projects are constructed with the partnership of the government and the private contractor, projects are delivered on time and within budget and with the quality standard. This is due to the reason that the private contractor takes those effects into consideration before the contract is awarded to his firm. It could therefore be inferred that:

Hypothesis 1

The practice of corruption influences traditional construction of projects

Hypothesis 2

Delays has negative relationship on the construction of traditional projects

Hypothesis 3

Cost and budget overrun is perceived to have negative relationship with traditional project construction

Hypothesis 4

Stopping ongoing construction work is perceived to influence the construction of projects in the traditional way

Hypothesis 5

Lack of quality of resources is perceived to have influence on traditional projects construction

Hypothesis 6

Abandoned facilities influence the construction of traditional projects.

Those influences shall be discussed in detail in the next chapter

3. METHODOLOGY

This chapter presents and refers to the decision on the instruments to use and which kind of research to undertake. It also offers room for information related to the research strategy, research design, data collection method, description of the population and sampling used. Moreover, the testing of the instruments supposed to have been used, validity and reliability as well as the general organisation are discussed.

3.1 Research Strategy

In the previous chapter, significant theories were applied based on the research question. To help the reader to follow and understand the study of the research, I intend using the mixed approach of qualitative – quantitative research and will concentrate more by dwelling on qualitative research than quantitative as the research study is concerned with words rather than numbers and figures. I will also discuss the kind of tools and methods that are used to conduct the research.

3.2 Research design

There is no single blueprint for planning a research. The research design is governed by the notion of “fitness of purpose”. Bryman (2008:30) stated that there are five prominent research designs in conducting research namely:

1. Experimental and related designs (such as the quasi-experiment);
2. Cross-sectional design, the most common form of which is the survey research;
3. Longitudinal design and its various forms, such as the panel study and the cohort study;
4. Case design;
5. Comparative design

It can be said that a research design that one has to take depends on the type of the research question that is formulated. As the purpose of my research is to have an in-depth study of

looking at the public-private partnership and the traditional way of construction of projects, among the five research designs, a case study was preferable. I have chosen qualitative research in addition to the use of a case study to collect data for the research study. “Qualitative approach and case study research are not identical, but almost all qualitative research seek to construct representation based on in-depth detail knowledge of the case” (Ragin, 1994 cited in Neumann, 2000:32). This could be inferred that when data is collected by such approach, it becomes hard to manipulate the data and also makes it authentic that the researcher is conducting the research in a real world. Data collected gives the reality of the social context surrounding the phenomenon to study. Patton (2000) mentioned that using this approach means that one is going to the natural setting of the people and cannot manipulate any phenomenon of interest but under a carefully controlled condition as the situation will permit.

Merriam (1998 cited in Hatch 2002: 30) stated that a case study is a special kind of qualitative investigation carried out within an existing setting and also providing instances that the study could be social group or persons. Stake (1994 cited in Bryman 2008:255) also emphasised that a particular case could be examined in order to gain insight into an issue or theory. Stake (1994 cited in Bryman 2004:48) again mentioned that case study research is concerned with particular nature and complexity of the case in question Those statements are seen to be in line with my research study of looking at the public-private partnership and the traditional way of construction of projects. This is particularly in the Ministry responsible for undertaking building and construction in Ghana for development purposes.

3.3 Gaining access to the field

Obtaining access to the field is necessary especially during the time of data collection. Hammersley and Atkinson (2007:104) stressed that it was difficult and complex to gain access to the setting. It is the duty of the researcher to make all legitimate approaches through the right channel and seek permission from the appropriate authority to be able to conduct the research. One has to possess either some form of qualities like being kind, generous and sociable to be accepted on the field where the research study is to be undertaken or obtain recommendations from the institution where the researcher is studying or employed. Ryan (2006 cited in Hammersley and Atkinson 2007:109) offered some suggestions to the person

who undertakes the research study to “provide information about him or herself to those being studied in order to facilitate open and honest dialogue”. As the research study is supposed to have been undertaken in Ghana and as a Ghanaian, I decided to contact the appropriate institution and presented my area of research study to one of the men in responsible position for assistance. I was made to provide any form of identification but was later told it would take at least one month for me to get the right person to talk to. Indeed, it took more than a month to get the “right” person they told me about. Owing to the nature of bureaucracy in the African continent particularly in Ghana, all efforts to put my request through could not help me to undertake the research study because those in charge of the positions were not ready to release information needed by me. I tried a lot of avenues until I succeeded in getting help from a Lecturer of the University where I pursued my bachelor`s programme.

However, the information I received were scanty and little which could not help me to be objective in the research. I therefore thought it would be necessary to find an institution in Norway to undertake the research study and to be able to use it to test the hypotheses and apply to the same institution in Ghana and then offer some suggestions that could actually help find solutions to the research study in question. I was so fortunate that I had assistance from my supervisor who on my behalf contacted Statens Vegvesen under the Norwegian Public Roads Administration of the Ministry of Roads. Even though Ghana is noted as the “gateway to West Africa”, one should know that getting access to information is the hardest thing because some workers earn their living when they hide information from the public. It is strange and disappointing to find out those citizens in the country where the researcher comes from can prevent him from getting the research study conducted.

3.4 Data Collection

In the conduct of the research study, my understanding of dealing with it in getting proper data and in-depth knowledge are things worthy to be noted. Data was collected as case study from state Ministries in Ghana and Norway. The aim was to look at the private-public partnership and the traditional way of construction of projects. Those institutions are recognised as provision of infrastructural development for the nation or the state. The Ministry of Local Government and Development in Ghana sees to increasing the provision of infrastructural facilities in terms of construction of buildings for health and educational

sectors in the nation whilst the Ministry of Roads in Norway also offers building and construction of roads for the entire nation. Accurate information for the research study seems to be available in those institutions mentioned above and as a developed country; the Ministry of Roads in Norway has the experts and technological knowhow where efficiency and knowledge in building and construction could be acquired. Ministry of Local Government and Development in Ghana can acquire knowledge and learn from the former in the area of public- private partnership in building and construction of projects.

As I have said earlier, gaining access to the two institutions were very hard. In the Ministry of Local Government in Ghana, sending e-mails and calling the head of the institution to get the head of the institution took a lot of my time but to no avail. An interviewee who a lot of experience working with the Ministry of Local Government had made me give him my word that whatever transpired between the two of us: the interviewer and interviewee should be kept secret and after I had promised to do that, he decided to become the interviewee.

In Staten Vegvesen some constraints occurred prior to sending the questionnaire. My thesis supervisor contacted the heads in Statens Vegvesen and received their approval, I sent the questionnaire to my supervisor who went through, made some comments and suggestions and advised me to look at them again. I sent it again to him, who approved of it, gave his consent, attached a covering letter and sent the questionnaire. The heads of Statens Vegvesen replied him that they would not be able to answer the questionnaire but should be glad if I could come there personally for interview. Since those heads were the best people to answer the questionnaire and needed my presence for interview, an appointed and convenient day was arranged by the supervisor for me to meet them. On that day, I was fortunate to meet the experienced engineers who had been in the service for not less than 15 years. The interviewees were really experienced heads who knew everything and a lot about construction of projects and I was lucky my supervisor could arrange for such an interview. Another method used in collecting data apart from the case study and interview was articles and journals on projects.

3.4.1. Case Study

I am inclined to believe that taking just only one instrument to collect data may not help the research study to be conducted well and that using other instruments will assist in collecting enough and accurate information. Even though there may be some strength and weakness in using those strategies above for data collection, they provided better solutions to the research study in question than other methods that I might either imagine or think of. Case studies as Robson (2002 cited in Cohen et al 2007:253) emphasised that they opt for analytic rather than statistical generalization that is, they develop a theory which can help to understand other similar cases, phenomenon or situations. Hitchcock and Hughes (1995 cited in Cohen et al 2007:253) also mentioned that case study approach is valuable especially when the researcher has little control over events. Considering the research study, I intend finding solutions to problems that crop up in the traditional construction of projects of which public – private partnership could be a way out of it because similar cases may have occurred in other institutions. As I have little amount of control to tackle the research study, a case study will be highly significant to understand similar cases and thereby apply the theory in other situations.

Questionnaires were developed to be given to the respondents in the institution. Cohen et al (2007:315) identified seven kinds of instruments for data collection. A questionnaire is one of the instruments for the data collection. I used both open and closed questionnaires. Open questions allow respondents to give their views or express some kind of opinion to issues being asked. Closed questions become easier for respondents to answer since they do not add extra information to what they are supposed to answer. I chose questionnaire looking at the convenience, absence of interviewer effect and administration of the questionnaire. Since respondents have to attend to other issues at the work place, answering 22 straight forward questionnaires do not take a lot of time and those may be completed at any time that they would like at a speed that they would wish. It was my intention of reducing fatigue and that was the reason why I used questionnaires so that they would not be thrown into the waste paper bin when they are tired.

3.4.2 Interviews

Interview is “literarily and exchange of views between two persons conversing about theme of mutual interest” (Kvale 1996:2). I conducted a telephone interview which was helpful in the sense that it also provided me some knowledge from different interviewee and respondents. Patton (2002) mentioned that perspectives of others are meaningful, knowledgeable and able to be made explicit. I used informal way of interview where conversation among us was just like everyday conversation but involved specific approach and techniques. I laid much emphasis by asking the interviewee to share with me about what he would like me to know on the research study.

3.4.3 Documents

I searched for articles and journals about the research study in question in addition to the various methods and instruments used in the data collection. Getting data using other instruments provided an “insight of information about the setting being studied” (Hammersley and Atkinson 2007:122). The data collected through this form of instrument offered valuable information. One of the articles that offered an in depth and broad insight of the research under study was a congress report issued in 2004 by the Institute of Private-Public Partnership. Other related articles and journals of Project Delivery and Contract Strategy Report published in 2003 by Construction Industry Institute in United States of America proved useful to the literature on the related theme. Those documents were really valuable as my aim of getting enough information on the research study rather than relying on interviews and case study enabled me to reach a point of saturation as far as the research study in question was concerned.

3.5 Population and Sampling size

Population here refers to “universe of units from which the sample is to be selected” (Bryman 2008:168). In looking at the research study in question, the population were Ministry of Roads in Norway and Ministry of Local Government and Development in Ghana. Those

institutions are assigned the task of building and construction for development purposes in the nations. Sample describes the segments of the population that investigation is to be carried out. In this instance the representative sample frames that can accurately be chosen were the *Statens Vegvesen* under Norwegian Public Roads Administration of the Ministry of Roads in Norway and *District (Development) Assemblies* under the umbrella of Ministry of Local Government and Development in Ghana. There are two main methods of sampling: probability sampling and non-probability sampling. (Cohen et al 2007:110). The former is also called random sample and the latter, purposive sample. With the random sample, the chances of the members who have been selected from the wider population are known but in the purposive sample, the chances of the members who have been selected are unknown. In purposive sample, Cohen et al (2007:154) stressed that the researchers handpicks cases to be included in the sample on the basis of their judgement of typicality or possession of the particular characteristics being sought. In this instance, it is those who have in-depth knowledge about particular issues, may be by virtue of their professional role, power, access to networks, expertise or experience Ball (1990 cited in Bryman 2007:155).

In looking at the public–private partnerships and the traditional way of construction of projects, the knowledge of experts and professionals are required to offer advice and significant suggestions on how parties could come together to undertake projects. These experts have experience and would be able to offer professional advice for the research study in question. In view of this, the purposive sample as described above was the best population sample that I chose.

3.6 Data Analysis

Hatch (2002:148) emphasised that:

Data analysis is a systematic search for meaning. It is a way to process data so that what has been learned can be communicated to others. Analysis means organising and interrogating data in a way that allow researchers to see patterns, identify themes, discover relationships, develop explanation, make interpretation, mount critiques or generate theories.

It indicates that what has been seen, read and heard has to be organised so that it offers meaning. The researcher therefore needs to carry out the whole process systematically and continuously from the time data is collected until the final study is completed. Interpreting analysis is the process of examining case study closely in order to find constructs, themes and patterns that could be used to describe and explain the phenomenon being studied. In this study, the phenomenon referred to looking at the public private partnership and the traditional way of construction of projects. In view of this the analysis should assist me to see some patterns, identify possible themes, how they are related, interpret and propound exact theory to analyze the data. In order to prevent massive data loss during the analysis, enough caution and care have to be taken. In the process of data collection, transcription can subsequently follow, that is to say that while efforts are being done to collect data, analysis have to be done as well. When I was in the process of using questionnaire in collecting data from the engineers at the Norwegian Public Roads Administration and heads of administration who were assigned the responsibility of supervising the management of the Building and Construction of hostels at the University of Cape Coast in Ghana using telephone interview as the other methods of data collection, I took notes and simultaneously translated the results of the interview. Even though I interacted and paid attention to what the respondents said, it was a thorough exercise.

3.7 Operationalization of Research Variables

The process of transformation in construction industries worldwide is helping projects to be constructed at the right time. Research Teams have published reports where integrated project delivery and contract strategies could be selected for projects which help to satisfy the needs and meet the objectives of the owners (Construction Industry Institute 2003). In Ghana, few of the processes are adopted in the construction institutes in the area of building and construction. According to Obeng Ayirebi (2002) about 90 % of projects in Ghana procured through Design-Bid-Build (DBB) and the traditional Design-Build methods which had earlier been stressed by Akintoye (1994) as the trend in construction industries. Clients and stakeholders often and still complain about the inability of the construction industries to deliver the projects deliverable within project duration, with required quality standards and within the budgeted cost. The operationalization of variables will be attended to by explaining the theoretical variables previously mentioned and giving meaningful measurements to them.

Operationalizing is a concept that refers to key process in the measurement model involving determination of the measured variables that will represent a construct and the way in which they will be measured, Hair Jr. et al (2006:710). In order to test the proposition and conclude, the theoretical concepts will be transformed looking at the model of the research study so that they may be empirically tested and measured.

3.7.1 Dependent Variables and Operational factors

According to Meredith & Mantel (2010:14) projects go through similar stages on the path from origin to completion. Organizations, governments and states begin to gather resources, form project teams and employ managers to start working on projects. The tasks involved in getting the final deliverables delivered to the owner cannot be done without looking at the major considerations throughout the project life`s cycle which include the ever-present goals of meeting the performance, time and cost objectives. Kolltveit (1997 cited in Jenssen, S.A. 2002:134) mentioned that the Norwegian Standards Association had put forward a definition of quality as an integrated collection of features and distinguishing marks possessed by a product or a service related to its capacity to meet such criteria or needs as indicated. Project deliverable should satisfy the needs and expectations of the owner or the customer who is the final user of the products delivered. Tasks and activities should be planned when a project begins so that quality could be achieved. Quality projects can be judged based on criteria which could be derived from how a project can be defined and include the following:

Is the project completed on time?

Is the project completed within budget?

Does the deliverable meet the expectations of the customer when delivered?

As the organization responsible for the project delivery plans all activities and tasks at the beginning of the project, it sets the relevant standards as to how the deliverable can meet the expectations of the owners and consumers. Efforts have been made so that projects are completed and handed over at the time needed; however, projects fail to meet deadlines. In looking at a project deliverables, the following can be measured:

On Time
At Budget
Quality of deliverable
Finished Project

3.7.1.1 Delay of project deliverables

According to Sambisivan and Soon (2006), the problem of delay in construction industry is a global phenomenon but in these modern times, construction firms and consultants as well as owners to contract do not expect project delivery time to be delayed because it will not be in their interest to deliver projects over and beyond the anticipated time. Project delays are caused by lack of finance and it is very rampant in Ghana. Delay occurs as a result of the fact that the deliverables are not delivered at the date which has been specified to be handed over to the owner due to lack of finance. Most often, contractors have monthly payment difficulties and problem of cash flow during construction which was mentioned by Frimpong et al (2003:5) as causes of delay in projects. In view of the fact that the government wanted to improve educational facilities in the country, construction of a building (hall) for students at the University of Cape Coast in Ghana started in 2001 and was supposed to have been completed in 2005 but as at the beginning of 2010, it had not been completed. The effect of the lack of finance and inability to receive monthly payments results in project delay. There may be solution to such delay especially when the public contracting party or the state comes into partnership with private sector contractor to undertake construction of projects instead of becoming the sole responsibility of the government to provide the deliverables, which is the public private partnership.

3.7.1.2 Cost Overruns

Cost overrun in projects can be explained as the actual cost that an institution incurs in the excess of what it has planned and budgeted for. Project cost tends to increase when it is not delivered at the right time. Cost overrun is possible to be seen in building, infrastructure and technology projects and may arise owing to the nature and size of the project, during the

implementation phase or type of ownership of the project. Cost overrun occurs when the inaccurate estimates of cost are not made. Before a project owner goes ahead to build a project, adequate provision is expected to be made on preparation, planning, estimation, authorization and evaluation of the project in question. An amount of planning is necessary for all forms of organized activity (Jenssen 2002:144). At the implementation stage, cost overrun is likely to occur when proper planning from decision to build to the period that construction is completed is not taken which eventually delays the project and therefore income is also deferred and thereby interest on loans keep accumulating. The process of estimating time and cost of completing project is very important. Estimates are needed to determine how long the project should take and its cost (Gray and Larson 2008:118). Project organization and management are to be set up to deal with the administration of the project in question and how materials are to be acquired.

According to Frimpomg et al (2003:6) escalation of material prices is one of the causes of project delay in Ghana. Prices of project materials are high as a result of the fluctuating nature of inflation in Ghana and that inflation increases prices which not only delays projects but also offers cost overruns in projects delivery. Cost overrun may also be attributed to poor contract management, material shortages, design changes, discrepancies in contract documents, inaccurate estimating, additional work, fraudulent practices and kickbacks in construction of public projects in Ghana. The government in 1999 began to put up hospital buildings in Brong Ahafo Region in Ghana and mechanisms were not put in place to look at inflationary trend in Ghana and by the time the project was completed in 2007, cost overrun was more than 50% of the budgeted cost. The project could not serve the purpose that it was constructed for but was used as a mortuary. The government does not set up project organization and management to consider those uncertainties and risk which could escalate cost during the implementation phase and by the time the deliverable is delivered, the actual cost has exceeded what was budgeted for. Traditional projects construction in Ghana intends doing more harm than good to the economy of the nation.

3.7.1.3 Stopping on-going construction projects

The life cycle of projects begins from one stage and ends at another point in the cycle and it is likely that a project could come to an end. Construction of projects comes to a halt for some

reasons which may be that budgeted costs are exceeded, poor initial planning and market prognosis, allocated time are exceeded or the purpose for construction of the projects cannot be accomplished. According to Standish group (standsihgroup.com), 24% of projects are cancelled before they are delivered because they failed. In Ghana, some construction projects are entirely cancelled because the amount that has been allocated for such work is exceeded. In addition, the state or the government becomes financially constrained and finds it unreasonable to continue with the projects. Workers through no fault of them lose their jobs and find problems getting alternative employment. Adequate planning and preparations before construction of the projects are not made by the government of Ghana. The goals of such projects in terms of cost and time are hardly to be achieved and the only option available would be to stop the project in question

3.7.1.4 Lack of quality deliverables

Quality of project deliverable can therefore be explained that it is meeting the expectations of the customer by way of the deliverable. Projects are of quality when the owners' expectations of the project deliverables are met and within the conditions that are specified in the project. When projects are completed on time, within budget and meet owners' satisfaction, the quality of the project deliverable can be said to have been achieved. Quality of project may not always be seen until it is complete and ready for use. Shoddy projects and defects reduce the level of quality project deliverables. Projects deliverables in Ghana cannot be said to be of quality judging from the explanation above. Some of the projects constructed in Ghana do not serve the purpose for which they are designed for. At a hospital in the Brong Ahafo Region of Ghana, building which was constructed as maternity ward for pregnant women in 1999 could not be completed as planned until 2007 and could not serve its purpose but was finally used as a mortuary.

3.7.1.5 Abandoned (standstill) Projects

The politics of the nation draws back development projects in Ghana. A Government that comes to power often neglects projects established by previous governments and begins a

new project for political reasons. In 1999, road construction undertaken by then government of the National Democratic Congress (NDC) headed by a military officer could not be completed when his tenure of office ended. The project came to a standstill when the new government of National Patriotic Party took the seat of administration in 2002. At this time in 2010 the government of NDC has come to power again and efforts are being made to complete those projects which were abandoned. Politics is playing a dirty role so far as development is concerned in Ghana because the governments that do not continue projects initiated by their predecessors drain the coffers of the nation.

3.7.2 Operational Factor and Indicator

The traditional projects constructed by the public authority or the government in Ghana go through various levels of the life cycle and their completion is hindered by a factor relating to the performance, time and cost objectives. The level of corruption renders projects of such nature to be of less importance to the nation.

3.7.2.1 Corruption

In Ghana, projects construction by the state involves mismanagement of the governments in power. Frimpong et al (2003:5) stated “material procurement” as one of the causes of construction delays and mismanagement. In trying to purchase materials to construct projects, contractors and government agencies falsify accounts and documents relating to procurements which lead to corruption. The corruption perception index for 2009 (*Transparency International 2009*) indicates that Ghana is ranked an average of about 69 out of 180 countries sampled. In Africa, it is ranked as having a score of 3.9 out of 10 which showed that corruption is perceived as rampant. Even though the idea gives some hope that Ghana is better than some countries, it should not be over excited.

Ghana is endowed with natural and mineral resources. The nation had reserves of £200m during the attainment of independence in 1957 but as at 1966 it was already bankrupt as its

external debt stood at £400m (Gadzekpo 1988, p202). The sad state of affairs is blamed on the years of mismanagement by corrupt government. Bribery has become the order of the day and people from all walks of life use their position to acquire wealth. Government officials and politicians who have been entrusted to seeing to ongoing state projects demand tips (bribes) from clients or stakeholders before they perform or attend to their requests when development projects are to be constructed in their regions. Corruption is said to be the abuse of public power for private benefit. In a recent press statement made by the Former Deputy High Commissioner of Britain Mr. Gregg Murray, Ghana now loses \$1.5 billion a year over contract that is described as “unintelligent contract” entered into by the government and an American Company Balkan Energy Company Llc in 2007 to supply power to the nation using the country`s own power plant (www.ghanaweb.com). With regards to the contract mentioned above, some of the government officials entered into that bogus contract so that they could enrich themselves at the expense of the nation and mismanage the construction of the project in question. It is difficult to see any culture that primarily accepts bribes but it is more evident in construction contracts in Ghana because efficient mechanisms have not been put in place to check and deal with offenders and expose corruption. The instance above shows that the Government itself is seen to be corrupt.

A Factor can explain why corruption is rampant in building and construction industries in Ghana. This can be called “*Get-Rich-Quick-Syndrome*”. It is the practice in the country where almost everybody wants to be rich overnight. People look for opportunities to enrich themselves: from the labourer at the government farms to the president of the country (government of the nation). The culture of the nation has an impact on corruption. People are not respected when they are not rich and therefore they find any dubious means to become rich. They begin to dupe government coffers as heads of construction companies or receive bribes illegally to put up buildings and buy luxurious cars and sometimes help to offer financial assistance to develop some projects in their hometown that has been abandoned by the government in power. A typical Ghanaian in construction field or industry is expected to live a high standard of lifestyle and provide for the expectations of the extended families (relatives and grandparents) which even the income earned doesn`t allow him or her to live that life. All these could be blamed on the *shame culture* that we find ourselves in developing nations like that of Ghana.

Table 3-1 Explanation of the Operational Factors of Variables

Variable	Unit of measurement	Explanation of Terms	Source
Corruption practices (COR)	Finance mismanagement (Independent variable)	Undermining the basic obligation of public services and using the resources of the offices for personal, professional or financial gain by an official	<ul style="list-style-type: none"> • Ghana web
Delays of project (DL)	Delivery Time Lack of finance Dependent Variable (Indicator)	The act of taking possession of items from ordering to receiving them and within the specified time	<ul style="list-style-type: none"> • PMBOK
Cost / Budget overrun (CBO)	Project cost Bad process of estimation Dependent Variable (Indicator)	An instance in which the provision of contracted goods and services are claimed to require more financial resources than was originally agreed between project sponsor and contractor.	<ul style="list-style-type: none"> • Financial models • User Guide 2005
Stopping Projects (ST)	Resources availability Poor planning Dependent Variable (Indicator)	Decision to cancel (failed) projects	<ul style="list-style-type: none"> • Standish Group
Lack of quality of deliverable (LQD)	Outsourcing Adding resources Quality Dependent Variable (Indicator)	The client's expectations of finished goods as agreed and specified in the contract.	<ul style="list-style-type: none"> • PMBOK
Abandoned Projects (AB)	Scheduling overtime Change of government Dependent Variable	Projects that are not actively developed and left uncared for which are not to be reconstructed and completed	<ul style="list-style-type: none"> • Project source forge

3.8 Validity and Reliability

The quality and appropriateness of methods in the research study can be addressed by the aspects of reliability and validity. Validity can be explained as the ability of the researcher to produce true knowledge about the phenomenon to be studied. According to Hair Jr. et al (2006:246), validity is the extent to which a construct is able to measure what is required to measure.

3.8.1 Face Validity

With regards to the data collection, different methods and approaches were used including interviews and I agree with Hair Jr. et al (2006) that validity has to do with whether a measure of a concept really measures that concept. I have the privilege to meet the interviewees with experience, relevant skills and knowledge on the field during the interview. The heads of department who have in-depth knowledge about the research study in question are the very people who might be asked questions or interviewed. They are knowledgeable heads of the institution who had witnessed the traditional construction of projects for many years as supervisor and project manager. As the government wanted a change in the standard of construction of project to the public private partnerships, they might be able to offer technical advice to the government or the state. The position and rank of my interviewees in the Statens Vegvesen in the area of projects would enable me to have objective, authentic and accurate information of the research study. I had every cause to say that validity was really high in the research study that I conducted because information was received from specialists. It offered fair and honest response and enhanced validity of the study. Cohen et al (2007:133) mentioned that validity is an important key to effective research.

According to Webb et al (1966 cited in Bryman 2004:275), using more than one method of data collection called triangulation will result into greater confidence in the findings. This also enabled me to take the case study as another instrument. When a piece of research is invalid, then it is worthless. It is important for a researcher to try to minimize invalidity and maximize validity.

Reliability as stressed by Cohen et al (2000:117) is the measure of consistency over time and over sample. The various methods used to gather data would agree on particular issue and that could offer more reliable interpretation of data. Reliability is significant when the extent to which researchers arrive with similar outcome if they investigate the same case using the same procedure as the first researcher can be compared. In the case of the interview, I endeavored as much as possible to make questions clearer and exact as the interpretation would be significant to the research findings and also closely linked to validity and reliability. To avoid any kind of ambiguity, I received a lot of assistance from my supervisor who had to go through them several occasion correcting questions and statements and in proof- reading until all seemed quite understandable so that the response the respondents give would

expressly be the same but different to enhance reliability in the data collection. The responses from my interviewees were reliable, exact and trusted because they had previously planned and authorized the execution of traditional projects in some areas of the Agder County and in that view were able to offer concrete solution, examples and evidence to questions raised based on experience and knowledge they have previously acquired from projects.

Looking at external validity as how a case becomes a representative so that it can be applied more generally to other cases, issues have to be analyzed critically and carefully especially in my research of looking at the public private partnership and the traditional way of construction of projects to see whether it can be applied to all industries in Building and Construction in Ghana. Yin (2003 cited in Bryman 2008:55) mentions some types of cases that are made by writers and among them are two interesting cases namely: *critical* case and *revelatory* case. With the critical case, the researcher has well developed theory and a case is chosen on the grounds that it will allow a better understanding of the circumstances which the hypothesis will hold or not hold. In the revelatory case, an investigator has the opportunity to observe and analyze a phenomenon previously inaccessible to scientific investigation (Yin 2003:42 cited in Bryman 2008). In my case study of getting data from the Statens Vegvesen that is responsible for seeing to the building and construction of roads in Norway, it is the right and reliable institution where my research study could be analyzed very well. From all indications, in Statens Vegvesen the engineers had knowledge of public private partnership projects from their own practices. I agree with Yin that I have got the opportunity to do the research study specifically in this institution and to be able to understand very well of the importance and pertinent issues that arise from such partnerships.

4. DISCUSSION AND FINDINGS

The findings on the research study in question are presented and discussed based on the results obtained from the case study and face-to-face interview. The respondents and interviewees perceived view on the research study and the testing of the hypothesis are emphasised. The case study of the educational institution concerned is first looked at followed by the interview. The outlined problems that were discussed during the last part of chapter two are also analysed.

4.1 Case Study at a glance

The case study is a university and a recognized tertiary institution in Ghana. The University of Cape Coast was established in October 1962 as a University College and on October 1, 1971, it attained the status of a full and independent University with the authority to confer its own degrees, diplomas and certificates by an Act of Parliament. The University was established as the country was in need of highly qualified and skilled manpower in education to provide leadership. Its original mandate was therefore to train graduate professional teachers for Ghana's second cycle institutions and the Ministry of Education, in order to meet the manpower needs of the country's accelerated education programme at the time. Today, with the expansion of some of its faculties and the diversification of programmes, the University has the capacity to meet the manpower needs of other ministries and industries in the country, besides that of the Ministry of Education (<http://governance.ucc.edu.gh/aboutucc>).

The University started with two departments, namely: Arts and Science. These departments developed into faculties in 1963. In order to achieve the set objectives, in 1964, the University created two more Faculties, namely: Education and Economics & Social Studies (now Faculty of Social Sciences). The fifth faculty (School of Agriculture) was established in 1975. The Faculty of Science was split into the Schools of Physical and Biological Sciences during the 2002/2003 academic year while the Department of Business Studies was also elevated to the School of Business with effect from the 2003/2004 academic year. The National Accreditation Board (NAB), at its 63rd Meeting held on October 4, 2007 approved a three-year Interim Accreditation for the running of the Basic Sciences component of the Bachelor of Medicine and Bachelor of Surgery programme at the School of Medical Sciences of the University of Cape Coast. In view of the dynamic nature of society, the University of Cape

has over the years began to train professionals as educational planners, administrators, agriculturalists, actuarial scientists, optometrists, information technologists, biochemists, environmentalists, laboratory technologists and experts in commerce, management, tourism, population and family life education, water and sanitation, molecular biology, biotechnology, computer science and livestock system managers. During 2009/2010 academic year, the university admitted 4,251 students into its various programmes out of 11,730 candidates who applied for admission to the University.

In the 2008/2009 academic year, 1320 sandwich students were admitted to undertake Diploma, undergraduate and post-graduate studies. The number was made up of 941 post-graduate applicants and 379 undergraduate applicants. By gender distribution, 634 of the post-graduate applicants were males and 307 females. For the undergraduate applicants, 233 were males and 146 females. For the 2008/2009 Academic Year, the University went further to admit about 80 students from a number of deprived schools in Ghana and has established scholarship scheme to cater for needy but brilliant students

(<http://governance.ucc.edu.gh/aboutucc>)

4.2 The Target Institutions

In order to be able to have a better understanding of looking at the public private partnership and the traditional way of construction of projects, the university building and construction section and Statens Vegvesen Roads Department were the two main areas that the research study were focused.

4.2.1 University`s Building and Construction Section

As the government provides funds for the construction of buildings for the Universities in Ghana, some leaders and heads of department and faculties are either appointed or selected to oversee and monitor the progress of the ongoing projects on behalf of the government or the state. I tried to contact the university`s section of the Building and Construction of projects for assistance to conduct the research study in question but to no avail. After my request made to the institution asking for permission to undertake the research in the departments in charge of construction of buildings was turned down, my contact person offered to help me but on

condition of anonymity to have a (telephone) interview and I gave him my word. My contact person is an experienced professional within the construction of projects for years. I accepted his offer of the telephone interview because I had limited amount of time to write the thesis.

4.2.2 Statens Vegvesen`s Roads Department

In Norway, Statens Vegvesen may also be called the Norwegian Public Roads Administration or the State Road Administration. It is under the Norwegian Ministry of Transport and Communication. It has the duty to plan, construct and operate roads in Norway. (www.vegvesen.no). Not only does it train drivers and inspect vehicles that ply on the nation`s roads but also issue driving license to qualified drivers. Statens Vegvesen has a lot of responsibilities and that the research study was conducted only in the area of road projects. As I indicated earlier, the respondents from statens vegvesen offered the best they could to assist me to conduct the research study. They later became my interviewees and demanded that their identity should be withheld which I again accepted. They are experts who have the knowledge and experience in road projects

4.3 Data from the Study

All efforts of getting the Building and Construction section of the University as my case study failed because the workers did not want to have any public interference and also did not want to reveal information to me which they could lose their employment and job. My contact person was prepared to enlighten me on the problems that occur in the building and construction projects in five main Universities. I presented to him the purpose of my research study and wanted to know how construction of projects was carried out in the universities. The purpose and summary of the research study was given to him and I asked how he would judge the general completion of state projects and projects of which he was a member of the board. The emphasis he laid much was that projects that were to be constructed should have objectives of meeting the requirements and needs of the users, stakeholders and consumers. The government in an effort to enhance education decided to construct building projects and study centre in the ten regions of Ghana including the Universities. The universities as a result

of increasing the student's intake have been receiving grants from the government but a lot of problems had been encountered during the construction of projects.

The various problems that are often seen whenever government orders the construction of projects are that funds and resources in terms of money allocated for such projects are not properly accounted for. Again, as the resources are not managed well, the expected time that project deliverables are to be delivered to the final users are delayed. Moreover, as delay occurs, the amount that has been estimated specifically for the project is exceeded because workers would have to be paid during the time of delay. In addition to that the government is financially constrained during the period of delay and, the likely alternative will be that it puts on hold the construction of the project. As lack of finance causes the government to suspend projects, should there be any form of political instability or a change of government, the new government would abandon the project that had been initiated by the previous regime and pursue its own policies. When a project comes to a halt, quality of the project is also compromised and it is due to the reason that the equipment used at the construction sites lie idle as the project is either completely stopped or suspended. In enumerating the issues that the interviewee mentioned above, the following were identified:

- a) Embezzlement of government allocation of funds for the construction of a project was very high
- b) The expected time for the delivery of the deliverables was exceeded.
- c) The budgeted cost of the project had been exceeded
- d) Financial constraints of the government often caused the stop or standstill of ongoing project.
- e) Delay and standstill projects reduced the level of quality of the deliverables.
- f) Some of the projects might not be continued at all during change of government and political instability.

In analyzing the concerns of the interviewee, I realized that there could be a way out of those problems even if they were not solved completely. The government could come to a partnership with a private contractor who could design the facility, build the project, finance

and operate for a time and then hand it over to the government after a specified time of completion. Decision as to which institution to test the hypothesis to prove that there could be a way out or otherwise necessitated for the interview in Statens Vegvesen's roads department which had engaged in 3 pilot projects using the model of the public private partnership construction of projects. From the inception of trying to have the research study done at the university's building and construction section, gaining access failed due to the bureaucracy. In that manner, roads department was an opportunity for me to have an access to the institution,

4.4 Data gathered from the Interview

Twenty-two questionnaire responses and a face-to-face interview were conducted in Statens Vegvesen roads department. During the interview, almost all the questionnaire responses had their solution related to the quality of deliverables and the finance of projects. The two main contributions and suggestions were received from the interviewees. They told me that the disclosure of their identity in the research would do them more harm than good and wanted their names not to be made known or mentioned in the thesis.

The questionnaire responses and the face to face interview lasted for one hour thirty minutes. During the day of the interview, it started when the interviewees were asked about what traditional projects really meant. After that I wanted them to compare public private partnership model and the traditional way of construction of projects. I understood from them that similar projects had been previously constructed in the traditional way and the state or the parliament needed a change from the way of construction to involve both the private contractors and the government in the construction of projects which was the public private partnership. The interviewees later mentioned the objectives or the projects goals and began to talk about issues of cost, time, resources and quality of projects. They also talked about the success of both the public private partnership projects and traditional construction of projects and in their view which of them was better in terms of the level of quality of the project that was needed and the status of financial position of the public contracting party.

During the interview, it was mentioned that the Norwegian government in consultation with the Parliament made a plan in February 2001 to construct projects under the public private partnership programme between 2002 and 2011. The 3 pilot projects in road construction under the public private partnership (PPP) which included:

- a) E 39 Klett – Bårdhaug Sør-Trondelag County project
- b) E 39 Lyngdal –Flekkefjord in Vest Agder County and
- c) E 18 Grimstad- Kristiansand in Aust Agder and Vest Agder County

Construction of points a) and b) cost about one billion kroner each and the last (c) almost three billion kroner. Grimstad – Kristiansand public private partnership project was constructed by two international private companies from Denmark and Germany (private contractors) and the Norwegian government (public contracting party). It was considered as the most extensive one among the three mentioned above and it involved 21 nationalities as workers to that project. The government planned to go in for the “PPP” projects because it wanted a change in the standard way of building and construction.

4.4.1 Cost and Budget differences

When the interviewees were asked about how they perceived cost and budget / cost overrun between the traditional projects and public private partnership projects, they stressed that the cost incurred might be the same whether the government constructed the road itself or the private contractors had partnership with the government to construct the project. They were of the view that it would be the same because the difference between the cost incurred solely by the government in the construction of some previous projects and the cost incurred in the first pilot project under the public private partnership project were almost the same. In talking about the cost and budget overruns, they again affirmed that cost would be the same but one significant factor which might cause the difference could be a miscalculation of events and risks. It is stated in the “PPP” contract agreement that private company bears or pays for the cost difference.

During the construction of E 18 Grimstad – Kristiansand pilot project, the “PPP” company incurred extra costs and three reasons were assigned to the huge nature of cost overrun. Firstly, the private partner did not undertake proper feasibility studies in the area of the topographical nature of the land of Norway where the tunnels were dug. There were hardened and rocky hills in Norway more than in either Denmark or Germany according to the interviewees and the private companies had not encountered the construction of roads in such kinds of rocks. In view of that time and efforts were spent in order to construct the tunnels and the road which forced cost over what was budgeted for. Secondly, there was cost overrun

on the PPP project of road construction between Kristiansand and Grimstad which would not have occurred if the international Private companies had not started the bidding process with too low price which was one of the reasons the contract was won. Thirdly, in addition to the cost overrun in public private project, there was lack of logistic support as they were underestimated but it was an exception because it did not occur in the two previous “PPP” projects.

4.4.2 Completion time of Projects

In the aspect of time of completion of projects, it was found out that the time for the construction among the three pilot projects under the public private partnership were all constructed and built quicker than expected unlike the traditional way of construction of projects. The reason was that in the “PPP” model the provision of finance is made by the private contractor. The Danish and German contractors provided the finance which helped to solve the problem of project delay right from the beginning of the construction. According to the interviewees, in the future, the state and the institutions will be flexible with the time spent because safety and quality of the deliverable are their ultimate aim. At the end, it meant that they would not stress much for projects to be delivered always on time as it was specified but all the same be made sure that quality of projects would be more important than time to complete it as planned.

4.4.3 Utilization of Funds and Resources

When I asked about the mechanisms the public contracting authority put in to ensure that the resources and funds were fully utilized, they replied that resources and monies were effectively used in order to avoid embezzlement of funds and corruption. In the public private partnership model, payments are made to the private contractors based on the amount of work that is completed. A worker from Statens Vegvesen is assigned the duty of supervising the work of the project completed every day whilst Statens Vegvesen also meets the management of the private companies 5 or 6 times a year and directors twice a year. In addition to the effort of checking corruption in the system, drawings made by the private companies are

checked and followed up. Statens Vegvesen also pays the “right, agreed and affordable” prices to the private companies for the goods and services rendered and expect to receive worth deliverables. The introduction of the “PPP” is considered special in Norway and that limits are put on the amounts that are spent. The private contractors are motivated to fully utilise the resources and funds at their disposal in a form of compensation. The Private sector companies are compensated especially when the number of accidents is reduced on the road constructed. The accidents could be reduced by:

1. The provision of good maintenance of the road
2. Erecting good signs and markings
3. Putting salts on the road during winter to serve as good friction.
4. Making sides of the road clearer to see oncoming vehicular movements from a far distance.

After looking at those systems very critically, I realised that they had helped to reduce to the barest minimum the level of corruption that is perceived to occur in projects

4.4.4 Suspension of Projects

Concerning projects that come to a halt or a stop, the interviewees said that whether it was traditional projects by the state or the “PPP” model, they were often constructed and completed. One thing that helps with the introduction of public private partnership a better way of project construction is that private company finance the project and receive pay back after completion and handing over of the project to the state as it is the state that always owns the facility. The method of payment may be in twofold: When the total value of toll collected from the users are high, the government uses it to pay private companies. When the amount received is too low, the government comes in with funds to pay the private company once in the year and in the case of the E 18 Grimstad – Kristiansand “PPP”, the government pays around 300 million kroner to those companies. When I wanted to know why under the “PPP” project the state paid so much in terms of interest on projects financed by the private company, they said that they would not like to answer that question but should be answered by the state and when I again asked the reason why they would not like to answer the question, they replied that they had little control under this kind of public private partnership project and the government did not consult Statens Vegvesen for the workers to offer their views when the so called *new system of construction of projects* was introduced. “This is

politics and since Norway is a rich country, it does not need PPP projects. It is good for a country that is not rich to engage in public private partnerships projects because money is provided by the private company. The interest rate is too much". As private companies provide finance in public private partnership, projects are neither completely stopped nor abandoned but they are always completed.

4.4.5 Quality Standards of Projects

When question was asked about how the level of quality of projects among the traditional construction of projects and public private partnership projects could be judged, the interviewees responded that the standards of quality were the same but challenges lied ahead in PPP projects because Statens Vegvesen has limited amount of control unlike the state own construction. According to one of the interviewees there was a sharp curve immediately after a tunnel on one of the Public Private Partnerships roads which the private partners should have dug the sides of the road for oncoming traffic to be seen at a far distance but they failed to do that when Statens Vegvesen contacted them. The matter was reported to the management but due to the bureaucratic nature of the system and as the public partnership was something *new* initiated by the state, the leaders of the state kept quiet without confronting the contractors to straighten the curve to avoid accident. According to the interviewee, it could pave way for accident to occur.

One of the public private partnerships projects is compromising the level of quality. The road which was constructed not long ago has started developing pot-holes and is being refilled. It was referred to some places along the road where certain spots were not on the same level because the gravels under the tarred road where bitumen had been filled were taken out and replaced with other gravels but the private companies could not use the necessary equipment to level those areas to march the level of the rest of road. Even though that little stretch of road developed some potholes, it could not be generally said to have low level of quality.

4.5 Discussion of the Views

Owing to the fact that data and information had been collected during the case study and interview, I began to carefully analyze the views as presented to be able to come out with

conclusive outcome and results. As the views of respondents and interviewees were analysed systematically, it assisted me to test the validity of the propositions whether those would support or contradict the result of the research.

Cost and Budget overruns

During the research study, the results received from the respondents and interviewees in terms of cost and budget overrun was that cost overrun could occur in the traditional construction of projects. It confirmed those projects which were undertaken in the institution where the case study was conducted could be cost and budgeted overran. In the public private partnership project, it could not be generally said that projects could be cost overran because out of the three pilot projects, only one exceeded what was budgeted for which was also due to miscalculation, human error and lack of feasibility studies and the risk of the cost was allocated to the private company and not the government.

Others

The issues that the interviewees found it strange and could not understand why those should happen were identified as misallocation of full utilisation of resources (level of corruption), abandoned projects and stopping a project. The state has set up rules, procedures and standards that do not allow frequent embezzlement of funds. The funds are fully used to get the project done and the likelihood and possibility of projects coming to a halt or abandoned is really low. The government has contingency plans to deal with projects that are not progressing steadily. In addition to it, the model of the public private partnership requests private companies or private contractors to finance the project and be paid on the work that is completed. Every contractor would like to deliver project deliverables as quickly as possible to be able to win other projects.

Completion Time

In getting to know whether both traditional and public private partnerships projects deliverables were delivered at the right time and without any hindrance, the response was that

final users or owners should be more assured and satisfied with the level of quality of projects than the time of completion unless the projects were to be delivered during special occasions. The interviewees said that even though public private partnership projects had the tendency to be delivered quicker than the traditional projects, they wouldn't lay much emphasis on time for the completion of projects of this nature if they were consulted by the administrators of the state who called for the change in the way of construction. They would advise that in the future, projects completion date should be extended so that the needed highest level of quality of projects would be their ultimate aim.

Quality Deliverables

The level of quality in both the traditional and public private partnership projects was considered as the most significant factor in the study because the change in the standard way of construction should bring something new into projects. Projects are supposed to be longer lasting and users of the final project deliverables expect a higher level of satisfaction in the public good they consume than getting previously in others. When in their views the interviewees were asked to rate in order of importance the issue of cost, time and quality of projects, the level of quality was first in the scale of preference followed by cost and time.

5. CONCLUSION

In chapter 2, six propositions were mentioned in the research. Those six propositions were tested by searching and getting the facts from the case study of Ministry of Local Government and Development and data during the face to face interview of experts and questionnaire presented at Statens Vegvesen. The implications of the proposition brought about the following result:

Proposition (1): The practice of corruption influences traditional construction of projects.

The proposition was aimed at finding how resources and funds solely provided by the state or government were utilized in building and construction. At the beginning, the proposition was said to have a negative relationship in the case study in the traditional projects. During the investigation, the result from the interview denied it and meant it was contradicted. It was on the basis of the fact that in the traditional projects, mechanisms were put in place by the Norwegian government to often guard against misuse of funds and misallocation of resources. Decision as to how it would be if it were a public private partnership project, the investigation revealed that the project delivery and contracting strategy of PPP involved designing, building, financing and operating the project which had already solved the problem of misapplication of funds (money) and misallocation of resources

Proposition (2): Delays has negative relationship in the construction of traditional projects

The findings from the case study supported the proposition whilst the result from interview and questionnaire partly supported it. In the case study, two reasons were assigned for the support of the proposition. Firstly the construction of buildings had twice exceeded the completion and delivering date. Secondly, delay of allowances and monthly salaries of workers caused project delays. An investigation at the interview showed that construction of traditional projects did not quite delay but flexibility of time would have to be maintained in the future in the traditional projects and public private partnerships in Norway so that quality of work on the project could be achieved as sometimes a rush in project results in shoddy work. Construction of seasonal project (e.g. exhibitions, trade fairs) contradicted the

proposition because they would be waste when delay occurred, but construction of seasonal projects was not what the study was about to research on.

Proposition (3): Cost and budget overrun is perceived to have negative relationship with traditional project construction

The result from case study supported the fact that cost and budget overrun had negative relationship on traditional project. Lack of proper planning and interest on loans and inflationary trend contributed to the existence of the proposition. The findings from the interview neither supported nor contradicted proposition (3) in traditional projects. It was unclear whether more than 50% of projects constructed in Norway were cost overran. However, under the public private partnerships projects the result of miscalculation and lack of proper feasibility studies on E 18 Grimstad-Kristiansand PPP project partly supported proposition (3), but caution needs to be taken because it is not a traditional project. The private company bears the risk of cost and not the government under the public private partnerships projects.

Proposition (4): Stopping ongoing construction work is perceived to influence the construction of projects in the traditional way

The findings in the case study brought into existence that stopping a project would influence traditional projects in the case study. Political instability and change of government contributed greatly. During the interview and questionnaire presented, the result contradicted proposition (4). The reason for the contradiction was that the state provided guidelines and contingency plans to guard against projects coming to a sudden stop in Norway. The contracting model under the public private partnership has also taken into account provision of financing by private constructor in case projects come to a sudden stop.

Proposition (5): Lack of quality resources is perceived to have influence on traditional project construction

Results from the case study confirmed and supported the fact that lack of quality could have adverse effect on traditional projects. During the interview the results revealed, supported and confirmed proposition (5) in both traditional projects and public private partnership projects.

Users and consumers needed high level of quality projects and every public good. In looking at the public private partnership projects, the development of potholes nearly contradicted it but it should be noted that out of the three pilot projects under the PPP projects in Norway, only one was considered as having a reduced level of quality on some small area of stretch of road. However, it was emphasized that PPP projects produced higher quality projects and facilities.

Proposition (6): Abandoned facilities influence the construction of traditional projects

The proposition that aimed at finding how traditional projects were adversely affected was supported by the case study, but during investigation at the interview, the result contradicted proposition (6). Contingency plans were provided by the state under the traditional projects in case projects came to a complete stop. The Norwegian contracting model had also provided in the project contract that financing of the facility would be made by the private company. The results therefore enabled me to answer the research question in my next section below.

5.1 Answering Main Question

Having an in depth knowledge of the study based on the case study at University`s Building and Construction Section and results from the interview carried out and questionnaire presented in Statens Vegvesen Road Department, the research study of looking at the Public Private Partnerships and the traditional way of construction of projects is summarized below

Table 5-1 Blue print of research

Variables	Proposed	Case Study	Interview		Conclusion (Remarks)
			<i>Traditional Projects</i>	<i>Public Private Partnerships</i>	
1) Corruption (CR)	(-)	(-)	(+)	(+)	Financing
2) Delay of Project (DL)	(-)	(-)	(-p)	(-p)	Negative
3) Cost & Budget Overrun (CBO)	(-)	(-)	(+)	(-p)	Negative
4) Stopping ongoing project (ST)	(-)	(-)	(+)	(+)	Financing
5) Lack of Quality Deliverable (LQD)	(-)	(-)	(-)	(-)	Negative
6) Abandoned Project (AB)	(-)	(-)	(+)	(+)	Financing

Support = (-), Contradict = (+), Partly Support = (-p), Partly Contradict = (+p), Unclear = (+-)

is a complex one owing to the sensitive nature of the changing process. In the conclusion (remarks) of **Table 5.1** questions were raised during the interview about how the three propositions: proposition (1), proposition (4) and proposition (6) that traditional projects contradicted could be solved. The interviewees mentioned that they thought those could be solved under the public private partnerships where the private company provided the *finance*. In financing a project by the private partners, cash, funds or monies would not directly pass from one hand to the other to increase the level of corruption and that cash could be converted to resources which would eventually be used to complete projects. Again, with the provision of financing by private companies, projects would neither be stopped nor abandoned. They again said that when proposition (2), proposition (3) and proposition (5) occurred, they would have adverse (*negative*) effects on projects but those could not be solved by financing alone but by other related issues or reasons. One reason was that they thought project could be delayed in order to provide the level of quality needed.

5.2 The Summary of results from the Research

The results of the study above shall be finally summarized after which the research questions previously asked in the objectives of the study will be looked at very critically

Out of the six propositions that were raised, proposition (5) was the only one that was supported and confirmed both under the traditional projects and public private partnerships projects constructed in Norway which then supported the case study. None of the five remaining propositions was supported under the same two kinds of projects in question. It really showed that users and consumers attach great importance to quality of projects under normal circumstances.

Propositions (1), (4) and (6) were contradicted (denied) in both the traditional projects and public private partnership in Norway. In traditional projects, the state has the necessary plans, rules and regulations in place to check every project under construction and has also contingency measures against any unforeseen circumstances. Measures against the level of corruption, stopping ongoing projects and abandoning projects have been developed to deal with such issues as soon as they occurred. In the public partnership projects, the same propositions: (1), (4) and (6) were contradicted because in the Norwegian contracting model (DBFOT) of public private partnership, the private companies that are awarded the contract should design, build the facility needed, finance the project and operate it for some time (normally for 25 years) until it is handed over to the state. As a result of the provision of finance by the private partner, projects are carried out from starting to completion and are neither abandoned nor stopped. Private companies are paid based on work that is completed. Funds do not pass from one hand to the other and eventually reduce the level of embezzlement of funds. As long as the private partner provides the financing, projects are also certainly completed and are neither stopped completely along the way nor abandoned.

Proposition (3) was unclear under the traditional projects in Norway. There was no available evidence to prove that previous projects solely under the Norwegian government were cost overran which called for the change in the standard way of construction of projects by the leaders and parliamentarians in Norway. Under the public private partnerships project, proposition (3) was partly supported because of miscalculation of events and lack of feasibility studies during the construction of tunnel roads which led to cost overrun. It was not fully supported because the state has just three public private partnerships pilot projects in Norway and only one of them which was the biggest project had cost overrun. Even though the private company would bear the risk of cost, miscalculation and lack of adequate studies on projects contracted could bring negative effects on their operations.

Proposition (2) was partly supported in both traditional and public private partnership projects. Users and consumers of public good have the view that projects may be delayed provided quality of projects is the ultimate priority and aim of every contractor or constructor. Quality of project is sometimes compromised when contractors rush to get things done quickly. Delays may be expected in the future to check those infrastructures on the road (bridges, culverts) that are not often seen as a driver of a bus, train, car or any means of transportation that plies on the road does not see clearly

In conclusion, among the six propositions tested at Statens Vegvesen,

Traditional Projects

- Supported: Proposition (5) Lack of Quality Deliverable (**LQD**)
- Partly supported: Proposition (2) Delay of Project (**DL**)
- Contradicted: Proposition (1) Corruption (**CR**),
 - : Proposition (4) stopping ongoing projects (**ST**)
 - : Proposition (6) Abandoned Projects (**AB**)
- Neither supported nor contradicted: Proposition (5) Cost and Budget Overrun (**CBO**)

5.3 Is Public Private Partnerships the solution?

The research questions asked from the beginning in the objectives of the study were:

- Is the construction of projects by government alone effective and produce valuable deliverables at the end?
- Are the expected results of the projects produced in a timely, cost effective manner?
- Could Public-Private Partnership be a way out instead of the traditional projects?

Data obtained during the case study, interview, results and summary of the research, has now indicated that the government of Ghana alone cannot deliver effective and valuable deliverables. Among the six propositions,

Public Private Partnerships

- Supported: Proposition (5) Lack of Quality Deliverable (**LQD**)
- Partly supported: Proposition (2) Delay of Project (**DL**)
 - : Proposition (3) Cost and Budget Overrun (**CBO**)
- Contradicted: Proposition (1) Corruption (**CR**)

: Proposition (4) stopping ongoing projects (ST)

: Proposition (6) Abandoned Projects (AB)

The results proved that based on the propositions raised under the traditional projects, 50% (three of them) were contradicted when tested and can therefore be said that the expected results of traditional construction of projects in Ghana were not produced in a timely and cost effective manner. The third question that asked: *Could public private partnerships be a way out instead of traditional project?* The answer is **YES**, public private partnership could be a way out of traditional projects based on the facts and summary of the research study obtained. There should be a change in the standard way of construction of projects in Ghana whether it is road or building construction. The problems of corruption, stopping ongoing projects and abandoned projects under the traditional project will be brought to the barest minimum if the Norwegian project delivery and contracting strategy model of Public Private Partnership (PPP) is used.

The model is called **Design Build Finance Operate Transferred** (DBFOT) Contract and it is explained as a kind of contracting model that helps to construct projects in a situation where the public authority may be financially handicapped. Looking at it carefully, it is also an alternative means through which funds may be raised to construct public projects. Public private partnerships (PPP) allow private companies to build, own, finance and operate public projects such as roads, schools and hospitals on behalf of the public sector. The private contractor is responsible for maintaining the asset for a long period of time at least for a significant part of its useful life. In this model of the Norwegian PPP (DBFOT), the private company maintains the projects a number of years after completion and then hands over to the state. In the case of E 18 Grimstad- Kristiansand PPP, the private company will maintain it for 25 years. The private sector is paid through revenue generated by the project, for instance either the toll collected or yearly payment based on performance or kind of work completed and incentives are offered when safety related standards and good user service of the road are provided.

By entering into public private partnerships and using the model as briefly explained, a lot of the problems enumerated under the traditional construction of project would be eradicated. The private sector brings in efficiencies to the job because funding is already provided. In addition, the design in the model also meets the performance standards set at lowest cost which plays an important role of cost savings as compared to the traditional construction of projects. The private partner also bears the risk of any interest and payments and that the

burden is lifted off the shoulders of taxpayers. Looking carefully at the projects undertaken under the public private partnerships, the users actually pay more than the taxpayers, for instance the E 18 Grimstad – Kristiansand Public Private Partnership project; the drivers who ply on the road are the users who pay the toll for using it. It must be noted that financing a project has been the problem of developing nations and that is why some projects in Ghana come to a standstill and abandoned. Under the PPP, the private constructors provide finance to bring the project to completion and they are paid based on the work completed to be used. Projects are therefore completed and handed to the government or the state. Moreover, projects deliverables are of higher quality and that was supported in the research study during the interview and the case study. Therefore, looking at the Public Private Partnerships and the traditional way of construction of projects, public private partnerships has provided the solution to the problems encountered when projects are constructed in a traditional way.

5.4 Limitations of the Research

The research study enabled me to gather enough data to analyse present the findings and reach impressive conclusion. Even though the facts were supported whilst some were also rejected which preferred public private partnerships to traditional way of construction of projects, deeper research should be made on the operational factors. The result might be far from perfection due to the limitations of the research study mentioned below.

The time and resources were limited during the research study. The period that the study started and ended was so short that I had to force myself to make things work and I had very limited financial resource as a self financed student. I endeavoured to spend less amount of money to receive the data needed. Nevertheless interesting findings were made to start with the study.

There were various research designs which could have been used to arrive at the conclusion, but case study was the one used in addition to the qualitative approach which did not help me to use other approaches to see whether the results might have been the same. The population and sampling size were limited. During the case study, one institution was contacted and I was even fortunate to have just three respondents or interviewees because of lack of and secrecy of available information. The views and results provided at the beginning stage might be the reflections of own ideas of the interviewees who wanted their identity to be hidden in the research study. The views might not be the exact of what had actually happened and I had no alternative means to verify from any other person from the institution where information

and identity of workers should not be revealed. It was very difficult to draw valid and authentic conclusions from the population.

The number of respondents and interviewees was very few. One expert interviewee and three experienced professionals decided to offer assistance in the research study provided their names were withheld from the public. Results obtained supported some of the propositions and contradicted others but the authenticity could not be verified because of the sensitive nature of the research study and the outcome of it might be confidential. In view of the fact that there were a limited number of employees involved in the research I conducted, there should be another deeper research again particularly on the indicators mentioned in **Table 3-1** to know whether another research could arrive at similar propositions and conclusion. Those variables in fact could not be tested in the university building section in Ghana but they were tested in Statens Vegvesen in Norway.

Finally, the two institutions where the study was conducted could not be said to be on the same level of development. Propositions from a developing country were tested in a developed nation. Differences in technological advancement could skew the test and conclusion.

5.5 Suggestions

Ghana is a developing country and the government has always been seeking financial aid from the international community for development purposes. It should engage in public private partnerships to alleviate the problems of building and construction especially in education where the nation has been losing billions of Ghana Cedi through corruption, projects delays, lack of quality projects and abandoned projects. The government should allow qualified private partners to bid for the job and those who have the best standard and satisfy the requirements laid in the contract be offered the contract. The government should be transparent in awarding contracts and avoid offering contracts to party functionaries and favourites who have no experience either in construction or building.

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Appendices

Interview guide

To the engineers and my contact person

Looking at the public private partnerships and the traditional way of construction of projects

1. Have you any experience about PPP projects? YES / NO
2. Has there been a PPP project in Norway you know about? YES / NO
3. Do you think PPP-projects mostly are successful and give value for money? YES/NO
4. Are there special reasons behind the success of PPP projects? YES / NO
5. Do you feel building and construction projects are best suited to use PPP? YES / NO
6. Are there special factors leading to successful PPP projects? YES / NO
7. What are the most important of these factors?

8. Is *cost* one of the key performance indicators in a PPP project? YES / NO
9. Do you consider **quality** an important criteria in PPP projects? YES / NO
10. Is **time** a key performance indicator in PPP projects? YES / NO
11. Which of them: **COST**, **QUALITY** and **TIME** do you consider being the most important in choosing PPP projects?
12. Are there more cost overruns in traditional way of construction projects than in PPP projects?
 YES / NO
13. Are PPP projects completed faster than traditional way of construction of projects? YES / NO
14. Is there extension of time given in traditional public construction of projects? YES / NO
15. Do PPP projects deliver better time and cost outcomes as compared to traditional projects?
 YES / NO
16. Is the percentage of cost overrun in PPP project higher than in traditional projects? YES / NO

17. Is time overrun in traditional projects higher than in PPP projects? YES / NO

18. Does PPP project provide better quality than the traditional construction of project? YES / NO

19. Is risk allocated to the party that can manage it at least cost in PPP projects? YES / NO

20. Is there greater efficiency in the use of public resources in PPP projects? YES / NO

21. Do you want to see more of PPP projects than traditional projects YES / NO

22. How do you compare PPP projects to traditional way of construction of project?

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