

EFFECTIVE INFRASTRUCTURE PROJECT DELIVERY PROCESS IN GHANA.
A CASE OF BONO REGION.

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DECLARATION OF AUTHORSHIP

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no materials previously published or written by another person nor material by which to a substantial extent has been accepted for the award of any other degree or diploma at Kwame Nkrumah University of Science and Technology, Kumasi or any other educational institution, except where due acknowledgement is made in this thesis.

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ABSTRACT

Over the years, huge sums of money have been invested by government in the pursuit of infrastructure development. This is because infrastructure has been described as the backbone of every economy. However, despite the positive intentions with which these resources are committed to using, available evidence suggests that most of the physical projects that are designed end up being abandoned making the intended beneficiaries unable to use the facilities.

It is against this backdrop that this study aim at determining a more operative way of delivering projects to solve the problem of project abandonment in Ghana with focus on the Bono region. This study focused on the effective project delivery process, the current challenges in project delivery and relevant strategies for effective project delivery. The study employed quantitative design, employing the method of a Descriptive research design whiles the target population for was the key local government workers of Sunyani Municipal Assembly and Sunyani West District Assembly in the department of Planning, Finance, Procurement and Works who are directly involved infrastructure project development. The study relied on simple random sampling in coming up with a sample size of 55 from a population of 63 respondents. The study focused on primary data sources with a self-administered questionnaire that was utilized as a sources of data. Data collected for this research was purely quantitative. The quantitative data which was collected were examined with the help of Statistical Package for social sciences. The findings of the research were presented in the form of frequency tables. Whiles the explanation was presented in the text. The study concluded that all the MMDAs in the Bono region go through all the five phases/process (Initiation, Planning, Execution, Monitoring and Control, and Closer) to deliver infrastructure projects. Again, the study concluded that financial challenges, political factors, delayed payment of contractors and corruption are the major challenges of project delivery. In addition, the study concluded that the following relevant strategies should be put in place to help solve the current challenges of project deliver; public-private partnership, budgetary provisions should be made available before awarding a contract, proper stakeholder consultation, adequate feasibility should be conducted, proper budgeting, continuous project monitoring, adequate planning, contracts should not be awarded to contractors who do not have sufficient expertise on a particular work and finally prompt payment of contractors certificate.

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LIST OF ACRONYMS

ADB	Agriculture Development Bank
AFDB	African Development Bank
GETFUND	Ghana Education Trust Fund
MMDAs	Metropolitan, Municipal, District Assembly
NEPAD	New Partnership for Africa's Development
PMBOK	Project Management Body of Knowledge
SPSS	Statistical Program for Social Sciences
UN	United Nation

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DEDICATION

This research project is dedicated to all my family members, especially my Dad and Mom Mr. Joseph Koranteng Mensah and Mrs Rose Oheneni, for the moral support and understanding and all my friends for their inspiration, support and encouragement throughout the research period.

God bless you all.

CHAPTER ONE

GENERAL INTRODUCTION

1.1 Background to the Study

Governments all across the globe attain their objectives through the implementation of projects. In effect, ensuring that projects become successful is key to the growth and development of any country. Consequently, the concept of project management has evolved in recent years and has become an integral part of the Organization as well as the government system (Akomah and Jackson 2016; Asiedu and Alfen 2016). Technological evolution, as well as increasing competencies in management, the relatively nouveau paradigms of development has placed much emphasis on more technical approaches to managing projects so as to enhance the success and sustainability of projects, considering the high levels of financial commitment that comes with recent investments in projects (Fugar and Agyakwah-Baah 1970; Jha and Iyer 2006). It has severally been established, that good project management practices ensure that investors have value for their money and increases shareholder values which at the end benefits the stakeholders of the project (Abd El-Karim, Mosa El Nawawy and Abdel-Alim 2017; Ofori 2013).

Despite the general recognition of the need for good project management practices, the project environment, particularly in most developing regions are often plagued with the menace of project abandonment. Even though severally conceptualized, project abandonment has been described as the act of discontinuing any activities or maintenance works on development projects within a time frame of the contract agreement and with no intention of returning to the development (Baker, Murphy & Fisher n.d.; Karlsen and Gottschalk 2004). A similar view was presented by O'Flaherty (1993), who envisaged the concept of project abandonment while reflecting on property

development projects to describe a situation that occurs when an owner or developer ceases to provide the required maintenance management to a developed property.

Interestingly, reports indicate that the rate of project failure in contemporary times is alarming. Between 2000 and 2008, the United Kingdom has reportedly wasted about US\$4 billion on failed Information and Technology projects (Baker, Murphy and Fisher n.d.; Ofori 2013). Elsewhere in New Zealand, reports indicate that in the year 2010, about two-thirds of organizations experienced one form of project failure or the other, with a reported financial loss of about NZ\$15 million (KPMG, 2013). Malaysia, also reportedly lost about RM 7.5 billion when about 514 housing projects were abandoned due to failure in 2000. Twelve years later, Malaysia still had about 95 abandoned housing projects, within which about 37,316 housing units were started but could not be completed (Sambasivan and Soon 2007; Yap 2013).

The global alarming rates of project failure is reflected in the African continent also. In South Africa, an estimated R38 million has been lost in 2018 due to the abandonment of a bridge project (Bhorat et al. 2017; Liphadzi, Aigbavboa and Thwala 2015). Again, Okereke, (2017) also indicated that in Nigeria, about 11,886 projects of the federal government have been abandoned from 1971 - 2011 and \$90 Billion, South Valley project in Egypt (Amade et al. 2015). Similar cases have been cited in the Chad and Cameroon Pipeline project by the World Bank, which cost about US\$ 4.2billion (Amir, 2011).

Ghana is no exception to the numerous incidents of project abandonment. Several instances have been cited in the country, where infrastructure projects across education, health, and agriculture among others. Notable abandoned projects in the country include the Affordable Housing Projects in Wa, Tamale, and Koforidua, which were commenced by the government in the year 2005

(Chileshe and Boadua Yirenkyi-Fianko 2012; Fugar and Agyakwah-Baah 1970; Ofori 2013). The land ports project at Boankra in Kumasi of the Ashanti Region also stands among projects whose development has come to a standstill. Several other fishing harbours in most of the coastal regions of Ghana have been left uncompleted.

It is interesting to note, however, that just like other countries in the Sub Region, most of the aforementioned developmental projects are often funded by two major sources of funding: the central government of these countries and international donor bodies. In other cases, funds are borrowed by governments from international bodies for the undertaking of these projects. Funds generated from within the local government are also sometimes used in the provision of such infrastructural services essential to the local people.

Available records show that Ghana has borrowed and budgeted over US\$547 million for projects under the Millennium Challenge projects (MCP) (Damoah, 2018; GNA, 2012). Similarly, the country signed a \$10 billion building project contract between STX Construction Company-South Korea (Okereke, 2017) to pursue physical development. Further, the country reportedly in the year 2012 borrowed more than US\$ 3.0 billion to embark on infrastructure deficit projects and programs (Chileshe and Boadua Yirenkyi-Fianko 2012). Overlooking the financial drain caused by project abandonment, therefore, poses a great challenge in ensuring the success and sustainability of projects through the entire developmental process.

The foregoing suggests that the menace of project abandonment has become prominent in most countries in the developing region. This motivates an inquiry into the phenomenon to generate much needed empirical evidence that can contribute towards improving the project environment, both at the local levels and also with global significance

1.2 Statement of the Problem

Over the years, huge sums of money have been invested by governments in the pursuit of infrastructural development. This is because infrastructure has been described as the backbone of every economy, hence infrastructural development remains the topmost priority of most governments. However, despite the positive intentions with which these resources are committed to using, available evidence suggests that most of the physical projects that are designed end up being abandoned. This results in heavy financial drains and strain on the economy of the country. Again, in cases where these projects are abandoned, they are not able to attain the objectives for which they were initially designed, making the intended beneficiaries unable to use the facilities.

This situation is prevalent across most parts of the country, of which the Bono Region is no exception. For example, the proposed construction of a GH¢500,000.00 maternity ward complex for the Sunyani Municipal Hospital (SMH) has been abandoned (Kpamma and Adjei-Kumi 2013). Again, the proposed central market within the Sunyani Township is also in a current state of abandonment (Kpamma and Adjei-Kumi 2013). The implication is that the intended beneficiaries of these facilities are deprived of access to the services that these facilities would have rendered if completed. Consequently, financial resources that have already been committed to these projects are not recoverable, and often end up as bad debts.

Research works that have delved into the issue of project abandonment in the country explored extensively the factors that account for this abandonment in isolation. For instance, (Okereke, 2017) explored the causes of these abandonments and attributed it to project despair, non-availability of materials and huge maintenance cost among others. (Amoa-Abban, n.d) in a further submission noted that poor contract conditions, delayed payment of contractors and corruption were key problems that often lead to project abandonment. These studies were largely limited to

the extent to which they assess the situation more holistically, including even the very processes for effective infrastructure project delivery and the strategic way for effective infrastructure delivery. This creates a lacuna in the academic environment, which this research seeks to contribute to. It is with this premise that this research intends to take a more holistic approach towards understanding the effective infrastructure project delivery process in Ghana.

1.3 Aim of the Research.

The main aim of this research is to determine operative way of delivering projects to solve the problem of project abandonment.

1.4 Research Objectives

1. To ascertain the process of effective project delivery in Ghana.
2. To find out the current challenges in project Delivery.
3. To identify relevant strategies for effective project delivery in the Bono Region.

1.5 Research Questions

1. What is the process of effective project delivery in Ghana?
2. What are the current challenges in project delivery?
3. What are the relevant strategies that can be adopted to ensure effective project delivery in the Bono Region?

1.6 Scope of the Study

Geographically, this research was undertaken in the Bono Region of Ghana specifically in the Sunyani Municipality and Sunyani West District.

Its content covers an effective way of delivering infrastructure projects, Current challenges in project delivery, and the relevant strategies that can be adopted to ensure effective project delivery.

The time dimension of this research explores projects that are being implemented under the current Medium Term Development Plan of the Metropolitan, Municipal, and District Assemblies (MMDAs) (2018-2021) only. It will explore the views of important technical persons within the Metropolitan, Municipal, and District Assemblies (MMDAs) of the Bono Region who are directly involved in the planning and implementation of projects.

1.7 Significance of the Study

Global calls for the pursuit of sustainable development have been well articulated across recent adoptions of several treaties and conventions by almost all countries. More recent among these is the Millennium development goals, and the currently being implemented Sustainable Development Goals, which both aimed at ensuring that development is undertaken to meet certain targets, in a way that meets the needs of today without compromising the ability of future generations to meet their needs. Consequently, ensuring the judicious use of resources is important to ensure that the goals of development are attained sustainable. A study that seeks to assess the effective infrastructure project delivery process in Ghana, therefore, will contribute significantly towards improving project success and prevent wastage of resources, which will contribute towards attaining the goals of sustainability.

Again, having established that there is a gap in research regarding the various degrees of effective infrastructure projects delivery; the extent to which the factors holistically influence project success; as well as a critical analysis of the issue right from the stage of project selection will contribute a lot towards filling this lacuna. Consequently, this will also create an entry point in academic knowledge for other researchers to explore further dimensions of the phenomenon.

This research again will have significant policy implications for the development of the country. Empirical evidence on infrastructure project abandonment that will be generated from this research will be useful for policymakers to ensure that appropriate measures are taken to improve the project environment of Ghana.

Finally, this study will deepen the awareness of the key stakeholders that will be involved in the study of the infrastructure project environment, as well as the challenges in project delivery. Consequently, appropriate measures will be adopted to ensure that projects are implemented successfully within the specified contract period.

1.8 Assumption of the Study

It is the hope of every researcher that some basic things will be in place to make the outcome of the research an authentic and unpretentious. The researcher assumes that the respondents to the questionnaire would exhibit the character of truthful, supportive, fairness and given their all to give a valid response within an appropriate time. Moreover, the necessary permission would be granted by the various coordinating directors who are the heads of the various Assemblies for data to be collected from their subordinates within the various MMDAs in the Bono region.

1.9 Limitation of the Study

Every research may encounter one or two challenges which this study is no exception. Numerous constraints were encountered, among them were the very scope in which the study was conducted, the incapacity of the researcher to widen the research scope to include more MMDAs around the country. This was a study focusing on technical personnel's in the MMDAs who are directly in the implementation of infrastructure projects within the Bono region. The study should have covered all MMDAs across the country to enable as to provide a broader analysis based. Some of the

respondents were feeling reluctant to answer the questionnaire with the fear that the information been sought would be used to print negative things about the various MMDAs.

The researcher solves this problem by carrying an introductory letter from the university and assured them that the information they would be given would be treated with confidentiality and the information will only be used only for academic purposes.

1.10 Delimitations of the Study

The study covered effective infrastructure projects delivery process in Ghana with a focus on the Bono region. The study interview government representatives from the various departments/ units (Planning, Works, Finance and Procurement) of the MMDAs. A questionnaire was used for this research as the main instrument source which was distributed to the sampled respondents. A sample population of 55 staff working in MMDAs in the Bono region were the main focus for this research.

1.11 Definitions

Infrastructure: Infrastructure can be define as a basic physical systems that support the structure of the economy.

Project: A piece of planned work or activity that is finished over a while and intended to achieve a particular purpose.

Project Abandonment: the act of discontinuing any activities on development projects within a time frame of the contract agreement and with no intention of returning to the development project.

Effective: Causing a result, especially the desired or intended result.

1.12 Organization of the Study

There are five chapter in this study, starting from chapter on to chapter five. Chapter one presents a broad introduction to the research. Contains a background to the study, a description of the research problem, statement of research questions and research objectives, the scope of the research, significance of the study, assumptions of the study, limitation of the study, delimitation of the study, as well as some definitions in the research. The second chapter contains the literature review. It presents a description of the various concept that underlies the study, as well as theories of project management that determine the factors that influence effective infrastructure project delivery.

The third chapter contains a description of the methodology that underlies this research. It contains the profile of the study area, a description of the research process and design, as well as the methods and techniques that were used in collecting and analysing data for the study. The ethical considerations was also presented in this chapter. The fourth chapter also contain a presentation of the data that was collected and analysed from the field. The fifth and final chapter presents a discussion of the findings, as well as conclusions and recommendations, which was drawn from the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter gives a description of the various concept that underlies the study, as well as theories of project management that determine the factors that influence effective infrastructure project delivery.

2.2 Infrastructure Definition

Infrastructure emerges in the year 1920s and defines as a structural element that allows goods and services to move between countries, people and places in the industrial economy (Moteff et al., 2003; Sheffrin 2003; Teriman et al., 2010). The 1920s where the term infrastructure appeared, different writers across the globe have come out with different definitions and categorizations which has contributed greatly to the concept of infrastructure (Cleveland, 2010; Hardwicke, 2011; Chism, 2011; Teriman et al., 2010).

In the study of Hardwicke (2012) and Terimanetal. (2010) categorized infrastructure into (a) physical and economic, such as roads, railways, water supply, energy and sewerage, and (b) social, to include education facilities, housing, and health (cf. Bigotte and Antunes, 2011). Woochong (2010) Included water supply, communications systems, roads, and power plants, and made it emphatically clear that in this current globalized economy, no country around the globe can succeed without a solid infrastructure base. Cleveland's (2010) definition contributed made it known that structures housing public institutions and transportation, provide an edge between people and their environment for society to advance beyond an agriculture lifestyle. Similarly, Chism (2011) work defines infrastructure as physical structures that permit transmission, energy generation, water distribution, sewage collection, transportation and also the provision of social

services such as education and health. SACOSS (2011) in his work brought out some interesting things where he highlighted 'soft' infrastructural forms, taking account of social environment and services that support human capital. (Williams and Pocock, 2010) added that in as much as infrastructure take account of the social environment, it also helps institutions in maintaining health and cultural standards.

Infrastructure is set of complex and interrelated social, physical, economic ecological, and technological systems such as energy production and transportation and distribution; waste management; water resource management; sustainable resources development; facility supporting urban and rural communities; environmental protection and communications (American Society of Civil Engineers, 2009). According to Weisdorf, 2010. Defines infrastructure as essential facilities and services that the economic productivity of a community or organization depends on. As a real return asset class, infrastructure includes those assets that are involved in the movement of goods, people, water, and energy.

Globally infrastructure plays a very important role in the development of every country. There is no standard definition of infrastructure globally. Various researchers and authors have a different perspective when it comes to the definition of infrastructure. From the above definitions on infrastructure from the various writers, it can clearly be judge from the various ideas that, there is no one single definition for infrastructure hence the term infrastructure can be looked at from a different perspective but the ideas of people insisting that economic development depend on adequate infrastructure is beyond no doubt and it is clear.

2.3 State of Infrastructure in Sub- Saharan Africa

Infrastructure is seen generally as the wheel which ensures economic development of any country hence it has become a necessary and all-important thing for the realization of a countries economic development but currently investment in infrastructure is not adequate to bridge the infrastructure gap that can ensure and promise the quantity and quality of growth the world needs. In comparing the developed and the developing world there is a huge gap between these two countries in terms of infrastructure provision. (Bhattacharya et al, 2015)

The developing countries have a huge gap in investments in infrastructure which needs extra investments in infrastructure. Although there has not been an indebt analysis as to the infrastructure financing gap small studies have been done to quantify infrastructure investment needs. Currently, the infrastructure needs worldwide are estimated at around 4% of global GDP which is approximate US\$4trillion per year (Indrest, 2013). According to Estache et al., 2015 stated the infrastructure gap can be estimated to be about US\$1.5 trillion per annum which is the difference between the annual need of US\$800 and US\$900 million per year. A very important financing gap is being established, however prior projections by Dobbs et al.,(2013) give an account that the world infrastructure demands requires an investment of US\$57 trillion by 2030 which is approximate to 3.5 of the world's GDP.

The infrastructure deficit of Sub-Saharan Africa is huge which undermines economic development which does not help in the recognition of economic growth and poverty reduction. It has been anticipated for Africa to solve the problem of the huge infrastructure deficit there is the need for an amount of US\$37 billion for maintaining the already existing infrastructure and another amount of US\$38 billion to be pumped into a new infrastructure project annually so as to enable the problem of huge infrastructure deficit to be solved with time (world Bank, 2013).

Electricity is a very imperative constituent on which every economy of a given country depends to develop. With the fast pace growth of the continent with its technological advancement, it has become imperatively important for a country to widen its scope in terms of accessibility to electricity to its citizenry. Access to electricity in Sub-Saharan Africa is not encouraging, statistically, about 580 million people in the sub-Saharan continent are known not having access to electricity. (Bazilian et al., 2012 and IEA, 2010). Within the Sub-Saharan continent it has been estimated that by the end of the year 2050, less than 40% of the countries with this region will have access to electricity. Yet in the year 1990 population with access to electricity grew from 14% to almost 35% in the year 2014(Calderon et al., 2018). However, it was brought to light that energy production is the largest infrastructure gap for Africa which is about 40% to 60% infrastructure investment. (Foster and Briceno-Garmenda (2009) and Estache and Garsous (2012).

A mobile telephone is an integral part of our everyday life which is used to communicate to give out information and at the same time received feedback from the said information. It is also used to transact business when both parties cannot meet at one point, in the work of Williams et al (2011) it was shown that, between the years 1998 and 2008 the use of mobile telephones increased high than 247 million. It was also pointed out that, in the year 1995 mobile telephone users increased from 500,000 subscribers to 750 million in 2015 (IFC, 2016). There has been significant growth in mobile telephone over the years.

transportation is seen as a means to transport goods and services to the various destinations where there are markets for such products hence helps improve the socio-economic standards of a countries citizenry. The problem of the ineffective transportation system in Sub-Saharan Africa is one of the major obstacles hindering growth and poverty reduction (Beuran et al, 2015). It has been statistically postulated that road transport contributes greater to the greatest prevailing means

of transport, which stands about 75% in Sub-Saharan Africa. From 2001 to 2005 the overall road network in the continent improved from 2.06 million kilometres to almost 2.42 million kilometres which in the end stemmed a significant improvement in road density from 6.8km to 8.3km per 100 sq. km. 22.7% of the overall road network was paved by 2005. However, the transport routes that ensure a very healthy relationship between Sub-Saharan African and the international traders are predominantly by marine transport which stands at 92% to 95%. Currently, about the 90 major ports in Africa, they contribute to over 95% entirely international import and export trade. On the other hand over the years the rail transport of Africa has faced serious challenges that have affected the industry which has contributed to its decline over the limited years (AFDB, 2015).

Water is a very essential thing in human life. Hence over the years development partners and Government around the globe has sought to solve the problem of on accessibility of potable water to some inhabitants in Sub-Saharan Africa. Over the years Sub-Saharan Africa has had tremendous access to clean drinking water. Statistically from 1990 to 2015 has seen an improvement from 48% to 68% which has also had an effect on marginal improvement on sanitation from 24% to 30% (UN, 2015). Given this greater achievement, there is much to be done concerning the provision of potable water because in comparing the sub-regions to other developing regions the sub-regions have lower water and basic sanitation exposure (Bain et al., 2014). There is still massive infrastructure investment in the aspect of accessible water to enable improved the life of African's. Since safe drinking water contributes greatly to the health of its citizenry and in the same way, also a healthy mind creates a healthy living (AFDB, 2015).

2.3.1 Infrastructure Development and Economic Growth in Sub-Saharan Africa

The fast pacing improvement performance in growth can be connected to its recent improvement in infrastructure development but despite its improvement there is a chunk of the infrastructure deficit problem. In the arena of development, there is a major infrastructure deficiency which is serving as a stumbling block to the realization of Africa's economic growth thereby making it difficult to reduce poverty (AFDB, 2018). The continuous decline in the productivity of firms in Africa can be attributed to the challenge of them not being able to provide the needed infrastructure for business. The percentage of firms facing these challenges stands almost 40%. Power generation has been identified as a major challenge to the growth of a country, the World Bank for example in their report identifies insufficient power generation capacity as a major barrier to the economic growth of Ghana. (World Bank, 2013). Another major sector that infrastructure is underpinning its development and making it grow at a slower pace is the Agriculture sector. Poor transportation facilities have resulted from the high cost of marketing which posed a huge challenge on the agriculture sector (Asiedu and Alfen, 2016)

(Kodongo and Ojah, 2016) in their work which was conducted for a panel of 45 countries from the period, 200-2011 revealed that there is a significant relationship between infrastructure and economic growth. They stated that instead of the quality of infrastructure to be relevant for economic growth in an environment characterized by low basic infrastructure such as Sub-Saharan Africa, it is rather the spending on infrastructures and increments in access to infrastructure unsurprisingly influence growth. Hence they concluded that infrastructure development and economic growth are strongly related. (Chakamera and Alagidede, 2017) their work concluded with similar outcomes stating that there is a strong relationship between infrastructure quality,

stock and economic growth in Sub-Saharan Africa. They made it known that infrastructure has an optimistic influence and significant growth in Sub-Saharan Africa.

Abd El-Karim (2017) arrived that, infrastructure is an integral part of the realization of the economic growth of Egypt. They stated that the assessment of the index of the following infrastructure which telecommunication, transportation, and electricity all have the same level of influence on the economic growth of Egypt hence infrastructure has a significant influence on the economic growth of a country.

Amponsah and Aidan (2017) in their work, which was conducted in Ghana where they used a simple correlation between economic growth and the following key economic infrastructure such as secure internet servers, air transport, mobile phone subscriptions, and paved roads. They concluded that there is a significant positive association. At the end of their work, they suggested that there is the need for accelerated infrastructural growth in the following sector roads, railways, and energy to put Ghana in a position to attract foreign direct investment.

2.4 Infrastructure Development in Ghana.

Ghana as a country, in terms of infrastructure deficit, is not different from other countries in Sub-Saharan Africa, which the country currently is facing numerous challenges to bridge this huge infrastructure gap. Past and present governments of the country have attached some urgency in terms of infrastructure development but with all their efforts infrastructure deficits in the country have continued widen due to the fact of inadequate financial strength to an expansion of infrastructure (ADB, 2018). The rate at which most projects are been left without completion makes development to be stagnant. Most of the new infrastructure projects in the country are being left abandoned which in the end can be considered as a waste of resources (Amponsah, 2012). Ghana

needs an infrastructure investment of an amount of US\$1.5 billion annually to be able to meet the infrastructure financing deficit requirement to ensure economic growth (ADB, 2018)

Financing infrastructure project in Ghana is challenging since the Government remains the prime financier of infrastructure development in the country. Government through the era of independent have implemented various policies and initiatives to enable them to reduce the huge infrastructure deficit of the country (NEPAD, 2011). The following policies and initiatives have been implemented by successive governments, District Assembly Common Fund which was established by (Act 455) which mandate the parliament of Ghana to allocate about 5% of the total government revenue to the Metropolitan, Municipal, District Assemblies (MMDAs) for development within their jurisdiction (Kodongo and Ojah, 2016). To make sure all the public road are periodically maintained the Government of Ghana brought to light the Ghana road Fund (Act 536) to help in the rehabilitation of roads(Owusu-Manu *et al.*, 2019) Ghana Educational Trust fund (GET FUND) was also brought to birth in the year 2000 to contribute towards the development of educational infrastructure. This was done with the hope of revamping the education infrastructure (Badu *et al.*, 2011). The Housing Bond Schemes was established and through a collaborative effort between the National Trust Holding Company and the Ministry of Works and Housing to raiseUS\$200 million. The above are some of the intervention that has been implemented gear towards of solving the huge infrastructure gap which is important in the realization of economic growth for Ghana Amponsah (2010). The most focused area of infrastructure for Ghana since independence are water and sanitation, telecommunications, power (electricity), transportation and housing. Government of Ghana has done numerous work to bridge the infrastructure gap of the above-mentioned sectors but there is much more to be done to ensure the economic growth of the country (MWRW&H, 2014).

2.5 Relevance of Infrastructure.

Development is about improving the well-being of society. Infrastructure is a wheel in which development thrives. Basic infrastructure like water supply gives explicitly how significance infrastructure is to any development. With all the United Nations (UN) Millennium development goals potable water is one of the pillars. Water, as they say, is life, contribute greatly to inhabitants, in 2010, about 89% of the world's population with an estimated number of about 6.1 billion people had access to potable drinking water. (Groenewegen *et al*, 2009).

Access to potable water improves the life span of a human. The life expectancy is improved by reducing water-related infection with sufficient wastewater treatment. Construction of dams with clean water helps in the plantations of vegetables and other foodstuffs. The availability of this clean water helps to yield higher outputs (Kasper, 2015). Again, when they are grown with clean water, this enables the farmer to sell the surplus foodstuffs which in the end helps them to earn some money to be able to contribute to their children's education (Mahindra Dedasaniya, 2016). Although water is an important component in the infrastructure domain, other sectors are likewise vital in the development and economic progress (Amponsah, 2012).

Transportation is another major contributor to trade between regions with dissimilar resources, productive and production advantages. From ancient times to date, transportation has become a major contributor to the economic growth of every country which facilitates both continentals, inter-continental, regional, urban and parry urban trade (Edwards *et al.*, 2017). In the 18th century; transport was seen as a mean of communication and trade among the developed countries and between the developing countries, it was used to carry goods and passengers for trade. The rural communities use to trade the goods by carrying them on their heads to the nearby market just to sell their goods. In today's contemporary world, due to technological advancement, the

transportation sector has improved greatly where the minor road leading to the rural areas has been connected to the roads leading to the majors' cities which enable the populace in the rural areas easily connect to the urban areas to do business at ease. This has a boost and motivated the farmers and traders in their everyday work (Badu *et al.*, 2012).

Educational infrastructure helps contribute contributes greatly to ensuring that every citizen of a given country has access to better education. Education is a major pillar in the socio-economic development of every country (Owusu-Manu *et al.*, 2017). School infrastructure is very critical in the development of a child. A child spent the maximum of his time in school as a student and hence the school infrastructure becomes an integral part of the development of him or her. In a country where most of its citizenry is educated, the socio-economic development of such a country is always high (ICG, 2014). The second home to every child is the school which serves some purposes in the child's life. It brought to the realization of the child, the importance of teamwork and in the same way enhances socialization. Children go to school with the expectation of their parents that, there is an experienced hand to guide them in their development and a safe environment to ensure their growth. This shows that infrastructure plays a very crucial role by creating a favourable and conducive environment for every child's growth (Benjamin and Njenga, 2014). Some studies on infrastructure reveal that poor infrastructure of a school harms the academic performance of the students of such school which results in lower scores in their achievement as compared to schools that have well resourceful infrastructure and facilities. But at times this notion does not always work as suggested by some researchers, some regardless of the poor infrastructure in their schools they perform better academically (Delivery, Capacity, and Government, 2017).

To be able to instil some knowledge to a child there should be some fundamentals available to help the child to be able to gain the needed knowledge available to him/her. The most essential school infrastructures like libraries, school buildings, classrooms, playgrounds as well as ventilated classrooms are very critical to the development of every school-going child (Leitermann, 2018).

2.6 Process of Effective Project Delivery.

A project is defined as a temporal endeavour undertaking to create a unique product, service or result. This specifically means that a project has a definite beginning and an end. The end of a project is reached when one or more of the following is true. When the objective of the project is achieved or cannot be met, when funds that are to be used for the project is exhausted or funds for the execution of the project is not available, human or physical resources are no longer available, the said project is terminated for legal causes and the need for the project no longer exists. (PMBOK GUIDE, 2017). In as much as the project is undertaking to create specific results within some timeframe, projects if not carefully executed will not achieve its ultimate goal which at the end of the day will turn to be a waste of the limited resources at our disposal. The project enhances development, for effective delivery of project, there is the need to consider the following; finance, regulations, stakeholders, technical expertise of the technical person delivery the project (Nkirete, 2019). Project is a way to promote an economic growth and it should be executed in a more appropriate way to achieve the intended object and so to be able to effectively deliver a project successfully there is the need to take the following into consideration these four things; Time, Cost, Quality and Risk(Raouf *et al.*, 2019).

Infrastructure projects should be implemented in a coordinated way to enhance the growth of a country. There is the need to always take into consideration the following when planning for an

effective way to delivering projects; Project planning, project leadership, Community involvement, Commitment of participants and Resource availability (Abdi, 2019)

From the various views of the above submissions from the writers, it can be seen that good project planning, finance, stakeholders, project leadership, time, quality and risk cannot be ignored if only we want to deliver projects for their intended purposes. According to (Morphet, 2009; ICG, 2014; Delivery, Capacity, and Government, 2017) in their case study, all indicated that to effectively deliver a project there is to pass through these five processes: Initiation, Planning, Execution, Monitoring and Control, and finally Closer. The project management body of knowledge (PMBOK, 2017) also affirms to these processes.

2.7 Challenges in Project Delivery.

The concept of project management has evolved in recent years and has become an integral part of organisations as well as the government system (Akomah and Jackson, 2016; Asiedu and Alfen, 2016). Technological evolution, as well as increasing competencies in management, the relatively nouveau paradigms of development has placed much emphasis on more technical approaches to managing projects so as to enhance the success and sustainability of projects, considering the high levels of financial commitment that comes with recent investments in projects (Fugar and Agyakwah-Baah, 1970; Jha and Iyer, 2006). It has severally been established, that good project management practices ensure that investors have value for their money and increases shareholder values which at the end benefits the stakeholders of the project (Ofori, 2013; Abd El-Karim, Mosa El Nawawy, and Abdel-Alim, 2017).

Despite the general recognition of the need for good project management practices, the project environment, particularly in most developing regions are often plagued with the menace of project challenge which has led to several projects been abandoned.

Interestingly, reports indicate that the rate of project failure in contemporary times is alarming. Between 2000 and 2008, the United Kingdom has reportedly wasted about US\$4 billion on failed Information and Technology projects (Baker, Murphy and Fisher, no date; Ofori, 2013). Elsewhere in New Zealand, reports indicate that in the year 2010, about two-thirds of organizations experienced one form of project failure or the other, with a reported financial loss of about NZ\$15 million (KPMG, 2013). Malaysia, also reportedly lost about RM 7.5 billion when about 514 housing projects were abandoned due to failure in 2000. Twelve years later, Malaysia still had about 95 abandoned housing projects, within which about 37,316 housing units were started but could not be completed (Sambasivan & Soon 2007; Yap 2013).

The global alarming rates of infrastructure project failure is reflected in the African continent also. In South Africa, an estimated R38 million has been lost in 2018 due to the abandonment of a bridge project (Liphadzi, Aigbavboa, and Thwala, 2015; Bhorat *et al.*, 2017). Again, Okereke, (2017) also indicated that in Nigeria, about 11,886 projects of the federal government have been abandoned 1971-2011 and \$90 Billion, South Valley project in Egypt (Amade *et al.*, 2015). Similar cases have been cited in the Chad and Cameroon Pipeline project by the World Bank, which cost about US\$ 4.2billion (Amir, 2011).

Ghana is no exception to the numerous incidents of project abandonment. Several instances have been cited in the country, where infrastructure projects across education, health, and agriculture among others. Notable abandoned projects in the country include the Affordable Housing Projects

in Wa, Tamale, and Koforidua, which were commenced by the government in the year 2005 (Fugar and Agyakwah-Baah, 1970; Chileshe and Boadua Yirenkyi-Fianko, 2012; Ofori, 2013). The land ports project at Boankra in Kumasi of the Ashanti Region also stands among projects whose development has come to a standstill. Several other fishing harbours' in most of the coastal regions of Ghana have been left uncompleted. Okereke, (2017) for instance, explored the causes of these abandonments and attributed it to project despair, non-availability of materials and huge maintenance cost, financial difficulties, lack of stakeholder engagement, corruption, and low technical expertise. Amoa-Abban in a further submission noted that poor contract conditions, delayed payment of contractors and corruption were key problems that often lead to infrastructure challenges. (Badu *et al.*, 2011) stated clearly that the major challenge in infrastructure delivery is the financial challenge in which there is the need to find an alternative way to supplement the already existing strategies of financing infrastructure.

2.8 Relevant Strategies for Effective Project Delivery

Infrastructure has been described as the backbone of every economy, hence infrastructural development remains the topmost priority of most governments. However, despite the positive intentions with which these resources are committed to using, available evidence suggests that most of the physical projects that are designed end up being abandoned. This results in heavy financial drains and strain on the economy of the country. Again, in cases where these projects are abandoned, they are not able to attain the objectives for which they were initially designed, making the intended beneficiaries unable to use the facilities. There is the need to come out with appropriate strategies to help reduce if not to completely eradicate this menace of project abandonment.

In the work of (gov.uk Corporate Author, 2010; PMI, 2010; Al Freidi, 2014; Nduhura, 2019; Raouf *et al.*, 2019) indicated the following must be in place; Promote public/private partnership, Adequate feasibility should be conducted, Contracts should not be awarded to Contractors who do not have sufficient expertise on particular work, Continuous project monitoring, Proper budgeting, Adequate planning of projects, Prompt payment of contractor's certificate, the contracting company must make sure they have a sound financial backing before embarking on any project, there must always be adequate stakeholder consultation.

2.9 Theoretical Framework

This study employed Stakeholder's theory. Ian Mitroff was the first person to define Stakeholder theory in 1983 in his book *Stakeholders of the Organisational Mind*. It was shortly after the book of Ian Mitroff an article about the Stakeholder theory was released by Philosopher and Professor of business administration Edward Freeman (Harrison, Freeman and de Abreu, 2015). This theory states that organizations can achieve better performance when they take all stakeholders into account rather than taking shareholders and some sections of the stakeholder into consideration. A manager who wishes to reach its organization's full potential to achieve its ultimate goal must take a greater responsibility to manage its stakeholders (Donaldson and Preston, 2011). Shareholders can be considered to be parties that are affected by the actions of an organization or company, directly or indirectly. Stakeholders can be considered to be internal and external (Ali and Abdelfettah, 2016).

Metropolitan, Municipal, District Assemblies (MMDAs) has a responsibility to focus on planning and managing complex activities required in delivering projects in their area within the sphere Management of project stakeholder's expectations is a very crucial skill for the Local government workers within the MMDAs as a failure in managing stakeholders has resulted in countless project

failures. For the successful implementation of a project is dependent on meeting the stakeholder's expectations (Benjamin and Njenga, 2014). Stakeholders include project managers, suppliers, Local communities, users, subcontractors, funding agencies, owners, and employees.

2.10 Research Gap

Infrastructure has been described as the backbone of every economy, hence infrastructural development remains the topmost priority of most governments. However, despite the positive intentions with which these resources are committed to using, available evidence suggests that most of the physical projects that are designed end up being abandoned. This results in heavy financial drains and strain on the economy of the country. Again, in cases where these projects are abandoned, they are not able to attain the objectives for which they were initially designed, making the intended beneficiaries unable to use the facilities. Various factors can have accounted for project abandonment in Ghana which has affected the delivery of infrastructure projects. This poses a serious challenge to bridge the infrastructure deficit in Ghana. For instance, a shred of research evidence provided by Okereke, (2017) explored the causes of these abandonments and attributed it to project despair, non-availability of materials and huge maintenance cost, financial difficulties, lack of stakeholder engagement, corruption, and low technical expertise. Whilst Amoa-Abban (2014) in a further submission noted that poor contract conditions, delayed payment of contractors and corruption were key problems that often lead to infrastructure challenges.

These studies were largely limited to the extent to which they assess the situation more holistically, including even the very processes for effective infrastructure project delivery and the strategic way for effective infrastructure delivery. This creates a lacuna in the academic environment, which this research seeks to contribute to. It is with this premise that this research intends to take a more

holistic approach towards understanding the effective infrastructure project delivery process in Ghana.

2.11 Summary of Literature.

This chapter contains the literature review which has been written by various scholars and researchers concerning effective infrastructure projects delivery process in Ghana. Globally infrastructure plays a very important role in the development of every country. (Bhattacharya et al, 2015) reveal that, Infrastructure is generally portrayed as a wheel which ensures economic development of any country hence it has become a necessary and all-important thing for the realization of a countries economic development but currently investment in infrastructure is not adequate to bridge the infrastructure gap that can ensure and promise the quantity and quality of growth the world needs.

(Estache et al., 2015) stated that, infrastructure gap can be estimated to be about US\$1.5 trillion per annum which is the difference between the annual need of US\$800 and US\$900 million per year. A very important financing gap is being established, however prior projections by Dobbs et al.,(2013) give an account that the world infrastructure demands requires an investment of US\$57 trillion by 2030 which is approximate to 3.5 of the world's GDP. According to (World Bank, 2013) infrastructure of sub-Saharan Africa is huge which undermines economic development. It was anticipated that, for Africa to solve the problem of the huge infrastructure deficit there is the need for an amount of US\$37 billion for maintaining the already existing infrastructure and another amount of US\$38 billion to be pumped into a new infrastructure project annually so as to enable the problem of huge infrastructure deficit to be solved with time. (ADB, 2018) revealed that, Ghana as a country, in terms of infrastructure deficit, is not different from other countries in Sub-Saharan Africa, which the country currently is facing numerous challenges to bridge this huge

infrastructure gap. Despite the huge infrastructure gap left to be filled to ensure economic development of a country, there is the problem of project abandonment which is widening the infrastructure gap and wasting the little resource available at our disposal hence denying the intended beneficiaries the use of the facilities (MWRW&H, 2014).

From the available literature, (Morphet, 2009; ICG, 2014; Delivery, Capacity, and Government, 2017) stated that to effectively deliver a project there is the need to go through these five phases/processes: Initiation, Planning, Execution, Monitoring and Control, and finally Closer. The project management body of knowledge (PMBOK, 2017) also affirms to these processes. (Nkirote, 2019) revealed that, the project enhances development, for effective delivery of project there is the need to consider the following; finance, regulations, stakeholders, technical expertise of the technical person delivery the project. According to (Raouf *et al.*, 2019) states that, Project is a way to promote an economic growth and it should be executed in a more appropriate way to achieve the intended object and so to be able to effectively deliver a project successfully there is the need to take the following into consideration these four things; Time, Cost, Quality and Risk. Okereke, (2017) for instance, explored the causes of these abandonments and attributed it to project despair, non-availability of materials and huge maintenance cost, financial difficulties, lack of stakeholder engagement, corruption, and low technical expertise. (Amoa-Abban n.d) in a further submission noted that poor contract conditions, delayed payment of contractors and corruption were key problems that often lead to infrastructure challenges. (Badu *et al.*, 2011) stated clearly that the major challenge in infrastructure delivery is the financial challenge in which there is the need to find an alternative way to supplement the already existing strategies of financing infrastructure. In the work of (gov.uk Corporate Author, 2010; PMI, 2010; Al Freidi, 2014; Nduhura, 2019; Raouf *et al.*, 2019) indicated the following must be in place; Promote public/private partnership, Adequate

feasibility should be conducted, Contracts should not be awarded to Contractors who do not have sufficient expertise on particular work, Continuous project monitoring, Proper budgeting, Adequate planning of projects, Prompt payment of contractor's certificate, the contracting company must make sure they have a sound financial backing before embarking on any project, there must always be adequate stakeholder consultation.

The theoretical review was also presented in this chapter. This study specifically employs Stakeholder's theory. This theory states that organizations can achieve better performance when they take all stakeholders into account rather than taking shareholders and some sections of the stakeholder into consideration. A manager who wishes to reach its organization's full potential to achieve its ultimate goal must take a greater responsibility to manage its stakeholders (Donaldson and Preston, 2011).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter contains a description of the methodology that underlies this research. The profile of the study area, a description of the research process and design, as well as the methods and techniques that were used in collecting and analysing data for the study. The ethical considerations are also presented in this chapter.

3.2 Profile of Bono Region

Bono Region which has Sunyani as its capital is one of the 16 administrative regions of Ghana. The Bono Region was previously called Brong Ahafo Region. The region currently has 12 municipal and District Assemblies namely; Sunyani Municipal, Sunyani West District, Wenchi Municipality, Dormaa Municipality, Dormaa East District, Dormaa West District, Berekum Municipality, Berekum West District, Jaman South Municipal, Jaman North District, Tain District, and Banda District. The Bono region shares boundaries with Savana region to the north, Ahafo region to the south, Bono East to the east and Cote d'Ivoire to the west. According to the 2010 population and housing census, the region has a population of about 770,328. The region is predominated by the Bono people.

3.3 Research Design

Descriptive research design was used to study the research problem. The descriptive research design is used for observing and describing without influence and at the same time concerned with conditions and relationships that exist. It helps in the use of various analytic methods to summarize and describe data and in the same way enable a researcher used questionnaire to collect data through the following means; in person and by telephone.

3.4 Target Population

The target population for the study includes all the technical personnel in charge of the execution of the project, the administrative personal in charge of overseeing the release of funds and other resources for the implementation of the projects in two selected MMDAs (Sunyani Municipal and Sunyani West District) of the Bono region.

The target population as defined by the following writers; Borg and Grall (2009) as a universal set of study of members of the real set of people where the researcher wishes to draw conclusion on them. The technical persons or major stakeholders who are the implementers of infrastructure projects in the MMDAs of the Bono Region are considered as the target population for this study. They include the planning department, works department, procurement department, and finance department. The study population for department of Planning, Works, Finance and Procurement of the Sunyani Municipal and Sunyani West Assembly is 63.

3.5 Sampling and Sample Size

This very particular section gives a detailed explanation of the methods adopted in coming out with the various steps in determining the sampling procedure, which also gives details of how the final study sample was drawn from the target population and further explain how data for the research was obtained, processed and analysed for the final output.

3.5.1 Sampling Procedure

This is a step by step approach from which sample was selected from the list of all the population. The study employed simple random sampling so as to give every unit in the sample frame equal chance of being selected. The simple random sampling helps in coming out with a sample size of 55 from a total population of 63 respondent from specific individual who are directly involved in

the development of infrastructure projects in the Sunyani Municipal Assembly and Sunyani West District Assembly. According to Gay cited in Benjamin (2014) extrapolated that in research, determining your sample size is a very key aspect that needs to be critically looked at, he further indicated that, 10-40% of the sample population is considered to be representative for any research. With inference from the above statement, this study considered 87% sample for this research.

3.5.2 Sample and Sample Size

The mathematical method was used in coming out with the sample size for this study.

$$n = \frac{N}{1 + N(\alpha)^2}$$

Where n is the sample size, N is the sample frame and α is the confidence interval. With a confidence interval of 0.05 of a confidence level of 95%.

3.6 Research Instrument

The research instrument used in this research was questionnaires. Data was collected by this help of this questionnaire, primary data was specifically collected by the use of the questionnaire. This questionnaire was used to collect data from workers within the department of planning, works, finance, and procurement.

3.6.1 Piloting the research instrument

The pilot sample consists of 15 staff of the Sunyani Municipal Assembly of the planning and works departments which were selected through simple random sampling. Piloting helps identify questions that could be difficult for the respondents to have the same meaning and makes room for adjustment till all the questions are being understood by the respondents.

3.6.2 Validity of the research instrument.

Validity is very important in the arena of research. Data is very essential in research to help come out with very significant findings. Quality and reliable data gathered instrument always gives a good result which can be used to make future predictions. In the work of Creswell (2003) cited in Benjamin (2014) shared the view that validity is all about the researcher making a very meaningful, clear and beneficial reading out on the instrument. With this statement, it can be seen that the worth of the data is what one can refer to as validity and not the instrument used. The instrument which was used for this research was first studied by the researcher in terms of content validity and in the same way also, the instrument after the study revealed that it covered all that the research was supposed to cover which shows that there was a logical judgement.

3.7 Data Types, Sources and Collection

Data for this research is quantitative and covers the following themes: The process of effective project delivery in Ghana; The current challenges in project delivery; the relevant strategies that can be adopted to ensure effective project delivery. The main quantitative methods that were used in collecting data was a questionnaire.

3.8 Data Analysis

Data collected from the field was first transcribed, and store in Statistical Program Social Sciences (SPSS). After cleaning the data, content and thematic analysis was used to draw essential themes from the data, in response to the various research objectives.

The finding of the research was presented statistically following the research objectives.

3.9 Ethical Considerations

In every research, there is a need to adhere to the professional ethics of the research environment. In conducting this study, the researcher took into consideration ethical issues. Simple random sampling was used in selecting participants for the study. Confidentiality and privacy were the major things that the researcher took into consideration. Assurance was given to the various respondents that, any information which was given out to the researcher was solely for academic purpose only and nothing else.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND PRESENTATION

4.1 Introduction

This chapter specifically focused on data analysis, interpretation and presentation of the research findings. The main aim of this research is to determine a more operative way of delivering projects to solve the problem of project abandonment. The main objective has been to explore the effective infrastructure development delivery process in the Bono Region in other to provide empirical evidence for the improvement of project success. Specifically, it seeks to attain the following: To ascertain the process of effective project delivery in Ghana. To assess the challenges in project Delivery. To identify relevant strategies for effective project delivery in the Bono Region. The research made use of frequency tables to interpret the research findings.

4.2 Questionnaire Return Rate

The study sampled 55 respondents from the target population. Collecting data with regards to effective infrastructure projects deliver in Ghana with the main focus being on the main players who are mainly involved in project delivery in the MMDAs in the Bono Region of Ghana. The return rate of the questionnaire is summarised below.

Table 4.1 Response

Response	Frequency	Percentage
Responded	53	96
None Response	2	4
Total	55	100

It was observed from the study that the total number of the questionnaire which was sent to the field was 55 out of which, 53 questionnaires were returned to the researcher contributing to 96% which is considered to be excellent. This percentage return rate was attributed to the procedure in which the data was collected, where the researchers administered questionnaires by guiding the respondents to answer various questions on the questionnaire and any clarifications sorted by respondents were accorded to without delay. The response rate of this research was excellent which in line with Mugenda and Mugenda (1999) which states that 50 % of the response rate is considered adequate for analysis and reporting; 60% response rate is good and 70% and over response rate is excellent. The 4% questionnaire was not returned since those questionnaires got lost which the researcher was not able to trace them. In sum, the response rate gives a clear indication of the zeal and efforts put in place by the various respondent to make the study a success.

4.3 Demographic Characteristics of Respondents

Local government workers within the MMDAs of the Bono Region were the target for this research, specifically the workers' in planning department, procurement department, works department and the finance department who have specific characteristics which can contribute to the success of the research. Given this, the demographic characteristics were investigated in this part of the questionnaire. The demographic characteristics of the respondents are presented under the unit or department they work, years they have been working with the local government service and their highest academic qualification.

4.3.1 Unit/Department of Respondents in MMDAs

The study indicated that the total number of respondents were 53. The finding indicates that the planning department contributes to the highest number of respondents which amounts to 36% of the total respondents, followed by works department with 30%, whereas the finance and procurement department both have 17% each. This indicates that the technical person within the various Assemblies who have direct contact with various projects from project initiation to project closer were involved. This indicates that the findings are not biased.

Table 4.2 Unit/Department of Respondents in MMDAs

Units/Departments	Frequency	Valid Percent	Cumulative Percent
Planning	19	36	36
Works	16	30	66
Finance	9	17	83
Procurement	9	17	100
Total	53	100	

4.3.2 Period of Service in Years in MMDAs

Table 4.3 indicates that most of the respondent has been working with the local government service for about 16-10 years with 47%. Which is followed by 6-10 years which constitute 30%. And then 19% which is 16-20 years and lastly 0-5years which also constitute 4%. This indicates that most of the respondents have worked with the local government service for a longer period and that they have adequate knowledge of the information this research seeks.

4.3 Period of Service in Years in MMDAs

Years of Service	Frequency	Valid Percent	Cumulative Percent
0-5yrs	2	4	4
6-10yrs	16	30	34
11-15yrs	25	47	81
16-20yrs	10	19	100.0
Total	53	100	

4.3.3 Educational Level of Respondents

The level of education of the respondents was asked to get to know the Qualifications of the respondents. Table 4.4 indicates that (59%) of the respondents were post-graduate holders (Master holder), (36%) were undergraduate holders (first degree), (6%) were HND holders. This gives a clear indication that most of the respondents' interview are well known enough to give out responses needed for this particular research.

Table 4.4 Education Level of Respondents

Education level	Frequency	Valid Percent	Cumulative Percent
HND	3	6	6
First degree	19	36	42
Masters	31	59	100
Total	53	100	

4.4 Process of Effective Project Delivery

For a project to be successfully implemented there is the need to go through a certain process. According to literature, for effective project delivery, there is the need for a project implementer to go through five stages which are; Initiation, Planning, Execution, Monitoring and control, and closer.

With this, the respondents were asked to rank them by using a Likert scale to determine if they have any significant impact on the success of a project. The following scale was used; not significant, less Significant, moderately significant, significant, and very significant. From the finding, the respondents agree that all the five processes which are initiation, planning, execution. Monitoring and control, and closer are all very significant when one wants to embark on any project to achieve its intended goal.

Table 4.5 shows the findings for an effective process for project delivery. The respondents agree that execution is the most significant of the process with a mean of (5.00) followed by planning (4.98), monitoring and control (4.96), Initiation (4.94), closer (4.77).

Table 4.5 Process of Effective Project Delivery.

Process	Mean	STD. Deviation
Initiation	4.94	0.305
Planning	4.98	0.137
Execution	5.00	0.000
Monitoring and Control	4.96	0.192
Closer	4.77	0.505

4.5 Current challenges in project deliver

A further study requested the respondent to indicate the score of the identified challenges and add up to the identified ones and score them to determine the most pressing challenges by using a Likert scale. Table 4.6 indicates that the respondent agrees that the following as very significant challenges; financial challenge, political factor and delayed payment of contractors with the following means 4.98, 4.97, 4.21. The respondent also agrees that, corruption with the mean of 3.60 as significant. The respondent agrees on improper stakeholder consultation, low technical

expertise and poor contract conditions as less significant with this means 1.58, 1.57, 1.56 and lastly the agreed on none availability of materials and inadequate planning as not significant with this means 1.38 and 1.30 respectively.

Table 4.6 Current challenges in project delivery

Current Challenges	Respondents	Missing	Mean	STD. Deviation
Financial challenge	53	0	4.98	.137
Political factor	53	0	4.79	.717
Improper stakeholder consultation	53	0	1.58	1.064
Inadequate planning	53	0	1.30	.723
Low technical expertise	53	0	1.57	1.065
Corruption	53	0	3.60	1.198
Poor contract conditions	52	1	1.56	.916
Delayed payment of contractors	53	0	4.21	.988
Non availability of Materials	53	0	1.38	.925

4.6 Relevant Strategies for Effective Project Delivery

After the current challenge has been scored to know the most significant challenges in table 4.6, there was the need to find the most relevant strategies for effective project delivery to help solve the problem at hand. Table 4.7 shows that the respondent agreed on the resulting relevant strategies as very significant; promote public-private partnership and budgetary provisions should be made available before awarding a contract with mean of 4.98 and 4.58 respectively. it was further revealed that the following as significant relevant strategies for effective project delivery; proper stakeholder consultation, adequate feasibility should be conducted, proper budgeting, continue project monitoring, adequate planning of projects, and finally contractors should not be awarded to contractors who do not have sufficient expertise on particular work. Mean of 4.11, 3.94, 3.91,

3.90, 3.87, and 3.83 respectively. Prompt payment of contractor's certificate was revered as moderately significant strategies with a mean of 3.36.

Table 4.7 Relevant Strategies for Effective Project Delivery

Relevant Strategies	Respondents	Missing	Mean	STD. Deviation
Promote public/private partnership	53	0	4.98	.137
Adequate planning of projects	53	0	3.87	1.038
Prompt payment of contractor's certificate	53	0	3.36	1.076
Proper budgeting	53	0	3.91	.766
Continuous project monitoring	53	0	3.90	.934
Budgetary provisions should be made available before awarding a contract.	53	0	4.58	.602
Contracts should not be awarded to Contractors who do not have sufficient expertise on particular work.	53	0	3.83	.826
Adequate feasibility should be conducted	53	0	3.94	.633
Proper stakeholder consultation	53	0	4.11	1.138

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the findings, discussions, conclusions, and recommendations drawn from the study. It also presents a suggestion for further studies

5.2 Summary of the finding

The findings of this research are explained under the following thematic areas. The various thematic areas give a clear explanation of what the research findings are all about. Which includes the process of effective project delivery, current challenges of project delivery and relevant strategies for effective project delivery.

5.2.1 Process of Effective Project Delivery.

On the process of effective infrastructure project delivery, the study found that all the five processes that are, initiation, planning, execution, monitoring and control, and closer are very significant for a successful implementation of a project.

5.2.2 Current Challenges in Project Delivery

To the current challenges in project delivery, it was revealed that financial challenges, political factor and delayed payment of contractors are the very significant challenges. Likewise, corruption which also considered by the respondent as a significant challenge. All the respondents considered these four key challenges as a major challenge that needs immediate attention. Whereas the respondent agrees that the following challenges; improper stakeholder consultation, low technical

expertise, and poor contract conditions are less significant when it comes to the current challenges in project delivery. On the other hand, not the availability of materials and inadequate planning was considered by the respondents as not significant at all.

5.2.3 Relevant Strategies for Effective Project Delivery

On the relevant strategies for effective project delivery, the study found out that the most significant way to solve the current challenges is to ensure public-private partnership, budgetary provisions should be made available before awarding a contract, proper stakeholder consultation, adequate feasibility should be conducted, proper budgeting, continuous project monitoring, adequate planning, contracts should not be awarded to contractors who do not have sufficient expertise on a particular work and finally prompt payment of contractors certificate.

5.3 Discussion of the Findings

The study sort effective infrastructure projects delivery in Ghana, to ascertain the process of effective project delivery in Ghana, to determine the current challenges in project delivery and finally the study find out the relevant strategies for effective project delivery in Ghana.

5.3.1 Process of Effective Project Delivery.

On the process of effective project delivery, the study established that 100% of respondents agree that all the five processes that were identified are very significant in the successful implementation of the infrastructure project. The respondents agree that initiation, planning, execution, monitoring and control, and closer are all very significant. From this, it can agree that all the MMDAs in the Bono region implement project by practising all the identified five processes to achieve the intended target of every project they implement.

These views are in line with what the Project Management Body of Knowledge PMBOK (2017) sixth edition talks about saying; for effective delivery of projects to achieve its intended goal there is the need to go through all the five processes.

According to (Impacto4Dev, 2015) in his work, project management for development organizations. He came out with an idea to manage a development project for international humanitarian assistance and organizations. He was of the view that project management is the process of leading a team capable of planning and also implementing a series of related activities in achieving to achieve a specific target at some time in the future with limited resources. And because of the nature of project delivery, coordinating all these activities required a process approach to making sure the project achieves its ultimate goal so that the scarce resources will go in the drained. He underlines the following five phases; initiate, plan, implement, monitor and adapt, and close. With this, it can be seen that his outcomes are in line with this research finding.

Also in the work of (Larsen, 2017), he agrees that, for efficient and effective project delivery, there is the need to get a road map which will guide us in a systematically way to ensure that the scarce resource which is been put into use achieve the projected result. Which he also agrees to the five processes, initiation, planning, execution, monitoring and control, and closer as the best way to deliver a project to achieve its projected result. (Warboys, 1995; Watt, 2010) also, share the same view.

5.3.2 Current Challenges in Project Delivery

Again on the current challenges in project delivery, 100% Of the respondents agreed that currently there exist some challenges in delivering infrastructure projects. Additionally, most of the respondents agreed that financial challenge, political factor and delayed payment of contractors,

corruption as the major challenge in project delivery. Moreover, all the respondents agreed that improper stakeholder consultation, low technical expertise, and poor contract conditions as less significant which means that their impact on project failure very slim. The further agreed that, Non-availability of materials and inadequate planning as not significant. This indicates that they are not a contributing factor in the current challenges in project delivery in the MMDAs in the Bono region. These research findings are in line with the work of (Okereke, 2017) research works that delved into the issue of project abandonment in the country which explored extensively the factors that account for project abandonment. He stated that these challenges can be attributed, financial difficulties, non-availability of materials and huge maintenance cost, lack of stakeholder engagement, corruption, and low technical expertise.

The work of (Damoah *et al.*, 2018) work entitles corruption as a source of government project failure in developing countries: evidence from Ghana is also in line with the findings of this study. Their study explores how corruption impacts the failure of government projects in developing countries with evidence from Ghana and the end the findings of their research affirm that corruption is a major contributor to project failure of government projects.

(Badu *et al.*, 2012) stated clearly that the major challenge in infrastructure delivery is the financial challenge in which there is the need to find an alternative way to supplement the already existing strategies of financing infrastructure. Their view also sides with the finding of this research work. And also Amoa-Abban in his research work which he investigates the issue of project abandonment found out that the major challenges that cause project failure were; poor contract conditions delayed payment of contractors and corruption.

In sum, the work of (Okereke; 2017; Badu *et al.*, 2012; Damoah *et al.*, 2018; Amoa-Abban) shares the same view of the findings of this research work.

5.3.3 Relevant Strategies for Effective Project Delivery

On the relevant strategies for effective project delivery, 100% of the respondents agreed that going forward there is the need to map out different strategies to solve the problem of project abandonment, to this effect there is the need to come up with relevant strategies to solve the current strategies so as to help in a successful delivery of projects to achieve their intended aims. All the respondents agree that to be able to solve the challenges of project delivery to make the infrastructure project delivery processes effective, there is the need to promote public-private partnership (PPP), and budgetary provisions should be made available before awarding a contract. This was seen as a very significant relevant strategy in the realization of successful project delivery. Again they agree that proper stakeholder consultation, adequate feasibility should be conducted, proper budgeting, continue project monitoring, adequate planning of projects, and finally, contractors should not be awarded to contractors who do not have sufficient expertise on particular work. This also rated as significant relevant strategies for effective project delivery. Finally, Prompt payment of contractor's certificate was revered as moderately significant strategies.

According to (Nduhura, 2019) in work on public-private partnership and competitiveness of the Hydroelectricity Sub-Sector in Uganda: Case of Bujagali and Karuma Dam Projects. In his work recommended that that public-private partnerships must be adopted as a tool for project delivery in the public sector. With a specific emphasis on Build Own Operate and Transfer (BOOT) and Design-Build Own Operate Transfer (BOOT). Nduhura shares the same view of the findings of this research.

In the work of (gov.uk Corporate Author, 2010; PMI, 2010; Al Freidi, 2014; Raouf *et al.*, 2019). The above writers in their various works said looking at the current challenges in project delivery, it is prudent to find an alternative way of supplementing the existing strategies. Moving forward Contracts should not be awarded to Contractors who do not have sufficient expertise on particular work, Continuous project monitoring, proper budgeting, Adequate planning of projects, Prompt payment of contractor's certificate. (Mostafavi, Abraham, and Sinfield, 2014) in their work stated that way to effectively deliver a project is that contracting company must make sure they have a sound financial backing before embarking on any project, there must always be adequate stakeholder consultation and adequate feasibility stability. The recommendation shared by the above writes, in their various works are in stroke with the findings of this research.

5.4 Conclusion

The study sort to establish an effective infrastructure project delivery process in the Bono region focus on Ghana. To help reduce the problem of project abandonment. From the study findings, the study concludes that all the MMDAs in the Bono region use good practice in delivering projects and in as much as they use this good practice there is still a challenge in the delivery of infrastructure projects. Interestingly there are available strategies that can be adopted to solve the existing challenged to make the infrastructure delivery process more effectively.

On the process of effective project delivery, the study revered that projects were very essential in the development of every nation and as such it is always prudent to have a clear cut process in delivering them. The study revered five processes that must be adhered to. They are Initiation, Planning, Execution, Monitoring and Control, and Closer.

On the current challenges in project delivery, the study concluded that financial challenge, political factor, delayed payment of contractors and corruption as the major challenges the contribute a lot of project abandonment in the Bono region. Also study further concluded that improper stakeholder consultation, low technical expertise, and poor contract conditions are less significant which means that their impact on project failure is very slim. Besides, the non-availability of materials and inadequate planning as not significant. This indicates that they are not a contributing factor in the current challenges in project delivery in the MMDAs in the Bono region.

On the relevant strategies for effective project delivery, the study concluded that, public-private partnership, budgetary provisions should be made available before awarding a contract, proper stakeholder consultation, adequate feasibility should be conducted, proper budgeting, continuous project monitoring, adequate planning, contracts should not be awarded to contractors who do not have sufficient expertise on a particular work and finally prompt payment of contractors certificate are the relevant strategies for effective project delivery.

5.5 Recommendation

Numerous findings have been revealed by this research work and with reference from the findings, these are the recommendations made by the researcher. On the process of project delivery, the study recommends that, for effective delivery of infrastructure projects, is has to go through these five processes. Initiation, Planning, Execution, Monitoring and Control, and Closer.

On the current challenges in project delivery, the study concluded that financial challenge, political factor and delayed payment of contractors, corruption as the major challenge in project delivery. Moreover, all the respondents agreed that improper stakeholder consultation, low technical expertise, and poor contract conditions as less significant which means that their impact on project

failure is very slim. They further agreed that, Non-availability of materials and inadequate planning were not significant. This indicates that they are not a contributing factor in the current challenges in project delivery in the MMDAs in the Bono region.

Finally, on the relevant strategies for effective project delivery, the study concluded that, for the process to be more effective there is the need to turn attention to these strategies. ensure public-private partnership, budgetary provisions should be made available before awarding a contract, proper stakeholder consultation, adequate feasibility should be conducted, proper budgeting, continuous project monitoring, adequate planning, contracts should not be awarded to contractors who do not have sufficient expertise on a particular work and finally prompt payment of contractors certificate.

5.6 Suggestions for Further Studies.

This study has on the explored the Effective infrastructure projects delivery process in Ghana with a focus on MMDAs in the Bono Region. The study was only conducted on the technical persons in the various MMDAs in the Bono region of Ghana which constitute a section of stakeholders of a project. Stakeholders of projects do not only constitute only the technical persons of the various MMDAs but go beyond that. Further studies can be conducted to solicit the views of other stakeholders like contractors and individuals who are directly affected by the project-specific on effective infrastructure project delivery process in Ghana.

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APPENDICES

Appendix I: Questionnaire

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF BUILT ENVIRONMENT

DEPARTMENT OF CONSTRUCTION TECHNOLOGY AND MANAGEMENT

MSC PROJECT MANAGEMENT.

EFFECTIVE INFRASTRUCTURE PROJECTS DELIVERY PROCESS IN GHANA.

Dear Sir/Madam,

This questionnaire is being conducted in partial fulfilment of the award of postgraduate degree (MSc). Moreover, this research seeks to explore Effective Infrastructure Projects Delivery Process in Ghana so as to help reduce the rate of Project Abandonment in the country.

The core objectives of this research are:

1. To ascertain the process of effective project delivery in Ghana.
2. To assess the challenges in project Delivery.
3. To identify relevant strategies for effective project delivery.

Please we would be grateful if you could answer this questionnaire to aid this study. **All information collected will be confidential and would only be used for academic purposes.**

Thank you.

PART A: DEMOGRAPHIC BACKGROUND OF RESPONDENTS

Please, kindly respond to the questions by ticking (✓) the appropriate box for each item.

1. Please indicate the unit you belong in the MMDA

.....

2. Please how many years have you been working with the MMDAs

☐ 0-5years

☐ 6 – 10years

☐ 11 – 15years

☐ 16 – 20years

☐ 21 and above

3. Please indicate your highest level of education

☐ HND

☐ First degree

☐ Masters

☐ PhD

PART B: WHAT ARE THE PROCESS OF EFFECTIVE PROJECT DELIVERY

The following are the processes of effective project Delivery. Kindly rank them using the following Likert scale [1=Not Significant; 2=Less Significant; 3=Moderately Significant; 4=Significant; 5=Very Significant]. Please tick (✓) in the space provided.

No	PROCESS	1	2	3	4	5
1	Initiation					
2	Planning					
3	Executing					
4	Monitoring and control					
5	Closer					
	<i>Any other please state and rank</i>					

PART C: WHAT IS THE CURRENT CHALLENGES IN PROJECT DELIVERY

The following are the current challenges in project delivery. Kindly rank them using the following Likert scale [1=Not Significant; 2=Less Significant; 3=Moderately Significant; 4=Significant; 5=Very Significant]. Please tick (✓) in the space provided.

No	CHALLENGES	1	2	3	4	5
1	Financial Challenges					
2	Political factor					
3	Improper Stakeholder Consultation					
4	Inadequate Planning					
5	low technical expertise					
6	Corruption					
7	poor contract conditions					
8	delayed payment of contractors					
9	Non availability of materials					
	<i>Any other please state and rank</i>					

PART D: WHAT ARE THE RELEVANT STRATEGIES THAT CAN BE ADOPTED TO ENSURE EFFECTIVE PROJECT DELIVERY?

The following are the relevant strategies that can be adopted to ensure effective project delivery. Kindly rank them using the following Likert scale [1=Not significant; 2=Less significant; 3=Moderately significant; 4= Significant; 5=Very significant]. Please tick (✓) in the space provided.

No	EFFECTIVE STRATEGIES	1	2	3	4	5
1	Promote public/private partnership					
2	Adequate planning of projects					
3	Prompt payment of contractor's certificate					
4	Proper budgeting					
5	Continuous project monitoring					
6	Budgetary provisions should be made available before awarding a contract.					
7	Contracts should not be awarded to Contractors who do not have sufficient expertise on particular work.					
8	Adequate feasibility should be conducted					
9	Proper stakeholder consultation					
	<i>Any other please state and rank</i>					