ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

DETERMINANTS OF PROJECT IMPLEMENTATION DELAY: THE CASE OF SELECTED PROJECTS FINANCED BY DEVELOPMENT BANK OF ETHIOPIA

BY

TADESSE TULU

JUNE, 2017

ADDIS ABABA, ETHIOPIA

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A THESIS SUBMITTED TO ST. MARY'S UNIVERSITY SCHOOL OF GRADUATE STUDIES IN PARTIAL FULFLIMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION IN GENERAL MANAGEMENT

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APPROVED BY BOARD OF EXAMINERS

_____	_____
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_____	_____
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_____	_____
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ACRONYMS

DBE - Development Bank of Ethiopia

SPSS - Statistical package for social science

DBB - Design Bid Build

EPC - Engineering, Procurement, and Construction

ABSTRACT

Completion of projects within schedule is a major contribution towards the competitive edge in organizations. This is based on the realization that the achievement of the targeted objectives is determined by the ability to deliver the targeted output within the stipulated time. Project implementation delay can be defined as the late completion of work compared to the planned schedule. Project implementation delay can be minimized only when its determinants are identified. The objective of this study is to identify the major determinants of project implementation delay and methods of minimizing project implementation delays. The research targeted projects financed by the Development Bank of Ethiopia. The independent variables causing project implementation delay are poor project initiation, poor project planning/design system, improper implementation, poor project monitoring, evaluation and controlling system, poor communication, improper project closure, and the dependent variable is project delay.

The study considered 125 projects through stratified sampling method from projects financed over the last three years. Data were collected from randomly selected project managers using structured questionnaire and secondary data were also used. Data were analyzed using linear regression method. According to the findings, a strong, positive and significant relationship was observed between all delay factors considered as independent variables and project delay. Among the six delay factors (poor project initiation, poor project planning/design system, improper implementation, poor project monitoring, evaluation and controlling system, poor communication and improper project closure), poor project initiation was identified and concluded as the determinants with the highest influence on project completion delay. So that any business initiators should select project those are more familiar and interesting for them and scope of project should be established, controlled and must be clearly defined and be limited.

Key words: Project Financing, Project Implementation and Project Completion Delay.

CHAPTER ONE: INTRODUCTION

1.1. Background of the study

Projects are considered delayed when their stipulated completion durations have not been achieved. The inability to complete projects on time and within budget continues to be a chronic problem worldwide and is worsening (Ahmed et al, 2002). According to Ashley et al (2008) the trend of cost overrun is common worldwide and that it is more severe in developing countries.

The subject of completion of project is therefore a universal concern that affects all parties to a construction project. It is thus in the interest of the project management as an emerging profession to address all the factors that affect completion of construction project. Indeed the idea of EPC contracts was conceived to partly transfer the risks involved in project implementation largely to the contractor charged with implementing it. The contractor usually has a limited ability to claim additional money which is limited to the circumstances where the project company has delayed the contractor or has ordered the variation of the works (McNair et al, 2011).

Delay could be defined as an act or event that extends the time required to perform the tasks under a contract. It usually shows up as additional days of work or as a delayed start of an activity (Sweis et al, 2007). Projects have a variety of reasons to experience delay. An investigation to find out the reasons for the delays was conducted in Hong Kong where a questionnaire was developed on factors that were identified in previous findings. The analysis of the findings indicated the difference in perception of the factors that was between the key stakeholders of the project. There was general agreement about the relative importance of delay factors such as unforeseen ground conditions (Kumaraswamy et al, 1998). The delays can be controlled by improving productivity and factors that affect productivity are dealt with the purpose of further increasing productivity and thereby reducing delays. The conclusion of the investigation is ranking of the factors and factor categories that are considered by various project stakeholders. The areas of disparity between the stakeholders are indicated by their experiences, prejudices and ineffective communication. Thus the project scope factors can be supported by effective communications between all stakeholders.

According to Abdalla et al (2002) projects encounter massive delays and thereby overshoot the initial time and cost estimates which in turn result in extensive delays providing a platform for claims and disputes. A survey done with the objective of finding the most important reasons for delays as per the traditional contracts indicate that contractors and consultants agreed that owner interference, inadequate contractor experience, financing and payments, labor productivity, slow decision making, improper planning, and subcontractors are among the top ten most important factors.

According to Assaf et al (2006) in construction, delay could be defined as the time overrun either beyond completion date specified in a contract, or beyond the date that the parties agreed upon for delivery of a project. It is a project slipping over its planned schedule and is considered as common problem in construction projects. In some cases, to the contractor, delay means higher overhead costs because of longer work period, higher material costs through inflation, and due to labour cost increases. Time, cost and quality are the basic of successful construction which include also the safety and it environment. Time and cost had parallel relationship which the increasing of the time will make the increasing of the cost. Then, the controlled of time is really important for avoid any loss to the contractor. The time that already discuss is the period which is the schedule for the activities from beginning until finish the process of planning.

Delay implementation of projects and cost increase are common phenomena in projects worldwide. However, these are especially severe in developing countries. Implementation delay gives a project a difficult start, unduly long time taken for project implementation results in time-overrun which is invariably followed by cost overrun. Cost-overrun has the ill effect of affecting the financial viability of the project. The problem of cost-overrun will get more compounded if the finance necessary to meet the increased cost cannot be arranged in time. Any delay in arranging for the finance needed to meet the cost overrun will only further tend to increase the cost and this may land the project in trouble leading eventually to the death of the project and the project may not take off (Adhikarib, 2002).

Delays are endemic to the construction projects in Ethiopia. By examining 15 completed projects in different region of the country, the delay encountered in most projects range from 20.66% to 50% of original contract time. Project delays are the major causes of claims for time extension and associated cost (Abdissa, 2003). The authors further pointed out that the most common

causes of delays and their associated costs, us shortage of spare parts, untimely payment, poor planning and control, increase in scope (design changes/extras),differing soil and site conditions, limited access to the site (partially or totally) not ready for work to progress, unusual and long rainy weather condition, war and instability, Poorly equipped contractors and public sector agencies lack of motivation, and lack of experience in project management.

This study was too assessed and addressed the influence of implementation delay of financed projects by Development Bank of Ethiopia. It is clearly stated in the Bank's credit policy that the major aim of the Development Bank of Ethiopia is to extend medium to long-term loans for investment projects in the priority areas set by the Government. All projects financed by the bank were approved taking into consideration the project appraisal and its implementation schedule however, a good number of projects have not been executed in line with the designed implementation schedule. This trend has cause for influence on project operational successfulness and the loan recovery performance of the bank significantly (Development Bank of Ethiopia, 2008).

Project implementation is one of the core project management processes. What steps must project managers take in order to successfully complete a project? Implementation of a project is the step where all the proper planned activities are put into action. Usually project implementation process involves preparing, deployment, maintaining and use of the final product of the project. Project managers and sometimes project team members are committed to controlling and monitoring project implementation process. Project team helps run project evaluation process which precedes project implementation process. Project evaluation process includes performing a complete analysis of customer's needs and requirements and results in forming the definition of one or more projects to be implemented. Project implementation process may be effective if some very important factors are kept in minds that are urgent in a project management system (Development Bank of Ethiopia, 2008)

According to annual report of the bank's delays in the procurement machineries and materials required for the projects, delays in rendering the required design specifications for the specific type of machineries to be erected and delay related to the DBE Stringent procedure of the Bank in utilization of loan (loan may be not be disbursed on the right time due to policy procedure, lack of comprehensiveness of feasibility study apprised by the Bank delays caused by external

factors such as stakeholders, utility, land issues, contractor efficiency and Infrastructure, mismatch of equipment delays in sub-contractors work inadequate contractor's work etc (Development Bank of Ethiopia, 2015).

This study was examined the determinants of project implementation delay by focusing on DBE financed projects and evaluate the possible measures taken by the Development Bank of Ethiopia to exterminate delays in project implementation and to draw up possible recommendations/ methods of minimizing delays for successful implementation of projects with respect to planning and managing of implementation. For this reason, the researcher is motivated to investigate the determinants of project implementation delay with reference to the bank under consideration.

1.2. Statement of the Problem

As it has been observed most DBE financed agricultural and industrial projects implementation schedule lag behind from what was planned in the feasibility studies submitted by the project owners to the Bank and on revised appraisals studies of the Bank and as a result ,there is frequently request for an additional loan for missing items and incomplete construction works and loan repayment rescheduling request by most huge and large sized projects due to delayed of implementation schedule derived mainly from external and internal causes (Development Bank of Ethiopia, 2008)

In addition to this, currently it is common to watch foreclosure advertisement of different Banks on newspaper and television window every day and this simply indicate that the failure of many projects. Case example, Past Service projects like Hotels, Schools, and Hospitals and Agricultural project financed by DBE still under foreclosure (Development Bank of Ethiopia, 2011).

This situation resulted great apprehension on the part of potential investors not to look for Bank finance with the perception that credit is the main cause for project failure. Moreover, the failure of projects increases sunk cost of the country irrespective of their ownership since fixed investments of most projects are purpose oriented and require high switching cost. Understanding the prevailing perception in the country, Development Bank of Ethiopia has set zero tolerance for project failure in the year 2010 EC.

According to Assaf and Al-Hejji (2006) some key causes of delay according to clients are contractor's improper planning, contractor's poor site management, subcontractor issues, and skilled labor supple and productivity; contractors are insufficient client's payments for completed and ongoing work, acquiring difficulties for work permit and approval, and availability and failure of equipment. When large projects deviate from their objectives (either in cost, completion time, performance, safety or environmental effects), the damage caused obviously transcends out of the contracting parties and affects the project stakeholders and the public at large. Emphasizing the completion time deviation factors as they are very common in our country's construction industry, lack of justified methodologies in quantifying and analyzing delays happens to be the greater challenge (Abebe, 2003). This is because, not also the delays come from a variety of sources, and they also have different effects and implications resulting in complex ramifications, creating considerable difficulty to practitioners in the claim resolution (Kumaaswany, 1997). A critical review of literature suggested that the reason for the continuing difficulty with delay claim resolution can be attributed to a number of problems including lack of uniformity in the application of delay identifying methodologies, lack of sufficient guidance from contacts and poor planning practice.

In the lights of these problems conducting this research on the case bank is to determine delay factors in project implementation and also to adopt an appropriate frame work for improving delay analysis and administration methods.

1.4. Research Objectives

1.4.1 General objectives

The general objective of this study is to find out the main determinants of project implementation delay for project financed by development Bank of Ethiopia specifically at head office.

1.4.2 Specific objective

The specific objectives of this research are:

- To examine the relationships between poor project initiation and completion of projects.
- To investigate the relationships between poor planning and design system and completion of projects.

- To find out the relationships between improper implementation and completion of projects.
- To investigate the relationships between poor project monitoring, evaluation and controlling system and completion of projects
- To examine the relationships between poor communication and completion of projects.
- To investigate the relationships between improper project closure and completion of projects.
- To identify the most determinants of delay in project implementation from listed.

1.5. Research Hypothesis

The hypothesis was developed from literatures that reviewed in empirical review (Chan and Kumaraswamy 1997; Wambugu, 2013; Theodore, 2009; Dainty et al, 2003; Bilczynska and Wojcik, 2014; Oyetunji and Anderson, 2006). Based on reviewed literatures the research hypothesis was identified as follows;

H1: Poor project initiation has a significant negative impact on project completion.

H2: Poor project planning/design has a significant negative impact on project completion.

H3: Improper implementation has a significant negative impact on project completion.

H4: Poor project monitoring, evaluation and controlling system have a significant negative impact on project completion.

H5: Poor communication expected to affect project completion negatively.

H6: Improper project closure expected to affect project completion negatively.

1.6. Significance of the Study

This study perhaps helps the Development Bank of Ethiopia and project manager to identify major determinants of project delay which are affecting the operation of the project throughout its life. Further, the finding of the study might help the managers, practitioners and academicians to compare and contrast the theory and the reality. Besides, the study was assessed and added some information to the existing knowledge for researchers who are going to conduct the research in the same area or related discipline.

The result of this study was also assisted the responsible bodies by providing knowledge on how to identify the major determinants of project delay needs of their projects in delivering advanced

technologies and appropriate measurements to improve the effectiveness of their project implementation of project life cycle and to increase the profitability of the project. Furthermore, the study is believed to benefit both lender bank and owners of the project as a documented study in this area. The study would also recommend adoptable policies and strategies for mitigating project implementation delay.

1.7. Scope and Limitation of the Study

The study was delimited to focus on examining the determinants of project delay. With regard to the scope of the research is mainly focus on literature review and questionnaire survey. The research is focus on head office of Development Bank of Ethiopia. Financed in the interval from January, 2012 to December 2014 for consecutive of three years in the core process of the Bank at Corporate level i.e. Credit Process was selected. According to the Development Bank of Ethiopia annual report shows the approved projects in January, 2012-December 2014 for consecutive of three years are 232. Therefore, the questionnaire was designed based on the determinants of construction project delays and the method of rectification of construction delays.

1.8 Definition of terms

Project- an overall task which has a definable beginning and definable end, it consists of a number of related and dependent activities, all of which utilize resources and upon which there are imposed internal and external conditions.

Project financing- this refers to the ways that a client provides the funds that cater for the cost of design, planning, labor and approvals required to ensure the project is successfully carried out.

Project performance- This is an aspect of project accomplishment in regard to the subjective matter of the client and the public at large.

1.9. Organization of the Study

This research paper was organized into three chapters. The first chapter discusses about the background of the study, statement of the problems and objectives. Chapter two deals with review of the related literature and chapter three are concerned with the methodology that was used in this specific study during conducted the research.

CHAPTER TWO: REVIEW OF LITERATURE

This section reviews the literature written by different authors and researches conducted by different scholars in relation to the study and present a summary of project implementation delay literature such as definitions, assumptions, major concepts regarding main determinants of project implementation delay and effect of project delay and review of empirical works. Finally, conceptual framework of the study is included by summarizing literature results.

2.1. Theoretical Review

Project success can be defined as meeting goals and objectives as prescribed in the project plan. A successful project means that the project has accomplished its technical performance and maintained (Yaw et al, 2003). Delay could be defined as an act or event that extends the time required to perform the tasks under a contract. It usually shows up as additional days of work or as a delayed start of an activity (Sweis et al, 2007).

Refer to Aibinu et al (2002) delay is a situation when the contractor and the project owner jointly or severally contribute to the non-completion of the project within the agreed contract period. Delays in construction projects are frequently expensive, since there is usually a construction loan involved which charges interest, management staff dedicated to the project whose costs are time dependent, and ongoing inflation in wage and material prices. According to Assaf et al (1995) delay in construction could be defined as the time overrun either beyond completion date specified in a contract, or beyond the date that the parties agreed upon for delivery of a project. It is a project slipping over its planned schedule and is considered as common problem in construction projects. In some cases, to the contractor, delay means higher overhead costs because of longer work period, higher material costs through inflation, and due to labor cost increases.

Project delay can also defined as a discrepancy where actual completion of the project exceeds the planed period according to the contract (Chabota et al, 2008). According to Larry (2002) project schedule is characterized by client urgent demand of project completion, client preference of speed over cost and quality, and the balance of project managers among project scope, budget and resource available. Thus the ascertainment of the period of project delay

serves as basic information from the appointment of responsibility, which may be a highly complex operation in cases with concurrent causes. In this respect, when a delay claim occurs, it is very important to assign responsibility and magnitude to delays, and it is often difficult to analyze the ultimate liability in delay claims (Kraiema and Dieknam, 1987).

Odeh and Battaineh (2002) found that contractors and consultants agreed that owner interference, inadequate contractor experience, financing and payments, labor productivity, slow decision making, improper planning, and subcontractors are among the top ten most important causes of construction delay in Jordan. And also as research conducted in Zambia road construction identified fourteen major causes of schedule variation (Chabota et al. 2008). Similar study conducted in Ethiopia showed severe delay in construction projects (Zinabu, 2016). Effective time control is challenged by different factors. According to Olawale and Sun (2010) the top five factors inhibiting effective project time control in descending order are: design changes, inaccurate evaluation of projects time/duration, complexity of works, risk and uncertainty associated with projects and ill-performance of subcontractors and nominated suppliers. Kasimu and Abubakar (2012) discussed that conducted delay study in the Nigerian construction industry and identified the top five factors that influence delay in ascending order as improper planning, lack of effective communication, design errors, shortage of supply like steel, concrete and slow decision making. Mengistu (2010) discussed that project controlling supportive techniques and software are not applied well for the control of actual and planned activities in the Ethiopia construction sector and recommends the significance of training requirement for the concerned project staff.
Similarly, Abadir (2011) found out that among the knowledge areas of project in Ethiopia, project time management is considered the critical one with only 24% projects managed well.

2.1.1. Classification of delay

Theodore (2009) mentioned that there are four basic ways to categorize type of delays with their discussion:

2.1.1.1 Critical or non-critical

2.1.1.2 Excusable or non-excusable

2.1.1.3 Compensable or non-compensable

2.1.1.4 Concurrent or non-concurrent

In the process of determining the effect of a delay on the project, the analyst must determine whether the delay is critical or noncritical. The analyst must also assess if delay are concurrent. Delay can be further categorized into compensable or non-compensable delays.

2.1.1.1 Critical Versus Non-Critical Delays

Delays that affect the project completion, or in some cases a milestone date, are considered as critical delay. And delays that do not affect the project completion, or a milestone date, are non-critical delays. If these activities are delayed, the project completion date or a milestone dater will be delayed. The determining which activities truly control the project completion date depends on the following:

a) The project itself

b) The contractor's plan and schedule (particularly the critical path)

c) The requirement of the contract for sequence and phasing

d) The physical constraint of the project, i.e. how to build the job from a practical perspective.

2.1.1.2 Excusable versus Non-Excusable Delays

All delays are either excusable or non-excusable. An excusable delay is a delay that is due to an unforeseeable event beyond the contractor's or the subcontractor's control. Normally, based on common general provisions in public agency specifications, delays resulting from the following events would be considered excusable delays: General labor strikes, Fires, Floods, Acts of God, Owner-directed changes, Errors and omissions in the plans and specifications, Differing site conditions or concealed conditions, Unusually severe weather, Intervention by outside agencies and Lack of action by government bodies, such as building inspection. Non-excusable delays are events that are within the contractor's control or that are foreseeable. These are some examples or non-excusable delays: Late performance of sub-contractors, Untimely performance by suppliers, Faulty workmanship by the contractor or sub-contractors, a project-specific labor

strike caused by either the contractor's unwillingness to meet with labor representative or by unfair labor practices.

2.1.1.3 Compensable Delays versus Non-Compensable Delays

According to Theodore (2009) compensable delay is a delay where the contractor is entitled to a time extension and to additional compensation. Relating back to the excusable and non-excusable delays, only excusable delays can be compensable. Non-compensable delays mean that although an excusable delay may have occurred, the contractor is not entitled to any added compensation resulting from the excusable delay. Thus, the question of whether a delay is compensable must be answered. Additionally, a non-excusable delay warrants neither additional compensation nor a time extension. Authors such as Barrie (1992), Paulson (1992) and Mubarak (2005) stated that excusable non compensable delays are normally beyond the control of either owner or contractor such as unusual weather conditions, natural disasters, wars, national crises, floods, fires or labor strikes. They add that usually the contractor is entitled to a time extension, but not additional compensation. Trauner et al (2009) discussed that if a delay is compensable or non-compensable basically depends on the issues of the contract. The contract determines the types of delays in detail and for which delay the contractor is entitled to extension or monetary compensation.

2.1.1.4 Concurrent delays

The concept of concurrent delay has become a very common presentation as part of some analysis of construction delays. According to Theodore (2009) the concurrency argument is not just from the standpoint of determining the project's critical delays but from the standpoint of assigning responsibility for damages associated with delays to the critical path. Owners will often cite concurrent delays by the contractor as a reason for issuing a time extension without additional compensation. Contractors will often cite concurrent delays by the owner as a reason why liquidated damages should not be assessed for its delays. Unfortunately, few contract specifications include a definition of concurrent delay and how concurrent delays affect a contractor's entitlement to additional compensation for time extension or responsibility for liquidated damages.

In analyzed concurrent delays, each delay is assessed separately and its impact on other activities and the project duration is calculated. There are some guidelines for concurrent delays classification. Firstly, if excusable and non-excusable delays occur concurrently, only a time extension is granted to the contractor. Next, if excusable with compensation and excusable without compensation delays occur concurrently, the contractor is entitled to time extension, but not to damages. Lastly, if two excusable with compensation delays occur concurrently, the contractor is entitled to both time extension and damages.

According to Lee et al (2007) concurrent delays may be generated by the contractor or by the owner, but if it happens that both parties are responsible, and these delays overlap then neither party can be able to retrieve damages. According to Theodore (2009) Concurrent delays could be caused by the delaying effects of events that were either excusable (i.e. the events for which the employer takes the risk of time and for which extensions of time should be granted to the contractor) or culpable (i.e. events for which the contractor takes the risk of time). Delay in implementation of projects and cost increase are common phenomena in projects worldwide. However, these are especially severe in developing countries. Delayed implementation gives a project a difficult star. Unduly, long time taken for project implementation results in time-overrun which is invariably followed by cost overrun. Cost-overrun has the ill effect of affecting the financial viability of the project. The problem of cost-overrun will get more compounded if the finance necessary to meet the increased cost cannot be arranged in time. Any delay in arranging for the finance needed to meet the cost overrun will only further tend to increase the cost and this may land the project in trouble leading eventually to the death of the project and the project may not take off (Adhikarib, 2002).

2.2 Empirical Review

Different researchers in different countries investigate factors influencing project completion from different perspectives. In this sub section, the mythology used and findings identified on studies conducted on project completion influencing factors are reviewed.

2.2.1 Project Initiation and completion of projects

Chan and Kumaraswamy (1997) have determined and evaluated the factors causing delays for construction projects in Hong Kong. They have identified 83 hypothesized delay factors and

grouped them into eight categories. The main reasons for delay were analyzed and ranked according to different groups classified on the basis of (a) role of the parties in the local construction industry (i.e. whether clients, consultants and contractors) and (b) the type of projects. They collected data from 167 local construction organizations and analyzed it by using the relative impact index method in order to rank the determinant delay factors for different types of construction projects. The results indicate the principal and common causes of delays are: Improper define the project scope and Lack recruit appropriate staff , unforeseen ground conditions, low speed of decision making involving all the project team, Poor job description for a project manager, Lack of comprehensiveness of feasibility study and Analysis client initiated variations and necessary variations of works.

2.2.2 Project planning and completion of projects

Project planning comes into play at the shakedown phase in project development. Poor project planning can easily bring down response strategies where they are at the threshold or the completion stage. Achievements should be measured against project goals. The progress of the response strategies should be monitored actively through set milestones and targets. Two criteria may be used; project management based criteria should be used to measure against completion dates, costs and quality. Then operational criteria should be used to measure against the production system. Monitoring and feedback include the exchange of information between the project team members and analysis of user feedback. There should be an early proof of success to manage project. Reporting should be emphasized with custom report development, report generator use and user training in reporting applications (Sumner, 1999).

Project implementation are generally takes various stages. The first stage is usually project initiation where the project is identified and a feasibility study carried out to establish the viability and build a business case. The second stage is the project planning stage and in here the project design is carried out, resources and finances allocated. Project execution which is the third phase involves implementing the designs within the allocated resources in the set duration and to the set specification and quality. Project closure involves handing over the final product to the customer, handing over the as is built drawings, giving the operation and maintenance plan, terminating the contracts and informing all stakeholders that the project is closed. If project completion date has been frozen without arranging inputs and proper planning, this can lead to

hasty and unsystematic work towards the end of the project (JHA et al., 2006). Failure to clearly comprehend the project, all its aspects can lead to works being executed erroneously and the attendant correctional steps to remedy the errors will cause project delay. The consequences are actually 14 grave, ranging from litigation to claims and disputes, to outright abandonment of the project (Olatunji, 2010). When a project delay can no longer be absorbed by the client, the project is abandoned. It helps then to predict and identify problems in the early stages of construction (Hussin and Omran, 2011). Planning stage is therefore very key to success of construction project. Delivery of materials on site will quite affect the project progress. If that supply does not ensure that quality materials are delivered on site then it will cause delay of project completion (Wambugu, 2013). This is because material not meeting the quality of design will most likely be rejected and the process of getting the right material will be taking more project implementation time. When materials are lacking on site it means that the employees will not have work to do. This is quite demoralizing and will affect the project delivery negatively. This is largely a product of poor planning in the construction project. Indeed material availability is the most frequent problem that leads to delay in majority of the countries as identified by Olatunji (2010). Second to this is inadequate planning methods and ineffective coordination of resources. Failure at the conceptual planning and design stages, Inadequate resource and finance allocation, inadequate estimation of project completion schedule , lack of complete and proper design and specification of projects at right time may lead to significant problems in the successive stages of the project. Koushki et al., (2005) in a study carried in Kuwaiti illustrates that owner who carried out pre-planning phase prior to the commencement of the planning phase experienced shorter time delays that their counterparts who did not. The amount of time delay also increased with an increase in pre-planning time period. Sambasivan and Soon (2007) identify contractors improper planning as one of the causes of project delay. If a contractor fails to come up a workable work program at the initial stages, this will affect project timely completion. A similar observation is made by Jagboro and Aibinu, (2002) in Nigeria. Equally emphasizing on the need for proper planning of construction project is (Pakir et al 2012) in a study carried out in Sudan. McMinimee et al (2009) stated that it was clear that investments in advance planning and project development paid off. Mojahed (2005) states that proper planning in all phases and components of construction project are necessary to avoid re work which in turn leads to delay in project completion.

Wideman (2001) concludes that the success of the execution phase of the project is highly depended upon the quality of planning in the prior planning phase. Wambugu (2013) observes that planning affected the timely completion of rural electrification projects in Kenya and that the 15 qualities and importance of project planning had been considered a major cornerstone of every successful project. Tabishl and Jha (2011) in a study carried out in Singapore conclude that comprehensive site investigation helps in sound planning which in turn helps in clarifying the scope and developing a thorough understanding. This also helps minimize change of scope during construction.

2.2.3 Project implementation and completion of projects

Projects are influenced by a multiple of factors which can be external or internal to the organization responsible for its management and execution. These include poor project management, inadequate opportunities for potential beneficiaries to participate in project identification and design, poor linkages between project activities and project purpose, insufficient attention to external environment during project design, among others. It has also been recognized that projects were likely to succeed when account was taken of socio-economic context in which they operated (Batten, 1957).

According to Theodore (2009) the causes of delay are categorized into 7 groups. The first group has discus the causes of delay occurred by client. Those are poor communication and coordination, delay in progress payments by owner, change orders by owner during construction, slowness in decision making process, delay to furnish and deliver the site, late in revising and approving design documents, delay in approving shop drawing and sample materials, Suspension of work, and conflicts between joint-ownership of the project. Second group categories of causes is delay occurred by contractor. Those are: difficulties in financing project by contractor, conflicts in sub-contractors schedule in execution of project, rework due to errors during construction, conflicts between contractor and other parties (consultant and owner), poor communication and coordination, ineffective planning and scheduling of project, improper construction methods implement, delays in sub-contractors work, inadequate contractor's work, frequent change of sub-contractors, poor qualification of the contractor's technical staff, and delays in site mobilization

The third group causes of delay is delays occurred by consultant. Those are: delay in approving major changes in the scope of work, poor communication and coordination, inadequate experience of consultant, mistakes and discrepancies in design documents, delays in producing design documents, unclear and inadequate details in drawings, insufficient date collection and survey before design, and un-use of advanced engineering design software. Fourth group causes of delay is delay occurred by materials. Those are: shortage of construction materials in market, changes in material types and specifications during construction, delay in material delivery, delay in manufacturing special building materials, and late procurement of materials.

The fifth group identified as causes of delay is delays occurred by equipment. Those are: equipment breakdowns, shortage of equipment, low level of equipment-operator's skill, low productivity and efficiency of equipment, and lack of high-technology mechanical equipment. The six group identified as causes of delay is delays occurred by labor. Those are: Shortage of labors, working permit of labors, low productivity level of labors, and personal conflicts among labors. The final group identified as causes of delay is delays occurred by external factors. Those are: effects of subsurface conditions (e.g. soil, high water table, etc.), delay in obtaining permits from municipality, hot weather effects on construction activities, traffic control and restriction at job site, accident during construction, changes in government regulations and laws, delay in providing services from utilities (such as water, electricity), and delay in performing final inspection and certification by a third party.

A study conducted in Korean, the causes of delay in mega projects are classified into five categories: insufficient planning, difficulties in acquiring right of way, inefficiency of project management and monitoring system, conflicts between organizations, and strong public resistance. All of the direct or indirect participants tend to maintain different interests in the same project, making it extremely difficult to properly align them for project success. The sheer size and complexity of the project can easily lead to inefficiency and low productivity. Even though these causes, normally found in Korean mega projects, can be repetitive in any construction project, they tend to bring poorer results than those of smaller projects in both size and complexity (Han et al, 2009).

Likewise, Al-Momani (2000) conducted a quantitative analysis of construction delays by examining the records of 130 public building projects constructed in Jordan during the period of

1990-1997. The researcher presented regression models of the relationship between actual and planned project duration for different types of building facilities. The analysis also included the reported frequencies of time extensions for the different causes of delays. The researcher concluded that the main causes of delay in construction projects relate to designers, user changes, weather, site conditions, late deliveries, economic conditions, and increase in quantities. Moreover, Assaf et al (1995) for example, provide a concise summary of the methodologies used by transportation agencies to establish the contract duration used for highway construction projects, and also provide a schedule guide for field engineers during construction. Similarly, Mohammed & Isah (2012) conducted a review on project delays in developing countries during planning and construction stages. In their study they found that the delay and cost overruns of construction projects are dependent on the very early stages of the project.

2.2.4 Monitoring, Evaluation, and Controlling system and completion of projects

The competence of the project manager during project implementation will also affect the timely completion of a project. Positive attitude of project manager and project participants has emerged to be the most important success attribute for quality compliances at project sites (JHA and IYER, 2006). The authors additionally observed that some of the attributes are with high importance are all related to the project manager. For example effective monitoring and feedback by the project manager, project managers technical capability, leadership quality of the project manager, effective monitoring and feedback by the project team members and authority to take day to day decisions by the project managers' team at site. Furthermore, the success of project hinges on the efficacy of the project team in managing the process (Olatunji, 2010). This indicates adequate capacity of the project manager as well as the project team to ensure proper inspection and investigation of work done on site. A weak link in the process such as a lack of project management experience, could adversely affect timely execution/ timely completion of the projects (Dainty et al, 2003) as cited by Olatunji (2010). When there is no proper inspection/supervision, quality control is greatly compromised. Chism and Armstrong, (2010) agree by stating that inspection and workmanship standards are quite important to achieve quality. Fapohunda and Stephenson, (2010) state that to achieve the pre-determined project objectives, the construction site manager should have a significant influence over cost, time,

scope and quality which make it paramount for the manager to have ability of exercising authoritative and absolute control.

Wambugu (2013) concluded in a study that inadequate supervision and inspection of work in construction project led to rework in instances of poor workmanship and this led to delay in project timely completion. This also leads to project cost overrun and may result to project abandonment. Inadequate site inspection is one of the factors identified as causing project delays 16 in timely completions according to (Jagboro and Aibinu, 2002). Mojahed (2005) states that occasion of rework are mainly attributed to incompetent craftsmen because of insufficient working skills and knowledge of drawings or to incompetent supervisors because of lack of experience leading to deficient supervision. The study clearly emphasized the impact of management and supervision on the overall success of the construction project. If there is no proper supervision, workers will tend to take break whenever they desire and work will tend to delay. Timely inspection is of great importance to ensure effective operation, material quality, and timely progress of the project schedule. Subsequent activities on a construction schedule may not be carried out before the required inspection is carried out on the preceding activities. Chai and Yusof (2013) identify poor site management and supervision as ranking high in the order of causes of construction project delay.

2.2.5 Communication in project teams and completion of projects

Communication plays an important role in leading, integrating people, and taking decisions to make a project a success. There must be shared project vision, where the project manager identifies the interests of all relevant stakeholders and ensures that there is buy in to the project (Yang et al, 2009). According to (Zwikael 2009) once the project objectives are set and the scope clarified, there must be constant update as the project progresses. Progress on activities assigned to individuals or groups needs to be monitored with a view to achieving overall goals. These updates must be communicated to the relevant parties. Newton (2005) believes that a detailed communication plan is necessary for the effective dissemination of information. To this end, frequent project meetings are necessary. Apart from consulting with the community, local direct involvement is a key element for project success. Given the relatively high unemployment rates in South Africa, consideration must be given to local residents. This could include sourcing materials from local suppliers and employing local residents. It is advisable to use an influential

community member as a liaison between the project manager and the community (Teo, 2010). Finally, proper handover procedures need to be developed. This is an important consideration, given that the construction industry is being increasingly viewed as a service industry (Karna et al, 2009)

Project communication management ensures timely and appropriate generation, collection, dissemination, storage, and disposition of project information. Open and clear communications are required among planners, implementers, and all levels of the organization for project success. It includes having a communication plan, information distribution path, progress reporting, and information sharing system for management and customers (Kwak & Ibbs, 2002). Project communication management should also include methods and techniques to build trust and relationships among team members, as well as propagate desirable personal behaviors and clear communication rules.

Several research findings indicate that, in case of many projects, activities in the field of communication management are disordered, supported mainly by project managers' intuition or neglected (Paasivaara & Lassenius, 2003; Adera, 2013). Research on project communication management in industrial enterprises in Slovakia revealed that in 66% of them no written document (methodology, process steps) to manage project communication has been prepared (Samakova et al., 2013).

The following literature review aims to identify and summarize real-life project communication management practices investigated and described in available readings. Most of communication management practices identified in this literature review concerned distributed teams. This is mainly due to communication challenges encountered by that type of project teams. These challenges include: distance and lack of face-to-face communication, difficulties with building trust and relationships, time zone differences, cultural differences and lack of common rules, misinterpretation of written text, ignoring communication and lack of communication expectations (Bilczynska and Wojcik, 2014). Sometimes also language skills of cooperating partners are so low, that fluent conversation is impossible, most notably in teleconferences (Komi & Tihinen, 2005). The four phase of project life cycle with the related to project communication is stated figure 2.1.

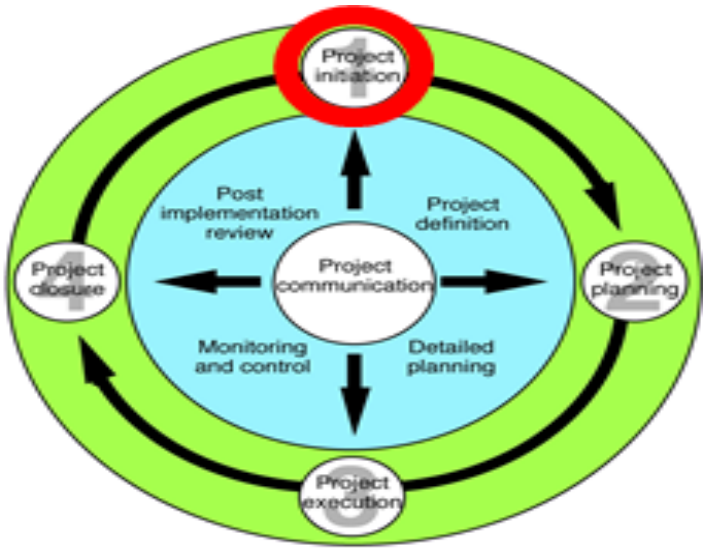

Figure 2.1: *The four phase of project life cycle, adopted from J,westland, The project management life cycle, Kogan phase limited(2006).*

2.2.6 Project closure and completion of projects

Project delivery system will also affect project timely completion or not. Project delivery system refers to the various processes required in materializing the goals and objective of a client into a project through integrated project team efforts (Chen et al, 2011) the same authors also state that the project delivery system acts as a management function of the owner in project execution. It is quite important that the right choice on the project delivery system is made. The decision made in the selection of the project delivery system for a project impacts all phases of execution of the project and greatly impacts the efficiency of project execution (Oyetunji and Anderson, 2006). The choice of the project delivery system largely depends on the funding available. A funding agency will most likely determine the project delivery system that will be able to guarantee the cost control and in the end the project control. This choice is based on past practices, traditions and experiences, advice of consultants, funding sources and constraints. Other project stakeholders' views will also be factored. When the project is closed, ensure that any outstanding tasks in the project plan that are to continue after the project is closed are included in the formal project close tasks which are addressed in the Close phase. These outstanding tasks may need to be included in post-project implementation planning and may have an impact on the business outcomes and benefits realization from the project.

However in a case where the owner needs professional design services and construction services, design bid build may be the preferred option. Design Bid Build (DBB) gives the owner a high degree of control. The owner can also closely monitor projects. It is also applicable if the owners are public owners and must account in detail for expenditures. The manager uses procedures that will guide on how best the resources will be best used during the construction process with the aim of achieving timely and efficient application in the construction process. Wambugu (2013) avers that a construction manager will generally be trained in the management of construction processes. Yet another project delivery system is the Design Build (DB). In this type the owner contracts a single entity to provide the design and implement the design. This system enables the owner to deal with a single contact and so eliminate the various conflicts that occur when a team of consultants in design team on one hand differ with the contractor on the other hand. In DB the design builder makes many of the decisions that the owner would otherwise be required to make in DBB. There is therefore a quite delegated authority by the owner. There are variations in the type of design build arrangements. They may be lease develop operate where the owner gives the operator a long term lease to develop, operate and then revert to the owner. Public private partnership is another arrangement for project implementation where a public sector authority enters into a contract with a private party. The private party provides a public service or project and assumes a substantial financial, technical and operational risk in the project. In a typical case a private sector consortium forms a special company vehicle called "a special purpose vehicle" (SPV) to develop, maintain and operate the asset in the contracted period. The PSV then signs the contract with the public entity and then signs a contract with sub-contractors to construct the project and then maintain it.

Turnkey contracts or engineer procure construct projects. In these contracts, the owner prepares the principle and basic design of the construction on a functional basis (FIDIC, 1999). The owner 18 exercises limited control over and should in general not interfere with the contractors work. A feature of this type of contract is that the contractor has to prove the reliability of the project after completion at the turn of the key (FIDIC, 1999).

2.3. Methods of Minimizing Delays in Project

When construction delay occurs, there is no question that the owner suffers financially, but the extent which the owner can recover its loss of income from the contractor, and more importantly

minimizing the risk that such delays will occur, depends largely on how the construction contract was drawn up. Based on several studied of projects success factors and ratifications of delays in construction projects, a total of 11 methods have been identify as follows:

Table: 2.1. Methods of minimizing Delays

1	Effective strategic planning (Majid, 2006)
2	Use of up- to- date technology(Majid, 2006)
3	Proper material procurement (Majid, 2006)
4	Proper emphasis on past experience (Majid, 2006)
5	Accurate cost initial estimates (Majid ,2006)
6	Sit management and supervision (Long, 2008)
7	Proper planning and scheduling of project(Majid, 2006)
8	Complete and proper design and specification of projects at right time (Assaf, 2006)

2.4. Research gaps

After an in depth review of theoretical and empirical literatures which provided different factors affecting project completion is conducted in the preceding parts of the chapter. The student researcher has reached up on a conclusion that critical delay factors in project completion due to different independent variable and dependant variable are the appropriate theories to construct this study up on. These studies have been carried out and published. From the mentioned delay factors in review above, the six most significant success factors in determining of project delay identified by different author in different countries have been chosen for this study to be independent variables. The dependant variable of the project is time. Time is the adopted project completion measure the delay level of project. However there is no literature available on the factors influencing completion of projects in Ethiopian Country especially for industrial project. This study therefore aimed to investigate the actual factors influencing of project completion in Ethiopian Country the case are project financed by DBE.

2.5. Summary of the Chapter

Chapter two discusses the literature relevant to the objectives of the study. Poor project initiation, poor project planning, poor monitoring, evaluation and controlling system during implementation, improper project implementation and inadequate project closure are applicable to project implementation completion. These are discussed in detail and how they influence project completion which is the dependent variable.

2.6. Conceptual Frame work

This is also captured in the conceptual framework which is a tabulated relationship between the independent variables and dependent variable. The conceptual framework of the study was developed from different authors findings (Chan and Kumaraswamy 1997; Wambugu, 2013; Theodore, 2009; Dainty et al, 2003; Bilczynska and Wojcik, 2014; Oyetunji and Anderson, 2006). The study was guided by conceptual framework.

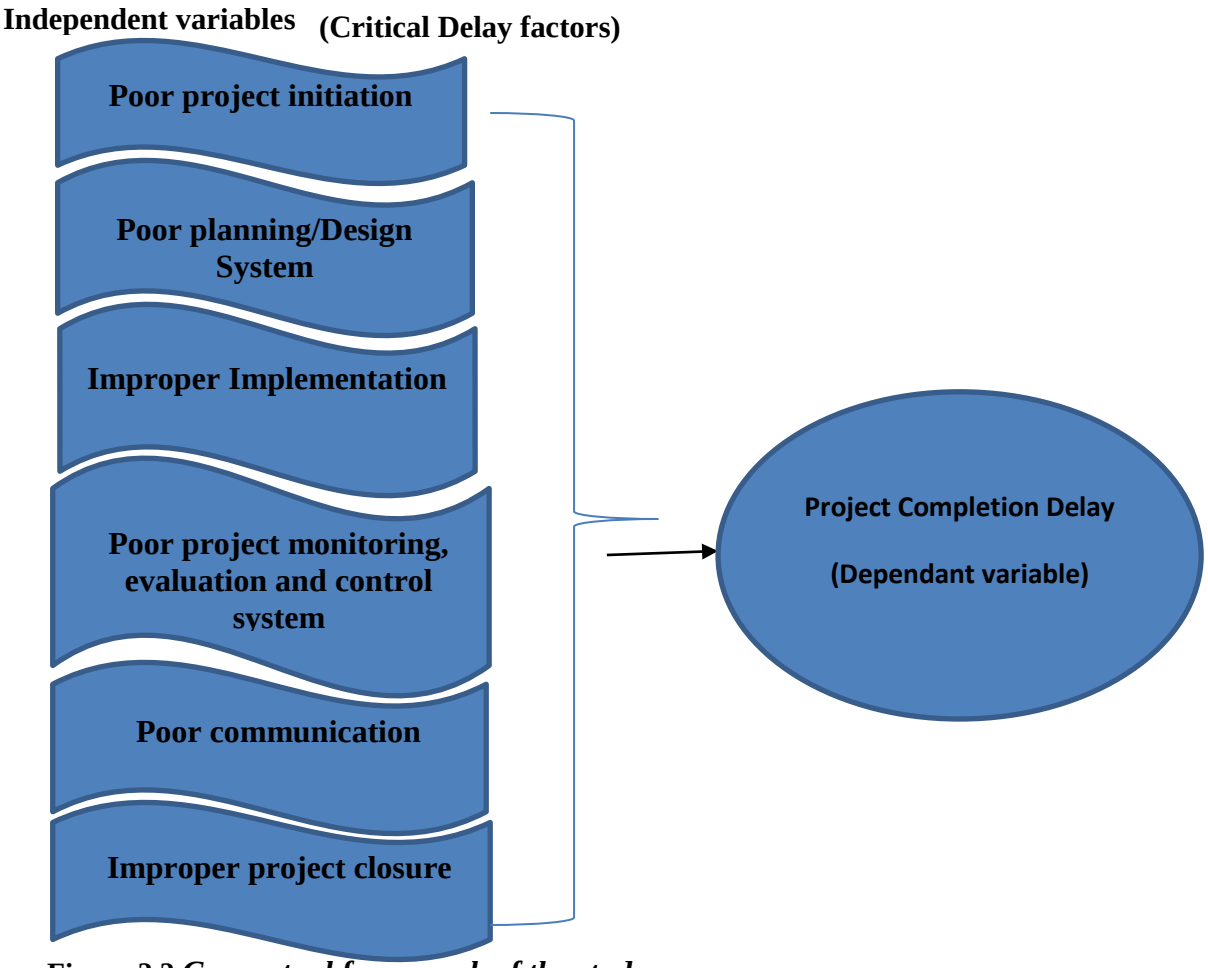

Figure 2.2 ***Conceptual framework of the study***

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The methodology refers to the procedural framework within which the research is conducted. This chapter will present how the current study was designed and provide a clear description of the specific steps that were taken to address the research problem and test each of the six hypotheses.

3.2. Research Approach and Design

The study intends to assess the determinants of project implementation delay of the case bank. The cause and effects (causal) relationship between variables are assessed throughout the study. This makes it appropriate for the study to implement explanatory research design.

Depending on the type of data that are used in the research, the general research approaches are identified, qualitative or quantitative. In this study both types of data those can and cannot be quantified are used. The quantifiable data are gathered by closed ended questions of the questionnaire which were designed to keep the respondents in scope. There were also open ended questions, providing unquantifiable data, which were designed to provide respondents with the freedom of expressing what they believe important for the study. This leads for the study to use a mixed research approach which both qualitative and quantitative research methods are applied.

3.3. Study Population

According to Kitchenham (2002) population represents the group or the individuals to whom the survey applies. In other words, population contains those group or individuals who are in a position to answer the questions and to whom results of the survey apply. The background of the selected organization is discussed here in short and precise. The development bank of Ethiopia (DBE) is specialized financial institution established to promote the national development agenda through development finance and close technical support to viable projects from the priority areas of the government by mobilizing fund from domestic and foreign sources while ensuring its sustainability. DBE's distinguishes feature is its "project" based lending tradition. Project financed by the Bank are carefully selected and prepared through appraised, closely

supervised and systematically evaluated. Since its establishment in 1909, the bank has been playing a significant role in promoting overall economic development of the country. Currently the bank has 105 branches in Ethiopia including districts and head office. All branches of the bank are not on the same level in all aspects of the bank operation. On the bases volume of loan limitation, type of bank services and number of employees from higher level to lower level, the bank has classified as head office (corporate level), Districts and under each districts there are different branches of the bank which are graded as A, B and C branches. Thus, in the study, the populations (projects) for this study was purposively only considered the head office (corporate level) financed project, because the under consideration corporate levels are engage in mega project financing and have a relevant information related to the research input. Because the selected workers are workers those tagged for project financed to give close technical support by the selected office.

As mentioned in the scope of the researcher spotlights its study in all industrial projects. Therefore the sample of the study was taken only from projects which are financed at by head office of case bank. Since there are different group in the projects with natural like agriculture, manufacturing and agro processing the researcher applied proportionate stratified stage sampling technique in order to incorporate different projects and for not excluding potential project on the representative sample. In doing these first the researcher divide the total population (projects) in to different street then because all the list of projects is available systematic sampling technique is applied to select the sample projects which represent those strata and the total population (projects)

3.4. Sampling method and Sample size

The study is conducted on project financed by Development Bank of Ethiopia at head office for consecutive of three years. The study took place between January 2012 and December 2014. The total project financed for consecutive of three years are 232. From these approved projects only 50 projects are completed successfully on schedule time and the rest means 182 projects recorded delay in their implementation. However, even if the implementation delay occurred in project financed by DBE, the time of delay is different from project to project. Therefore, the total populations of the study areas or head office of the bank are 182 projects with their time of delay since the bank schedule project implementation time on monthly based. It is very

expensive in terms of money and time to collect data from these entire projects or contacts, so that the researcher has to determine sample which is representative for the total population. Uma Sekarar (2003) stated that a simplified formula to calculate sample sizes of finite population, which is used to determine the sample size for this particular study. A 95% confidence level is assumed for this formula to determine the sample size, at e=0.05 and the sample size is determined by the following formula.

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

where 'n' is the required sample size,

N is the population size and

E is the level of percision

Applying the above formula, $\mathbf{n} = \frac{\mathbf{182}}{1+182(0.05)2}$= 125.085 =125 rounding to nearest integer. Hence the sample size for this research included 125 projects financed by Development Bank of Ethiopia. Therefore, the project managers of 125 projects are considered to be the population of the study.

3.5. Data Type and Source

For the completion of this study, both primary and secondary types of data are used. The primary data for this research is acquired from sample respondent project manager who are selected from the project financed by case bank. The secondary data was used (referred) from project file or recorded documents by case bank.

3.6. Data Collection Instruments

The instrument of data collection employed was a questionnaire. The questionnaire has part I giving the background information of the respondent. They were also requested to state Company/Project currently you manage. Part II ranking of determinants mentioned based on their contribution in project delay. Part III of the questionnaire sought the data on previous projects that the respondent had handled. The specific data asked included project initiation, project planning/Design system, implementation, project monitoring, and evaluation and controlling system, communication, project closure related issues. Also asked was the reason for

each project delay. A last question sought the respondents' personal opinion on the cause of projects completed delay.

3.7. Data Collection Procedure

Because of the pre-determined sample population and the nature of the study, the sampling methodology used was non-probability. Purposive or judgmental sampling and snow-balling sampling methodologies were therefore applied in this study. The sampling procedure was also guided by the records available on the registered professionals in the construction industry who formed the population. The identified project managers were issued with the questionnaire. When they recommend fellow project managers that the researcher could give questionnaires they were further requested to fill the research questionnaire.

3.8. Data Processing and Analysis

3.8.1. Data Processing

After collecting data from primary sources it was appropriately checked. In addition to that in-house editing was made by the researcher to detect errors committed by respondents during completing the questionnaires. Then the edited data was coded and manually enter in to the computer.

3.8.2. Data Analysis

In the study both qualitative and quantitative methods of data analysis techniques was employed. Analysis of data in this research was done by using statistical tools like correlation and multiple regressions. Descriptive analyses was also used for demographic factors such as gender, age, educational level, and for how long has been the project manager are working as project manager.

In the study six hypotheses were analyzed using methods of statistical inference. Pearson Correlation analysis was conducted to test the existence of significant relationship between the delay factors and project delay. Then, the multiple regression analyses were also conducted to determine by how much percent the independent variable i.e. delay factors explain the dependent variable which is project implementation delay. Tables were employed to present the data and statistical package for social science (SPSS) version 24 were used to support the analysis.

Base on the conceptual model of the study expressed by Figure 2.2, mathematically the relationship between delay factors and project completion is expressed in the multiple regression equation as:

$Y = X_0 + X_1 (PI) + X_2 (PPD) + X_3 (I) + X_4 (MECS) + X_5 (C) + X_6 (PC) + e$

Where: Y= PD= Project Delay.

PI = Project Initiation.

PPD = Project Planning/Design system.

I = Improper Implementation.

MECS = Project Monitoring, Evaluation and Controlling system

C = Poor Communication.

PC = Improper Project Closure

X_0= the constant parameter.

X_1= Coefficient of Project Initiation.

X_2= Coefficient of Project Planning/Design system.

X_3= Coefficient of Improper Implementation.

X_4= Coefficient of Project Monitoring, Evaluation and Controlling.

X_5= Coefficient of Poor Communication.

X_6= Coefficient of Improper Project Closure.

e = error term

In accordance with the above mathematical model the constructed hypothesis were tested by considering significance level of each constant parameter in multiple regression analysis.

3.9. Piloting of the instrument

The questionnaire and the interview schedule were tested on 10 respondents purposefully selected who were project management from project selected for the study. The responses were then assessed to ensure that they were clearly stated and meaningful to the respondents. The result of the pilot were analyzed and later used to improve the data collection tool by correcting some of the ambiguous statements hence making the tool more effective and reliable. The pilot also allowed the researcher to check if the variables could be easily processed and analyzed.

3.10. Validity of the Instrument

Validity refers to the ability of the instrument to measure what it is designed to measure. Kumar, (2005) as cited by Ndegwa, (2013) defines validity as the degree to which the researcher has measured what he set out to measure. It is the accuracy and meaningfulness of inferences which are based on research results. Validity therefore is whether an instrument is on target in measuring what is expected to measure. To check the validity of the instrument the researcher worked with the adviser as the expert and agreed whether the instrument was valid or not. The tool was also subjected to peer review to ensure its validity. The instrument was subjected to face validity, content validity test and construct validity test through testing it using the research done in the past.

3.11. Reliability Test

In any research results, the issue of validity and reliability are important confidence measures. The validity of the instrument was and found valid Cronbach's alpha is one of the most commonly accepted measures of reliability. It measures the internal consistency of the items in a scale. It indicates that the extent to which the items in a questionnaire are related to each other Fubara and Mguni, (2005). The normal range of Cronbach's coefficient alpha value ranges between 0-1 and the higher values reflects a higher degree of internal consistency. Different authors accept different values of this test in order to achieve internal reliability, but, satisfactory value is required to be more than 0.6 for the scale to be reliable (Sekaran, 2003 as cited by Sirbel, 2012).

Table 3.1 Cronbach's Alpha for total questionnaire

Cronbach's Alpha	N of Items
0.859	39

Source: Own Survey (2017) ***n=125***

In the study the Cronbach's alpha coefficient was calculated of the questionnaire. Table 3.1 above shows the values of Cronbach's Alpha of the questionnaire and the entire questionnaire. For the fields, the values Cronbach's Alpha is 0.859. This is considered high. Hence, the result ensures the reliability of the questionnaire. Cronbach's Alpha for the entire questionnaire equals

0.859 which indicates very good reliability. Therefore, it can be said that the above questionnaire is adequately reliable.

3.12. Ethical Considerations

The respondents in the study were assured of confidentiality of the information they provided. The respondents were not required to write their names in the questionnaires or interview schedules. No respondent was forced to participate except those that voluntary agreed to participate in the study. The researcher maintained humility and conducted the research with utmost honesty avoiding distortions and misleading data manipulation. The researcher also endeavored to arrive at conclusions based on objective inferences that are purely and blindly guided by the data collected. The analysis of data and interpretation of the results of data analysis were restricted to what the data actually tell.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATIONS AND INTERPRETTATIONS

4.1 Introduction

This chapter presents results of the data collection. This was guided by the objectives to present empirical evidence to agree or controvert. The objectives were to determine how poor project initiation influences completion of projects, how poor project planning/design system influences completion of projects, how improper implementation influences completion of projects, to investigate how poor project monitoring, evaluation and controlling system influences completion of projects, to examine how poor communication influences completion projects, to find out how Improper project closure influences completion of projects. Descriptive statistics have been used to describe respondents' characteristics. Further regression analysis has been used to determine the relationship between the initial duration and final project duration. Correlation test has been applied to test the instrument reliability and the correlation of responses on the same issues coming from different professions.

The researcher issued 125 questionnaires and had a return rate of 125 or hundred percent (100%) response rate). Questionnaire Return rate= 125x100/100= 100%. The questionnaire return rate as per the calculation is 100%. This return rate is considered acceptable for the purposes of data analysis, and the discussion here forth came from these data.

4.2. Description of respondents' characteristics

Here, the analysis of the collected data is presented in table followed by interpretations. A median response value below 3 indicates disagreement, 3 neutrality, and above 3 agreements to the statements of the respondents. A frequency analysis was also conducted for the profiles related to the general information about the respondents and projects. This information includes the gender of the respondents, age of the project manager, education level of the project manager, working experience they have as project manager and delay time.

Table 4.1: ***Frequency and %age of Respondents' Demographic Characteristics***

No	Demographic Factors	Classification	Frequency (n = 125)	%age (%)
1	**Sex of project manager**	Male	105	84
		Female	20	16
2	**Age of project manager**	24-35 Years	39	31.2
		36-45 years	56	44.8
		46-55 Years	23	18.4
		above 55 Years	7	5.6
3	**Education level of project manager**	Certificate	3	2.4
		Diploma	12	9.6
		Degree	85	68
		Maters and above	25	20
4	**Experience of project manager**	1-6 Years	70	56
		7-15 years	40	32
		16-20 Years	13	10.4
		above 20 Years	2	1.6
5	**Delay Time**	less than 6 month	21	16.8
		7-12 month	33	26.4
		13-24 month	23	18.4
		above 24 month	48	38.4

This table shows the summary of the respondents, characteristics. As we can see from the table above, 105 (84%) of the respondents were male and the remaining 20 (16%) of them were females this shows gender distribution was not equal. Regarding the age the findings established that 39 (31%) took part in the study were between 24-35 years, 56 (45%) respondents was took part in the study were between 36-45 years old. While 23 (18 %) respondents aged between 46-55 years. Only 7(5.6%) respondents were above 55 years. From this we can observe that in the sampled project manager found in their productive age.

As far as the educational qualification of employees is concerned, the below Table 4.1 shows that from the total respondents majority, 85 (68%) of the respondents were degree holders, 25 (20%) of the respondents were masters holder and slightly less than a quarter of them (12)

respondents or ten percent (10%) who had diploma level as their highest level of education, (3) respondents or two percent (2%) who had diploma level as their highest level of education. The results imply that the project management committee members are fairly educated and can understand and discharge their mandate in the management of projects.

Regarding the work experience the findings established that (85) respondents or sixty eight percent (68%) of the respondents had a degree as their highest level of education. This was followed by slightly more than a quarter, (25) respondents or twenty percent (20%) who had a degree and above and slightly less than a quarter of them (12) respondents or ten percent (10%) who had diploma level as their highest level of education, (3) respondents or two percent (2%) who had diploma level as their highest level of education. The results imply that the project management committee members are fairly educated and can understand and discharge their mandate in the management of projects.

The last demographic variable was delay time. Again table 4.1 indicates that (21) respondents or sixteen point eight percent (16.8%) said that projects were delay less than six month while (33) respondents or twenty six percent (26%) said they were delay between seven and twelve month. (23) Respondents or eighteen percent (18%) insinuated that projects were delay between 13-24 month, around (48) respondents or thirty eight percent (38%) insinuated that projects were found to be recorded delay more than 24 month. The results imply that most of the projects are categorized to be recorded delay more than 24 month.

4.4 Ranking of the Delay Factors

Table 4. 2 shows the ranking of the delay factors according to the value of their means. The factors with means exceeding to 3.8 present a fairly high agreement of the respondents. Based on the ranking, the three most influential factors of project completion are: Poor Project Initiation (PPI) (mean = 3.847); Poor Project Monitoring, Evaluation and Controlling System (PPMECS) (mean = 3.661); and Poor Project Planning/Design System (PPPDS) (mean = 3.657). It is easy to find that PPI is the factor having the highest value of the means. The information delays and lack of information exchange between the parties are serious problems when the project is running and encountering with deadline or important milestones. These problems lead to the different understanding about the project objectives between the parties. Conflicts can occur when the

information is not updated in time to one of the parties. The old information could be done by the contractor. Completed works could not meet the owner's requirements, also caused schedule delays and cost overruns. The two factors that have the lowest means with comparing to other factors are: (IPC) improper project closure (mean = 3.592), and (II) improper implementation (mean = 3.567).

Table 4.2: The ranking of the delay factors

Code	The Delay Factors	Mean	Rank
PPI	Poor project initiation	3.847	1
PPMECS	Poor project monitoring, evaluation and controlling system	3.661	2
PPPDS	Poor project planning/Design system	3.657	3
PC	Poor communication	3.616	4
IPC	Improper project closure	3.592	5
II	Improper implementation	3.567	6

Source: Respondents

4.5. Results and Discussion of Inferential Statistics

4.5.1. Correlation results of project implementation delay factors and project delay.

In this study, to process the correlation analysis, data from the scale typed questionnaires were entered in to the SPSS software version 24.

Correlation coefficient is used to specify the strength and the direction of the relationship between the independent variable (poor project initiation, poor project monitoring, evaluation and controlling system, poor project planning/design system, poor communication, improper project closure and improper implementation) and the dependent variable i.e. project delay. The results of the correlation between these variables are shown in Table 4.3 below. As it is indicated in the Table 4.3 below, generally there is a positive, strong and statistically significant correlation between project implementation delay factors and project delay at 1% level of significance ($P<0.01$) which signifies the project implementation delay factors on the project completion delay.

To be specific for each factors, from presented correlation matrix table again we can observe that there is a positive, strong and statistically significant correlation between project implementation

delay factors (poor project initiation, poor project monitoring, evaluation and controlling system, poor project planning/design system, poor communication, improper project closure and improper implementation) and project completion delay, as the correlation coefficient between each factors and project delay described as 0.738, 0.923, 0.692,0.912,0.827 and 0.778 respectively and in all cases at 1% significance level ($p < 0.01$).

Table 4.3: Correlations between determinants of project delay and project delay

No.	Items	Project Delay		
		Degree of the correlation	**P value**	**Significance**
1.	Poor project initiation	.738***	0.001	Significant
2.	Poor project monitoring, evaluation and controlling system	.923***	0.000	Significant
3.	Poor project planning/Design system	.692**	0.020	Significant
4.	Poor communication	.912***	0.000	Significant
5.	Improper project closure	.827***	0.000	Significant
6	Improper implementation	.778***	0.000	Significant

*** *Correlation is significant at the 0.01 level (2-tailed), and* ** *Correlation is significant at the 0.05 level (2-tailed)*

Source: Own Survey (2017)

4.5.2 Regression Analysis and Hypothesis Testing Results

The regression analysis was conducted to know by how much the independent variable explains the dependent variable. In this study, regression was employed to examine the effect of the independent delay factors such as poor project initiation, poor project planning/design system, improper implementation, poor project monitoring, evaluation and controlling system, poor communication and improper project closure on dependent variable project delay.

The Multiple regression analysis model the relationship between the independent variable and dependent variable. The coefficient of determination (R^2) ad correlation coefficient (R) shows the degree of association between the two. The results of the analysis indicates that R^2=0.943 and R = 0.971 that indicates that there is a positive relationship between independent variable (poor

project initiation, poor project planning/design system, improper implementation, poor project monitoring, evaluation and controlling system, poor communication and improper project closure) and dependent variable (project delay).Therefore, to make sure that there is low co-linearity, the values of Tolerance and VIF (Variance Inflation Factor) should be checked. According to Pallant (2007), tolerance indicates to what extent the independent variables do not explain much of the variability of a specified independent variable and the value should not be small (more than 0.10) to indicate the absence of co-linearity. In addition to that, VIF, the inverse of tolerance value, should have a value of less than 10 to avoid any concerns of co-linearity (Pallant, 2007). Hence, the values in the Table 4.4 below indicate low co-linearity because all Tolerance values are above 0.1 and all VIF values are less than 10. Therefore, these tests reflect that the variables used in the study are free from multi co-linearity.

Table 4.4: Multicollinearity Test table

No	**Model**	**Unstandardized Coefficients**	**Collinearity Statistics**	
		B	Tolerance	VIF
1.	(Constant)	1.349		
	Poor project initiation	.235	.293	3.412
2	Poor project planning/design system	.076	.493	2.027
3	Poor project monitoring, evaluation and controlling system	.469	.186	5.377
4	Poor communication	.361	.231	4.332
5	Improper project closure	.140	.332	3.007

Source: Own Survey (2017) ***n=125***

The results of regression analysis indicate positive and significant relationship between the project delay factors and project delay. This means the predictive variables (independent variables) such as poor project initiation, poor project planning/design system; poor project monitoring, evaluation and controlling system, poor communication and improper project

closure jointly determine the dependent variable project delay. The adjusted R-Square (R^2 = 0.943) shows the explanatory power of all variables involved in the study. Hence poor project initiation, poor project planning/design system; poor project monitoring, evaluation and controlling system, poor communication and Improper project closure jointly determine (explain) 94.3% of the variance in project delay. Whereas 5.7% of the project implementation delay/project completion delay was explained by the variables which were not included in the study.

Table 4.5: Determinants of Project Implementation Delay

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	1.349***	0.100		13.442	.000	1.151	1.548
Poor project initiation	0.235***	0.040	.240	5.934	.000	.314	.157
Poor project planning /design system	0.176**	0.034	.068	2.199	.030	.008	.144
Poor project monitoring, evaluation and controlling system	0.469***	0.043	.551	10.854	.000	.384	.555
Poor communication	0.361***	0.035	.465	10.212	.000	.291	.431
Improper project closure	0.140***	0.031	.169	4.466	.000	.078	.203

****Significant at p<0.01 and ***Significant at p<0.05*

Source: Own Survey (2017)

The values of the unstandardized Beta Coefficients (β) indicate the effects of each independent variable on dependent variable. Furthermore, the values of the unstandardized Beta Coefficients in the Beta column of the Table 4.10 above, indicate which independent variable (determinants of delay) makes the strongest contribution to explain the dependent variable (project delay), when the variance explained by all other independent variables in the model is controlled. The *t* value and the sig (*p*) value indicate whether the independent variable is significantly contributing to the prediction of the dependent variable.

The study's hypothesis testing was made based on β, t, and P values. Hence using those coefficient results, the proposed hypotheses for this study were tested as follows.

Hypothesis 1: Poor project initiation has a significant negative impact on project completion.

The results of multiple regressions, as presented in Table 4.5 above, revealed that poor project initiation had a positive and significant effect on project delay with (β =*0.235*, t = 5.934 *&* p <0.05). Thus, the proposed hypothesis was accepted. This statistics infer that if the owner of the project increased its focus to project initiation by one %, then its project delay would decreased by 23.5%. Therefore, poor project initiation had a negatively affect the project completion time. The findings agree with Chan and Kumaraswamy (1997)who argues that the factor that always happen relate to the poor project initiation are: improper define the project scope , lack recruit appropriate staff, unforeseen ground conditions, low speed of decision making involving all the project team, poor job description for a project manager, lack of comprehensiveness of feasibility study and Analysis.

Hypothesis 2: Poor project planning/design has a significant negative impact on project completion.

The results of multiple regressions, as presented in Table 4.5 above, revealed that poor project planning/design had a positive and significant effect on project delay with values (β=0.176, t = 2.199, p < 0 .01). Thus, the proposed hypothesis was accepted. Here also the beta coefficient implies that if the attention is given to poor project planning/design by one %, by keeping the other variables constant its project delay would decreased by 17.6%. Therefore, poor project planning/design had a negatively affect the project completion time. The findings concur with Olatunji (2010), Wambugu (2013) and Sambasivan & Soon (2007) that points out the factors always happen relate to poor project planning/design are; inadequate resource and finance allocation, inadequate estimation of project completion schedule , lack of complete and proper design and specification of projects at right time, contractors improper planning.

Hypothesis 3: Poor project monitoring, evaluation and controlling system have a significant negative impact on project completion.

The results of multiple regressions, as presented in Table 4.5 above, revealed that poor project monitoring, evaluation and controlling system had a positive and significant effect on project

completion with values (β = 0.469, t = 10.854, p <0.01). Thus, proposed hypothesis was accepted. In this case the beta coefficient describe that keeping the other variables constant , in this model a one % change in the overall project monitoring, evaluation and controlling system, the consequence would be made change time in project completion by 46.9 %. Therefore, poor project monitoring, evaluation and controlling system had a negatively and significant effect on project completion. The findings concur with Chism and Armstrong (2010) and Kwak & Ibbs (2002) that points out the factors always happen relate to poor project monitoring, evaluation and controlling system are; no proper inspection/supervision, poor quality control, inadequate supervision and inspection of work, inadequate site inspection, lack of effective monitoring and feedback.

Hypothesis 4: Poor communication expected to affect project completion negatively.

The results of multiple regressions, as presented in Table 4.5 above, revealed that poor communication had a positive and significant effect on project completion with values (β=0.361, t = 10.212, p < 0 .01). Thus, the proposed hypothesis was accepted. Here also the beta coefficient implies that if communication is changed by one %, by keeping the other variables constant its project completion would increase by 36.1%. Therefore, poor communication had a negatively and significant effect on project completion. This finding is also supported findings of by (Bilczynska and Wojcik, 2014 and Kwak & Ibbs, 2002) in which identified that distance and lack of face-to-face communication, lack of common rules, misinterpretation of written text, lack of communication expectations, lack of communication plan, information distribution path, progress reporting, and information sharing system for management have a negatively and significant influence on project completion time.

Hypothesis 5: Improper project closure expected to affect project completion negatively.

The results of multiple regressions, as presented in Table 4.5 above, revealed that improper project closure had a positive and significant effect on project completion with values (β=0.140, t = 4.466, p < 0 .01). Thus, the proposed hypothesis was accepted. Here also the beta coefficient implies that if the project closures improper differ by one %, by keeping the other variables constant its project delay would increase by 14%. Therefore, improper project closure had a negatively and significant effect on project completion. The findings concur with Oyetunji and

Anderson (2006) that points out the factors always happen relate to improper project closure are inadequate project delivery system and incomplete a post implementation review.

Generally the results of multiple regression analysis supported the six hypotheses constructed to test a positive and significant influence that each determinants have on project delay.

Table 4.6.Summary of hypothesis testing for regression

Hypothesis	Tool	Outcome
H1: Poor project initiation has a significant negative impact on project completion.	Multiple Regression	**Accepted**
H2: Poor project planning/design has a significant negative impact on project completion.	Multiple Regression	**Accepted**
H3: Poor project monitoring, evaluation and controlling system have a significant negative impact on project completion.	Multiple Regression	**Accepted**
H4: Poor communication expected to affect project completion negatively.	Multiple Regression	**Accepted**
H5: Improper project closure expected to affect project completion negatively.	Multiple Regression	**Accepted**

Source: Own Survey (, 2017)

CHAPTER FIVE

SUMMARY, CONCLUSION ANDRECOMMENDATION

This chapter deals with the summary of major findings of the study and conclusions drawn from the analysis made. Furthermore, based on the findings of the study, possible recommendations are made.

5.1. Summary of Major Findings

The main purpose of this study is to investigate the effect of poor project initiation, poor project planning/design system; improper implementation, poor project monitoring, evaluation and controlling system, poor communication and improper project closure on project delay in the selected projects which are financed by Development Bank of Ethiopia at head office level. To examine the effect of factors of project delay, the specific objectives were formulated to investigate the determinants of delay in project implementation.

Before going to the main analysis of the study, a reliability test was administered to check whether the questionnaire is reliable or not. In this regard, as Table 3.1 illustrates, all the questionnaires were reliable and acceptable with Cronbach's Alpha result 0.859.

Related to the demographic characteristics, Table 4.1 specifies that majority of the projects' managers, 105 or (84%), were male. The majority of the project managers 56(44.8%) were 36-45 years of age. Regarding educational level, majority of the project managers were degree holders. Regarding to work experience the table indicates that majority of the project managers, 70 or (56%), have less than six years of work experience as project manager. Moreover, the same table indicates that majority of the projects were recorded delay for more than 24 month which accounted to 48 or (38.4%).

In addition, the result of correlation analysis was made. In this regard Table 4.3 shows that all the independent variables (poor project initiation, poor project planning/design system; improper implementation, poor project monitoring, evaluation and controlling system, poor communication and improper project closure) are positively and significantly correlated with the dependent variable (project delay) at 1 % level of significance ($P < 0.000$). The highest correlation is attached to poor project monitoring, evaluation and controlling system ($r = 0.923$), followed by poor communication ($r = 0.912$), improper project closure ($r = 0.827$), improper

implementation, (r = 0. 778), poor project initiation (r = 0.738) and poor project planning/design system (r = 0.692).

Before performing multiple regressions analysis a test for the existence of multi-co-linearity was also made. As Table 4.4 indicates, since all the Tolerance values are above 0.1 and almost all VIF values are less than 10, multi-co-linearity tests reflect that the variables used in the study are free from multi-co-linearity.

Finally, a multiple regression analysis was conducted to test the hypothesis. In this regard, Table 4.5 depicts the results of multiple regressions. The result shows that the model tested is significant ($p < 0.000$) with the adjusted R square 0.941.This value indicates that 94.1 % of delay occurred is attributed to the five independent variables entered into the regression. The remaining 5.9 % of the variance in project completion may attribute to other factors. Regarding the hypothesis as Table 4.6 illustrated, since the beta coefficients were found significant, the five hypothesis in the study are accepted. Moreover, the findings revealed that**,** poor project initiation is found being the most dominant factor in determining project delay of the project financed by the case bank.

5.2. Conclusion

The conclusions of the whole study was be made through comparison of the project objectives and the end results. The broad aim of this study has been largely achieved in a number of ways. Sufficient evidence has shown that project financed by DBE projects completion are influenced by various determinants.

The study concludes that poor project initiation, poor project planning/design system, poor project monitoring, and evaluation and controlling system, poor communication and improper project closure was affect the project completion negatively. This is in line with (Chan and Kumaraswamy 1997; Wambugu, 2013; Theodore, 2009; Dainty et al, 2003; Bilczynska and Wojcik, 2014; Oyetunji and Anderson, 2006) who found that poor project initiation, poor project planning/design system, poor project monitoring, and evaluation and controlling system, poor communication and improper project closure are critical factors in project implementation delay. Lack of project planning/design system seems to be the main constraint which project

completion. It has also shown that improper implementation; the constraints of building materials, labor, and construction equipment's have been unable to provide adequate funding to a reasonable and affordable standard schedule time.

The study also concludes that the practices that lead to reduction in delay on implementation of projects financed by DBE are use of efficient project-specific activate, assigning well trained workers for specific tasks, good project planning and controlling, conflict resolution during project implementation, establishment of good governance, good public accountability, management and good forecasting of work plan, estimation project duration, assigning specific tasks to project teams and also assigning projects to specific teams.

As the finding of correlation analyses confirmed, there is also a strong, positive and significant relationship between delay factors (poor project initiation, poor project planning/design system, poor project monitoring, and evaluation and controlling system, poor communication and improper project closure) and project completion. Similarly, from multiple regression analysis result that variability in project completion is resulted from the variability in delay factors (poor project initiation, poor project planning/design system, poor project monitoring, and evaluation and controlling system, poor communication and improper project closure). Hence, from this the study concludes that the project completion is determined by the emphasis that gives to each project delay factors.

Regarding the relative influence of an individual component of delay factors on project completion is concerned; the result of multiple regression coefficient shows that poor project initiation is the most dominant factors in determining the project completion.

Finally, the results of this study revealed that poor project initiation, poor project planning/design system, poor project monitoring, and evaluation and controlling system, poor communication and improper project closure negatively influences project completion. Hence, it can be concluded that project completion time scheduled was affected due to poor project initiation, poor project planning/design system, poor project monitoring, and evaluation and controlling system, poor communication and improper project closure negatively.

5.3. Recommendation

Aligned with the above conclusion, the researcher proposes the following corrective measures that should be considered by concerned stake holders in order to reduce project implementation delay regarding DBE financed projects. These include:

- As finding of the study shows poor project initiation is the most determinants of project delay so that any business initiators should select project those are more familiar and interesting for them and scope of project should be established, controlled and must be clearly defined and be limited. This includes the amount of the systems implemented and amount of projects process reengineering needed.
- As far as planning/design system, monitoring, and evaluation and controlling system, communication and project closure should be improved to have basic indicators for project implementation as opposed to the current practice where mostly observation and project manager appointed staff are solely relied on to certify a project as duly completed. In addition an individual or group of people who participate in those activities should be given responsibility to drive success in project implementation.
- Further, there should be stringent monitoring and evaluation at all stages of project implementation including concept and design stages, thorough project feasibility studies, formulation of appropriate planning, monitoring of procurement process, adequate and proper design of projects, proper specialization of duties, tasks and responsibilities, transparency and accountability of workers, proper closure of project and capacity building for staff.
- As far as those determents are identified as factors for project delay the lending bank and project owners should be committed to improve the deficiency and to enhance the project completion against its time schedule.

Suggested further research

This study gave attention to the key institutional factors that influence timely completion of projects financed by Development bank of Ethiopia. The study could not exhaustively cover all these factors and therefore there is need for more research in this area. The study recommends the inclusion of additional players in the sector namely external factors and weighted factor for the unknowns in project implementation. This will ensure that a project implementation can be properly managed with more certainties and anticipated outcomes.

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APPENDICES

Appendix I

St. Mary University

Department of Business School

Post Graduate Program in Masters of Business Administration

Questionnaire to be filled by Project Manager

Dear Respondents: - My name is **Tadesse Tulu Mumicha.** I am studying Masters of Business Administration in St. Mary University. Now I'm going to conduct study on the *"DETERMINANTS of project Implementation Delay" in the case of selected Project financed by Development Bank of Ethiopia*. Dear respondent, I would like to express my deep appreciation for your generous time, honest and prompt responses.

Objective: -This questionnaire is designed to collect data about the *"DETERMINANTS of project Implementation Delay"*. The information that you offer me with this questionnaire was used as a primary data in my study which I am conducting as a partial fulfillment of the requirements for the Masters of Business Administration (MBA) degree. Therefore, this research is to be identifying the main determinants of project implementation delays and to draw up possible recommendations for successful implementation of projects with respect to planning and managing of implementation time.

General Instructions

- Your name is optional in this questionnaire.
- In all cases where answer options are available please tick **(√)** in the appropriate box.

Confidentiality:-I want to assure you that this research is only for academic purpose authorized by the St. Mary University. No other person will have to access this collected data.

If you have any queries concerning the questionnaire, please contact me:

Name: Tadesse Tulu

Phone Number: +251 910669811 / 0947319620

Email: tadetulu@gmail.com

Thank you for your cooperation!!

PART I: Background Information

1. **Sex of the project manager:** 1=Male ☐ 2=Female ☐
2. **Age of the project manager:** ----------Years
3. **Education level of the project manager:**

   1=Certificate ☐ 2= Diploma ☐ 3=1st Degree ☐ 4=2nd Degree and above ☐
4. **Experiences as a project manager:--------Years**
5. **Name of Company/Project currently you manage: ----------**
6. **State the delay time ----------Months**

PART II: Project delay

Instruction: Rank the items presented in the table from 1st to 6th based on their contribution in project delay. You may leave item/s unranked that you believe have no contribution for delay of project.

Sr. no	Items	Rank
1	**Poor project initiation**	
2	**Poor project planning/Design system**	
3	**Improper implementation**	
4	**Poor project monitoring, evaluation and controlling system**	
5	**Poor communication**	
6	**Improper project closure**	

PART III: Determinants of Project Implementation Delay

Please state your level of opinion for the determinants of project implementation delays by using the following rating scales: Please tick and fill in the blanks if you select others. Each scale represents the following rating:

1 = **strongly disagree** 2 = **Disagree** 3 = **Neutral** 4 = **Agree** 5 = **strongly agree**

Question:

Which of the following related to factors stated below are main determinants of project implementation delays?

No.	Determinants of delays	Agreement scale					Remark
	Items	1	2	3	4	5	
A	**Project Initiation related**						
1	Lack of comprehensiveness of feasibility study and project Analysis						
2	Improper define the project scope and work definition						
3	Lack of recruit appropriate staff						
4	Inappropriate layout of project office						
5	Poor job description for a project manager						
6	Lack of awareness about business nature well						
7	Lack of awareness about procedure of the funding institution						
B	**Project Planning/ Design related**						
8	Inadequate estimation of project completion schedule						
9	Lack of complete and proper design and specification of projects at right time.						
10	Lack of recognized in advance the resources needed to carry out projects to cover unseen costs while planning the project						
11	Lack of clarity of design and work specification						
12	Lack of proper estimation of the cost that will be needed to complete the project.						

13	Inadequate resource and finance allocation						
14	Failure at the conceptual planning and design stages						
15	Identify contractors improper and lack of staff motivation						
C	**Implementation related**						
16	Improper materials procurement						
17	Shortage of construction input						
18	Change in material prices/price escalation						
19	Low productivity and efficiency of construction equipment						
20	Absence quantity and quality of labors						
21	Low working permit of labors						
22	Lack of high technology mechanical equipment						
23	Inefficient use of equipment						
D	**Monitoring, Evaluation and Controlling system related**						
24	Lack of control systems of project during implementation						
25	Lack of site management and Supervision						
26	Inadequate communication, including progress tracking and reporting						
27	Lack of effective monitoring and feedback						
28	lack of project management technical capability and experience						
29	Inadequate leadership quality of the project manager						
E	**Communication related**						
30	Poor communication between members of the project team						
31	Lack of frequent coordination between parties involve						
F	**Project Closure related**						
32	Lack of project closure report in term of time and quality						
33	Incomplete a post implementation review						

PART IV: Other opinion of respondents

1. If you have other opinion/experience on determinants of delay in project rather than mentioned above kindly request to add here

a) _____

b) _____

c) _____

d) _____

_____

Thank you again for your cooperation!!

Appendix II

Correlations between delay factors and project delay

Correlations

		PI	PPD	I	MCES	C	PC	PD
PI	Pearson Correlation	1	.601**	.547**	.816**	.788**	.717**	.738**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000
	N	125	125	125	125	125	125	125
PPD	Pearson Correlation	.601**	1	.911**	.711**	.605**	.562**	.692**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000
	N	125	125	125	125	125	125	125
I	Pearson Correlation	.547**	.911**	1	.788**	.612**	.607**	.778**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	125	125	125	125	125	125	125
MCES	Pearson Correlation	.816**	.711**	.788**	1	.837**	.770**	.923**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000
	N	125	125	125	125	125	125	125
C	Pearson Correlation	.788**	.605**	.612**	.837**	1	.789**	.912**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	125	125	125	125	125	125	125
PC	Pearson Correlation	.717**	.562**	.607**	.770**	.789**	1	.827**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
	N	125	125	125	125	125	125	125
PD	Pearson Correlation	.738**	.692**	.778**	.923**	.912**	.827**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	125	125	125	125	125	125	125

**. Correlation is significant at the 0.01 level (2-tailed).

Multiple Regression analysis while used all variables

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.975[a]	.950	.948	.10232

a. Predictors: (Constant), PC, PPD, PI, C, MCES, I

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.577	6	3.930	375.330	.000[b]
	Residual	1.235	118	.010		
	Total	24.812	124			

a. Dependent Variable: PD b. Predictors: (Constant), PC, PPD, PI, C, MCES, I

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
(Constant)	1.306	.095		13.765	.000	1.118	1.493		
PI	.146	.043	.149	3.401	.001	.231	.061	.219	4.560
PPD	.150	.064	.135	2.353	.020	.276	.024	.128	7.831
I	.282	.069	.282	4.117	.000	.146	.418	.090	10.151
MCES	.333	.052	.391	6.364	.000	.230	.437	.112	8.940
C	.385	.034	.496	11.420	.000	.318	.452	.224	4.464
PC	.121	.030	.147	4.062	.000	.062	.180	.324	3.083

a. Dependent Variable: PD

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions						
				(Constant)	PI	PPD	I	MECS	C	PC
1	1	6.962	1.000	.00	.00	.00	.00	.00	.00	.00
	2	.017	20.508	.22	.00	.01	.00	.01	.08	.06
	3	.009	27.181	.32	.03	.02	.05	.01	.01	.03
	4	.006	35.440	.00	.09	.00	.00	.02	.10	.84
	5	.004	43.842	.12	.28	.00	.00	.07	.75	.03
	6	.003	51.900	.33	.19	.16	.01	.39	.02	.02
	7	.001	104.767	.01	.41	.80	.93	.51	.05	.02

a. Dependent Variable: PD

Multiple Regression analysis after excluding the one variable (Improper Implementation)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.971[a]	.943	.941	.10896	2.164

a. Predictors: (Constant), PC, PPD, PI, C, MECS

b. Dependent Variable: PD

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.400	5	4.680	394.179	.000[b]
	Residual	1.413	119	.012		
	Total	24.812	124			

a. Dependent Variable: PD

b. Predictors: (Constant), PC, PPD, PI, C, MECS

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
	(Constant)	1.349	.100		13.442	.000	1.151	1.548		
	PI	0.235	.040	.240	5.934	.000	.314	.157	.293	3.412
	PPD	0.076	.034	.068	2.199	.030	.008	.144	.493	2.027
	MECS	0.469	.043	.551	10.854	.000	.384	.555	.186	5.377
	C	0.361	.035	.465	10.212	.000	.291	.431	.231	4.332
	PC	0.140	.031	.169	4.466	.000	.078	.203	.332	3.009

a. Dependent Variable: PD

Collinearity Diagnostics[a]

Model		Eigenvalue	Condition Index	Variance Proportions					
				(Constant)	PI	PPD	MECS	C	PC
1	1	5.967	1.000	.00	.00	.00	.00	.00	.00
	2	.016	19.408	.32	.00	.03	.01	.07	.05
	3	.006	31.124	.20	.00	.28	.08	.00	.52
	4	.005	34.715	.11	.16	.37	.00	.19	.40
	5	.004	40.721	.08	.41	.06	.11	.71	.02
	6	.002	48.898	.29	.42	.26	.80	.02	.01

a. Dependent Variable: PD

Reliability Testing

Case Processing Summary

		N	%
Cases	Valid	125	100.0
	Excluded[a]	0	.0
	Total	125	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.859	39

DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of **MARU SHETE (PhD and Associate Professor)**. All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full's to any other higher learning institution for the purpose of earning any degree.

Tadesse Tulu _____

Name Signature

St. Mary's University, Addis Ababa **June, 2017**

ENDORSEMENT

This thesis has been submitted to St. Mary's University School of Graduate Studies for examination with my approval as a university advisor.

MARU SHETE (PhD and Associate Professor) _____

Advisor Signature

St. Mary's University, Addis Ababa **June, 2017**