Addis Ababa University School of Commerce
Department of Project Management
Addis Ababa, Ethiopia

DELAY FACTORS ON PROJECT IMPLEMENTATION USING PUBLIC-PRIVATE PARTNERSHIP DELIVERY METHOD: *THE CASE OF ETHIOPIAN ELECTRIC POWER*

BY: BINIAM BERIHU

ADVISOR: ABRARAW CHANE (PHD)

THIS PROJECT WORK SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR AWARD OF MASTER OF ARTS IN PROJECT MANAGEMENT (MAPM)

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DELAY FACTORS ON PROJECT IMPLEMENTATION USING PUBLIC-PRIVATE PARTNERSHIP DELIVERY METHOD: THE CASE OF ETHIOPIAN ELECTRIC POWER

BY: BINIAM BERIHU

Approved by:

ABRARAW CHANE (PHD)		
Advisor	Signature	Date
WUBSHET BEKELE (PHD)		
Internal Examiner	Signature	Date
ABERA LEGESSE (PHD)		
External Examiner	Signature	Date

DECLARATION

This is to certify that the project title: DELAY FACTORS ON PROJECT IMPLEMENTATION USING PUBLIC-PRIVATE PARTNERSHIP DELIVERY METHOD: THE CASE OF ETHIOPIAN ELECTRIC POWER, was carried out by me, Biniam Berihu under the supervision of Abraraw Chane (PhD). The study is an original work of the researcher and all sources used in the paper are duly acknowledged and comply with the requirements of the regulation of the university.

Biniam Berihu		
Name	Signature	Date

STATEMENT OF CERTEFICATION

This is to certify that Biniam Berihu has carried out this project work on the topic **"DELAY FACTORS ON PROJECT IMPLEMENTATION USING PUBLIC-PRIVATE PARTNERSHIP DELIVERY METHOD: THE CASE OF ETHIOPIAN ELECTRIC POWER,"** under my supervision. This work is original and suitable for the submission in partial fulfillment of the requirement for the award of degree of Masters in Project Management.

Dr. Abraraw Chane _____

Signature _____

Date _____

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I would like to extend my appreciation to my Advisor, Abraraw Chane (PhD), for taking his time and resources to advise me on this research. His comments and suggestions were key for determining the scope of the study area and identifying materials for this paper. I am grateful for his patience and knowledgeable guidance during the making of this paper.
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LIST OF ACRONYMS AND ABBREVATIONS

APMG	Association of Project Managers Group
BOOT	Build-Own -Operate-Transfer
BOT	Build-Operate-Transfer
BTO	Build-Transfer-Operate
CFA	Confirmatory Factor Analysis
DBFO	Design- Build-Finance -Operate
DBFOM	Design-Build-Finance-Operate-Maintain
DCMF	Design-Construct-Manage- Finance
EEP	Ethiopian Electric Power
EEU	Ethiopian Electric Utility
EFA	Exploratory Factor Analysis
EPC	Engineering Procurement and Construction
EPEC	European PPP Expertise Center
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
FA	Factor Analysis
FDRE	Federal Democratic Republic of Ethiopia
IBRD	International Bank for Reconstruction and Development
IPP	Independent Power Producer
KMO	Kaiser-Meyer-Olkin
MOF	Ministry of Finance
O&M	Operations and Maintenance
PCA	Principal Component Analysis
PDM	Project Delivery Method
PFI	Private Finance Initiative
PPP	Public-Private Partnership
RII	Relative Importance Index
SPSS	Statistical Package for the Social Sciences
SPV	Special Purpose Vehicle
UN	United Nations
VFM	Value For Money

ABSTRACT

PPP projects are practiced in most of developed countries whereas in developing nations such as Ethiopia, it is getting attention in recent years. As of 2018, FDRE MOF pipelined various PPP projects in various sectors. One of them is power sector which is from solar and hydro sources. It is high investment project schemes so that, it is believed to relief shortage of finance and incorporates the private sector. However, after projects being selected and pipelined, a significant delay observed after contract signed with the private entity before reaching financial close which in turn delayed the subsequent project implementation. The project company or Special Purpose Vehicle (SPV) agreed to provide finance 25% from his resources (shareholders) and 75% from financing sources (lenders and equity providers). Due to this and other issues the project showed lengthy delay.

The research design is descriptive type and it has employed a quantitative data research methodology. Primary and secondary data were used in the study. Laws, rules, regulations, directives, and other periodicals and publications published and issued by public organizations were used as secondary data in the study.

The researcher studied previous research works on PPP prepared by different authors. All the participants are from the public entities, which include from a total of ninety-two respondents, five participants are from the FDRE MOF and the remaining eighty-seven participants are from EEP. They were selected using a non-probable purposive selection. A Likert scale questionnaire on 39 delay factors derived from previous literature used and rated by responsive of 92 participants. In terms of validity, the questions are intended for the purpose of research objective i.e., to assess, identify, rank and attempt to reduce to principal factors using the statistical software SPSS and MS Excel. For reliability test, the questions tested and Cronbach alpha i.e., 0.945, showed above the threshold value of 0.7.

The findings of the study showed that PPP power projects in Ethiopia have all 39 delay factors above mean importantly contribute to the delay of project implementation. Further, respondents indicated other issues related with convertibility to provide guarantee by public entity, less attractiveness by investors, coordination and institutional capacity of procuring entity, etc. Inadequate feasibility supposed to have subsequent impact of delay on project implementation and this mitigated at early stage by identifying the different interests and expectations of the stakeholders, identifying excessive risks associated with PPPs and allocation of risks, and in forecasting issues.

Key words: delay factors, Public-Private Partnership, delivery method, financial close

1 CHAPTER ONE: INTRODUCTION

1.1 OVERVIEW

The power sector is a critical component of any country's economic development. Power is a key input for a country's economic growth successful growth and functioning across all sectors, and thus for employment generation. GDP growth and other socio-political improvements are intimately linked to electricity demand. As a result, power investments demonstrate a clear and verifiable economic return following the completion and commissioning of financed power projects, as well as a multiplier effect on the larger economy (Badissy *et al.*, 2015).

Ethiopian Electric Power (EEP) is one of sole governmental electric power providing company in Ethiopia after split into two firms from former Ethiopian Electric Power Corporation (EEPCo). The Ethiopian Electric Power (EEP) and the Ethiopian Electric Utility (EEU) were established in December 2013 (FDRE, 2013); (Council of Ministers, 2018). The Ethiopian Electric Utility's (EEU) major activities, as stated in Council of Minister Regulation No.303/2013, are to build and operate electric distribution networks, procure bulk electric power, and sell electric energy to customers. On the other hand, EEP mainly construct and maintain power plants (from sources of hydro, wind, geothermal, solar) and high voltage transmission line; and sells electricity to neighboring countries Kenya, Djibouti and Sudan.

Up to the year 2018, these big projects were delivered to contractors through conventional type project delivery method (PDM). The term delivery method is to mean

the approach used to organize the project team so as to manage the entire designing, building, operation and maintenance process. (Leitermann, 2018).

However, in recent years traditional project delivery method is being replaced by PPP project delivery method. In traditional project delivery method, the most practiced approach follows steps that first a consultant is hired to execute feasibility and design part of a power plant then after securing sources of finance proceed to the process of selection of a contractor. The other most repetitive and widely used type of traditional project delivery method is EPC (Engineering Procurement and Construction), which gives more advantage to the Employer in reducing time and cost by transferring risk of design, procuring and construction activities and associated to the contractor. As practiced in many infrastructures throughout our world, PPP delivery method allowed in Ethiopia by law (Federal Negarit Gazette, 2018).

This approach is quite new practice in different infrastructural sectors in Ethiopia. Following this new strategic approach that helps the government and private sector mutually to execute infrastructural (roads, buildings, dams, etc.) works and services too. By inviting private sector entities, passing the selection of the appropriate qualified bidder, to involve into long-term contractual agreements and arrangements for providing finance, construction, operation and maintenance of large capital-intensive infrastructure projects, this PPP delivery approach helps the government improve its financial shortage. (Agrawal, 2010).

This academic project work tries to investigate the progress and issues of PPP project implementation in the Ethiopian Electric Power projects. PPP/IPP (Independent Power

Producer) project office opened and launched various project phases from project feasibility up to tendering or selection of successful private sector to construct, operate and sell electric power to Employer as per predefined and agreed tariff.

This paper evaluates broadly the current status and identified issues while passing project phases up to tendering or contracting stage (Commercial Close). From list of pipelined power projects (FDRE MOF, 2019), which are from solar and hydro power sources of intended to be delivered through PPP project schemes, Gaad and Dicheto solar PPP projects are more progressed to reach to contracting stage (Commercial Close) but not financial close stage which is currently in progress.

The private entity who signed contracts for Gaad and Dicheto solar PPP repeatedly extended time to enter into implementation phase in order to secure the source of finance process. As per the contracts, the private entity (Project Company) agreed to provide finance 25% from itself (its shareholders) and 75% from other project finance lenders.

1.2 STATEMENT OF THE PROBLEM

The traditional method of procuring infrastructure by the public institutions through fiscal budgeting has increasingly become unviable most especially in a developing country like Ethiopia (Hair, J. F., Black, W. C., Babin, B. J. and Anderson, 2010).

The traditional procuring method used in EEP power projects up to recent years are not synced with the growing investment requirement. This show gaps in public financing leads to necessitate the introduction of PPPs as a viable option expected to solve the gaps in completing power projects with shortage of finance.

The Ethiopian Government by its council of Ministers ratified PPP framework for implementation of PPP projects in 2018. From then, one of its implementations infrastructural areas is the power sector, which involves high investment and many stakeholders handled by the selected private company.

Aligned with this, Ministry of Finance, issued list of pipelined projects and among them power projects from sources of solar and hydro are incorporated (FDRE MOF, 2019).

Currently, two PPP projects progressed up to financial close stage among the pipelined projects are PPP solar power projects to be constructed in Afar and Somali regional state (as shown in Table 7.2-1) and other pipelined projects are on feasibility study stages such as on solar and hydro power projects located in various parts of Ethiopia.

The term financial close is the stage point at the end of the procurement phase where the PPP contract has been signed before commencement of project implementations (Heathcote, Chris, 2018).

PPP projects are a long-term contractual arrangement of more than 20 years, and it is observed a significant delay to implement the pipelined PPP projects as expected or planned. As per the two PPP solar projects shown on Table 7.2-2, the time nearing the Financial Close is more than 28 months.

As indicated in the Figure 7.2-1, the finalization of the PPP arrangements, leading to financial close, involves a series of steps. The activities required close interaction between the public authority and private partners. PPP projects in developing countries are characterized by a longer financial closing time. As per (Ernst and Young, 2015),

financial close stage including bid process take 12-18 months and which is far less time from existing practice on financial close time for the solar projects.

As a result, existing investigation into the causes of financial close delays in PPP projects in developing countries are essential in order to provide substantial learning, which might help to streamline the execution of future PPP projects.

In addition, an author Abebe (2021) suggested under critical success factors as convertibility issue for delaying the PPP project implementations, whereas this paper investigates further compared with good practice check lists by European PPP Expertise Center (EPEC) and other related papers.

EPEC describes a good project to be bankable, and a bankable project involves a solid financial, economic, and technical plan. However, it includes a risk allocation scheme appropriate for the nature of the project (Abebe Degefa, 2021) (EPEC, 2011).

When a project or contract is said to be "bankable" if it comprises a level of risk allocation which would be generally acceptable to lenders (Badissy *et al.*, 2015).

Literatures show that PPP projects are experiencing considerable delays in nearing financial close in most developing countries, as well as more cancellations and higher financing costs (The World Bank Group, 2010).

According to Bhatia (2010), PPP projects continue to reach financial close in developing nations, although at a slower rate, and there is substantial evidence of projects being postponed and cancelled (Kline, 2002).

Solomon & Srinath, (2016) described the importance of investigating and analyzing factors that in turn affect not only the prolonged delay of issues in financial close but also prevent hold back the likely success of new PPP projects (Solomon and Srinath, 2016).

The private partners and the public authority often need to carry out a considerable amount of detailed work to reach financial close (EPEC, 2015) at this stage, the efforts needed should not be underestimated.

Thus, this study tries to explore the PPP delivery method practices on implementation of power projects and to address identified key issues in the process of adopting and implementing PPP project delivery method at nearing financial close stages.

The findings from the assessment and PPP project practice recommendations can help the project owner/government, policy makers, and private sector to improve PPP delivery method issues and the PPP policy.

1.3 RESEARCH QUESTION

This study tries to address the following research question: -

- What are the practices in similar PPP projects and challenges to implement the PPP delivery method at feasibility and financial close stages?
- What are the factors causing delays in PPP projects from reaching financial close stages?
- What are the categorized factors into principal components for the identified delay factors; and

- What could be the interpretations of categorized principal factors that trends to draw lessons in implementation of similar power project cases in the future?

1.4 OBJECTIVE OF THE RESEARCH

1.4.1 General Objective

The general objective of the study is to investigate the current practices of PPP power projects and identify the issues related to delay factors on implementation of PPP projects as best PPP practices from literature.

1.4.2 Specific Objectives

The study has the following specific objectives:

- To investigate the existing practice of PPP project delivery method in similar power projects at feasibility and financial close stages;
- To identify and assess the factors causing delays in PPP projects from reaching financial close;
- To categorize into principal factors the identified causes of financial close delay in PPP projects; and
- To analyze and prioritize the issues faced in adopting and implementing PPP power projects.

1.5 RESEARCH HYPOTHESIS

1. Null Hypothesis (H0): There is no significance importance of delay factors on PPP project implementation schedule.

2. Alternative Hypothesis (HA): there is significance importance of delay factors on PPP project implementation schedule.

1.6 SCOPE AND LIMITATIONS OF THE STUDY

The scope of this study is limited to assess PPP project delivery method of the case organization i.e., Ethiopian Electric Power. In which, EEP is adopting PPP project delivery method as of 2018 to execute power projects from source of hydro, solar, geothermal and wind. Different private companies approached at different stages to implement in PPP project scheme and none of them commenced to implement it or yet delayed for its commencement. The study focuses to assess by dispatching survey questionnaires to the employer PPP/IPP project offices and Ministry of Finance who have stakes in the project.

This study focuses on pre-development stage or up to financial close stage, where the private sector influence on project implementation is less compared to implementation and on operations stages. Time and cost are the two main constraints of the study that may limit the paper to focus mainly on the public or employer side that was the main actor in the execution of the project on pre-implementation stage and leaving alone all the other stakeholders. Although recognized their influence on the project execution. Hence, looking mainly from one aspect, that is, from the public partner point of view is the main limitation of this study.

In addition, professionals are bored and busy to response questionnaire on time and fully. Some responses were very late that hinder early completion of the research and also some

responses were not complete and miss questions that jeopardize reliability of the research.

1.7 SIGNIFICANCE OF THE STUDY

The findings and outcome of the study will be useful for all parties and stakeholders involved in the implementation of Public Private Partnership (PPP) delivery method which are policy makers, ministry of finance, projects in Ethiopian Electric Power (EEP), private sector investors and lenders. In addition, it will be useful as a reference for future researchers and students who have interested in this area.

FDRE Ministry of Finance (MOF) has several key roles associated with the development and implementation of PPP Projects. As the owner of the PPP Framework, MOF is responsible for its management and development and serves as the key driver of Government policy with respect to the use of PPPs (FDRE MOF, 2017).

The council of Ministers ratified Public Private Partnership Proclamation 1076/2018, and MOF, under former name Ministry of Finance and Economic Cooperation, issued the directives for the PPP proclamation further have the power to issue regulations necessary for the implementation of PPP project approach (FDRE, 2018).

As the research focuses on how the PPP project is managed to success, identifying challenges along with their way out and documenting the lessons drawn with suggested ways for further improvement is important for its continuous improvement in PPP projects implementation and undertakings. Moreover, as PPP is a progressively growing trend in project delivery engagements, understanding its modalities, and identifying the

practical challenges at financial close stage will help project managers or public and private sector in their future venture of similar projects.

Hence, Policy maker may take the findings and outcome of the study as an input to improve the existing laws and as an input for enactment of future PPP related laws. The ministry of finance and Ethiopia Electric Power are the entities responsible for the procurement and implementation of PPP projects respectively. These two entities can be regarded as the main actors in this paper as far as concerned for successful implementation of the PPP projects. Private sector investors and lenders have vital roles in implementing PPP projects in the country; in this regard the study will be useful as a reference document for such stakeholders.

Finally, this study will serve as threshold and reference for those who are interested to conduct further research works on PPP projects and will have a great contribution to the larger body of knowledge.

1.8 ORGANIZATION AND CONTENTS OF THE RESEARCH

The study is organized into five chapters:

- Chapter one provides a brief background to the study, discusses statement of the problem, the research question, objective of the study, scope and limitation and significance of the study.
- Chapter two presents literature of theories on the PPP delivery method and reviews related literature on the subject under consideration

- Chapter three which presents the research methodology in which the research methods, data collection, the sources of data and the methods of data analysis.
- The fourth chapter focuses on the presentation, analysis and interpretation of the research findings.
- Finally, chapter five provides conclusion and recommendations of the study.

2 CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

In this chapter, both theoretical and empirical parts are going to be reviewed with respect to Public Private Partnership (PPP) delivery approach and related literatures. which contains the nature, component, characteristics and importance of the Public-Private-Partnership. which was used as a guide line to conduct the study. In my literature review, I have tried to see representative literature discussing about PPP project delivery method.

2.2 THEORETICAL REVIEW

2.2.1 PPP: Meaning and Nature

Numerous authors, practitioners, organizations and governments use the term "Public Private Partnership" without actually explaining what the term means. This reflects our finding that there isn't a consistent definition of PPP (MFA of The Netherlands, 2013; Osei-kyei and Chan, 2015). One significant feature that is common to all PPP definitions is the sharing of risks and responsibilities among parties (Ke et al., 2010).

Public-private partnership (PPP) refers to the procurement approach where the project is executed with a broader span of contractual relationships between the public and private sectors to provide an asset and/or a service. It is a procurement which is to deliver public infrastructure and/or service incorporating various sectors including transportation, water treatment, energy, environment, health, and education. PPP is expected to provide benefits to the public entity, private sector, and consumers by involving the participation of the government and the private financing initiatives (Ma and et al, 2019).

PPP-based research has aroused wide interests in recent decades. Both developing and developed countries have actively been inviting private sectors to be involved in constructing infrastructure projects (Ma and et al, 2019).

2.2.2 PPP model compared to the traditional public procurement model

First, a private party designs the project in response to a clearly stated need and problem aim. Second, there is the private party's ongoing involvement and accountability in the asset or service's operation. This is not the same as a private entity handing over an asset or service to the government after construction or implementation for operation and maintenance. The private stakeholder's financial exposure and incentive to continue operations and maintenance, as well as to be properly reimbursed for establishing the project and continued involvement in it, is the third distinguishing factor.

In contrast to conventional public procurement, which focuses on inputs, many development professionals believe that the optimal PPP approach is to describe a PPP's requirements in terms of outputs rather than inputs. While there are many variations along a procurement process, in a typical procurement for a totally publicly owned and operated asset or service, the government or its contracting authority might select a site or region and specify the asset or service's technical specifications, requirements and design (inputs). The bidders will then be asked to provide the cost of the asset or service. The winning bidder subsequently constructs or implements the required work in accordance with the government's requirements or inputs, and submits the finished product to the government for approval.

2.2.3 Risks and value for money (VFM)

Risks are typically shared between public and private players in PPPs scheme depending on their ability, willingness, and incentive to control and manage risks at the lowest cost, as well as whether alternatives to the proposed PPP project and its structure exist now or will in the near future.

While the idea of shifting risk to the private sector may appeal to contracting government officials, they must have a thorough understanding of the landscape from the perspective of the private sector. Private sector actors, on the other hand, must be willing to accept full responsibility for their technical and financial ability to perform as promised, as well as to take a long-term approach to their commitment.

Governments should strive to reform legislation, increase capacity, and foster an investment-friendly environment in order to promote long-term private sector participation. In many circumstances, government-controlled elements can help to balance off other types of country and political risks that are difficult to predict or manage.

More specifically, governments can try to ensure:

- Sound and committed leadership.
- Security and the rule of law.
- An overall approach of integrity and transparency.
- Procurement processes that are open and transparent.

- An adequate legal and regulatory framework and progress with sector reforms (including independent tariff-setting mechanisms that allow for cost recovery and a return to investors)
- Effective means of resolving disputes and pursuing rights and remedies in international courts or arbitral tribunals and enforcing them locally.
- The ability to collect revenues and tariffs.
- The affordability of the tariffs for local users and if not, local government and donor support to bridge the gap.
- The ability to ring-fence and expatriate foreign currency revenues.

2.2.4 Finance Structure of PPP Projects

It is assumed that the PPP contract is undertaken by a newly formed special purpose vehicle (SPV) under a project finance structure.

A separate legal entity established by the private sector winning bidder for the sole purpose of implementing and operating the project which delivers the project through a project finance structure

A PPP involving an SPV is usually financed by loans (debt) from lenders in the form of debt, and by investment in share capital (equity) from investors. Governments sometimes contribute loans or equity as well.

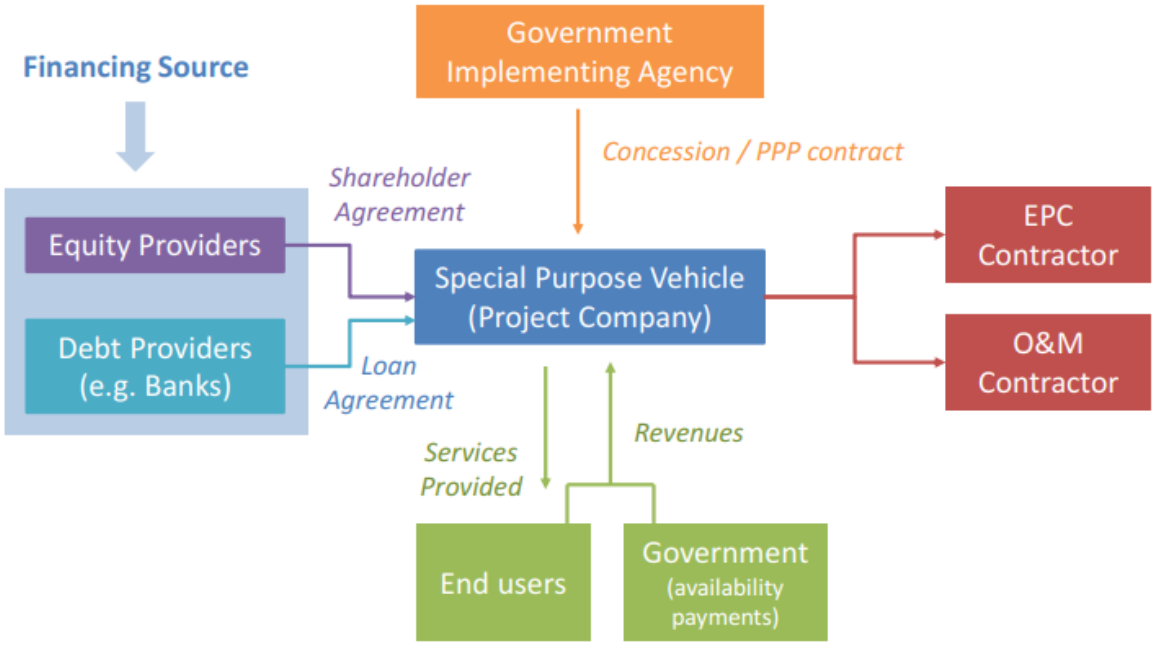

Figure 2.2-1 Typical PPP Project Structure (ESCAP UN, 2014) (IBRD-WB, 2017).

The project planning authority seeks for equity investors throughout the planning process. Equity investors are often stakeholders with technical competence that is essential for the project. The duty of recruiting debt investors for the project is subsequently entrusted to these equity investors. It is impossible to float any bonds on the open market at this time. This is due to the fact that cash flow will materialize at a later period, and such initiatives are filled with risk. This is why banks are almost exclusively involved in debt financing at this point. In fact, at this time, no one bank is willing to take on all of the risk. A consortium of banks is frequently used to offer debt funding at this stage.

The private party can be paid by charging service users fees, the government, or a combination of the two. Payment is conditional on performance, which is a key aspect. Legal, regulatory, and practical factors usually dictate the payment system. This covers

the project company's capacity to collect or offer services directly to end-users, as well as the government purchaser's and end-users' payment obligations and capacities.

In government-pays PPPs, the government or, more commonly, a government entity is the only source of revenues for the private party. (This is usually called a single buyer or 'off-taker' regime.)

- Full payment being made is contingent on the delivery of the agreed availability or volume.
- There can also be a combination of quality and quantity criteria. An example is an independent power project in which a government distribution company buys all the output and delivers it to consumers.

In a user-pays PPP, the private party delivers a service to end-users and earns money by charging and collecting fees from them. A toll road is an example. Government funds can be used to augment these levies (or tariffs, or tolls).

In government-pays model, the broad allocation of roles and responsibilities are shown below (Patricia O. Sulser, 2018):

Table 2.2-1 Allocation of roles and responsibilities for Public and Private entity

Government	Government purchaser	Private operator
Decision to use PPP structure		
Competitive tender and award	Proposal in response to	

of concession or rights to the private partner	tender	
Granting of exclusive rights to design, own, build and operate the project Sharing of any preliminary feasibility studies	Feasibility studies and resource validation and other project development activities	
General assurances to support the private partner: from the project development phase through to the construction and operation of the project	Final design and liaising with government purchaser to fit project into system	
Liaising with relevant ministries		
Support in obtaining permits and meeting other conditions to ensure effectiveness and financial close under the project documents	Applications for all permits and environmental and social impact assessments and community engagement	
Any public land, land rights, easements and rights of way for construction and operation	Land rights acquisition not managed by government	
Foreign currency assurances	Payments in agreed currency or indexed to the	Mobilizing debt and equity and political risk

	currency	protection (as required)
Tax arrangements	Constructing any necessary ancillary infrastructure	Engaging contractors and operations and maintenance providers. In accordance with promised, time and budget
Political force majeure protections during operation and termination	Commercial commitment to buy all delivered and/or available output.	Operation and maintenance in accordance with key performance indicators (KPIs)
If applicable, indemnity to political risk provider		

In all cases, payments are always conditional on the private partner meeting the contract's performance conditions. The private party is compensated in this manner. Payments may be lowered or withheld if performance falls short of a minimal standard.

2.2.5 Special Purpose Vehicle (SPV)

SPVs are "fence organizations with restricted pre-defined functions and legal identity" (Hair, J. F., Black, W. C., Babin, B. J. and Anderson, 2010). On the other hand, they are

called as Special Purpose Entities (SPE), shell companies, and project companies and all are terms used to describe SPVs.

SPVs are legal entities (for example, corporations and limited liability companies) designed to carry out certain tasks and transactions. They are frequently utilized in a variety of fields, including finance, tax planning, and project management (Sainati *et al.*, 2020).

Because of their legal structure, SPVs can form contractual partnerships. SPVs have the ability to borrow money and manage risk. SPVs are capable of arranging complicated transactions due to their ability to form contractual agreements. SPVs are more beneficial for mega projects than small projects, since mega projects are extremely risky ventures, notoriously difficult to manage, and often unable to achieve their original objectives (Hair, J. F., Black, W. C., Babin, B. J. and Anderson, 2010).

2.2.6 Stakeholders in PPP Projects

The stakeholders' relationships is not just between the Procuring Authority and the Project Company, but with and between other stakeholders including end-users, the public, equity investors, lenders, contractors, insurers, advisors, other government departments, and PPP units (Heathcote, Chris, 2018).

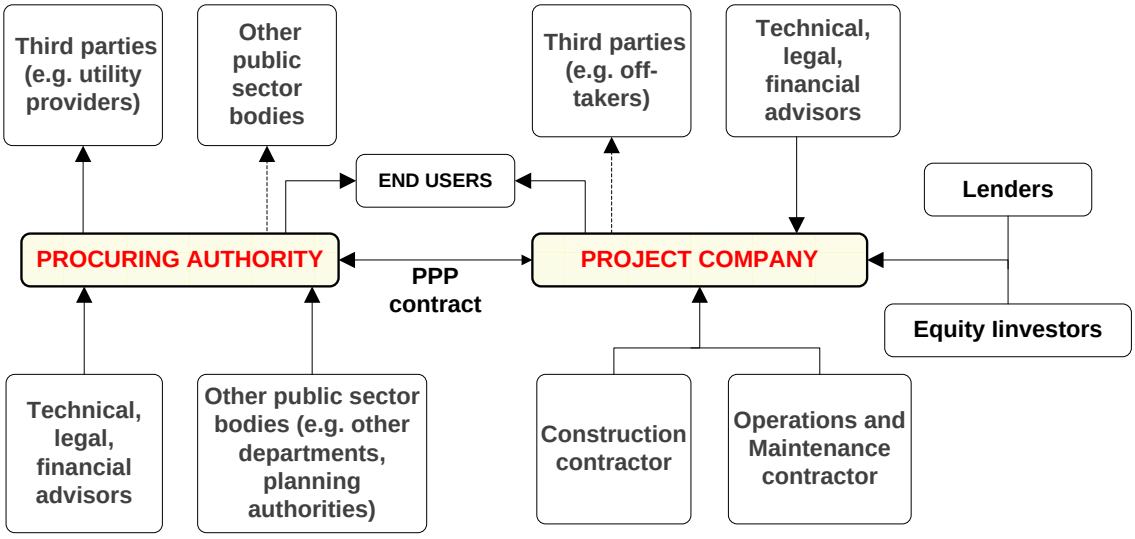

Figure 2.2-2 The potential relationship complexities involved in a PPP transaction

2.2.7 Governmental Considerations

When a PPP involves private financing, the investor is usually in charge of establishing the project's financial structure. However, the government may need to have a say in how it is designed.

Governments must confirm that the project design is bankable, which means that the project company will be able to obtain money. Although the ability to raise debt is critical, too much debt might obstruct risk transfer, therefore governments may aim to limit the amount of debt finance (leverage) available. How to manage risks during the transition from contract award to financial close, how to deal with the possibility of refinancing project debt, and how to define step-in rights for lenders and the government are just a few of the more minor but important details.

The financial framework may include government participation. Government-owned financial institutions, such as development banks and pension funds, might make direct or indirect contributions in the form of loans, shares, or guarantees (IBRD-WB, 2017).

2.2.8 Financial Close concept and its phases

Financial close indicates the commencement of the concession period in PPP projects. The appointed date, which is regarded to be the commencement of the concession period, is the date on which financial close is accomplished. According to the World Bank (1999), "perhaps there is a legally binding commitment from equity holders or debt financiers to contribute or mobilize cash for the project, and the funding must account for a major portion of the project cost, securing the facility's development." When all of the project and financing agreements have been signed and all of the conditions in them have been met, the financial closure occurs. It enables funds (such as loans, equities, and grants) to start flowing, enabling the project to move forward.

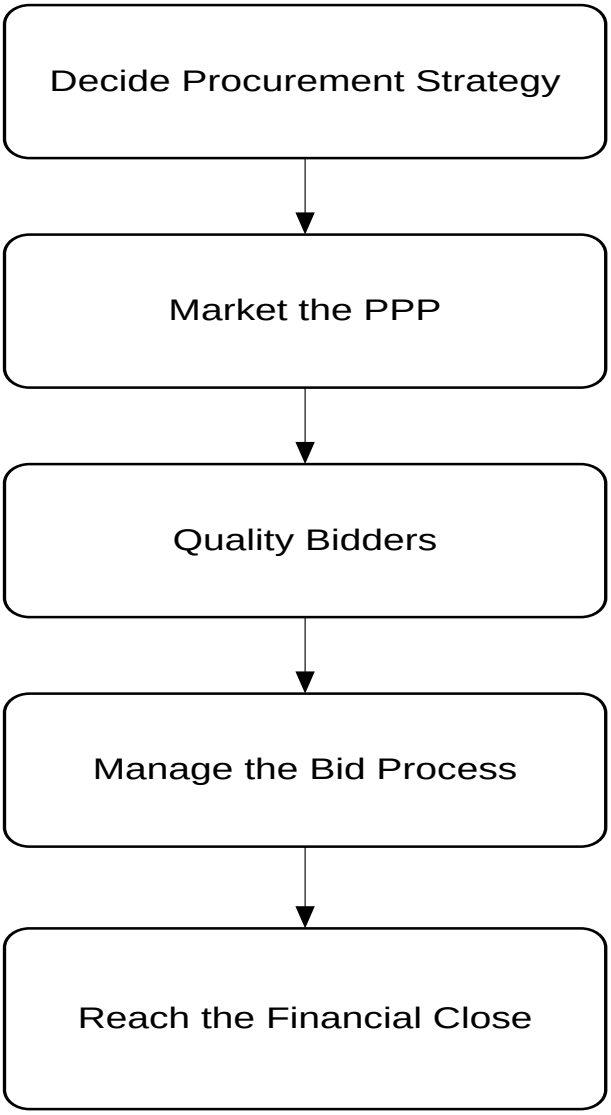

Figure 2.2-3 PPP Contract Delivery Steps from Procurement Strategy to Reach Financial Close (IBRD-WB, 2017)

2.2.9 Risks in going from award to financial close

A PPP contract may be awarded and signed before the project reaches financial close, or before all of the project's financing has been obtained. During this time, lenders do their due diligence, which includes a thorough examination of the PPP agreements. Before the

project firm can receive cash from the loan, the loan agreement establishes requirements precedent.

If the winning bidders are unable to get funding on the expected terms, the project may be delayed or even terminated as a result of this approach. Because re-opening the procurement process at this stage would involve delays and increased transaction costs for the government, the government may be under pressure to change the contract terms to meet the demands of lenders.

Governments have a few alternatives available to mitigate this risk. Bidders may be asked to furnish a bond, which may be called if the favored bidder fails to reach financial close within a particular time frame.

This could encourage bidders to make more specific financial plans before submitting bids. Another way to mitigate the risk is for governments to demand bids with pre-existing finance commitments (called an underwritten bid). Before the tender procedure can be completed, lenders must do due diligence. Both of these methods, however, raise the cost of bidding, thus discouraging bidders and undermining competition. For projects with a small number of possible lenders, requiring underwritten bids will immediately impose an upper limit.

Stapled financing is another option. Stapled financing is a project-specific financing package established by the government and made available to bidders during the tender process. The successful bidder has the option to employ the financial package for the project, but not the obligation. Stapled financing is popular in M&A transactions

(Mergers and acquisitions) and has been used for infrastructure projects. It is often utilized in European PPPs, with the EIB offering a portion of the SPV debt under pre-announced criteria to all bidders and subject to additional due diligence on the successful bidder.

2.2.10 Characteristics of PPP types

The fact that a PPP contract incorporates many project phases or services distinguishes it. The private party's duties, however, differ depending on the asset and service in question. Some examples of typical functions are as follows:

Design (sometimes known as engineering work) entails taking a project from its initial concept to its construction-ready design specifications**.**

Build, or Rehabilitate: When PPPs are used to build new infrastructure assets, the private party is often required to construct the asset as well as install all equipment. When public-private partnerships include existing assets, the private party may be liable for rehabilitation or expansion.

Finance: When a PPP involves the construction or rehabilitation of an asset, the private party is usually obliged to fund all or part of the needed capital investment.

Operate: the operating responsibilities of the private party to a PPP can vary widely, depending on the nature of the underlying asset and associated service.

Maintain: PPPs entrust the private party with the task of maintaining an infrastructure asset to a stipulated standard for the duration of the contract. This is a key component of PPP agreements.

2.2.11 PPP Contract/delivery types description:

a) Design-Build-Finance-Operate-Maintain (DBFOM); Design-Build-Finance-Operate (DBFO); Design-Construct-Manage-Finance (DCMF)

The tasks transferred to the private sector are characterized by this terminology, which encompasses a wide range of PPP contract types. It's possible that the maintain function isn't specified at all (so instead of DBFOM, a contract transferring all those functions may simply be described as DBFO, with responsibility for maintenance implied as part of operations). Design-Construct-Manage-Finance (DCMF), which is analogous to a DBFOM contract, is another potential definition along the same lines (Wadedwer and Patil, 2015).

b) Build-Operate-Transfer (BOT), Build-Own-Operate-Transfer (BOOT), Build-Transfer-Operate (BTO) Service Contracts

This method of presenting PPPs for new assets captures the project's legal ownership and control. In a BOT project, the private business owns the project assets until the contract is completed, at which point they are transferred to the public firm. The terms BOOT and BOT are frequently interchanged. A Build-Transfer-Operate (BTO) contract, on the other hand, transfers asset ownership after construction is finished. Ownership rights have a significant impact on how assets are handed over at the end of a contract.

c) Rehabilitate-Operate-Transfer (ROT)

Where the private party is responsible for repairing, renovating, or expanding existing assets, refurbish may replace Build in either of the name patterns indicated above.

d) Concession

Concessions can be found in a wide range of contracts. In certain jurisdictions, concession may relate to a specific type of contract, whereas it is more often used in others. In the PPP framework, a concession is most typically used to characterize a user-pays PPP. In Brazil, for example, the Concession Law only applies to user-pays contracts; contracts that need government payment are governed by a separate PPP Law. On the other hand, concession is sometimes used as a catch-all term to refer to a wide variety of PPP forms; for example, the Concession Law governs all recent PPPs in Chile, including fully government-funded contracts.

e) Private Finance Initiative (PFI)

The United Kingdom was one of the first nations to use the name Private Finance Initiative, or PFI, to describe the PPP idea. It is most commonly used to define a PPP as a method of financing, constructing, and managing new infrastructure.

f) Operations and Maintenance (O&M)

Existing asset O&M contracts may be considered PPPs if they are performance-based, long-term, and entail considerable private investment (sometimes also called performance-based maintenance contracts).

g) Affermage

Affermage contracts are similar to concession contracts, except that the government is normally liable for capital expenditures. In various countries, the term affermage has a specific meaning. Lease contracts and concessions are described in the World Bank's explanatory notes on water control. Depending on the term of the contract, such contracts may or may not fall within the concept of PPP.(Groom, Halpern and Ehrhardt, 2006).

h) Management Contract

The state retains asset ownership, and the public sector is responsible for capital expenditures, while the private sector is responsible for operation and maintenance (O&M). These contracts are usually for a period of three to five years.

i) Franchise

A franchise is a term that is occasionally used to represent a contract that is comparable to a concession, lease, or affermage contract, as defined in (Hair, J. F., Black, W. C., Babin, B. J. and Anderson, 2010).

2.2.12 Disadvantages and Pitfalls of PPP Option

The following list of disadvantages that are facing in choosing PPP delivery method (APMG, 2021):

- PPPs can be more complex than traditional procurement.
- PPPs have more visibility and political exposure.
- Public perception may equate PPPs with new or increased user charges.

- PPPs have high transaction costs than traditional procurement.
- PPPs have higher monitoring costs-this is part of the “price” of accessing the quality-of-service benefits of PPPs.
- PPPs appear more expensive in terms of financing-but you cannot judge value on the cost of single component.
- Rigidity-PPPs are a long-term contractual commitment for the government.
- Lack of competition (post award)-the private operator is in the position of monopolistic supplier.

2.3 EMPIRICAL REVIEW

International practices on PPP Power project implementation show different approaches for solving constraints in different countries.

2.3.1 A snapshot of case studies:

Here below are a snapshot of some of the important features of the related PPP power projects cases and the mechanism of solving challenges for each project factors (Patricia O. Sulser, 2018):

The Pamir energy project in Tajikistan

The project demonstrates how project participants must adjust to unforeseen and changing conditions, the necessity of dedicated controlling shareholders, investors, and the government, as well as the project's output's affordability and users' willingness to pay.

The Seven Sisters renewable energy projects in Jordan

The projects demonstrate the government's commitment to the development of the renewable energy industry, as well as their flexibility in identifying private partners, the power of a coordinated and standardized approach to processing several projects, and the use of a risk allocation framework that is recognizable and comfortable to private sector players.

The Azito gas-fired power project in Côte d'Ivoire

The project shows:

- how PPPs can survive difficult conflict situations. In Côte d'Ivoire, where the PPP partners continued to deliver electricity to its customers during the country's civil war.
- how the public sector's commitment to its contractual obligations has provided critical comfort to the private sector players, thereby prompting other investors to bring their resources to bear in other projects in the country.

PPPs have received widespread attention and practice in developed countries such as the United States, Europe, and the United Kingdom for their effective and efficient methods of delivering infrastructure projects, whereas PPPs have received less attention and practice in developing or third-world countries **(**Amade**,** 2014**)**.

In 2015, the total value of PPP agreements that reached financial closure in the European market1 decreased by 17% from 2014, with government-pay PPPs accounting for over

85% of the deals finalized. From this transport was the largest sector in value terms (EPEC, 2015). Mostly depends on payment availability, which varies depending on sources and how the private sector is involved.

The procurement process for PPP projects is lengthy and complex, and delays in various stages of building projects are only one of the numerous problems that the construction sector suffers across the world. Various governments have experienced significant time delays in the procurement of PPP projects (Ndame and Isa, 2019).

As per Ndame & Isa (2019) in construction delay in Nigeria: Shortages of construction materials, client financial issues, insufficient consultant expertise, and an inept project team, among other factors, were identified as reasons of construction project delays by indigenous and global construction businesses. On the other hand, Amade (2014) listed 45 constraining factors that affect the implementation of PPP projects in Nigeria and According to the research, the most crucial and inhibiting element hindering the implementation of PPP projects in the Nigerian construction industry is a lack of openness in partnership arrangements. Other factors include a lack of transparency and accountability in procurement activities, long bidding processes associated with PPPs, cost overruns, differences in stakeholder interests and expectations, inappropriate feasibility studies by contractors/consultants, excessive risks associated with PPPs, forecasting errors, lack of support and political will, and the public sector's inability to appreciate partnerships in a timely manner.

In China, a study by Zheng and et al (2021) stated in the research, the top three challenges to completing PPP projects in mainland China and the Hong Kong Special

Administrative Region were protracted negotiating delays, insufficient experience and capabilities, and extended delays due to political disputes.

As per ke and et al (2010) Interest rate, foreign exchange and convertibility, inflation, and market demand fluctuation are all examples of market level risks that should be handled equally by both parties. These risk factors have a negative impact on project schedules, causing implementations to be delayed. The explanation for this could be the same as stated above: both partners may be unable to handle it alone. Establishing a threshold for greater or lower revenue changes caused by risk events is a valuable experience for sharing these risks (Ke et al., 2010).

2.3.2 Broad Case studies in developing countries:

An extensive and similar research carried out to identify and assess the factors causing delays in PPP projects from reaching financial close in developing countries.

The study revealed the mean score rankings of 39 identified reasons for financial close delays in PPP projects, with the mean score values for all 39 reasons being extremely high. In the study, factor analysis was used to categorize the 39 reasons for financial closure delays into eight primary variables. Reduced bankability of PPP projects, unstable economic policy, concessionaires' weak financial, technical, and managerial capabilities, weak public institutions, lack of creditworthiness of both project sponsors and active partners, unfavorable host country economy, weak legal and unfavorable environment, and high contingent liabilities are among the factors (Solomon and Srinath, 2016).

According to the report, PPP projects in developing countries are characterized by a longer financial closing time. As a result, conducting empirical research to investigate the reasons of financial closure delays in PPP infrastructure projects in developing countries is critical in order to get valuable insight into how to streamline the execution of future PPP infrastructure projects.

Table 2.3-1 Financial close delays in PPP infrastructure projects

PPP project	Government /Country	Contract signing	Financial close	Duration of the delay (Days)
Tancredo Neves (Confins) International Airport	Minas Gerais, Brazil	7-Apr-2014	12-Aug-2014	127
Antônio Carlos Jobim (Galeão) International Airport	Rio de Janeiro, Brazil	2-Apr-2014	12-Aug-2014	132
Development of Fourth Container Terminal at Jawaharlal Nehru Port	Maharashtra, India	6-May-2014	2-Nov-2014	180
Hyderabad Metro Rail	Andhra Pradesh, India	4-Sep-2010	5-Apr-2011	213
Mactan-Cebu International Airport Passenger	Philippines	22-Apr-2014	22-Dec-2014	244

Terminal				
Kempegowda International Airport	Karnataka, India	5-Jul-2004	22-Jun-2005	352
Lekki-Epe Expressway	Lagos, Nigeria	24-Apr-2006	22-Oct-2008	930

2.3.3 Summary of identified delay factors PPP projects:

The above literature review deals with factors in the construction industry under PPP modality in general. The most appropriate ones have to be selected for PPP projects in power sector. The delay factors for PPP projects in power sector in Ethiopia are collected and summarized on the table below.

Table 2.3-2 List of Delay Factors (Thomas, & and et al., 2006) (Solomon and Srinath, 2016).

No.	Delay factors
1.	Failure to manage equity in time
2.	Dispute among equity partners
3.	Poor response from equity investors
4.	Adverse changes in the parent organization of promoters/equity investors
5.	Delay in debt syndication
6.	Failure to find sufficient financial institutions/banks

7.	High risk aversion of lenders
8.	Lenders not comfortable with project proposals
9.	Sudden change in cost of debt
10.	Government induced changes in interest
11.	Fluctuation in foreign exchange
12.	Liquidity crisis in market
13.	Fluctuation in financial/capital markets
14.	Poor bankability of concession
15.	Poor EPC/O&M arrangements
16.	High project revenue risk
17.	Lack of promoter/concessionaire confidence
18.	Non availability of corporate guarantee
19.	Poor debt recourse provisions in concession
20.	Poor risk allocation in concession agreement
21.	Poor financial/technical strength of promoters/ concessionaire
22.	Inadequate feasibility analysis/risk assessment
23.	Contract documentation delay
24.	Failure/Lack of similar projects
25.	Adverse investment climate for debt
26.	Recession in economy
27.	Delay in getting project approvals
28.	High public/political resistance
29.	Policy restrictions of banks for investment in PPPs

30. Very high project cost/debt requirement

31. Complexity/delay in security creations

32. Poor co-ordination between promoters and lenders

33. Inadequate legal/regulatory environment

34. Business compulsion of promoter (need for work)

35. Lack of bargaining power of promoter

36. High risk aversion of government

37. Adverse market (high competition)

38. Policy restrictions on risk acceptance

39. High contingent liabilities due to existing support to sector

2.4 CONCEPTUAL FRAMEWORK OF THE STUDY

The conceptual framework helps to identify the research variables and the expected findings. A conceptual framework is a collection of general ideas and principles drawn from various fields of study that are used to organize a future presentation. A conceptual framework, when well described, has the potential to be beneficial as a tool for scaffolding research and thereby assisting a researcher in making sense of later discoveries (Zegeye *et al.*, 2009).

Figure 2.4-1 Conceptual Framework of delay factors and the effect on PPP project schedule

3 CHAPTER THREE: RESEARCH METHODOLOGY

3.1 INTRODUCTION

This part of the study attempts to describe the methods through which the research questions can be answered. Accordingly, it states about the research design, population and sampling procedures, data gathering methods, validity, reliability of the study and way of data presentation.

3.2 RESEARCH DESIGN

According to (Creswell, 2014), research design is the plan and the procedure for the research to be conducted and it span the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation.

The research design used here is descriptive strategy which is the collection and analysis of quantitative data is carried out in the research.

The study began with the objective of identifying delay factors in a PPP project currently underway in EEP, as well as attempting to identify existing challenges for its implementation and remedial steps that are causing project extension or delay, therefore it is exploratory by quantifying the distribution of perspectives and perceptions of respondents. In addition, it is descriptive in that it aims to explain the indicated delay factors by using numeric answers from a five-Likert-scale questionnaire to score, prioritize, and rank them.

In order to examine the challenges confronting the PPP project delivery implementation process in EEP, the researcher employed closed ended and open-ended questionnaire surveys to gather quantitative data.

Quantitative method is employed in this study. In terms of quantitative, it attempts to quantify the problem by examining the delay factors by collecting expert opinions, perspectives, and perceptions on PPP projects that are behind schedule. prioritized delay causes and attempting to discover links using statistical methods.

3.3 POPULATION AND SAMPLING

The population of the study was people who have been directly participated in various tasks of PPP power projects such as feasibility study, planning, procurement, construction, supervision and contract administration activities of EEP.

The survey using questionnaire was performed on relevant governments agencies (EEP and MOF), departments, and practitioners.

Purposive or judgmental sampling, despite being ideal for exploratory research approach it provide advantages in low-cost, convenient, not time-consuming method whereas does not allow generalizations (Taherdoost, 2020). In this approach particular persons or events are selected deliberately in order to provide important information that cannot be obtained from other choices (Hair, J. F., Black, W. C., Babin, B. J. and Anderson, 2010). It is a form of non-probabilistic sampling where the researcher includes cases or participants in the sample because they believe that they warrant inclusion.

Six program directors of EEP (i.e., Planning, operation, and Engineering offices implementing PPP project office) involved on the quantitative data source in which the respondents provided their perception and understanding based on their technical and managerial background in EEP. On the other hand, the respondents include from FDRE Ministry of Finance, which is overall from public sector and exclude the private sector due to the lack of access to private firms.

Then questionnaires distributed to 100 target population that include deputy executives, directors, managers, technical experts, financial expert, legal expert & environmental expert to get their opinion and views and prioritize and rank delay factors in implementing PPP power projects in Ethiopia context.

3.4 DATA SOURCE AND TYPES

In order to answer the research questions of the study, both primary and secondary data sources were used. The primary data was obtained from open and close ended questionnaire. The structured questionnaire is adopted from relevant literatures (Thomas, & and et al., 2006). The secondary data was gathered from project management books, reliable literatures, company brochures, project reports and company's website about the subject area.

3.5 DATA COLLECTION PROCEDURE

The data collecting instruments being used for obtaining the primary data (close ended Likert scale questionnaires and one open ended question) was prepared on the concern of challenges confronting PPP projects in EEP and list of delay factors taken from PPP

projects on relevant literatures. 100 questionnaires with 40 questions were used to analyze the study.

The data to be collected through questionnaire responses can provide the right information about the subject matter of the study because the sample population was selected from among the main project participants in the different tasks of the PPP power project feasibility study, planning and implementation offices in EEP. In addition, 10 questionnaires dispatched to Ministry of Finance relevant PPP project office.

Among the different data collection method, questionnaire was selected and to be used mainly due to reaching the sample population easily and economically. The questionnaire prepared in online data collecting method using google forms which saves time for collection of filled paper and preparing data input into the statistical software SPSS or Microsoft Excel.

All selected sample population were requested to participate for the questionnaire through email.

The quantitative data procedure was scheduled based on the convenience of the numeric data set from Likert scale questions and rated by respondents. A day before the appointment date, the researcher sent an online survey tool link to all participants. Participants informed about the voluntary character of participation and the possibility to skip the question if they had no clear information about the issues to be raised by the researcher.

The participants were guaranteed anonymity. In addition to the oral briefing, participants had obtained written information about the problem statement of the study. All selected participates responded within five days and all the relevant documents gathered and reviewed within two weeks.

The quantitative data procedure done through email and in person, it was collected back within fifteen days' time. The researcher clarified about the questionnaire related questions to the participants by making calls and in person.

3.6 VALIDITY AND RELIABILITY

Test for Validity

The extent to which an instrument measures what it is designed to measure is referred to as validity (Hair, J. F., Black, W. C., Babin, B. J. and Anderson, 2010). Validity is also defined as the degree to which a theory is quantified accurately in a quantitative method (Hair, J. F., Black, W. C., Babin, B. J. and Anderson, 2010).

The external validity and the internal validity are the two types of validity that are commonly referenced in research literature. The generalization of study findings across populations, locations, treatment factors, and measurement variables is what determines its external validity. The capacity of a study design to measure what it wants to measure is its internal validity.

The researcher attempted to prevent any errors that may have occurred as a result of the defective measurement device. Some of the causes include the use of complicated

phrases that are beyond the respondent's understanding, confusing meanings, insufficient space for responses, response choice omissions, and other factors that cause the measuring instrument to be defective and lead to measurement errors. Poor sampling of the population of elements of concern is another kind of instrument weakness (Kothari, 2004).

The researcher personally evaluated the validity of data measuring instruments are accurate. The respondents selected for the questionnaire are closely familiar with the areas to be studied.

Test for reliability

In quantitative research, reliability refers to the consistency, stability and repeatability of results, that is, the result of a researcher is considered reliable if consistent results have been obtained in identical situations but different circumstances. (Mohajan, 2017).

Cronbach alpha will be used in order to enhance the reliability of data. Cronbach's alpha was used to test the reliability of the questionnaire's multiple Likert scale questions. Reliability is calculated on scales of 0 to 1 (with 0 reflecting no reliability and 1 representing perfect reliability). Alpha scores above 0.90, 0.80 and 0.70 are commonly deemed excellent, good and acceptable respectively, to verify their internal consistency (Stephanie, 2020).

The Cronbach’s alpha can be calculated with equation 3-1 (Bhattacherjee, 2012):

Equation 3-1 Cronbach alpha equating formula

$$\alpha = \frac{k\bar{r}}{(1+(k-1)\bar{r})}$$

Where, K= the number of items, and $\bar{r}$ = the average inter-item correlation. If the computed value of alpha is greater than 0.70, it indicates a higher level of reliability of the adopted measurement scales (Hair, J. F., Black, W. C., Babin, B. J. and Anderson, 2010).

The Cronbach's coefficient alpha was calculated for the entire questionnaire and result shown on below.

Table 3.6-1 Cronbach's coefficient alpha result for the entire questionnaire

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.945	0.948	39

The result indicated the reliability coefficient value of Cronbach's alpha 0.945 signifying that the questionnaire used was significantly reliable and indicates evidence of internal consistency (George, D. and Mallery, 2003).

3.7 DATA ANALYSIS AND PRESENTATION

For the purpose of this study, the descriptive survey method was adopted and data was obtained by means of using questionnaires.

In this research, the data collected from the questionnaire survey were analyzed using the SPSS software version 26 and Microsoft Excel. The SPSS's name reflects its original use in the social sciences field, even though its application has subsequently grown to other data markets (Hair, J. F., Black, W. C., Babin, B. J. and Anderson, 2010). SPSS preferable for most statistical analysis that benefits in its comprehensiveness, ease of application and flexibility, and interfacing with data collection survey tools such as google forms.

The questionnaires for respondents are expected to deliver by direct contact and through email. The data collected from the questionnaire will be analyzed using the Statistical Package for the Social Sciences (SPSS) version 26 for analysis. A total of nearly 92 questionnaires distributed and Charts and tables are used for the results.

Descriptive statistics is chosen for ranking 5-point Likert Scale questionnaire format with a 1 for strongly disagree to 5 for strongly agree about the project delay factors for implementing PPP power projects. Relative Importance Index (RII) to be used mainly for comparing the contribution of each variable relative to others.

Further, in order to quantify the significance of the delay factors for PPP power projects; the delay factors to PPP implementation, a One-sample t-test of the mean score was performed. It was proper to indicate the importance of the component statistically above

the average (taking as 3.8) rather than mean values above the average (3.0) as significant when running the t-test (on the 5-point scale). The one-sample t-test was conducted with the 5-point scale limit set at 3.8 (test value = 3.8). If the mean score was substantially more than 3.8 at a significance level of less than 0.05, the null hypothesis "the detected delay factors have no impact/importance or less impact/less important on delay of project implementation" would be rejected (Ling, F. Y. and Nguyen, 2013).

Equation 3-2 One-sample t-test equation

$$t(df) = \frac{\overline{x}-\mu}{SMD}$$

Where: x = mean of the sample, μ = mean of the population, and SMD = the standard error of the difference between the two means

Further, the independent variables were analyzed using factor analysis in order to categorize and interpret the principal factors (PCA). It also helps not only allows detecting irrelevant items but will also allow extracting the valuable factors from the data set of a questionnaire survey (Shrestha, 2021). To proceed the factor analysis, Kaiser-Meyer-Olkin (KMO) to measure the sampling adequacy and Bartlett's test of Sphericity are used to assess the factorability of the data. Thus, as per result on Table 7.3-5 results show that above the minimum KMO value of 0.5.

3.8 ETHICAL CONSIDERATION

According to (Creswell, 2014) in addition to conceptualizing the writing process for a proposal, researchers need to anticipate the ethical issues that may arise during their studies.

The researcher will follow ethical research procedures throughout the research process, respondents expected to be aware clearly about the aim of the study.

4 CHAPTER FOUR: RESULTS AND DISCUSSIONS

This chapter discusses how the findings were analyzed and interpreted in light of the study's objectives. The data, charts, and table presentations in this chapter were created using the Statistical Package for the Social Sciences (IBM SPSS V.26) and Microsoft Excel.

The questionnaire focuses on opinion and perception of professionals to identify delay factors on pipelined power projects by MOF using the emerging PPP delivery method with regard to their effect on time and to prioritize and rank accordingly.

Further, this chapter try to incorporate relevant and similar practices encountered on implementation of PPP project delivery method.

4.1 DEMOGRAPHIC DATA OF RESPONDENTS

The main objectives of this research were to identify and rank delay factors and assess their practice while implementing PPP power projects in Ethiopia. This research intends to collect data from the most appropriate respondents to the subject matter. Hence questionnaires were distributed to 100 professional respondents who have background and practices with Executive officer, Director, Manager, technical, legal, financial and environmental and social background. Since the research aims to get data from most relevant respondents, a population of the study was limited only 100.

Only 92 of the 100 surveys were completed and returned, indicating a response rate of 92 percent. Executive officer (1.1%), Directors (7.6%), Managers (27.2%), technical

(43.5%), financial (17.4%), and legal professionals are among the respondents' professional backgrounds (3.3 percent).

The following table summarizes the respondent's professional background.

Table 4.1-1 Summary of Respondents professional background

Respondents professional background	**Frequency**	**Percentage**
Executive officer	1	1.1%
Directors	7	7.6%
Managers	25	27.2%
Technical	40	43.5%
Legal	3	3.3%
Financial	16	17.4%
Total	**92**	**100%**

The majority of the respondents (95.6%) were from Ethiopian Electric Power of different Departments, which include in the planning and execution of PPP power projects. While just 4.4 percent were from PPP procurement entity (PPP unit at ministry of finance).

There are 39 delay factors identified from literature, which have direct relation with the current PPP power projects in the EEP (feasibility, planning, contracting and financial close stage).

Respondents were asked to prioritize the delay factors. Each delay factor was measured on a Likert scale. A 5-point Likert scale was adopted in which a weight of 1 represented

"less important", 2 "slightly important",3 "moderately important", 4 "very important" and 5 "extremely important".

In addition, one open question provided next to above 39 Likert scale questions, which have opted for respondents in order to describe any other delay factor or issue that adds or broaden the existing list of delay factors.

The data obtained from respondents with their respective frequencies, mean and standard deviation are summarized in table below.

Table 4.1-2 frequencies, mean and standard deviation obtained from respondents for each delay factors

No.	Delay Factors	Extremely important (5)		Very important (4)		moderately important (3)		Slightly Important (2)		Less important (1)		Mean	STDEV.S
		Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%		
1	Failure to manage equity in time	64	70	16	17	6	7	3	3	3	3	4.5	0.99
2	Dispute among equity partners	21	23	49	53	14	15	7	8	1	1	3.9	0.88
3	Poor response from equity investors	55	60	24	26	6	7	3	3	4	4	4.3	1.04

4	Adverse changes in the parent organization of promoters/equity investors	25	27	19	21	40	43	7	8	1	1	3.7	1.00
5	Delay in debt syndication	60	65	16	17	13	14	1	1	2	2	4.4	0.93
6	Failure to find sufficient financial institutions/banks	69	75	13	14	7	8	2	2	1	1	4.6	0.81
7	High risk aversion of lenders	52	57	22	24	12	13	1	1	5	5	4.3	1.09
8	Lenders not comfortable with project proposals	52	57	12	13	24	26	3	3	1	1	4.2	1.01
9	Sudden change in cost of debt	38	41	29	32	15	16	9	10	1	1	4.0	1.04
10	Government induced changes in interest	19	21	18	20	42	46	11	12	2	2	3.4	1.02
11	Fluctuation in foreign exchange	31	34	47	51	11	12	2	2	1	1	4.1	0.79
12	Liquidity crisis in market	50	54	30	33	9	10	3	3	-	-	4.4	0.80
13	Fluctuation in financial/capital markets	51	55	24	26	11	12	2	2	4	4	4.3	1.05

14	Poor bankability of concession	55	60	24	26	9	10	2	2	2	2	4.4	0.91
15	Poor EPC/O&M arrangements	42	46	27	29	12	13	7	8	4	4	4.0	1.14
16	High project revenue risk	51	55	21	23	11	12	7	8	2	2	4.2	1.07
17	Lack of promoter/concessionaire confidence	15	16	48	52	22	24	6	7	1	1	3.8	0.84
18	Non availability of corporate guarantee	19	21	55	60	12	13	5	5	1	1	3.9	0.81
19	Poor debt recourse provisions in concession	16	17	57	62	14	15	4	4	1	1	3.9	0.77
20	Poor risk allocation in concession agreement	20	22	50	54	17	18	4	4	1	1	3.9	0.82
21	Poor financial/technical strength of promoters/ concessionaire	19	21	25	27	42	46	3	3	3	3	3.6	0.96
22	Inadequate feasibility analysis/risk assessment	58	63	19	21	13	14	1	1	1	1	4.4	0.86
23	Contract documentation delay	6	7	29	32	51	55	5	5	1	1	3.4	0.74

24	Failure/Lack of similar projects	14	15	52	57	15	16	8	9	3	3	3.7	0.94
25	Adverse investment climate for debt	48	52	23	25	18	20	2	2	1	1	4.3	0.92
26	Recession in economy	55	60	17	18	13	14	6	7	1	1	4.3	1.01
27	Delay in getting project approvals	47	51	26	28	13	14	5	5	1	1	4.2	0.96
28	High public/political resistance	22	24	53	58	14	15	2	2	1	1	4.0	0.76
29	Policy restrictions of banks for investment in PPPs	24	26	53	58	12	13	1	1	2	2	4.0	0.80
30	Very high project cost/debt requirement	52	57	22	24	15	16	1	1	2	2	4.3	0.94
31	Complexity/delay in security creations	17	18	59	64	12	13	3	3	1	1	4.0	0.74
32	Poor co-ordination between promoters and lenders	14	15	51	55	21	23	4	4	2	2	3.8	0.84
33	Inadequate legal/regulatory environment	51	55	21	23	17	18	2	2	1	1	4.3	0.92
34	Business compulsion of promoter (need for	-	-	54	59	23	25	15	16	-	-	3.4	0.76

	work)												
35	Lack of bargaining power of promoter	2	2	14	15	65	71	7	8	4	4	3.0	0.70
36	High risk aversion of government	9	10	48	52	16	17	17	18	2	2	3.5	0.98
37	Adverse market (high competition)	5	5	10	11	47	51	9	10	21	23	2.7	1.11
38	Policy restrictions on risk acceptance	7	8	48	52	15	16	16	17	6	7	3.4	1.07
39	High contingent liabilities due to existing support to sector	6	7	46	50	20	22	6	7	14	15	3.3	1.18

4.2 RELATIVE IMPORTANCE INDEX

The relative importance Index (RII) of all delay factors were calculated using the following formula (Vasishta, Chandra and Asadi, 2018):

Equation 4-1 Relative Importance Index

$$\text{Relative Importance Index} = \frac{5*(5) + 4*(n4) + 3*(n3) + 2*(n2) + 1*(n1)}{5*(n1+n2+n3+n4+n5)}$$

Where: n1, n2, n3, n4 and n5 = the number of respondents who selected: n1= number of respondents who selected less important effect. n2= number of respondents who selected slightly important effect. n3= number of respondents who selected moderately important

effect. n4= number of respondents who selected very important effect. n5=number of respondents who selected Extremely important effect.

The result of the calculation of RII and ranking of delay factors which have effect on prolongation of the implementation of PPP Power projects are summarized in the table below.

Table 4.2-1 Overall Result of Relative Importance Index

No.	Delay Factors	RII	Rank
1	Failure to find sufficient financial institutions/banks	0.919	1
2	Failure to manage equity in time	0.890	2
3	Inadequate feasibility analysis/risk assessment	0.886	3
4	Liquidity crisis in market	0.879	4
5	Poor response from equity investors	0.873	5
6	Delay in debt syndication	0.870	6
7	Poor bankability of concession	0.866	7
8	Very high project cost/debt requirement	0.866	7
9	Inadequate legal/regulatory environment	0.862	9
10	Recession in economy	0.855	10
11	Adverse investment climate for debt	0.853	11
12	High risk aversion of lenders	0.848	12
13	Lenders not comfortable with project proposals	0.848	12
14	Fluctuation in financial/capital markets	0.844	14
15	High project revenue risk	0.842	15
16	Delay in getting project approvals	0.842	15
17	Fluctuation in foreign exchange	0.831	17
18	Policy restrictions of banks for investment in PPPs	0.809	18
19	Sudden change in cost of debt	0.804	19

20	High public/political resistance	0.804	19
21	Poor EPC/O&M arrangements	0.793	21
22	Complexity/delay in security creations	0.793	21
23	Non availability of corporate guarantee	0.789	23
24	Dispute among equity partners	0.778	24
25	Poor debt recourse provisions in concession	0.774	25
26	Poor risk allocation in concession agreement	0.774	25
27	Lack of promoter/concessionaire confidence	0.756	27
28	Poor co-ordination between promoters and lenders	0.754	28
29	Failure/Lack of similar projects	0.743	29
30	Adverse changes in the parent organization of promoters/equity .	0.721	30
31	Poor financial/technical strength of promoters/ concessionaire	0.721	30
32	High risk aversion of government	0.699	32
33	Government induced changes in interest	0.690	33
34	Business compulsion of promoter (need for work)	0.688	34
35	Contract documentation delay	0.677	35
36	Policy restrictions on risk acceptance	0.673	36
37	High contingent liabilities due to existing support to sector	0.637	37
38	Lack of bargaining power of promoter	0.609	38
39	Adverse market (high competition)	0.530	39

The examine the trend of majority respondents on the delay factors result of the overall relative importance RII and respondents' feedback on the top two scales of extremely important and very important as show below table.

Table 4.2-2 overall relative importance RII and respondents' feedback on the top two scales

No.	Delay Factors	RII	Rank	extremely important (5)		very important (6)		sum of scales (5) +(6)		
				Freq. (1)	(%) (2)	Freq. (3)	(%) (4)	Freq. (1+3)	(%) (2+4)	Freq. Rank
1	Failure to find sufficient financial institutions/banks	0.930	1	69	75	13	14	82	89	1
2	Failure to manage equity in time	0.903	2	64	70	16	17	80	87	2
3	Inadequate feasibility analysis/risk assessment	0.897	3	58	63	19	21	77	84	6
4	Delay in debt syndication	0.895	4	60	65	16	17	76	83	7
5	Poor bankability of concession	0.888	5	55	60	24	26	79	86	4
6	Liquidity crisis in market	0.886	6	50	54	30	33	80	87	2
7	Poor response from equity investors	0.877	7	55	60	24	26	79	86	4
8	Very high project	0.873	8	52	57	22	24	74	80	8

	cost/debt requirement									
9	Recession in economy	0.868	9	55	60	17	18	72	78	9
10	Inadequate legal/regulatory environment	0.868	9	51	55	21	23	72	78	18
11	Adverse investment climate for debt	0.853	11	48	52	23	25	71	77	21
12	High risk aversion of lenders	0.848	12	52	57	22	24	74	80	13
13	Lenders not comfortable with project proposals	0.848	12	52	57	12	13	64	70	28
14	Fluctuation in financial/capital markets	0.844	14	51	55	24	26	75	82	11
15	High project revenue risk	0.842	15	51	55	21	23	72	78	18
16	Delay in getting project approvals	0.842	15	47	51	26	28	73	79	16
17	Fluctuation in foreign exchange	0.831	17	31	34	47	51	78	85	6
18	Policy restrictions of	0.809	18	24	26	53	58	77	84	7

	banks for investment in PPPs									
19	Sudden change in cost of debt	0.804	19	38	41	29	32	67	73	25
20	High public/political resistance	0.804	19	22	24	53	58	75	82	11
21	Poor EPC/O&M arrangements	0.793	21	42	46	27	29	69	75	24
22	Complexity/delay in security creations	0.793	21	17	18	59	64	76	83	9
23	Non availability of corporate guarantee	0.789	23	19	21	55	60	74	80	13
24	Dispute among equity partners	0.778	24	21	23	49	53	70	76	22
25	Poor debt recourse provisions in concession	0.774	25	16	17	57	62	73	79	16
26	Poor risk allocation in concession agreement	0.774	25	20	22	50	54	70	76	22
27	Lack of promoter/concessionaire confidence	0.756	27	15	16	48	52	63	68	29

28	Poor co-ordination between promoters and lenders	0.754	28	14	15	51	55	65	71	27
29	Failure/Lack of similar projects	0.743	29	14	15	52	57	66	72	26
30	Adverse changes in the parent organization of promoters/equity investors	0.721	30	25	27	19	21	44	48	34
31	Poor financial/technical strength of promoters/ concessionaire	0.721	30	19	21	25	27	44	48	34
32	High risk aversion of government	0.699	32	9	10	48	52	57	62	30
33	Government induced changes in interest	0.690	33	19	21	18	20	37	40	36
34	Business compulsion of promoter (need for work)	0.688	34	-	-	54	59	54	59	32
35	Contract	0.677	35	6	7	29	32	35	38	37

	documentation delay									
36	Policy restrictions on risk acceptance	0.673	36	7	8	48	52	55	60	31
37	High contingent liabilities due to existing support to sector	0.637	37	6	7	46	50	52	57	33
38	Lack of bargaining power of promoter	0.609	38	2	2	14	15	16	17	38
39	Adverse market (high competition)	0.530	39	5	5	10	11	15	16	39

From the above analysis of frequencies, mean and RII shown on Table 4-2 and Table 4-4, it is observed that:

1. Failure to find sufficient financial institutions/banks

In both overall RII rank and top two scales, "Failure to find sufficient financial institutions/banks" chosen as top factor for the PPP projects delay, in addition 89% of respondents tends to choose as very important and extremely important factor. Further, the mean value respondents' feedback for all five scales is 4.6.

2. Failure to manage equity in time

In both overall RII rank and top two scales, “Failure to manage equity in time” chosen as the second top factor for the PPP projects delay, in addition 87% of respondents tends to choose as very important and extremely important factor. Further, the mean value respondents’ feedback for all five scales is 4.5.

3. Inadequate feasibility analysis/risk assessment

In terms of overall RII rank, “Inadequate feasibility analysis/risk assessment” chosen as the third top factor for the PPP projects delay, whereas in specific to the top two scales respondents chosen as sixth place which is 84% of respondents tends to choose as very important and extremely important factor. Further, the mean value respondents’ feedback for all five scales is 4.4.

4. **Delay in debt syndication**

In terms of overall RII rank, “Delay in debt syndication” chosen as the fourth top factor for the PPP projects delay, whereas in specific to the top two scales respondents chosen as seventh place which is 83% of respondents tends to choose as very important and extremely important factor. Further, the mean value respondents’ feedback for all five scales is 4.4.

5. Poor bankability of concession

In terms of overall RII rank, “Poor bankability of concession” chosen as the fifth top factor for the PPP projects delay, whereas in specific to the top two scales respondents chosen as fourth place which is 86% of respondents tends to choose as

very important and extremely important factor. Further, the mean value respondents' feedback for all five scales is 4.4.

6. Liquidity crisis in market

In terms of overall RII rank, "Liquidity crisis in market" chosen as the sixth top factor for the PPP projects delay, whereas in specific to the top two scales respondents chosen as second place which is 87% of respondents tends to choose as very important and extremely important factor. Further, the mean value respondents' feedback for all five scales is 4.4.

7. Poor response from equity investors

In terms of overall RII rank, "Poor response from equity investors" chosen as the seventh top factor for the PPP projects delay, whereas in specific to the top two scales respondents chosen as fourth place which is 86% of respondents tends to choose as very important and extremely important factor. Further, the mean value respondents' feedback for all five scales is 4.3.

8. Very high project cost/debt requirement

In terms of overall RII rank, "Very high project cost/debt requirement" chosen as the eighth top factor for the PPP projects delay, whereas in specific to the top two scales respondents chosen as fourth place which is 80% of respondents tends to choose as very important and extremely important factor. Further, the mean value respondents' feedback for all five scales is 4.3.

9. Recession in economy

In terms of overall RII rank, "Recession in economy" chosen as the ninth top factor for the PPP projects delay, whereas in specific to the top two scales respondents chosen as ninth place which is 78% of respondents tends to choose as very important and extremely important factor. Further, the mean value respondents' feedback for all five scales is 4.3.

10. Inadequate legal/regulatory environment

In terms of overall RII rank, "Inadequate legal/regulatory environment" chosen as the tenth top factor for the PPP projects delay, whereas in specific to the top two scales respondents chosen as eighteenth place which is 78% of respondents tends to choose as very important and extremely important factor. Further, the mean value respondents' feedback for all five scales is 4.3.

From the open-ended questionnaire part, respondents raised points as factors to be considered or which are additional or new to above delay factors:

- Getting an investor who is interested in the power sector and in the country would be a delaying factor and also peace and security of the country.
- Private entity needs to have an interest in the sector and also in the country to be invested on, and see for peace and security.
- Coordination & decision-making process.
- Convertibility issue, and fail to give Guarantee to SPV by NBE and MOF.

- Negative public sentiment towards PPP, Poor project preparation, and Poor procurement process.
- PPP has been led by different government offices, responsibilities are given to more than one government office; related with experience, coordination and institutional capacity creating delay in getting things done.
- Reliability of the government police and local peace situations to return back fund.
- Lack of experience in implementing PPP projects.
- Issues regarding stakeholder management and engagement may present risks for the public and for the Procuring Authority, particularly on large and high-profile projects.

4.3 FACTOR ANALYSIS FOR DELAY FACTORS IN PPP PROJECTS

Factor analysis (FA) allows us to study the underlying dimensions that explain the interactions between multiple variables/items by applying statistical approaches to reduce a collection of complicated variables or items. FA simplifies a matrix of correlations so that a researcher may better grasp the link between scale items and the underlying elements that they may share (Tavakol and Wetzel, 2020) (Mayer, 2006).

In an attempt to achieve more interpretable results and determine the underlying relationships between the identified 39 delay factors in PPP projects, factor analysis was conducted (Hair, J. F., Black, W. C., Babin, B. J. and Anderson, 2010).

The study used Principal Component Analysis (PCA) approach in conjunction with Kaiser's criterion or eigenvalue, and the scree plot decision criteria when deciding on the number of factors to be retained. This was supported by previous researchers (J. (2010) Pallant, 2010); (K'Akumu, O. A., Jones, B. and Yang, 2013).

Generally speaking, there are two most important types of FA: Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA).

4.3.1 Exploratory Factor Analysis (EFA)

Typically, in EFA, the researcher selects as many instrument items as necessary to properly reflect the latent construct based on a review of the literature and consultation with content experts. The researcher next refines the measure by utilizing EFA to look at the outcomes of factor loadings as well as other criteria (e.g., prior theory, Minimum average partial, 3 Parallel analysis, 4 conceptual meaningfulness, etc.).

The factor loadings are an excellent way to define a factor as a theoretical entity. The connection between the item and the factor is called factor loading; a factor loading of higher than 0.30 indicates a moderate association between the item and the factor.

It is important to note that Principal Component Analysis (PCA) is sometimes misapplied and presented as exploratory factor analysis. If the study's primary goal is to reduce the number of original items in the intended instrument to a smaller set, PCA is the right choice.

4.3.2 Confirmatory Factor Analysis (CFA)

When prior EFA studies are available for your intended instrument, Confirmatory Factor basis on those results, allowing you to confirm or disprove the underlying factor structures, or dimensions, discovered in previous study. CFA is a theory- or model-driven method that evaluates how well the data "fits" the model or theory under consideration. CFA differs from EFA in that it requires researchers to first identify a factor model before they can analyze the data.

It should be noticed that if the previous EFA rotated the factor solution orthogonally, the resulting factors would be uncorrelated. As a result, no study of second-order factors is available. Most constructs in social science research imply interrelated factors and, as a result, should be rotated obliquely. The justification for analyzing the second-order factors is that when the correlations between the primary factors exist, CFA can then statistically model a broad picture of factors not captured by the primary factors (i.e., the first-order factors). The study of first-order factors is similar to surveying mountains via binoculars with a zoom lens, but the analysis of second-order factors is done using a wide-angle lens. When analyzing the hypothetical model, goodness of fit tests must be performed (Tavakol and Wetzel, 2020) (Gorsuch, 2010).

Table 4.3-1 contains the eight factors with their eigenvalues, the percentage of the variance, and the cumulative percentage of the variance in each factor. It can be seen from Table 4.3-1 that the eigenvalues for the eight factors retained were ranging from 14.249 to 1.111; the total variance explained by the 1st factor is 14.833 percent, the 2nd factor is 12.359 percent, the 3rd factor is 12.234, and the 8th factor is 4.043 percent. The

cumulative percentage of variance explained by extracted eight factors accounted for 77.373 percent.

4.3.3 Total Variance

Table 4.3-1 Total Variance Explained

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	14.249	36.536	36.536	14.249	36.536	36.536	5.785	14.833	14.833
2	4.986	12.784	49.319	4.986	12.784	49.319	4.820	12.359	27.192
3	3.579	9.176	58.495	3.579	9.176	58.495	4.771	12.234	39.426
4	2.049	5.253	63.748	2.049	5.253	63.748	4.696	12.042	51.467
5	1.547	3.965	67.713	1.547	3.965	67.713	4.037	10.351	61.818
6	1.461	3.747	71.460	1.461	3.747	71.460	2.766	7.093	68.911
7	1.195	3.063	74.523	1.195	3.063	74.523	1.723	4.418	73.329
8	1.111	2.849	77.373	1.111	2.849	77.373	1.577	4.043	77.373
9	.977	2.504	79.877						
10	.788	2.022	81.898						
11	.699	1.793	83.691						
12	.691	1.772	85.463						
13	.616	1.579	87.042						
14	.534	1.370	88.412						
15	.501	1.286	89.698						

16	.467	1.197	90.895						
17	.448	1.148	92.042						
18	.365	.937	92.979						
19	.348	.892	93.871						
20	.328	.841	94.712						
21	.247	.634	95.346						
22	.244	.627	95.973						
23	.221	.566	96.538						
24	.204	.523	97.062						
25	.175	.448	97.510						
26	.169	.433	97.943						
27	.127	.327	98.270						
28	.110	.282	98.551						
29	.098	.252	98.803						
30	.088	.227	99.030						
31	.085	.218	99.247						
32	.060	.155	99.402						
33	.055	.141	99.543						
34	.044	.112	99.654						
35	.041	.104	99.759						
36	.039	.100	99.859						
37	.024	.062	99.921						
38	.017	.043	99.964						
39	.014	.036	100.000						

Extraction Method: Principal Component Analysis.

4.3.4 Kaiser's Criterion and Scree Test

Kaiser's Criterion and Scree Test are two methods that can be used to help decide how many factors should be retained. The number of initial unrotated factors to be extracted can be determined using the Scree test and Kaiser's criterion (Eigenvalue Criterion). The eigenvalue measures the proportion of the common variance to the specific variance that can be explained by a single extracted factor.

Kaiser’s (Eigenvalue) Criterion

The portion of the total variance explained by a factor is indicated by its eigenvalue. The notable factors in a factor analysis with an eigenvalue larger than one are kept. The reasoning behind this regulation makes sense. An eigenvalue larger than one is regarded as significant and denotes that the component accounts for more common variation than unique variance (J. Pallant, 2010), (H Kara, 2014). Measure and composite variables fall under two different categories. Factors should include more than one measured variable since they are latent constructs that were produced as aggregates of measured variables. However, eigenvalues do contain some sampling error, much as any sample statistics. In order to use this method to calculate the number of elements to consider, the researcher must use some judgment.

Scree Test

A graphical technique was suggested by Cattell (1996) to determine the number of variables. The horizontal axis of a scree plot is made up of eigen value numbers, while the vertical axis represents eigen value magnitudes. Within the graph, the eigenvalues are

represented as dots, and a line links each subsequent value. At the "elbow" or leveling of the plot, factor extraction should come to an end (Cattell, 1966). The goal of this test is to determine how many components should be extracted at the most before the quantity of unique variance starts to dominate the common variance structure (Johson and Wichiern, 2007).

4.3.5 Correlation and Multicollinearity

In Table 7.3-4, The correlation matrix shows that there are still correlations for factor analysis to be used. It can be observed from the correlation matrix that the proposed factor theory seems to be appropriate because there aren't many items with inter-correlations > 0.3 between the variables. The determinant's value serves as a crucial multicollinearity test. There is multicollinearity, according to the correlation matrix's determinant score of 9.09E-022> 0.00001.

Figure 4.3-2 indicates the scree plot of 39 identified delay factors in PPP projects. As the point where the curve changes direction and becomes horizontal/or parallel to the component axis, the curve suggests that eight factors should be extracted. Thus, the scree plot confirms the eight extracted factor groups as appropriate in this study.

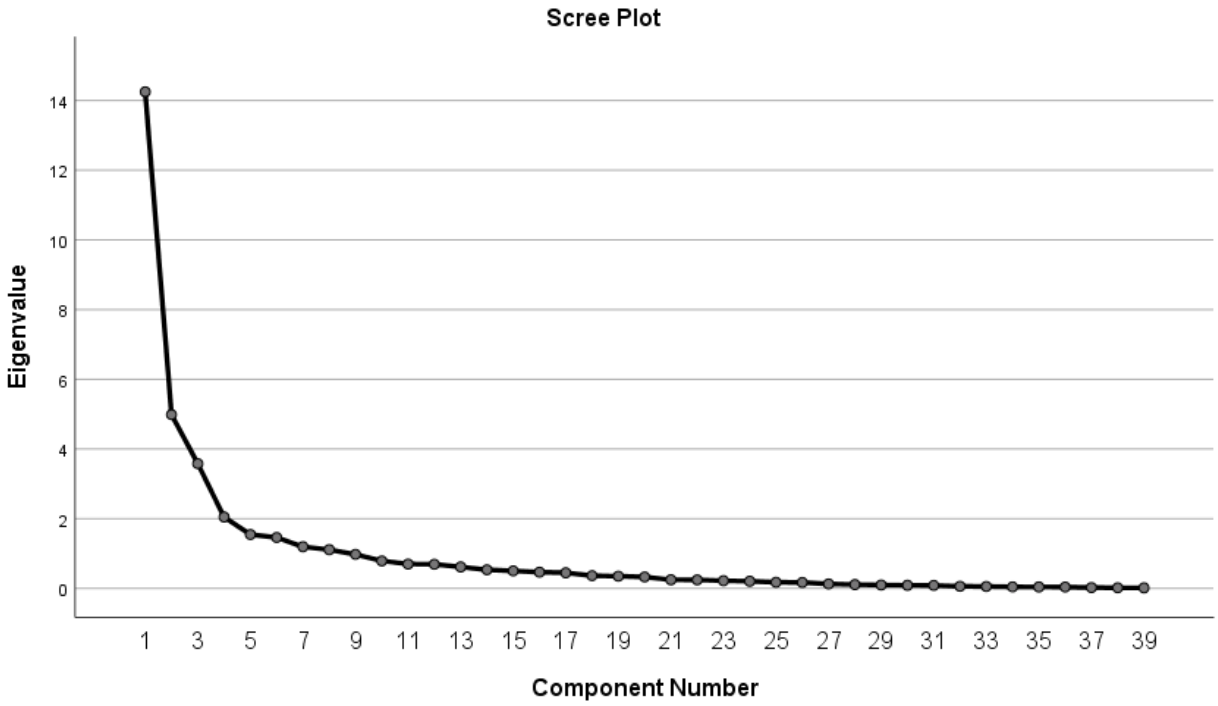

Figure 4.3-1 The scree plot showing extracted factors on 39 delay factors

4.3.6 Principal Factors

Table 4.3-1 shows the principal factor extraction with a varimax rotation conducted on the 39 identified delay factors in PPP projects. The rotation matrix converged in 16 iterations. Further, it can be seen from Table 4.3-1 that the factor loading ranging from 0.889 to0.480, this implies that there is no need to eliminate any variable from the analysis.

Kline (2002) suggested that variables with a factor loading of 0.30 or higher can be considered significant (Kline, 2002). This is validated by Leech et al. (2005) that factor loadings of less than 0.3 are considered low (Leech, N., Barrett, K. and Morgan, 2005).

Brown (2009) stated that variables of factor loadings near 1 are clearly important in the interpretation of the factor, and variables that loading near 0 is clearly unimportant (Brown, 2009). Thus, the result of analysis grouped the 39 identified delay factors in PPP projects into eight principal interpretable factors with their components, as shown in Table 4.3-2

Table 4.3-2 principal factor extraction with a varimax rotation conducted on the 39 identified delay factors

Rotated Component Matrix

Delay Factors	Principal Components							
	1	2	3	4	5	6	7	8
10. Government induced changes in interest	0.861							
29. Policy restrictions of banks for investment in PPPs	0.744							
21. Poor financial/technical strength of promoters/ concessionaire	0.735							
11. Fluctuation in foreign exchange	0.670							
28. High public/political resistance	0.626							
32. Poor co-ordination between promoters and lenders	0.579							

4. Adverse changes in the parent organization of promoters/equity investors	0.575							
19. Poor debt recourse provisions in concession	0.573							
23. Contract documentation delay	0.535							
20. Poor risk allocation in concession agreement	0.531							
16. High project revenue risk		0.791						
18. Non availability of corporate guarantee		0.658						
14. Poor bankability of concession		0.635						
5. Delay in debt syndication		0.594						
25. Adverse investment climate for debt		0.578						
6. Failure to find sufficient financial institutions/banks		0.576						
17. Lack of promoter/concessionaire confidence		0.564						
15. Poor EPC/O&M arrangements		0.516						

3. Poor response from equity investors			0.841					
1. Failure to manage equity in time			0.812					
2. Dispute among equity partners			0.629					
22. Inadequate feasibility analysis/risk assessment			0.612					
12. Liquidity crisis in market			0.499					
26. Recession in economy			0.480					
7. High risk aversion of lenders				0.780				
9. Sudden change in cost of debt				0.722				
13. Fluctuation in financial/capital markets				0.698				
30. Very high project cost/debt requirement				0.591				
33. Inadequate legal/regulatory environment				0.589				
34. Business compulsion of promoter (need for work)				0.570				
38. Policy restrictions on risk acceptance					0.889			
39. High contingent liabilities due to existing support to sector					0.849			

37. Adverse market (high competition)					0.841			
36. High risk aversion of government					0.803			
27. Delay in getting project approvals						0.673		
8. Lenders not comfortable with project proposals						0.670		
31. Complexity/delay in security creations						0.629		
24. Failure/Lack of similar projects							0.572	
35. Lack of bargaining power of promoter								0.843

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 16 iterations.

Based on the model category by Solomon and Srinath, (2016) into the eight principal factors derived are interpreted as follows:

Factor 1- Decreased bankability of PPP projects

Factor 2- Unstable economic policy

Factor 3- Weak financial, technical, and managerial capabilities of the concessionaire

Factor 4- Weak public institutions

Factor 5- Lack of creditworthiness of both the project sponsors and active partner

Factor 6- Unfavorable economy of the host country

Factor 7- Weak legal and unfavorable environment

Factor 8- High contingent liabilities

This study shows the factors under the components (principal factors) differences with previously listed by Solomon and Srinath, (2016). Due to various reasons this study for reducing the factors into eight main factors disconfirm or dissimilar to above interpreted list of factors. Thus, the eight principal factors derived in this analysis can be modified and interpreted as: -

Factor 1- Decreased bankability of PPP projects

Factor 2- Unstable economic policy

Factor 3- Weak financial, technical, and managerial capabilities of the concessionaire

Factor 4- Weak public institutions

Factor 5- Lack of creditworthiness of both the project sponsors and active partner

Factor 6- Unfavorable economy of the host country

Factor 7- Failure/Lack of similar projects

Factor 8- Lack of bargaining power of promoter

Factor 1- Decreased bankability of PPP projects

This factor accounts for 14.833 percent (Table 4.3-1) of the total variance of delay factors in PPP projects. A PPP project is regarded bankable if it has enough collateral, future cash flow, and a high probability of success to be accepted for financing by institutional lenders. Therefore, a combination of several attributes contributes to the bankability of any PPP project. As indicated in Table 4, the main components of decreased bankability of PPP projects as a principal factor include: Government induced changes in interest, Policy restrictions of banks for investment in PPPs, Poor financial/technical strength of promoters/ concessionaire, Fluctuation in foreign exchange, High public/political resistance, Poor co-ordination between promoters and lenders, Adverse changes in the parent organization of promoters/equity investors, Poor debt recourse provisions in concession, Contract documentation delay, and Poor risk allocation in concession agreement. These ten components have high factor loading of 0.861, 0.744, 0.735, 0.670, 0.626, 0.579, 0.575, 0.573, 0.535, and 0.531 respectively (Table 4.3-2).

Factor 2- Unstable economic policy

This factor accounts for 12.359 percent (Table 4.3-1) of the total variance of delay factors in PPP projects. The key components comprised High project revenue risk, non-availability of corporate guarantee, Poor bankability of concession, Delay in debt syndication, Adverse investment climate for debt, Failure to find sufficient financial institutions/banks, Lack of promoter/concessionaire confidence and Poor EPC/O&M arrangements. These eight components have a high factor loading of 0.791, 0.658, 0.635, 0.594, 0.578, 0.576, 0.564 and 0.516 respectively (Table 4.3-2). These findings revealed that PPPs are vulnerable to macroeconomic environments. This was supported by

International Monetary Fund (2009) that PPPs are vulnerable to both the financial and the real impact of the global financial crisis causing interest rate climb, decrease in the availability of credit (i.e., liquidity constraints), and unforeseen exchange rate fluctuation, which responsible for slower pace of PPP projects reaching financial close in developing countries (Burger *et al.*, 2009).

Factor 3- Weak financial, technical, and managerial capabilities of the concessionaire

This factor accounts for 12.234 percent (Table 4.3-1) of the total variance of delay factors in PPP projects. The six components are Poor response from equity investors, Failure to manage equity in time, Dispute among equity partners, Inadequate feasibility analysis/risk assessment, Liquidity crisis in market, and Recession in economy with a factor loading of 0.841, 0.812, 0.629, 0.612, 0.499 and 0.480 respectively (Table 4.3-2).

Factor 4- Weak public authorities/institution

This principal factor accounts for 12.042 percent (Table 4.3-1) of the total variance of delay factors in PPP projects. The six components of weak public institutions as a factor include: High risk aversion of lenders, Sudden change in cost of debt, Fluctuation in financial/capital markets, very high project cost/debt requirement, Inadequate legal/regulatory environment, Business compulsion of promoter (need for work) with a factor loading of 0.780, 0.722, 0.698, 0.591, 0.589 and 0.570 respectively (Table 4.3-2).

Factor 5- Lack of creditworthiness of both the project sponsors and active partners

This factor accounts for 10.351 percent (Table 4.3-1) of the total variance of delay factors in PPP projects. The four components are: Policy restrictions on risk acceptance, High contingent liabilities due to existing support to sector, Adverse market (high competition), and High-risk aversion of government with a factor loading of 0.889, 0.849, 0.841 and 0.803 respectively (Table 4.3-2).

Factor 6- Unfavorable economy of the host country

The unfavorable economy of the host country as a factor account for 7.093 percent (Table 4.3-1) of the total variance of delay factors in PPP projects. The three components include: Delay in getting project approvals, Lenders not comfortable with project proposals and Complexity/delay in security creations with a factor loading of 0.673, 0.670 and 0.629 respectively (Table 4.3-2).

Factor 7- Failure/Lack of similar projects

This factor accounts for 4.418 percent (Table 4.3-1) of the total variance of delay factors in PPP projects. The only component is failure/lack of similar projects with a factor loading of 0.572 (Table 4.3-2).

Factor 8- Lack of bargaining power of promoter

Lack of bargaining power of promoter as a factor account for 4.043 percent (Table 4.3-1) of the total variance of delay factors in PPP projects. The only component is lack of bargaining power of promotor with a factor loading of 0.843 (Table 4.3-2).

5 CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

This part of the study provides the summarized account of the findings in chapter 4 and draws a conclusion that leads to a recommendation of the study. The section is classified into four parts. The first part presents the summary of chapter 4. Followed by the second section, which is intended to provide the conclusion reached by the writer and the third section is recommendation of the study. The final section is intended to identify and indicate limitation of this study by way of suggesting for future work to be undertaken.

5.1 SUMMARY

PPP power projects in Ethiopia, after allowed by law, Ministry of Finance pipelined various solar and hydro power projects. The projects progressed in signing contracts and nearing to financial close stage. This paper studied the significance of delay factors in identifying, ranking and carried out factor analysis.

The delay factors are derived from literature and a five-scale questionnaire on 39 delay factors distributed to 100 respondents from EEP and MOF to rate their perceptions on the progress of PPP power projects. The responses obtained from 92 respondents analyzed using relative importance index and the items ranked accordingly. The top ten delay factors identified by majority of respondents are listed below.

1. Failure to find sufficient financial institutions/banks
2. Failure to manage equity in time
3. Inadequate feasibility analysis/risk assessment

4. Delay in debt syndication
5. Poor bankability of concession
6. Liquidity crisis in market
7. Poor response from equity investors
8. Very high project cost/debt requirement
9. Recession in economy
10. Inadequate legal/regulatory environment

Based on the factor analysis, further to analyze the delay factors, in line with confirmatory factor basis on this study results, shows differences with the underlying factor structures, or dimensions, discovered in previous study.

The objective of factor analysis is to further reduce factors into principal components or main factors. Hence, here below are list of the principal factors or components: -

1. Decreased bankability of PPP projects
2. Unstable economic policy
3. Weak financial, technical, and managerial capabilities of the concessionaire
4. Weak public institutions
5. Lack of creditworthiness of both the project sponsors and active partner
6. Unfavorable economy of the host country
7. Failure/Lack of similar projects
8. Lack of bargaining power of promoter

5.2 CONCLUSION

On PPP power projects development; the planning, feasibility, contracting and financial stages are very crucial for project implementations in developing countries such as Ethiopia. In particular, in the financial close stage, multiple steps and documents are produced between the government (client), project company (SPV), and financing sources.

The study revealed the mean score ranking of 39 identified delay factors in PPP projects, and the mean score values for all the identified 39 causes of financial close delays are very high. This implies that the entire 39 identified causes of delays in financial close stage of PPP projects implementation are considered by the respondents as important, which influence PPP projects to prolonged delays in reaching financial close.

In theory, a short period on financial close of a PPP project, indicates a good PPP project. On the other hand, the time between signing contracts and actually reaching financial close might be rather long.

As a result, it is the obligation of the concessionaires/sponsors to efficiently manage this process, preferably by compiling as much of the condition precedent documents as possible prior to the loan signature, to guarantee the shortest possible delay before financial close (Hair, J. F., Black, W. C., Babin, B. J. and Anderson, 2010).

From the factor analysis results and naming of principal factors, on previous literature (Solomon and Srinath, 2016), the author tends to rely on the first loading under each principal component. However, on this factor analysis results, the 1st and 2nd principal

components are reversed, because the high loading on the 1st loading is "Government induced changes in interest" categorized under the 2nd principal factor by Solomon and Srinath (2016).

The top ten ranked list of results obtained from relative importance index (RII) analysis while checked on the factor analysis results, 80% of them are under the 2nd and 3rd principal factors and the remaining 20% is under the 4th principal factor.

Inadequate feasibility supposed to have subsequent impact of delay on project implementation and this mitigated at early stage by identifying the differences in interests and expectations of the stakeholders, identifying excessive risks associated with PPPs and allocation of risks, and in forecasting issues.

Further issues raised by respondents, on convertibility issue, which is barrier to proceed the PPP power project implementations, that the project company need guarantee to ensure in selling power at operational stage to government, within specific bounded period of time for the payback money in foreign currency expected to be guaranteed by government. On the other hand, as per ke and et al (2010) interest rate, foreign exchange and convertibility, inflation, and market demand fluctuation are all examples of market level risks that should be handled equally by both parties. These risk factors have a negative impact on project schedules, causing implementations to be delayed.

Respondents suggested important issues that are facing on implementation of PPP power projects:

- Getting an investor who is interested in the power sector and in the country would be a delaying factor and also peace and security of the country.
- Private entity needs to have an interest in the sector and also in the country to be invested on, and see for peace and security.
- Coordination & decision-making process.
- Convertibility issue, and fail to give Guarantee to SPV by NBE and MOF.
- Negative public sentiment towards PPP, Poor project preparation, and Poor procurement process.
- PPP has been led by different government offices, responsibilities are given to more than one government office; related with experience, coordination and institutional capacity creating delay in getting things done.
- Reliability of the government policy and local peace situations to return back fund.
- Lack of experience in implementing PPP projects.
- Issues regarding stakeholder management and engagement may present risks for the public and for the Procuring Authority, particularly on large and high-profile projects.

Bankable PPP project determine the viability and attractiveness of PPP project in views of risk allocation between the public and private entities which include (Verougstraete, 2017), (Zhu and Chua, 2018):

- LAND ACQUISITION—banks are unwilling to grant loans without first securing land—

- DEMAND RISKS—Demand is exceedingly difficult to estimate, and a thorough feasibility analysis is necessary; however, in some countries, the government has issued assurances.
- CURRENCY RISKS – This is a risk that the private sector cannot manage; ideally, loans should be made in local currency. Guarantees? For the problem of repayment after devaluation and conversion,
- REPATRIATION-convertibility requirements, largely outside-of-country repayment, and capital controls might be a problem for lenders.
- PRIVATE SECTOR CAPACITY: Does the project sponsor have the ability and financial resources to sustain the project's risks?
- GOVERNMENT RELIABILITY- Stability: long-term government support/commitment and a tariff adjustment framework that can be sustained.
- STEP-IN RIGHTS: If the private business defaults, may the bank take over the project?
- TERMINATION PAYMENTS: Is the bank completely refunded in the event of a termination?

5.3 RECOMMENDATION AND FURTHER STUDY

On conventional project delivery method, due to shorter period of contract between the private entity attachment with the procuring authority (government), the executing contractor irrespective of the source of finance being from government or other sources, entitled to claim financing charges for delay as per the contract agreement. On the other hand, on PPP delivery method the finance source is from the project company itself and financial institutions linked with the Project Company, hence all the financial risks are absorbed by the Project Company hence, the government better understand at project feasibility phase and resolve the unforeseen situation on identifying the interest of stakeholders behind the Project Company in providing guarantee for payback period convertibility issue.

The Procuring Authority's governance strategy should enable its contract management team to find effective resolutions on day-to-day challenges and make timely strategic choices (Heathcote, Chris, 2018). Government should ensure having sufficient skilled personnel to negotiate and manage the implementation of the contract clauses (Burger *et al.*, 2009).

For countries with very low levels of income, high political and social instability, and limited local financial markets, using PPPs as an option to finance and manage new infrastructure has to be carefully considered. Financing charges due to the private finance nature of PPPs may be overwhelming for some countries, in which case it may be better to rely on conventional infrastructure delivery and public debt, including debt provided by development banks (APMG, 2021).

This study identified and assessed the analysis of financial close delay factors in PPP projects from one group (public sector) of the three different primary stakeholder groups comprised of public sector authorities (i.e., ministries, department, and agencies), concessionaires, and lenders/banks involved in various PPP projects implementation. Hence, it better the is delay factors further to be investigated broadly inclusive of perceptions from financing sources (debt and equity providers), private sector (project company) and concessionaires on factor analysis either to explore or confirm previously derived principal factors (reduced factors). The author recommends researchers in the future to broadly investigate this emerging PPP project delivery method which is not yet fully practiced in Ethiopian power projects and which needs high investment in power sector.

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7 ANNEXES

7.1 ANNEX-1 QUESTIONNAIRE

ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE DEPARTMENT OF PROJECT MANAGEMENT

Dear Respondent,

My name is Biniam Berihu. I am a graduate student of Addis Ababa University School of Commerce in the Department of Project Management. Currently I am working my research entitled “Delay Factors on Project Implementation Using PPP Project Delivery Method: The Case of Ethiopian Electric Power” as partial fulfillment of the requirements for the award of MA in Project Management.

Thank you very much for your willingness to participate in this study as a respondent. This questionnaire will be used to collect data for the research. Your experiences and opinions will significantly add value to this research. Therefore, I would like to kindly request your precious time to fill the questioner. You are kindly requested to return back the duly filled questioner at your earliest convenient time.

I assure you that the information you provide will be used only for academic research purpose and anonymity of the respondent will be maintained throughout the research process.

Thank you in advance for your kind cooperation

Yours faithfully,

Part I: Personal Information
Please select the appropriate choice

What is your sex

- Male
- Female

Please indicate your educational background

- Diploma
- First degree
- Second degree or above

Please indicate your experience (in years) in power sector

- Less than 5 years
- 5 to 10 years
- 11 to 15 years
- 16 to 20 years
- Above 21 years

Please indicate your area of expertise

- Executive Officer
- Director
- Manager
- Technical expert
- Legal expert
- Financial expert
- Environmental & social expert

Part II: Identification & Ranking of the PPP Project Delay Factors
Introduction:

Public-private partnership (PPP)-based projects generally face various issues at all stages of the project that delay its implementation. One of the critical steps in the implementation of PPP projects is to identify and analyze delay factors. This questionnaire intends to identify and rank from various delay factors for PPP projects nearing to financial close.

Instruction:

The following questions are about prioritizing and ranking delay factors in implementing PPP power projects In Ethiopia.

Please rate the following delay factors according to the level of importance by selecting the appropriate weight as indicated below. Please use "x" mark to indicate your selection. Extremely important has a weigh of 5, Very important has a weigh of 4, moderately important has a weigh of 3, slightly important has a weigh of 2 and less important has a weigh of 1.

No.	PPP Projects Delay Factors	Extremely important	Very important	moderately important	Slightly Important	Less important
		(5)'	(4)'	(3)'	(2)'	(1)'
1	Failure to manage equity in time					
2	Dispute among equity partners					
3	Poor response from equity investors					
4	Adverse changes in the parent organization of promoters/equity investors					
5	Delay in debt syndication					
6	Failure to find sufficient financial institutions/banks					
7	High risk aversion of lenders					
8	Lenders not comfortable with project proposals					
9	Sudden change in cost of debt					
10	Government induced changes in interest					
11	Fluctuation in foreign exchange					
12	Liquidity crisis in market					

13	Fluctuation in financial/capital markets					
14	Poor bankability of concession					
15	Poor EPC/O&M arrangements					
16	High project revenue risk					
17	Lack of promoter/concessionaire confidence					
18	Non availability of corporate guarantee					
19	Poor debt recourse provisions in concession					
20	Poor risk allocation in concession agreement					
21	Poor financial/technical strength of promoters/ concessionaire					
22	Inadequate feasibility analysis/risk assessment					
23	Contract documentation delay					
24	Failure/Lack of similar projects					
25	Adverse investment climate for debt					
26	Recession in economy					
27	Delay in getting project approvals					
28	High public/political resistance					
29	Policy restrictions of banks for investment in PPPs					
30	Very high project cost/debt requirement					
31	Complexity/delay in security creations					
32	Poor co-ordination between promoters and lenders					
33	Inadequate legal/regulatory environment					
34	Business compulsion of promoter (need for work)					
35	Lack of bargaining power of promoter					
36	High risk aversion of government					
37	Adverse market (high					

	competition)					
38	Policy restrictions on risk acceptance					
39	High contingent liabilities due to existing support to sector					

Part III: Open Question

In the following question, the researcher wants to collect issues further to above listed delay factors and which can strengthen or broaden the delay factors in the existing practice.

1. Do you have any other delay factors in addition to above listed and any other issues in connection with delaying project implementation that uses PPP delivery method?

7.2 ANNEX-2 DELAY COMPARISON

Table 7.2-1 Status of PPP Power Projects in EEP (FDRE MOF, 2019).

No.	Project name	Source of power	Capacity to generate (in MW)	Location (Regional State)	Current Status (In progress)
1	Dicheto	Solar	125	Afar	Financial Close
2	Gaad	Solar	125	Somali	Financial Close
3	Chemoga	Hydro	280	Amhara	Feasibility
4	Halele	Hydro	250	Oromia	Feasibility
5	Dabus	Hydro	304	Oromia	Feasibility
6	Halele	Hydro	326	Oromia	Feasibility
7	Genale	Hydro	250	Somali	Feasibility

Table 7.2-2 Time Difference between Commercial Close and Financial Close.

No.	Project name	Commercial Close (contract signed date)	Financial Close (in Progress)	Time between Commercial Close and to date (months)(days)
1	Dicheto Solar PPP Project	December 2019	May 2022	28 (840)
2	Gaad Solar PPP Project	December 2019	May 2022	28 (840)

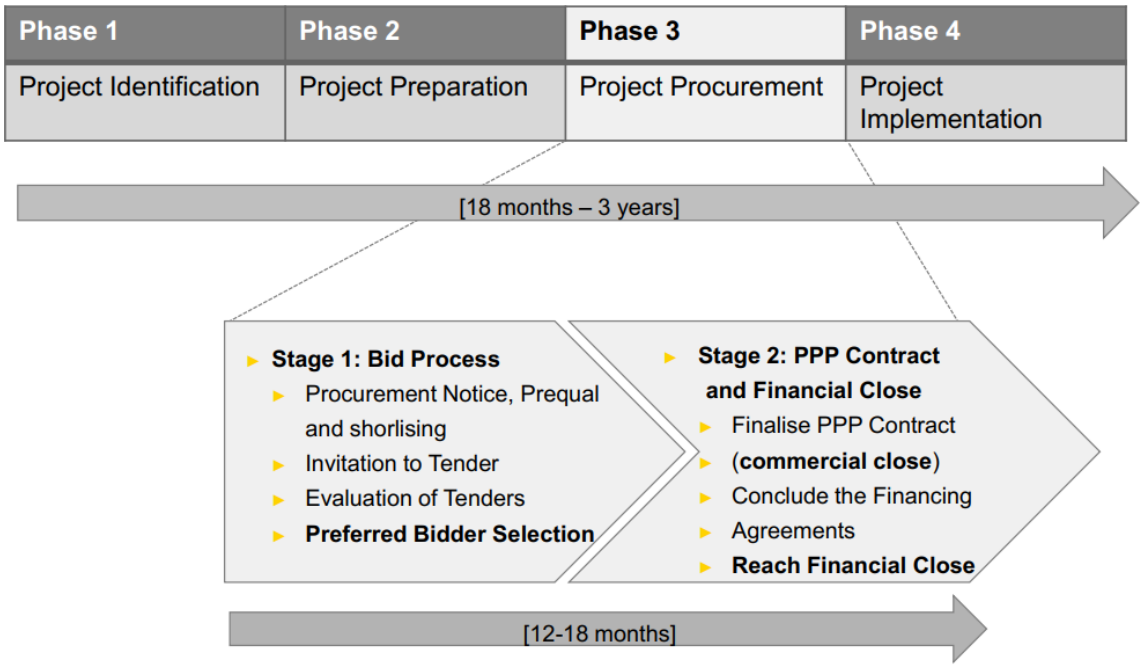

Figure 7.2-1 Financial Close-Delivering a Project (Ernst and Young, 2015).

7.3 ANNEX-3 VARIOUS COMPUTATIONS

Table 7.3-1 Descriptive Statistics summary

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
6. Failure to find sufficient financial institutions/banks	92	1	5	4.60	.813
1. Failure to manage equity in time	92	1	5	4.47	.988
22. Inadequate feasibility analysis/risk assessment	92	1	5	4.43	.856
5. Delay in debt syndication	92	1	5	4.42	.929
14. Poor bankability of concession	92	1	5	4.39	.913
12. Liquidity crisis in market	92	2	5	4.38	.796
3. Poor response from equity investors	92	1	5	4.34	1.041
30. Very high project cost/debt requirement	92	1	5	4.32	.937
26. Recession in economy	92	1	5	4.29	1.011
33. Inadequate legal/regulatory environment	92	1	5	4.29	.920
13. Fluctuation in financial/capital markets	92	1	5	4.26	1.047
25. Adverse investment climate for debt	92	1	5	4.25	.921
7. High risk aversion of lenders	92	1	5	4.25	1.086
27. Delay in getting project approvals	92	1	5	4.23	.962
16. High project revenue risk	92	1	5	4.22	1.067
8. Lenders not comfortable with project proposals	92	1	5	4.21	1.011
11. Fluctuation in foreign exchange	92	1	5	4.14	.793
29. Policy restrictions of banks for investment in PPPs	92	1	5	4.04	.797
15. Poor EPC/O&M arrangements	92	1	5	4.04	1.138

9. Sudden change in cost of debt	92	1	5	4.02	1.038
28. High public/political resistance	92	1	5	4.01	.763
31. Complexity/delay in security creations	92	1	5	3.96	.740
18. Non availability of corporate guarantee	92	1	5	3.93	.809
20. Poor risk allocation in concession agreement	92	1	5	3.91	.821
19. Poor debt recourse provisions in concession	92	1	5	3.90	.771
2. Dispute among equity partners	92	1	5	3.89	.883
32. Poor co-ordination between promoters and lenders	92	1	5	3.77	.840
17. Lack of promoter/concessionaire confidence	92	1	5	3.76	.843
24. Failure/Lack of similar projects	92	1	5	3.72	.941
4. Adverse changes in the parent organization of promoters/equity investors	92	1	5	3.65	.999
21. Poor financial/technical strength of promoters/ concessionaire	92	1	5	3.59	.963
36. High risk aversion of government	92	1	5	3.49	.978
10. Government induced changes in interest	92	1	5	3.45	1.020
34. Business compulsion of promoter (need for work)	92	2	4	3.42	.759
38. Policy restrictions on risk acceptance	92	1	5	3.37	1.066
23. Contract documentation delay	92	1	5	3.37	.737
39. High contingent liabilities due to existing support to sector	92	1	5	3.26	1.175

35. Lack of bargaining power of promoter	92	1	5	3.03	.702
37. Adverse market (high competition)	92	1	5	2.66	1.112
Valid N (listwise)	92				

Table 7.3-2 One-Sample Statistics

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
1. Failure to manage equity in time	92	4.47	.988	.103
2. Dispute among equity partners	92	3.89	.883	.092
3. Poor response from equity investors	92	4.34	1.041	.108
4. Adverse changes in the parent organization of promoters/equity investors	92	3.65	.999	.104
5. Delay in debt syndication	92	4.42	.929	.097
6. Failure to find sufficient financial institutions/banks	92	4.60	.813	.085
7. High risk aversion of lenders	92	4.25	1.086	.113
8. Lenders not comfortable with project proposals	92	4.21	1.011	.105
9. Sudden change in cost of debt	92	4.02	1.038	.108
10. Government induced changes in interest	92	3.45	1.020	.106
11. Fluctuation in foreign exchange	92	4.14	.793	.083
12. Liquidity crisis in market	92	4.38	.796	.083
13. Fluctuation in financial/capital markets	92	4.26	1.047	.109
14. Poor bankability of concession	92	4.39	.913	.095
15. Poor EPC/O&M arrangements	92	4.04	1.138	.119

16. High project revenue risk	92	4.22	1.067	.111
17. Lack of promoter/concessionaire confidence	92	3.76	.843	.088
18. Non availability of corporate guarantee	92	3.93	.809	.084
19. Poor debt recourse provisions in concession	92	3.90	.771	.080
20. Poor risk allocation in concession agreement	92	3.91	.821	.086
21. Poor financial/technical strength of promoters/ concessionaire	92	3.59	.963	.100
22. Inadequate feasibility analysis/risk assessment	92	4.43	.856	.089
23. Contract documentation delay	92	3.37	.737	.077
24. Failure/Lack of similar projects	92	3.72	.941	.098
25. Adverse investment climate for debt	92	4.25	.921	.096
26. Recession in economy	92	4.29	1.011	.105
27. Delay in getting project approvals	92	4.23	.962	.100
28. High public/political resistance	92	4.01	.763	.080
29. Policy restrictions of banks for investment in PPPs	92	4.04	.797	.083
30. Very high project cost/debt requirement	92	4.32	.937	.098
31. Complexity/delay in security creations	92	3.96	.740	.077
32. Poor co-ordination between promoters and lenders	92	3.77	.840	.088
33. Inadequate legal/regulatory environment	92	4.29	.920	.096

34. Business compulsion of promoter (need for work)	92	3.42	.759	.079
35. Lack of bargaining power of promoter	92	3.03	.702	.073
36. High risk aversion of government	92	3.49	.978	.102
37. Adverse market (high competition)	92	2.66	1.112	.116
38. Policy restrictions on risk acceptance	92	3.37	1.066	.111
39. High contingent liabilities due to existing support to sector	92	3.26	1.175	.123

Table 7.3-3 One Sample Test Result

One-Sample Test

	Test Value = 3.8					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
1. Failure to manage equity in time	6.48	91	.000	.667	.46	.87
2. Dispute among equity partners	.99	91	.324	.091	-.09	.27
3. Poor response from equity investors	4.95	91	.000	.537	.32	.75
4. Adverse changes in the parent organization of promoters/equity investors	-1.42	91	.159	-.148	-.35	.06
5. Delay in debt syndication	6.45	91	.000	.624	.43	.82
6. Failure to find sufficient financial institutions/banks	9.42	91	.000	.798	.63	.97
7. High risk aversion of lenders	3.98	91	.000	.450	.23	.67
8. Lenders not comfortable with project proposals	3.86	91	.000	.407	.20	.62
9. Sudden change in cost of debt	2.05	91	.043	.222	.01	.44
10. Government induced changes in interest	-3.33	91	.001	-.354	-.57	-.14
11. Fluctuation in foreign exchange	4.13	91	.000	.341	.18	.51
12. Liquidity crisis in market	6.99	91	.000	.580	.42	.75

13. Fluctuation in financial/capital markets	4.22	91	.000	.461	.24	.68
14. Poor bankability of concession	6.21	91	.000	.591	.40	.78
15. Poor EPC/O&M arrangements	2.05	91	.043	.243	.01	.48
16. High project revenue risk	3.75	91	.000	.417	.20	.64
17. Lack of promoter/concessionaire confidence	-.45	91	.657	-.039	-.21	.14
18. Non availability of corporate guarantee	1.60	91	.114	.135	-.03	.30
19. Poor debt recourse provisions in concession	1.27	91	.207	.102	-.06	.26
20. Poor risk allocation in concession agreement	1.32	91	.190	.113	-.06	.28
21. Poor financial/technical strength of promoters/ concessionaire	-2.12	91	.036	-.213	-.41	-.01
22. Inadequate feasibility analysis/risk assessment	7.12	91	.000	.635	.46	.81
23. Contract documentation delay	-5.60	91	.000	-.430	-.58	-.28
24. Failure/Lack of similar projects	-.842	91	.402	-.083	-.28	.11
25. Adverse investment climate for debt	4.69	91	.000	.450	.26	.64
26. Recession in economy	4.68	91	.000	.493	.28	.70
27. Delay in getting project approvals	4.27	91	.000	.428	.23	.63
28. High public/political resistance	2.65	91	.009	.211	.05	.37
29. Policy restrictions of banks for investment in PPPs	2.93	91	.004	.243	.08	.41
30. Very high project cost/debt requirement	5.28	91	.000	.515	.32	.71
31. Complexity/delay in security creations	2.03	91	.045	.157	.00	.31
32. Poor co-ordination between promoters and lenders	-.32	91	.748	-.028	-.20	.15
33. Inadequate legal/regulatory environment	5.14	91	.000	.493	.30	.68
34. Business compulsion of promoter (need for work)	-4.75	91	.000	-.376	-.53	-.22
35. Lack of bargaining power of promoter	-10.48	91	.000	-.767	-.91	-.62
36. High risk aversion of government	-3.05	91	.003	-.311	-.51	-.11
37. Adverse market (high competition)	-9.81	91	.000	-1.137	-1.37	-.91
38. Policy restrictions on risk acceptance	-3.87	91	.000	-.430	-.65	-.21
39. High contingent liabilities due to existing support to sector	-4.40	91	.000	-.539	-.78	-.30

Table 7.3-4 Correlation Matrix Between Independent Variables

CORRELATION MATRIX (1/3)													
	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	No.9	No.10	No.11	No.12	No.13
No.1	1.0	0.4	0.8	0.2	0.5	0.5	0.1	0.2	0.3	0.0	0.0	0.6	0.4
No.2	0.4	1.0	0.5	0.5	0.4	0.4	0.0	0.1	0.3	0.3	0.2	0.4	0.3
No.3	0.8	0.5	1.0	0.2	0.6	0.4	0.2	0.2	0.3	0.0	0.0	0.5	0.5
No.4	0.2	0.5	0.2	1.0	0.3	0.1	-0.2	-0.1	-0.1	0.3	0.3	0.1	0.1
No.5	0.5	0.4	0.6	0.3	1.0	0.4	0.3	0.2	0.5	0.0	0.1	0.6	0.6
No.6	0.5	0.4	0.4	0.1	0.4	1.0	0.3	0.4	0.3	0.2	0.2	0.4	0.2
No.7	0.1	0.0	0.2	-0.2	0.3	0.3	1.0	0.1	0.6	0.3	0.3	0.2	0.5
No.8	0.2	0.1	0.2	-0.1	0.2	0.4	0.1	1.0	0.4	-0.1	0.0	0.5	0.2
No.9	0.3	0.3	0.3	-0.1	0.5	0.3	0.6	0.4	1.0	0.4	0.4	0.5	0.7
No.10	0.0	0.3	0.0	0.3	0.0	0.2	0.3	-0.1	0.4	1.0	0.6	0.0	0.4
No.11	0.0	0.2	0.0	0.3	0.1	0.2	0.3	0.0	0.4	0.6	1.0	0.2	0.4
No.12	0.6	0.4	0.5	0.1	0.6	0.4	0.2	0.5	0.5	0.0	0.2	1.0	0.6
No.13	0.4	0.3	0.5	0.1	0.6	0.2	0.5	0.2	0.7	0.4	0.4	0.6	1.0
No.14	0.6	0.4	0.7	0.2	0.8	0.6	0.3	0.4	0.5	0.1	0.2	0.7	0.6
No.15	0.5	0.4	0.5	0.1	0.5	0.6	0.4	0.4	0.5	0.2	0.2	0.6	0.5
No.16	0.4	0.4	0.5	0.1	0.6	0.7	0.4	0.3	0.4	0.2	0.2	0.4	0.3
No.17	0.5	0.4	0.6	0.5	0.5	0.4	0.0	0.1	0.1	0.1	0.1	0.3	0.3
No.18	0.2	0.3	0.3	0.3	0.4	0.4	0.2	0.0	0.3	0.4	0.4	0.2	0.3
No.19	0.4	0.5	0.5	0.5	0.6	0.4	0.3	0.1	0.5	0.5	0.5	0.5	0.5
No.20	0.2	0.2	0.3	0.2	0.3	0.3	0.5	0.1	0.5	0.7	0.4	0.3	0.6
No.21	0.1	0.4	0.2	0.4	0.1	0.2	0.1	-0.2	0.2	0.6	0.5	0.1	0.4
No.22	0.6	0.5	0.6	0.2	0.4	0.5	0.4	0.2	0.6	0.4	0.2	0.5	0.6
No.23	0.0	0.3	0.0	0.2	-0.1	0.1	-0.1	0.0	0.0	0.4	0.4	0.1	0.1
No.24	0.5	0.3	0.5	0.2	0.3	0.5	0.2	0.2	0.2	0.2	0.1	0.2	0.3
No.25	0.4	0.3	0.5	0.2	0.6	0.5	0.5	0.3	0.5	0.1	0.2	0.6	0.5
No.26	0.5	0.4	0.5	0.3	0.6	0.5	0.3	0.4	0.5	0.2	0.2	0.6	0.6
No.27	0.3	0.4	0.3	0.0	0.4	0.5	0.4	0.5	0.6	0.2	0.4	0.5	0.5
No.28	0.2	0.5	0.3	0.4	0.5	0.5	0.2	0.0	0.3	0.5	0.5	0.2	0.4
No.29	0.1	0.5	0.2	0.4	0.3	0.3	0.3	0.2	0.3	0.6	0.5	0.3	0.4
No.30	0.3	0.4	0.3	0.2	0.4	0.4	0.5	0.3	0.7	0.5	0.5	0.5	0.6
No.31	0.3	0.5	0.3	0.3	0.3	0.4	0.0	0.3	0.2	0.3	0.3	0.4	0.2
No.32	0.4	0.4	0.4	0.5	0.4	0.3	0.4	-0.1	0.5	0.5	0.5	0.4	0.6
No.33	0.4	0.2	0.5	-0.1	0.3	0.4	0.5	0.3	0.5	0.3	0.2	0.4	0.6
No.34	0.3	0.3	0.4	0.0	0.5	0.4	0.6	0.2	0.7	0.4	0.2	0.4	0.6
No.35	0.2	0.2	0.2	0.1	0.3	0.0	0.0	0.1	0.3	0.3	0.3	0.4	0.3
No.36	0.1	0.0	0.0	-0.2	0.0	0.1	0.4	0.4	0.4	0.1	0.0	0.3	0.2
No.37	0.0	0.1	-0.1	-0.2	0.1	0.0	0.3	0.2	0.5	0.2	0.1	0.2	0.2
No.38	0.2	0.0	0.1	-0.3	0.0	0.2	0.3	0.4	0.4	0.0	-0.1	0.3	0.2
No.39	0.1	-0.2	-0.1	-0.4	0.1	0.1	0.4	0.3	0.5	0.0	0.0	0.3	0.2

CORRELATION MATRIX (2/3)

	No.14	No.15	No.16	No.17	No.18	No.19	No.20	No.21	No.22	No.23	No.24	No.25	No.26
No.1	0.6	0.5	0.4	0.5	0.2	0.4	0.2	0.1	0.6	0.0	0.5	0.4	0.5
No.2	0.4	0.4	0.4	0.4	0.3	0.5	0.2	0.4	0.5	0.3	0.3	0.3	0.4
No.3	0.7	0.5	0.5	0.6	0.3	0.5	0.3	0.2	0.6	0.0	0.5	0.5	0.5
No.4	0.2	0.1	0.1	0.5	0.3	0.5	0.2	0.4	0.2	0.2	0.2	0.2	0.3
No.5	0.8	0.5	0.6	0.5	0.4	0.6	0.3	0.1	0.4	-0.1	0.3	0.6	0.6
No.6	0.6	0.6	0.7	0.4	0.4	0.4	0.3	0.2	0.5	0.1	0.5	0.5	0.5
No.7	0.3	0.4	0.4	0.0	0.2	0.3	0.5	0.1	0.4	-0.1	0.2	0.5	0.3
No.8	0.4	0.4	0.3	0.1	0.0	0.1	0.1	-0.2	0.2	0.0	0.2	0.3	0.4
No.9	0.5	0.5	0.4	0.1	0.3	0.5	0.5	0.2	0.6	0.0	0.2	0.5	0.5
No.10	0.1	0.2	0.2	0.1	0.4	0.5	0.7	0.6	0.4	0.4	0.2	0.1	0.2
No.11	0.2	0.2	0.2	0.1	0.4	0.5	0.4	0.5	0.2	0.4	0.1	0.2	0.2
No.12	0.7	0.6	0.4	0.3	0.2	0.5	0.3	0.1	0.5	0.1	0.2	0.6	0.6
No.13	0.6	0.5	0.3	0.3	0.3	0.5	0.6	0.4	0.6	0.1	0.3	0.5	0.6
No.14	1.0	0.6	0.7	0.7	0.6	0.6	0.5	0.3	0.6	0.0	0.6	0.7	0.6
No.15	0.6	1.0	0.7	0.4	0.4	0.4	0.5	0.3	0.6	-0.1	0.5	0.6	0.7
No.16	0.7	0.7	1.0	0.5	0.6	0.5	0.5	0.2	0.5	-0.1	0.5	0.6	0.6
No.17	0.7	0.4	0.5	1.0	0.5	0.5	0.4	0.3	0.4	0.0	0.6	0.5	0.5
No.18	0.6	0.4	0.6	0.5	1.0	0.7	0.5	0.5	0.4	0.0	0.4	0.5	0.4
No.19	0.6	0.4	0.5	0.5	0.7	1.0	0.5	0.5	0.5	0.1	0.3	0.6	0.6
No.20	0.5	0.5	0.5	0.4	0.5	0.5	1.0	0.6	0.6	0.2	0.5	0.6	0.5
No.21	0.3	0.3	0.2	0.3	0.5	0.5	0.6	1.0	0.2	0.4	0.3	0.2	0.2
No.22	0.6	0.6	0.5	0.4	0.4	0.5	0.6	0.2	1.0	0.1	0.5	0.6	0.7
No.23	0.0	-0.1	-0.1	0.0	0.0	0.1	0.2	0.4	0.1	1.0	0.1	-0.1	0.0
No.24	0.6	0.5	0.5	0.6	0.4	0.3	0.5	0.3	0.5	0.1	1.0	0.5	0.4
No.25	0.7	0.6	0.6	0.5	0.5	0.6	0.6	0.2	0.6	-0.1	0.5	1.0	0.7
No.26	0.6	0.7	0.6	0.5	0.4	0.6	0.5	0.2	0.7	0.0	0.4	0.7	1.0
No.27	0.4	0.7	0.6	0.2	0.2	0.4	0.3	0.1	0.5	0.2	0.2	0.4	0.6
No.28	0.4	0.4	0.5	0.6	0.6	0.6	0.4	0.5	0.5	0.2	0.3	0.4	0.6
No.29	0.4	0.3	0.3	0.3	0.5	0.6	0.6	0.5	0.4	0.4	0.2	0.4	0.3
No.30	0.4	0.6	0.5	0.2	0.4	0.6	0.5	0.3	0.6	0.2	0.3	0.6	0.6
No.31	0.4	0.3	0.4	0.3	0.3	0.5	0.3	0.3	0.4	0.5	0.1	0.3	0.4
No.32	0.5	0.6	0.4	0.4	0.5	0.6	0.6	0.6	0.7	0.2	0.3	0.5	0.6
No.33	0.5	0.5	0.4	0.2	0.3	0.4	0.6	0.2	0.6	0.2	0.4	0.5	0.4
No.34	0.5	0.6	0.5	0.2	0.3	0.3	0.6	0.3	0.6	0.1	0.4	0.6	0.5
No.35	0.3	0.4	0.1	0.0	0.2	0.3	0.3	0.3	0.2	0.1	0.1	0.2	0.2
No.36	0.0	0.3	0.1	-0.3	-0.1	0.0	0.1	-0.1	0.4	-0.1	-0.2	0.2	0.3
No.37	0.0	0.1	0.1	-0.4	0.0	0.0	0.1	-0.1	0.1	0.0	-0.3	0.0	0.0
No.38	0.1	0.4	0.2	-0.2	0.0	-0.1	0.2	-0.1	0.3	-0.1	0.0	0.1	0.2
No.39	0.1	0.3	0.1	-0.4	0.0	-0.1	0.1	-0.3	0.2	-0.2	-0.1	0.1	0.1

CORRELATION MATRIX (3/3)

	No.27	No.28	No.29	No.30	No.31	No.32	No.33	No.34	No.35	No.36	No.37	No.38	No.39
No.1	0.3	0.2	0.1	0.3	0.3	0.4	0.4	0.3	0.2	0.1	0.0	0.2	0.1
No.2	0.4	0.5	0.5	0.4	0.5	0.4	0.2	0.3	0.2	0.0	0.1	0.0	-0.2
No.3	0.3	0.3	0.2	0.3	0.3	0.4	0.5	0.4	0.2	0.0	-0.1	0.1	-0.1
No.4	0.0	0.4	0.4	0.2	0.3	0.5	-0.1	0.0	0.1	-0.2	-0.2	-0.3	-0.4
No.5	0.4	0.5	0.3	0.4	0.3	0.4	0.3	0.5	0.3	0.0	0.1	0.0	0.1
No.6	0.5	0.5	0.3	0.4	0.4	0.3	0.4	0.4	0.0	0.1	0.0	0.2	0.1
No.7	0.4	0.2	0.3	0.5	0.0	0.4	0.5	0.6	0.0	0.4	0.3	0.3	0.4
No.8	0.5	0.0	0.2	0.3	0.3	-0.1	0.3	0.2	0.1	0.4	0.2	0.4	0.3
No.9	0.6	0.3	0.3	0.7	0.2	0.5	0.5	0.7	0.3	0.4	0.5	0.4	0.5
No.10	0.2	0.5	0.6	0.5	0.3	0.5	0.3	0.4	0.3	0.1	0.2	0.0	0.0
No.11	0.4	0.5	0.5	0.5	0.3	0.5	0.2	0.2	0.3	0.0	0.1	-0.1	0.0
No.12	0.5	0.2	0.3	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.2	0.3	0.3
No.13	0.5	0.4	0.4	0.6	0.2	0.6	0.6	0.6	0.3	0.2	0.2	0.2	0.2
No.14	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.3	0.0	0.0	0.1	0.1
No.15	0.7	0.4	0.3	0.6	0.3	0.6	0.5	0.6	0.4	0.3	0.1	0.4	0.3
No.16	0.6	0.5	0.3	0.5	0.4	0.4	0.4	0.5	0.1	0.1	0.1	0.2	0.1
No.17	0.2	0.6	0.3	0.2	0.3	0.4	0.2	0.2	0.0	-0.3	-0.4	-0.2	-0.4
No.18	0.2	0.6	0.5	0.4	0.3	0.5	0.3	0.3	0.2	-0.1	0.0	0.0	0.0
No.19	0.4	0.6	0.6	0.6	0.5	0.6	0.4	0.3	0.3	0.0	0.0	-0.1	-0.1
No.20	0.3	0.4	0.6	0.5	0.3	0.6	0.6	0.6	0.3	0.1	0.1	0.2	0.1
No.21	0.1	0.5	0.5	0.3	0.3	0.6	0.2	0.3	0.3	-0.1	-0.1	-0.1	-0.3
No.22	0.5	0.5	0.4	0.6	0.4	0.7	0.6	0.6	0.2	0.4	0.1	0.3	0.2
No.23	0.2	0.2	0.4	0.2	0.5	0.2	0.2	0.1	0.1	-0.1	0.0	-0.1	-0.2
No.24	0.2	0.3	0.2	0.3	0.1	0.3	0.4	0.4	0.1	-0.2	-0.3	0.0	-0.1
No.25	0.4	0.4	0.4	0.6	0.3	0.5	0.5	0.6	0.2	0.2	0.0	0.1	0.1
No.26	0.6	0.6	0.3	0.6	0.4	0.6	0.4	0.5	0.2	0.3	0.0	0.2	0.1
No.27	1.0	0.5	0.3	0.6	0.5	0.4	0.4	0.3	0.2	0.4	0.2	0.3	0.3
No.28	0.5	1.0	0.6	0.4	0.5	0.5	0.2	0.3	0.3	0.0	-0.1	-0.2	-0.1
No.29	0.3	0.6	1.0	0.5	0.5	0.5	0.4	0.4	0.2	0.1	0.2	0.0	0.0
No.30	0.6	0.4	0.5	1.0	0.4	0.5	0.6	0.6	0.2	0.4	0.2	0.2	0.3
No.31	0.5	0.5	0.5	0.4	1.0	0.4	0.3	0.2	0.3	0.1	0.0	0.0	0.0
No.32	0.4	0.5	0.5	0.5	0.4	1.0	0.5	0.6	0.3	0.2	0.0	0.0	0.0
No.33	0.4	0.2	0.4	0.6	0.3	0.5	1.0	0.7	0.2	0.4	0.1	0.3	0.2
No.34	0.3	0.3	0.4	0.6	0.2	0.6	0.7	1.0	0.4	0.4	0.2	0.3	0.4
No.35	0.2	0.3	0.2	0.2	0.3	0.3	0.2	0.4	1.0	0.2	0.1	0.1	0.2
No.36	0.4	0.0	0.1	0.4	0.1	0.2	0.4	0.4	0.2	1.0	0.5	0.7	0.7
No.37	0.2	-0.1	0.2	0.2	0.0	0.0	0.1	0.2	0.1	0.5	1.0	0.7	0.7
No.38	0.3	-0.2	0.0	0.2	0.0	0.0	0.3	0.3	0.1	0.7	0.7	1.0	0.8
No.39	0.3	-0.1	0.0	0.3	0.0	0.0	0.2	0.4	0.2	0.7	0.7	0.8	1.0

Determinant = 9.09E-022

Table 7.3-5 KMO and Bartlett's Test Result

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.726
Bartlett's Test of Sphericity	Approx. Chi-Square	3738.676
	df	741
	Sig.	.000

Table 7.3-6 Item Total Statistics

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1. Failure to manage equity in time	151.06	345.29	0.45	0.94
2. Dispute among equity partners	151.74	340.86	0.52	0.94
3. Poor response from equity investors	151.16	341.42	0.50	0.94
4. Adverse changes in the parent organization of promoters/equity investors	152.02	347.01	0.24	0.94
5. Delay in debt syndication	151.23	335.37	0.62	0.94
6. Failure to find sufficient financial institutions/banks	151.00	341.36	0.62	0.94
7. High risk aversion of lenders	151.39	334.49	0.53	0.94
8. Lenders not comfortable with project proposals	151.45	341.21	0.39	0.94
9. Sudden change in cost of debt	151.63	327.79	0.74	0.94
10. Government induced changes in interest	152.24	337.40	0.48	0.94
11. Fluctuation in foreign exchange	151.52	345.54	0.39	0.94
12. Liquidity crisis in market	151.23	339.34	0.62	0.94
13. Fluctuation in financial/capital markets	151.35	329.12	0.73	0.94
14. Poor bankability of concession	151.21	335.92	0.69	0.94
15. Poor EPC/O&M arrangements	151.52	328.40	0.76	0.94
16. High project revenue risk	151.38	332.11	0.66	0.94
17. Lack of promoter/concessionaire confidence	151.80	345.64	0.37	0.94
18. Non availability of corporate guarantee	151.68	342.74	0.48	0.94
19. Poor debt recourse provisions in concession	151.71	338.21	0.68	0.94
20. Poor risk allocation in concession agreement	151.73	338.05	0.65	0.94
21. Poor financial/technical strength of promoters/ concessionaire	152.01	345.84	0.32	0.94

22. Inadequate feasibility analysis/risk assessment	151.16	335.67	0.75	0.94
23. Contract documentation delay	152.33	353.71	0.11	0.94
24. Failure/Lack of similar projects	151.89	343.93	0.38	0.94
25. Adverse investment climate for debt	151.34	334.75	0.68	0.94
26. Recession in economy	151.32	331.23	0.73	0.94
27. Delay in getting project approvals	151.40	336.98	0.60	0.94
28. High public/political resistance	151.60	339.90	0.59	0.94
29. Policy restrictions of banks for investment in PPPs	151.63	338.61	0.59	0.94
30. Very high project cost/debt requirement	151.32	331.58	0.74	0.94
31. Complexity/delay in security creations	151.67	346.10	0.42	0.94
32. Poor co-ordination between promoters and lenders	151.84	337.25	0.66	0.94
33. Inadequate legal/regulatory environment	151.34	335.46	0.65	0.94
34. Business compulsion of promoter (need for work)	152.23	335.34	0.76	0.94
35. Lack of bargaining power of promoter	152.65	348.35	0.32	0.94
36. High risk aversion of government	152.18	344.92	0.30	0.94
37. Adverse market (high competition)	153.13	343.55	0.32	0.94
38. Policy restrictions on risk acceptance	152.33	345.68	0.25	0.94
39. High contingent liabilities due to existing support to sector	152.49	345.39	0.23	0.94