ASSESSMENT OF CRITICAL SUCCESS FACTORS THAT AFFECT IMPLEMENTATION OF PUBLIC PRIVATE PARTNERSHIP POWER PROJECTS IN ETHIOPIA-THE CASE OF DICHETO SOLAR PROJECT

BY: Abebe Degefa

A research paper submitted to Addis Ababa University School of Commerce in partial fulfillment of the requirements for Master's of Arts Degree in project management

Advisor:- Dr. Solomon Markos

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Addis Ababa, Ethiopia

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ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE
DEPARTMENT OF PROJECT MANAGEMENT

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Approved by:

Advisor	Signature	Date
……...	……..	……..
Internal Examiner	Signature	Date
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External Examiner	Signature	Date
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DECLARATION

I, the undersigned, hereby declare that the work contained in this thesis is my own original work and that I have not previously in its entirety or in part submitted at any university for a degree.

Name: Abebe Degefa

Signature: …….

Date: …….

LETTER OF CERTIFICATION

This is to certify that Abebe Degefa has carried out the project work entitled: "Assessment of critical success factors in implementing public private partnership power projects in Ethiopia-the case of Dicheto solar project" under my supervision.

This work is original and suitable for the submission in partial fulfillment of the requirement for the award of Master of Arts Degree in Project Management.

Name: Dr. Solomon Markos

Signature: …….

Date: ……..

ABSTRACT

The main objectives of the research are to identify and rank critical success factors (CSFs) and assess their practice in implementing PPP power projects in Ethiopia. Mixed research approach were used, accordingly Questionnaires and Interview were the main data collection instruments. Intensive literature review was made to identify CSFs. The study identified and ranked 22 CSFs in power sector as it is appropriate to Ethiopia. The most important are appropriate risk allocation and risk sharing, government guarantee for revenue and convertibility, proper & adequate project feasibility studies, appropriate project identification and screening, favorable legal framework, effective, efficient, competitive & transparent procurement process and stable political, social and economic environment. Moreover, the research has assessed the practice of some of the CSFs in implementing PPP power projects in Ethiopia and found that there is a good practice towards presence of clear legal framework, availability of transparent procurement process, conducting detail and adequate feasibility studies before tendering the projects while the practice of risk identification, allocation and management, identification & management of stakeholders, convertibility risk guarantees and adequate awareness about PPP by all relevant decision makers has to be improved. Based on the findings of the research, the following are recommended: PPP power projects procuring party, implementing parties, policy maker and other relevant stakeholders shall give due attention to the critical success factors identified and ranked in their order of importance while implementing PPP projects to realize the success of the projects.

Keywords: Public-Private Partnership, critical success factors, Power sector,

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CHAPTER ONE

INTRODUCTION

1.1. Background of the study

Over the last three decades, public-private partnership has gained popularity with governments for remedying the observed inefficiency in traditional service delivery approach (Siemiatycki 2012). Public-private partnerships is long-term contractual relationships between public and private entities to share risk for the design, construction, and operation of infrastructure or services (Akintoye et al. 2003). According to world bank (2014), Public private partnership (PPP) is defined as a long term contract between a public party and a private party for the development (or significant upgrade or renovation) and management of a public asset (including potentially the management of a related public service), in which the private party bears significant risk and management responsibility throughout the life of the contract, provides a significant portion of the finance at its own risk, and remuneration is significantly linked to performance and/or the demand or use of the asset or service so as to align the interests of both parties.

Kwak et al. (2009) identified four critical elements that characterized a PPP. First, it involves cooperation between the public and private sectors. Second, the partners work cooperatively towards achieving mutual objectives and benefits. Third, it is about the introduction of market mechanisms to achieve efficiency in service provision. Fourth, it involves sharing of risk between partners. They also highlighted that the essential feature of PPP is that the public sector usually define the output specification or services needed. The private sector then undertakes to design, build, finance and operate and maintain the projects before handing over it at the end of the

concession or contract period the asset to the public sector. On the other hand, the main role of the government is to identify and screen projects, perform project appraisal, structuring tender and contract documents, conduct tender and award the project and supervise the performance of the project. Rashed (2011) highlighted that government has an upfront roles including performing project identification and feasibility study and providing broad functional specification on technical matters and commercial aspects.

There are successes and failures in using PPP as a means of delivering projects. International practices indicate both successes and failures in the application of PPP model in project delivery (Bult-Spiering & Dewulf, 2006). Many PPPs projects have been used to deliver great number of development projects while few PPP programs and projects suffered disastrous consequences (Cheung 2009). The various problems occurring worldwide are not surprising given the broad range of risks and uncertainties in long-term PPP contracts, the multiple participants involved, and the lack of PPP experience and expertise in many countries and regions (Zhang 2005). Guasch (2004) describes that poor PPP design and weak implementation can lead to renegotiation and increased costs. Public-private partnership scheme can be described as successful if it offer greater value-for-money, provide adequate financial return to the private investor , cost savings , reduction in construction time, maintaining a high level of service quality and satisfying the stakeholders. (Zayyanu and Johar 2017).

In 2018, the government of Ethiopia approved a PPP proclamation(1076/2018) to enable private sector participation in the infrastructure development and service delivery in the country. According to a PPP project pipeline booklet, published in April 2019 for PPP projects pipeline, from ministry of finance there are a number of power projects that are approved and are on the pipeline. This includes 5 hydro power

projects, 5 wind projects and 8 solar projects. Some of them are under implementation including Dicheto Solar power project. Dicheto Solar power project is among the first PPP power projects under implementation, after the approval of the PPP proclamation.

According to the project documents, a competitive bid was conducted by the PPP-DG (PPP Director General), an institution under the ministry of finance (MoF) which is responsible for the procurement of PPP projects, to select the winning bidder. Two stage tendering, an RFQ followed by an RFP process, was conducted to select winning bidder. The winning bidder signed a 20 year power purchase agreement (PPA) with Ethiopia Electric Power (EEP) which is the contracting authority. As required in the power purchase agreement, the winning bidder establishes Project Company or special purpose vehicle (SPV), incorporated under the law of Ethiopia, to implement, operate and maintain the project during the life of the project.

PPP projects involves long term contract. According to the energy directive 1/2005, a 20 year power purchase agreement or contract has to be entered for PPP solar projects. Hence PPP projects have to be properly identified, appraised, procured and managed to implement them successfully and reap their benefits. For a PPP projects to be successful, the government must properly manage the process, throughout the project life cycle, with suitable capabilities and resources and follow standard approaches and good practices APMG (2016).

Having a number of pipelines of projects is not sufficient, implementing authorities need to identify and understand properly the success factors of implementing PPP projects in order to reap the benefits of PPP. If PPP projects cannot be managed and implemented properly, government will face the downside of it.

1.2. Statement of the problem

The government of Ethiopia is undertaking many infrastructure projects including mega power projects to meet its energy demand and enhance its economic development. Previously most of power projects were built through traditional procurement methods. As the need to construct more infrastructure projects increases, the government cannot rely only on traditional procurement methods. The government has to look for alternative procurement means.

Public private partnership (PPP) are alternative procurement methods that gives alternative financing sources for development endeavors. According to APMG (2016), PPPs are an alternative method for financing infrastructure projects and allow acceleration of infrastructure development. The large funding gap that holds back investments in new power projects in Africa cannot be bridged by the public sector alone, Private participation is Critical (Eberhard 2016)

According to Kwak et al. (2009), PPP can provide a number of benefits to the government such as: alleviating the financial burden on the government, facilitate risks to be transferred from the public to the private sector and enhance the value for money expended in infrastructure development. The APMG (2016) also highlights that PPPs can offer alternative financing sources, brings effectiveness, efficiency and innovation enhance transparency & help controlling corruption. PPPs have also disadvantages. The APMG (2016) highlights the following disadvantages of PPPs: they are more complex, have higher transaction costs and may bring excessive budget commitments.

Zhang (2004) highlighted that one of the critical steps in the development of PPP is to identify, analyze, and categorize various critical success factors. According to Ghazali, Rashid and Sadullah (2017) the identification of the critical success factors is not only useful as a measuring tool to assess the successful delivery of projects, but also can be used as the key performance indicators for infrastructure projects.

The researcher has conducted an assessment on previous researches conducted in Ethiopia. There are some researches on health and road sectors. There are very limited researches for PPP projects in energy sector. This research aims to fill this gap and tries to identify the most appropriate critical success factors in power sector in the context of Ethiopia and rank and prioritize them by calculating the relative importance index (RII). Many researchers have identified different critical success factors for PPP projects. However their level of criticality varies in different places (Li et al. 2005). Akintoye et al. (2003) also concluded that the achievement of success in PPP projects is project-specific as the requirements for achieving it for one project may not be the solution for another. Although the concept, process and key principles of PPP are essentially identical; many aspects of PPP are project, sector or country-specific (Zhang & Chen 2013).

A preliminary interview has been conducted with project managers, working at Ethiopia Electric Power, to assess the major challenges faced in implementing PPP power projects. They have highlighted the following main problems: lack of coordination with different stakeholders, poor communication, lack of champion and lack of understanding PPP processes, lack of currency conversion guarantee by government and lack of adequate resources to identify and screen projects.

There is a research gap that needs to be filled in the power sector in Ethiopia. The researcher will attempt to fill this identified gap.

Hence the main aim of this research is therefore to investigate & analyses the critical success factors (CSFs) and assess their practice in implementing Public private partnership (PPP) power projects in Ethiopia.

1.3. Research Questions

The research intends to address the following key questions

1. How is the practice of critical success factors (CSF) in public organization that implement Public private partnership (PPP) Power projects in Ethiopia?
2. Which critical success factors (CSF) are more important in determining success of PPP power projects in Ethiopia?

1.4. Objectives of the study

The main objectives of the study are:

1. To assess the practice of critical success factors (CSF) in public organization that implement Public private partnership (PPP) power projects in Ethiopia.
2. To identify, prioritize and rank critical success factors (CSF) that affect the successful implementation of Public private partnership (PPP) power projects in Ethiopia.

1.5. 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) power projects in Ethiopia including policy makers, ministry of finance, Ethiopia Electric Power, 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.

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 entities can use as reference the critical success factor identified and prioritized in this study for successful implementation of the projects. Private sector investors and lenders conduct due diligence to identify success factors and challenges in implementing PPP projects in the country, in this regard the study will be useful as a reference document for such stakeholders. Lastly, the study will serve as a base and reference for those who are interested to conduct further research works on PPP power projects. Lastly, I strongly believe that this study will have a great contribution to the larger body of knowledge.

1.6. Scope and limitation of the Study

Cresswell (2006) strongly argues that limiting a research project using specific time frame, location, population or issue to be investigated helps the researcher to focus the center of attention and address the research problem in a resource and time efficient manner.

The scope of this research was limited on assessing the critical success factors and their practice in implementing PPP power projects in public organization. The views of the private parties were not incorporated

The research focuses on project implementation activities and success factors related with public party. It focuses on success factors before project construction is started by the private parties. Specifically it focuses on the following activities: project identification and screening, feasibility studies, structuring the tender and contract documents and tendering and awarding. Each of these phases has been completed for the project under study.

Moreover, the study focuses on obtaining responses from respondents who are directly related and involved with PPP power projects in this regard the population size is limited only to 30 respondents.

This research is undertaken in the time of COVID-19 during which the data collection process was difficult for the researcher. Moreover due to their work load the researcher was not able to get timely responses from respondent.

1.7. Organization of the Study

The research report is organized in five chapters. Chapter one discusses about background of the study, statement of the problem, basic research questions, and objectives of the study and Significance of the study. Chapter two discusses about literature review. Chapter three discusses about the research methodology including: research design, approach population; data collection and data analysis while Chapter four discusses about data analysis and results and discussion. Finally, the last chapter deals with conclusions and recommendations of the research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Public Private Partnership

Over the last three decades, public-private partnership has gained popularity with governments for remedying the observed inefficiency in traditional service delivery approach (Siemiatycki 2012). Public-private partnerships is long-term contractual relationships between public and private entities to share risk for the design, construction, and operation of infrastructure or services (Akintoye et al. 2003). According to world bank (2014), Public private partnership (PPP) is defined as a long term contract between a public party and a private party for the development (or significant upgrade or renovation) and management of a public asset (including potentially the management of a related public service), in which the private party bears significant risk and management responsibility throughout the life of the contract, provides a significant portion of the finance at its own risk, and remuneration is significantly linked to performance and/or the demand or use of the asset or service so as to align the interests of both public and private parties. APMG (2016), also highlighted that PPPs are an alternative method for financing infrastructure projects and allow acceleration of infrastructure development. The large funding gap that holds back investments in new power projects in Africa cannot be bridged by the public sector alone, Private participation is Critical (Eberhard 2016).

Kwak et al. (2009) identified four critical elements that characterized a PPP. First, it involves cooperation between the public and private sectors. Second, the partners work cooperatively towards achieving mutual objectives and benefits. Third, it is about the introduction of market mechanisms to achieve efficiency in service

provision. Fourth, it involves sharing of risk between partners. They also highlighted that the essential feature of PPP is that the public sector usually define the services needed. The private sector then undertakes to design, build, and finance the operation before handing over at the end of the concession period.

Rashed (2011) mentioned that in a PPP project, the investment comes from the private sector while Government has the prime role of upfront project development particularly project identification and feasibility study in order to determine the financial and economic viability of the business venture the government also provide broad functional specification on technical matters and commercial aspects.

International practices indicate both successes and failures in the application of PPP model in project delivery (Bult-Spiering & Dewulf, 2006). Many PPPs projects have been used to deliver great number of development projects while some PPP programs and projects suffered disastrous consequences (Cheung 2009). The various problems occurring worldwide are not surprising given the broad range of risks and uncertainties in long-term PPP contracts, the multiple participants involved, and the lack of PPP experience and expertise in many countries and regions (Zhang 2005).

In 2018, the government of Ethiopia approved a PPP proclamation(1076/2018) to enable private sector participation in the infrastructure development and service delivery. The proclamation has identified the role & responsibilities of different parties (PPP board, PPP-Director General & contracting authorities such as EEP) , involved in implementing PPP projects. The PPP Board is responsible to approve feasibility studies, approves significant risk change & amendment to a Project agreement, approve tender result etc. PPP-DG is responsible to conduct the procurement process and to select the winning bidder, provide technical assistance to

PPP Board, ministry of finance and Contracting Authority, coordinate activities related with PPP projects and monitor and evaluate the progress of PPP projects etc. Thee contracting Authority (EEP) is responsible to establish Project Management team , conduct feasibility study, prepare project documents, sign Project Agreements (e.g., Power Purchase Agreement -PPA) and supervise and oversee the private party and ensure compliance with the project agreements and proclamation, liaise with all stakeholders and provide reports to PPP-DG. Following the issuance of the proclamation, EEP has established PPP project development office to implement PPP projects.

According to a PPP project pipeline booklet, published in April 2019 for PPP projects pipeline, from ministry of finance there are a number of power projects that are approved and are on the pipeline. This includes 5 hydro power projects, 5 wind projects and 8 solar projects. Some of them are under implementation including Dicheto Solar power project. Dicheto Solar power project (125 MW) is among the first PPP power projects under implementation, after the approval of the PPP proclamation.

According to the project documents, a competitive bid was conducted by the PPP-DG (PPP Director General), an institution under the ministry of finance (MoF) which is responsible for the procurement of PPP projects, to select the winning bidder. Two stage tendering, an RFQ followed by an RFP process, was conducted to select winning bidder. The winning bidder signed a 20 year power purchase agreement (PPA) with Ethiopia Electric Power (EEP) which is the contracting authority. As required in the power purchase agreement, the winning bidder establishes Project Company or special purpose vehicle (SPV), incorporated under the law of Ethiopia, to design, finance, construct, operate and maintain the project during the life of the

project. The seller will sell the energy produced at the agreed price to EEP during the contract period which is 20 years.

PPP projects involves long term contract. The Ethiopian energy regulation 49/1999 shows that a forty (40) year power purchase agreement or contract is required for hydro PPP projects, while the energy directive 1/2005, requires a 20 year power purchase agreement or contract has to be entered for PPP solar and wind projects. Hence PPP projects have to be properly identified, appraised, procured and managed to implement them successfully and reap their benefits. For a PPP projects to be successful, the government must properly manage the process, throughout the project life cycle, with suitable capabilities and resources and follow standard approaches and good practices APMG (2016).

PPP process involves a sequence of five phases based on the PPP life-cycle: Project identification & screening, Appraisal & preparation (feasibility study), Structuring contract & tender documents, tendering and awarding the winning bidder and Contract management and performance review. Best practices recommend not to pass/start to the next stage before completing the previous stage to avoid wastage of resource, cost and time.

Project identification and screening phase: this stage involves need identification, project prioritization and selection, defining the project scope, cost benefit analysis, testing PPP suitability and affordability, stakeholder identifications, setting up project team and hiring advisor and developing project management plan.

Feasibility studies phase: involves conducting a series of feasibility exercises that inform a decision to approve, cancel, or revisit the project before the structuring of the contract that consumes scarce public resources. It should end with the green light

decision to procure the project through a PPP or to reject the project. Some of feasibility studies to be conducted are: financial, technical, legal, risk identification & assessment, commercial, economic, environmental & social, value for money studies, fiscal or affordability and impact assessment on government debt.

Structure the procurement process and project contract phase: this stage involves preparing tender and contract documents including Request for Prequalification (RFQ), Request for Proposal (RFP), PPA(Power purchase agreement) and other project documents.

Tendering and awarding the project phase: this stage involves marketing the PPP, checking the qualifications of bidders, inviting and evaluating proposals, interacting with bidders during the process, selecting the preferred bidder, and signing the contracts with the winning bidder. Moreover, during this stage the private party and the public party will finalize their respective condition precedents; moreover, the private part will finalize its financing agreements with its lenders.

Contract management and performance review: this step includes the following sections:

Construction phase: during this stage the private party will design, manufacture, supply, install, test and commission the project as per the contract. The public party will supervise the project and ensure the project is delivered as per the quality and schedule required in the contract.

Operation phase: during this stage the private party will operate and maintain the project for the duration of the contract. It will sell the energy at the agreed price to the public party. The public party will supervise the performance and output of project,

manage any change, dispute, renegotiation and claim and approve and make monthly payments.

Hand back: At the end of the contract period the private party will either transfer the project to the Government or to decommission the Project.

PPP projects involve long term contracts, involve multiple contract with different parties, involve participation of many stakeholders, need strict legal framework, require proper risk identification, allocation and management, involves project financing concept all of which makes PPP projects management more complex than traditional projects management.

PPP involves many stakeholders in general, in Ethiopia case the following stakeholders are involved in implementing PPP project: ministry of finance, ministry of water irrigation and electricity, National bank of Ethiopia, Ethiopian Energy Agency , regional governments, EEP's other departments (such as procurement, finance, planning, transmission line operation and maintenance etc). Cooperation, fast communication and support from all stakeholders is very important for successful implementation of PPP projects.

In addition to involving the participation of multiple stakeholders, PPP contracts involve multiple contract structure with different parties.

- Power purchase agreement: is an agreement between seller and purchaser
- Construction agreement: is an agreement between seller and EPC contractor
- Operation and maintenance agreement: is an agreement between seller and operation and maintenance contractor.

- Loan agreement: is an agreement between seller and lenders
- Share holder agreement: is an agreement between seller and equity investors

The following figure shows the contract structure and the parties involved in a typical PPP project.

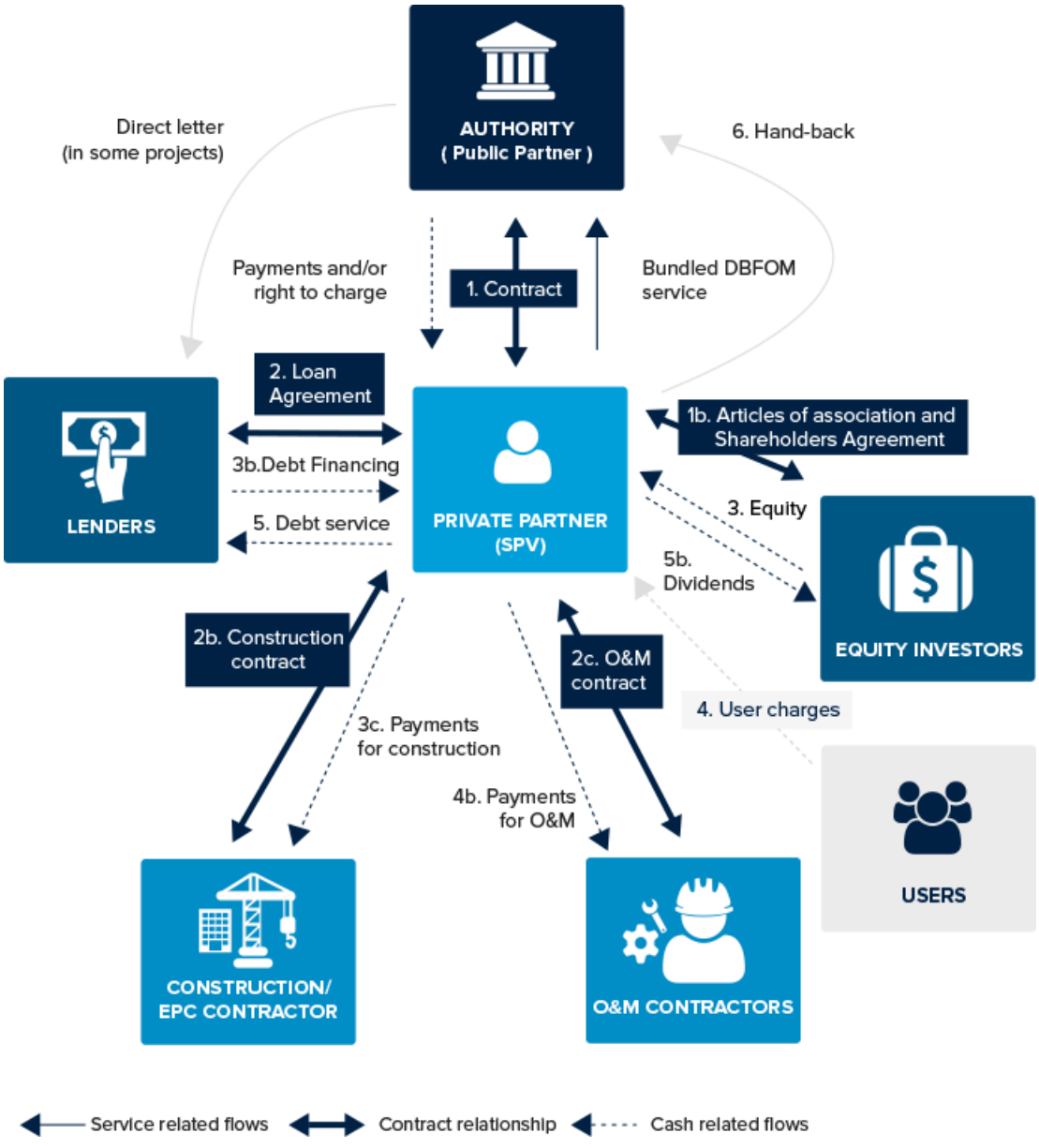

Figure 1. PPP project structure (Source: The APMG Public-Private Partnership (PPP) Certification Guide)

The complex nature of PPP projects has to be well understood by all stakeholders and decision maker and all necessary support, decision, timely communication shall be provided to project implementing parties to successfully implement the projects. If PPP projects cannot be managed and implemented properly, throughout the life cycle , government will face the downside of it. The government has to ensure that PPP will provides Value for Money throughout the contract. This requires ongoing management of the PPP.

Implementing projects through PPP modalities have both advantages and disadvantages. According to Kwak et al. (2009), PPP can provide a number of benefits to the government such as: alleviating the financial burden on the government, facilitate risks to be transferred from the public to the private sector and enhance the value for money expended in infrastructure development.

The APMG (2016) also highlights that PPPs can offer alternative financing sources, brings effectiveness, efficiency and innovation, enhance transparency & help controlling corruption. If projects that are suitable for PPP is properly selected, appraised, structured, tendered, managed and implemented, PPPs have the following advantages.

Advantages of PPP:

- Significant risk transfer to private party
- Provide alternative financing to government for infrastructure projects
- Innovations in design or service delivery approach;
- Reduction in project delays and cost overruns;
- life-cycle approach to project management;

- Improved quality and efficiency;
- Knowledge transfer to local private sector; and,
- Increased asset utilization.

On the other hand, if projects that are suitable for PPP are not properly selected, appraised, structured, tendered, managed and implemented, PPPs have the following disadvantages.

Disadvantages of PPP:

- PPPs are significantly more complex than traditional procurement methods. The time & resources needed for PPP project preparation is more and they are long term contracts. Hence it requires sound and detailed management of the PPP process with appropriate resources and knowledge.
- PPP procurement has higher transaction costs, both for the public sector and the private sector. To minimize this, projects with only significant capital size (that exceed the transaction costs) have to be procured.
- The PPP route has more visibility and political exposure. New government administrations can perceive that PPPs give political benefits to their predecessors. Hence political consensus has to be reached on the use of the PPP mode in the country.
- If the project is unsuitable for a PPP, is poorly structured, or the procurement process or the contract is poorly managed, it will bring extra costs for the government.

- PPPs may result in excessive budget commitments that threaten long-term debt sustainability. To mitigate this, there has to be a proper fiscal monitoring, a robust appraisal process and an appropriate policy framework in terms of controlling aggregated PPP fiscal commitments.

2.2 Critical Success Factors (CSF)

Having a number of pipelines of projects is not sufficient, project implementing authorities need to identify and understand properly the success factors of implementing PPP projects in order to reap the benefits of PPP. The concept of critical success factors(CSF) have been elaborated by different researchers. Zhang (2004) highlighted that one of the critical steps in the development of PPP is to identify, analyze, and categorize various critical success factors. Rockart (1982) defines Critical Success Factors (CSFs) as: those few key areas of activity in which favorable results are absolutely necessary for a manager to reach his/her goals. Boynton & Zmud (1984) also stated that critical success factors are a procedure that attempts to make explicit those few key areas that dictate managerial success. Ghazali, Rashid and Sadullah (2017) highlighted that the identification of the critical success factors is not only useful as a measuring tool to assess the successful delivery of projects, but also can be used as the key performance indicators for infrastructure projects.

Implementing projects through Public-private partnership modalities can be considered as successful if it offer greater value-for-money, provide adequate financial return to the private investor , cost savings , reduction in construction time, maintaining a high level of service quality and satisfying the stakeholders (Zayyanu and Johar 2017).

To successfully implement PPP projects, project implementing parties need to give proper attention for each phase and have to manage the projects throughout their life-cycle. Moreover to ensure PPP will provides Value for Money throughout the contract, it requires ongoing management of the PPP projects throughout the whole process.

The main objectives of this research are to identify, prioritize and rank critical success factors (CSF) for the implementation of Public private partnership (PPP) power projects in Ethiopia and to assess the practice of critical success factors (CSF) in implementing Public private partnership (PPP) power projects in Ethiopia. In line with the research objectives, the following section will explore the critical success factors (CSFs) in implementing PPP projects.

2.3 Empirical literature

Different researchers have identified critical success factors for different PPP projects. Qiao *et al*., (2001) identified eight CSFs: appropriate project identification; stable political and economic situation; attractive financial package; acceptable toll/tariff levels; reasonable risk allocation; selection of suitable subcontractors; management control; and technology transfer. In their research on the construction industry Bing *et al*., (2001) has compiled and summarized the following CSFs: Strong private consortium, Appropriate risk allocation and risk sharing, Competitive procurement process, Commitment/responsibility of public/ private sectors, Project technical feasibility, Transparency in the procurement process, Good governance, Favorable legal framework, Available financial market, Political support, Government guarantees, Stable macro-economic environment, Well organized public agency. Zhang (2005a) also identified five CSFs: favorable investment environment,

economic viability, reliable concessionaire with strong technical strength, sound financial package, and appropriate risk allocation via reliable contractual arrangements. In their research Li et. al., (2005) concluded five CSF in PPP construction industry: effective procurement, project implement ability, government guarantee for revenue, favorable economic conditions and available financial market. In his research on road sector in Ethiopia Getchachew (2019) identified the following top ten CSFs: Presence of an enabling PPP policy, Well organized and committed public agency, Stable political and social Environment, Favorable legal frameworks, Good governance, Appropriate risk allocation and sharing, Transparent procurement process, Thorough and realistic assessment of the costs and benefits, Adequate knowledge and skills of PPP, Competitive procurement process. Chan et al. (2010) also have identified the following seven CSFs for PPP projects in China: transparent and efficient procurement process, judicious government control, strong private consortium, equitable allocation of risks, adequate legal framework and stable political environment, project economic viability as well as the available financial market. As can be seen from the above, many researchers have identified different critical success factors for PPP projects. However their level of criticality varies in different places (Li et al. 2005). Akintoye et al. (2003) also concluded that the achievement of success in PPP projects is project-specific as the requirements for achieving it for one project may not be the solution for another. Although the concept, process and key principles of PPP are essentially identical; many aspects of PPP are either project, sector or country-specific (Zhang & Chen 2013).

There are very limited researches in power or energy sector, so much have to be done in future researches in this area. In this regard it is suggested that future researches will focus on identifying critical success factors in implementing PPP projects on the

basis of the nature and the location of the projects. This research aims to fill this gap and tries to identify the most appropriate critical success factors in power sector in the context of Ethiopia and rank and prioritize them by calculating the relative importance index (RII).

Further to literature review, interview with PPP power project managers and experts were conducted to get feedback and identify critical success factors in the context of PPP power project in Ethiopia. As Chua et al (1999) indicated critical success factors can be identified through the use of expert opinions. Based on the feedback from the interview the following critical success factors were identified: Proper stakeholder identification & engagement, availability of pipeline of projects, credit worthiness of the contracting authority, availability of experienced advisers, availability of successful track records of PPP projects, availability of cost reflective tariff structure , adequate awareness about PPP by all relevant decision makers and Effective project management.

Summary of identified CSFs:

The above literature review covers critical success factors in the construction industry under PPP modality in general. The most appropriate ones have to be selected for PPP projects in power sector. An interview was conducted with PPP power project managers and experts to shortlist the most relevant critical success factors in the context of PPP power project in Ethiopia. The most appropriate and relevant critical success factors for PPP projects in power sector in Ethiopia are compiled and summarized on the table below.

Table 1: Summary of identified CSF from Literature

Items	Major Critical success factors in PPP power projects
1	Appropriate project identification and screening
2	Stable political, social and economic Environment
3	Acceptable tariff levels
4	Selection of suitable subcontractors
5	Strong & reliable private party with adequate experience
6	Appropriate risk allocation and risk sharing
7	Effective, efficient, competitive & transparent procurement process
8	Proper & adequate Project feasibility studies
9	Favorable legal framework
10	Political support & government control
11	Stable macro-economic environment
12	Favorable investment environment
13	Government guarantee for revenue and convertibility
14	Well organized & committed public agency with adequate knowledge & skills of PPP; Effective project management

15	Available financial market & Attractive financial package
16	Proper stakeholder identification & engagement
17	Availability of pipeline of projects
18	Credit worthiness of the contracting authority
19	Availability of experienced advisers
20	Availability of successful track records of PPP projects
21	Availability of cost reflective tariff structure
22	Adequate awareness about PPP by all relevant decision makers

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design and Approach

According to Naoum (2013), qualitative research emphasizes meanings, experiences and descriptions to subjectively evaluate the opinion, view or perception of respondents towards a particular issue while quantitative research measures a problem in numbers based on a theory composed of variables objectively. Mixed approach provides better understanding of the problem or issues than either approach alone (Creswell, 2006). In this research interview was used to collect qualitative data while questionnaires were used to collect quantitative data.

The rational for selecting mixed approach is that, as Saunders et al (2016) argued, this approach allows both sets of results, qualitative and quantitative, to be interpreted together to provide a richer and more comprehensive response to the research question in comparison to the use of either of the two research design or methods.

This research was designed to get opinions and views on CSFs from experienced employees working in PPP power projects. Orodho (2003) highlighted that descriptive design is used to obtain information that describes existing phenomena by asking individuals about their perceptions, attitudes, behaviors or values. Hence descriptive research design was used in this research.

3.2 Population

A population is the entire group that the researcher wants to draw conclusions about. It is easy to collect data from a whole population when it is small and accessible.

Saunders et al, (2016) highlighted that it is possible to collect data from an entire population from a manageable size. In this research, 30 target population from Ministry of Finance (who are in charge of the procurement processes for PPP projects) and Ethiopia electric power (who are in charge of implementing PPP power projects) who are engaged in the construction of PPP projects will be used to get the required data. Questionnaires were distributed to the 30 target population that includes technical experts, financial expert, legal expert and environmental and social expert to get their opinion and views.

The study focuses on obtaining responses from respondents who are directly related and involved with PPP power projects in this regard the population size is limited only to 30 respondents.

An interview was conducted with project managers, working at Ethiopia Electric Power, to shortlist the most relevant CSFs in the context of PPP power project in Ethiopia. Moreover, interview was conducted with project managers to assess the major challenges faced in implementing PPP power projects.

3.3 Data Collection Method

The research started with a comprehensive literature review to identify the most relevant CSF in implementing PPP projects. Moreover, an interview was conducted with project managers to identify critical success factors. Moreover, project managers were interviewed to shortlist the most relevant CSFs in the context of PPP power project in Ethiopia. Then questionnaires were distributed to 30 target population that include technical experts, financial expert, legal expert & environmental expert to get their opinion and views and prioritize and rank the CSF in implementing PPP power projects in Ethiopia context.

3.4 Validity and Reliability of Instruments

Saunders et al, (2016) defined Validity as the appropriateness of the measures used, accuracy of the analysis of the results and generalizability of the findings. If a measurement is valid, it is also reliable (Creswell, 2009).

Reliability is defined, by Saunders et al, (2016), as the consistency or dependability of a measurement technique; it is concerned with the consistency or stability of the score obtained from a measurement.

The researcher developed the questionnaires to suite the research under study. To ensure validity, the researcher developed the questionnaires based on input from review of the existing literature. To ensure reliability, the researcher used census survey using respondents who are well familiarized with the subject matter under study. Triangulation method (questionnaires and interview) was also used to ensure the validity and reliability of data.

Moreover, the overall Cronbach's alpha reliability for the 22 CSFs was calculated and the result was found to be 0.84 this shows that there is good internal reliability and consistency of the data set.

3.5 Data analysis methods

Descriptive analysis was used to analyze the data collected from the respondents. The data collected from the respondents were measured on a five point likert scale, the relative importance Index (RII) of the success factors were calculated to prioritize and rank them. Then, the findings were interpreted and discussed in relation to the research questions.

3.6 Ethical Consideration

Research involves collecting data from people, about people. Creswell (2014) highlighted that in addition to conceptualizing the writing process for a proposal, researchers need to anticipate the ethical issues that may arise during their studies.

To ensure confidentiality of respondents, respondents were clearly aware about the aim of the study, the data were collected with the full willingness of the participants and the secrecy of the respondents was maintained.

Moreover, all sources of information were properly acknowledged and carefully utilized with no distortion and manipulation. The final research report will be made accessible to the institutions and individuals who have participated in the research process.

CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter focuses on the presentation and analysis of the data collected and results of the research.

This research focuses on project implementation activities related with public party. Specifically it focuses on the following phases: project identification and screening, feasibility studies, structuring the tender and contract documents and tendering and awarding. Each of these phases has been completed for the project under study. An assessment of the practice of CSFs for these phases of the project was made in public organization-Ethiopia Electric Power.

4.1 Demographic Data of Respondents

The main objectives of this research were to identify and rank CSFs and assess their practice while implementing PPP power projects in Ethiopia. This research intends to collect data from the most relevant respondents to the subject matter. Hence questionnaires were distributed to 30 professional respondents with 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 30.

Out of the 30 questionnaires, 28 of them were filled and returned back which shows a response rate of 93%.

The respondents professional background were technical (53.6%), legal(14.3%), financial(25%) and environmental and social (7.1%).

The following table summarizes the respondent's professional background.

Table 2: Summary of Respondents professional background

Respondents professional background	Frequency	Percentage
Technical	15	53.6%
Legal	4	14.3%
Financial	7	25%
Environmental and social	2	7.1%
Total	28	100%

Most of the respondents (78.5%) were from PPP contracting authority (Ethiopia Electric Power) in power sector while 21.5% of the respondents were from PPP procuring authority (PPP unit at ministry of finance).

4.2 Relative Importance of the Critical Success Factors

22 CSFs were identified from literature and interview from project managers working in PPP projects in power sector. Respondents were asked to prioritize the critical success factors. Each CSF were measured on a Likert scale. A 5-point Likert scale was adopted; where a weight of 1 represented "less important", 2 "slightly important", 3 "moderately important", 4 "very important" and 5 "extremely important".

The data obtained from respondents with their respective frequencies are summarized in table below.

Table 3: Summary of Response

No	Critical success factors (CSF)	Extremely important (5)		Very important (4)		moderately important (3)		Slightly Important (2)		Less important (1)		Mean
		Fre	%	Fre	%	Fre	%	Fre	%	Fre	%	
1	Appropriate project identification and screening	20	71.4	8	28.6	0	0	0	0	0	0	4.71
2	Stable political, social and economic Environment	19	67.9	9	32.1	0	0	0	0	0	0	4.68
3	Acceptable tariff levels	8	28.6	20	71.4	0		0	0	0	0	4.29
4	Selection of suitable subcontractors	5	17.9	18	64.3	5	17.9	0	0	0	0	4.00
5	Strong & reliable private party with adequate experience	18	64.3	9	32.1	1	3.6	0	0	0	0	4.61
6	Appropriate risk allocation and risk sharing	26	92.9	1	3.6	0	0	1	3.6	0	0	4.86
7	Effective, efficient, competitive & transparent procurement process	22	78.6	4	14.3	1	3.6	1	3.6	0	0	4.68
8	Proper & adequate Project feasibility studies	21	75	7	25	0	0	0	0	0	0	4.50
9	Favorable legal framework	19	67.9	9	32.1	0	0	0	0	0	0	4.68

10	Political support & government control	16	57.1	8	28.6	3	10.7	1	3.6	0	0	4.39
11	Stable macro-economic environment	8	28.6	15	53.6	4	14.3	1	3.6	0	0	4.07
12	Favorable investment environment	8	28.6	16	57.1	3	10.7	1	3.6	0	0	4.11
13	Government guarantee for revenue and convertibility	23	82.1	5	17.9	0	0	0	0	0	0	4.82
14	Well organized & committed public agency with adequate knowledge & skills of PPP; Effective project management	12	42.9	13	46.4	3	10.7	0	0	0	0	4.32
15	Available financial market & Attractive financial package	7	25	18	64.3	2	7.1	0	0	1	3.6	4.07
16	Proper stakeholder identification & engagement	13	46.4	10	35.7	5	17.9	0	0	0	0	4.29
17	Availability of pipeline of projects	5	17.9	11	39.3	11	39.3	1	3.6	0	0	3.71
18	Credit worthiness of the contracting authority	7	25	17	60.7	4	14.3	0	0	0	0	4.11
19	Availability of experienced advisers	13	46.4	14	50	1	3.6	0	0	0	0	4.43
20	Availability of successful track records of PPP projects	9	32.1	14	50	5	17.9	0	0	0	0	4.14
21	Availability of cost reflective tariff structure	11	39.3	14	50	3	10.7	0	0	0	0	4.29
22	Adequate awareness about PPP by all relevant decision makers	13	46.4	12	42.9	3	10.7	0	0	0	0	4.36

The relative importance Index (RII) of all CSFs was calculated using the following formula as adopted by Sharma (2020):

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

Where w is the weighting given to each factor by the respondent, ranging from 1 to 5, (n1= number of respondent give least important 1, n2= number of respondent give slightly important, n3= number of respondent give moderately important, n4= number of respondent give very important. N5= number of respondent give extremely important. A is the highest weight (i.e. 5) and N is the total number of population understudy which is 30.

The result of the calculation of RII and ranking of the CSFs are summarized in the below table.

Table 4: Result of RII and Ranking of the CSFs

Critical success factors (CSF)	RII	Ranking of the CSFs
Appropriate risk allocation and risk sharing	0.9067	1
Government guarantee for revenue and convertibility	0.9000	2
Proper & adequate Project feasibility studies	0.8867	3

Appropriate project identification and screening	0.8800	4
Favorable legal framework	0.8733	5
Effective, efficient, competitive & transparent procurement process	0.8733	5
Stable political, social and economic Environment	0.8733	5
Strong & reliable private party with adequate experience	0.8600	6
Availability of experienced advisers	0.8267	7
Political support & government control	0.8200	8
Adequate awareness about PPP by all relevant decision makers	0.8133	9
Well organized & committed public agency with adequate knowledge & skills of PPP; Effective project management	0.8067	10
Acceptable tariff levels	0.8000	11
Proper stakeholder identification & engagement	0.8000	11
Availability of cost reflective tariff structure	0.8000	11
Availability of successful track records of PPP projects	0.7733	12
Stable macro-economic environment	0.7667	13
Favorable investment environment	0.7600	14
Available financial market & Attractive financial package	0.7600	14

Credit worthiness of the contracting authority	0.7600	14
Selection of suitable subcontractors	0.7467	15
Availability of pipeline of projects	0.6800	16

As can be seen from the calculation of RII of the CSFs and presented in the above table: Appropriate risk allocation and risk sharing, Government guarantee for revenue and convertibility, Proper & adequate Project feasibility studies, Appropriate project identification and screening, Favorable legal framework, Effective, efficient, competitive & transparent procurement process and Stable political, social and economic Environment are the five most important CSFs in implementing PPP power projects in Ethiopia. Note that the last three items have the same ranking. Hence PPP power projects implementing parties shall give due attention to these factors in particular and to all the 22 critical success factors in general in order of their importance.

4.3 Practice of Critical Success Factors

To assess the practice of selected CSFs in PPP power projects, questionnaires were given to respondents. The data obtained from respondents with their respective frequencies and mean scores are summarized in table below.

Table 5. Summary of responses on practice of CSFs

No	Factors	Strongly Disagree(1)		Disagree (2)		Neutral(3)		Agree(4)		Strongly Agree(5)		Mean	Std Dev
		Fre	%	Fre	%	Fre	%	Fre	%	Fre	%		
1	Presence of clear legal framework	0	0	0	0	0	0	7	25	21	75	4.75	0.49
2	Conducting detail and adequate feasibility studies before tendering the projects	0	0	0	0	2	7.1	16	57.1	10	35.7	4.29	0.31
3	Clear risk identification, allocation and management practice	0	0	0	0	4	14.3	14	50	10	35.7	4.21	0.42
4	Identification of pipelines of projects	0	0	0	0	1	3.6	25	89.3	2	7.1	4.04	0.69
5	Transparent and fair procurement process	0	0	0	0	0	0	14	50	14	50	4.5	0.42
6	Identification & management of stakeholders during project implementation	0	0	0		4	14.3	14	50	10	35.7	4.21	0.42

7	Involvement of advisors in the project implementation	0	0	0	0	1	3.6	8	28.6	19	67.9	4.64	0.6
8	Presence of adequate training to the project team	0	0	0	0	3	10.7	15	53.6	10	35.7	4.25	0.37
9	Availability of convertibility risk guarantees by government	24	85.7	4	14.3	0	0	0	0	0	0	1.14	0
10	Presence of Acceptable tariff levels	0	0	0		1	3.6	16	57.1	11	39.3	4.36	0.74
11	Presence of Adequate awareness about PPP by all relevant decision makers	16	57.1	10	35.7	2	7.1	0	0	0	0	1.5	0.31

The findings from the data obtained and shown above, indicates that there are no practice of two critical success factors while implementing PPP power projects in Ethiopia. The first one is availability of convertibility risk guarantees by government, 100% of the respondents indicated that there is no practice (85.7% strongly disagree and 14.3% disagree), and the second one is presence of adequate awareness about PPP by all relevant decision makers where 93% of the respondents indicated that

there is lack of practice of this factor (57.1% strongly disagree and 35.7% disagree) while 7% are neutral in their responses.

Kwak et al. (2009) highlighted that lack of government capacity and proper awareness leads to project failure. In this regard relevant decision makers shall have adequate capacity and proper awareness about PPP projects so as to give the right and timely decision and thus realize the success of the projects

The project document shows that the private party will collect the tariff in local currency and there is no guarantee from government for the private parties to change the local currency to foreign currency. In this regard we can say that the response from respondents is consistent with this fact.The report from the project office reveals that one of the challenges in implementing PPP projects is lack of support and delayed decision and responses from different decision maker.

There is an agreement among respondents on the practice of the following CSFs: Presence of clear legal framework (100%), availability of Transparent and fair procurement process (100%), Conducting detail and adequate feasibility studies before tendering the projects (93%), Identification of pipelines of projects (96%), Involvement of advisors in the project implementation (96%), Presence of adequate training to the project team (89.3%) and Presence of Acceptable tariff levels (96%). Hence we can say that these factors are considered while implementing PPP power projects.

Kwak et al. (2009) indicated that having transparent procurement framework in implementing PPP projects is meaningfully increasing the success of PPP projects. The World Bank (2014) indicates that a favorable legal framework ensures transparency and commitments of governments and help to attract of investments.

To establish a favorable legislative framework for PPP projects the 2017 PPP policy and the 2018 PPP proclamation No.1076/2018 have been issued by the government of Ethiopia. In addition, PPP directive 55/2010/2018 and PPP guidelines have also been issued to implement Public Private Partnership (PPP) projects in Ethiopia. This shows that there is clear legal frame work for PPP projects.

According to PPP proclamation, the procurement of PPP projects will be conducted centrally by PPP-DG at ministry of finance. Tender documents and other information will be available to all bidders on online platform to enable equal opportunity to all bidders. Question and answer will be conducted on online platform. Pre-bid meeting and site visit will be arranged to all bidders on the same days. Clear evaluation criteria are included in the bid documents. Joint bid evaluation will be made by procuring authority and contracting authority. And finally, the bid evaluation will be approved by PPP board. All these are expected to ensure a fair and transparent procurement process.

Regarding presence of PPP project pipeline, the PPP project pipeline booklet published in April 2019 by ministry of finance shows that there are a number of power projects that are approved and are on the pipeline. This includes 5 hydro power projects, 5 wind projects and 8 solar projects. This is in line with the responses obtained from respondents.

According to the information obtained from the project documents, feasibility studies have been conducted for some of the projects under the pipeline while the feasibility study of some of the projects is undergoing. This again proofs the fact that detail feasibilities will be conducted before tendering the projects.

85% of the respondents agree for the practice of Clear risk identification, allocation and management practice and the same percentage of respondents agree for the practice of Identification and management of stakeholders during project implementation while 15% of the respondents are neutral for both factors. We can see that majority of the respondents agreed and hence we can say that these factors are also considered while implementing PPP power projects.

Risk allocation between public and private sector is an important factor in implementing PPP projects and hence it is the most important critical success factor (Dahiru and Muhammad 2015). The APMG (2016) highlights that risk has to be allocated to the party that can best mange it with the lowest cost.

Regarding the practice of risk identification, allocation and management practice and identification and management of stakeholders during project implementation the project documents show that there are clear risk identification, allocation and management. However, the researcher cannot identify in the project documents the identification and management of stakeholders.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 SUMMARY

Intensive literature review was made to identify critical success factors. Project managers were interviewed to select the most appropriate CSFs in power sector as it is appropriate to Ethiopia. Accordingly the study identified and ranked 22 CSFs. The top ten critical success factors are summarized below:

1. Appropriate risk allocation and risk sharing
2. Government guarantee for revenue and convertibility
3. Proper & adequate Project feasibility studies
4. Appropriate project identification and screening
5. Favorable legal framework
6. Effective, efficient, competitive & transparent procurement process
7. Stable political, social and economic Environment
8. Strong & reliable private party with adequate experience
9. Availability of experienced advisers
10. Political support & government control

The researcher has also assessed the practice of some of the most important CSFs in public organization in implementing PPP power projects in Ethiopia. The following were found:

There is no practice on the following two CSFs

1. The government will not provide convertibility guarantee for PPP projects.
2. There is lack of adequate awareness about PPP by most relevant decision makers.

There is good practice of the following seven factors

1. There is clear legal framework
2. There is transparent and fair procurement process
3. Detail and adequate feasibility studies are conducted before tendering the projects
4. Pipelines of projects were identified earlier and are ready
5. Advisors are involved during project implementation
6. Adequate training are given to the project team
7. There is presence of Acceptable tariff levels

Lastly the practice of the following two factors is moderate.

1. Clear risk identification, allocation and management
2. Identification & management of stakeholders

5.2 CONCLUSION

The main objectives of this research were to identify and rank CSFs and assess their practice in public organizations while implementing PPP power projects in Ethiopia.

Questionnaires were distributed to the 30 target population that includes technical experts, financial expert, legal expert and environmental and social expert to get their opinion and views. The study focuses on obtaining responses from respondents who

are directly related and involved with PPP power projects in this regard the population size is limited only to 30 respondents.

An interview was conducted with project managers, working at Ethiopia Electric Power, to shortlist the most relevant CSFs in the context of PPP power project in Ethiopia. Moreover, interview was conducted with project managers to assess the major challenges faced in implementing PPP power projects.

In line with the research objective, the researcher has identified and ranked 22 CSFs in implementing PPP power projects in Ethiopia in the order of importance as listed in table 4 under chapter four.

Akintoye et al. (2003) concluded that the achievement of success in PPP projects is project-specific as the requirements for achieving it for one project may not be the solution for another. According to Zhang & Chen (2013) the concept, process and key principles of PPP are essentially identical; many aspects of PPP are either project, sector or country-specific. Hence the above identified and prioritized critical success factors are more relevant to PPP projects in power sector in Ethiopia.

The findings from this research will be used to attract private sector investment in the power sector in the country.

The researcher has also assessed the practice of some of the most important CSFs in implementing PPP power projects in Ethiopia. The government will not provide convertibility guarantee for PPP projects. According to the report from the project office, this is seen as a major risk area by lenders. This in turn has created a challenge for private sectors to raise financing for the projects as lender require convertibility guarantee to approve the loan.

The research has also identified that there is lack of adequate awareness about PPP by all relevant decision makers. The successful implementation of PPP will be challenged by lack of adequate awareness about PPP by all relevant decision makers. The adequate support, proper coordination with all decision makers, fast communication and decision all are important to ensure the success of the projects and hence avoid delays and additional costs in implementing PPP projects.

The practice of Clear risk identification, allocation and management practice and Identification & management of stakeholders is moderate though Clear risk identification, allocation and management was ranked as the most important CSF to implement PPP projects.

5.3 RECOMMENDATIONS

The 22 identified and prioritized CSFs are important for successful implementation of PPP projects. In this regard, PPP power projects procuring party, implementing parties, policy maker and other relevant stakeholders shall give due attention them while implementing PPP projects to realize the success of these projects.

The identification, ranking and knowing of important CSFs is not the end by itself; projects implementing parties, procuring party, policy maker and relevant stakeholder shall give due attention for their practice and enforcement in their respective organizations to successfully realize the implementation of PPP projects. More importantly, the risk identification, allocation and management practice has to be well improved as it is the most important factor to successfully implement PPP power projects in Ethiopia. Risk allocation between public and private sector is an important factor in implementing PPP projects and hence it is the most important critical success factor (Dahiru and Muhammad 2015)

The adequate support, proper coordination with all, fast communication and decision by all decision maker are important to avoid delays and additional costs in implementing PPP projects. In this regard government has to create adequate awareness about PPP to realize the successful implementation of PPP.

Lack of convertibility guarantee can delay PPP project even can be a cause for PPP projects termination. Hence government needs to consider for alternative solution to mitigate this risk.

5.4 SUGGESTION FOR FURTHER STUDY

This research focuses on project implementation activities related with public party. Specifically it focuses on the following phases: project identification and screening, feasibility studies, structuring the tender and contract documents and tendering and awarding. Each of these phases has been completed for the project under study. An assessment of the practice of CSFs on these phases of the project was made in public organization-Ethiopia Electric Power. The scope of the private parties including construction and operation are not under the scope of this research. Future researchers can extend their research to include the scope of the private party.

Lastly, the researcher suggests for future researchers to study the challenges of implementing PPP power projects in Ethiopia as this research was limited only on the success factors.

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APPENDIX I: Questionnaire:

ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE DEPARTMENT OF PROJECT MANAGEMENT

Dear Respondent,

My name is Abebe Degefa. 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 "ASSESSMENT OF CRITICAL SUCESS FACTORS IN IMPLEMENTING PUBLIC PRIVATE PARTNERSHIP POWER PROJECTS IN ETHIOPIA-THE CASE OF DICHETO SOLAR PROJECT" 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

1. Please indicate your educational background

   a) Diploma
   b) First degree
   c) Second degree or above

2. Please indicate your experience (in years) in power sector

   a) Less than 5 years
   b) 5 to 10 years
   c) 11 to 15 years
   d) 16 to 20 year
   e) Above 21 years

3. Please indicate your area of expertise

   a) Technical expert
   b) Legal expert
   c) Financial expert
   d) Environmental & social expert

Part II: Identification & Ranking of the critical success factors

Introduction:

Researchers have indicated that the identification of the critical success factors is not only useful as a measuring tool to assess the successful delivery of projects, but also can be used as the key performance indicators for implementing PPP projects. One of the critical steps in the implementation of PPP projects is to identify, analyze, and categorize various critical success factors.

Instruction:

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

Please rate the following critical success factors (CSF) 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

Item	Critical success factors (CSF)	Extremely important (5)	Very important (4)	moderately important (3)	Slightly Important (2)	Less important (1)
1	Appropriate project					

	identification and screening					
2	Stable political, social and economic Environment					
3	Acceptable tariff levels					
4	Selection of suitable subcontractors					
5	Strong & reliable private party with adequate experience					
6	Appropriate risk allocation and risk sharing					
7	Effective, efficient, competitive & transparent procurement process					
8	Proper & adequate Project feasibility studies					

9	Favorable legal framework					
10	Political support & government control					
11	Stable macro-economic environment					
12	Favorable investment environment					
13	Government guarantee for revenue and convertibility					
14	Well organized & committed public agency with adequate knowledge & skills of PPP; Effective project management					
15	Available financial market & Attractive financial package					
16	Proper stakeholder identification &					

	engagement					
17	Availability of pipeline of projects					
18	Credit worthiness of the contracting authority					
19	Availability of experienced advisers					
20	Availability of successful track records of PPP projects					
21	Availability of cost reflective tariff structure					
22	Adequate awareness about PPP by all relevant decision makers					

Part III: Practice of critical success factors

Instruction:

The following questions are about the practice of some critical success factors in implementing PPP power projects In Ethiopia.

Do you think the following factors are considered in implementing PPP power projects? Please select the appropriate level of agreement as indicated below. Use "x" mark to indicate your selection. The level of agreement is represented by: Strongly Disagree=1; Disagree=2; Neutral=3; Agree=4; Strongly Agree=5

Item	Factors	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	Presence of clear legal framework					
2	Conducting detail and adequate feasibility studies before tendering the projects					
3	Clear risk identification, allocation and management practice					

4	Identification of pipelines of projects					
5	Transparent and fair procurement process					
6	Identification & management of stakeholders during project implementation					
7	Involvement of advisors in the project implementation					
8	Presence of adequate training to the project team					
9	Availability of convertibility risk guarantees by government					
10	Presence of Acceptable tariff levels					
11	Presence of Adequate awareness about PPP by all relevant decision makers					