UNIVERSITY OF BIRMINGHAM

ASSESSMENT OF GOVERNMENT POLICIES AND REGULATIONS IN THE PROCESS OF ADOPTING PUBLIC-PRIVATE PARTNERSHIP FOR INFRASTRUCTURE DEVELOPMENT IN ETHIOPIA

By

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A Thesis Submitted to the University of Birmingham for the Degree of

DOCTOR OF PHILOSOPHY

College of Engineering and Physical Sciences

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University of Birmingham

March 2021

ABSTRACT

Public-Private Partnership (PPP) method of procuring infrastructure projects in developing countries such as Ethiopia are considered to most advantageous as it encourages use of both private and public funding. However, over the last few decades, there has been strong resistance to the involvement of the private sector in infrastructure development in Ethiopia, which is reflected in the absence of suitable regulatory framework for such contracts and limited indigenous experience of implementing such projects. It was thus necessary to study the conditions and specific factors required for the effective implementation of PPP in Ethiopia. This was done through assessment of current government policies and regulations, together with information gleaned using qualitative and quantitative data gathered from limited people in the country with experience of PPP and international best practice in terms of their advantages and success factors. This research indicated that PPP enabling environment needs to be developed further to deliver successful projects in Ethiopia. To address this, a PPP implementation framework is proposed and validated through participation of public and private sector meetings in Ethiopia. This study addresses the gap in knowledge in adopting PPP in Ethiopia and similar developing countries.

DEDICATION

This thesis is dedicated to all health workers worldwide who served patients of COVID-19 pandemic, sacrificing their lives to save others. They exhibited to the world incredible servant leadership.

ACKNOWLEDGEMENTS

I am greatly indebted to many individuals and organisations for assisting me throughout the process of the research activities. First of all, I would like to extend my heartfelt appreciation to my supervisors, Dr Gurmeal Ghataora and Dr Micheal Burrow, for their patience, guidance, insights and unreserved support during this work.

I owe deep gratitude to the people who have provided me with assistance while collecting the information and data related to this work. In this regard, I would like to express my thanks to the staffs at the Ethiopian Roads Authority and Ethiopian Electric Power for their contribution in providing the necessary data so that the research work could be carried out effectively. I am also greatly indebted to all professionals from the World Bank, African Development Bank, contractors, consultants and government institutions who participated in the questionnaire and interview survey. I also sincerely acknowledge and thank Habtamu Tegene, Yetemgeta Asrat, Daniel Mengiste, Mohammed Abdurahman, Tirsit Tamiru and Nebiyu Kassahun for all their advice, encouragement and support.

My special gratitude goes to my family members. Mainly, I remain thankful to my wife, Enatenesh Abate, for running the house while I was busy with the research work in Ethiopia and the UK. I also express my deep appreciation and love to my daughters, Pelet and Shalom, for their patience when I was absent from home. Above all, my recognition goes to the ALMIGHTY GOD for providing me with health and strength to complete this PhD study.

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LIST OF ABBREVIATIONS

AD	Anno Domini
ADB	Asian Development Bank
AfDB	African Development Bank
AfDBG	African Development Bank Group
AICD	African Infrastructure Country Diagnostics
ALSF	African Legal Support Facility
ATI	African Trade Insurance
B	Billion
BADEA	Arab Bank for Economic Development of Africa
BBO	Build - Buy - Operate
BC	Before Christ
BCG	Boston Consulting Group
BIT	Bilateral Investment Treaty
BOO	Build – Operate - Own
BOOT	Build - Operate - Own - Transfer
BOT	Build - Operate - Transfer
BSc	Bachelor of Science
BTEC	Business and Technology Education Council
BTL	Build -Transfer -Lease
BTO	Build-Transfer-Operate
CEO	Chief Executive Officer
CoST	Construction Sector Transparency
CSF	Critical Success Factor
CSOs	Civil Society Organisations
DB	Design- Build
DBB	Design- Bid-Build
DBB	Design-Bid-Build
DBFOM	Design-Build-Finance-Operate-Maintain
DBOM	Design - Build - Operate - Maintain
EAGEF	East African Geothermal Energy Facility
EBRD	European Bank for Reconstruction and Development
EEA	Ethiopian Electric Authority
EELPA	Ethiopian Electric Light and Power Authority
EEP	Ethiopian Electric Power
EEPCo	Ethiopian Electric Power Corporation
EEU	Ethiopian Electric Utility
EPC	Engineering Procurement and Construction
ERA	Ethiopian Roads Authority
ESMAP	Energy Sector Management Assistance Program
ETB	Ethiopian Birr
EUR	Euro
FDI	Foreign Direct Investment
FDRE	Federal Democratic of Ethiopia

GDP	Gross Domestic Product
GOE	Government of Ethiopia
GRMF	Geothermal Risk Mitigation Facility
GTP-I	Growth and Transformational Plan I
GTP-II	Growth and Transformational Plan II
HM	Her or His Majesty
IA	Implementation Agreement
IBRD	International Bank for Reconstruction and Development
ICSID	International Centre for the Settlement of Investment Disputes
ICT	Information Communication Technology
IDA	International Development Association
IDB	Inter-American Development Bank
IFC	International Finance Corporation
IMF	International Monetary Fund
IPP	Independent Power Producer
IRI	International Roughness Index
IUK	Infrastructure UK
KM	Kilo Meter
KV	Kilovolt
KWH	Kilo-Watt-Hour
LDO	Lease - Develop - Operate
LLM	Master in Law
M	Million
MBA	Master in Business Administration
MIGA	Multilateral Investment Guarantee Agency
MoF	Ministry of Finance
MPA	Major Projects Authority
MS	Mean Score
MSc	Master of Science
MW	Megawatt
MWIE	Ministry of Water, Irrigation and Energy
NBE	National Bank of Ethiopia
NPV	Net Present Value
OECD	Organisation for Economic Development
OPRC	Output and Performance based Contract
OVE	Office of Evaluation and Oversight
PBC	Performance Based Contracting
PFI	Private Finance Initiative
PhD	Doctor of Philosophy
PLC	Private Limited Company
PPA	Power Purchase Agreement
PPI	Private Participation in Infrastructure
PPIAF	Private Participation in Infrastructure Advisory Facility
PPP	Public Private Partnership
PPP-DG	Public Private Partnership Directorate General
RFP	Request for Proposal
RII	Relative Importance Index
RMI	Road Management Initiative

RSDP	Road Sector Development Program
SOE	State Owned Enterprise
SPSS	Statistical Package for Social Science
SPV	Special Purpose Vehicle
SSATP	Sub-Saharan Africa Transport Program
TMGO	Tulu Moye Geothermal Operation
UAE	United Arab Emirates
UEAP	Ethiopian Electric Access Program
UK	United Kingdom
UNCITRAL	United Nations Commission on International Trade Law
UNDP	United Nations Development Program
UN-ECA	United Nations Economic Commission of Africa
UNECE	United Nation Economic Commission for Europe
UNICEF	United Nations International Children's Emergency Fund
US	United States
USD	United States Dollar
VfM	Value for Money
WBG	World Bank Group
WIPO	World Intellectual Property Organization

1 USD = 40.3847 ETB (March 11, 2021, National Bank of Ethiopia)

CHAPTER ONE: INTRODUCTION

1.1 Background of the Research

Ethiopia is the second-most populous country in Sub-Saharan Africa, after Nigeria. Its population was estimated at 92 million in 2016 (UNICEF, 2016) but exceeded 116 million in 2020 (Worldometer, 2020). Ethiopia has a history of significant construction dating back to the Aksumite period (300 BC - 531 AD), when durable structures such as the Aksum Obelisks were built (Henze, 2000). In the modern-day, large construction tends to national infrastructure such as dams, railways and roads, which play a crucial role in facilitating socio-economic development. Critical transport infrastructure in Ethiopia mainly comprises roads and railways. Concerning the latter, the old Addis Ababa - Djibouti Railway was the first major transport infrastructure in the country that was built from 1894 to 1917 (Zewde, 2002). The new railway line which has been built to replace the old one extends for 759 kilometres. This railway was built with a cost of USD 4.0 billion financed through commercial borrowing from the Chinese Exim Bank. Ethiopia has one of the most successful airlines in Africa, providing local and international transport services for both passengers and freight. Still, local air transport service represents only a small fraction of the total transport demand due to high airfare and limited coverage area.

On the other hand, road transport in Ethiopia reaches the majority of the population. It has a high impact on agricultural production and poverty reduction due to better accessibility to the people. As the railway network is limited, bulks of the raw and manufactured materials are also hauled using the road network (Debela, 2013). Therefore, to reduce rural poverty, provision of public utilities, and improve the country's economic base expanding the road network in rural areas would be the best way to reach the rural population in Ethiopia (Worku, 2011). In this regard, Ethiopia's government has attached high priority to improving the road infrastructure since the inauguration of the Road Sector Development Programs (RSDP) in 1997. Four phases of RSDP were implemented over the period from 1997 to 2015, and the fifth phase, RSDP V, has been implemented since July 2015. This period's total budget was equivalent to ETB 437.2 billion, but the amount disbursed in the same period was ETB 373.1 billion. In this effort, the country’s road network has increased from 26,550 km in 1997 to 144,027.8 km in 2019 (ERA, 2020). However, many of the projects planned under the RSDP financed by the government were not being

completed within the prescribed time and budget and did not meet the quality standards. Consequently, the gap between plan and implementation hinders the country's economic development and the growing demand for better road infrastructure (Demissie, 2006). Additionally, for Ethiopia to be competitive enough and enter a lower-middle-income category, Ethiopia's road transport network has to reach 330,000 km (Worku, 2011; ERA, 2020).

The government has also attempted to develop the energy sector to satisfy the country's ever-increasing demand for an efficient, affordable and reliable energy supply. Ethiopia is also among the few African countries endowed with geothermal resources capable of generating renewable electric power (Teklemariam, 2006). Notably, Ethiopia has the potential of generating renewable energy up to 60,000 MW from hydro, wind, solar and geothermal sources (Power Africa, 2018). Nonetheless, this vast potential has not been tapped to benefit the country and neighbouring nations. The electricity demand is very high compared with the supply, and about only 44% of the population is connected to electricity (Power Africa, 2018; Perera, 2018). The country's average per capita power consumption (90kw per hour) is far less than the Sub-Saharan African average of 521kw per hour due to lack of supply (Girma, 2020). Energy generation and supply efficacy are also low (23% system loss) due to a lack of proper operation and maintenance management in the transmission and distribution systems (Perera, 2018; Girma, 2020). The government had planned to generate power in preferential sequence from hydro (13,817MW), geothermal (557MW), wind (1224MW) and solar (300MW) in the Second Growth and Transformation Plan (GTP-II) to increase the generation capacity of the country to 17,208MW by 2019/20 (GTP-II, 2016). Nonetheless, this target could not be achieved, and the installed capacity of electricity is standing at 4,269.67 MW (EEP, 2020).

The Ethiopian government scaling up infrastructure development effort has been constrained by the lack of financial resources compounded by the difficulty in mobilising domestic resources and the uncertainty of development assistances (UNDP, 2012). The funding gap in infrastructure is not only due to a lack of revenue. It is also a consequence of inefficiencies in public spending resulting from poor governance, poor investment planning, and under-investment in maintenance and high operating costs (UNDP, 2015). Due to extensive borrowing to finance public infrastructure, the country is also exposed to high external debt (Infrascope, 2019; IMF, 2020). Despite the challenges, the Ethiopian government is expected to expand the infrastructure development to meet the overarching target to become a lower-middle-income country by 2025 (GTP-II, 2016). In this

respect, Ethiopia needs to invest USD 5.1 billion each year to meet its infrastructure deficit (Deloitte, 2014; Foster & Morella, 2010).

For the past several years, the state-led economic development policy has crowded out the private sector involvement in infrastructure financing in Ethiopia (Gordon, 2018). As a result, the private sector's participation in the road and energy sectors was limited as traditional contractors and consultants. The Ethiopian road and energy sectors use the conventional procurement of Design-Bid-Build (DBB), Design primarily and Build (DB) and Engineering, Procurement and Construction (EPC) contract for delivering infrastructure projects from the public sector financial source. Nevertheless, cost and time overrun in the sectors due to design and quantity changes resulting in overspending were the public's main concerns (CoST, 2016). The annual public financing for infrastructure in Ethiopia is estimated to exceed more than 15% of the country's GDP (Nuru, 2019). Though this substantial public investment in infrastructure has brought significant economic growth, the country is also severely exposed to cumulated debt and external liabilities (IMF, 2020). To address these challenges, the government of Ethiopia has been looking for alternative procurement methods. Public-private partnership (PPP) is considered one of the alternatives to using private sector efficiency and financing. If adequately formulated and managed, PPP could provide many benefits to the public sector. PPP benefits include alleviating the financial burden on the public sector due to rising infrastructure development costs, facilitating risks to be transferred from the public to the private sector, and enhancing the value for money expended in infrastructure development (Kwak, et al., 2009).

Nonetheless, Ethiopia has a unique political, economic and social system for the private sector investment in the infrastructure sector. PPP is also a complex institutional arrangement involving parties from diversified fields, and successful implementation would not be easy (Yescombe, 2007). Furthermore, PPP complexity emanates from the existence of numerous techniques of contract formulation. With such difficulties of PPP arrangements, there is a limited experience of implementing such projects in Ethiopia. Because of these facts, rushing to implement PPP without careful analysis of the country's existing conducive environment may affect the parties in the concession and, ultimately, the project (Kokkaew et al., 2015). The enabling environment to private sector infrastructure investment primarily encompasses the country's policy, regulatory and institutional frameworks (Verhoest, et al., 2014; Delmon, 2017). This framework would be the

foundation for interaction, relationship and cooperation between the public and the private partners in the PPP transactions (Delmon, 2017). Therefore, this research was driven to understand the policy and regulatory requirements and barriers for successfully implementing PPP and filling the knowledge gap of private sector participation in infrastructure, focusing on Ethiopia's road and energy sectors. Despite increased interest in implementing PPP in Ethiopia, this procurement modality has not been tested sufficiently yet in the country (Infrascope, 2019). This fact necessitates studying the conditions required and specific factors that affect the implementation of PPP in the context of any particular country. Therefore, this study was motivated to investigate the policies and regulatory obstacles for realising private sector investment for infrastructure development in Ethiopia.

1.2 Global Infrastructure Development

Many studies (Foster & Morella, 2010; OECD, 2006; Eberhard, et al., 2011) show a positive correlation between infrastructure investment and the economic development of a country. Infrastructure plays a critical role in resolving many challenges of society, such as economic growth, poverty reduction, improve mobility and enhance social interaction (OECD, 2006). It also determines the attractiveness and competitiveness of countries for investment and trade (Weber, et al., 2016). Countries with better infrastructure systems open up new business opportunities and attract more investment and trade. It has also been shown that higher-quality infrastructure increases the productivity of firms (Foster & Morella, 2010). With this notion, many developing countries benefited from investing in infrastructure, thereby stimulating faster economic growth (Awuzie & McDermott, 2019).

Nonetheless, there is a significant gap between actual infrastructure investment demand and current spending for new development and maintenance requirements in developed and developing countries (Weber, et al., 2016). The World Bank estimates a global investment gap of USD1trillion annually in infrastructure development (BCG, 2017). The projection of investment demand for electricity worldwide from 2003 to 2030 was estimated to be USD 9.8 trillion (equivalent to USD 350 billion/year) (OECD, 2006). Similarly, the road sector's investment demand for new construction was estimated at between USD 220-290 billion per year for the years between 2010 and 2030. Governments are traditionally responsible for the provision of basic infrastructure.

On the other hand, they are stretched with competing priorities of infrastructure demand with limited funding. Bridging this investment gap is more challenging for developing countries. Thus, the role of the private sector investment in narrowing the investment gap through PPP is significant (Weber, et al., 2016). Countries with successful PPP implementation, such as India, Mexico, Chile and Brazil, managed to raise 25-30 % of finance for their infrastructure demand from the private sector through PPP arrangements (World Bank, 2016).

1.3 Infrastructure Development in Africa

Africa has strong growth potential. This potential has been witnessed with fast economic growth in many African nations (World Bank, 2009). The demands on countries infrastructure increase with economic progress. The Africa infrastructure demand was estimated at USD 38 billion a year (World Bank, 2009). Nonetheless, the recent estimate of Africa's infrastructure demands more than a quadruple the number of previous projections (USD 130-170 billion per year) (AfDB, 2018). The underinvestment for infrastructure has compounded the demand in Africa (McKinsey & Company, 2020). The annual infrastructure demand and supply gap for Sub-Saharan Africa only is estimated at around USD100 billion (BCG, 2017). It is not uncommon to see deteriorated roads and bridges and an unacceptable level of supply for electricity and water in developing countries (Eberhard, et al., 2011). It was estimated that 75% of the population of Africa have no access to power and the road access rate (proportion of area less than 5 km from the all-weather road) is only 34% which is lower than developing countries in other continents (50%) (BCG, 2017). Moreover, the low quality of infrastructure has disadvantaged African countries in attracting investors (Pratap & Chakrabarti, 2017). To respond to this insufficiency in the provision of public infrastructure, the conventional way of procuring only through fiscal budgets from governments is unrealistic in Africa.

The Road Management Initiative (RMI) was used to improve the road sector development in Africa by reforming public sector institutions and legislation through clearly defined responsibility, ownership, stable financing and commercialised road management since 1988 (Brocklebank, 2014). The RMI was organised by the Sub-Saharan African Transport Policy Program (SSTPP) led by the World Bank and the United Nations Economic Commission for Africa (UNECA) (Pinard & Kaombwe, 2001). The initiative showed mixed success results. The

maintenance funding increased from 15% to 20% in the early 1990s to a range of 30% to 80% in different countries (Brushett, 2005). In Ethiopia, road financing from the Road Fund covers only 6.1% of the demand, and the majority is covered by budgetary allocation from the government (ERA, 2020). Thus, sustainable financing for road development is still an essential question to be resolved. Power sector reform was also initiated to enhance the performance of the sector in terms of financial sustainability and efficiency in power production and consumption by the World Bank (World Development Report, 1994; Turkson, 2000). For developing countries, the reform was prescribed as a condition for obtaining loans from multilateral financial institutions, including the World Bank and IMF (Wamukonya, 2003). The key reform agenda was to attract the private sector into the power sector's operation and management in order to improve the enterprise performance of the sector (World Development Report, 1994; Wamukonya, 2003). In this respect, power sector reforms in Africa have taken different routes in the last 20 years to enhance state-owned utilities' efficacy and attract private sector participation. The motives of the power sector reforms in most Sub-Saharan African countries were mainly initiated to attract the private sector as independent power producers (IPPs) due to financial constraints for infrastructure investment (Turkson, 2000). The result of these reforms has shown positive results in attracting the private sector into the power sector and improve generation capacity (Foster & Rana, 2019). Out of 540 privately financed PPP projects in Sub-Saharan African countries, 282 were in the power sector (The World Bank, 2019).

1.4 Infrastructure Development in Ethiopia

In Ethiopia, the primary sources of finance for infrastructure are public budgetary allocation and development partners. This government-led economic model has put the country on the path of the fastest-growing economy in the Sub-Saharan region of Africa, averaging about 10% of GDP in the last decade, supported by increased public investment in infrastructure (IMF, 2018). Investment in infrastructure is known to be a crucial driver for the economic development of a country (Merna & Njiru, 2002), and this seems to have been confirmed in Ethiopia. The annual public financing for infrastructure in Ethiopia is estimated to exceed more than 15% of the country's GDP (Nuru, 2019). Infrastructure investment in Ethiopia is accounted to 33.8% of the government's annual budget every year (Cepheus, 2019). Nevertheless, this extended public investment has contributed to Ethiopia's debt sustainability problem due to increased and unplanned public borrowing to finance infrastructure projects (IMF, 2018). To this end, Ethiopia

is also losing an estimated USD450 million per year due to various inefficiencies in infrastructure operations and spending (Foster & Morella, 2010).

Despite all the Ethiopian government's efforts for developing infrastructure, the demand is ever-increasing fueled by the momentum in economic growth. Moreover, Ethiopia's targeted transformation to a lower-middle-income economy by 2025, as envisioned by the GTP-II, requires an enormous investment in critical infrastructure. According to GTP-II, the government planned to expand the road network from 110,414 km in 2014/15 to 220,000 km by 2019/20 (GTP-II, 2016). Nevertheless, the government has not yet met the plan and the country's road network has only reached 144,027.8 km in 2019 (ERA, 2020). The demand for electricity in the country is also very high, and only about 44% of the population is connected to the electricity supply (Power Africa, 2018).

In the past, there was strong resistance to permit the private sector participation in significant infrastructure financing in the country. The private sector participation was limited due to the absence of a liberalised regulatory framework and competitive market structure (Foster & Morella, 2010). The new government which took office in April 2018 has, under the Home-grown Economic Reform Program of Ethiopia, planned to gradually shift from state-led to private sector-led economic growth (IMF, 2020). Thus, the PPP is an alternative approach for delivering major infrastructure sought by the government. The private sector involvement in infrastructure can provide broader access to financing source, more relevant project management experience and access to the latest technology (Akintoye, et al., 2003). The private sector participation can also bring quality infrastructure services at better value for money (Shendy, et al., 2011).

1.5 Research Aim and Objectives

1.5.1 Research Aim

The aim of the research was to identify pertinent factors that may affect the use of PPP in Ethiopia and to develop a framework for using PPP as an alternative form of public procurement for the development of infrastructure.

1.5.2 Research Objectives

The general objective of this study was to review the use of PPP for infrastructure development in place of the traditional method in Ethiopia.

The specific objectives of the research were:

1. To investigate the perceived attractive factors of PPP for infrastructure development as an alternative procurement method in Ethiopia;
2. To review the critical success factors of PPP infrastructure projects in developing countries;
3. To analyse the critical success factors of PPP development for infrastructure in Ethiopia;
4. To provide an evaluation of the Ethiopian government's policies and regulations that affect the use of PPP for infrastructure development;
5. To assess the challenges in PPP project development in Ethiopia through selected case studies; and
6. To develop and validate a PPP implementation framework for Ethiopia.

1.6 Scope of the Research

Infrastructure is mainly divided into social infrastructure (such as health, education and housing) and economic infrastructure (such as transportation, energy and communication) (Yescombe, 2007; Merna & Njiru, 2002). This study focuses on the economic infrastructure sectors of the road and energy development through PPP as these two sectors are considered sharing significant public investment directed to them in Ethiopia. Coincidently, these two sectors also are the first to be approved for PPP procurement route by Ethiopia's PPP Board. Thus, only concerned stakeholders from the public and private sectors working in Ethiopia's road and energy sectors were contacted for data collection.

1.7 Structure of the Research

The thesis is organised into eight chapters. The first chapter introduces the background of the study, rationality of the study, the aim of the study followed by the objectives of the research, conceptual framework, research process and significance of the study are depicted.

Chapter two and three contain a review of literature obtained from journals, books and internet searches of various websites. These chapters essentially provide a review of the current practices related to PPP, including both the critical and attractive factors for PPP adoption, the Ethiopian government policies and regulations pertaining to PPP implementation in Ethiopia.

Chapter four discusses the research methodology followed to achieve the objectives of the study and justifications for why the quantitative and qualitative methods of research were chosen. In chapter five, the results of the data obtained from the questionnaire survey are presented and discussed. Chapter six presents the interview data for the case studies from the road and energy sectors. In chapter seven, a PPP implementation framework is proposed based on the findings of the study and validated in Ethiopia. Finally, in chapter eight, conclusions and recommendations are presented.

1.8 Significance of the Research

Though other procurement methods exist in the international construction industry, the traditional way of financing infrastructure projects from public money has dominated Ethiopia's infrastructure sector for many years.

Up to recent years, the private sector's involvement in financing infrastructure development through various modes was practically non-existent in Ethiopia. The burden for the investment mainly rests on the public sector. As an alternative approach to constructing infrastructure projects, PPP has been advocated to have several advantages, such as saving money, reducing the government's financial burden, and improving project quality and management efficiency compared with conventional procurement approaches. With this regard, the government strived to establish a centralised PPP Directorate General under the Ministry of Finance to develop, procure and manage PPP projects in collaboration with implementing agencies in 2017. Currently, the PPP Directorate General administers more than fourteen energy (8 solar and 6 hydropower) and three

highway projects with estimated cost of USD10 billion (PPP Directorate General, 2019). However, the government still has policy and regulatory gaps to effectively attract the private sector into the infrastructure sector (Gordon, 2018). Therefore, this research intends to give insight into the challenges of using PPP in Ethiopia and inform the Ethiopian government policy and decision-makers. It is also anticipated that they will revisit existing policies and regulations for necessary modifications to tap the advantages inherent in the participation of the private sector in infrastructure provision through partnership. The research outcomes also assist the private sector investors intending to involve in financing infrastructure in collaboration with the government in Ethiopia and other similar developing countries.

1.9 Summary of the Chapter

This chapter summarised the research structure by indicating the research's background, importance of infrastructure provision, research aim and objectives, the rationale of the study, and research significance. In the subsequent chapter, the literature review on public-private partnership is presented to underline the enabling environment for efficient implementation of this procurement method, including the challenges.

CHAPTER TWO: PUBLIC - PRIVATE PARTNERSHIP FOR INFRASTRUCTURE DEVELOPMENT

2.1 Introduction

This chapter provides a review of both the history and development of PPP. Implementation of PPP in the UK, African counties, including Ethiopia, is also discussed in this chapter. Moreover, discussions about why governments pursue PPP procurement and critical conditions required for its successful implementation are also presented in this chapter.

2.2 Public-Private Partnership

PPP is defined by the World Bank as "a long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance" (World Bank, 2014). The South African National Treasury PPP manual defines PPP as "a contract between a public sector institution and a private party, in which the private party assumes substantial financial, technical and operational risks in the design, financing, building and operation of a project" (PPP Manual, 2004). The Ethiopian PPP Proclamation also defines PPP as "a long-term agreement between a contracting authority and a private party under which a private party undertakes to perform a public service activity that would otherwise be carried out by the contracting authority; receives a benefit by way of compensation by or on behalf of the contracting authority; tariffs or fees collected by the private party from users or consumers of a service; and a combination of such compensation and such charges or fees; is generally liable for risks arising from the performance of the activity or use of the state property in accordance with the terms of the project agreement" (PPP Proclamation, 2018).

From the above three definitions of PPP by various organisations, it may be drawn the following common elements of PPP contracts (IDB, 2016; World Bank, 2014; PPP Proclamation, 2018).

- The PPP contract involves delivering public services where the public sector takes responsibility to provide the service if the private sector fails,
- The PPP contract between the public and the private parties has a long-term nature,
- The private party takes significant risks of financial, technical and operational activities in the PPP contract,
- Responsibility of managing the asset relies on the private party,
- Performance of the service and payment to the private sector are interrelated,
- Risks related to design, building, operation and maintenance of the asset are transferred to the private party,
- Payment is due from the government, by users of the services or combination of the two, and
- At the end, of the PPP contract, the asset often reverted to the public sector.

The public and the private sector partnerships can assume any of the following typical arrangements for new infrastructure development, as shown in Table 2.1 (Levy, 2011; Yescombe, 2007). Nonetheless, the various PPP model terminologies are not consistently used in different countries (Yescombe, 2007).

Table 2. 1 Typical Model of PPP Arrangement (Levy, 2011)

PPP Model	Description
Build-operate-transfer (BOT) or Build-own-operate-transfer (BOOT)	• The private partner is responsible for the design, construction, operation, maintenance and finance of the infrastructure • The private sector partner collects the revenue during the concession period • The ownership of the asset will be reverted to the public sector at the end of the concession period with or without additional compensation
Build-own-operate (BOO)	• Similar to the arrangement of BOT with minor difference • The only variance with BOT model is that the asset remains with the private partner perpetually after the end of the concession period
Design-build-operate-maintain (DBOM)	• The private partner is mainly responsible for the design and build of the asset • The operation and maintenance of the asset is transferred to the private partner to ensure the quality of the works for a specific period
Design-build-finance-operate-maintain (DBFOM)	• Similar to DBOM model except that the private partner also involves in the financing of the infrastructure in the case of DBFOM
Build- transfer- Operate (BTO) or Build-transfer-lease (BTL)	• The private sector builds the asset • Ownership remains with the private party only at the time of construction • Then the ownership is reverted to the public sector when the private party operates the asset

2.3 Global PPP Development

The use of the term PPP was started in the United States when it was utilised to describe the joint public and private sector funding for education programs and utilities (Yescombe, 2007). But the term PPP was widely used in the 1960s when it included public-private joint ventures for urban revitalisation (Yescombe, 2007). There may not be a standard definition of PPP (IDB, 2016; World Bank, 2014; PPP Proclamation, 2018). The term is usually used for infrastructure or service delivery arranged between pure public and pure private models (IDB, 2016). The private sector participation in infrastructure financing can be traced back to the mid-seventeenth century. The first concession contracts were granted to the private sector for the construction and funding of the Mediterranean - Atlantic Canal (1666) and Canal of Briare (1638) in France (Grimsey & Lewis, 2004). According to Grimsey & Lewis (2004), the Suez Canal completed in 1869 with a 99-year concession agreement was one of the private sector early investments. In the eighteenth and early nineteenth centuries, in Britain, groups of local entrepreneurs formed turnpike (toll road) trusts that borrowed money from private investors to repair roads and repaid this debt by charging tolls (Yescombe, 2007). At the same time, the railway line connecting Ethiopian and Djibouti was also one of the early infrastructure projects that were built from 1894 to 1917 through a concession agreement between a French company and the Emperor of Ethiopia (Pankhurst, 2005; Bekele, 1991).

Nonetheless, financing and delivering infrastructure from the government prevailed globally for the most of the twentieth century (Grimsey & Lewis, 2004). The limitations of public funding for infrastructure development in developed and developing countries have been recognised since the early 1980s (Merna & Njiru, 2002). The private finance initiative (PFI), started in the United Kingdom in 1992, has contributed a lot to stimulating and advancing PPP development worldwide (Levy, 2011). The PFI's objective was to build on the private sector financings for public infrastructure (Yescombe, 2007). The United Kingdom can be considered the source of the modern PPP scheme, although contract forms (power purchase agreements) for such methods have been used in the USA since the 1980s (Nwangwu, 2013).

In recent years, PPP has become a global phenomenon and sectors in which such projects have been completed worldwide include electric power generation and distribution, water and sanitation, airport facilities, railways, roads and technology systems (Nwangwu, 2013). As shown

in Figure 2.1, the private sector's total number of infrastructure projects varies from one region to the other. Out of 7206 projects with the private sector involvement during the period 1990-2018, 2110 projects were implemented in Latin America and the Caribbean, 2243 in East Asia and the Pacific region and 1270 in South Asia (World Bank, 2019). The number of projects in the Sub-Saharan Africa, the Middle East and North Africa regions is small compared to other regions. There were only 477 and 204 infrastructure projects finalised in Sub-Saharan Africa and the Middle East and North Africa regions, respectively.

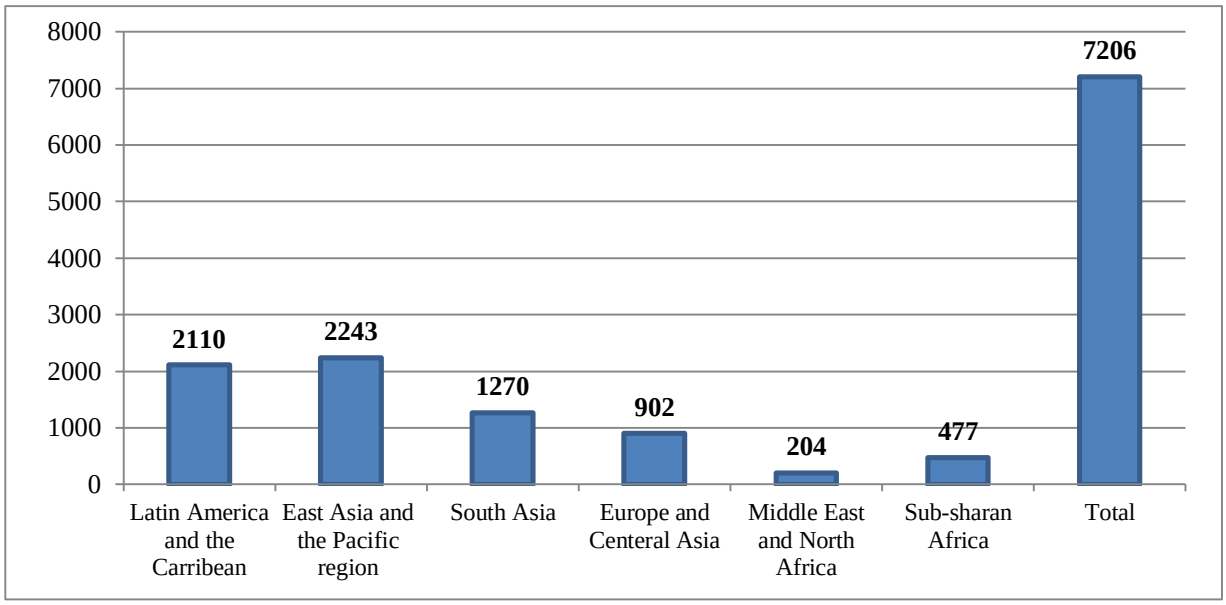

Figure 2. 1 Total Number of Projects Finalised by Region (1990-2018) (World Bank, 2019)

Furthermore, some infrastructure sectors have the potential to attract more private investment than others. In 2017, the global private sector investment recorded that the energy sector accounted for 56% of the global private sector investment in infrastructure, with USD 51.9 billion for 203 projects. The transport sector follows 39% of global private sector investment with USD 36.5 billion (World Bank, 2017b). The remaining 5% of the investment was directed to ICT and Water and Sewerage sectors.

2.4 PPP Development in the United Kingdom

2.4.1 Background of PPP in the UK

In the United Kingdom, PPP has gradually developed to world best practice in engaging private sector for infrastructure service provision. In the context of significant nationalised assets under public administration in the 1980s and 1990s, the government was challenged by deteriorating public services and escalating project costs in the UK (Parker, 2009). A report by the National Audit Office in 2001 disclosed that 73% of public projects recorded cost overruns in the UK (Parker, 2009). Privatisation of significant infrastructures was undertaken progressively from 1979 to 2001 to mitigate these challenges. Thus, the initiation of the private sector financing of infrastructure was a follow up of the extensive privatisation program of the UK in the 1980s and 90s (Merna & Njiru, 2002). PPP has the benefits of rectifying some of the drawbacks of privatisation, such as losing the control of asset and prices (Farlam, 2005). The government's firm belief was that using private sector financing can reduce the public sector's borrowing demand to develop infrastructure and gain private sector management expertise that has not been found in the public sector practices (Parker, 2009). The UK government intended to engage the private sector in public infrastructure service delivery to gain value for money through quality asset delivery and sustainable maintenance by the private sector (H.M. Treasurey, 2012).

The door was then opened with some rules to be adhered to by the public sector offices to use the private sector financing for public infrastructure. The rules were developed under Sir William Ryrie's leadership in 1981 and named afterwards as the 'Ryrie rules' (Parker, 2009). The purpose of the Ryrie rules was to ensure that the private sector would take significant portion of project risk from the public sector through competition and confirm whether efficiency gains would be obtained through the private sector financing compared with the traditional procurement route (Allen, 2003; Parker, 2009). Even if there were many complaints about the Ryrie rules, the Dartford River Crossing concession was concluded in 1986 under the same rules. This concession agreement demonstrated the Ryrie rules' operability and attracted other private financings such as Channel Tunnel and other projects (Parker, 2009). The government further revised the Ryrie rules in 1988 to capture the advantages gained from the privatisation of previously nationalised assets through contracting out, opting-out, mixed funding and partnership schemes. However, the rules

were abandoned a year later, in 1989 (Allen, 2003) as it was noted to discourage public sector projects financed by the private sector investment (NAO, 2018).

The government became more aware of the benefits of engaging the private sector in infrastructure financing from the experience of previous projects. These benefits were mainly a reduction in government borrowing and additional infrastructure investment from the private sector (Dixon, et al., 2005). Thus, the Private Finance Initiative (PFI) policy followed after implementing some projects financed under the Ryrie rules. The Conservative government introduced the PFI programme in 1992 (Merna & Njiru, 2002). Initially, the PFI scheme was used for economic infrastructure such as roads, bridges and ports (Grimsey & Lewis, 2004). Later, social infrastructure such as schools, hospitals and prisons were added. Nonetheless, the PFI scheme could not attract much private sector participation as expected, which demanded the Private Finance Panel setting up in 1993 to promote and assist the PFI procurement (Allen, 2003; Merna & Njiru, 2002). A lack of interest from companies to participate in early PFI was mainly due to the unfamiliarity of the business environment and the high cost of bidding (Merna & Njiru, 2002).

Three major approaches were used in the PFI scheme: financially free-standing projects, joint venture and services sold, as explained in Table 2.2 (Merna & Njiru, 2002).

Table 2. 2 Strategies of UK PFI Implementation (Merna & Njiru, 2002)

Strategy	Description
Financially free-standing projects	• The private party entirely finance and manage the project • Funding of the private party is from the end-users • Required only government approval but no value for money test
Joint venture	• The public sector involves in the joint venture when there are benefits that cannot be accounted for in monetary terms • The government can contribute to the forms of equity, loan and asset transfer • The public contributions are clearly defined with limits • The private partner is selected through competitive bidding • The private partner controls the joint venture
Services sold	• Accommodation and services are provided by the private partner to the public sector, such as the National Health Service and HM Prison Service

The implementation of the PFI scheme faced some criticisms at the early stage. On the one hand, the private sector complained that the government transferred too much risk to the private partner. On the other hand, the government was criticised for the methodology adopted for the computation of the value for money and the claim obtained through the private sector's engagement was also questioned (Merna & Njiru, 2002). When the Labour government took office in 1997, the PFI scheme continued as a means of infrastructure service procurement (Engel, et al., 2014). However, the Labour government established a task force within the HM Treasury to review the PFI scheme and produced a series of documents (recommendations, guidance, advice note, etc.) favouring PFI procurement (Zin Zawawi, 2017; Allen, 2003). After a second review of the PFI implementation, the government established Partnership UK in 2000 to take over the earlier taskforce assignments with a shareholding of 49% and 51% by the government and the private sector respectively (Allen, 2003). The formation of the Partnership UK positively promoted the PFI scheme. It brought many private financing into the system until it was disbanded in 2011 with the introduction of Infrastructure UK (IUK) within the UK Treasury (Zin Zawawi, 2017). Infrastructure UK was mandated with larger tasks than Partnership UK, including the responsibility of oversight national infrastructure project in addition to the PFI scheme. Furthermore, the government decided to combine Infrastructure UK with the Major Projects Authority (MPA) to constitute the Infrastructure and Project Authority (IPA) (Zin Zawawi, 2017). IPA compiles PFI implementation data annually on behalf of the HM Treasury for public disclosure (HM Treasury, 2019).

The UK government supported the PFI programme by providing necessary assistances when the market was stressed to give debt to the private sector. The government support was characterised by issuing UK guarantees, co-lending for PFI projects, increased capital contribution and establishing the Green Investment Bank (H.M. Treasurey, 2012). The PFI model has been adopted by many countries in Europe and elsewhere. The reason for the expansion of the PFI is attributed to the flexibility of the various methods by which the private sector can participate (Grimsey & Lewis, 2004).

2.4.2 Challenges of PFI Scheme in the UK

Since its initiation in 1992 up to 2010, the development of PFI was intensive. On average, 55 PFI contracts were signed each year (HM Treasury, 2019). The off-balance accounting of the PFI projects expenditure drove public authorities to implement the scheme aggressively (NAO, 2009).

In subsequent years until 2018, the signed PFI contract numbers reduced. The significant reduction of using PFI is mainly related to the mounting concerns on the lack of cost efficiency and value for money (NAO, 2018). Thus, the PFI scheme's usage diminished through time, and the government has decided to discontinue entering into a new PFI contract starting from the budget announcement of 2018 (HM Treasury, 2018). Although PFI has been implemented for three decades, its effectiveness has been debatable and inconclusive (Sheikh & Asher, 2015). The main reasons for the PFI schemes falling into disfavour were related to the high costs of PFI procurement, inappropriate risk transfer to the private sector, lack of competition in the PFI market, less flexibility and innovation, and lack of skills from the public sector (Dixon, et al., 2005; H.M. Treasurey, 2012; HM Treasury, 2019).

Additionally, public concerns were raised about the value for money achieved and the lack of transparency on the government's future liabilities and the financial return of shareholders of PFI projects (HM Treasury, 2019). The high costs of PFI procurement emanate from the long duration of the procurement process, the cost of bid preparation and the higher cost of borrowing by the private sector than the government, which can get a loan cheaper. The government's intention to transfer most of the private sector risks at the early PFI projects also affected the value for money due to the high-risk premium demanded by the private sector (Dixon, et al., 2005; Sheikh & Asher, 2015). The government's ambitious early plan to procure many projects through PFI crowded out the competition and ultimately diminished the value for money expected (Merna & Njiru, 2002). The lack of competition occurred because the number of companies participating in the early PFI procurement process was few than the projects listed in the pipeline.

Interestingly, PFI projects with financially-free-standing have performed successfully (Merna & Njiru, 2002). Financially-free-standing projects sustain their financing and returns from the project revenues rather than depending on monthly government fee (unitary charge) as most PFI projects. For instance, PFI for the road sector has proved to be cost-effective and high quality and providing the required value for money to the government (Akbiyikli, et al., 2011). On the other hand, PFI scheme was often used for unsuitable projects mainly based on monthly government fee (unitary charge) (HM Treasury, 2019). These projects were primarily in the health and education sectors. In this regard, the revenue risk was fully undertaken by the government, where the private sector would not be incentivised to be innovative to optimise the service quality. In such a scenario, robust public sector monitoring and evaluation capacity are required to discipline the private

partner using the contract provisions (performance standard). Nevertheless, the public sector's capacity to manage the PFI scheme was noted to be inadequate (H.M. Treasurey, 2012; HM Treasury, 2019).

Coupled with the lack of incentive to the private sector on government-paid PFI projects, the value for money analysis has been found to be problematic (NAO, 2009; H.M. Treasurey, 2012). The subjective nature of risk assumption in public sector comparator and the interest rates used for discounting future payment liabilities was subject to distortions (Dixon, et al., 2005). As a result, the value for money assessment was found to favour and advantage PFI procured route over public financing (NAO, 2018). The liquidation of the UK second-largest contractor in 2018, having many PFI contracts, has also brought many questions and concerns about the PFI procurement route, recalling the London Underground's Metronet's failure in 2007 (Khadaroo & Salifu, 2018). There are also unresolved challenges of the PFI scheme, such as low rate of attracting institutional investors (insurance and pension), lack of regulation on the investment return of equity investors, the treatment of government commitments for PFI projects in its budget accounting and ensuring saving on existing PFI projects (Sheikh & Asher, 2015; NAO, 2018). These incidents called for the government to closely monitor and evaluate existing projects companies' financial soundness and managerial capacity. It was also found necessary for the government to strengthen the public sector capacity in contract management and negotiations of PFI projects than relying primarily on transaction advisors.

2.5 PPP Development in Africa

Some African countries (such as South Africa and Kenya), have been using private sector financing for infrastructure for more than 20 years despite social, legal, economic, environmental, political and technological limitations (Dykes & Jones, 2016). Many African countries have also undertaken various public sector reforms to attract private sector investment for their infrastructure projects. The effort of the reform in Africa has produced positive results in attracting the private sector progressively. Over 40% of the investment required in power generation since 1990 was generated from the private sector as independent power producers (IPPs) (Foster & Rana, 2019). However, it is noticeable that private sector financing in infrastructure mainly concentrated in North Africa, Nigeria, and South Africa (AfDB, 2016). Other African countries have been slow at adopting PPP regulatory frameworks and legislation. Countries adopting PPP include Angola,

Ghana, Tanzania, Kenya, Cameroon, Senegal, Mauritius, Egypt and Zambia (Ernst & Young, 2015).

In 2017, the Sub-Saharan African region attracted an investment cost of USD2.1 billion for 19 projects from the private sector financing (World Bank, 2017b). According to the Private Participation in Infrastructure (PPI) database, in 44 Sub-Saharan African countries, 540 PPP projects across different sectors completed between 1990 to 2019, as shown in Figure 2.2 (World Bank, 2019). The total investment cost of these projects is equivalent to USD 83 billion. The electricity, ICT, and port sectors attracted the highest number of PPP projects with 282, 91 and 62 PPP projects, respectively.

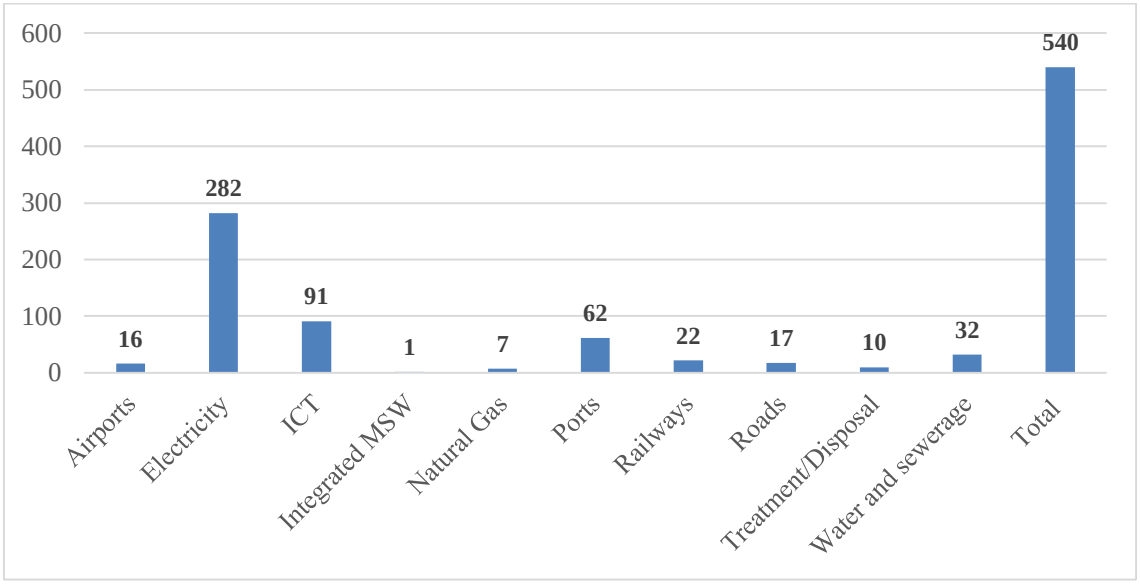

Figure 2. 2 PPP Projects Completed in the Sub-Saharan Region (1990-2019) (World Bank, 2019)

Many African countries' population and economic growth required more infrastructure investment (Dykes & Jones, 2016). Despite some progress recently in PPP development in Sub-Saharan Africa, the relative advancement compared with other developing countries is still slow (Yescombe, 2017). Attracting more private investment to the continent in the infrastructure sector has become crucial to keeping the growth trajectory. However, PPP development in Africa has faced significant constraints, including restricted financial markets, inadequate legal and regulatory frameworks, lack of technical skills within the public sector and lack of political will to take inherent risks (Ernst & Young, 2015). Mixed results of African PPP development have been

noted (JICA, 2020). Some PPP projects were delayed up to 14 years due to insufficient financing from the private partner and multilateral banks withdrawal, such as Zambia's Kafue Gorge Lower Hydropower project. There are also successful PPP projects in Africa, such as Mozambique's Central Termica de Ressano (CTRG and South Africa's Durban Water Recycling Project (JICA, 2020). Notably, there are critical lessons from African countries where successful PPP projects have been implemented in toll roads, ports, prisons, telecommunications and power generations. These lessons include that contracts are based on thorough planning, good communication, strong political commitment, effective monitoring, and regulatory enforcement (Farlam, 2005). In addition to this, the countries with more private sector investments are characterised by clear sector policies, regulatory and institutional frameworks (Eberhard, et al., 2016).

2.6 PPP Implementation in Ethiopia

Concession arrangement for infrastructure development using private financing in Ethiopia traced back to the nineteenth century when Emperor Menelik-II granted to his Swiss adviser, Alfred IIg, to establish a company to build and operate a railway line from Djibouti to Addis Ababa in 1894 (Pankhurst, 2005; Bekele, 1991). After addressing many challenges from colonial powers (mainly France and Britain), the railway construction was completed in 1917. Initially, Britain opposed the proposed development due to its potential competition with its colonial territory of Berbera port (Pankhurst, 2005). Lack of sufficient capital also caused the delay of the railway project. However, in the end, the British and French financial capital involvement saved the company from failure, which enabled it to finalise the project (Bekele, 1991). The completion of the railway was an event of considerable socio-economic significance for Ethiopia as it enabled the movement of goods and people from Djibouti's port to the centre of the country (Zewde, 2002). Since the railway development, the concession was growing and became operational until the communist government changed the country's economic policy to a command economy (state-controlled) from 1974 to 1991. In this period, the command economy dominated the country, and the government nationalised all concessionaires. It is also worth mentioning that Ethiopia formulated a legal instrument to use the private sector through a concession law since 1960 (Civil Code, 1960). However, the practice in infrastructure development had been hindered due to different political and economic reasons. As a result, although PPP has been rapidly growing in several countries in recent years, its implementation in Ethiopia has so far been limited (Asubonteng, 2011). However,

the interest of the public and private sectors in infrastructure development is becoming noticeable in Ethiopia. In 2017, Corbetti Geothermal Plc. and Ethiopia's government signed an implementation agreement (IA) and a power purchase agreement (PPA) for Corbetti geothermal plant, which was recorded as significant private finance for infrastructure in the country. This project had marked an important step in the development of privately financed power generation in Ethiopia. According to the agreement between the parties, the special purpose vehicle company, Corbetti Geothermal Plc., is expected to construct 1,000 MW geothermal power plant with an estimated cost of USD 4 billion and sells it to the Ethiopian government at an agreed tariff (Corbetti, 2017).

Except for the above privately initiated project, there was little evidence that the Ethiopian government understood the need to mobilise resources from different sources other than traditional government financing to meet the ever-growing demand for public infrastructure until about 2017. However, in 2017, Ethiopia's government showed interest in engaging the private sector in the infrastructure sector with two main objectives (PPP Policy, 2017). The first objective was to generate financial resources and managerial expertise from the private sector by implementing individual projects. The second objective was to leverage the private and the public sector's comparative advantages through partnership and risk allocation.

2.7 Critisism of PPP Modality

PPP infrastructure arrangements have many advantages as proposed by their proponents (Akintoye, et al., 2003; AfDB, 2016; World Bank, 2017b; Yescombe, 2007). However, they also have certain shortcomings and become a subject of intense criticism since their inception, as argued by their opponents (Hall, 2015; CSOs, 2017).

PPP can be costlier than traditional government financing unless efficiency gains compensate for the higher transaction and financing costs involved with PPP projects. Banks conceive that lending to private companies is riskier than the government. As a result, a higher interest rate is demanded from the borrower (Hall, 2015). For instance, the cost of capital of PFI projects was found to be higher than the government bond by 2% to 3.75% (NAO, 2018). According to Hill (2015), the reason is that the private sector has the risk of default and bankruptcy and banks opt to lend to the government more cheaply as these risks are minimal. PPP investment can also produce unforeseen

fiscal costs due to the setting up of poorly designed guarantees and inappropriate risk allocation to the private sector in the concession contract (Andres, et al., 2008).

Additionally, the delay in PPP procurement can affect the project's cost due to the public sector's serious impediment resulting from inadequate capacity to manage such an arrangement (Parvu & Cristina, 2009). A lesson drawn from the UK PFI review revealed that value for money reduced due to slow procurement processes resulting in expensive and increased project costs for both the public and the private sector (H.M. Treasurey, 2012). This cost increment compelled governments to justify to the taxpayers the costs of PPP using a prudent value for money analysis techniques (see section 2.4.2 of Chapter 2).

The other drawback of PPP is that it is not attractive to investors when there are high apparent risks in the project. The private sector and the financial institutions for PPP investment are usually reluctant to participate in projects with risks beyond their control. As a result, the contribution of the private sector financing in infrastructure is limited to some profitable area of business, and the notation of replacing the public financing by the private sector, in the long run, is proved to be unrealistic (Andres, et al., 2008). The contribution of PPP in developing countries compared to their total infrastructure demand is so limited, and it is mainly concentrated in areas like energy and telecommunications projects where profits can be easily generated (Trebilcock & Rosenstock, 2015). For politically sensitive infrastructure projects such as roads, significant government support is also required. They also need large amounts of land and space to build them so that the private sector can be convinced to invest (Delmon, 2011).

Furthermore, another significant criticism of PPP is that the change of ownership of the infrastructure asset to the private sector would limit the public sector partner's influence in service delivery. In this regard, one of the main challenges to the public sector in PPP arrangement is inadequate flexibility during the operation period to entertain the public sector’s demand for an adjustment in the service provision (H.M. Treasurey, 2012). The rigidity of PPP contracts was one of the challenges found during the implementation of PFI projects in the UK (NAO, 2018). A typical example in the road sector PPP arrangement is that the government cannot build an alternative route that can compete with the private sector investment. Governments should give due consideration to critical projects that could affect national security, economy, health, and safety before entering into PPP contracts (Levy, 2011).

Besides, PPP contracts are highly criticised for their frequent occurrence of renegotiations during the concession period. PPP contract renegotiations usually resulted in delays in projects, reductions in investment obligations and tariff increases for the private partner (Andres, et al., 2008). A study in Latin American countries from 1990 to 2013 showed that 68% of the PPP contracts encountered renegotiations. The renegotiations are commonly related to aggressive bidding, lack of decision during the procurement process, poorly written agreements and bidding errors (Guasch, et al., 2014). PPP renegotiations' main disadvantage emanate from the fact that the transparency principle in the procurement process will be seriously jeopardised, and the market disciplining effect of competition in the bidding process may not be exercised (Trebilcock & Rosenstock, 2015). PPP can also be a source of corruption due to government officials' collusive behaviour and preferred companies that may endanger countries' economy by distorting critical investments (Scribner, 2011). For instance, a power purchase agreement was signed between a Tanzanian state-owned electric company, Tanesco, and Independent Power Tanzania Limited for 100MW diesel power generation for 20 years without conducting a feasibility study and bypassing approval procedures. The project was investigated and found to be expensive, and corruption was part of government officials' poor deal (Farlam, 2005). When the project became operational in 2002, it performed at less than 10% of its capacity. Moreover, in the absence of well-designed regulation and monitoring procedures for selecting private partners, procuring PPP projects can be a risky business consuming limited public resources (Parvu & Cristina, 2009).

On the other hand, some of the PPP procurement approach condemnations are believed to be based on ideological point of views (Merna & Njiru, 2002). Despite all the PPP scheme criticisms, countries have been learning to counter PPP implementation shortcomings through regular monitoring and evaluation. The method is spreading swiftly throughout the world for infrastructure delivery.

2.8 Attractive Factors for PPP Implementation

2.8.1 Introduction

Though there are some criticisms of adopting PPP as discussed in the preceding section of this chapter, its application is significantly expanding worldwide (World Bank, 2019). Governments throughout the world are using the PPP procurement method for infrastructure development. There are many different reasons for adopting PPP (Cheung, et al., 2009; Osei-Kyei, et al., 2014). In some cases, PPP procurement approach is believed to be applied due to the influence of multilateral lending institutions stipulating it as a precondition for extending loans (Jamali, 2004). Others argue that governments pursue PPP procurement to satisfy the ever-increasing infrastructure demand for their economic growth by leveraging the private sector's capital and expertise (Osei-Kyei & Chan, 2017).

Specifically, in developing countries, governments use PPP for major infrastructure to free themselves from budget constraints and focus on pro-poor development agenda to reduce poverty (Bhatia & Gupta, 2006). Research findings also suggest that PPP procurement's unique nature influence the driving factors and its adaptation in each country (Ismail, 2014b). Thus, to utilise the advantages of PPP implementation, it is important to understand all the relevant factors before its implementation in each country in light with international experience. This section of the research aims to investigate the attractive factors of adopting PPP for infrastructure development from different countries. To this effect, a literature review was used to identify relevant, attractive factors of PPP implementation, which were then incorporated into the design of a questionnaire.

2.8.2 Attractive Factors of PPP Implementation

In order to understand why countries are attracted to implement PPP, a systematic literature review was conducted to identify the main factors driving governments to use PPP procurement method. A systematic analysis of previous research studies of a particular topic or research area could be achieved through a structured review of published academic journals (Tsai & Wen, 2005). The findings of such studies can offer an inclusive representation of high quality and relevant research outcomes (Gough, et al., 2013). In this regard, the method used by Osei-Kyei and Chan (2015) and Zhang, et al. (2016) in the literature review process was applied in this study. The review process

was achieved in three stages, as shown in Figure 2.3. These steps comprise identification, selection and examination of quality and relevant research papers. The review aimed to identify the attractive or driving factors for PPP implementation in other jurisdictions and subsequently assess their importance in Ethiopia through a structured questionnaire survey.

2.8.2.1 Identification of Relevant Publications

To identify the relevant publications, search engines mainly Google.com, Googlescholar.com, Research gate, Civil Engineering Abstracts (ProQuest), Engineering Village, Scopus, Emeraldinsight, Science direct and University of Birmingham Library website were employed. Based on the systematic literature review objective, keywords were identified to be used for the search of relevant literature. The keywords used were “Private finance initiative (PFI)”, “Public-private partnerships (PPP)”, “Private finance project”, “Public or private infrastructure projects”, “Private sector contracting”, “Public-private relationships”, “Public alliance”, “PPP attractive factors”, “PPP driving factors”, “Positive factors of PPP”, “Benefits of PPP” and “Reasons for PPP implementation”. At the initial search, documents comprising books, journals, conference proceedings, dissertations, articles in the press, book review, and reports were identified for further analysis. However, the target of the systematic review was to collect relevant journal papers, considered to be primary sources. After preliminary scrutiny based on paper keywords, title and abstract by excluding dissertation, reports, editorial, book reviews, articles in press and introduction only 320 journal papers were considered suitable for further detailed examination as shown in Figure 2.3.

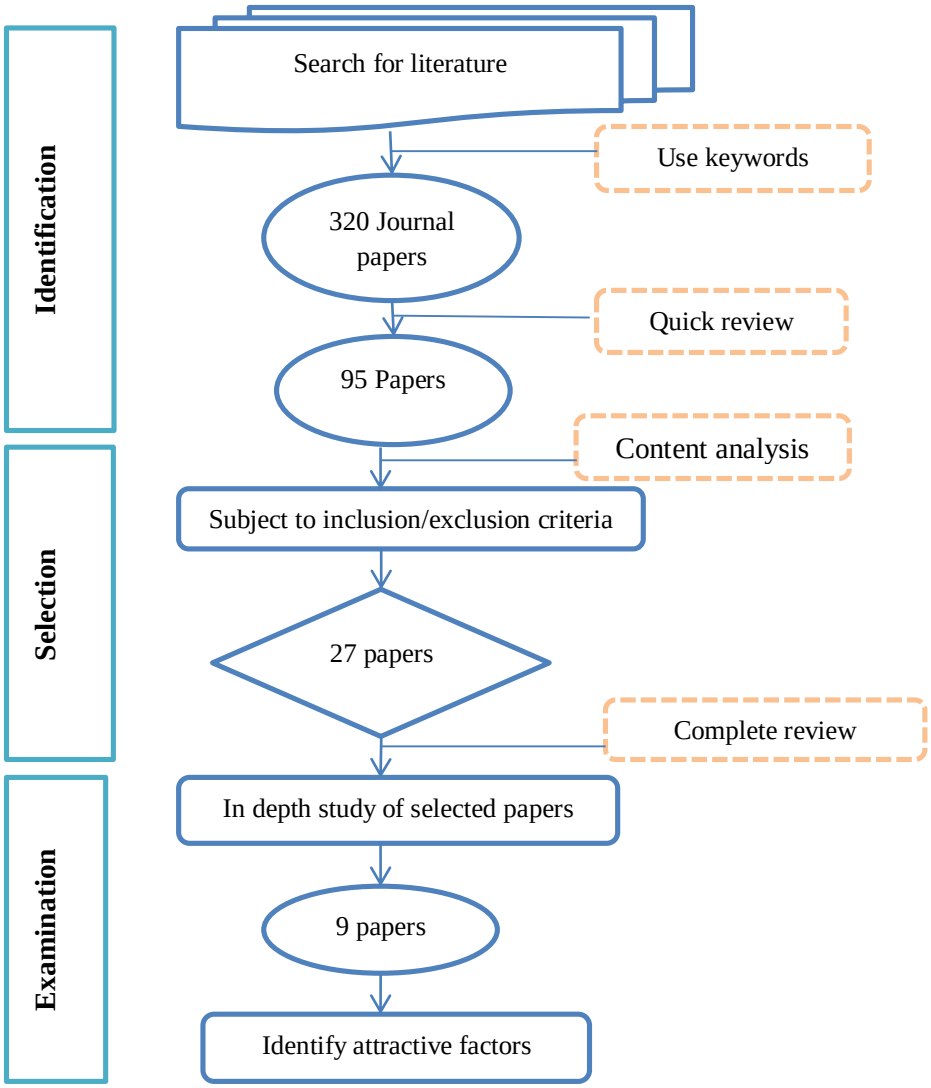

Figure 2. 3 Systematic Literature Review Process

2.8.2.2 Selection of Relevant Journal Papers

The 320 papers were then filtered further based on soundness, appropriateness and relevance of the studies (Gough, et al., 2013; Burrow, et al., 2015) to answer the review objectively on PPP attractive factors. Following this, the list of papers taken to the next stage of scrutiny was reduced to 95 by omitting papers related to other areas of PPP studies such as critical success factors, risk factors and procurement. At the next stage, inclusion criteria, as listed below, was applied. This step reduced the papers that needed to be reviewed in detail to 27. Empirical studies on attractive

or positive factors emerged following a study by Li, et al. (2005) in the UK. Thus, the papers selected in this search started in the year 2005.

- Language in English
- Date of publication- since 2005
- Infrastructure projects
- Conceptual, qualitative, quantitative and empirical nature
- Scholarly publications (Journals)
- Public-private partnership (PPP)
- Attractive/driving/positive factors of PPP implementation

At the final stage, a detailed review of the findings of the selected papers was conducted in consideration of the objective of the study. The papers with a specific focus on attractive factors of PPP were identified. The reputation of the journals was also taken into account in the final selection process. As a result, the number of relevant papers was further reduced to 9 journal articles. The final number of selected papers from the search process is presented in Table 2.3. The citation of these selected papers was also checked to avoid unintentional omission of relevant papers in this particular search.

Table 2. 3 Author, Title and Country of Origin

No	Author/s	Title	Country
1	(Chan, et al., 2009)	Drivers for Adopting Public-Private Partnerships-Empirical Comparison between China and Hong Kong Special Administrative Region	China
2	(Chou & Pramudawardhani, 2015)	Cross Country Comparison of Key Drivers, Critical Success Factors and Risk Allocation of Public-Private partnership Projects	Indonesia
3	(Li, et al., 2005)	Perceptions of positive and negative factors influencing the attractiveness of PPP/PFI procurement for construction projects in the UK: Findings from a questionnaire survey	UK
4	(Liu & Wilkinson, 2011)	Adopting innovative procurement techniques Obstacles and drivers for adopting public-private partnerships in New Zealand	New Zealand
5	(Ngoma, et al., 2014)	Benefits, Constraints and Risks in Infrastructure Development via Public-Private Partnerships in Zambia	Zambia
6	(Almarri, 2017)	Perceptions of the attractive factors for adopting public-private partnerships in the UAE	UAE
7	(Ismail, 2014b)	Factors Attracting the Use of Public-Private Partnerships in Malaysia	Malaysia
8	(Osei-Kyei, et al., 2014)	Reasons for adopting Public-Private Partnership (PPP) for construction projects in Ghana	Ghana
9	(Malek & Akalkotkar, 2016)	Driving Forces Leading to The Adoption of PPP – Perspectives from Gujarat (India), Hong Kong and Australian Practitioners	India

2.8.2.3 Examination of Selected Papers

Once the final list of papers was identified, the papers were analysed in detail, including identifying country and research focus, year of publication, methodologies adopted, and key findings. The papers selected originated from 7 different journal publishers and 9 different countries. Eight researchers reported findings based on data collection through questionnaire survey (Chan, et al., 2009; Chou & Pramudawardhani, 2015; Li, et al., 2005; Ngoma, et al., 2014; Almarri, 2017; Osei-Kyei, et al., 2014; Malek & Akalkotkar, 2016; Ismail, 2014b) and 1 reported findings based on

interview (Liu & Wilkinson, 2011) as shown in Table 2.4. The year of publication of the papers ranges between 2005 to 2017.

Table 2. 4 List of Journals and Research Method

No	Year	Journal Name	Research Method
1	2005	Engineering, Construction and Architectural Management	Questionnaire Survey
2	2014	Journal of Construction in Developing Countries	Questionnaire Survey
3	2016	International Journal for Innovative Research in Science & Technology	Questionnaire Survey
4	2011	Journal of Construction Innovation	Interview
5		Journal of Construction Engineering and Management	Questionnaire Survey
6	2017	International Journal of Construction Management	Questionnaire Survey
7	2014	International Journal of Construction Management	Questionnaire Survey
8	2014	Journal of Construction in Developing Countries	Questionnaire Survey
9	2015	International Journal of Project Management	Questionnaire Survey

2.8.2.4 Discussion of Top Attractive Factors for PPP Implementation

The most important attractive factors for PPP implementation of each country identified in the literature were subsequently discussed. Among these studies, Chan, et al.(2009) explored and compared the key driving factors for adopting PPP in mainland China and the Hong Kong special region through a questionnaire survey. The survey respondents were invited to rate their perceptions on the importance of fifteen different attractive factors for PPP implementation. The findings indicated that respondents from China rated economy-related factors higher than efficiency-related attractive factors. These factors were: solve the problem of public sector budget

restraint, provide an integrated solution for public infrastructure/services, reduce public money tied up in capital investment, cap the final service costs, reduce the total project cost, save time in delivering the project, reduce public sector administration costs, the benefit to local economic development, and nonrecourse or limited recourse to public funding. On the other hand, Hong Kong-based respondents tended to rate efficiency-related attractive factors higher than economy-related factors including facilitate creative and innovative approaches, transfer risk to the private partner, improve buildability, improve maintainability, technology transfer to local enterprise, and accelerate project development.

Chou and Pramudawardhani (2015) also conducted a questionnaire survey of 15 driving factors for PPP implementation in Indonesia. The most significant factors by the Indonesian respondents were: provide an integrated solution for public infrastructure, facilitate creative and innovative approaches, improve build-ability, improve maintainability and accelerate project development. The study also compared the importance of the attractive factors of Indonesia with Taiwan as studied by Chou et al. (2012). The Indonesian respondents considered only 5 factors as key drivers for PPP implementation in Indonesia whereas in Taiwan 10 factors were identified as key driving factors for PPP implementation in Taiwan (Chou, et al., 2012).

PPP attractive factors were also assessed in the United Kingdom by Li et, al. (2005) through literature review and a questionnaire survey of experts. The literature review identified 15 attractive factors. Out of these 15 attractive factors, the top five factors rated by overall respondents were: transfer of risk to the private partner, solve the problem of public sector budget restraint, non-recourse or limited recourse public funding, reduces public money tied up in capital investment and caps the final service. Furthermore, Li et, al. (2005) concluded that identifying the driving factors for PPP procurement at the early stage of development can assist decision-makers in making informed decisions.

Governments opt to PPP procurement due to various reasons. Liu and Wilkinson (2011) found the reasons for PPP implementation in New Zealand through a semi-structured interview and focused group discussion. According to this study, the drivers for PPP adoption in New Zealand include acceleration of infrastructure provision, better risk allocation, whole of life cost savings, improved quality of services, access additional revenue sources, benefits for local economic and social development, and improved project scrutiny. Maintenance and handling of infrastructure in developing countries are also challenges that affect the provision of proper infrastructure services

to citizens. In their study, Ngoma et al. (2014), using a questionnaire survey identified the benefits of implementing PPP construction projects in Zambia. The study established that a reduction in the risk of handling (management), improvement in the levels of services, provision of economic benefits, savings in construction-related costs and increase in infrastructure provision were the most significant benefits of implementing PPP in Zambia.

One of the driving factors that tempt governments around the world to adopt PPP implementation is the involvement of the private sector expertise to project development to deliver innovative services than using the traditional procurement method. In this respect, Almarri (2017) attempted to draw attractive factors through a questionnaire survey of selected participants from the UAE and the UK. The respondents ranked the highest four driving factors, and these factors were the private sector's skills and experience, private sector's funds, value for money, and risk transfer to the private party. As countries show economic progress, infrastructure demand also increases to maintain economic growth. To respond to this, governments often choose to stretch their financial capacity to facilitate the required infrastructure from the public budget until deficiency of resources hold them back. In his study through a questionnaire survey of respondents in Malaysia, Ismail (2014b), confirmed three top driving factors for PPP implementation in Malaysia. These factors were economic development pressure of demanding more facilities, private incentive, and a shortage of government funding.

In another developing country study, Osei-Kyei (2014) identified 17 attractive factors for PPP implementation from the literature review and explored the most important five reasons for the Ghanaian government to pursue PPP in the construction projects through a questionnaire survey. These five important attractive factors were reducing public sector administrative cost, allowing for shared risk, reducing the problem of public sector budget constraint, private sector possesses better mobility, and private sector has the ability to raise funds for the project. Malek and Akalkotkar (2016) also tried to identify the reasons for adopting PPP projects by the Gujarat state of India using 9 driving factors through a questionnaire survey. The findings suggested that the Gujarat government undertook PPP procurement due to a shortage of government funding, economic development pressure demanding more facilities and demand for high-quality services.

From the above analysis, we can note that countries purse PPP procurement route for different reasons. This difference is because every country has its specific challenges in providing

infrastructure facilities. Thus, identifying the reasons for adopting PPP infrastructure development may assist in policy-making for infrastructure development (Osei-Kyei, et al., 2014).

2.8.2.5 Key Results of Review of Attractive Factors for PPP Implementation

Based on the comprehensive review of the 9 papers considered in this study, the following summary of attractive factors for PPP implementation was identified with corresponding authors as presented in Table 2.5 for further use in the questionnaire design. The 17 attractive factors were selected out of 46 identified attractive factors which were identified 3 or more times in the selected journal papers. Among the attractive factors, the most highly mentioned factors were transfer risk to the private sector, reduce the total project cost, benefit local economic development, improve maintainability, and solve public sector budget restraint.

Table 2. 5 Summary of Attractive Factors for PPP Implementation

No	Attractive Factors	Author/s (as listed in Table 2.3)	Number of Time the Factor Mentioned
1	Solve the problem of public sector budget restraint	1,2,3,6,7,8,9	7
2	Enhance government integrated solution capacity	1,2,3,7,8	5
3	Reduce public money tied up in capital investment	1,3,8,2,7,9	6
4	Facilitate creative and innovative approaches	1,6,3,8,2,7	6
5	Reduce the total project cost	1,5,4,6,3,8,2,7	8
6	Save time in delivering the project	1,6,3,8,7	5
7	Transfer risk to the private sector	1,5,4,6,3,8,2,7	8
8	Reduce public sector administration costs	1,3,8,2,7	5
9	Benefit local economic development	1,5,4,6,3,8,2,7	8
10	Improve buildability	1,5,4,3,2,7	6
11	Improve maintainability	1,5,4,3,8,2,7,9	8
12	Non-recourse or limited recourse to public funding	1,3,2,7	4
13	Accelerate project development	1,3,2,7	4
14	Private sector possess better resource mobility	6,8,9	3
15	Private sector has the ability to raise funds for project	4,6,8,9	4
16	Cap final service costs	1,6,3,2	4
17	Technology transfer to local enterprises	1,6,3,4,8,2	6

2.9 Critical Success Factors of PPP Implementation in Developing Countries

2.9.1 Introduction

PPP has become a global phenomenon for infrastructure procurement in recent years and has been used in many advanced economies for delivering public infrastructure for many years (Cheung, et al. 2012). Several developing countries have also started to use PPP by attracting private sector investment for the development of infrastructure and public services (World Bank, 2016). This has resulted in an improvement in efficiency and relief from budget constraints (Jamali, 2004). This form of collaborative investment has provided opportunities for governments to meet a portion of the growing demand for better infrastructure (Muhammad, et al., 2016). The transfer of risks from the public to the private sector with the assumption that the private sector is better equipped to discharge responsibilities for delivering public infrastructure is another advantage of PPP modality (Dixon, et al., 2005). According to Dixon et al. (2005), the transfer of risks to the private sector can also help the public sector gain other benefits, including improved delivery of projects in terms of time, cost, quality, and better maintenance. Nonetheless, compared with the total infrastructure development in developing countries, the private sector financing through PPP is a small portion of the aggregate investment (Ks, et al., 2016).

To advance the rapid economic growth mainly through borrowing and spending in infrastructure, the Ethiopian government has been investigating alternative modes of public infrastructure funding to relieve the country from budgetary constraints. In this regard, a substantial portion of Ethiopia's future infrastructure development is expected to use alternative funding sources, including the PPP modality. However, there is little experience in setting up and administering PPP schemes in Ethiopia. Several factors are relevant and warrant cautious deliberation when planning to implement PPP projects (Jamali, 2004). Countries with no previous experience need to identify determinant factors before adopting the procurement method (Cheung, et al. 2012). In this respect, sorting out critical success factors of PPP implementation can assist with the proper delivery of the method (Zhang, 2005). This research is designed to investigate factors affecting successful PPP schemes and pitfalls in the legislative and economic environment and help to set up required government policies and regulations in Ethiopia.

In this regard, a systematic literature review of published literature on critical success factors following similar procedures shown in section 2.8 of Figure 2.3 was conducted. The purpose of this review was to identify the critical success factors of PPP infrastructure projects in developing countries. By addressing these factors, the research investigated the presence of these factors in Ethiopia via a structured questionnaire survey. Definitions of developing countries and critical success factors are provided in Table 2.6 to clarify as they are used in this study's subsequent sections.

Table 2. 6 Definition of Developing Countries and Critical Success Factors

Term	Definition
Developing counties	Developing countries are defined through their Gross National Income (GNI) per capita per year. Low income (USD1,025 or less) and middle-income economies (USD1,026 to USD4,035) are referred to as developing countries or economies (Merna & Njiru, 2002; Gbadamosi, n.d.).
Critical success factors (CSFs)	CSFs were first defined by Rockart (1982) in the management field as "those few key areas of activity in which favourable results are absolutely necessary for a particular manager to reach his or her own goals" (Rockart, 1982).

In addition to the search keywords included in section 2.8, the following keywords were used for searching relevant literature: "PPP critical success factors", "PPP critical failure factors", "PPP success factors" and "PPP determinant factors". The literature search result from the above achieved to collect 710 journal papers for further scrutiny. Papers addressed to PPP of other areas such as attractive factors, risk factors and procurement issues than critical success factors were removed. As a result, 265 initial qualified journal papers were identified. The papers retrieved in the first stage were subjected to content analysis technique to examine and analyse their relevance to the research objective by using the inclusion criteria listed in the previous section and critical success factor. At this stage, the number of papers qualified was 29 journals. Finally, an in-depth review of the qualified journal papers was conducted to identify publication date, research methods, research topics and findings, and nature of projects studied by researchers. At this stage,

additional 17 papers were abandoned, due to irrelevance to the current research or low quality (similarity of the research content, non-rigorous research process, etc.). The number of final valid research papers was reduced to 12 journal articles focusing on developing countries only. The final number of selected publications from the search is presented in Table 2.7.

Table 2. 7 Final List of Publications Used for Analysis

No	Author	Country	Method of Analysis
1	Esther Cheung, Albert P.C. Chan, Patrick T.I. Lam, Daniel W.M. Chan and Yongjian Ke (2012)	China*	Questionnaire survey
2	Titus Ebenezer Kwofie, Samuel Afram and Edward Botchway (2016)	Ghana	Questionnaire survey
3	Ernest Effah Ameyaw, Albert P.C. Chan and De-Graft Owusu-Manu (2017)	Developing countries	Questionnaire survey
4	Xueqing Zhang(2005))	China*	Questionnaire survey
5	Baba Shehu Waziri and Yusuf Isa (2017)	Nigeria	Questionnaire survey
6	A. Dahiru and R.S. Muhammad (2015)	Nigeria	Questionnaire survey
7	Jui-Sheng Chou and Dinar Pramudawardhani (2015)	Indonesia	Questionnaire survey
8	Hussein N. Ndonye, Emma Anyika and George Gongera (2014)	Kenya	Case study
9	Shakil S. Malek and P. V. Akalkotkar (2016)	India	Questionnaire survey
10	Alis Kahwajian , Shukri Baba , Omar Amudi and Mohammed Wanos (2014)	Syria	Questionnaire survey
11	Robert Osei-Kyei and Albert P.C Chan (2016)	Ghana	Case study
12	Henry Alinaitwe and Robert Ayesiga (2013)	Uganda	Questionnaire survey

*Note: China is currently upper-middle-income economy, but the studies selected were conducted when China was in the developing countries category.

2.9.2 Examination of Selected Papers

Initially, the papers retrieved from the search were assessed in terms of authors' country and research focus, year of publication, research methodologies adopted, and key findings of research. The papers selected originated from eleven different journals, as shown in Table 2.8. The first researchers originated from China, India, Ghana, Nigeria, Syria, Kenya, and Uganda. Out of the selected twelve papers, Ghana, China, and Nigeria contributed two papers, respectively. The other

countries namely, India, Syria, Kenya, and Uganda, contributed one paper each, respectively. One publication addressed to developing countries, as a generic paper, was also examined. A further examination of publications on the methods adopted to explore the CSFs for PPP projects was undertaken. Two major categories of research approaches were identified, which are case studies and a questionnaire survey. Out of the twelve journals selected, ten of them used a questionnaire survey to collect data. Questionnaire survey was clearly the most preferred method of study in construction management research (Holt, 2010). According to Holt (2010), the reason for its extensive use is that it provides the platform to engage many professionals for sensitive and public policy related studies like PPP. Only two of the studies adopted the case study method.

Table 2. 8 Source of Journal Papers

No	Journal Name	No of Papers
1	Journal of Facilities Management	2
2	Journal of Built Environment Project and Asset Management	1
3	Journal of Construction Engineering and Management	1
4	International Journal of Innovative Scientific & Engineering Technologies Research	1
5	ATBU Journal of Environmental Technology	1
6	International Journal of Project Management	1
7	European Journal of Business and Management	1
8	International Journal for Scientific Research & Development	1
9	Jordan Journal of Civil Engineering	1
10	International Journal of Construction Management	1
11	Journal of Construction in Developing Countries	1

2.9.3 Analysis of Key Review Results of Critical Success Factors

Employing a comprehensive review of the 12 publications considered in this search, the following list of critical success factors (CSFs) of PPP implementation in the developing countries were identified with corresponding authors as presented in Table 2.9. Based on the analysis of the selected journals, the CSFs for PPP implementation was used for the design of the questionnaire. In this regard, a total of twenty-six perceived success factors were shortlisted, and they were considered relevant for developing countries. Given that it was not possible to include all success factors reported by previous researchers because of the focus and objective of this research, the 26 factors (at least mentioned twice in the articles) were carefully reviewed and selected out of 79 critical success factors identified to cover key issues that affect governments and private sector participants in PPP project development. Since these factors had been sufficiently tested and used in similar studies in other developing countries, they are also used as the basis for the present study.

Table 2. 9 Critical Success Factors of PPP for Developing Countries

No	CSFs	Author (as listed in Table 2.7)	Number of time mentioned
1	Well organized and committed public agency	1,3,7,9,10,12	6
2	Transparent procurement process	1,2,3,7,9,10,12	7
3	Competitive procurement process	1,2,3,7,9,10,12	7
4	Political support	1,3,6,9,10,12	6
5	Positive attitude towards PPP project implementation	3,4,11,12	4
6	Government involvement by providing guarantees	1,2,3,5,6,9,10,11,12	9
7	Good governance	1,3,5,6,7,9,10,11,12	9
8	Presence of an enabling PPP policy	3,4,6,7,11,12	6
9	Strong private consortia (joint venture of companies)	1,3,4,5,6,8,9,10,11,12	10
10	Sound economic policy	1,2,3,10,12	5
11	Thorough and realistic assessment of the costs and benefits	1,3,4,7,9,10,12	7
12	Appropriate risk allocation and sharing	1,4,6,7,8,9,10,12	8
13	Favorable legal frameworks	1,2,3,4,6,7,9,10,12	9
14	Stable macro-economic environment	1,2,3,4,5,6,7,9,10,12	10
15	A streamlined, transparent and clear project appraisal policy	2,3,11,12	4
16	Presence of a pro-investment culture among the population in the country	3,4,11,12	4
17	Project technical feasibility	1,2,6,8,9,10,12	7
18	A strong monitoring and evaluation system for project implementation	3,11,12	3
19	Technology Transfer	5,8,10,12	4
20	Adequate knowledge and skills of PPP	3,10,11,12	4
21	Stable political and social environment	1,3,4,5,6	4
22	Mature and available financial market	1,2,4,5,8,9,10,12	8
23	Dedicated PPP unit to support and promote PPP program	3,12	2
24	Public/community support	1,3,7,9,10,11,12	7
25	Willingness among parties to share authority	1,6,7,9,10,12	6
26	Multi benefit objectives (public sector and private sector)	1,9,10	3

Amongst the CSFs, the top five factors for each country were further analysed and compared to each other based on the outcome of their findings, subsequently.

The study by Cheung et al. (2012) identified and ranked eighteen CSFs among the Chinese respondents. Out of these, the top five factors were: (1) favourable legal framework, (2) appropriate risk allocation and risk sharing, (3) commitment and responsibility of public and private sectors, (4) stable macro-economic condition, and (5) available financial market. In another earlier study by Zhang (2005), the critical success factors for PPP implementation in China were:(1) economic viability, (2) appropriate risk allocation via reliable contractual arrangements, (3)sound financial package (4) favourable investment environment, and (5) reliable concessionaire consortium with strong technical strength. Taking into account the time difference in the two studies, this may be an indication that CSFs of PPP can vary based on time, whereby changes in a country's experience in implementing PPP projects can compel governments to change the policies and legislative conditions. According to Ke et al. (2011), the Chinese government introduced various policy and regulatory reforms regularly to attract private sector investment to infrastructure development.

The Syrian respondents, according to the study by Kahwajian et al. (2014), ranked the top five factors as (1) favourable legal Framework, (2) political support, (3) good governance, (4) stable macroeconomic environment, (5) appropriate risk allocation and risk-sharing. Another study in Indonesia by Chou and Pramudawardhani (2015) showed some similarity in the ranking of the factors with the Syrian and the Chinese rankings. The top five factors were (1) favourable legal framework, (2) commitment and responsibility of public and private sectors, (3) transparency in the procurement process, (4) clearly defined responsibilities and roles, (5) good governance/ government support. The Chinese, Syrian and Indonesian respondents ranked first the factor favourable legal frameworks as a critical success factor for PPP implementation.

According to Dahiru and Muhammad (2015), the top five CSFs of PPP implementation in Nigeria were: (1) good governance, (2) protective policy against political risk, (3) appropriate risk allocation and risk sharing, (4) strong private consortium, and (5) effective political stability. Later on, Waziri and Isa (2017) identified the top five CSFs for Nigerian infrastructure development as (1) lack of corruption and respect for the rule of law *(good governance)*, (2) stable economic environment, (3) availability of resources to undertake the project, (4) government support for the project, and (5) technology transfer issues. Both classified good governance as the top priority

requirement for the success of PPP projects in Nigeria. On the other hand, both of the studies did not match the four other CSFs. These changes of priority in the ranking of CSFs further justify the variation of the determinant factors of PPP implementation based on the experience gained through time. Taking into account the complexity of a PPP contract arrangement, governments are required to continuously learn and adjust the PPP working environment to succeed (Marcelo, et al., 2017).

Through a case study of the Kojokrom Market Development Project and the Asutsuare Water Treatment Plant in Ghana, Osei-Kyei and Chan (2016) tried to draw five success factors for the projects. These factors were (1) government commitment and support, (2) strong community support and relationship, (3) openness and constant communication, (4) project profitability and (5) capable private partner. Similarly, Kwofie et al. (2016), through a structured questionnaire survey in Ghana, ranked the top five CSFs as (1) government involvement by providing guarantee, (2) right project identification and project technical feasibility, (3) competitive and transparent procurement process, (4) favourable and efficient legal framework, and (5) stable macro-economic condition and sound economic policy. The two studies' outcome has shown significant similarities, such as government support, project feasibility and profitability.

Malek and Akalkotkar (2016) conducted a questionnaire survey in the Gujarat state of India to analyse the factors contributing to successful Indian Highway PPP projects. They found out that (1) commitment and responsibility of public and private sectors, (2) strong and good private consortium, (3) competitive procurement process, (4) transparency in the procurement process and (5) available financial market were top-five CSFs in the order of importance. The ranking of the Indian Highway PPP projects success factors has shown similarity with the Indonesian second and third critical success factors; namely,(2) commitment and responsibility of public and private sectors and (3) transparency in the procurement process (Chou & Pramudawardhani, 2015).

After evaluating PPP strategies followed in the Rift Valley Railway Concession in Kenya through a questionnaire survey, Ndonye et al. (2014) addressed four essential strategies affecting the performance of the concession. They reported that (1) strong consortium strategy, (2) sound finance strategy, (3) risk allocation strategy and (4) technology strategy were the success strategies in their order of significance. In a similar region, Alinaitwe and Ayesiga (2013) identified and ranked the top five success factors by administering interview and questionnaire survey in Uganda. These critical factors were (1) well organized public agency, (2) a competitive procurement

process, (3) project financial feasibility, (4) commitment of all parties, and (5) a strong monitoring and evaluation system.

Through a structured questionnaire survey of international PPP experts' opinion was sought by Ameyaw et al. (2017) to investigate the CSFs required for attracting the private sector in water supply projects in developing countries. The analysis result showed that (1) political commitment from elected leaders toward PPPs, (2) existence of a dedicated PPP unit and (3) strong and competent public authority, (4) fiscal capacity of the national or subnational authority, and (5) public acceptance and support of the involvement of private sector in public services delivery were found to be the top five requirements for the success of the industry.

In summary, it is noted that favourable legal framework; government involvement by providing guarantee; political commitment from the government towards PPP implementation; economic viability; good governance; strong private consortium; commitment and responsibility of public and private sectors; and well organized public agency were the most important critical success factors identified in the selected studies addressed to developing countries.

From the preceding analysis of CSFs of different developing countries, it can be inferred that though all the factors are essential for effective implementation of PPP projects, the relative importance of the success factors is specific to the country of consideration. It can be noted that due to the unique economic, environmental, legal, cultural and political background of each developing countries, PPP has its country-specific features and application procedures (Zhang, et al., 2016). Similarly, it may be stated that PPP CSFs have some dynamism through time, even within a country itself which entails the requirement of regular checking of their relative importance in due time. Hence, studying these factors in the context of each country situation may help to make an informed decision on policies and regulatory reforms.

2.10 Summary of the Chapter

This chapter has provided the necessary background of PPP, including why governments solicit the private sector involvement to finance public projects and the critical success factors for PPP implementation. However, successful implementation of PPP requires a conductive enabling environment in the hosting country such as sound economic policy, favourable legal framework, good governance, transparent and competitive procurement process and committed and well

organised public agency. The Ethiopian government has shown great interest to attract the private sector in infrastructure service provision, especially in the energy and road sectors. The next chapter discusses the policy and regulatory frameworks for PPP implementation in Ethiopia.

CHAPTER THREE: GOVERNMENT POLICIES AND REGULATIONS CONCERNING PPP IN ETHIOPIA

3.1 Introduction

Worldwide infrastructure financing through PPP is becoming attractive in many developing countries. Before the application of PPP for infrastructure, it is usually recommended to carefully review the enabling environment of the hosting country (Kokkaew, et al., 2015). PPP projects require a fair playing ground to all parties participating in the contract considering a more complex array of risks involved in the procurement than conventional method of public procurement. Among enabling factors for PPP implementation, policy and regulatory provisions of a country are of paramount importance.

Appropriate government policies and regulations provide a framework for setting up the rule of the game and shaping the partnership between the public sector and the private partner. Nevertheless, the vital feature of these enabling policies and regulations for PPP implementation is their variation in scope, detail and complexity among countries (Kokkaew, et al., 2015). This fact informs the necessity of reviewing each country's policy and regulatory environment comprehensively. Therefore, in this chapter of the study, Ethiopia's relevant policies and regulations, which may affect the implementation of PPP infrastructure projects in the road and energy sectors, are examined.

3.2 Government Development Policy

The public policy of a country determines the investment direction of resources (Dye, 2013). Government development policy dictates the sources of infrastructure financing. During the period of the military ruling of Ethiopia, command economic policy dominated the country until a new government was constituted in 1991. Between 1974 and 1991, government policies were inward-looking and lacked resources to fund any significant development. Since 1991 more progressive views of the Ethiopian government have gradually put policies to encourage private investment in Ethiopia. The Ethiopian Constitution under Articles 51 and 89 entrusts the government to formulate development policies, strategies and plans to enhance the economic and social

conditions of the people (EFDRE, 1994). According to the above, a comprehensive development plan with the notion of Growth and Transformation Plan was issued in 2010 for a duration of five years (GTP-I, 2010). In this plan, the private sector was considered as the engine of the economy and source of the required investment. The GTP-I also promised to engage local and international private sector players into the economy through partnership. Despite the desire of involving the private sector in the economy, in the first period of the GTP-I (2011-2015), the government could not realize any privately financed infrastructure investment in the country.

Consistently, under the second generation of the Growth and Transformation Plan (GTP-II) (2016-2020), the participation of the private sector in infrastructure development was adopted. Besides, the development plan mentioned PPP to be pursued in selected infrastructure sectors (GTP-II, 2016). In this respect, the GTP-II targeted to attract direct foreign investment into the infrastructure sector so that the capacity of the local private sector is strengthened. In the meantime, the government had to pay attention to the establishment of suitable policies, legal and institutional framework to attract the private sector (AfDB, 2015). The source of finance for infrastructure development was planned to be generated from foreign loans (bilateral and multilateral institutions) and domestic borrowing (mainly from the National Bank of Ethiopia and selling treasury bills). Nonetheless, this aggressive borrowing for public investment for infrastructure has put the country at higher risk of debt distress and inflation (AfDB, 2015; IMF, 2020).

Although there are intentions to acknowledge the significance of the partnership between the public and private sectors in Ethiopia's development strategy, the policy failed in addressing the importance of legal and policy frameworks dedicated to PPP (Beyene, 2015). There is also a lack of indication in the government policy the institutional responsibility for the development of PPP infrastructure in Ethiopia. Thus, until the establishment of the PPP-DG in 2018, there was no government organisation to overlook PPP development in the country. National policy and guidelines for PPP implementation are essential components of the regulatory framework of a country (Abdel, 2007). Thus, the inclusion of a clear policy for PPP in the development plan of the country can help stakeholders to understand the government’s motivation towards the private sector. It can also dictate the requirements for private sector participation in the economy (Appuhami, 2011). Therefore, the review of government policy and national development documents reveal that partnership is one of the sought strategies of development in Ethiopia.

3.3 Investment Law of Ethiopia

The investment climate of a country attracts the private sector when there is a proper rule of the game, investment regulations. The investment proclamation of Ethiopia confers the power of decision to approve any proposal submitted by any private investor intending to engage with the government under Article 6(9) of the proclamation (Investement Law, 2012). It is stated in the Proclamation that the Privatization and Public Enterprises Supervising Agency (now Public Enterprises Agency) should receive investment proposals submitted by any private investor intending to invest jointly with the government (Investement Law, 2012). Then it is required to submit the request to the Ministry of Industry for a decision. Upon approval, it designates a public enterprise to invest as a partner in any joint venture investment with the government (Investement Law, 2012). The proclamation also defines public enterprise under Article 2(9) as an enterprise fully or partially owned by the Federal or Regional governments. On the other hand, in the recent investment proclamation, a public enterprise is defined as an enterprise entirely owned by the government (Investement Proclamation, 2020).

The previous investment proclamation under Article 6 delineates investment areas reserved to the government or allowed to be developed in a joint venture which are transmission and distribution of electric power, postal services except for courier service, air transport services using aircraft with a seating capacity of more than fifty passengers, manufacturing of weapons and ammunition and telecom services (Investement Law, 2012). In the new investment law, the demarcation of investment areas is left for subsequent regulation under Article 2. Furthermore, the Council of Ministers' Regulation No.270/2012 under Articles 3 and 4 distinguished investment areas allowing local and foreign investors. As per the regulation, road infrastructure is one of the potential areas that are not restricted for government investment only (Investment Incentive Regulation, 2012). In addition to that, the licensing of electric power generation, transmission and distribution are mandated to the Ethiopian Energy Authority under the new investment proclamation (Investement Proclamation, 2020). An explicit provision for the private sector participation in electric power transmission and distribution under the subsequent regulation was issued by the council of ministers in September 2020.

Furthermore, the previous and the new investment proclamations under Article 25 and Article 19 provide an investment guarantee for no expropriation and nationalization of private investment except in the case of public interest (Investement Law, 2012; Investement Proclamation, 2020). In

the case of appropriation of private sector investment, the government is required under the law to pay compensations on the prevailing market value of the asset (Investement Proclamation, 2020). An interesting provision of the new investment proclamation reflects the government's willingness to engage in the arbitration to resolve any difference with foreign investors under Article 28 (Investement Proclamation, 2020). Nonetheless, the place of arbitration (local or international) is left to the choice of any of the parties without seeking the other's consent.

3.4 Financial Regulation of Ethiopia

The Ministry of Finance of Ethiopia is authorized under Proclamation No.648/2009 to ensure that systems are established for planning and allocating of public resources for their proper utilization (EFDRE, 2009). The Ministry is also mandated by law as the only public body to borrow money and issue guarantees on behalf of the Federal government. In accordance with the Council of Ministers' Regulation No.190/2010, the Ministry issues guarantees for the performance of obligations provided that the loans required are used to finance the implementation of projects which are assigned priority area of development by the government (FDRE, 2010). The Development Bank of Ethiopia, which is the policy bank of the government, also has restricted lending to these priority areas excluding long term infrastructure financing.

Since the priority areas identified by the government are manufacturing, agro-processing, mining industries and commercial agriculture, infrastructure project financing and guarantee for the private sector will become a significant challenge for PPP investors in Ethiopia. It is also noticeable that the country does not have a capital market to generate capital injection to infrastructure projects. Nevertheless, Ethiopia has established an agricultural commodity market that is owned and operated by the government. The importance of establishing of independent capital market in Ethiopia asserted by many studies to enhance the government's effort to attract the private sector to invest in long term infrastructure projects (Ruecker, 2011).

The National Bank of Ethiopia is also responsible for the regulation and supervision of commercial banks in Ethiopia. There is strong regulation of banking services of 17 commercial banks (16 private and 1 public) in Ethiopia (Cepheus, 2019). According to Directive No.SBB/65/2017 issued by the National Bank of Ethiopia, a bank's aggregate equity investment in all non-bank businesses are limited not to exceed 10% of its net worth (NBE, 2017). This will limit the commercial banks'

ability to lend for long term infrastructure development. Thus, the government of Ethiopia needs to reform the banking services to cater infrastructure financing to attract foreign direct investment and increase the availability of credit and foreign exchange to the private sector (IMF, 2016). The African Development Bank also reported that the low access to finance the private sector projects could endanger the government economic success by crowding out the private sector participation in the economy (AfDB, 2015). Thus, local financing for infrastructure in the form of PPP has not yet been developed in Ethiopia.

3.5 Sector Policy and Regulation for PPP Implementation

Sectorial policies and regulatory frameworks need careful consideration before embarking on PPP projects. Governments often establish specific policies and laws to regulate the private sector engagement with the public institutions and across government agencies in public infrastructure delivery (World Bank, 2014). The Ethiopian legal system has a hierarchy of documents based on the enacting body of the government, as shown in Figure 3.1. Ethiopia follows a constitutional Federal government arrangement where each region has its autonomous administration. The constitution is the supreme law of the country. In compliance with the provisions of the constitution, the Federal Parliament is the responsible body to enact proclamations. To this end, the council of ministers headed by the Prime Minister and heads of ministry offices are authorised to issue regulations and directives, respectively. As the country legal system operates under a civil law jurisdiction, there may be specific laws that apply to aspects of the PPP process (World Bank, 2014). Thus, sector policies and regulatory frameworks for PPP implementation in Ethiopia and their interdependence are discussed in subsequent sections.

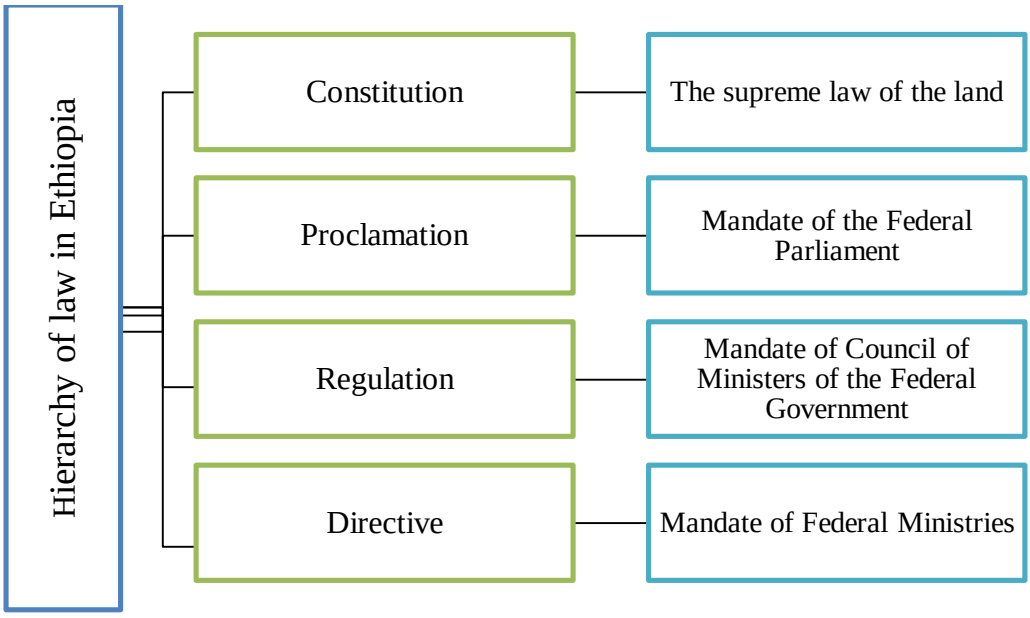

Figure 3. 1 Hierarchy of Law in Ethiopia

3.5.1 Road Sector Policy and Regulation

The Ethiopian Roads Authority (ERA) was established with the professional support of the American Bureau of Public Roads to construct and maintain roads in 1951 (ERA, 2001). ERA had been contracting out road construction and maintenance works to local and foreign companies up to 1974. During this period, the design and feasibility studies were undertaken by foreign companies. During the communist government ruling (1974-1991), only local companies and in-house construction (under forced account) were allowed to be involved in road construction and maintenance works due to political ideology. After the communist ruling was overthrown in 1991, ERA started to contract out road construction and maintenance works to local and international companies again.

3.5.1.1 Road Sector Reform

Major road construction in Ethiopia has been undertaken under the road sector development programs since 1997. This is after ERA was re-established through Proclamation No.80/1997 to prepare and implement short- and long-term plan and programs for the road sector on behalf of the Federal government of Ethiopia (FDRE, 1997). Additionally, ERA was mandated for the selection of contractors and consultants to engage in road projects, declaring any road as a toll road,

collecting user fees and transfer it to the Ethiopian Road Fund (FDRE, 1997; FDRE, 2011). The Road Fund was also established in 1997 to collect fund mainly from fuel levy, annual vehicle license renewal fee, overloading fee to finance road maintenance (Road Fund Proclamation, 1997). During this period, five consecutive road sector development programs have been implemented, and the road network of the country improved (ERA, 2020). The Ethiopian road sector further saw a reform during the split of the in-house construction wing of the Authority into a separate entity to operate on a commercial basis under Public Enterprises Agency in 2011 (Regulation No.247/2011, 2011).

In this period of reform and after the construction and operation of the first expressway, Addis Ababa - Adama Expressway, the Ethiopian Toll Roads Enterprise was also established through Council of Ministers Regulation No. 310/2014 with mandates to provide toll road services and maintenance within the boundaries of toll roads (FDRE, 2014). Nonetheless, the relationship between the two government entities (ERA and Toll Roads Enterprise) responsible for road management has not been dealt with in the regulations properly, as shown in Figure 3.2. Both ERA and Toll Roads Enterprise report to the Ministry of Transport; however, there are no provisions on how these institutions interact in road construction and management in Ethiopia.

Despite significant progress achieved in improving the road network of Ethiopia, the road sector development program has faced many challenges in areas such as the backlog of maintenance works, high cost and time overruns, and low quality of project outputs, unavailability of road sector policy and strategy and demand for greater efficiency in all operations (ERA, 2018).

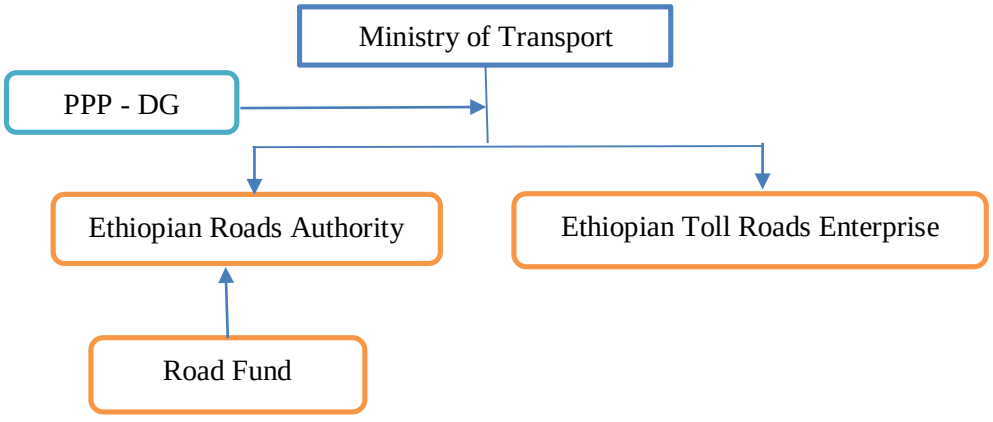

Figure 3. 2 Institutional Structure of the Road Sector

The road sector development has been financed by government budgetary sources and bilateral and multilateral lending institutions throughout all the years (ERA, 2020). It is important to note that the road sector policy and strategy do not consider the private sector as a source of finance through PPP (GTP-II, 2016). Based on the experience of the first toll road, the government need to issue clear policies and regulations to the road sector financing and operation by the private sector. The intention of the government to attract private sector investors to the road sector should be communicated to the public and private sector stakeholders with comprehensive policy provisions (Delmon, 2017). To this effect, the overall infrastructure policy of the country needs to be developed.

3.5.2 Energy Sector Policy and Regulation

The energy sector mainly incorporates the power sector and the oil and gas sector. This study focuses on the power sector public-private partnership, usually called independent power projects (IPP). IPP may be defined as a project whereby the private partner takes the responsibility of financing the design, construction, operation and maintenance of a power project with a long-term power purchase agreement (PPA) with a state utility or another off-taker (Eberhard, et al., 2016). In the practical arrangement, most of the IPP projects in Africa demand strong public-private partnership (PPP) than the conventional IPP model defined above (Eberhard, et al., 2016). In this case, governments contribute in kind or provide equity and debt in financing IPP power projects in Africa, inclining to a public-private partnership.

3.5.2.1 Institutional Structure of the Power Sector in Ethiopia

Ethiopia has a vertically integrated power sector governance with state-owned Ethiopian Electric Power (EEP) and Ethiopian Electric Utility (EEU) monopoly. The EEP was mainly responsible for power generation, transmission and distribution until the formation of EEU in 2013, which is mandated to administer, operate and maintain transmission lines and substation less than 66kilovolt, as shown in Figure 3.3.

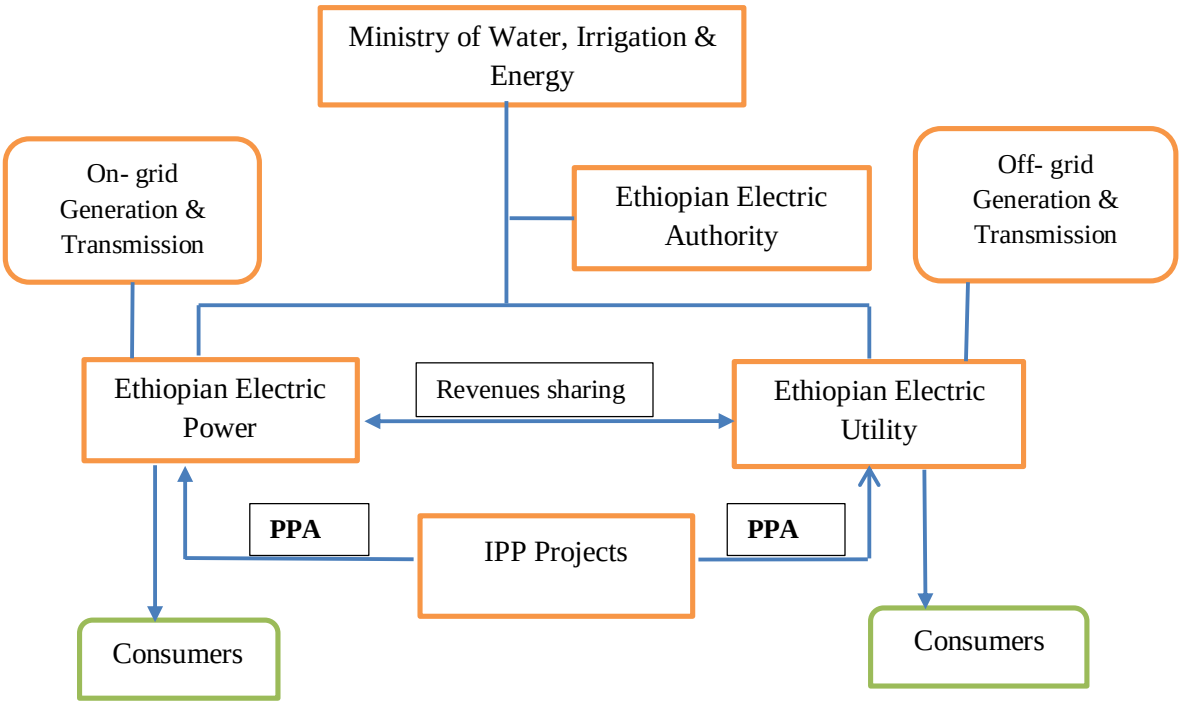

Figure 3. 3 Governance of the Ethiopian Electricity Market

3.5.2.2 Power Sector Reforms in Ethiopia

Electrification was introduced to Ethiopia in 1898 when a diesel-powered generator (gift from the German government) was used to electrify the National Palace (EEP, 2020). The country started building hydropower dams with a capacity of 3MW at the Akaki River in 1912. Subsequently, the Ethiopian Electric Light and Power Authority (EELPA) was established in 1956 (EEP, 2019). EELPA was responsible for the regulation and operation of the power sector, including generation, transmission and distribution, until 1991. Following the change of government and economic policy, the country started to reform the energy sector by issuing the energy policy in 1994 (Teferra, 2002; Girma, 2020). The reform of the sector was needed mainly due to the poor technical, commercial and financial performances of the sector institutions (Girma, 2020). Based on a study of the performance of EELPA, a reform was undertaken to enable it to operate on a commercial basis, with the government providing regulatory oversight (Teferra, 2002). Power sector reforms play a significant role in promoting private sector participation to improve sector performance (Eberhard, et al., 2016). Commonly, power sector reforms entail corporatization,

commercialization, the passage of the requisite legislation, establishment of an independent regulator, the introduction of IPPs, unbundling, privatisation of generation and distribution assets and opening up for a market competition (Eberhard, et al., 2016; Turkson, 2000). The power sector in Ethiopia passed through two reform phases (Girma, 2020).

3.5.2.2.1 First Phase of Reform (1994-2013)

In the first phase of the power sector reform, EELPA was corporatized as the Ethiopian Electric Power Corporation (EEPCo) with the mandates of generation, transmission and distribution operations of the power sector under Regulation No.18/1997 (Regulation No.18/1997, 1997). The Electricity Agency was also established under Proclamation No.86/1997 which was accountable for the former Ministry of Mines and Energy with the mandate of regulation and supervision of the energy sector (Proclamation No86/1997, 1997). Detail mandates were not issued to EEPCo under the previous regulation (Regulation No.18/1997). Thus, Regulation No.170/2009 was enacted to enable it to involve in power generation, transmission, distribution, sell and purchase of electric power from independent power producers (Regulation No.170/2009, 2009). As such, the operation side of the sector was handled by the EEPCo until 2013.

During this period, only hydropower generation was allowed to local and foreign private sector investment without capacity limitations (Proclamation No. 37/1996, 1996; Proclamation No. 116/1998, 1998). Nevertheless, the generation and supply of electric power below 25MW were reserved to the domestic private sector only under these regulations. After more than a decade, the government decided only to monopolise power transmission and distribution through the national grid. It opened the generation sector to the private sector (Proclamation No.769/2012, 2012). Though there was a strong desire from local and international private sector developers to participate in the power sector as IPPs (Girma, 2020), due to various reasons to be addressed in this study, the private sector involvement in the sector could not be realized.

3.5.2.2.2 Second Phase of Reform (2013 - to date)

In the second phase of the reform, the unbundling of the operation side (EEPCo) was started by forming two entities; the Ethiopian Electric Power (EEP) and the Ethiopian Electric Utility (EEU). EEP was mandated to the generation and transmission of electricity in the country, including

managing the Universal Electric Access Program (UEAP) (Regulation No.302/2013, 2013). EEU was responsible for distributing electricity in the country (Proclamation No 303/2013 , 2013). Following this, the government contracted out to the private sector (Power Grid Corporation of India Ltd) the management of EEU to improve its performance and induce modern utility operation techniques during the transition period (Girma, 2020).

Afterwards, the Electricity Agency was elevated to the Ethiopian Energy Authority(EEA) with more duties and responsibilities of regulating and supervising the energy sector (Proclamation No. 810/2013, 2014; Regulation No.308/2014, 2014). Further obligations were given to EEA to license and approve the requests of independent power producers in 2019 (Regulation No.447/2019, 2019). Starting from 2016, the state-owned enterprises, EEP and EEU, were tasked with clear responsibilities (Regulation No.381/2016, 2016; Regulation No.382/2015, 2016). EEP was mandated with the generation and transmission of power on the national grid. It was also authorised to administer, operate and maintain transmission lines and the substation of over 66 kilovolt. EEU was tasked with the responsibilities of distributing power and off-grid generation and transmission lines below 66 kilovolt. The Universal Electric Access Program (UEAP) was also transferred to EEU under Regulation No.382/2015. The Ethiopian government initiated UEAP to provide universal access to electricity to all citizens by 2025, supported by many international donors such as USAID, UNDP and the African Development Bank (ESMAP, 2019). It is interesting to note that the second phase of the power sector reform has seen significant private sector investment in the geothermal sector, considered a case study in this research.

3.5.2.2.3 Installed Power Generation Capacity of Ethiopia

Currently, the state-owned EEP generates 4,269 MW of electric power in total from different sources. This includes 14 hydropower (3,814 MW), six diesel (99 MW), one geothermal (7MW), three wind farms (324 MW) and one biomass/waste (25 MW) power plants as depicted in Figure 3.4 (EEP, 2020). Hydropower is the primary energy source in Ethiopia, accounting for nearly 90% of the installed capacity, followed by wind power generation (7.6%). The installed capacity of power from diesel plants are reserved for emergency purpose. The geothermal energy accounts for an insignificant portion of the total installed capacity (0.2%).

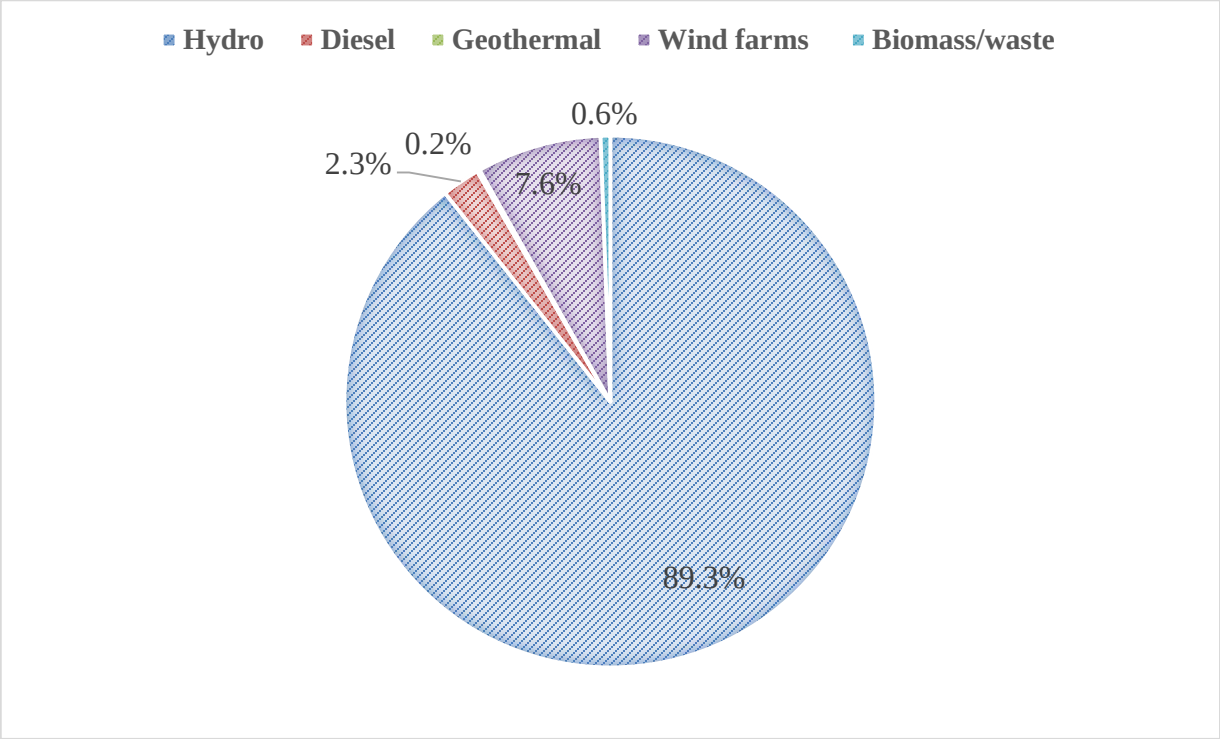

Figure 3. 4 Installed Power Generation Capacity of Ethiopia (EEP, 2019)

3.6 Public Procurement Regulation in Ethiopia

PPP legislation gives the government the responsibility to choose the right private partner through transparent and competitive procurement rules and procedures (Dewulf, et al., 2012). To this effect, the public sector partner should make sure that a conducive environment is in place by establishing a legal and regulatory framework and organising competent contracting authority to properly monitor and evaluate PPP projects (Kwak, et al., 2009). The foremost reason for engaging the private sector through a partnership is to achieve value for money through the private sector efficiency and effectiveness. To ensure value for money in PPP procurement, the public sector must understand different analysis techniques, including the most popular Public Sector Comparator (Soomro & Zhang, 2010). Value for money analysis techniques with other essential parameters such as environmental and social factors can ensure sustainable infrastructure projects and subsequent economic growth (Patil & Laishram, 2017). It is also necessary to proactively determine at the pre-contract phase the extent of flexibility required in the concession contract to absorb possible future changes of PPP projects (Demirel, et al., 2017).

All government procurement in Ethiopia is administered under the Federal Government Procurement and Property Administration Proclamation (No.649/2009) except for some special procurement arrangement for military and security reasons. This proclamation applies to all Federal government procurement and property administration activities (Public Procurement Proclamation, 2009).

Under this proclamation, the government had expressed its intention to engage in PPP procurement by providing standard and acceptable definitions for forming the partnership and the concessionaire under Article 2(27) and (28), respectively. The Ministry of Finance was also responsible for issuing subsequent directive specifying the rules and procedures for the procurement of PPP projects under Article 34 of the same proclamation (Public Procurement Proclamation, 2009). Nevertheless, no specific directive was issued to administer PPP procurement by the Ministry for nearly a decade. Except for the above definition of PPP in the country's procurement law, the procedures to select the private partner and the role of the public sector were not apparent until 2018. This delay in issuing directive may be construed as a lack of government commitment to engage the private sector in infrastructure partnership. Countries like Kenya with similar public procurement reform have gone through a rigorous PPP arrangement with sufficient policy and regulatory framework since 2009 (Gordon, 2018). To fill this gap, the government of Ethiopia has attempted to establish a PPP policy and regulatory framework, as discussed in the subsequent section (PPP Proclamation, 2018).

3.7 Public-Private Partnership Procurement in Ethiopia

The Ethiopian parliament enacted the PPP Proclamation No.1076/2018 in February 2018, and currently, it is in the full implementation stage. The proclamation under Articles 8 and 10 established the PPP Board and PPP Directorate General (PPP Unit) respectively to achieve the country’s development objectives by ensuring that PPP is carried out as per the provisions of the proclamation (PPP Proclamation, 2018). The PPP Board is the highest governing body of PPP procurement authorised in the law.

3.7.1 Concessionaire Selection Method of PPP

The selection of the right private partner virtually affects the success of a PPP project. This selection process depends mostly on the tendering process's comprehensiveness, a suitable concessionaire evaluation method and a set of PPP project evaluation criteria (Kwak, et al., 2009). To this effect, the public sector usually develops guiding documents to assist the procurement process of PPP projects, including regulations, directives, guidelines, standardised tendering documents and contract forms (Zhang, 2004). The standard transparent and competitive tendering process in PPP project mainly includes the invitation of potential private partners to express their interest to participate; qualified bidders will be selected to submit their proposal, evaluation of submitted proposal and negotiation with the preferred bidder or private partner.

There are also other PPP tendering processes that are less preferred than competitive biddings, such as direct negotiation, competitive dialogue and unsolicited proposal (Delmon, 2017). The Ethiopian PPP Proclamation provides different tendering procedures to be followed by the implementing agencies. These procedures comprise five procurement routes: open bidding, two-stage tendering, competitive dialogue, direct procurement and unsolicited proposals (PPP Proclamation, 2018). Moreover, the competitive bidding procedure is emphasised as the preferred method of PPP project procurement in the law. However, the other techniques can be used, but only when specific requirements stipulated in the proclamation are satisfied. The tendering processes of PPP are more complex and more costly than traditional infrastructure procurement approach (Zhang, 2004). Thus, Ethiopia's government is required to issue a specific procurement procedure communicated through regulation, directive, guidelines, and standard bidding documents augmenting the generic procedures indicated in the proclamation for successful implementation of PPP projects. Additionally, specific rules and procedures are required to entertain privately initiated projects (unsolicited proposals) to avoid any complications and potential collusive action in the procurement process between public officials and proponents.

3.7.2 PPP Tender Evaluation Method

A suitable tender evaluation method and setting appropriate selection criteria are essential issues in the private sector partner selection process (Zhang, 2004). Putting the bid evaluation criteria systematically can also help bidders understand the public sector’s requirements and enhance the quality of bid expected (Delmon, 2017). According to Zhang (2004), most evaluation criteria are

often classified into four categories: financial, technical, managerial, safety, and environmental issues. After the bidders submit their proposal for a PPP project, their proposals' assessment starts in compliance with the evaluation criteria specified in the request for proposal (RFP). In this respect, some of the tender evaluation methods that are commonly used in PPP projects are the simple scoring method, Present Net Value (NPV) method, multi-attribute analysis, Kepner-Tregoe decision analysis technique, two-envelope method, NPV method plus scoring method, and binary method plus NPV method (Zhang, 2004). Innovative ideas can be brought forward by the private sector when there is room for flexibility and innovation in the PPP procurement with clear rules and procedures to entertain such privately initiated projects (Osei-Kyei, et al., 2018).

The Ethiopian general PPP Proclamation has indicated that the detail evaluation methods and criteria for PPP projects procurement would be issued through subsequent directives (PPP Proclamation, 2018). Thus, the government needs to finalise the remaining documents to enable the public agencies expeditiously and the private counterparts to become conversant with the PPP procurement procedures. Based on the preceding literature review, the significance of the following ten procurement-related issues shown in Table 3.1 were identified to be assessed through a questionnaire survey in the road and energy sectors for PPP procurement in Ethiopia.

Table 3. 1 PPP Procurement Issues

Procurement Issue	Source
Need sector-specific regulation for PPP procurement	(Kwak, et al., 2009; Gordon, 2018)
Require PPP procurement directive	(PPP Proclamation, 2018)
Develop a set of evaluation criteria for PPP	(Zhang, 2004; Delmon, 2017)
Private and public sector capacity building	(World Bank, 2018)
Use the value for money analysis	(Soomro & Zhang, 2010)
Implement innovative procurement methods	(Osei-Kyei, et al., 2018)
Ensure long term sustainability	(Patil & Laishram, 2017)
Allow flexibility in the procurement process	(Demirel, et al., 2017)
Establish a well-structured tendering process for PPP	(World Bank, 2017)
Develop an appropriate concessionaire evaluation method for PPP	(Zhang, 2004; Kwak, et al., 2009)

3.7.3 PPP Directorate General

The arrangement of separate PPP units to assist the development of PPP projects and the public sector's capacity has been advocated in many countries. PPP unit can give the private and the public agencies a single point of contact to avoid confusion and provide the uniform purpose of project development (Delmon, 2017). In Ethiopia, the PPP Directorate General (PPP Unit) has been established under Proclamation No. 1076/2018, which is accountable to the Ministry of Finance to advocate and promote PPP projects in Ethiopia (PPP Proclamation, 2018). The PPP proclamation assigns responsibilities to different government institutions established in the law, such as the PPP Board, Ministry of Finance (MoF), PPP Directorate General (PPP-DG) and implementing agencies, as summarised in Figure 3.5. PPP units with more power and autonomy are observed to perform better than mere advisory roles (Delmon, 2017).

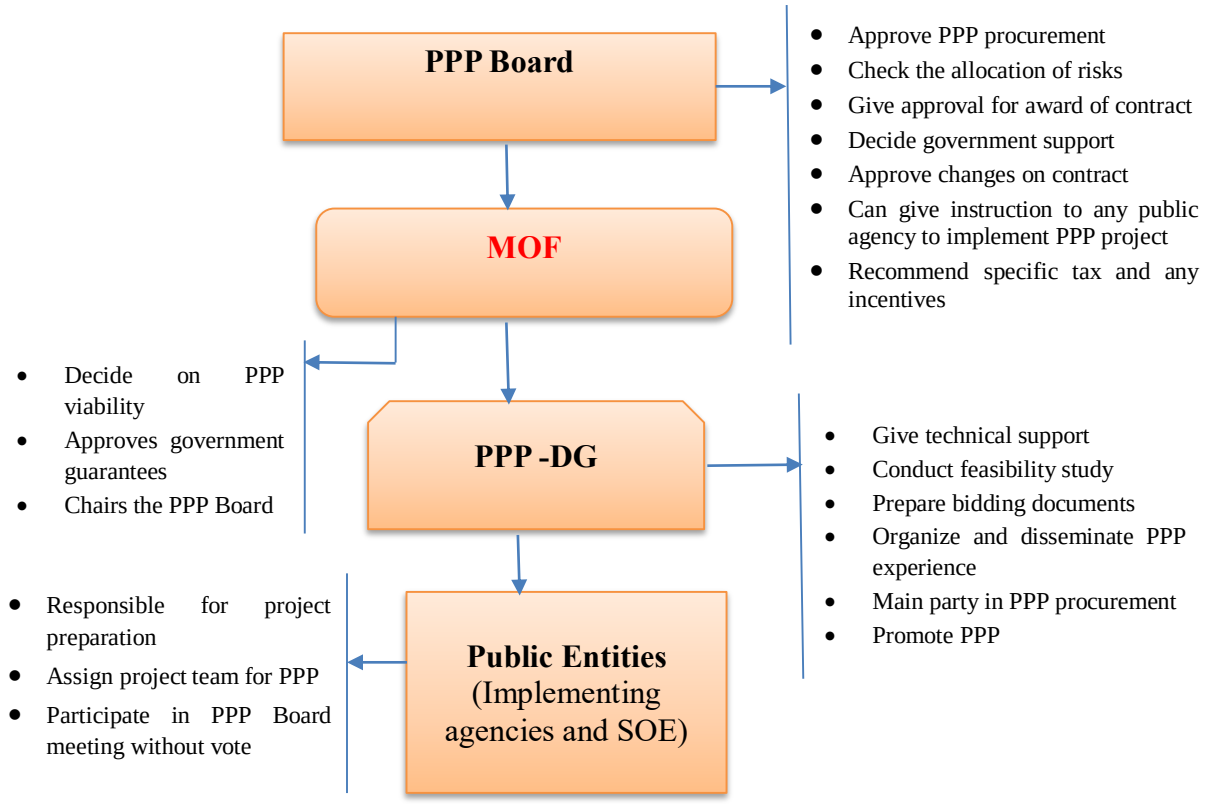

Figure 3. 5 Ethiopian PPP Policy Frameworks

3.8 Support to PPP Project Development

Governments in developing countries are required to establish the right legal and regulatory framework for the private sector participation in infrastructure financing. In addition to this, well-structured government supports to specific PPP projects through various mechanisms also play a significant role in enticing the private sector's interest to invest. Though government support may not change an unviable project to a good one, it enhances project attractiveness and feasibility when applied to the right project (Delmon, 2017). It is also essential to develop the domestic capital and debt instruments to facilitate local currency financing to the private sector to support infrastructure development with lesser financing costs and extensive-term of repayment (BCG, 2017). However, it is crucial for the public and the private partner to announce the government support package to the project well in advance in the bidding documents, increasing competition and transparency in the procurement process (Delmon, 2017).

The PPP proclamation of Ethiopia under article 47 provides government support to PPP investors in various forms, including direct payments to the private party as a substitute for tariffs or fees for the use of the facility or its services. There is also a provision in the Proclamation that the government can participate in PPP projects by contributing in the form of asset transfers and land usage rights. Additionally, the government provides payment guarantees, securities, undertaking or binding letters of comfort and guarantees for the performance of obligations under project agreements through the Ministry of Finance (PPP Proclamation, 2018).

Furthermore, guarantees are availed by the government for the protection of investment under the investment proclamation of Ethiopia. Thus, the proclamation under Article 25 gives investment guarantee for no expropriation and nationalization of private investment except in the case of public interest where appropriate compensations would be effected in conformity with the requirement of the law as part of the protection of property rights (Investement Law, 2012). The compensations would be paid in advance based on the prevailing market value of the asset (Investment Incentive Regulation, 2012). The investment law of Ethiopia has also provisions for various incentives mechanisms for power generation by independent power producers, as shown in Table 3.2.

Table 3. 2 Incentive to Energy Generation in Ethiopia

Incentive	Description	Sector	Awarding
Business Income Tax exemption in Electricity generation, transmission and distribution (up to five years)	Business Income Tax exemption reduced by one year if the investment is in Addis Ababa and Special Zone of Oromia surrounding Addis Ababa	Electricity generation, transmission and distribution (transmission and distribution is reserved for government only)	Ethiopian Investment Commission
Loss carry forward for up to five years	The loss incurred during the income tax exemption period can be carried forward for half of the exemption period after expiry, the maximum limit being five income tax period	Electricity generation, transmission and distribution	Ethiopian Revenue and Customs Authority, Regional Revenue Offices (for domestic investors)
Exemption from customs duties and other taxes (VAT, surtax, withholding and excise tax)on imported construction materials	Construction materials are defined as essential inputs necessary for the construction of investment projects. (Investment Proclamation No. 769/2012 Article 2.6(as amended))	Electricity generation, transmission and distribution	Ethiopian Investment Commission, Regional Investment Offices (for domestic investors)
Priority forex access	Transparency in Foreign Currency Allocation and Foreign Exchange management Directive No. FXD/46/2017	manufacturers, construction companies and conversion/transfer of sales from shares or liquidation of FDI	National Bank of Ethiopia
Access to a foreign loan (with debt; equity ratio of 60:40 for foreign investors)	National Bank of Ethiopia's External Loan and Supplier's Credit Directive No. FXD/47/2017 stipulates: a) Foreign investors can raise to 60% of their finance through a loan from foreign markets	Economy-wide for foreign investors	National Bank of Ethiopia

The Ethiopian government has entered into bilateral investment treaties with about thirty developed and developing countries, giving additional protection for investors originating from foreign countries (UN-ECA 2016). Ethiopia has ratified the New York Convention in 2020 for

admission of arbitral proceeding of investment disputes. These treaties have an effect during the implementation of PPP projects.

Ethiopia has undergone various economic reforms since 1992 to encourage the private sector's participation, including freeing foreign trade, privatising most of the public assets, and enacting liberal investment law (AfDB, 2016). Though many efforts are underway to improve the investment climate, the evaluation of the regulatory environment for ease of doing business in Ethiopia indicates a rank of 159 out of 190 countries (ranging from 1 for best performance and 190 for the lowest) (WBG 2019).

3.8.1 Multilateral Banks Support to PPP Projects

PPP investment can also be attractive to the private sector through various guarantees provided by multilateral lending and investment institutions for developing countries with weak credit profiles. Multilateral development banks' support in providing guarantees promotes PPP investment since the government’s assurances alone may not be adequate to make projects financially viable in such countries (Jett, 2018). According to Jett (2018), multilateral development banks' guarantees cover many risks comprising political risk, breach of contract for government payments, and compensation to lenders in case a project is terminated.

Guarantees provided by international financial institutions have become significant long term instruments for the private sector participants to enter into emerging markets (AfDB, 2016). These multilateral and bilateral institutions' role in financing private sector led infrastructure development has been increasing as the official assistance and aids for developing countries are declining (Merna & Njiru, 2002). Among international financial institutions supporting PPP projects, the World Bank Group and the African Development Bank Group are the main stakeholders in providing guarantees and technical support to Ethiopia.

3.8.1.1 The World Bank Group

Among multilateral banks, through its affiliated institutions, the World Bank Group plays significant roles in facilitating financial resources to developing countries (AfDB, 2016). The World Bank Group members include the following organizations with different missions (Merna & Njiru, 2002).

- International Bank for Reconstruction and Development (IBRD)
- International Development Association (IDA)
- International Finance Corporation (IFC)
- Multilateral Investment Guarantee Agency (MIGA)
- International Centre for the Settlement of Investment Disputes (ICSID)

IBRD and IDA financial support mainly focus on official development assistance through the governments of middle- and lower-income countries, respectively. Whereas the supports of IFC, MIGA and ICSID are more concentrated on the private sector investment. IFC involves in providing equity, loans and guarantees directly to private sector investment in infrastructure based on the financial and commercial viability of projects (Merna & Njiru, 2002). The service of ICSID is focused on resolving disputes between governments and investors through conciliation and arbitration. Since Ethiopia is a signatory of ICSID, it facilitates the resolution of disputes and enhances investors' confidence in PPP projects (AfDB, 2016). MIGA issues guarantees against losses related to currency convertibility, expropriation, war, civil disturbance, and contract breach to boost foreign private sector investment in developing countries (Merna & Njiru, 2002). Ethiopia joined the membership of MIGA since 1991 (AfDB, 2016).

3.8.1.2 The African Development Bank Group

The African Development Bank Group (AfDBG) is another multilateral support source for PPP projects in Africa. AfDBG has a strong commitment under its flagship initiative of the New Deal on Energy for Africa to invest in the power sector by providing financing and guarantee, co-financing and syndication to public and private investments in Africa (African Development Bank Group 2015).

Ethiopia is also a member of the African Trade Insurance (ATI) agency since 2016. ATI provides guarantees against commercial and political risks for PPP projects (AfDB, 2016). The objective of ATI is to facilitate the flow of investors to the African continent by providing protections to investments against governments' coercive action. Subsequent to the above discussion, the ten PPP enhancing factors shown in Table 3.3 were drawn to investigate their influence on the interest

of the private sector to invest in the Ethiopian road and energy sectors through a structured questionnaire survey.

Table 3. 3 PPP Investment Enhancing Factors

Enhancing Factors	Source
Incentives to the private sector to invest in PPP projects	(OECD, 2014)
Protection of property rights	(Investement Law, 2012)
Bilateral investment agreements	(Salacuse, 1990; UN-ECA, 2016)
Investment guarantees by government	(Investement Law, 2012; Eduardo, et al., 2008)
Availability of credit and foreign exchange to private sector	(Garcia-Kilroy & Rudolph, 2017; AfDB, 2016; Dethier & Moore, 2012)
Guarantee/securities by the Ministry of Finance to lenders of PPP investment	(Jett, 2018; PPP Proclamation, 2018)
Development of local capital market	(BCG, 2017; Garcia-Kilroy & Rudolph, 2017)
Cost of doing business	(WBG, 2019)
Guarantees provided by the multilateral investment guarantee agency	(OECD, 2014)
Guarantees provided by multilateral lending institutions	(OECD, 2014)

3.8.1.3 Dispute Resolution Mechanism in Ethiopia

Considering the intricacy of PPP projects transaction and the stakeholders' diversity, the dispute resolution mechanism is crucial to project success (Delmon, 2011). As reported by Delmon (2017), among conflict management mechanisms, arbitration is the most used method in PPP projects due to its flexibility and ease of award enforcement under most legal systems than mediation and litigation. However, though arbitration can provide the advantages of flexibility, speed and confidentiality in determining disputes between the public authority and the private partner, the Ethiopian civil procedure code prohibits arbitration of administrative contracts under Article 315(2) (Procedure, 1965). According to the civil procedural law, administrative disputes and matters between individuals and the government are only resolved by court rulings (Procedure, 1965). The situation is further exacerbated because Ethiopia's court system is incapable of judging such complex PPP contract arrangement involving technical and financial issues. This is a

common challenge in most jurisdictions to find capable court system to satisfy PPP stakeholders need to resolve their differences effectively (Delmon, 2017).

Understanding the drawbacks of the existing administrative law, the PPP proclamation under Article 61 allowed resolving disputes between the public partner and the private party according to the dispute resolution mechanism arranged by the parties in the contract agreement (PPP Proclamation, 2018). All dispute resolution mechanisms, including arbitration, are allowed in this Proclamation. The other challenge was the enforceability of foreign arbitral decisions in the Ethiopian court as the country had not ratified the New York Convention. In 2020, however, the Ethiopian parliament had approved the New York Convention after decades of delay to accept international arbitration decisions.

Though the proclamation provisions are the essential initial step to start PPP projects, there should be a comprehensive legal and institutional set up to capture infrastructure-related disputes in Ethiopia. Without a precise dispute resolution mechanism in the country, local and foreign investors' confidence may not be won. Thus, the government needs to draft an accurate dispute settlement regulation that enables the private and the public sector to settle their difference cost-effectively.

3.9 Summary of the Chapter

This chapter has presented the review of relevant policies and regulations of Ethiopia for PPP implementation. Therefore, informed by the review of the literature review discussed in this chapter, a questionnaire and interview questions were developed to survey the perception of professionals from the road and energy sectors to assess Ethiopia's PPP environment. Finally, the methodology used to analyse the collected data from a questionnaire survey and interview is discussed in the subsequent chapter.

CHAPTER FOUR: RESEARCH METHODOLOGY

4.1 Introduction

The research approach and procedures adopted to undertake the study are described in this chapter, including data source and method of analysis. It also provides a description of strategies adopted in research design and techniques for the analysis of data.

4.2 Conceptual Framework of the Study

PPP procurement scheme is a complex contractual arrangement having broader influencing spectrum. It can be applied in different forms across countries, sectors and projects (Carbonara, et al., 2013). In this regard, evaluating the enabling environments in the context of country level, sector level and project level would provide the opportunity to comprehensively understand the success factors and challenges in implementing PPP in a country as shown in Figure 4.1. To achieve this objective, wide-ranging literature review of international best practices of PPP from developed and developing countries, the reasons why governments pursue PPP procurement route, what factors influence the success of PPP implementation, what policy and regulatory provisions are required and selected PPP case studies from the Ethiopian road and energy sectors were undertaken to test the ground for PPP implementation at the project level.

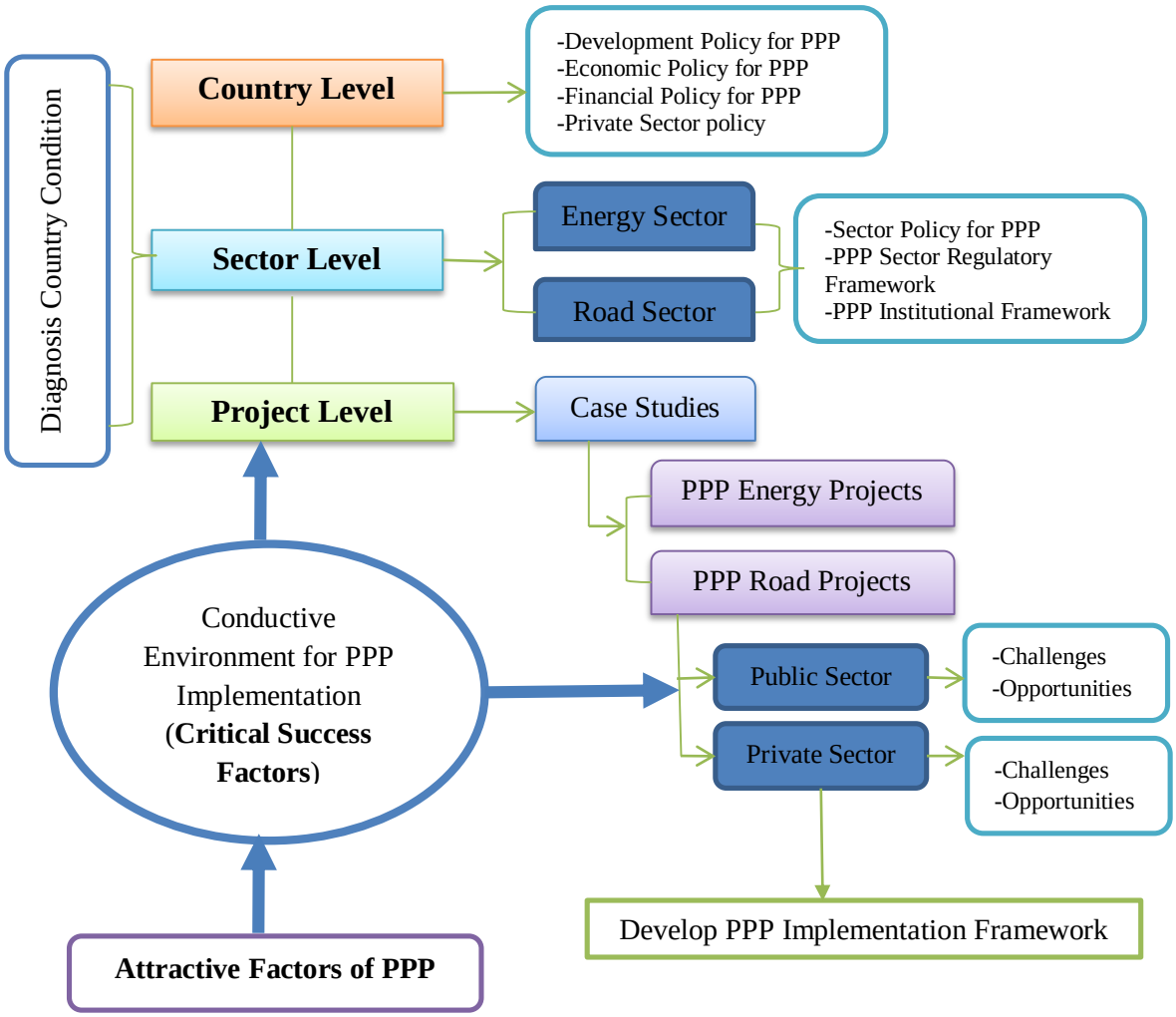

Figure 4. 1 Conceptual Framework of the Study

4.3 Research Process

The research consisted of mainly four stages as listed below and shown in Figure 4.2.

Stage 1: Review of published information and consultation with experts in the energy and road sectors to design the research purpose and methodology.

Stage 2: A detailed literature review of relevant published information on public-private partnerships for infrastructure development.

Stage 3: Data collection through interviews and questionnaire survey with practitioners in the Ethiopian road and energy sectors.

Stage 4: Data interpretation and analysis to draw conclusions and make recommendations for future research.

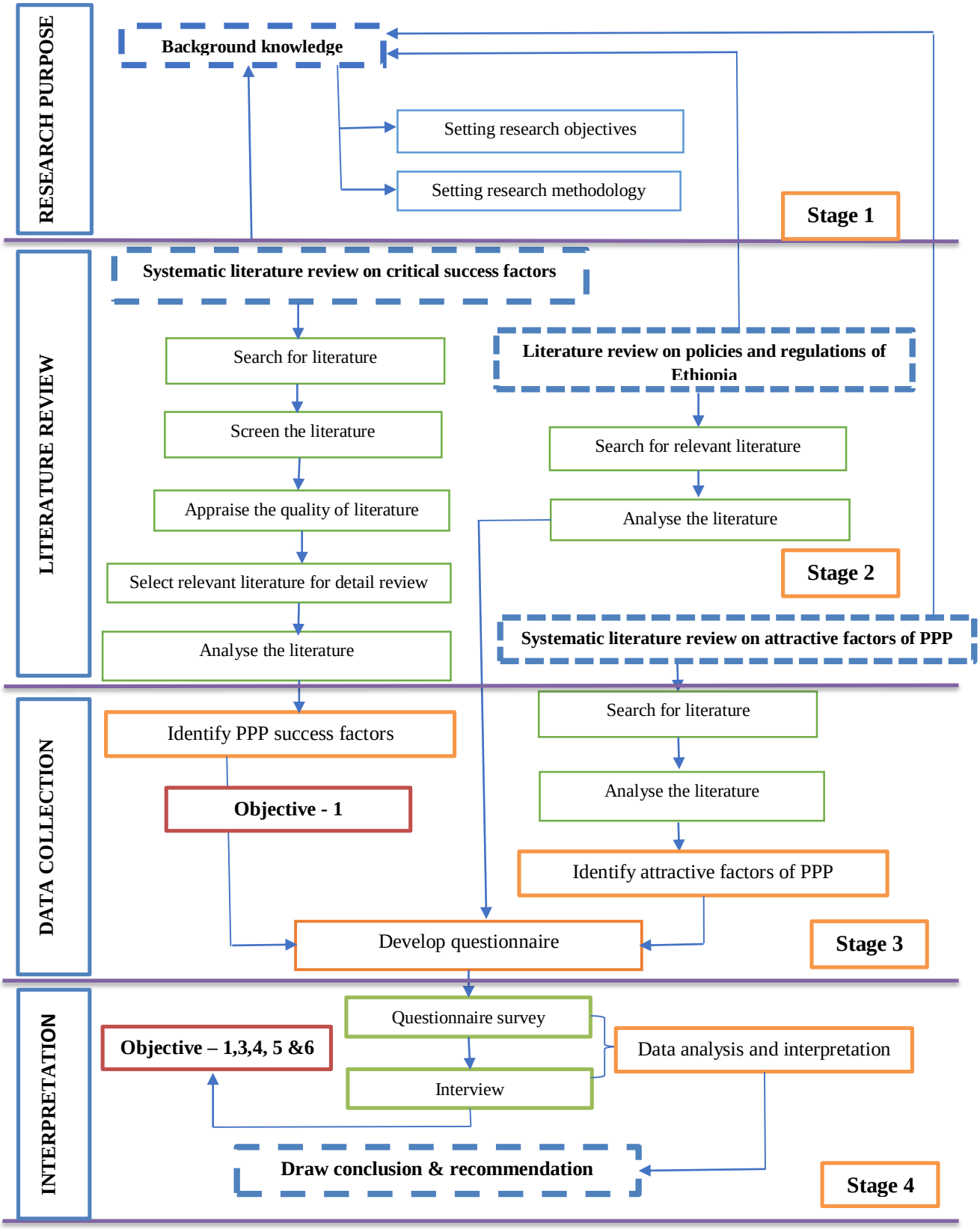

Figure 4. 2 Flow Diagram of the Research Process

4.4 Research Approach

The selection of a particular research approach will be governed by the study problem, the previous experience of the person conducting the research and the target audience of the study (Creswell & Creswell, 2018). The various approaches and their suitability are discussed in the subsequent sections. The research philosophy, design and method are discussed in the framework of the research approach, as shown in Figure 4.3.

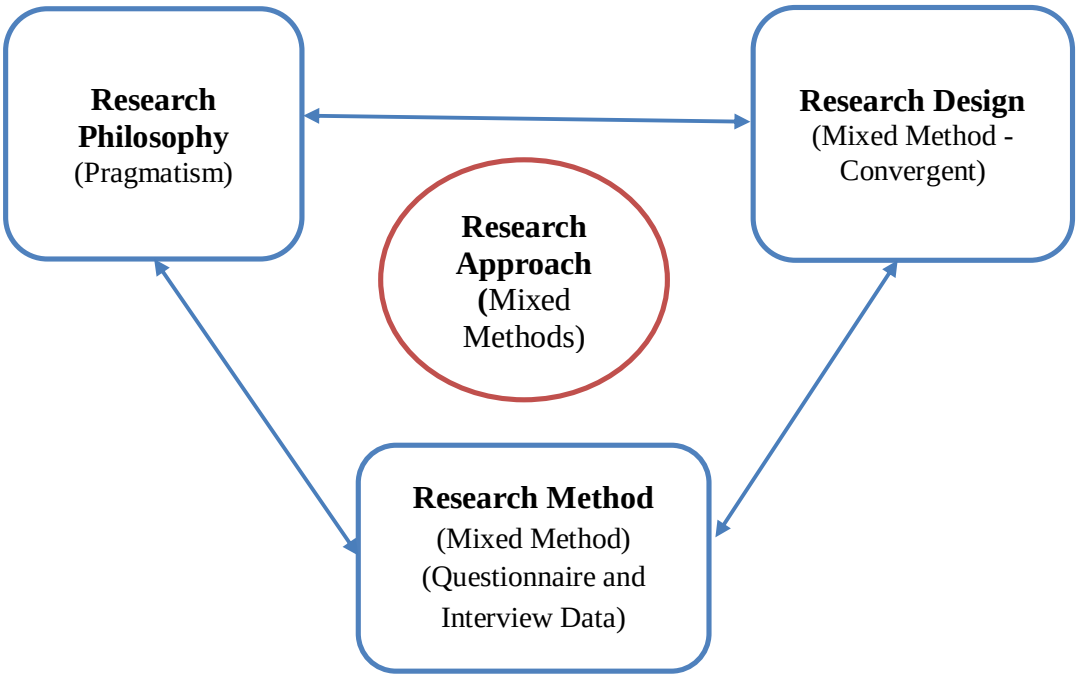

Figure 4. 3 The Framework of Research Approach

4.4.1 Research Philosophy

As presented in Figure 4.3, this study adopted a pragmatism research philosophy. There are three commonly discussed philosophical worldviews in research which are postpositivism, constructivism and pragmatism. The postpositivism also called the scientific method, is founded on the assumptions of deterministic philosophy (causes determine effects). The postpositivist assumptions are more appropriate for conducting quantitative research than qualitative research (Creswell & Creswell, 2018; Spencer, et al., 2014). On the opposite extreme, constructivism or

interpretivism philosophy concerns about the social construction of meanings of things or objects subjectively. According to this research philosophy, social communications, associations, and experiences shape the reality of our existence (Spencer, et al., 2014). In other words, the primary concern of the research is to understand the social makeup through the knowledge of people (Zukauskas, et al., 2018). This worldview is more suitable classically for qualitative research approach as the researcher relies on the participants' views of the subject being studied (Creswell & Creswell, 2018).

The pragmatism approach enables us to mix the postpositivist and constructivist world views to improve the quality of the research results. Postpositivist and constructionist worldviews disjoint in opposite poles of objectivity and subjectivity in their inquiry (Kaushik & Walsh, 2019). On the other hand, the pragmatism philosophy is located in the centre of the paradigm continuum in the research question (Kaushik & Walsh, 2019). According to this philosophy, the research problem mostly determines the research philosophy to be adopted (Zukauskas, et al., 2018; Kaushik & Walsh, 2019). Pragmatism worldview emphasises on the importance of a hybrid approach or plurality of methods to understand the research problem rather than committing to a single philosophy or technique (Creswell & Creswell, 2018). It does not also conceive the world as absolute unity (Zukauskas, et al., 2018) but focuses on solving practical problems in the real world (Kaushik & Walsh, 2019). This philosophical paradigm is employed in many applied research areas of social science, including the development of public policies (Revez & Borges, 2018). Thus, pragmatism approach provides the freedom to researchers to mix both qualitative and quantitative methods in their inquiry to be able to understand best the research problem (Creswell & Creswell, 2018). Furthermore, the mixed research approach allows us to strengthen the findings of the research by triangulating data collected by employing different methods. Thus, this study also adopted the pragmatism worldview of research approach in to embrace the advantages of the mixed method as further discussed in subsequent sections.

4.4.2 Research Design

Research designs or inquiry strategies are types of research investigation tools by posing questions following specific procedures and directions in a research undertaking. There are three main types of research designs called quantitative, qualitative and mixed research designs. In this study, a mixed-method of research design is followed, as shown in Figure 4.3 and discussed subsequently.

4.4.3 Mixed Methods Design

Based on our research question, the pragmatism approach enables us to choose different methods to suit our research objectives without methodological orthodoxy (Molina-Azorin, 2016). The advent of the qualitative research design attributed to the development of the mixed methods approach. Through time researchers have come to know that a complementary tactic between the quantitative and qualitative research may provide improved results than employing a single research method (Lune & Berg, 2017). Thus, the mixed research design approach involves incorporating the qualitative and quantitative designs inquiries in a research study to uphold the advantages and overcome the drawbacks of either of the two methods used alone (Creswell & Creswell, 2018). However, the main challenge of using mixed method is its demand for expertise in collecting and analysing both qualitative and quantitative data. Data collected and analysed through mixed methods can enhance the validity of interpretations by triangulating the results from different perspectives (Molina-Azorin, 2016). However, despite the advantages of engaging in mixed methods design, it also poses challenges to researchers, including demanding extensive data collection and analysis, requiring familiarity with qualitative and quantitative methods and consuming ample time for the process (Creswell & Creswell, 2018; Molina-Azorin, 2016).

There are there commonly used mixed methods design called convergent, explanatory sequential and exploratory sequential mixed methods. Convergent mixed-methods involve collecting qualitative and quantitative data in a single-phase approach to analyse them separately and finally combine and compare the findings to draw similarity or variation in the outcomes (Creswell & Creswell, 2018). This method enables to collect and analyse complementary quantitative and qualitative data to increase the strength and validation of the result (Hadi, et al., 2013). On the other hand, the explanatory sequential mixed methods follow a two-phase approach. The quantitative data collected and analysed first and succeeded with qualitative data collection and analysis to clarify any confusing and contradicting results in the former analysis stage (Creswell & Creswell, 2018). In this regard, the quantitative data collection and analysis is given priority in responding to the research question. Still, the qualitative data is used to elaborate on the findings of the quantitative phase (Hadi, et al., 2013).

Conversely, the exploratory sequential mixed methods are the reverse process of the explanatory sequential mixed methods with a three-phase approach. This method starts with exploring and

analysing qualitative data to develop features for next testing in the second phase. In the third phase, the quantitative test is conducted to collect and analyse data for interpretation (Creswell & Creswell, 2018). In this method, the priority is given to qualitative data collection and analysis, and it becomes the foundation of the quantitative phase to generalise its final results (Hadi, et al., 2013).

4.5 Research Methods

In this study, a convergent mixed methods design was employed, as shown in Figure 4.3. Both quantitative data through questionnaire survey and qualitative data through case study were collected and analysed separately. Finally, the findings were merged to develop a PPP implementation framework for Ethiopia based on the interpretation results, as discussed in the subsequent section.

4.5.1 Quantitative Data Collection

A questionnaire survey was carried out to collect quantitative data. Participants with adequate experience (at least five years) on the Ethiopian government policies and regulation towards public procurement were targeted. The complete questionnaire comprised of five parts which were:

- The respondents' professional background,
- Attractive factors of PPP projects in Ethiopia
- Critical success factors for PPP implementation,
- Government policies and regulations towards PPP, and
- Blank space was also provided to respondents for comments and suggestions at the end of the questionnaire.

Before distribution, a peer review of the questionnaire was conducted at the University of Birmingham and Ethiopia to validate the questionnaire using expert opinion. The aim of the pilot study was to iron out any ambiguities in the wording of the questions and appropriateness of the questions (Naoum, 2013). To this effect, three PhD, four MPhil and one MSc students from the University of Birmingham were contacted to comment on the questionnaire. In addition to this, three experts from the PPP Directorate General and three experts from the Ethiopian Electric

Power of Ethiopia were also used to review and provide feedback on the questionnaire. Their comments were used to prepare the final questionnaire.

The sample of the survey respondents was selected based on expert sampling method from the target population of the public, private and development partners working in road and energy sectors of Ethiopia to get reliable information. The advantage of this approach is that targeting professionals in the subject area of study provide the opportunity to collect reliable information (Bhattacherjee, 2012). The respondents were identified based on three main criteria; (i) they must possess adequate knowledge (at least 5 years) in the area of the Ethiopian government policies and regulations of infrastructure development; (ii) they have been involved very closely in the procurement of large infrastructure projects, or (iii) they have served as senior experts or managerial positions in their respective area of specialization. Each respondent was provided with a questionnaire in hard copy with a consent form, which confirms the respondent's agreement on the use of the data provided for the purpose intended. The survey aimed to ensure that the study sample was representative of the public sector, private sector and the development partners' perspective. As such, the target experts consisted of respondents drawn from various groups as listed below.

- ⇨ The World Bank Ethiopian Country Office
- ⇨ African Development Bank Ethiopian Office
- ⇨ PPP Directorate General of Ethiopia
- ⇨ The Ethiopian Electric Power
- ⇨ The Ethiopian Energy Authority
- ⇨ Ministry of Finance of Ethiopia
- ⇨ Federal Integrated Infrastructure Development and Coordinating Agency
- ⇨ Planning Commission of Ethiopia
- ⇨ Ethiopian Roads Authority
- ⇨ Addis Ababa City Roads Authority
- ⇨ International contractors and consultants working in Ethiopia
- ⇨ Local contractors and consultants

Eight government institutions and departments were contacted (Ethiopian Roads Authority, Ministry of Finance, Ethiopian Electric Power, Ethiopian Energy Authority, Federal Integrated Infrastructure Development and Coordinating Agency, PPP Directorate General of Ethiopia, Addis

Ababa City Roads Authority and Planning Commission) to represent the public sector considering their involvement in policy-making, procurement and financing of infrastructure projects in Ethiopia. The target respondents were senior experts and officials of the government departments.

Both contractors and consultants were surveyed from the private sector. Among the international and local construction companies operating in Ethiopia, respondents were selected from companies with adequate experience of working in the Ethiopian road and energy sectors (contracted at least 1 public project). The survey gathered data from senior managers of road contractors and consultants registered with the Ethiopian Ministry of Construction as Grade one (categorised based on their financial, equipment and human resources). From the multilateral institutions, the World Bank Ethiopian Country Office and the African Development Bank Ethiopian Office, experts working in procurement, transport policy planning and financial analysis were contacted. These experts were selected based on their knowledge and experience (worked at least 5 years) in the Ethiopian infrastructure development as they involved as a representative of the Banks in financing projects.

4.5.2 Quantitative Data Analysis

According to Naoum (2013), quantitative research objectively measures a problem in numbers based on a theory composed of variables. Quantitative data analysis produces quantifiable outcomes and conclusions derived from evaluating results from the literature and collected data (Fellows & Liu, 2008). The descriptive method of data analysis, including the measures of central tendency (mean score), were employed to investigate the distributions of the data given by the respondents (Naoum, 2013). Furthermore, the inferential method of data analysis was also used to measure the relationship between variables. Therefore, the analysis techniques that were used in this research study include the mean score ranking technique, *t*-test, reliability test, relative importance index (RII) and Kendall's concordance analysis, as explained below. The collected data were analysed with the aid of the Statistical Package for Social Science (SPSS) Version 26.

4.5.2.1 Mean Score Ranking Technique

The mean score ranking technique has been adopted by many researchers, including Ismail (2014), Robert et al. (2014), Cheung and Chan (2011), Cheung et al. (2012) and Zhang (2005), to establish the relative importance of factors as suggested by a group of respondents. In this study, the collected data from the questionnaire survey were also analysed using the same technique. The mean score (MS) for each factor/issue was computed by using formula 1:

$$MS = \frac{\sum(f.\ s)}{N} \qquad (1 < \text{MS} < 5) \qquad (1)$$

Where s = score set to each factor by the respondents, ranging from 1 to 5; f = frequency of each rating for each factor; and N = the total number of responses concerning that factor. The higher ranking was assigned to the factor/issue with a lower standard deviation when two factors score the same mean value (Kavishe, et al., 2018).

4.5.2.2 One-Sample t-test of the Mean Score

A one-sample *t*-test of the mean scores was carried out to measure the significance of the factors in influencing the implementation of PPP projects in Ethiopia. The rational in conducting the *t*-test was that instead of taking mean values above the average (3.0) as significant (on the 5-point scale), it was found appropriate to show the significance of the factor statistically above the average (Ochieng & Chileshe, 2016; Ling & Nguyen, 2013; Kavishe, et al., 2018). Thus, the limit for a 5-point scale was fixed at '3.5' (m = 3.5) and the analysis for the one-sample *t*-test was conducted. With this assumption, the null hypothesis "the identified factors/issues are not significant and less important" was rejected if the mean score was significantly greater than 3.5 at a significance level of less than 0.05. The *t*-test computation is as shown in formula 2 below (Nunnally, 1975):

$$t(df) = \frac{(M1-M2)}{SMD} \qquad (2)$$

Where:

M_1 = mean of the group one population;

M_2 = mean of the group two population; and

S_{MD} = the standard error of the difference between the two means.

4.5.2.3 Relative Importance Index (RII)

The relative importance index (RII) method was used to determine the relative importance of factors/issues as ranked by respondents, and the method has been utilized by many researchers (Aibinu & Odeyinka, 2006; Chileshe & Kikwasi, 2014; Kavishe, et al., 2018). The same approach is adopted in this study to set the level of importance of the factors in the Ethiopian road and energy sectors. The calculation for RII is as shown in formula 3 below:

$$RII = \frac{\Sigma W}{A.N} = (0.2 \leq RII \leq 1) \qquad (3)$$

Where:

W = the sum of scoring given to each factor by the respondents (ranging from 1 to 5);

A = the highest score (i.e. 5 in this case); and

N = number of respondents assigning the same scoring for the factor/issue.

The RII value ranges from 0 to 1 (0 not inclusive); the higher the agreement index, the more significant the factor ranked (Chileshe & Kikwasi, 2014). The lower bound value of 0.2(1/5) for the RII is the minimum possible score that could be obtained, assuming that all the respondents assigned the value of 1 for the particular factor/issue. The employment of RII in the ranking of factors strengthens the interpretation of mean scores and standard deviation when using the Likert scale (Holt,, 2014; Chileshe & Kikwasi, 2014). Moreover, the RII computed was also used to categorize the ranked factors/issues into three groupings of low, medium and high, as shown in Table 4.1.

Table 4. 1 The Levels of the Importance of Factors

Average Score	RII	Importance level
4.0 to 5.0	0.8 to 1.0	High (H)
3.0 to < 4.0	0.6 to < 0.8	Medium (M)
1.0 to < 3.0	0.2 to < 0.6	Low (L)

4.5.2.4 Kendall's Coefficient of Concordance

Kendall's coefficient of concordance is an essential instrument to measure the association of respondents' judgement statistically (Siegel & Castellan, 1988). It is utilized to determine the degree of agreement among several respondents on a given set of the ranking of factors/issues (Kothari, 2004). The calculation of Kendall's coefficient of concordance (*W*) is, as shown in formula 4 below (Siegel & Castellan, 1988):

$$W = \frac{\sum (\mathrm{Rj} - \overline{RJ})^2}{N^2\,(N-1)/12} \qquad (4)$$

Where:

N = number of factors ranked;

Rj = average of the ranks assigned to the j^{th} factor; and

$\overline{RJ}$ = average of the ranks assigned across all factors.

However, when the number of attributes, N, is larger than seven, Kendall's concordance formula shown above is approximately distributed as chi-square (Siegel & Castellan, 1988; Cha, et al., 2010; Cheung, et al., 2012). Hence, the chi-square value was used for hypothesis testing in this study. The following relationship shown in formula 5 holds between the coefficient of concordance (W) and Friedman's chi-square (Nunnally, 1975; Siegel & Castellan, 1988; Cha, et al., 2010):

$$\mathrm{X}^2 = \mathrm{k}\,(\mathrm{N} - 1)\,\mathrm{W} \qquad (5)$$

Where:

X^2 = Chi-square value;

k = number of respondents ranking the factors; and

N = number of factors/issues being ranked.

In this regard, for a certain level of significance, 0.05 in this case, and degree of freedom (N-1), when the actual calculated chi-square value equals or exceeds the critical value derived from the table; then the null hypothesis "the set of rankings of factors/issues by respondents was different or independent to each other" can be rejected (Siegel & Castellan, 1988; Legendre, 2005; Cha, et al., 2010). Conversely, if the critical value of the chi-square exceeds the calculated value of the

chi-square, then the null hypothesis is accepted. The critical value of the chi-square is obtained by referring to the chi-square distribution table of Siegel and Castellan (1988).

4.5.2.5 Reliability Test

Research methods used in empirical studies need to be justified for their validity and reliability (Krippendorff, 2004). There are four tests usually used to verify the validity and reliability of research methods. These tests are construct validity, internal validity, external validity and reliability (Yin, 2018). Construct validity is considered during the data collection phase of the research process to devise appropriate mechanisms to collect valid data for the study (Krippendorff, 2004; Yin, 2018). Internal validity deals with establishing relationships between events (Yin, 2018). External validity is applied to determine whether the findings of the current study can be extended to other research areas (Neuendorf, 2002; Yin, 2018). Reliability of the research method is concerned with the replicability of the findings of the study with the same method on the same data under different conditions (Krippendorff, 2004).

Any research depending on measurement is also required to ensure the reliability of the survey instrument (Cronbach, 1951). When several items are summed to form a total score, the internal consistency of the data is checked by computing their reliability (Fellows & Liu, 2008). In this research, Cronbach's alpha was used to determine if the multiple Likert scale questions in the questionnaire are reliable. Recent PPP related studies, such as Cheung et al. (2012), have also used similar approaches for reliability analysis. The formula for computing Cronbach's alpha is shown in formula 6 below (Bhattacherjee, 2012):

$$\alpha = \frac{k.\bar{r}}{(1+(k-1)\bar{r})} \qquad (6)$$

Where:

α = Cronbach's alpha;

K = the number of items; and

$\bar{r}$ = the average inter-item correlation.

The research type (basic or applied) and how the measure is being used determine the satisfactory level of reliability (Nunnally, 1978). Cronbach's alpha value commonly ranges between 0 and 1.

Thus, when the computed value of alpha is greater than 0.70, it can be taken as an acceptable level of reliability of the adopted measurement scales (Tavakol & Dennick, 2011). However, lower values of Cronbach's alpha are sometimes used in literature based on the impact of the outcome (Nunnally, 1978; Chileshe & Kikwasi, 2014).

4.6 Qualitative Data Collection

4.6.1 Selection of Case Studies

Following a mixed research design approach, case studies were identified to assess how the private and public partners deal with Ethiopia's PPP environment, focusing on the road and energy sectors. These two sectors were selected based on the access and the availability of data to answer the research objective (Yin, 2018). These two sectors have relatively advanced PPP procurement experiences in Ethiopia.

The data collection method used in this study consists of a review of pertinent documents relating to the Ethiopian road and energy sector and interviews of purposively selected professionals who have been working in the selected case studies (at least 3 years in the selected projects). The purposive or judgement sampling technique is the intentional selection of participants due to their qualities to serve the objectives of the study (Tongco, 2007). Interview of participants with relevant experiences provides opportunities to engage them in the research process whereby assisting the development of knowledge in the area of the study (Simons, 2014). Purposively sampled informants can help to focus directly on the study topic by providing the participant's relativist perspectives on the specific area of research objective (Tongco, 2007; Yin, 2018). In order to ensure the reliability and validity of the data collected, the participants interviewed were drawn from the public sector, private sector and development partners of key actors of the sectors (Yin, 2018). The participants were provided with the covering letter of the consent form and interview guide questions.

4.6.2 Validation and Reliability of the Case Studies

Though case study research is helpful technique, there are concerns about the validity and reliability of its findings (Riege, 2003; Creswell & Creswell, 2018; Yin, 2018). Thus, an empirical

study is required to demonstrate the logical sequence of the solution to the research problem, data collection, data analysis and conclusion. In order to satisfy this requirement, it is essential to show the validity and reliability of the study. The strategies followed to demonstrate the validity and reliability of the case studies are shown in Table 4.2, as suggested by Yin (2018).

Table 4. 2 Validity and Reliability Strategies for Case Studies

Test	Tactic Applied	Action	Phase of the Case Study
Validation	• Use multiple sources of evidence	• The data were collected from the public sector, private sector and development partners • The case study projects were selected from two sectors(road and energy)	Data collection
	• Have key informants review draft case study report	• Each participant was requested to comment on the draft interview record	Data collection
		• The PPP implementation framework was validated using experts' opinions (see section 7.4 of Chapter 7)	Composition
Reliability	• Establish a chain of evidence	• The interview data were checked with existing literature	Data analysis
	• Develop a case study database	• For each participant, a separate table was established to record and analyse the data	Data collection

4.7 Qualitative Data Analysis

The interview data collected were coded and analysed using content analysis method. Content analysis is a research technique for reaching reliable and valid conclusions from the examination

of texts or other data in the contexts of the study objective (Krippendorff, 2004). Content analysis method assists in classifying and explaining a subject of interest through the investigation of a large set of data in a systematic way (Drisko & Maschi, 2016). Commonly, there are four ways of executing content analysis. These are word count (textual analysis), conceptual (thematic) analysis, relational (semantic) analysis and referential content analysis (Kulatunga, et al., 2007). Word count or textual analysis employs the method of counting of frequently appearing words in a text. Conceptual content analysis involves the scrutiny of existing concepts or themes in a text (Krippendorff, 2004). Relational content analysis is an extension of conceptual analysis in which it observes beyond the relationships between concepts/themes (Kulatunga, et al., 2007). Furthermore, referential content analysis deals with finding meanings from complex languages (Kulatunga, et al., 2007).

One of the objectives of this study was to assess the challenges and prospects of private sector involvement in public infrastructure provision in Ethiopia based on the opinions of selected experts from the road and energy sectors. The interview participants' views on the lessons that can be drawn from the experiences of Ethiopia to other developing countries were also investigated. In this regard, word count, relational analysis and inferential analysis are not suitable to achieve the intended objective of the study. Thus, conceptual content analysis was found to be an appropriate analysis tool to deal with the respondents' statements in their opinions or views. In this study, the validity and reliability of the study have been established throughout the research process, from data collection to the concluding stages. The diverse organisations and experiences of the interview participants from the road and energy sectors strengthen the validity of the data collected with the notion of multiple sources of evidence. All of the participants were well acquainted with the Ethiopian PPP development from the inception to its current status.

4.8 Sampling of Respondents

In a research undertaking, it is usually challenging to sample all the population of the study. Instead, sampling of the population is commonly conducted, taking into consideration of the constraints of time and budget of the research (Saunders, et al., 2019). Thus, sampling is taking a representative subset of the entire population of the study (Taherdoost, 2016). There are two sampling techniques: probability or random sampling and non-probability or non-random sampling options used in research. In a random sample, each individual in the population has an

equal chance to be selected. It is usually challenging to conduct random sampling of participants in many cases (Creswell & Creswell, 2018).

On the other hand, non-random sampling enables us to select participants based on a prudent judgement of the population to answer the research question (Saunders, et al., 2019). Both sampling methods are essential to select a representative sample of the study. Nevertheless, the research question is more important to choose the sampling technique (Creswell & Creswell, 2018). Based on the objective of this study, as explained in Chapter 1, the research requires sampling of quality data than the quantity of the data. Thus, following a non-random sampling technique, the study adopted purposive or judgemental sampling. Purposive sampling is cost-effective, convenient and time-saving for research design (Taherdoost, 2016), and it is compatible with the research philosophy adopted in this study. The participants were selected from the population of the road and energy sectors experts who know PPP project development to acquire specific and expertise information, as explained in section 4.5.1 and 4.6 of this Chapter.

4.9 Summary of the Chapter

This chapter has provided the research methodology used to achieve the research objectives. The overall research philosophy, research design and process were first introduced, followed by explaining mixed methods of data collection and analysis techniques employed in the research. Moreover, statistical analysis techniques such as the mean score ranking, relative importance index (RII), t-test, reliability analysis and Kendall's coefficient of concordance were defined to be employed later in the analysis of the collected data in chapter five. The subsequent chapter presents the data analysis and discussion part of the study based on the methods discussed in this chapter.

CHAPTER FIVE: DATA ANALYSIS AND INTERPRETATION

5.1 Introduction

This chapter focused on the analysis and interpretation of data collected during the study through questionnaire survey. The interview data were analysed using content analysis. The questionnaire data were also analysed using a statistical package for social science (SPSS) software. The results are discussed, summarized and presented in the form of mean, ranking and summary tables.

5.2 Response Rate

The questionnaire was distributed among road and energy sector experts from the public sector, private sector and development assistance groups, collectively referred to as "respondents". The respondents were selected to draw experts opinion on the importance of the identified factors in the road and energy sectors. A total of 85 questionnaires were distributed to selected participants involved in the Ethiopian road sector from December 2017 to March 2018. 53 participants responded to the survey. One respondent's questionnaire was excluded from the analysis as it was considered to show an insufficient understanding of the questions. Hence, the analysis is based on 52 respondents with a response rate of 61% from the road sector. Similarly, out of 75 questionnaires distributed to experts in the energy sector from November 2019 to January 2020, 56 people responded, equating to 75% response rate. Considering the early stage of PPP development and a limited number of potential PPP experts in Ethiopia, 52 responses (61%) from the road sector and 56 responses (75%) from the energy sector were considered acceptable for this analysis.

The questionnaire was divided into five sections, as shown in Table 5.1. The first part of the questionnaire contains questions related to respondents' background and experience in the Ethiopian road and energy sectors, respectively. The second section of the questionnaire opted for the respondents' opinion on attractive factors of PPP implementation in the road and energy sectors of Ethiopia based on their personal experiences. The third section of the questionnaire solicited the participants' view on the critical success factors of PPP implementation in the road and energy sectors of Ethiopia.

Table 5. 1 Content of Questionnaire

Part of the Questionnaire	Questions	Purpose
Section 1	Background of respondents	To confirm the adequacy of respondent's expertise
Section 2	Attractive factors of PPP implementation in the road and energy sectors of Ethiopia	To understand the reasons why the government pursue PPP for infrastructure
Section 3	Critical success factors of PPP implementation in the road and energy sectors of Ethiopia	To comprehend the determinant factors for the success of PPP implementation in Ethiopia
Section 4	Effects of government policies and regulations on the implementation of PPP in Ethiopia	To realise the effect of relevant government policies and regulations on the success of PPP implementation in Ethiopia
Section 5	Provide blank space	To receive any comments and suggestions on the study

The fourth section requests respondents to give their opinion on the effects of government policies and regulations on the implementation of PPP in Ethiopia. In the final section of the questionnaire, respondents were provided with a blank space to give their opinion, comments and suggestions on the implementation of PPP infrastructure projects in Ethiopia (the questionnaire template used in this study is given in Appendix A).

5.3 Description of Respondents Origin

As illustrated in Table 5.2, out of the 108 respondents from the road and energy sectors, the majority of them, 58 (54%), were engaged in the public sector. The domestic and international private sector accounted for 40 (37%) of the total respondents. Whereas the development partners comprising of the World Bank, African Development Bank and USAID-Power Africa accounted for 10 (9%) of the total respondents.

Table 5. 2 Distribution of Respondents

Organisation Group	Frequency	Percent
Public Sector	58	54
Domestic Private Sector	32	30
International Private Sector	8	7
Development Partners	10	9
Total	108	100

Table 5.3 shows the previous experience of the respondents in PPP projects. Given the fact that there are limited previous PPP projects implemented in Ethiopia, it was sufficient to find that approximately 55% of the respondents gained previous experience. Thus, their experiences add input into this study were considered to be vital as they add to the local experience in the subject. Some of these respondents had gained experiences with local PPP projects in the energy sector, and some participants had gained experiences from overseas PPP road projects. This result confirmed the quality of the responses from the survey conducted. Only 45% (49) of the participants had no previous experiences in PPP projects but with traditional infrastructure procurement.

Table 5. 3 Respondents' Experience in PPP Projects

Question	Response	Frequency	Percent
Have you ever been involved in PPP projects?	Yes	59	55
	No	49	45
	Total	108	100

The experience of the respondents in PPP projects showed that the majority of the respondents, 45% (49), had between 1 and 5 years of experiences (this was anticipated at the beginning of the stud, but it was ensured that the respondents have general experience in public procurement), followed 6% (7) out of 59 respondents who had 6 to 10 years of experiences. Out of 59 respondents, 2% (2) had experiences between 11 and 15 years in PPP projects. Finally, 1% (1) of the participants had PPP experiences between 16 to 20 years, as shown in Table 5.4.

Table 5. 4 Years of Experience in PPP Projects

Question	Years	Frequency	Percent
How many years have you been involved in PPP projects?	1 to 5 Years	49	45
	6 to 10 Years	7	6
	11 to 15 Years	2	2
	16 to 20 Years	1	1
Total		59	55
No experience in PPP projects		49	45
Total		108	100

Furthermore, as illustrated in Table 5.5, 22% of respondents had been involved in PPP transport projects and 78% of them involved with power and energy sector PPP projects. This finding further strengthens the validity of the responses.

Table 5. 5 Respondents Experience of Project Types

Question	Project Type	Frequency	Percent
In which PPP infrastructure sector/s have you been involved?	Transport Sector	13	22
	Power and Energy	46	78
Total		59	100

Respondents were also requested to give their opinion on whether better value for money can be achieved when the design, construction, operation, maintenance and financing of infrastructure projects are managed by the private sector through PPP arrangement compared to the traditional procurement method in Ethiopia. Out of the 108 respondents, the majority of them (81%) responded positively. Only 6% and 12% of the participants gave negative and “I don’t know” responses, respectively, as indicated in Figure 5.1. In the subsequent section of this study, the reasons for adopting PPP for infrastructure projects in Ethiopia are analysed in detail.

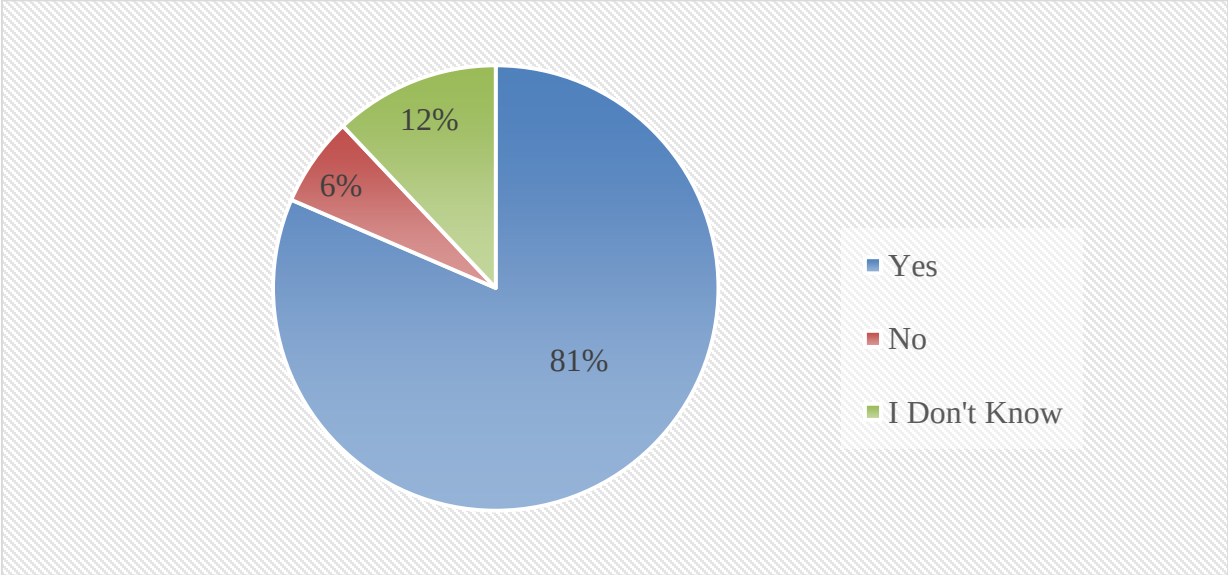

Figure 5. 1 Respondents' Opinion on PPP Projects Implementation in Ethiopia

5.4 Ranking of Attractive Factors of PPP Projects Implementation in Ethiopia

The target survey respondents of the questionnaire from the road and energy sectors were requested to rate 17 attractive factors for the implementation of PPP in Ethiopia according to a five-point Likert scale (1: unimportant; 2: least important; 3: moderately important; 4: important; and 5: most important). The results of the mean scores, t-values (one-tailed), and relative importance indices of the factors in order of importance are shown in subsequent sections.

5.4.1 Ranking of Attractive Factors of PPP in the Road Sector

The findings shown in Table 5.6 indicates that 5 attractive factors were considered to be highly attractive for PPP implementation in the road sector (mean>4, *t*-value positive, $p<0.05$ and RII-High). The remaining 12 attractive factors were perceived medium level of attractiveness in the road sector. The last two attractive factors, "Reduce the total project cost" and "Cap final service costs" were found to be statistically insignificant (mean value<3.5, *t*-value negative and $p>0.05$).

Table 5. 6 Attractive Factors of PPP in the Road Sector of Ethiopia

Attractive factors	Mean	*t*-test (m = 3.5)	Sig. (one-tailed)	RII	Rank	Level of Attractiveness
Solve the problem of public sector budget restraint	4.21	5.049	0.000	0.84	1	**H**
Facilitate creative and innovative approaches	4.08	5.646	0.000	0.82	2	**H**
Save time in delivering the project	4.06	5.173	0.000	0.81	3	**H**
Improve maintainability	4.04	6.212	0.000	0.81	4	**H**
Enhance government integrated solution capacity	3.98	4.186	0.000	0.80	5	**H**
Improve buildability	3.92	4.298	0.000	0.78	6	**M**
Benefit local economic development	3.81	2.387	0.011	0.76	7	**M**
Technology transfer to local enterprises	3.79	2.087	0.021	0.76	8	**M**
Transfer risk to the private sector	3.77	1.976	0.027	0.75	9	**M**
Reduce public money tied up in capital investment	3.77	2.109	0.020	0.75	10	**M**
Accelerate project development	3.75	2.216	0.016	0.75	11	**M**
Private sector possess better mobility	3.73	2.320	0.012	0.75	12	**M**
Reduce public sector administration costs	3.69	1.509	0.069	0.74	13	**M**
Private sector has the ability to raise funds for project	3.62	.960	0.171	0.72	14	**M**
Non-recourse or limited recourse to public funding	3.58	.715	0.239	0.72	15	**M**
Reduce the total project cost	3.40	-.647	0.260	0.68	16	**M**
Cap final service costs	3.35	-1.698	0.048	0.67	17	**M**

Note: Results are significant at 95% level (P < 0.05); degree of freedom (df) = 51.

Mean score based on total respondents, N = 52.

RII = Relative Importance Index (H-High, M-Medium and L-low)

The first attractive factor, "Solve the problem of public sector budget restraint", reflects the actual situation in the road sector. In the past twenty-two years, the Ethiopian road sector was mainly financed by government budgetary sources from the treasury (83.2%) and development partners (16.2%) (ERA, 2020). Nevertheless, the allocation of the budget and the actual demand of the sector have never met due to resources constraints of the government, as shown in Table 5.7. In addition to this, the government has a low resource mobilisation capacity through tax collection (tax to GDP is 17%) when compared with other Sub-Saharan African countries (average tax to GDP is 20%) (Jalles d'Orey & Prizzon, 2017). The findings also revealed that the private sector involvement could share budgetary constraints as the road sector resource demand is ever increasing.

Table 5. 7 Yearly Budget Request and Approval for the Road Sector

Year	Yearly Budget Requested by ERA (ETB)	Yearly Budget Approved by Parliament (ETB)
2016/17	47,158,974,000	46,158,974,000
2017/18	48,138,826,560	45,532,184,000
2018/19	42,053,489,000	38,587,307,000
2019/20	52,344,415,000	46,365,859,000
2020/21	63,825,748,000	58,080,201,000

* Data Source ERA and Compiled by the Author

The second, third, fourth and fifth rated attractive factors in the road sector have an interrelated effect in the road sector. The prevailing procurement method in the road sector is design-bid-build and design and build delivery system. These methods were noted to expose the government for colossal cost overrun (on average 42%) and project delays (on average 48%) in the past (CoST, 2016). The cost overrun and project delay was mainly reported due to incomplete design, design change, project scope change, and quantity variation. Lack of timely maintenance is also a challenge in the road sector resulting in premature failure of constructed roads (ERA, 2020). This low maintenance was a result of allocating an insufficient budget for road maintenance. Furthermore, the road sector was also known for lack of institutional capacity, research and appropriate technology (ERA, 2015). Thus, the findings revealed that the PPP procurement route was perceived to alleviate these challenges by using the private sector expertise in design, construction, maintenance and operation management of road projects.

5.4.2 Ranking of Attractive Factors of PPP in the Energy Sector

Most of the attractive factors (14 in number) ranked extremely important with a high level of attractiveness in the energy sector (mean>4, *t*-value positive, $p<0.05$ and RII-High) as shown in Table 5.8. Only three attractive factors were ranked with a medium level of attractiveness (mean<4, *t*-value positive, $p<0.05$ and RII-Medium). This finding indicates that the energy sector respondents were more optimistic about private sector participation. The global trends also dictate that the energy sector attracts more private sector investment than the other sectors. In 2020, the energy sector attracted 73 PPP projects with total value of USD15.1billion against the transport sector, which drew an investment cost of USD 4.5billion for 17 PPP projects (World Bank, 2020).

Table 5. 8 Attractive Factors of PPP Implementation in the Energy Sector

Attractive Factors	Mean	t-test(m = 3.5)	Sig. (1-tailed)	RII	Rank	Level of Attractiveness
Private sector has the ability to raise funds for a project	4.39	9.474	.000	0.88	1	**H**
Facilitate creative and innovative approaches	4.38	8.704	.000	0.88	2	**H**
Save time in delivering the project	4.36	9.179	.000	0.87	3	**H**
Accelerate project development	4.34	9.039	.000	0.87	4	**H**
Private sector possesses better mobility	4.27	7.656	.000	0.85	5	**H**
Technology transfer to local enterprises	4.25	7.537	.000	0.85	6	**H**
Benefit local economic development	4.21	8.190	.000	0.84	7	**H**
Transfer risk to the private sector	4.18	5.424	.000	0.84	8	**H**
Enhance government integrated solution capacity	4.14	6.043	.000	0.83	9	**H**
Solve the problem of public sector budget restraint	4.13	5.476	.000	0.83	10	**H**
Improve maintainability	4.12	6.320	.000	0.82	11	**H**
Improve buildability	4.07	5.818	.000	0.81	12	**H**
Reduce the total project cost	4.07	5.164	.000	0.81	13	**H**
Reduce public money tied up in capital investment	4.00	4.282	.000	0.80	14	**H**
Reduce public sector administration costs	3.93	3.774	.000	0.79	15	**M**
Non-recourse or limited recourse to public funding	3.89	2.783	.004	0.78	16	**M**
Cap final service costs	3.79	2.406	.010	0.76	17	**M**

Note: Results are significant at 95% level (P < 0.05); degree of freedom (df) = 55.

Mean score based on total respondents, N = 56.

RII = Relative Importance Index (H-High, M-Medium and L-low)

In the energy sector, power generation and transmission were mainly dominated by the state-owned enterprise, Ethiopian Electric Power. The Ethiopian government planned to increase the generation capacity from 4200MW in 2016 to 17,346MW by the end of 2020 under the GTP-II (Gordon, 2018; Jalles d'Orey & Prizzon, 2017). Nonetheless, this enterprise engrossed in huge debt problem due to excessive borrowing from local and international lenders. As a result, the enterprise could not raise sufficient funds to finance more power generation and transmission projects to meet the target. Thus, the first attractive factor, “Private sector has the ability to raise funds for a project”, reflects the state-owned enterprise's financial situation. The second and third-ranked attractive factors of the energy sector, “Facilitate creative and innovative approaches” and “Save time in delivering the project”, were ranked similarly as the road sector ranking. This finding suggests that the energy sector was occupied with the traditional procurement method, where many challenges were encountered, including substantial delays necessitating creative and innovative approaches. The details of the difficulties encountered in the energy sector were presented in the

case study of Chapter 6. The fourth and fifth-ranked attractive factors in the energy sector were "Accelerate project development" and "Private sector possesses better mobility". The findings suggest that the private sector participation in the energy sector could accelerate the development of pipeline projects using the private sector for better mobility.

In summary, 4 attractive factors, "Facilitate creative and innovative approaches", "Save time in delivering the project", "Benefit local economic development" and "Cap final service costs" were ranked equally by both sector respondents at the position of second, third, seventh and seventeenth respectively. The remaining 13 attractive factors were ranked at different positions by both sector respondents. The mean values of the attractive factors as rated by the road sector respondents ranged between 3.35 and 4.21. For the energy sector respondents, the mean values ranged between 3.37 and 4.39. This observation has indicated that the variation in their responses was relatively small, only 0.60 and 0.86 for the road sector and energy sector, respectively. Notably, close observation of the mean values of the road sector respondents indicated that only 5 attractive factors out of the 17 factors were perceived as highly attractive. Conversely, the energy sector respondents rated 14 attractive factors slightly higher out of the 17 factors. It is important to note that the mean values as rated by respondents were interpreted directly. The differences perceived in ranking do not show that the attractive factors were statistically significant. Such a minor difference in the ranking was expected, and it would not impact the overall conclusions.

5.4.3 Overall Ranking of Attractive Factors of PPP in Ethiopia

The findings presented in Table 5.9 show the attractive factors in descending order ranked by overall respondents. Out of the 17 driving factors for PPP implementation in Ethiopia, 11 factors score mean values greater than or equal to 4 suggesting their highest relative importance in attracting the private sector investment to the country (high level of attractiveness).

Table 5. 9 Attractive Factors of PPP Implementation in Ethiopia

Attractive Factors	Mean	t-test (m = 3.5)	Sig. (1-tailed)	RII	Rank	Level of Attractiveness
Facilitate creative and innovative approaches	4.23	10.050	.000	0.85	1	**H**
Save time in delivering the project	4.21	9.886	.000	0.84	2	**H**
Solve the problem of public sector budget restraint	4.17	7.431	.000	0.83	3	**H**
Improve maintainability	4.08	8.846	.000	0.82	4	**H**
Enhance government integrated solution capacity	4.06	7.229	.000	0.81	5	**H**
Accelerate project development	4.06	7.155	.000	0.81	6	**H**
Technology transfer to local enterprises	4.03	6.086	.000	0.81	7	**H**
Private sector has the ability to raise funds for project	4.02	6.157	.000	0.80	8	**H**
Benefit local economic development	4.02	6.571	.000	0.80	9	**H**
Private sector possesses better mobility	4.01	6.791	.000	0.80	10	**H**
Improve buildability	4.00	7.183	.000	0.80	11	**H**
Transfer risk to the private sector	3.98	5.126	.000	0.79	12	**M**
Reduce public money tied up in capital investment	3.89	4.491	.000	0.78	13	**M**
Reduce public sector administration costs	3.81	3.686	.000	0.76	14	**M**
Reduce the total project cost	3.75	2.583	.006	0.75	15	**M**
Non-recourse or limited recourse to public funding	3.74	2.659	.006	0.75	16	**M**
Cap final service costs	3.57	.949	.173	0.71	17	**M**

Note: Results are significant at 95% level (P < 0.05); degree of freedom (df) = 107.

Mean score based on total respondents, N = 108.

RII = Relative Importance Index (H-High, M-Medium and L-low)

Six attractive factors "Transfer risk to the private sector", "Reduce public money tied up in capital investment", "Reduce public sector administration costs", "Reduce the total project cost", "Non-recourse or limited recourse to public funding" and "Cap final service costs" scored mean values of between 3.6 and 4. These factors were ranked 12th to 17th by overall respondents. Three attractive factors were found to be statistically insignificant in attracting the private sector ($p>0.05$) in Ethiopia. These factors were "Reduce the total project cost", "Non-recourse or limited recourse to public funding", and "Cap final service costs". In the following section, the top eleven highly ranked attractive factors of PPP implementation in Ethiopia (*t-value positive, p<0.05 and RII-High*) were discussed in detail.

The first most attractive factor for PPP implementation in Ethiopia as ranked by all respondents was "Facilitate creative and innovative approaches" with a mean value of 4.23 (*t-value positive, p<0.05 and RII-High*). The traditional method of infrastructure procurement in Ethiopia is well known for project delay and cost overrun. This finding is also a reflection of the fact that in Ethiopia, there is a limited indigenous capacity in the design and management of significant projects, which is having a significant effect on the public sector budget due to time and cost overrun (CoST, 2016). Compared with the traditional procurement method, PPP offers to the public, and the private sector partners prospect to develop creative design and innovative asset and service provisions (Li, et al., 2005). It is also notable that PPP schemes provide opportunities to the private sector to choose and use advanced technology to deliver quality service (Ismail, 2014b). PPP projects are usually packaged such that the private sector undertakes the works from the initial design stage to the final operation stage under a single contract. This whole life cost approach of PPP contract arrangement offers the private partner the opportunity to follow a creative and innovative approach to reducing the overall cost of the project and consequently lesser service cost to the government and/or users (Liu & Wilkinson, 2011).

"Save time in delivering the project" was ranked the second-highest attractive factor by overall respondents with a mean value of 4.21 (*t-value positive, p<0.05 and RII-High*). The incentive inherent in the PPP contract encourages the private partner to deliver the project expediently to generate revenue. This is because of the relative freedom available for the public partner and the contractor in choosing creative and innovative ways of delivering the project (Li, et al., 2005). The finding is compatible with the fact that public financed project delay in Ethiopia is a common phenomenon that has been affecting the country's economic prospect in many ways (CoST, 2016).

"Solve the problem of public sector budget restraint" was the third important attractive factor as perceived by overall respondents with a mean value of 4.17 (*t-value positive, p<0.05 and RII-High*). Governments regularly struggle with a budget deficit and excessive public debt and end up having to compromise the provision of essential infrastructure provision to their citizens. This finding indicates that PPP projects are more suitable for governments with resource constraints and infrastructure deficits (Sharma, 2012). PPP became popular and attractive to the public sector due to its main advantage of offering an off-balance-sheet accounting (Li, et al., 2005) as the borrowing for the project development is undertaken by the private partner. This gives the public sector relief of financial burden (Walker, et al., 1995) for the provision of other critical

infrastructure that might not be commercially suitable for PPP implementation (AfDB, 2016). The PPP arrangement also improves the government's poor maintenance of asset and resource management and the participation of the private sector by stimulating foreign direct investment in the country (IMF, 2017). However, it is crucial to understand that privately financed infrastructure cost though it is an off-balance sheet to the public sector, it needs to be repaid by the service users or taxpayers. Therefore, public sector administrators should prudently evaluate and manage current or future fiscal liability to protect the government finance from unjustified risks (Delmon, 2017).

The fourth-ranked attractive factor as rated by all respondents was "Improve maintainability" with a mean value of 4.08 (*t-value positive, p<0.05 and RII-High*). Under a PPP contract, since the private sector is responsible for the design, construction, operation and maintenance of the project, it has the opportunities to consider appropriate design standards demanding less future maintenance. Contrary to this, in the traditional method of procurement, maintenance of infrastructure projects is a critical problem in Ethiopia due to quality problem at the construction stage and lack of sufficient budget for asset management. The focus of the government in Ethiopia is mainly directed to new construction projects, and maintenance activities are ignored. Thus, PPP provides the opportunity to cluster maintenance activities as part of project development.

The fifth most attractive factor rated by overall respondents was "Enhance government integrated solution capacity" with a mean value of 4.06 (*t-value positive, p<0.05 and RII-High*). Many components of a project which might be treated separately in traditional procurement route can be bundled within a single PPP contract to achieve economies of scale to the public sector (Li, et al., 2005) and to enable the private sector partner to follow a holistic approach in managing them effectively. In this respect, the private operator finds an optimal solution to balance the cost of the initial construction and the future maintenance requirement throughout the life of the project (AfDB, 2016). Generally, the private sector has better efficiency in operating the procurement of assets and providing service as it possesses enhanced expertise and technology than the public sector (Chan, et al., 2009). This coincides with the challenges the Ethiopian government is facing in traditional procurement due to the lack of integration of design and construction performed by different organizations.

The sixth-ranked attractive factor for PPP implementation in Ethiopia by overall respondents was "Accelerate project development" with a mean value of 4.06 (*t-value positive, p<0.05 and RII-*

High). Public sector budgetary constraint is the main reason for projects' postponement from timely development in many countries; Ethiopia is not exceptional. However, the PPP arrangement enables governments to use private sector financing to expedite the development of necessary infrastructure (Liu & Wilkinson, 2011). In this regard, governments would develop critical infrastructure without waiting for scarce public resources (Askar & Gab-Allah, 2002).

Another important attractive factor for PPP implementation in Ethiopia, "Technology transfer to local enterprises", was ranked seventh by overall respondents with a mean value of 4.03 (*t-value positive, p<0.05 and RII-High*). Considering the lack of local skills and expertise in technology in the road and energy sectors of Ethiopia, PPP offers an opportunity to local enterprises to associate with foreign companies to gain the required technological knowledge. Developing countries pursue PPP procurement method to harness its capacity in transferring knowledge to their local companies (Li, et al., 2005). In the current advancement in technology and its frequent update, countries should seek technological expertise from outside sources to avoid risks and to become efficient in learning (Whangthomkum, et al., 2006). PPP, by its nature, attracts foreign companies with new technology and expertise, which may pressure local companies to excel in their capacity with better technology and skills (Liu & Wilkinson, 2011).

The "private sector has the ability to raise funds for the project" was ranked eighth by overall respondents with a mean value of 4.02 (*t-value positive, p<0.05 and RII-High*). One of the crucial advantages of PPP for governments is the opportunity to access private sector capital into their infrastructure development (IBRD, 2009). The private sector in PPP arrangement is incentivised to expand the revenue stream of the project to adequately cover its total expenditure (Liu & Wilkinson, 2011). This result reflects the current status of the power monopoly, Ethiopian Electric Power, which cannot raise enough capital for energy projects due to its poor financial situation. In addition to this, the government of Ethiopia has put restrictions on borrowing from internal or external sources for state-owned enterprises to contain the debt distress the country is undergoing (IMF, 2020).

"Benefit local economic development" was ranked ninth by overall respondents with a mean value of 4.02 (*t-value positive, p<0.05 and RII-High*). PPP infrastructure development stimulates economic activities in the area of project development by creating employment opportunities during construction, operation and maintenance phases (Efficiency Unit, 2008; Liu & Wilkinson,

2011; Li, et al., 2005b). PPP procurement strategy also boosts the economic development of a county by providing critical infrastructure (Walker, et al., 1995). In addition to helping to provide quality services, PPP can also deliver the advantage of relieving budgetary constraint or additional resources that might be allocated to pro-poor programs (AfDB, 2016).

"Private sector possesses better mobility" was ranked tenth with a mean value of 4.01 (*t-value positive, p<0.05 and RII-High*). Because of the bureaucratic nature of public sector administration, resource mobilisation for infrastructure development is much difficult and time-consuming (Walker, et al., 1995). On the other hand, the private sector possesses better capacity in mobilising resources and utilising scarce resources in effective and efficient ways (Osei-Kyei, et al., 2014). The public sector commonly administers many projects with vast scale and scope following a rigid management practice. In contrast, in a PPP contract, the private sector focuses on a single project through the special purpose vehicle company and can exercise flexibilities to maximise efficiency (Engel, et al., 2014).

The attractive factor "Improve buildability" was ranked eleventh with a mean value of 4.00 (*t-value positive, p<0.05 and RII-High*). In traditional infrastructure procurement, separate activities are undertaken differently, making project development more complex and inefficient. Frequent design changes and variation during the construction period in the conventional contracts are common practices in Ethiopia (CoST, 2016). On the other hand, the PPP arrangement enables the private sector to consider initially packaging the design, construction and operation of projects for future buildability (Li, et al., 2005).

In summary, out of the total seventeen attractive factors ranked by all respondents, the mean score values of eleven attractive factors were above 4.0 with a high level of attractiveness for Ethiopia *(t-value positive and p<0.05)*. The mean score values of six attractive factors were between 3.57 and 3.98, with a medium level of attractiveness *(t-value positive and p<0.05)*. These findings revealed that these eleven factors were perceived to be highly important attractive factors for the development of PPP projects in Ethiopia.

5.4.4 Comparison of Attractive Factors with other Countries

Countries might have different reasons for drawing the private sector financing into their infrastructure sector. Thus, comparison of the attractive factors that compel nations to adopt PPP scheme can give insights to understand the motivations of governments and the unique characteristics of PPP model (Ismail, 2014b). In this regard, the top five attractive factors of PPP implementation in Ethiopia were compared with Ghana, Malaysia, China and the United Kingdom (UK). The countries were selected to be able to differentiate the reasons between economically advanced countries and developing countries in pursuing PPP procurement route for their infrastructure development.

Table 5. 10 Comparison of Attractive Factors with other Four Countries

No	Top five Attractive Factors in **Ethiopia**	**Ghana** (Osei-Kyei, et al., 2014)	**Malaysia** (Ismail, 2014a)	**China** (Chan, et al., 2009)	**UK** (Li, et al., 2005)
1	Facilitate creative and innovative approaches	Reduces public sector administration cost	Solve the problem of public sector budget restraint	Provide an integrated solution (for public infrastructure/services)	Transfer of risk to the private partner
2	Save time in delivering the project	Allows for shared risk	Provide an integrated solution (for public infrastructure/service)	Solve the problem of public sector budget restraint	Solves the problem of public sector budget restraint
3	Solve the problem of public sector budget restraint	Reduces the problem of public sector budget constraint	Facilitate creative and innovative approaches	Reduce public money tied up in capital investment	Non-recourse or limited recourse public funding
4	Improve maintainability	Private sector possesses better resource mobility	Accelerate project development	Reduce the total project cost	Reduces public money tied up in capital investment
5	Enhance government integrated solution capacity	Private sector has ability to raise funds for projects	Save time in delivering the project	Benefit to local economic development	Caps the final service costs

As shown in Table 5.10, the first ranked attractive factor in Ethiopia "Facilitate creative and innovative approaches" were rated third in Malaysia. This factor was not perceived top priority by respondents of Ghana, China and the UK. The second attractive factor, "Save time in delivering the project" in Ethiopia was ranked fifth by Malaysian respondents, but it was not ranked within

the top five attractive factors in the other three countries. “Solve the problem of public sector budget restraint” was ranked third in Ethiopia. Still, it was ranked first, second and second in Malaysia, China and the UK respectively as reported by the respective authors shown in Table 2.3 of section 2.1, Chapter 2. The fourth attractive factor in Ethiopia, “Improve maintainability” was not ranked in the top five factors in other countries. “Enhance government integrated solution capacity” was ranked fifth in Ethiopia, but it was not ranked in the top five factors in the other countries. It can be noted that there is a slight similarity between the Malaysian, China and the UK respondents with the Ethiopian case in ranking some of the top attractive factors. Conversely, there is no correspondence in the ranking of the top five attractive factors of Ethiopia with Ghana. The attractive factors of PPP might depend on the economic, social and political conditions of the countries. The state-led economic policy of Ethiopia up to 2018 resulted in state-owned enterprises being extensively involved in the building of infrastructure facilities financed by internal and external borrowing. Though this model brought rapid economic growth for many years, it has also exposed the country to a high risk of external and overall debt distress (IMF, 2020). As a result, the government has had to turn to the private sector to finance large infrastructure and tightened up on the ability of state-owned enterprises to borrow money (IMF, 2020).

The first rated driving factor in Malaysia, “Solve the problem of public sector budget restraint” was ranked in the second position by respondents from China and the UK, as shown in section 2.11 of Chapter 2. “Provide an integrated solution” for public infrastructure/services was ranked as the top driving factor in China but second in Malaysia. The first driving factor in the UK, “Transfer of risk to the private partner”, was ranked second in Ghana. The first ranked driving factor in Ghana, “Reduces public sector administration cost”, was not perceived within the top five factors in the other four countries. This finding suggests that governments follow the PPP procurement route for their specific reasons to fulfil their infrastructure demand.

5.5 Ranking of Critical Success Factors of PPP Implementation in Ethiopia

This section of the research presents the findings of the analysis of a questionnaire survey on the critical success factors of PPP implementation in Ethiopia. The survey respondents were requested to rate their level of agreement on 26 success factors according to a five-point Likert scale (1: unimportant; 2: least important; 3: moderately important; 4: important; 5: most important).

5.5.1 Ranking of Critical Success Factors of PPP in the Road Sector

Table 5.11 summarises the output of the data analysis of the 26 critical success factors of PPP implementation in the road sector. Out of the 26 factors, 16 factors were perceived highly critical by the road sector respondents (mean >4, *t*-test value positive, $p<0.05$ and RII-High). Six critical success factors were ranked with mean values between 3.5 and 4 with a medium level of criticality in the road sector (*t*-test values positive and $p<0.05$). The least ranked four critical success factors "Willingness among parties to share authority", "Public/community support", "Technology Transfer" and "Presence of a pro-investment culture among the population in the country" were not considered statistically significant ($p>0.05$). Among these four factors, the *t*-test value of the "Presence of a pro-investment culture among the population in the country" was negative. This finding indicates that the factor was not perceived important as the people of Ethiopia normally have no negative impression to investors of infrastructure.

The first ranked critical success factor in the road sector "Presence of an enabling PPP policy" was a realisation of the fact that the road sector lacks general policy direction including specific policy for PPP procurement. "Well organized and committed public agency" was ranked second important critical success factor for the road sector. Lack of capacity in the public sector is a prevailing challenge in Ethiopia including in the road sector. In this regard, the poor capacity of the public sector greatly affects the proper implementation of traditional and PPP projects as more explained in the case studies of Chapter six. The third, fourth and fifth ranked factors by road sector respondents "Stable political and social environment", "Favourable legal frameworks" and "Good governance" have interrelated and significant impact on long term investments like PPP and they are important factors to build the confidence of the private sector.

Table 5. 11 Ranking of Critical Success Factors of PPP in the Road Sector

Critical Success Factors	Mean	*t*-Test (m = 3.5)	Sig. (one-tailed)	RII	Rank	Level of Criticality
Presence of an enabling PPP policy	4.52	8.875	0.000	0.90	1	**H**
Well organized and committed public agency	4.48	7.531	0.000	0.90	2	**H**
Stable political and social environment	4.44	7.996	0.000	0.89	3	**H**
Favourable legal frameworks	4.29	5.595	0.000	0.86	4	**H**
Good governance	4.29	5.943	0.000	0.86	5	**H**
Appropriate risk allocation and sharing	4.25	6.648	0.000	0.85	6	**H**
Transparent procurement process	4.23	5.861	0.000	0.85	7	**H**
Thorough and realistic assessment of the costs and benefits	4.15	4.392	0.000	0.83	8	**H**
Adequate knowledge and skills of PPP	4.12	5.333	0.000	0.82	9	**H**
Competitive procurement process	4.10	4.236	0.000	0.82	10	**H**
A strong monitoring and evaluation system for project implementation	4.08	4.601	0.000	0.82	11	**H**
Project technical feasibility	4.06	4.290	0.000	0.81	12	**H**
Stable macro-economic environment	4.04	4.006	0.000	0.81	13	**H**
Government involvement by providing guarantees	4.04	3.848	0.000	0.81	14	**H**
Political support	4.04	3.524	0.001	0.81	15	**H**
Sound economic policy	4.02	4.397	0.000	0.80	16	**H**
Mature and available financial market	3.94	3.076	0.002	0.79	17	**M**
Multi benefit objectives (public sector and private sector)	3.92	3.374	0.001	0.78	18	**M**
Positive attitude towards PPP project implementation	3.83	2.554	0.007	0.77	19	**M**
A streamlined, transparent and clear project appraisal policy	3.83	2.347	0.012	0.77	20	**M**
Dedicated PPP unit to support and promote PPP program	3.79	2.223	0.016	0.76	21	**M**
Strong private consortia(joint venture of companies)	3.77	1.900	0.032	0.75	22	**M**
Willingness among parties to share authority	3.71	1.595	0.059	0.74	23	**M**
Public/community support	3.71	1.630	0.055	0.74	24	**M**
Technology Transfer	3.56	.465	0.322	0.71	25	**M**
Presence of a pro-investment culture among the population in the country	3.46	-.289	0.387	0.69	26	**M**

Note: Results are significant at 95% level (P < 0.05); degree of freedom (df) = 51.

Mean score based on total respondents, N = 52.

RII = Relative Importance Index

5.5.2 Ranking of Critical Success Factors of PPP in the Energy Sector

In the energy sector, most of the factors were perceived important as shown in Table 5.12. Out of the 26 critical success factors, 23 of them were rated highly critical by the energy sector respondents (mean >4, *t*-test value positive, $p<0.05$ and RII-High). This finding suggests that most of the factors were found to be relevant for the successful implementation of PPP projects in the energy sector. Only 3 critical success factors were ranked with mean values between 3.5 and 4 with a medium level of criticality in the energy sector (*t*-test values positive, $p<0.05$ and RII-Medium).

Table 5. 12 Ranking of Critical Success Factors of PPP in the Energy Sector

Critical Success Factors	Mean	*t*-Test (m = 3.5)	Sig. (one-tailed)	RII	Rank	Level of Criticality
Transparent procurement process	4.79	21.107	.000	0.96	1	**H**
Well organized and committed public agency	4.73	14.928	.000	0.95	2	**H**
Presence of an enabling PPP policy	4.71	18.390	.000	0.94	3	**H**
Favourable legal frameworks	4.61	15.679	.000	0.92	4	**H**
Project technical feasibility	4.59	11.959	.000	0.92	5	**H**
Competitive procurement process	4.57	10.559	.000	0.91	6	**H**
Thorough and realistic assessment of the costs and benefits	4.54	12.275	.000	0.91	7	**H**
Good governance	4.54	10.507	.000	0.91	8	**H**
Appropriate risk allocation and sharing	4.50	10.884	.000	0.90	9	**H**
Dedicated PPP unit to support and promote PPP program	4.41	8.248	.000	0.88	10	**H**
Stable political and social environment	4.41	8.248	.000	0.88	11	**H**
A strong monitoring and evaluation system for project implementation	4.41	8.036	.000	0.88	12	**H**
Positive attitude towards IPP/PPP project implementation	4.41	10.414	.000	0.88	13	**H**
Adequate knowledge and skills of PPP	4.39	8.333	.000	0.88	14	**H**
A streamlined, transparent and clear project appraisal policy	4.38	8.437	.000	0.88	15	**H**
Sound economic policy	4.32	8.904	.000	0.86	16	**H**
Stable macro-economic environment	4.32	8.032	.000	0.86	17	**H**
Political support	4.30	7.066	.000	0.86	18	**H**
Multi benefit objectives (public sector and private sector)	4.29	7.542	.000	0.86	19	**H**
Government involvement by providing guarantees	4.21	6.856	.000	0.84	20	**H**
Public/community support	4.16	5.984	.000	0.83	21	**H**
Strong private consortia(joint venture of companies)	4.11	4.796	.000	0.82	22	**H**
Technology Transfer	4.09	6.120	.000	0.82	23	**H**
Willingness among parties to share authority	3.98	4.400	.000	0.80	24	**M**
Mature and available financial market	3.88	3.064	.0015	0.78	25	**M**
Presence of a pro-investment culture among the population in the country	3.84	3.073	.0015	0.77	26	**M**

Note: Results are significant at 95% level (P < 0.05); degree of freedom (df) = 55.

Mean score based on total respondents, N = 56.

RII = Relative Importance Index

The top-ranked critical success factor in the energy sector was “Transparent procurement process”. This factor was found to be most important for the successful implementation of PPP projects in

the sector. As such, the traditional procurement trend in the energy sector was commonly dominated by direct negotiation, which is susceptible to mismanagement (further explained in the case study of Chapter 6). As shown in Table 5.13, all the sample six projects selected from the energy sector were procured through direct negotiation (available data compiled by the researcher). It is well established that to manage and protect the public interest in public procurement, including direct negotiations, strong public sector capacity is crucial. Thus, the energy sector respondents ranked the second important factor was "Well organized and committed public agency".

Table 5. 13 Procurement of Publicly Financed Power Generation Projects in Ethiopia

No	Project Name	Procurement Method	Contract Type	Final Contract Price	Installed Capacity (MW)
Hydro Power					
1	Gilgel Gibe III	Direct	EPC	EUR 1.8 B	1870
2	Tana Beles	Direct	EPC	Not found	460
3	Fincha	Direct	EPC	USD200 M	134
4	Genale Dawa III	Direct	EPC	USD650M	254
Wind Power					
5	Adama II	Direct	EPC	USD 345 M	153
Waste-to-Energy					
6	Rappie	Direct	EPC	USD119 M	25

* Data Source EEP and Compiled by the Author

The third and fourth-ranked important critical success factors by the energy sector respondents were "Presence of an enabling PPP policy" and "Favourable legal frameworks". The presence of enabling PPP policy and legal framework are important initial steps governments required to ensure to attract private sector investment. This finding indicated that the interest of the private sector to participate in the energy sector had been discouraged due to lack of enabling policy and regulatory environment as discussed in detail in the case study of Chapter six. "Project technical feasibility" was ranked the fifth important critical success factor by the energy sector respondents. This finding suggested that most of the energy projects are technically complex and need critical considerations at the early development stage for a successful outcome.

In summary, out of 26 factors only 5 critical success factors "Well organized and committed public agency", "Favourable legal frameworks", "Sound economic policy", "Strong private consortia (joint venture of companies)" and "Presence of a pro-investment culture among the population in the country" were ranked equally in the position of second, fourth, sixteenth, twenty-second and

twenty-sixth by both the road and energy sector respondents. The remaining 21 critical success factors were ranked differently by the road and energy sector respondents. The mean values of the critical success factors as rated by the road sector respondents ranged between 3.46 and 4.52. For the energy sector respondents, the mean values ranged between 3.84 and 4.79. This observation has indicated that the variation of the mean values in their responses was relatively small, only 1.06 and 0.95 for the road sector and energy sector, respectively. Notably, close observation of the mean values of the road sector respondents indicated that only 16 critical success factors out of the 26 factors were perceived as highly critical. Conversely, the energy sector respondents rated 23 critical success factors slightly higher out of the 26 factors. It is important to note that the mean values as rated by respondents were interpreted directly. The differences perceived in ranking do not show that the critical success factors were statistically significant.

5.5.3 Overall Ranking of Critical Success Factors of PPP in Ethiopia

Table 5.14 summarised the output of the overall ranking of the 26 critical success factors of PPP implementation in Ethiopia. Out of the twenty-six factors, 20 factors were significantly ranked critical success factors for the proper implementation of PPP by overall respondents in Ethiopia (mean>4, *t*-test values positive, $p<0.05$ and RII–High). Thus, most of the factors were perceived important as the development of PPP in Ethiopia is at its early stage of maturity. Only six critical success factors were ranked medium level of importance with mean values between 3.66 and 4 (*t*-test values positive, $p<0.05$ and RII–Medium). These critical success factors were "Public/community support", "Strong private consortia (a joint venture of companies)", "Mature and available financial market", "Willingness among parties to share authority", "Technology Transfer", and "Presence of a pro-investment culture among the population in the country".

Subsequently, the twenty top-ranked critical success factors of PPP implementation in Ethiopia (*t*-test values positive and RII–High) were discussed in detail. The highest-ranking given by the overall respondents was "Presence of an enabling PPP policy", which therefore was considered to be an extremely influential factor in Ethiopia. This finding implies that the respondents were highly concerned about the importance of the PPP enabling policy in Ethiopia for its success. The international experience on PPP development also dictates that putting in place enabling PPP policy by articulating the objectives of the partnership with the private sector is an essential initial

step for the subsequent success of PPP projects (AfDB, 2016). The existence of an enabling PPP policy in a country is also an indication that the government has legal and political support to use the PPP arrangement for public infrastructure (Geroniks & Lejnieks, 2015). Coinciding with this finding, the Ethiopian government enacted PPP policy and regulation under Proclamation No.1076/2016 in February 2018. Though this could be taken as an excellent start to initiate PPP projects in Ethiopia, other enabling sector-specific implementation frameworks are expected to be issued subsequently.

Table 5. 14 Overall Ranking of Critical Success Factors of PPP in Ethiopia

Critical Success Factors	Mean	*t*-Test (m = 3.5)	Sig. (one-tailed)	RII	Rank	Level of Criticality
Presence of an enabling PPP policy	4.62	17.130	.000	0.92	1	**H**
Well organized and committed public agency	4.61	14.520	.000	0.92	2	**H**
Transparent procurement process	4.52	14.023	.000	0.90	3	**H**
Favorable legal frameworks	4.45	12.187	.000	0.89	4	**H**
Stable political and social environment	4.43	11.539	.000	0.89	5	**H**
Good governance	4.42	11.140	.000	0.88	6	**H**
Appropriate risk allocation and sharing	4.38	12.064	.000	0.88	7	**H**
A thorough and realistic assessment of the costs and benefits	4.35	9.954	.000	0.87	8	**H**
Competitive procurement process	4.34	9.531	.000	0.87	9	**H**
Project technical feasibility	4.33	10.143	.000	0.87	10	**H**
Adequate knowledge and skills of PPP	4.26	9.570	.000	0.85	11	**H**
A strong monitoring and evaluation system for project implementation	4.25	8.784	.000	0.85	12	**H**
Stable macro-economic environment	4.19	8.119	.000	0.84	13	**H**
Political support	4.18	7.137	.000	0.84	14	**H**
Sound economic policy	4.18	8.967	.000	0.84	15	
Government involvement by providing guarantees	4.13	7.291	.000	0.83	16	**H**
Positive attitude towards PPP project implementation	4.13	7.754	.000	0.83	17	**H**
A streamlined, transparent and clear project appraisal policy	4.11	6.824	.000	0.82	18	**H**
Multi benefit objectives (public sector and private sector)	4.11	7.407	.000	0.82	19	**H**
Dedicated PPP unit to support and promote PPP program	4.11	6.824	.000	0.82	20	**H**
Public/community support	3.94	5.103	.000	0.79	21	**M**
Strong private consortia (joint venture of companies)	3.94	4.648	.000	0.79	22	**M**
Mature and available financial market	3.91	4.356	.000	0.78	23	**M**
Willingness among parties to share authority	3.85	4.087	.000	0.77	24	**M**
Technology Transfer	3.83	4.084	.000	0.77	25	**M**
Presence of a pro-investment culture among the population in the country	3.66	1.800	.038	0.73	26	**M**

Note: Mean score based on total respondents, N=108.

Results are significant at 95% level (P < 0.05); degree of freedom (df) = 107.

RII = Relative Importance Index

"Well organized and committed public agency" and "Dedicated PPP unit to support and promote PPP program" were ranked at second and twentieth by overall respondents of the questionnaire survey, respectively. With capable implementing agencies, the private sector would be incentivised to participate in PPP projects due to minimized country risk and the associated certainty in quality of regulations (Hammami, et al., 2006). Governments can enhance their

capacity in project appraisal and decision making by establishing a dedicated PPP unit (Cuttaree & Perrott, 2011). In this respect, the establishment of a PPP unit with the required expertise for PPP transaction can give a strong signal to the private sector in the government's competence and commitment (PPIAF, 2009). In addition to the PPP Unit, the capacity of other government agencies in evaluating and managing PPP projects is also an essential element of success for PPP projects in a country (Ks, et al., 2016). In this regard, the establishment of the Ethiopian PPP Directorate General can be taken as an essential step for PPP development in the country (PPP Proclamation, 2018). Nevertheless, the capacity of the implementing agencies should also be strengthened in the area of PPP expertise.

"Transparent procurement process" and "Competitive procurement process" were ranked third and ninth by overall respondents. These findings suggest that transparent and competitive procurement processes were perceived as significant factors for PPP procurement in Ethiopia. In this regard, establishing well-organized procurement procedures is critical for the success of PPP project as it assists the public sector to select the right private partner (Kwak, et al., 2009). Ensuring transparency and competition throughout the PPP procurement process also avoids conflicts between stakeholders in the course of the concession period (Cheung, et al., 2012). The transaction cost of PPP can be affected by the transparency and efficiency of the procurement process since the time required for negotiation, and financial close is impacted by the process (Chan, et al., 2010). The efficient procurement process is also expected to allow reasonable flexibility without detouring rules to select and negotiate directly with the private sector partner implicating poor outcomes, lack of transparency and corruption (Cuttaree & Perrott, 2011). Transparency and competition should also be installed by establishing efficient procurement system in the case of unsolicited proposals to avoid any contradiction during the concession period due to public objection (Queiroz & Kerali, 2010).

The fourth-ranked critical success factor by overall respondents was "Favourable legal frameworks". A favourable legal framework is a determinant factor for the success of PPP projects by warranting government's commitment, transparency, predictability and soundness of the country for private sector investment (World Bank, 2014). It also permits a PPP project to be developed without unjustifiable legal restriction on the private sector involvement (Li, et al., 2005a). Moreover, a sound regulatory framework enables the partnership between the government and the private partner to function competently with broader policy objectives (Pongsiri, 2002).

Overall respondents ranked fifth the critical success factor "Stable political and social environment". PPP project termination, poor governance, insecurity, lack of transparency and accountability in governments are usually the result of frequent change in political situation and policy inconsistency (Dahiru & Muhammad, 2015). The legal and macroeconomic condition of a country can also be impacted by the stability of the political and social environment (Sharma, 2012). PPP investment can be susceptible to deterioration when there is instability in the political situation and change in government (Wibowo & Alfen, 2015). For this, ensuring strong political and social support for PPP projects at the initial stage may be an appropriate measure to protect the private sectors' interest.

The sixth-ranked critical success factor by overall respondents was "Good governance". Good governance in PPP transaction reflects the quality of communication among government institutions and the interaction of public agencies with the private sector, users and citizens (OECD, 2015). Good governance in PPP can be achieved by availing, enabling environment to the private sector to participate in public projects through appropriate economic and administrative policies (Li, et al., 2005a). Good governance also demands from the public sector transparency and competition in the selection of the private partner and institutional set up to protect the public interest throughout the PPP contract period (Queiroz & Izaguirre, 2008). However, PPP project failure could result due to the government's unnecessary interference as a reflection of poor governance (Kwak, et al., 2009). Poor governance of PPP infrastructure projects commonly resulted in cost overruns and project delays, underperformance, underutilization, accelerated deterioration of asset due to poor maintenance and corruption (OECD, 2015).

"Appropriate risk allocation and sharing" was ranked at the seventh position by overall respondents. According to Kwak et al. (2009), PPP projects involve a significant level of risk due to the long term contract period, the scope of project and participants' different backgrounds. As a result, optimum risk allocation in PPP projects facilitates a reduction in the specific risk premium and the overall cost of projects (Li, et al., 2005a). Otherwise, any attempt to transfer risk to the private sector beyond its capacity to manage reduces the value for money expected to be achieved in the PPP transaction (Hodge & Greve, 2005). Thus, the private sector participants offer their cost for PPP projects based on the risk to materialize and its likely effect on cost and revenue.

"Thorough and realistic assessment of the costs and benefits" and " A streamlined, transparent and clear project appraisal policy" were ranked eighth and eighteenth by overall respondents, respectively. A thorough and realistic cost-benefit analysis forms part of the PPP appraisal process at the initial stage. For a successful partnership, the government must invest in the preparation of the project at the feasibility stage to attract highly qualified bidders at a later stage (Delmon, 2017). The feasibility study of a PPP project dictates how the project can be realized effectively and efficiently by the public and private partners. The technical difficulty of a particular PPP project should also be thoroughly assessed by the private partner at the feasibility stage to avoid any engineering uncertainty and dispute (Li, et al., 2005a). Consideration should also be given in the PPP contract to facilitate the incorporation of future technology changes during the concession period to make it an attractive option (Ng, et al., 2010). To this effect, establishing a streamlined, transparent and straightforward project appraisal policy in Ethiopia is essential to gauge and standardise implementing agencies action in PPP project development.

The tenth-ranked critical success factor by overall respondents was "Project technical feasibility". This finding suggests that one of the advantages of the PPP scheme is that it enables the private sector to come with innovative solutions for infrastructure challenges which the traditional input-based procurement method does not permit. The flexibility in PPP arrangement must be carefully used to design technically feasible project to meet the service standard than unproven technology (Gupta,, et al., 2013). Furthermore, ensuring project technical feasibility in significant infrastructure projects is also crucial for the affordability and bankability of PPP structured project.

"Adequate knowledge and skills of PPP" was ranked eleventh critical success factor by the overall respondents. Lack of adequate capacity in the public sector is one of the difficulties in PPP project development (Delmon, 2017). This is specifically a common challenge in developing countries at the early stage of PPP generation. This finding suggests that government offices responsible for PPP procurement are required to be equipped with adequate knowledge and skills to deal with the private sector, including technical expertise in infrastructure, different financial analysis techniques, risk management, negotiation and procurement and contract management (AfDB, 2016).

The twelfth critical success factor ranked by overall respondents was "A strong monitoring and evaluation system for project implementation". A robust monitoring system for PPP

implementation is required throughout the project development phases (design, construction and operation) (Delmon, 2017). Regular evaluation of PPP project progress is also helpful to take appropriate remedial measures before things go wrong. The evaluation practises also informs the devising of necessary management tools in similar future projects (Chou & Leatemia, 2016). To this effect, implementing agencies establish a capable PPP project management team to oversee the overall implementation of the scheme (Delmon, 2017).

"Stable macro-economic environment" was ranked thirteenth critical success factor by overall respondents. Another economic-related success factor, "Sound economic policy", was also ranked fifteenth by overall respondents. This factor was ranked sixteenth by both the road and energy sector respondents equally. The unstable macroeconomic condition of a country is well noted by high inflation and unsustainable fiscal policy, which both factors reduce investment (World Economic Forum, 2015). As most developing countries are often suffering from inflation and budgetary constraints, Ethiopia is not exceptional; these factors have a substantial effect on the private sector participation in the infrastructure sector in Ethiopia. To counter such challenges, sound economic policy aiming to ensure market certainty will lead to less risk perception by the private sector (Kwofie, et al., 2016; Li, et al., 2005a).

The fourteenth ranked critical success factor by overall respondents was "Political support". The political support of the PPP program by hosting governments has been noted to enhance the realisation of projects in developing countries. In this respect, vibrant political leadership is required for the success of PPP projects in Ethiopia (AfDB, 2016) as it is a long-term contract between the public and the private sector partners. On the other hand, when there is a negative attitude towards the private sector participation in public infrastructure delivery and less political support from the government, there would be a serious risk perception and exposure of PPP projects (Li, et al., 2005a). This would be a major challenge in countries like Ethiopia, which is trying to transit from several years of strong state control to a private sector-led economy.

The critical success factor, "Government involvement by providing guarantees", was ranked sixteenth by overall respondents. Government guarantees play a significant role in building private sector confidence in investing in untested PPP markets such as Ethiopia. Additionally, some projects may not always be financially viable though it can be proved that they have tremendous economic value. In such cases, the government should step in by providing guarantees and funding

to bring the project into a financially feasible position (Queiroz, et al., 2013). In the road sector, traffic certainty is the most important risk factor to the private sector, and government can avert this risk by providing a minimum revenue guarantee based on the availability of the service. On the other hand, in the energy sector of developing countries, governments often guarantee the private sector in case of the state-owned off-taker defaults in payment due to the private sector.

"Positive attitude towards PPP project implementation" was ranked seventeenth by overall respondents. In a typical PPP contract, the ownership of the asset commonly remains with the private sector. The management of the asset may cause misunderstanding of the public towards the private sector operator. In this regard, the government of Ethiopia should communicate with the public throughout the development of PPP projects to avert any public misconception of the PPP program. The respondents ranked nineteenth the factor, "Multi benefit objectives (public sector and private sector)". This finding suggests that the government and private partner's objectives should align for successful PPP project development in Ethiopia. The Ethiopian government intended to use PPP as a finance source for major infrastructure while gaining the private sector expertise. On the other hand, the private sector's motive is to maximise profit and penetrate the emerging PPP market in Ethiopia. To this effect, a conductive environment for PPP transaction is required with adequate policy and regulatory frameworks in the country.

5.5.4 Comparison of CSFs between Ethiopia and Other Developing Countries

The results of the analysis were also compared with similar studies those reported in Uganda (Alinaitwe & Ayesiga, 2013), Nigeria (Dahiru & Muhammad, 2015), Indonesia (Chou & Pramudawardhani, 2015), Ghana (Kwofie et al., 2016) and China (Cheung, et al., 2012). Table 5.15 shows the top five critical success factors of Ethiopia compared to other selected five developing countries.

Table 5. 15 Comparison of CSFs between Ethiopia and Other Developing Countries

No	Top Five CSFs in Ethiopia	Top Five CSFs in Uganda	Top Five CSFs in Nigeria	Top Five CSFs in Indonesia	Top Five CSFs in Ghana	Top Five CSFs in China
1	Presence of an enabling PPP policy	Well organized public agency	Good governance	Favourable legal framework	Government involvement by providing guarantee	Favourable legal framework
2	Well organized and committed public agency	Competent procurement process	Protective policy against political risk	Commitment and responsibility of public and private sectors	Right project identification and project technical feasibility	Appropriate risk allocation and risk sharing
3	Transparent procurement process	Project financial feasibility	Appropriate risk allocation & risk sharing	Transparency in procurement process	Competitive and transparent procurement process	Commitment and responsibility of public and private sectors
4	Favourable legal frameworks	Committeemen of all parties	Strong private consortium	Clearly defined responsibilities and roles	Favourable and efficient legal framework	Stable macro-economic condition
5	Stable political and social environment	A strong monitoring and evaluation system for projects implemented	Effective political stability	Good governance/ government support	Stable macro-economic condition and sound economic policy	Available financial market

Since all the countries compared with Ethiopia have enabling PPP policies, the first ranked critical success factor "Presence of an enabling PPP policy" remains critical only for Ethiopia as shown in Table 2.7 of section 2.12, Chapter 2. The second critical success factor "Well organized and committed public agency" was ranked first as "Well organized public agency" and fourth as "Commitment of all parties" in Uganda. A related factor "Commitment and responsibility of public and private sectors" was ranked second in Indonesia and third in China, respectively.

The third critical success factor "Transparent procurement process" was ranked similarly third in Indonesia (Transparency in the procurement process) and Ghana (Competitive and transparent procurement process). Many of the selected developing countries share the fourth critical success factor "Favourable legal frameworks" with Ethiopia. This factor was ranked first in China and Indonesia, respectively. In Ghana, this factor was ranked fourth as "Favourable and efficient legal framework" similarly with the Ethiopian case.

The fifth critical success factor in Ethiopia "Stable political and social environment" was ranked fifth in Nigeria, termed as "Effective political stability". However, this factor was not ranked as a top five-factor for the implementation of PPP projects in other developing countries. "Good

governance" was ranked the first top critical success factor in Nigeria against its sixth position in Ethiopia; while it was rated in the fifth place in Indonesia. In contrast, the factor "Government involvement by providing guarantee" was ranked first in Ghana, but it was ranked sixteenth by the overall respondents in Ethiopia. The findings revealed that the critical success factors of countries might not be identical, and it depends on the political, social and economic situations of each country. It also further justifies the importance of the study in assisting policymakers to have the insight to revisit the existing policies and regulations in Ethiopia.

5.6 Government Policies and Regulations towards PPP Implementation in Ethiopia

This section of the study analysed the effect and emphasis of government policies and regulations of Ethiopia on the implementation of PPP projects as per the perception of the overall respondents.

5.6.1 Government Development Policies Emphasis on PPP Implementation

The study sought to evaluate the government development plan emphasis on the private sector and PPP implementation in Ethiopia. Respondents were requested to rate their perception of the second generation of the growth and transformation plan (GTP-II) towards the development of PPP in Ethiopia using five points scale (1-strongly disagree, 2-disagree, 3-neutral, 4-agree, and 5-strongly agree). The results shown in Table 5.16 indicate that all the policy issues related to PPP implementation are not significantly addressed in Ethiopia.

Table 5. 16 Government Development Policies Emphasis on PPP Implementation

Issues	Mean	*t*-Test (m = 3.5)	Sig. (one-tailed)	Rank	RII	Policy Focus
The GTP-II recognizes the fundamental role of the private sector in enabling the government to allocate its funds to strategic projects to facilitate a higher level of development	3.37	-1.322	.095	1	0.67	**M**
The GTP-II acknowledges the private sector to play an important role in financing and delivering public services	3.29	-2.143	.017	2	0.66	**M**
The GTP-II prioritizes private investment in the context of PPP	3.11	-3.939	.000	3	0.62	**M**
The Government has clear strategy to determine which infrastructure projects would be best implemented as PPPs in the plan	2.90	-5.592	.000	4	0.58	**L**

Note: Results are significant at 95% level (P < 0.05); degree of freedom (df) = 107.
Mean score based on total respondents, N = 108.
RII = Relative Importance Index.

The statement "The GTP-II recognizes the fundamental role of the private sector in enabling the government to allocate its funds to strategic projects to facilitate a higher level of development" was rated with a mean value of 3.29 (*t*-test value negative, p>0.05 and RII–medium). The statement "The GTP-II acknowledges the private sector to play an important role in financing and delivering public services" was rated with a mean value of 3.37 (*t*-test value negative, p<0.05 and RII–medium). The statement "The GTP-II prioritizes private investment in the context of PPP" was rated with a mean value of 3.11 (*t*-test value negative, p<0.05 and RII–medium). Finally, the statement "The Government has clear strategy to determine which infrastructure projects would be best implemented as PPPs in the plan" was rated with a mean value of 2.90 (*t*-test value negative, p<0.05 and RII–low). These findings indicate that majority of the respondents have reservations about the emphasis given by the government development plan about the private sector role in PPP development (mean values less than 3.5). These findings further revealed that the private sector had not been given adequate attention in the government development plan with clear strategies to allow them to invest in PPP projects. The use of the private sector for financing infrastructure in developing countries like Ethiopia through PPP arrangement where the gap between demand and government capacity to deliver is mismatched is a workable and judicious alternative for policy makers to pursue (Sharma, 2012). The government's continuing development plan is considered as a strategic element enabling the public and the private sectors to plan and implement successful PPP projects (Verhoest, et al., 2015). Thus, this finding dictates that the next generation development plan needs to incorporate PPP as a means of financial source for infrastructure.

5.7 Effect of Policy Related Issues on PPP Implementation in Ethiopia

This section of the study attempts to evaluate the impact of government policies related to the implementation of PPP implementation in Ethiopia. Respondents were requested to rate their perception of the impact of factors related to policy issues using a five-level scale of measurement (1-very low, 2-low, 3-moderate, 4-high, and 5-very high).

5.7.1 Analysis of Effect of Policy Related Issues on PPP Implementation in Ethiopia

The *t*-test of the means show that all five factors were significant in influencing the development of PPP projects in Ethiopia *(t-value positive, p<0.05, and mean value >3.5)* as shown in Table 5.17.

Table 5. 17 Effect of Policy Related Issues on PPP Implementation in Ethiopia

Policy Issues	Mean	t-Test *(m = 3.5)*	Sig. (one-tailed)	Rank	RII	Level of Impact
Lack of specific PPP legal framework	3.94	3.582	.005	1	0.79	**M**
Unavailability of institutional framework for PPP implementation	3.90	3.756	.000	2	0.78	**M**
Absence of specific PPP policy	3.84	2.984	.002	3	0.77	**M**
Lack of government commitment for PPP development (assigned champion)	3.79	2.439	.008	4	0.76	**M**
Absence of developed funding and financing instrument for PPPs in local financial market	3.72	1.993	.003	5	0.74	**M**

Note: Results are significant at 95% level (P < 0.05); degree of freedom (df) = 107.

Mean score based on total respondents, N = 108.

RII = Relative Importance Index.

For the factor "Lack of specific PPP legal framework", the respondents ranked the highest impact with a mean value of 3.94 (*t*-value positive, p<0.05 and RII-Medium). This finding indicates that a specific legal framework has a significant effect on the success of PPP road and energy projects in Ethiopia. Ensuring the existence of suitable legal and regulatory environment for PPP implementation enables governments to gain quality services from competitive procurement and appropriate risk allocation (Ks, et al., 2016). According to ADB (2000), one of the limitations in developing countries that prevent the private sector from involving in PPP projects aggressively is the drawbacks noted in the public sector institutional arrangement. To remedy these weaknesses, governments enact PPP laws and regulations primarily to set the rules of engagement with the private sector (UNCITRAL, 2001). As a significant initial step, the Ethiopian government enacted a general PPP legal framework in 2018 to govern any PPP project procurement in Ethiopia (PPP Proclamation, 2018). However, sector-specific PPP policy and legal framework addressed to the

road and energy sectors based on the general PPP law of Ethiopia is important to promote the participation of the private sector in the specific sector.

The respondents rated second the impact of "Unavailability of the institutional framework for PPP implementation" with a mean value of 3.90(*t*-value positive, $p<0.05$ and RII- Medium). These findings suggest that the unavailability of the institutional framework will have a significant effect on the implementation of PPP road and energy projects in Ethiopia. It was reported that weaknesses of existing institutional arrangements had limited the effectiveness of the private sector initiatives to invest in PPP project in developing countries (ADB, 2000). This is because PPPs are regulated in different ways, and its development can take place within different institutional arrangements. A typical consideration when assessing the PPP institutional framework of a country is first to evaluate the existence of a PPP unit (World Bank, 2017). Given the complexity of PPP transaction, establishing a PPP unit may support the development of PPP in a country (World Bank, 2017). This finding suggests that the setting up of a PPP unit within the implementation agencies will assist and enhance the realization of PPP projects in Ethiopia.

Concerning the impact of the factor "Absence of specific PPP policy", the respondents ranked third with a mean value of 3.84 (*t*-value positive, $p<0.05$ and RII- Medium). Thus, this finding suggests that the intention of the government to implement PPP and the mechanism of managing the transaction should be communicated to the stakeholders through PPP policy as an initial step (World Bank, 2014) (see further discussion in Chapter 6). Hence, the establishment of general PPP policy in Ethiopia can be taken as a good start to foster its development. However, sector-specific PPP policy in the road and energy sectors is important to promote PPP development in Ethiopia. This needs utmost action from the government to articulate and communicate a specific PPP policy for the road and energy sectors, including the mechanism for the implementation and management of PPP projects.

Respondents ranked fourth the effect of "Lack of government commitment for PPP development (absence of government assigned champion)" in Ethiopia with a mean value of 3.79 (*t*-value positive, $p<0.05$ and RII- Medium). This finding indicates that the private sector participation in PPP projects may not be favoured in countries where the existence of political leadership and commitment for its development are not ensured (ADB, 2000). Political and social issues that go beyond the private sector domain should be handled by the government. To this contrary, if the

private sector participants unduly victimized in due course of a contract, it is legitimate that they should be adequately compensated to build their confidence to invest (Cheung, et al., 2012). This finding dictates that the government should assign a PPP champion to closely monitor and evaluate the progress of PPP development in Ethiopia.

Participants of the survey ranked fifth the effect of the "Absence of developed funding and financing instrument for PPP in the local financial market" with a mean value of 3.72 (*t*-value positive, $p<0.05$ and RII- Medium). The results revealed that the factor has a significant effect on the implementation of PPP projects in Ethiopia. Project financing is a crucial success factor for the private sector investment in public infrastructure projects (Akintoye, et al., 2001; Jefferies, et al., 2002; Zhang, 2005; Li, et al., 2005a). Availability of an efficient and mature financial market in the local market lowers financing costs, and it would be an incentive for the private sector taking up PPP projects. In contrast, the lack of mature financial market in Ethiopia can be a serious problem to discourage the private sector participation in PPP projects. The interest of the private sector towards PPP projects had been noted to increase due to new financing opportunities facilitated by government financial system (Akintoye et al., 2001). Though there is a slight liberalization of the economy, which assisted some local companies in developing, the government has not shown efforts to establish a capital market in Ethiopia (Teklehaimanot, 2014). The formation of capital market can boost the access to equity finance to the private sector and promote rapid economic development by filling the financial gap for infrastructure development in Ethiopia.

5.8 Influencing Factors of Private Sector Interest to Invest in Ethiopia

Respondents were requested to rank the influence of ten factors over the interest of the private sector to invest in PPP projects for which the information was provided on a five-point scale (1 - very low; 2 - low; 3 - moderate; 4 - high; and 5 - very high).

5.8.1 Ranking of Influencing Factors of Private Sector Interest in Ethiopia

Table 5.18 shows the results of the mean score, t-test values (one-tailed) and relative importance indices of the ten identified influencing factors of the private sector to invest in PPP projects in Ethiopia. Among the ten different influencing factors of PPP investment, five factors were

perceived highly important to attract the private sector (*t*-value positive, $p<0.05$ and RII-High). It can be noted that the top four factors were mainly related to government action to attract PPP investment ranging from credit and foreign exchange facilitation to guarantee/securities by the Ministry of Finance to lenders of PPP investment. Four factors were considered medium level of influence in attracting the private sector (*t* - value positive, $p<0.05$ and RII-Medium). The least ranked factor "Cost of doing business" was not considered statistically significant ($p>0.05$).

Table 5. 18 Factors Influencing Private Sector Interest to Invest in PPP Projects

Factors	Mean	*t*-Test (m = 3.5)	Sig. (one-tailed)	Rank	RII	Level of Influence
Availability of credit and foreign exchange to the private sector	4.35	9.414	.000	1	0.87	**H**
Investment guarantees by government	4.30	9.916	.000	2	0.86	**H**
Protection of property rights	4.28	9.612	.000	3	0.86	**H**
Guarantee/securities by the Ministry of Finance to lenders of PPP investment	4.28	9.876	.000	4	0.86	**H**
Guarantees provided by Multilateral lending institutions	4.06	6.603	.000	5	0.81	**H**
Guarantees provided by the Multilateral Investment Guarantee Agency	3.94	5.103	.000	6	0.79	**M**
Incentives to the private sector to invest in PPP projects	3.90	4.011	.000	7	0.78	**M**
Bilateral investment agreements	3.77	3.022	.002	8	0.75	**M**
Development of local capital market	3.65	1.711	.045	9	0.73	**M**
Cost of doing business	3.56	.681	.249	10	0.71	**M**

Note: Results are significant at 95% level (P < 0.05); degree of freedom (df) = 107.

Mean score based on total respondents, N = 108.

RII = Relative Importance Index

Subsequently, the five most influential factors (*t*-value positive and RII-High) in enhancing the private sector interest to invest in PPP projects are discussed. "Availability of credit and foreign exchange to the private sector for PPP projects" was ranked first with a mean value of 4.35. Concerning PPP project financing, one of the strategies to avert exchange rate risk is local currency financing (Verdouw, Uzsoki and Ordonez 2015). This finding suggests that the government should provide the platform in the local banking system to extend loans in local currency for PPP projects through modification of existing policy and regulatory provisions. In most PPP projects, the loan for project financing is usually obtained through foreign currency, and the revenue is in local currency. As a result, when negotiating contracts with private sector developers, governments need to acknowledge the real cost of hard currency financing, which includes both the cost of capital in hard currency and the cost of currency risk that the developer is expected to assume (Verdouw,

Uzsoki and Ordonez 2015). The National Bank of Ethiopia strongly regulates availability of foreign currency to the private sector. Infrastructure development through PPP is not the priority area to access foreign currency in Ethiopia (NBE, 2017b). Thus, the finding entails that the government of Ethiopia needs to reform the banking services to cater infrastructure financing to attract foreign direct investment in the infrastructure sector and increase the availability of credit and foreign exchange to the private sector (IMF 2016).

The second-ranked factor was "Investment guarantees by the government" with a mean value of 4.30. PPP investment remains for a substantial period, and it demands to win the private sector confidence. This requires an investment guarantee from the government to the PPP investor. To this effect, the consensus among political parties is so crucial to respect the interest of investors when there is a political change in the country. The investment proclamation of Ethiopia under article 25 gives an investment guarantee for no expropriation and nationalization of private investment except in the case of public interest where appropriate compensations would be effected in conformity with the requirement of the law (Investement Law, 2012).

The third top-ranked factor was "Protection of property rights", with a mean value of 4.28. As PPP investment is a long-term relationship between the government and private developer, the protection of property rights of the private sector should be ensured throughout the concession period. As such, the government may need to enact specific property right law for infrastructure projects, including PPP, as their nature of transaction demands the same in Ethiopia.

"Guarantee/securities by the Ministry of Finance to lenders of PPP investment" was ranked fourth with a mean value of 4.28. At the early stage of PPP development, government guarantees play an essential role to build the confidence of financiers and developers in the country. Therefore, to increase the attractiveness of PPP projects to private investors, the government may need to provide project-specific guarantees, such as revenue guarantees in the case of off-taker default (Kwak, et al., 2009). Government guarantees may also be extended by providing foreign currency for PPP investors on a priority basis for the re-payment of loans, interests and other expenses in foreign currency through the National Bank of Ethiopia. However, it is important to take into account that government support is targeted to strategic projects with value for money for the public sector (Delmon, 2017).

The fifth-ranked factor was “Guarantees provided by multilateral lending institutions”, with a mean value of 4.06. This finding conforms with the situation of the Ethiopian PPP development in the energy sector. The support provided by the World Bank through the IFC has enhanced the current procurement processes of PPP projects in Ethiopia. In addition to this, the World Bank has been intensively involving with the Ethiopian renewable energy development through the Renewable Energy Guarantees Program (REGP) to back-stop some of the obligation of the government to boost the private sector interest to invest in Solar and Wind PPP projects. These findings suggest that multilateral development banks should continue their support in providing guarantees to PPP projects as these guarantees have a significant effect in attracting the private sector investment in the country (Jett, 2018).

5.9 Improvement in Public Procurement for PPP Implementation in Ethiopia

Respondents were requested to rate their perception on ten identified PPP procurement issues to enhance the decision-making process, planning and preparation, tendering and execution of PPP projects in Ethiopia using five points level scale (1-strongly disagree, 2-disagree, 3-neutral, 4-agree, and 5-strongly agree).

5.9.1 Ranking of the Procurement Issues for PPP Implementation in Ethiopia

Of the ten PPP procurement issues, nine of them were rated with a mean score of above four, as shown in Table 5.19, indicating their high level of importance for successful PPP projects procurement in Ethiopia (*t* - value positive, $p<0.05$ and RII-High). The only least ranked procurement issues by overall respondents was “Allow flexibility in the procurement process” with a mean value of 3.58 (*t* - value positive, $p>0.05$ and RII-Medium). This procurement issue was not considered statistically significant ($p>0.05$).

Table 5. 19 Ranking of Procurement Issues in Ethiopia

Procurement Issue	Mean	t-Test (m = 3.5)	Sig. (one-tailed)	Rank	RII	Level of Importance
Ensure long term sustainability	4.51	16.175	.000	1	0.90	**H**
Establish well-structured tendering process for PPP	4.45	14.389	.000	2	0.89	**H**
Require PPP procurement directive	4.38	12.064	.000	3	0.88	**H**
Develop a set of evaluation criteria for PPP	4.35	10.745	.000	4	0.87	**H**
Private and public sector capacity building	4.32	10.322	.000	5	0.86	**H**
Use value for money analysis	4.30	9.786	.000	6	0.86	**H**
Develop appropriate concessionaire evaluation method for PPP	4.21	9.287	.000	7	0.84	**H**
Need sector specific regulation for PPP procurement	4.08	6.832	.000	8	0.82	**H**
Implement innovative procurement methods	4.01	6.591	.000	9	0.80	**H**
Allow flexibility in the procurement process	3.58	.831	.204	10	0.72	**M**

Note: Results are significant at 95% level (P < 0.05); degree of freedom (df) = 107.

Mean score based on total respondents, N = 108.

RII = Relative Importance Index

The top nine highly important PPP procurement issues *(t - value positive, p<0.05 and RII-High)* in the public procurement regime of Ethiopia are discussed below. "Ensure long term sustainability" was ranked most important public procurement area requiring improvement in Ethiopia by all respondents. Sustainability in public procurement can be achieved when environmental, social, and economic benefits are met concurrently (Patil & Laishram, 2017). To maintain sustainability in PPP there is always a competing demand between the profit-driven private sector and the public sector motive to protect non-economic aspects of environmental and social issues. Thus, the parties are required to strike a balance between economic, social and environmental objectives to realize feasible PPP investment (Shen, et al., 2016). In addition to the usual criteria used for prequalification of bidders using technical, financial and legal capacity, PPP procurement should consider the experience of the private participant in supporting green procurement and records of social and environmental mitigation measures (Patil & Laishram, 2017). To ensure long term sustainability of PPP infrastructure, governments are also required to enhance their institutional capacity in managing the project phases (UNCITRAL, 2001).

Therefore, this finding is an indication that the procurement of PPP projects in Ethiopia should be crafted to ensure long term sustainability in environmental, social and economic aspects.

The respondents ranked second the procurement issue "Establish a well-structured tendering process for PPP" in Ethiopia. To attract strong private sector participation in PPP, the impartial, flawless and transparent procurement process is a precondition to succeed (Gracia-Kilroy & Rudolph, 2017). The well-structured tendering process in PPP procurement also encompasses the following procedures (World Bank, 2017b).

- Preparation of technically qualified bid evaluators for PPP projects,
- Widespread notification of the procurement process to all bidders,
- Allocation of sufficient time for bidders to prepare their proposal,
- Issuing clear bidding document indicating all the procurement process,
- Provision of clarification to bidders' enquiries and making accessible to all bidders,
- Taking precautionary steps for evaluation when only one proposal is received,
- Results need to be disclosed to all bidders including the justification for the award,
- Negotiations should be restricted and regulated with the selected bidder, and
- Communicate the signed PPP contract to the public through appropriate media.

Respondents ranked third important issue for PPP procurement in Ethiopia was "Require PPP procurement directive". Following the enactment of the PPP proclamation in 2018 by the Ethiopian Parliament, it is expected from the Council of Ministers and Ministry of Finance to issue a regulation and a directive respectively following article 65 of the proclamation. The finding is a suggestion that without detail legal documents elaborating the general PPP legal framework, government agencies will not be able to effectively procure PPP projects in Ethiopia.

"Develop a set of evaluation criteria for PPP" was ranked fourth important procurement issue for PPP implementation in Ethiopia. The quality of issuing suitable project-specific evaluation criteria is a determinant factor to select the right private partner in PPP procurement (Zhang, 2004). Thus, the finding is an indication for the road and energy sectors, to develop detail concessionaire evaluation criteria in compliance with the PPP proclamation. According to Zhang (2004), the four evaluation criteria for PPP procurement commonly comprise financial, technical, managerial, and safety, health and environmental issues.

The fifth important issue for PPP procurement in Ethiopia ranked by all respondents was "Private and public sector capacity building". After setting the legal and regulatory framework, governments need to emphasize on enhancing specific skills of the implementation agencies and the private sector in PPP project identification, procurement and management to avoid potential difficulties (AfDB, 2016). Therefore, this finding suggests that considering the non-existence of PPP procurement method previously in the country, a comprehensive capacity building program for the public and the private sector participants need to be coordinated for successful implementation of PPP projects in Ethiopia.

Respondents ranked sixth the procurement issue "Use value for money analysis" in Ethiopia. Value for money in PPP projects can be defined as the optimum combination of whole life cost and quality to meet the user's requirement (Takim, et al., 2011). In evaluating PPP procurement, according to Takim et al. (2011), the most significant points for value for money achievement are to ensure optimum whole life cost, innovation in operation, fit for purpose, complete specification, time, and technology are considered by the selected bidder.

The seventh important issue for PPP procurement in Ethiopia ranked by all respondents was "Develop appropriate concessionaire evaluation method for PPP". Since the PPP procurement route is justified by the innovation and efficiency gains by the private contractor to reduce the cost and time of the project, appropriate selection of the right partner mainly depends on the prudence of tender evaluation method (World Bank, 2017b). According to Zhang (2004), there are a number of tender evaluation methods including the simple scoring method, Net Present Value (NPV) method, two-envelope method, multi-attribute analysis method, and Kepner-Tregoe decision analysis technique. These methods can be modified and combined to suit a particular PPP procurement in Ethiopia. Thus, this finding suggests that the suitable PPP evaluation method should be identified to serve the Ethiopia's procurement regulation. In this regard, the eighth ranked issue was "Need sector specific regulation for PPP procurement". Thus, the Ethiopian government is also required to issue sector specific regulation encompassing PPP procurement methods and criteria. "Implement innovative procurement methods" was ranked ninth highly important procurement issue in Ethiopia. This finding suggests that innovation is one of the sought advantages of implementing PPP in Ethiopia.

5.10 Government Departments Responsibility for PPP Development

Respondents were requested to rate the level of responsibility of different government offices in the procurement and administration of PPP projects in the road and energy sectors respectively with a five-point scale (1-not responsible, 2-least responsible, 3-moderately responsible, 4-responsible and 5-most responsible. As shown in Table 5.20 and Table 5.21, respondents from the road and energy sectors rated the responsibility of the government offices in descending order.

5.10.1 Responsibility of Institutions for PPP Road Development

The Ethiopian Roads Authority was ranked first highly responsible government office for PPP procurement and administration with a mean value of 4.15 (*t*-value positive, $p<0.05$ and RII - High) as indicated in Table 5.20. The PPP Directorate General was ranked second highly responsible government office with a mean value of 4.13 (*t*-value positive, $p<0.05$ and RII- High). These findings also comply with the content of Proclamation No.1076/2016 under which government executing agencies are responsible for the execution of PPP project with continuous technical support from the PPP Directorate General (PPP Proclamation, 2018). At the early stage of PPP development, implementing agencies such as the Ethiopian Roads Authority could not have the required capacity for structuring PPP road projects (World Bank, 2014). For this reason, the involvement of the PPP Directorate General plays significant role in the PPP process as this finding suggested.

Table 5. 20 Responsibility of Institutions for PPP Road Development

Institution	Mean	t-Test (m = 3.5)	Sig. (one - tailed)	Rank	RII	Level of Responsibility
The Ethiopian Roads Authority	4.15	4.469	.000	1	0.83	**H**
PPP Directorate General	4.13	4.714	.000	2	0.83	**H**
The Ministry of Finance	3.60	.590	.558	3	0.72	**M**
The Ethiopian Toll Road Enterprise	3.06	-2.390	.021	4	0.61	**M**
Ministry of Public Enterprises	2.67	-5.110	.000	5	0.53	**L**
The Investment commission	2.62	-6.554	.000	6	0.52	**L**

Note: Results are significant at 95% level (P < 0.05); degree of freedom (df) = 51

Mean score based on total respondents, N = 52

RII = Relative Importance Index

The remaining four government offices' role in the procurement and management of PPP road projects found to be statistically insignificant. The level of responsibility of the Ministry of Finance of Ethiopia was ranked third with a mean value of 3.60 (*t*-value positive, $p>0.05$ and RII- Medium). The Ethiopian Toll Road Enterprise was ranked fourth with a mean value of 3.06 (*t*-value negative, $p<0.05$ and RII-Medium). The last two government offices ranked fifth and sixth were the Ministry of Public Enterprises with a mean value of 2.67 (*t*-value negative, $p<0.05$ and RII-Low) and the Investment Commission with a mean value of 2.62 (*t*-value negative, $p<0.05$ and RII-Low) respectively. Hence, the findings revealed that the respondents perceived these four government offices as least responsible for the procurement and administration of PPP road projects in Ethiopia.

5.10.2 Responsibility of Institutions for PPP Energy Development

The energy sector respondents ranked the level of responsibility of different government offices for PPP projects procurement and administration, as shown in Table 5.21. The first ranked most responsible government office in the energy sector is the Ethiopian Electric Power with a mean value of 4.61 (*t*-value positive, $p<0.05$ and RII-High). The second and third-ranked highly responsible government institutions were the PPP Director General with a mean value of 4.57 (*t*-value positive, $p<0.05$ and RII-High) and the Ministry of Water, Irrigation and Energy with a mean value of 3.66 (*t*-value positive, $p>0.05$ and RII-Medium). These findings suggest that these three government institutions are highly responsible for energy sector PPP procurement and administration in Ethiopia as perceived by the energy sector respondents.

Table 5. 21 Responsibility of Institutions for PPP Energy Development

Institution	Mean	t-Test (m = 3.5	Sig. (one-tailed)	Rank	RII	Level of Responsibility
The Ethiopian Electric Power	4.61	11.747	.000	1	0.92	**H**
PPP Director General	4.57	12.760	.000	2	0.91	**H**
The Ministry of Water, Irrigation and Energy	3.66	1.146	0.129	3	0.73	**M**
The Ethiopian Electric Utility	3.23	-1.642	0.053	4	0.65	**M**
The Ethiopian Energy Authority	3.11	-2.447	0.009	5	0.62	**M**
The Prime Minster office	2.54	-5.408	.000	6	0.51	**L**

Note: Results are significant at 95% level (P < 0.05); degree of freedom (df) = 55
Mean score based on total respondents, N = 56
RII = Relative Importance Index

The least ranked three government offices were the Ethiopian Electric Utility with a mean value of 3.23 (*t*-value negative, $p>0.05$ and RII-Medium), the Ethiopian Energy Authority with a mean value of 3.11 (*t*-value negative, $p<0.05$ and RII-Medium) and the Prime Minister's office with a mean value of 2.54 (*t*-value negative, $p<0.05$ and RII-Low) respectively. Thus, this finding shows that the respondents perceived the direct role of the three government offices at medium level of responsibility with negative t-value. The responsibility of the prime mister office was perceived at low level with negative t-value for the procurement and administration of PPP energy projects in Ethiopia.

5.11 Reliability Test

Cronbach's alpha coefficient was computed to check the reliability and internal consistency of the scale used in the questionnaire survey as shown in Table 5.22. The acceptance of alpha coefficient was reported between 0.7 and 0.95 (Nunnally & Bernstein, 1994; Bland & Altman, 1997; DeVellis, 1992). The results of Cronbach's alpha in this survey were calculated between 0.647 and 0.940. A low value of coefficient of alpha could be encountered when a low number of questions or it may be due to poor interrelatedness between items (Tavakol & Dennick, 2011). A higher value of alpha (usually greater than 0.90) also suggests redundancy of some items testing the same question. However, most of the calculated Cronbach's alpha in this study were found between 0.80 and 0.90. Therefore, with the above fact, the results were considered useful and acceptable for the interpretation of the research outcome (Nunnally, 1975).

Table 5. 22 Cronbach's Alpha Coefficient for Questionnaire Survey

Category of Questions	Cronbach's Alpha
Attractive factors	0.888
Critical success factors	0.940
Government development policies emphasis	0.809
Effect of policy related issues	0.836
Influencing factors	0.848
Improvement in public procurement	0.814
Government department responsibility of road sector	0.647
Government department responsibility of road sector	0.648

5.12 Agreement of the Survey Respondents

In order to statistically comprehend the degree of consensus of the respondents of the questionnaire survey, Kendall's coefficient of concordance was computed as shown in Table 5.23. As the number of factors were greater than 7, the Chi-square is a better approximation of the value rather than the Kendall's coefficient *(W)* (Siegel & Castellan, 1988). The critical values of Chi-square referring to Chi-square Distribution Table of Siegel & Castellan (1988) with a significance level of 0.05 were referred. Therefore, since the computed value of Chi-square was greater than the critical value of Chi-square; the null hypothesis that "Respondents' sets of rankings are different to each other" has to be rejected. Thus, there is sufficient evidence to infer that there is a significant degree of agreement among the respondents.

Table 5. 23 Kendall's Coefficient of Concordance

Category of Questions	Critical Value of Chi-square	Computed Value of Chi-square	*p*-value (<0.05)
Attractive factors	26.296	106.044	0.000
Critical success factors	37.652	353.867	0.000
Government development policies emphasis	7.820	26.318	0.000
Effect of policy related issues	9.490	9.676	0.046
Influencing factors	16.919	143.122	0.000
Improvement in public procurement	16.919	126.402	0.000
Government department responsibility of road sector	11.07	92.826	0.000
Government department responsibility of energy sector	11.07	124.792	0.000

5.13 Summary of the Chapter

In this chapter, the significant factors of PPP implementation in Ethiopia are identified and the reasons why the government of Ethiopia pursue the PPP procurement option through the questionnaire survey from the road and energy sectors are discussed. Assessment of the government policies and regulatory effects on PPP implementation in Ethiopia are examined.

CHAPTER SIX: CASE STUDIES OF PPP PROJECTS IN ETHIOPIA

6..1 Introduction

This chapter presents the background of the case studies selected from the road and energy sectors. It also provides an analysis of the data collected through interview of professionals in Ethiopia.

6.2.1 Output and Performance-based Road Contracting (OPRC)

Performance-based contracting was selected as a case study from the road sector due to its advanced procurement mode in the road sector of Ethiopia. It is also believed to assist public agencies to adopt PPP projects (Bull, et al., 2014). Notably, successful OPRC projects can pave the way for the adoption of PPP road projects. OPRC changes the role of the public sector from a purchaser of an asset to a purchaser of service (Bull, et al., 2014). This shift of role also enhances the government's capacities to administer PPP projects (Zietlow, 2007).

Many terminologies are utilized to describe performance-based contracts (Sultana, et al., 2012). The term output and performance-based road contracting (OPRC) is mainly used by the World Bank (ADB, 2018). For this study, the World Bank terminology is used. Countries may pursue OPRC for various reasons. The main objective of developed countries is to save maintenance costs (ADB, 2018). In contrast, developing countries use OPRC to secure sustainable financing for road maintenance and improve road conditions (ADB, 2018).

Both governments and the private partner benefit from OPRC in several ways. The long-term nature of the OPRC contract incentivizes the contractor to take action before the road deteriorates (Bull, et al., 2014). In turn, the government would also be bound to finance the maintenance works for several years. Ultimately, the asset's performance standards improve, resulting in reduced costs expected to be spent on rehabilitation and reconstruction (Mulmi, 2016). Despite the benefits of OPRC, the project's legal and financial plausibility need to be carefully analysed before introducing the model (Zietlow, 2007). Other factors such as affordability, incentive structure, risk allocation, contract scope, and road length are also crucial (Bull, et al., 2014).

6.2.2 Background of Output and Performance Contracting in Ethiopia

The Ethiopian road sector has been using conventional procurement practices based on the government budgetary allocation for decades. Due to lack of adequate maintenance of the road in Ethiopia, the government was exposed to capital spending of USD263 million per year (Foster & Morella, 2010). The maintenance investment gap is still widening due to shortage of funding (ERA, 2020). Under the conventional road maintenance contracts in Ethiopia, the contractor is responsible for executing works typically defined by the contracting authority. The contractor is paid based on unit prices for completed works without future liabilities. Conversely, OPRC is designed to keep the road condition for the entire contract period by ensuring the asset management efficiency (Radovic, et al., 2014).

The Ethiopian Roads Authority contracted out a major OPRC project, Nekempte-Bure, to international private contractors through competitive bidding in 2016 with the World Bank's support as shown in Table 6.1.

Table 6. 1 Summary of Nekemete – Bure OPRC Project

Project	Lot 1: Nekemete -Anger Gutin-Andhode	Lot -2: Andhode - Agamsa	Lot 3: Agamsa-Bure
Contract amount	ETB1,048,885,237.35 and USD 37,312,292.91	ETB: 537,642,867.11 USD: 59,708,347.48	ETB: 1,097,824,632.19 USD: 33,054,268.18
Project Length(km)	86.1	87.65	84.56
Contractor	IL & FS Transportation Networks Limited Elsamex S.A (ITNL - Elsamex Joint Venture)	JMC Projects Ltd., India	IL & FS Transportation Networks Limited Elsamex S.A (ITNL - Elsamex Joint Venture)
Consultant	RENARDET S.A	LEA International Ltd. Canada	Kunhwa Engineering & Consulting Co., Ltd. in Joint Venture with Korea Expressway Corporation
Project Duration	96 months (36 months for improvement works and 60 months for management and maintenance works)	96 months (36 months for improvement works and 60 months for management and maintenance works)	96 months (36 months for improvement works and 60 months for management and maintenance works)
Commencement date	November 14, 2016	November 01, 2016	November 15, 2016
The completion date for improvement works	November 14, 2019	November 01, 2019	Nov 15, 2019
The completion date for management and maintenance works	November 14, 2024	November 01, 2024	Nov 15, 2024
Progress to date	Terminated (April 2019)	84% (October 2020)	Terminated (April 2019)

The case study mainly focuses on the challenges and prospects of the Nekempte-Bure OPRC project to draw lessons for future PPP road projects in the pipeline because of its advanced development stage. The project structure of the Nekempte-Bure OPRC project is shown in Figure 6.1.

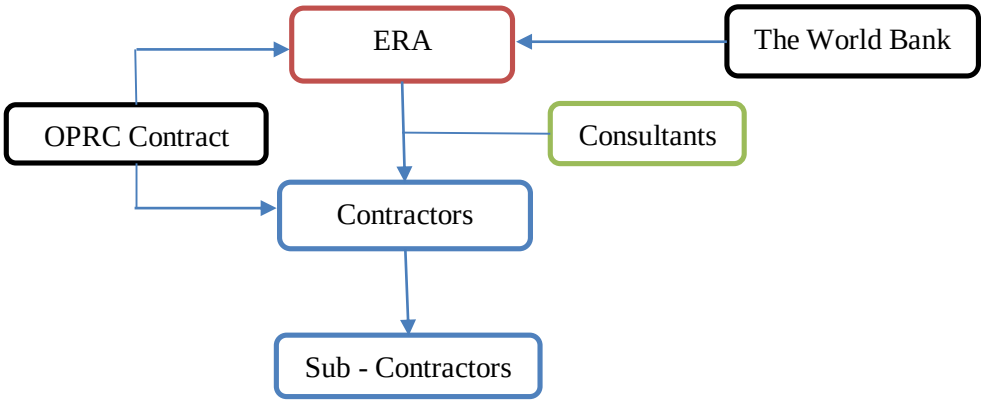

Figure 6. 1 Structure of the OPRC Contract

6.2.3 Analysis of Case Study from the Road Sector

An interview was designed and conducted with professionals working on the Nekempte-Bure OPRC project. The interviews were carried out in June and July 2018. The interviews' questions were prepared based on the literature review and responses received from the questionnaire survey. Initially, the review of the project progress report and literature review on the challenges of implementing OPRC projects informed the guiding questions for interview.

The interview included twelve questions. It contained questions about the interviewee's background and their experiences with traditional methods of contracting in Ethiopia. They were asked on the appropriateness of the selected project for the OPRC model. The difficulties the public agency and private contractors faced in the OPRC project implementation were also interrogated. Moreover, the participants were requested to share their opinions on the experiences gained from the OPRC project's execution and factors that would affect Ethiopia's future PPP road projects. The template of the interview questions is shown in Appendix B.

6.2.3.1 Background of Respondents to the Interview

The interview was carried out among selected senior professionals involved in the OPRC project, as indicated in Table 6.2. The respondents were selected based on the following criteria:

- Professional background,

- Experience of work,
- Education level, and
- Position of the person in the project.

14 potential respondents were contacted for the interview. However, only 10 of them consented to participate in the interview session. Among the ten participants, 4 (40%) were from the public sector, 3 (30%) from the consulting firms, and 3 (30%) were from the contractors' side.

Table 6. 2 Background of Interview Participants

No	Organization	Position in the Management of the Project	Level of Education	Years of Experience	Respondent's Code
1	Ethiopian Roads Authority **(Public Sector)**	Deputy Director-General	MSc in Transport Engineering	28	RR1
2	Ethiopian Roads Authority **(Public Sector)**	Regional Director	MSc in Civil Engineering	11	RR2
3	Ethiopian Roads Authority **(Public Sector)**	Team Leader	MSc in Civil Engineering	8	RR3
4	Ethiopian Roads Authority **(Public Sector)**	Project Engineer	MSc in Civil Engineering	10	RR4
5	JMC Projects Limited India Limited **(Private Sector)**	Senior Vice President	B.E(Hons) in Civil Engineering	34	RR5
6	Kunhwa Engineering & Consulting Co., Ltd. in Joint Venture with Korea Expressway Corporation in Sub-Consultancy with Ethio Infra Engineering PLC (EIE) **(Private Sector)**	Quality Assurance Specialists	MBA(IB) and BSc in Civil Engineering	29	RR6
7	RENARDET S.A in Sub-consultancy with United Consulting Engineers (UNICONE) PLC **(Private Sector)**	Assistant Project Manager	BSc in Civil Engineering	30	RR7
8	Kunhwa Engineering & Consulting Co., Ltd. in Joint Venture with Korea Expressway Corporation in Sub-Consultancy with Ethio Infra Engineering PLC (EIE) **(Private Sector)**	Project Manager	MSc in Civil Engineering	20	RR8
9	IL&FS Transportation Networks Limited-ElsamexS.A (ITNL-Elsamex Joint Venture) (Private Sector)	Road Asset Manager	MSc in Civil Engineering	11	RR9
10	IL&FS Transportation Networks Limited-ElsamexS.A (ITNL-Elsamex Joint Venture) **(Private Sector)**	Planning Engineer	B.E. Civil +PGDM (Project Management)	3.5	RR10

The interview participants had been involved in the road sector for many years with a mean period of 18.5 years (minimum of 3.5 years to a maximum of 34 years). Of the ten participants, 40% of them had more than 20 years of experience in the road sector. 10% of the participants had experienced between 16 to 20 years, and 20% of the respondents experienced between 11 to 15 years, as shown in Figure 6.2.

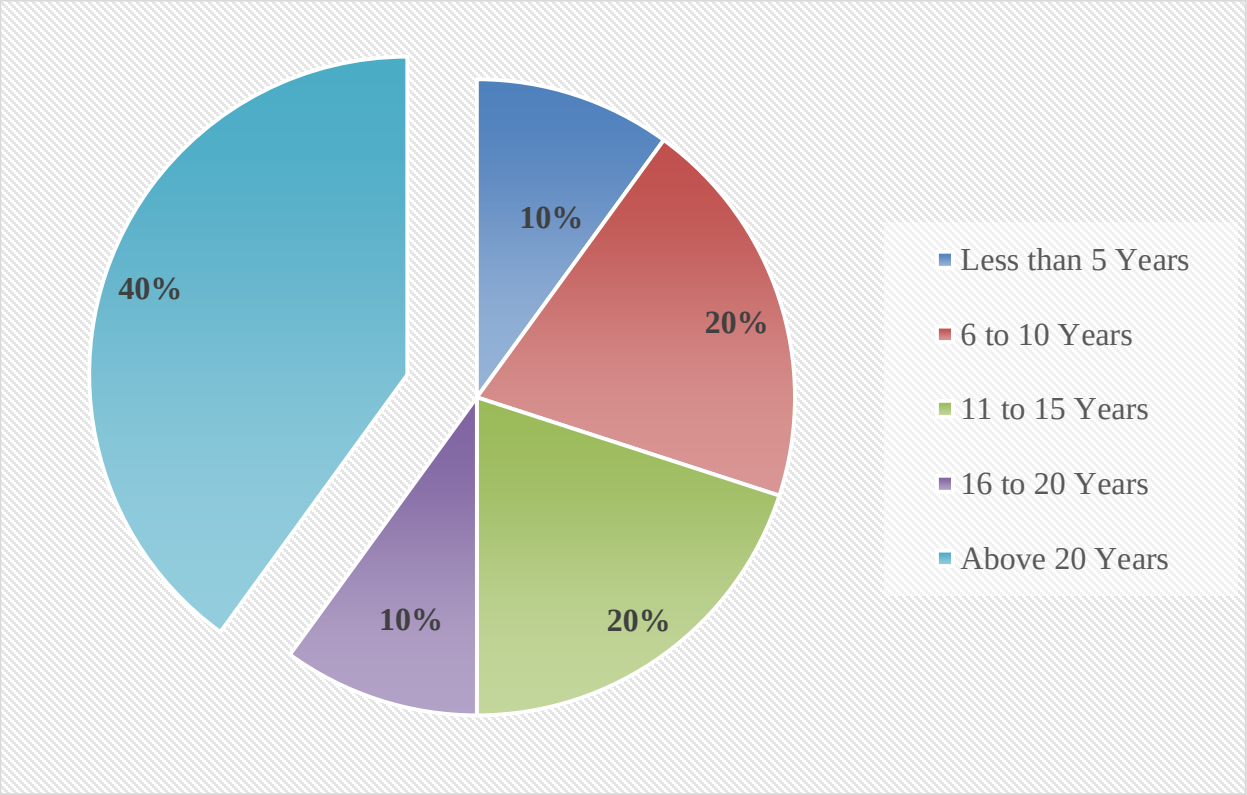

Figure 6. 2 Experience of Interview Participants in the Road Sector

6.2.3.2 Analysis of the Interview Responses of the Road Sector

The interview responses were recorded individually question (by developing a table for each respondent and recording his answer for each question) and analysed based on the similarity of the content of the responses (sentences) provided by all respondents for each question as discussed below.

6.2.3.2.1 Feature of Traditional Method of Road Procurement in Ethiopia

Public sector projects are usually affected by many factors including inappropriate planning, lack of finance, poor contractor selection, environmental issues, insufficient risk allocations, variation orders, delay in decision making and unrealistic project duration (Odeh & Battaineh, 2002; Sambasivan & Soon, 2007; Rosenfeld, 2013). In turn, these factors cause project delay, cost overrun, dispute and litigations (Sambasivan & Soon, 2007). The interview participants were

requested to provide their comments on traditional methods of road project based on their experiences in Ethiopia.

Participants of the interview commented that the traditional road contracting method in Ethiopia was affected by several factors related to cost overrun, quality problem, delay and inappropriate risk allocation in the contract. This finding suggested that Ethiopia's traditional road procurement did not achieve the minimum critical project success criteria of cost, time and quality (Shehu, et al., 2015; Chan & Chan, 2004).

All the participants noted that cost and time overrun were commonplace in the conventional procurement methods used in the Ethiopian road sector. It is noticeable that project delay and cost overrun have positive interrelation (Shehu, et al., 2015; Sambasivan & Soon, 2007). Participant RR6 commented that the cost and time overrun mainly emanated from inappropriate scope definitions and detail in the procurement documents due to design deficiencies. According to respondents RR1, RR2, RR6 and RR8, project preparation for the design and build and design-bid-build were not usually adequate. Respondent RR1 mentioned that the time allocated for undertaking the design service was not sufficient, usually one and a half years. This inadequacy in the time allotted for design service limited the level of detail of the design. Respondent RR2 believed that design problem originated from the terms of reference for design procurement. It did not involve detail foundation and subgrade investigation. In terms of both foundation and subgrade soils (including earthworks), unforeseen ground conditions had a significant impact on the project's cost (RR2). The effect of the inadequate ground investigation was also reported to escalate project cost and completion time in other jurisdictions (Littlejohn, et al., 1994; Hansen, 2019).

The selection of an appropriate delivery method enhances project performance by minimising project delay, cost escalation and risk allocation (El Wardani, et al., 2006; Osipova & Eriksson, 2011). Participant RR1 indicated that no streamlined project delivery system and selection method in the Ethiopian road sector was established. Without appropriate study, decisions were given to procure through a design and build or design-bid-build for political reasons. There was also a significant gap between design completion and project implementation, which often required additional design review to execute the projects according to participant RR2. This gap suggested that the client’s inappropriate planning for project execution contributed to project delay.

Risk allocation was not appropriate to the client, and value for money was not confirmed in design and build projects (RR2, RR5, RR6, and RR7). Respondent RR9 also indicated that most of the risks allocated to the client in the case of a design-bid-build project, and the quality was also not assured. According to respondent RR6, client's misunderstanding in risk allocation and the tendency to transfer all risks to the contractors was also a critical problem in design and build projects.

The findings shed light on the situation of traditional procurement in the Ethiopian road sector. Thus, many factors affected the road sector, including inadequate planning and design, lack of streamlined project selection method, poor risk allocation, lack of maintenance, and delay in project implementation after design completion. As a result, the road sector was exposed to variation, high cost and project delay.

6.2.3.2.2 Selection of Output and Performance-Based Road Project

There are numerous challenges and drawbacks in the transition from traditional to OPRC model in many developing countries (Ozturk, et al., 2018). Failure of projects at the pilot stage of implementation could also discourage participants in subsequent OPRC projects. Therefore, careful selection of suitable initial project for OPRC by road authorities determines its success. Road authorities should primarily consider the type of the road (periodic maintenance and rehabilitation), the length of the road and the duration of the contract (3 to 10 years) for OPRC project selection (Sultana, et al., 2012). Large projects with long contract duration and longer sections outsourced for maintenance are preferable for OPRC projects (Anastasopoulos, et al., 2010; Sultana, et al., 2012). At the early stage of OPRC adoption, it is also recommended to contract only road maintenance and management works (EBRD, 2016). According to EBRD (2016), after a successful outcome is warranted at the piloting stage, up to 50% of rehabilitation works could be added in the OPRC contract. In this respect, respondents were requested to give their opinion on the appropriateness of selecting Nekempte-Bure road project to implement using the OPRC model.

According to most participants (6 participants), the Nekempte-Bure was appropriate for OPRC project. It was a significant link road to connect the two highly populated regions (Oromia and Amhara) with resource-rich areas. However, respondents RR2 and RR6 commented that the

proportion of the improvement work and the maintenance work in terms of cost was not appropriate since it consisted of 70 % improvement works and 30% maintenance cost. This gap between improvement and maintenance works increased the client's risk. The contractor might not consider the maintenance and management work attractive to continue for five years after completing the improvement works.

Some participants (RR2, RR6 and RR10) also indicated that the pilot project for OPRC should have been tested with management and maintenance works only. They further added that due to the large scope of the improvement works the public agency was compelled to administer the project as a design and build project due to perceived quality concern at a later stage. Participants RR1 and RR3 commented that the project's maintenance and management works were very challenging due to high intensity of rainfall along the project route, which increased the deterioration rate and transferring this risk through OPRC was a correct decision. Participant RR1 from the client-side indicated that the improvement works were attractive to the contractor as the management and maintenance work could not attract the international private sector due to the works' level and scope.

The interview outcome and the project's current status revealed that the project was not successfully implemented as OPRC project. Sections (Lot-1 and Lot-3) were terminated in April 2019, as shown in Table 6.1 and further explained below in sections 6.2.3.2.3 and 6.2.3.2.4.

6.2.3.2.3 Challenges of Implementing OPRC Projects by the Client

Successful implementation of OPRC projects demands a strong commitment and support from public authorities (ADB, 2018). The transition of a road agency from managing traditional projects to OPRC also requires a change of the staff roles. As most of the client's functions change from controlling the works to monitoring and facilitating the contractor's performance, strong capacity should be built to execute these activities successfully (EBRD, 2016; Bull, et al., 2014). Notably, the road agency's experiences in the management of the OPRC would help in adopting PPP projects (Bull, et al., 2014). Participants were asked to explain the main difficulties the client had been facing during the implementation of the OPRC in Ethiopia.

According to the participants, the main difficulties the client had been facing during the implementation of the OPRC project were delay and lack of coordination of public agencies

(telecommunication, electric and water lines) in removing the right of way (mentioned by 9 respondents). There were also a lack of community support (cited by 6 respondents), political influence by the local administration (RR1 and RR5), the indecision of the client on essential issues (RR6), lack of capacity of the client in managing the OPRC project (RR2, RR3, RR6 and RR10), security problem (mentioned by 8 respondents), the poor performance of the contractors and unwillingness of doing the work as per the schedule by the contractors (RR4 and RR6).

Moreover, the government had not backed the project with strong political support. As a result, security and land acquisition problems were encountered (RR2, RR5 and RR10). Due to the client's lack of experience in preparing bid document for OPRC projects, many challenges were noted later at the implementation stage (RR1, RR3, RR7 and RR10). The limited efforts to enhance the public sector's capacity before and after implementing the OPRC affected the contract management (RR2 and RR3).

6.2.3.2.4 Challenges of Implementing OPRC Projects by Contractors

The role of well-qualified contractors and subcontractors is crucial for the success of OPRC projects. The contractors' experiences in road maintenance, rehabilitation and improvement works should be ensured from the outset (ADB, 2018). The contractors' capacity in quality assurance and experiences in engaging in long term contracts should also be emphasised at the tendering stage. In this regard, the interview participants were also requested to explain the main difficulties that the contractors had been facing during the implementation of the OPRC project in Ethiopia.

The participants of the interview indicated that the contractors of the OPRC project had been facing different problems, including security problem (mentioned by 8 respondents), contract documents ambiguity (RR3, RR5 and RR10), cash flow problem (mentioned by all respondents), interruption of works by the local community (RR2, RR3, RR6 and RR9) and delays in handover of the site to the contractors from the client (RR1, RR2, RR5 and RR10).

The contractor (the same for Lot-1 and Lot- 3) had a severe resource mobilization problem, especially construction equipment and qualified experts. It mainly relied on rental equipment and subcontracting of improvement works (RR1, RR2, RR4, RR8 and RR9). Due to a lack of

coordination and management problem from the main contractors, the project was not progressing well as per the schedule (RR1, RR2, RR3, RR4, RR6 and RR8). The contractor (Lot-1 and Lot- 3) could not execute the project, and it should have been screened out at the early procurement stage (RR2, RR6 and RR8). The contractor (Lot-1 and Lot- 3) was also not financially sound to finance the project until a specific time before it could generate cash from the client according to the contract's payment modality (mentioned by 7 respondents).

6.2.3.2.5 Experience of Respondents in PPP Projects

The capacity of implementing OPRC and other advanced procurement methods such as PPP cannot be developed over time; nevertheless, a minimum understanding is also required from the inception (EBRD, 2016). Respondents of the interview were requested to explain their experiences with PPP road contracting.

All the participants acknowledged their familiarity with PPP road contracting due to the partnership between the contractor and the client in the OPRC project they had involved in Ethiopia and other countries' literature and experiences. In addition to this, three of the interview respondents (RR5, RR8 and RR10) mentioned that their companies had PPP projects in their respective countries (India and South Korea) and participated in managing PPP projects.

6.2.3.2.6 Advantages of Implementing OPRC for Adopting PPP Projects

Successful implementation of OPRC projects could benefit the public in many ways. First and most, it ensures the road's sustainability by integrating the design and long term maintenance works as poor maintenance is commonly a drawback in many developing countries (Iimi, 2020). In return, quality road service enhances economic growth and social connectivity. Notably, the OPRC contract's long-term nature helps develop a partnership between public and private contractors. Moreover, a well-structured OPRC contract enables parties to appropriately share risks and rewards by defining the project’s scope and performance measures of the project (Fuller, et al., 2018). The respondents were requested to give their opinions on whether the experiences gained from the Nekemte - Bure OPRC project could assist the adoption of PPP road projects in Ethiopia.

The participants commented that implementing the pilot OPRC project would assist the adoption of PPP road projects in Ethiopia. According to RR1, the OPRC could help understand the concept of PPP projects from actual project experiences. Lessons could be drawn from the difficulties encountered in the execution of the OPRC for future PPP projects. Respondent RR6 mentioned that it assists in measuring the client's maturity in the management of PPP projects. Respondents RR6 and RR10 stressed that financing projects from the local source could be understood. Respondent RR6 added that experience for local companies in subcontracting of such projects could be learnt, and foreign contractors can also study the local capacity in contracting out.

In addition to the above, the participants (RR2, RR3, RR4, RR6 and RR9) indicated that the OPRC project would help select the right project for PPP, defining the scope of works, and preparation of well-drafted bidding documents. They also mentioned that it would also help specify the right performance standards with clear service level requirements for a long-term contract and enhance the monitoring capacity of the service level by the public agency. Respondents RR3 and RR4 mentioned that the client had also learned how to change from input-oriented to output-oriented project delivery, transfer risk in service quality and maintenance, and request warranty to construct projects.

Furthermore, participant RR1 commented that as a pilot project, lessons were drawn from the difficulties encountered in implementing the OPRC project by the public agency, contractors and consultants for future PPP projects.

6.2.3.2.7 Factors Affecting PPP Road Project Implementation in Ethiopia

Many factors could affect the implementation of PPP in the road sector. These factors are generally called critical success factors (see section 2.12 of Chapter 2). The participants were requested to express their opinion on factors that could affect the introduction of PPP in the road sector based on their experience in the OPRC project in Ethiopia.

Some experts emphasised that lack of government support could hinder long-term PPP road projects in Ethiopia (RR1, RR2, RR6, RR7 and RR10). Respondent RR9 commented that since the OPRC project's commencement, there was no higher government official visit to the project to give security assurance to the contractors except the implementing agency. Participants RR1 and RR6 also indicated that political support for PPP road project would be critically important for

their success. They (RR1 and RR6) suggested that the government should win over private-sector trust to attract their financing for PPP road projects in Ethiopia.

Participant RR1 of the interview further indicated that stability and predictability of political, economic and social factors should be ensured to attract the private sector to invest in PPP projects. According to respondents RR2, RR5 and RR8, guaranteeing freedom for the mobility of professionals throughout the country to work in projects would also be critically important. The executing agencies and government readiness for PPP implementation and political commitment should also be verified before embarking on PPP in Ethiopia (RR2 and RR6). Interviewee RR2 further commented that Regional government support for such significant private sector investment should be confirmed at the early PPP development stage. Participant RR2 added that Regional officials should be made accountable for their contribution to project failures.

Project financing in the local financial market would be a serious impediment unless measures could be taken at an early stage before embarking on PPP road projects, as mentioned by respondents RR6 and RR10. They (RR6 and RR10) further suggested that to attract foreign equity and debt investors, the Ethiopia government should guarantee repatriation of investment cost and ensure foreign currency availability.

Respondents RR1 and RR8 mentioned that performance standards and database on the country's traffic volume should be developed to give sufficient information to the private sector for proper risk assessment. They (RR1 and RR8) further indicated that setting the performance standard in subjective terms could be open for interpretations and, hence, disputes. According to respondent RR7, the performance standards should be specified objectively to measure service level requirements.

Government failure to give sufficient compensation to local people for the appropriation of their land would impact project progress. Respondents RR5 and RR9 stressed that the local people had developed a negative impression of the project (lack of community support). In this regard, consultation with the local community in the project development process should be finalized before concluding any long-term contract. Respondents RR1 and RR3 mentioned that the traffic volume of the country might not warrant attracting the private sector to invest in PPP road projects unless incentive packages would be set up. Toll based payment modality might not be feasible in

Ethiopia, but annuity-based PPP road projects could be viable. As a result, respondent RR5 suggested that all alternative PPP modalities should be considered for the road sector.

Thus, the findings revealed that government should establish adequate policy and regulatory instrument to ensure the Federal and Regional government's political support to PPP road projects. Project affected people should also be provided with sufficient compensation to win local support for PPP road projects. The total number of motorised vehicle in Ethiopia (1.2million) (The Reporter, 2020) is very low when compared to the population of the country (116 million) (Worldometer, 2020), which might not warrant sufficient revenue for private sector investment. Most importantly, government support for PPP road projects could be reflected in terms of minimum revenue guarantee, availability payment and construction cost subsidy (Queiroz, et al., 2013). Moreover, the underdevelopment of local project financing experiences would be a stumbling block to PPP road projects' success. This financing problem in the local market would further strengthen the importance of government support for PPP road projects. The setting of objective performance standard was emphasised as an essential factor (Ozturk, et al., 2018) as it determines the quality of service and the PPP model.

6.2.3.2.8 Prospects of PPP Implementation in Ethiopia

Finally, the interview respondents were asked to express their general comments on PPP road projects' prospect based on their experience in Nekempte - Bure OPRC in Ethiopia.

According to all the interview participants, the prospect of PPP road in Ethiopia would be promising if the lessons learnt from the OPRC project could be adequately documented and disseminated to stakeholders for future works. Respondent RR10 mentioned that the country's economic growth would be a substantial opportunity for private sector participation in infrastructure. Nevertheless, the participants commented that careful selection and preparation of feasible projects (RR2 and RR4), the foundation works to enhance the capacity of implementing agencies and local contractors (RR1 and RR5), and the awareness creation of the public at large should be undertaken to successfully realize PPP in Ethiopia (RR1 and RR9). Nevertheless, participants, RR5 and RR10 stressed that local financial constraint for PPP road projects would be challenging. Moreover, participant RR8 indicated that strong international and local private

companies would be required to implement it successfully; otherwise, there would be serious challenges in PPP road projects in Ethiopia.

6.3 Background of PPP Case Study in the Energy Sector

Though the public sector investment mainly leads Ethiopia's power sector for a long, various efforts are underway to engage the private sector in electric power generation in recent time. In the past, before the enactment of the PPP proclamation in 2018, direct negotiations with the private sector based on proposals were the prevailing procurement method. Among such projects, the Corbetti and Tulu Moye geothermal was proposed by an independent power producer and signed a framework agreement with the government in 2013. This project was considered as a case study because of its advancement to understand the country condition for PPP development.

6.3.1 Corbetti and Tulu Moye Geothermal IPP Projects

Globally, the revolution of geothermal power generation started following manly the oil crisis of 1972 (ESMAP, 2012). The history of geothermal development in Ethiopia started in 1969. The resource's investigation in Ethiopia has proved that 22 sites as geothermal prospects along the rift valley (Teklemariam, 2006; Kebede, 2014). Ethiopia's geothermal power generation capacity estimated to be more than 10,000MW (Kebede, 2014). The country has only managed to generate 7.3MW at Aluto - Langano in 1999 (Teklemariam, 2006). Yet, this plant's capacity has diminished due to a lack of technical and managerial capacity (Teklemariam, 2006; Echavarria, 2008). The Ministry of Mines of Ethiopia granted an exploration concession for Reykjavik Geothermal at Corbetti, Tulu Moye and Abaya, which are the potential geothermal sites, in 2011. The Corbetti geothermal site is located around 250km south of Addis Ababa, near the town of Shashemene. Tulu Moye geothermal project site is also found around 100km Southwest of the capital city of Ethiopia. Starting from 2011, the company planned to develop the sites as an Independent Power Producer (IPP), and it had made significant progress on the geothermal development, as shown in Table 6.3.

Table 6. 3 Project Development Milestones of Corbetti and Tulu Moye

Year	Milestone Progress
2011	• Reykjavik Geothermal was licensed for exploration of Corbetti, Tulu Moye and Abaya sites
2012	• The company started surface studies in the localities
2013	• Head of terms for the generation of 1000MW was signed with EEP • Energy proclamation No.810/2013 was enacted
2014	• Shareholder agreements were signed with sponsors • Surface studies for Tulu Moye started • The Ethiopian Energy Authority was established
2015	• The power purchase agreement was signed with EEP • The site works for Corbetti were commenced
2016	• Government-issued the geothermal proclamation No. 981/2016
2017	• Revised power purchase agreement and implementation agreement were signed • Shareholder agreements for Tulu Moye were signed
2018 - 2019	• Further negotiation on the commercial terms was necessitated • Energy regulation No.447/2019 was promulgated
2020	• The final power purchase agreement and implementation agreement were signed for Corbetti and Tulu Moye • Amendment for geothermal resource development proclamation No.1204/2020 was issued

6.3.2 Structure of the Corbetti and Tulu Moye Companies

The structure of the special purpose vehicle (SPV) company of Corbetti is composed of Berkeley Energy (manager of the African Renewable Energy Fund), Iceland Drilling Company and InfraCo Africa as equity shareholders, as indicated in Figure 6.3. The project is backed by the African Development Bank and the UK Government. It is also benefited from the financial gap support of the Geothermal Risk Mitigation Facility (GRMF). Technical support to the government was also provided by international organizations, including Power Africa, East Africa Geothermal Energy Facility (EAGER), Geothermal Risk Mitigation Facility (GRMF) and the African Legal Support Facility (ALSF).

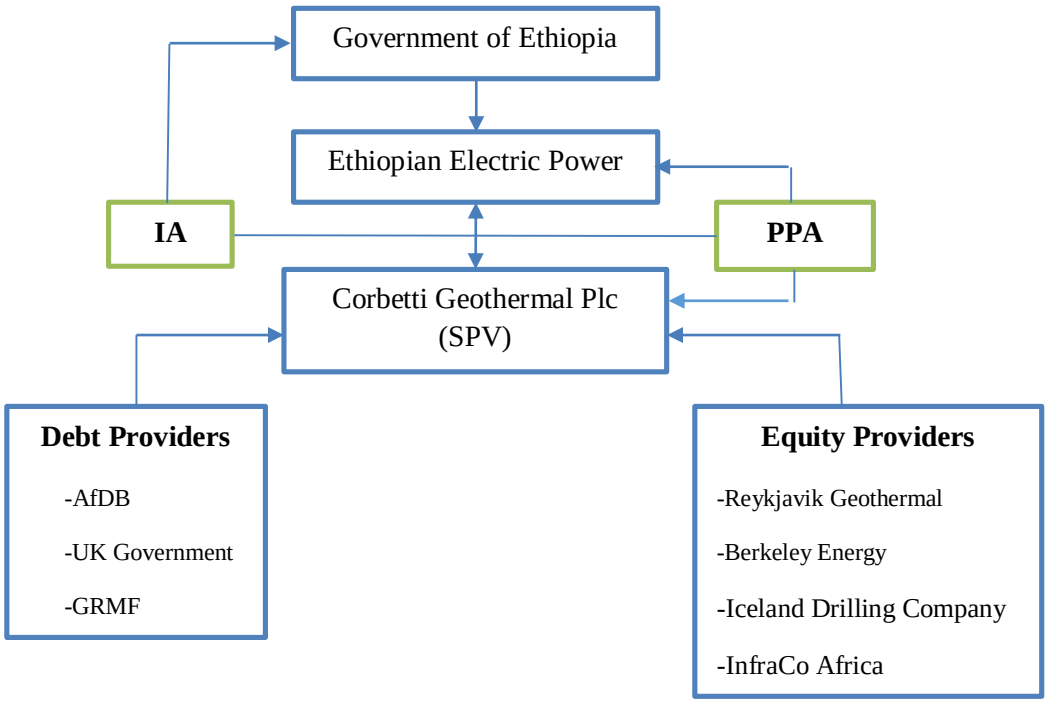

Figure 6. 3 Structure of the Corbetti SPV Company

The Tulu Moye project company was also formed with a shareholding agreement of Reykjavik Geothermal and Meridiam. The debt providers are the African Development Bank, the UK Government and Geothermal Risk Mitigation Facility (GRMF), as shown in Figure 6.4.

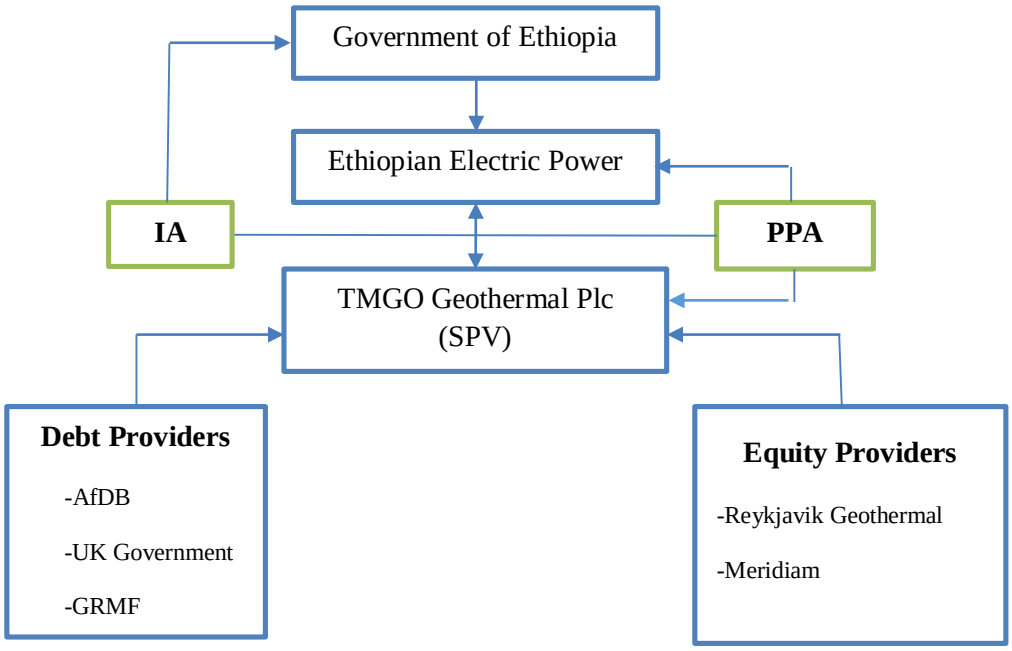

Figure 6. 4 Structure of the TMGO SPV Company

The development of these two geothermal projects had passed through many challenges that have implications on future PPP projects described in the subsequent sections of this chapter as an outcome of an interview analysis.

6.3.3 Analysis of Case Study from the Energy Sector

The interviews with senior professionals on the energy sector challenges and prospects for private and public sector participants were conducted from February 2020 to April 2020, focusing on the energy sector operations in general and Corbetti and Tulu Moye projects in particular.

6.3.3.1 Background of Interview Participants

The interview survey targeted 16 potential experts who followed the project development closely. Only ten of the experts consented to be interviewed. The participants were drawn from the public sector (6), private sector (2) and development partners (2) as depicted in Table 6.4. The participants' positions in their organisations consisted of 5 Directors, 3 Senior advisors and 2

Executive officers. The interview participants' diverse organisations and experiences strengthened the validity of the data collected (multiple sources of evidence) (Yin, 2018).

Table 6. 4 Interview Participants' Background

No	Organization	Position	Level of Education	Years of Experience in the Energy Sector	Respondent's Code
1	Power Africa (East Africa Energy Program)	Senior Transaction Advisor	PhD	9	RE1
2	Ethiopian Electric Power	Director, Legal Services	LLM (Master in Law)	21	RE2
3	Ministry of Finance	Director, Legal Affairs	LLM (Master in Law)	7	RE3
4	RTI International (East Africa Energy Program)	Senior Energy Sector Adviser	Master of Science in Finance/MBA	11	RE4
5	Ethiopian Electric Power	Energy Resource Development Director	PhD	8	RE5
6	Ethiopian Electric Power	Director IPP/PPP projects	MSc in Electrical Engineering	25	RE6
7	PPP DG	Senior Advisor	Masters	9	RE7
8	TM Geothermal Operations PLC	Deputy Chief Technical Officer	Masters in Energy Engineering	8	RE8
9	TM Geothermal Operations PLC	Chief Executive Officer (CEO)	O Level (BTEC)	25	RE9
10	Ethiopian Energy Authority	Director, Geothermal Resource Development, Licensing and Administration	MSc in Geo-Information Science and Earth Observation	6	RE10

6.3.3.2 Interview Analysis and Discussion

The interviews were conducted face to face using guiding questions shown in Appendix C. The interview questions mainly focused on the points listed in Table 6.5. The interview analysis is presented in subsequent sections.

Table 6. 5 Energy Sector Interview Questions

No	Interview Questions
1	Participants experiences with the traditional procurement method in the energy sector
2	The institutional and governance of the energy sector to attract private sector participation in the energy sector
3	The challenges of designing IPP procurement in the energy sector
4	The reasons for the delay in the financial close of Corbetti and Tulu Moye IPP projects
5	Policy and regulatory issues that are difficult for IPP development in Ethiopia
6	Actions to be taken by the Ethiopian government to attract the private sector participation into IPP Projects
7	Lessons for developing countries from the experiences of IPP development of Ethiopia

6.3.3.2.1 Experience of Traditional Procurement Method of Energy in Ethiopia

It is common to observe inefficiency, undependability, low maintenance and operation, users' dissatisfaction, and lack of proper fiscal monitoring in most public infrastructure projects around the World (Grimsey & Lewis, 2004; World Development Report, 1994). In Ethiopia, the conventional procurement method, mainly engineering, procurement and construction (EPC) was used dominantly for the acquisition of mega power projects for the past many years. However, most mega power projects developed through this procurement route faced many challenges, including significant cost overruns and project delays. The interview participants were requested to comment on their experiences of the traditional energy procurement and the associated causes of cost overrun and project delays in Ethiopia.

6.3.3.2.1.1 Lack of Planning and Feasibility Study

The early stage of megaproject development is usually overlooked, and viable alternative solutions are undermined (Priemus, 2008). Sound planning of power generation is vital as transparent and competitive procurement practices for successful power sector reform (Eberhard, et al., 2016). However, it is often a trend in developing countries to observe a mismatch between costs and benefits due to poorly planned and coordinated infrastructure projects (World Bank, 2014). All the

respondents mentioned cost escalation and time overrun in the traditional procurement of energy projects in Ethiopia were peculiar. Respondents RE2, RE3 and RE5 believed that poor planning and feasibility study for projects were the leading causes of project delay and associated cost overruns in most EPC in Ethiopia.

6.3.3.2.1.2 Right of Way and Compensation Issues

Power generation, transmission and distribution operations require a significant land area. The management of compensation and right of way removal demands careful planning and execution in line with the laws. Respondents RE2 and RE5 pointed out that right of way and compensation issues, and related grievance settlement methods in the project development area were challenges in almost all EPC contracts and caused cost overruns and project delays. Respondent RE7 also commented that environmental and social issues were not appropriately addressed, and this also contributed to the delay of EPC projects. Interviewee RE7 added that the lack of institutional capacity was also a problem in ensuring contractors' compliance in preparing and implementing a comprehensive environmental and social management plan.

6.3.3.2.1.3 Poor Procurement Practices

Constant and damaging challenges might be encountered when power generation projects are not planned, procured and contracted transparently and competitively (Eberhard, et al., 2016). Respondent RE5 stressed that standard procurement documents were not in place to produce standard contract documents. This lack of standard documents had caused inconsistency in the procurement process. When the procurement procedures and documents are not standardised, governments are usually subject to undue risk-taking in the contract (Eberhard, et al., 2016). Respondent RE5 added that the procurement of EPC had no properly structured procurement plan and strategy. Respondent RE7 also highlighted that the procurement process in EEP was not transparent and competitive. Respondent RE7 believed that corruption in the procurement process was another problem in acquiring the EPC projects implemented in Ethiopia.

6.3.3.2.1.4 Financial Status of Power Company

Maintaining of electric utility companies' subsidies cannot be born perpetually by governments due to budgetary difficulties of many developing countries (Turkson, 2000). The lack of financial backup compels state-owned utilities to take expensive short-term commercial loans to sustain their operations (Foster & Rana, 2019). Respondents RE2 and RE3 stated that the financial liquidity of EEP was one of the main concerns of many stakeholders. Respondent RE3 also mentioned that financing power generation through the traditional method was a big challenge due to the lengthy loan approval process. Respondent RE3 clarified that commercial loans were taken to finance power projects. These loans contained terms for short tenure for repayment, high-interest rates and demands for government guarantees. Respondent RE3 mentioned that there was no sufficient local financing which compelled EEP to seek external lenders. On top of that, respondent RE3 indicated that the Ministry of Finance was not monitoring the performance of the loans as a final guarantor.

6.3.3.2.1.5 Independent Power Projects (IPP) as an Alternative Solution

IPP procurement models are subject to lesser-cost overrun and project delays due to the incentives to the private sector to complete projects on time and budget (World Bank, 2014). Respondents RE1 and RE4 believed that Ethiopia's government decided to move from the traditional procurement method to the PPP model to curb the challenges. Reforms in the power sector to attract the private sector usually emanate from the government’s attempt to respond to challenges encountered (Foster & Rana, 2019). However, respondent RE4 added that the country had been following a state-led economy for 40 years. Recently, the government took measures to usher in the private sector-led economic model. Following the pace of the macroeconomic liberalisation of a country, the power sector can suit the market's reform to become effective and efficient progressively (Turkson, 2000; Foster & Rana, 2019).

Thus, the preceding interview analysis revealed that Ethiopia's energy sector's traditional procurement method was exposed to many challenges. Interestingly, the government intended to implement IPP mainly due to a lack of financial resources.

6.3.3.2.2 Governance of the Energy Sector to Attract IPP Projects

Establishing the enabling environment for private sector participation is an essential initial step for IPP development (UN-ESCAP, 2017). This enabling environment encompasses policies, regulatory and institutional frameworks (World Bank, 2016; UN-ESCAP, 2017). Conversely, a lack of enabling environment prevents the private sector from taking part in IPP due to perceived risks in a country (World Economic Forum, 2010). Participants were requested to give their opinion on the effectiveness and efficiency of energy sector governance in attracting the private sector to invest in Ethiopia's IPP projects.

6.3.3.2.2.1 Clarity of Procurement Procedures and Processes

The benefits of the IPP procurement scheme could be realised when the public sector properly structures the procurement phases (World Bank, 2014). Poor governance of IPP procurements commonly results in poorly drafted contracts and subsequent renegotiations. According to respondent RE1, the foreign private sector investors were interested in investing in the Ethiopian IPP projects. However, respondent RE1 mentioned that unclear process and procedures, poor communication between line ministers discouraged the investors. Respondent RE8 added that if the procedures and process were clear and adequately institutionalised, many investors could have been attracted to Ethiopia's IPP. Respondent RE8 stressed that it was essential to develop a roadmap for the procedures and processes of IPP procurement, including the government institutions' roles and responsibilities.

6.3.3.2.2.2 Disconnection of Government Institutions

Respondents RE4 and RE5 commented that there was a disconnection between institutions responsible for IPP development. It should be bridged with coherent and rigorous policy and regulatory procedures. Respondent RE5 further stressed that the delay in the decision-making process could discourage the private sector. Respondent RE8 mentioned that the private sector faced many bureaucratic hurdles while dealing with public institutions. Respondent RE10 added that the PPP-DG should identify and communicate the stakeholders for effective and efficient IPP projects management. Respondents RE5 and RE8 suggested that the government should establish a one-stop-shop service to the private sector to expedite decision making.

Furthermore, respondents RE9 and RE10 stressed that there was an organisational leadership problem at EEP towards the IPP business. Respondents RE10 also mentioned that the frequent change of public organisations' management due to the country's political dynamism affected IPP projects. Respondent RE4 suggested that the government should properly understand its role and refrain from unnecessary interference in the procurement process to protect the country's IPP program reputation.

Therefore, the above findings revealed a lack of clarity in the energy sector's governance in managing IPP projects. This governance problem was reflected in the institutional organisation's disarray and lack of an adequate legal framework to dictate the procurement procedures of IPP projects.

6.3.3.2.3 Institutional Capacity of the Government Organizations in the Energy Sector

The government institutions' capacity in developing IPP projects plays a critical role in paving the way for the scheme's smooth implementation. The government's responsibility is vast in IPP development, including a regulator of the business environment, the grantor of the concession contract, the licenser of approvals, buyer of the service, and investor in some parts of the infrastructure (World Economic Forum, 2010). To this effect, robust political leadership and managerial capacity have paramount importance for IPP implementation (AfDBG, 2016). Governments can show their political commitment to private sector participation by assigning a high-level official as a champion of the IPP program (Turkson, 2000; AfDB, 2016). The strength of government institutions' capacity dealing with IPP also reduces renegotiations and project failures (Trebilcock & Rosenstock, 2015). Respondents were requested to express their opinion on the government organisations' institutional capacity in the energy sector (MWIE, EEP and EEA) in Corbetti and Tulu Moye Geothermal IPP procurement.

6.3.3.2.3.1 Lack of Previous Experience

Respondents RE1 and RE10 commented that MWIE, EEP, MoF, Attorney General, and EEA involved in evaluating Corbetti and Tulu Moye projects. Six respondents explained that due to a lack of previous experience in IPP projects, the institutions' capacity was not adequate to handle

IPP transactions. Respondent RE3 clarified that due to a lack of capacity from the public sector advisors were installed to assist in dealing with the private sector. Respondent RE4 stressed that EEA should be established with the required human and institutional capacities and should understand the energy sector business better than the agencies it controls. Respondent RE5 added that the energy sector regulator, EEA, could not regulate the industry as its capacity was much lesser than the other institutions it supervises.

6.3.3.2.3.2 Human and Institutional Capacity Building

Four respondents mentioned that capacity building programs in the government institutions should be conducted in PPP business transactions. Respondent RE5 emphasised that human and institutional capacity building would be required to expand the regulatory and monitoring capacity of EEA. Respondent RE7 observed that EEA had no independence to function the mandates entrusted in its establishment due to capacity limitations. Respondent RE9 stated that intensive capacity building programs would be required in the government institutions concerning IPP development. Respondents RE4, RE9, and RE10 also observed continuous management changes in the institutions, and these changes had created institutional instability and unaccountability. They (RE4, RE9 and RE10) further explained that these frequent leadership changes affected the institutions' human capital.

Respondent RE4 believed that some of the government institutions were overtasked. Respondent RE4 proposed that the MWIE should be divided into two ministries: Ministry of Water and Irrigation and Ministry of Energy, to function properly. Respondent RE4 also suggested that EEP should even be split into two companies responsible for generating and transmitting power.

6.3.3.2.4 Challenges of Designing IPP Procurement in the Energy Sector

The structuring of IPP projects without a sufficient enabling environment would affect their bankability. Before lending to projects, lenders strictly scrutinise the country's institutional, legal and regulatory suitability to the private sector investment (Delmon, 2017). Respondents were requested to express their view on the challenges of designing IPP procurement in Ethiopia from their experiences of Corbetti and Tulu Moye Geothermal projects.

6.3.3.2.4.1 Lack of Policy and Regulatory Provisions

Six of the respondents mentioned that the lack of policy and regulatory provisions for private sector investment in the infrastructure sector was the major challenge in designing IPP projects in Ethiopia. Respondents RE4, RE5, RE6 and RE10 indicated that no legal and regulatory framework to entertain IPP investment was established when the private partner proposed the two projects. Respondents RE4 and RE5 added that there was also no directive and guidelines for procuring the IPP projects in Ethiopia. Respondent RE5 mentioned that the private sector was concerned about arbitration as Ethiopia had not ratified the New York Convention for the arbitration proceeding. Respondent RE5 also noted that challenges in right of way management were encountered as there were no rules and regulations for IPP projects.

6.3.3.2.4.2 Bankability of IPP Projects

Lenders commonly exercise comprehensive due diligence to ensure the bankability of IPP projects before extending loans. Bankability mainly depends on the project's revenue flow to serve lenders and sponsors' debt and equity. Respondent RE5 mentioned that the two IPP projects' bankability was a challenge as the projects were considered high-risk business venture. The public sector did not have enough capacity to verify the project's bankability after the private partner proposed the projects. Respondents RE5 and RE10 pointed out that the National Bank of Ethiopia refused to guarantee foreign convertibility to the private partner. Respondent RE5 suggested that the government should consider foreign currency's availability to the private sector at least on a priority basis to improve the IPP projects' bankability.

Therefore, from the above interview analysis, it could be summed up that lack of technical capacity in the public sector affected the structuring of IPP projects. Most importantly, it was noted that specific policy and regulatory provisions would support the right structuring of IPP projects.

6.3.3.2.5 Reasons for the Delay of Financial Close of the IPP Projects

Procurement of unsolicited proposals requires significant technical, legal and financial expertise from the public sector to effectively manage the transaction (Delmon, 2017). Countries with rich experience in dealing with the private sector develop a separate regulatory system to administer

unsolicited proposals (World Bank, 2018). Without the required framework and capacity, it would be not easy to successfully finalise a deal and attract capable private partners (PPIAF, 2014). Participants were asked to describe the main reasons for the delay of Corbetti and Tulu Moye IPP projects to reach a financial close.

6.3.3.2.5.1 Structuring of the IPP Projects

Respondent RE1 observed that the projects were not properly structured from a technical and financial perspective. Respondents RE3 and RE4 explained that the project was initially designed for 300MW at the Corbetti site by the proponent, but later the politicians influenced the project. Respondents RE3 and RE4 further clarified that the Tulu Moye geothermal project was made part of the deal with a different proposal structure. And the generation capacity of the two projects was increased to 1000MW without any study. Respondent RE3 added that the negotiation was started with 1000MW power generation capacity. The sponsors also prepared their financial model and tariff with the capacity of 1000MW to sign PPA and IA. Respondent RE4 believed that the government and the private partner's decision to upgrade the original proposal's capacity without proper technical and commercial justifications was not plausible.

Respondents RE3 and RE5 mentioned that the parties finally agreed to downsize the two IPP projects to 150MW at Corbetti and Tulu Moye, respectively. They (RE3 and RE5) further added that starting with low generation capacity could enable testing IPP geothermal projects in Ethiopia.

6.3.3.2.5.2 Continuous Renegotiation of Commercial Terms

Six of the participants indicated that the frequent management and staff changes in the government institutions contributed to the delay of the IPP projects. Respondent RE1 clarified that when new officials assigned to the government organisations, they wanted to re-open and re-negotiate the commercial terms of the IPP projects. Respondent RE6 added that after commercial close (signing of PPA), the PPA agreement expired due to the delay of the government approval process. Respondent RE5 mentioned that the public sector was also not comfortable managing the project due to a lack of clear policy and legal provisions to procure IPP projects. Respondent RE9 also observed that mistrust of the private sector by the government institutions and lack of

understanding of the risks the private sector was taking in the project development was also noted. Respondent RE10 believed that the negotiation from the government side was not in good faith.

6.3.3.2.5.3 Delay in Effecting the Contract

Respondent RE3 observed that due to the delay in effecting the contract, the project risks increased and impacted the electricity tariff. Respondent RE3 clarified that through renegotiation, the public and private parties agreed to start counting price escalation when the first phase of the project would become operational. Respondents RE6 and RE10 observed that the electricity tariff was a contentious issue of the IPP project. Respondent RE10 added that the tariff of geothermal power was more expensive compared with other renewable energy sources.

6.3.3.2.5.4 Lack of Champion from the Government

Respondent RE9 mentioned that the IPP projects were a new delivery method to the country, and the concept of IPP was not well established. Respondent RE9 added that a lack of transparency in the unsolicited proposal was a significant challenge. In this regard, respondent RE9 suggested that the government should establish well-established systems and procedures to evaluate innovative proposals like IPP geothermal projects. Respondent RE4 stressed that lack of champion and sustainable support to advance the procurement process affected the IPP projects' timely realisation. Respondent RE4 added that the government officials did not understand the impact of failure and success on future IPP development when they managed the initial IPP projects.

From the above interview analysis, it was interesting to note that without a proper legal and regulatory framework for IPP development, projects would delay substantially as the decision-makers in the public sector become hesitant due to lack of confidence. In return, the lack of confidence would expose projects for undue delay. Thus, assigning a high government official to oversee the IPP program's progress as a champion would help expedite IPP development by giving assurance to decision-makers.

6.3.3.2.6 Lessons to Developing Countries from Ethiopia's PPP Experience

Most developing countries are often facing challenges in managing IPP procurements due to their complex nature and long tenure requiring strong expertise in institutional, legal, regulatory, financial and technical capacities of their governments (Trebilcock & Rosenstock, 2015). It is important to draw lessons for IPP development from both countries with well-advanced experience and the early development stage. Giving due regard to a particular country's domestic conditions while adopting IPP procurement, experiences of developing countries could be better emulated in similar counterpart nations than the developed world due to the resemblance of the former's political and socio-economic nature of the countries (Urio, 2010). In this respect, respondents were requested to provide their views on the factors that had contributed to and undermined the development of IPP projects in Ethiopia and what lessons could be drawn to other developing countries.

6.3.3.2.6.1 Establishment of Institutional and Legal Framework

Seven respondents pointed out that the absence of legal and institutional set up was the major factor contributing to the delay of IPP development in Ethiopia. Respondents RE2, RE3, RE5 and RE7 stressed that proper institutional and regulatory frameworks were so critical before implementing IPP projects and without such frameworks, IPP projects should not be started. Respondent RE8 mentioned that the country's readiness to implement IPP projects should be assessed critically before embarking on IPP development. Respondent RE8 also observed that IPP projects could be stuck if proper legal and regulatory provisions could not be established; otherwise, they would become riskier and costly for development. Respondent RE7 mentioned that Ethiopia started in the reverse direction of IPP development where policies and regulatory provisions followed after challenges were encountered and critical time wasted. Respondent RE6 observed that there was a misunderstanding of considering IPP projects as a way of privatisation by government officials. Respondent RE7 stressed that other developing countries should learn from the Ethiopian case by establishing the enabling environment for IPP development. Respondents RE5 and RE6 emphasised that IPP projects would be complex, requiring robust public sector capacity to deal with IPP investment. Sharing this view, respondents RE3 and RE10 stated that continuous human and institutional capacity building would be important to undertake

IPP projects successfully. Respondent RE10 clarified that lack of regulatory and institutional set up to deal with IPP investment and the energy sector's organisational structure had affected the development of IPP projects. Respondent RE8 suggested that there should not be rushing to implement IPP projects; instead, the first focus should be on building the enabling environment. Respondent RE10 also suggested that unbundling of the energy sector should be exercised with proper study. Respondent RE10 added that the government should establish a particular company to develop geothermal wells and sell steam to power generating companies.

6.3.3.2.6.2 Avoiding Delay in Decision Making

Regarding delays of the public partner in decision-making, respondent R4 pointed out that Ethiopia's IPP development process passed through difficult paths. The challenges should be contemplated for future similar IPP projects in Ethiopia and other countries. Respondents RE1 and RE4 observed that the IPP projects deal had taken a long time to finalize it, and it wasted significant resource. Respondent RE3 added that due to delay in decision making by the public sector, the IPP program could not attract many investors. Respondent RE3 further mentioned that the delay in decision making could damage the reputation of the IPP program.

6.3.3.2.6.3 Balancing the Interests of the Public and the Private Sector Partners

Respondent RE2 believed that private investors in IPP projects would seek undue profit. Thus, respondent RE2 added that the private sector intention should be scrutinised through a robust public sector capability to check the government's interest. Respondent RE2 further suggested that to satisfy the public and the private sector interests equally, it would require appropriate legal instruments and competency of the public sector. In addition to this, respondent RE6 stressed that uncertainty in IPP projects, affordability and willingness to pay should be checked thoroughly. Respondent RE8 also emphasised that countries should also satisfy lenders' requirements (bankability) before embarking on IPP development; otherwise, they would take a long time to appraise projects.

6.3.3.2.6.4 Protection of IPP Program from Political Interference

Respondents RE3 and RE5 stressed that IPP projects should be protected from political pressure and interference in the procurement process, and they should be managed by well trained and empowered professionals. Instead, it should rely on a feasibility study to ensure that value for money was achieved for the public sector in the procurement process. Respondent RE3 suggested that IPP projects should be developed step by step than entering into the program aggressively. Sharing the same view, respondent RE8 also commended that governments should not be tempted to aggressively implement IPP projects. Instead, they should focus first on the building of the enabling environment in their countries.

The interview analysis results revealed that the progressive development of the IPP program contributes to IPP projects' success as lessons would be drawn through time in the initial procurement process. Most importantly, establishing the enabling environment should be prioritised before embarking on IPP development in developing countries. Moreover, when the rules of the game for IPP transaction was well established, it would minimise unnecessary interference by political leaders and enhance the decision-making process by balancing the interest of the public and private sector partners.

6.3.3.2.7 Policy and Regulatory Issues Difficult for IPP Development in Ethiopia

For successful implementation of PPP projects, the significance of establishing the right framework could not be said overstated. The PPP framework often entails a government's apparent policy statement for pursuing the procurement scheme and legal provisions to regulate the transaction (AfDBG, 2016; World Bank, 2009). This framework enables the public and private partners to execute their respective roles and responsibilities in the transaction effectively and efficiently without confusion (AfDBG, 2016). When the required policy and regulatory frameworks are appropriately arranged for unsolicited proposals, privately initiated projects' potential benefits could also be harnessed (World Bank, 2018). The frameworks for managing unsolicited submissions should at least provide the manner of acceptance of the proposal, approval procedures and authority, treatment of the original proponent and the process of opening the proposal to competitive bidding (World Bank, 2018). Participants were requested to provide their views on the policy and regulatory issues that were difficult to implement IPP projects in Ethiopia

from their experience of Corbetti and Tulu Moye Geothermal projects. Furthermore, they were requested to give their opinion on whether the PPP policy and PPP proclamation of Ethiopia could resolve the challenges faced in the two privately initiated IPP projects' procurement.

6.3.3.2.7.1 Harmonisation of Legal Provisions

Respondent RE3 was of the view that it was necessary to harmonise some of the provisions under the geothermal and energy laws to curb the challenges encountered in the procurement process of the two projects. Respondent RE8 also mentioned that the geothermal law and regulation had not resolved the challenges faced. Respondent RE10 emphasised that as Ethiopia's energy policy mainly focused on hydropower generation, the policy should also be supportive of other renewable energy resources, especially baseload energy sources like geothermal. And this should also be reflected in the energy reform strategy and the priority list of power generation in the country.

Respondent RE5 mentioned that the National Bank of Ethiopia policy of foreign currency management was a major challenge for the private sector. Respondent RE5 added that no clear policy and procedures communicated to the private sector how to access foreign currency, including the responsible departments in the National Bank of Ethiopia. Sharing the same view, respondent RE10 suggested that it would be essential to clearly establish how to resolve the foreign currency availability problem for Ethiopia's IPP projects.

Respondent RE5 also pointed out that the land acquisition policies and procedures of the country were problematic. Respondent RE5 added that no clear rules and regulations on the organisation, coordination and responsibility of land acquisition, including the roles of the regional and local administrations in the land acquisition process for IPP projects, were established. Respondent RE5 suggested that regional governments' roles in the development of IPP projects should be regulated primarily in the area of land acquisition.

From the interview analysis findings, it could be comprehended that managing privately initiated projects would require more technical capabilities than standard competitive IPP projects from the public sector. To this effect, specific policy and regulation to address unsolicited proposals in harmony with other related laws should be established for successful IPP development. More interestingly, financial and land acquisition rules of the country would affect the progress of IPP

development in Ethiopia. The government's control in foreign currency transaction would be taken as a severe risk parameter by the private partner.

6.3.3.2.8 The Government Intervention to Attract the Private Sector to IPP Projects

Governments take various actions to enhance the performance of their power sectors for specific reasons. In Sub-Saharan African countries, reforms in the power sector are mainly initiated to attract the private sector to participate as an independent power producer (Turkson, 2000). The main reason for involving the private sector in most developing countries is to use it as a financial source for their infrastructure deficits (Merna & Njiru, 2002). The other essential justifications for attracting the private sector is to harness the effective and efficient ways of managing infrastructure and service delivery by the private sector than the public sector (World Bank, 2014). On the other hand, the public sector should establish the playing ground with appropriate incentive mechanisms to entice the private sector to invest in IPP projects. In this respect, the interview participants were requested to suggest their recommendations to the Ethiopian government to attract the private sector to invest in IPP projects to achieve its ambitious power generation plan.

6.3.3.2.8.1 Evaluation of the Energy Sector Performance

Four respondents suggested evaluating the energy sector's performance and considering a reform act in the sector. Respondent RE10 stated that the government should evaluate the energy sector performance and devise a reform program to liberalise it. Respondent RE10 added that it would be essential to establish an effective organisation for the sector's operation for geothermal power development. Respondent RE6 also suggested that it would be important to understand the advantages of unbundling EEP into independent entities responsible for power generation, transmission and IPP project management to make it effective and efficient. Sharing the same view, respondent RE7 emphasised that the energy sector reform would be the most critical issue that should be addressed to the major player, EEP. Respondent RE6 stressed that the government should create a powerful and independent regulatory body with all the required resources which allow the regulator, EEA, to serve neutrally. Respondent RE6 further stated that government institutions' disconnection should be resolved, and EEA involvement in IPP projects should be strengthened.

6.3.3.2.8.2 Progressive Development of IPP Projects

Respondent RE1 suggested that IPP projects should be advanced based on proper planning and feasibility studies. Respondent RE1 believed that Ethiopia's IPP market should be tested with few projects initially to ensure their viability. Agreeing with this view, respondent RE4 stated that IPP projects should be developed step by step rather than aggressively entering into the procurement with many IPP projects at once. Respondent RE3 observed that an attitude to become a political champion by implementing many IPP projects as quickly as possible by some of the higher officials in Ethiopia without practising due diligence through a detailed feasibility study were observed. Respondent RE7 pointed out that the country should first assess its readiness to effectively and efficiently implement IPP projects. Respondent RE8 also emphasised that completing Corbetti and Tulu Moye projects effectively could open many doors to IPP business in Ethiopia. Respondent RE8 added that based on the experiences and the challenges faced in the two IPP projects, it would be important to revise the laws to accommodate IPP business effectively in Ethiopia. Respondent RE7 also emphasised that the government should take proactive measures to avoid future debt sustainability issues due to the aggressive procurement of IPP projects. Respondent RE3 also suggested that government officials should follow the step-by-step approach to develop IPP projects taking in to account the country's debt status.

6.3.3.2.8.3 Incentive Mechanisms for Renewable Energy Sources

Respondent RE5 mentioned that the government should focus on renewable energy sources and support mechanisms to investors of renewable energy sources such as geothermal power. Respondent RE2 added that strengthening the incentive mechanisms could also enhance the private sector's participation in IPP projects. Respondent RE5 stressed that expanding the opportunities to private sector investors through a proper procurement process would be crucial to meet the country's projected power generation capacity. Respondent RE2 believed that it would be necessary to encourage open and competitive bidding, and direct negotiations should be discouraged for IPP projects as far as possible.

6.3.3.2.8.4 Foreign Currency Availability to IPP Projects

Respondent RE3 emphasised that foreign currency availability to IPP investors should be resolved to attract the private sector as the loan service would be in foreign currency. Respondent RE3 also added that foreign currency administration regulations should be liberalised to give ease access to investors to expatriate their investment cost and return. Sharing this view, Respondent RE7 stated that the country should resolve convertibility and currency risks emanated from the scarcity of foreign currency. Respondent RE7 added that the government should resolve the convertibility guarantee issues to make IPP projects bankable and attractive to the private sector.

6.3.3.2.8.5 Assignment of Champion for IPP Development

Respondent RE3 mentioned that the apparent reason the government had planned to use IPP was due to the financial shortage to develop desperately needed power to the economy. Respondent RE3 clarified that it would be essential to understand that IPP would only be an alternative, but it could not be the last and the only solution. Sharing this view, Respondent RE7 pointed out that the government should understand that IPP would not be a substitute for the government's responsibility to provide public services; instead, it would be complementary. Respondent RE3 mentioned that a misunderstanding of government officials was noted to think that IPP would be like a charity or free money from the private sector.

Respondent RE1 stressed that the government should manage the IPP program by providing proper oversight from higher officials, preferably the country's prime minister. Respondents RE1and RE3 emphasised that IPP procurement should not be a political decision; instead, it should be protected from political pressure and implemented based on a proper planning and feasibility study. Respondent RE4 suggested that government officials should listen to the private sector to understand the challenges faced in IPP project development.

6.3.3.2.8.6 Bankability of IPP Projects

Respondent RE7 observed that the affordability of EEP should be rigorously assessed due to its liquidity problem. Respondent RE7 mentioned that it would be essential to gauge the fiscal disciple of EEP and the country at large. Respondent RE7 added that the long-term effect of procuring all

the IPP projects in the pipeline on the government's balance sheet (affordability) should be carefully analysed. Respondent RE7 suggested that EEP should be cost-conscious to recover its financial strength, and a cost-reflective tariff should be set to make IPP projects bankable. Respondent RE4 stressed that IPP projects' bankability should be established as a prerequisite before advancing to procurement. Respondent RE4 added that the bankability of IPP projects would need to be understood by all concerned parties in IPP development. It should be institutionalized to verify bankability before projects would be implemented. Respondent RE4 emphasised that it would be necessary to consider that without third party verification of the project's bankability, it would be challenging to convince lenders as it would the critical part of project appraisal for IPP projects.

6.3.3.2.8.7 Establishment of One-Stop-Shop for IPP Projects

Respondent RE6 believed that to curb the institutional disconnection of government institutions one-stop-shop should be established to deal with IPP projects and avoid unnecessary delay in responding to the private sector's requests. Sharing this view, respondent RE8 stated that the government should establish a one-stop-shop to effectively manage IPP procurement. Respondent RE2 noted that the government should assess the private sector view on the effectiveness of the government procedures and process in IPP project implementation to introduce changes. Respondent RE4 added that the government should establish a partnership with the private sector to understand the challenges faced in IPP projects development.

6.3.3.2.8.8 Capacity Building of the Government Institutions

Six respondents believed that government institutions' capacity building would be critical to effectively implementing IPP projects in Ethiopia. Respondent RE2 pointed out that the capacity of the energy sector regulator, EEA, should be strengthened to support the sector, and it would be required to make procedures and process clear to the public and the private sector operators. Respondent RE5 also emphasised that the government should invest in enhancing the technical capacity of EEP in IPP procurement and review the procurement procedures and processes used by EEP. Sharing the same view, respondent RE9 added that the government should educate the public sector on IPP development through a rigorous capacity building program to understand the

value of money and time in IPP business. Respondent RE5 stressed that the government should benchmark the experience of other countries in IPP development and customise it to the Ethiopian context.

From the above analysis, it is interesting to note that the government should evaluate its readiness to enable the private sector to invest in IPP projects without restrictions. These restrictions could be eased by devising promoting environment through appropriate policy and regulatory establishment. Moreover, the progressive development of IPP projects should be achieved through proper incentive mechanisms for renewable and innovative energy investors. It would also be necessary to establish a one-stop-shop to provide service to IPP investors to avoid bureaucratic approval processes in the public sector.

6.4 Implication of the Findings of the Case Studies

The challenges faced in the implementation of conventional procurement methods in the two sectors seem the same. These obstacles mainly related to planning and design problem, inappropriate risk allocation, cost overrun and project delays. Thus, the existing challenges invited the introduction of new procurement routes such as PPP for Ethiopia's infrastructure sector. Nevertheless, the case studies' findings imply that the enabling environment for PPP implementation has not been developed sufficiently. The challenges encountered in the implementation of PPP projects in the two sectors also have a significant similarity. The selection of PPP projects requires careful consideration of their bankability and the private partner's capacity for their successful implementation. A lack of coordination of public agencies, security problem, and lack of community support in the implementation of PPP projects have cross-sector effects. Additionally, the country's political and economic stability has to be ensured with strong political commitment and champion for PPP implementation in Ethiopia. Thus, most of the drawbacks noted in the case studies have a cross-sectorial effect, including lack of institutional capacity, policy and regulatory frameworks for PPP implementation in Ethiopia.

6.5 Summary of the Chapter

This chapter assessed the Ethiopian PPP environment through two case studies selected from the road and energy sectors. The findings in this chapter and Chapter 5 informed the development of the PPP implementation framework for Ethiopia, as presented in the subsequent chapter.

CHAPTER SEVEN: DEVELOPMENT OF PPP IMPLEMENTATION FRAMEWORK FOR ETHIOPIA

7.1 Introduction

In this chapter, the PPP implementation framework has been developed based on extensive literature review, data analysis of questionnaire survey and real case study of PPP projects in Ethiopia as presented in chapters two, three, five and six. This study has sought to identify why the Ethiopian government pursued the adoption of PPP procurement for infrastructure development. The study also undertook an investigation to identify possible gaps and challenges in Ethiopia's existing PPP framework and proposed an improved PPP implementation framework.

7.2 Existing PPP Development Framework in Ethiopia

The Ethiopian PPP development framework consists of the government development plan, PPP policy, PPP proclamation, as discussed in Chapter 3. Since 2010 the Ethiopian government has been implementing two generations of the development plan under the notion of Growth and Transformation Plan (GTP). The government understood the importance of infrastructure development as a catalyst for economic growth under the GTP-II, which was estimated to cost nearly USD 150 billion for a period of five years (2015-2020). Under the GTP-II, the government noted that development financing for infrastructure through public financing only could not be met (GTP-II, 2016).

However, there is a lack of specific direction on how the PPP implementation as a source of financing for infrastructure can be utilised in Ethiopia. In addition to this, sustainable sources of infrastructure financing from the public and private sector sources were not addressed in the development plan to maintain prudent public debt management (GTP-II, 2016; IMF, 2020). The government of Ethiopia established the PPP policy framework in 2017 (PPP Policy, 2017). The scope of the PPP policy applies only to the Federal government organs and public enterprises. The PPP policy demands five main criteria to pursue PPP modality, including value for money, affordability, public interest, sustainability and institutional capacity. However, the policy did not dictate how to satisfy these five criteria for PPP project approval.

The PPP board is the highest body of PPP project process approval in Ethiopia. The board consists of eleven government ministers and two private sector representatives. The PPP board approves all PPP development milestones, including pipeline projects, approval for tendering, government support, risk allocation and structure and approval for any change in the course of PPP contract implementation. The Ministry of Finance is responsible for the chairmanship of the PPP board. The Ministry of Finance also has a crucial role in the development of PPP projects. In addition to owning the PPP framework, the Ministry of Finance plays a pivotal role in providing government support to guarantee the obligation of contracting authorities and the government's participation in contributing financing infrastructure for PPP projects. The PPP Directorate General is another critical player of PPP development residing within the Ministry of Finance. The Directorate General is responsible for supporting the Ministry of Finance and contracting authorities technically in developing PPP projects. Contracting authorities and state-owned enterprises are mandated for the ownership of PPP development under their jurisdictions by establishing a project management team, as shown in section 3.7 of Chapter 3. They are required to work closely with the PPP Directorate General in the development of PPP projects.

7.3 Proposed PPP Implementation Framework for Ethiopia

Based on the shortcomings of the existing framework, a revised PPP implementation framework is proposed informed from the findings of the previous chapters. It is organised into three layers. The first layer outlines the country level determinant factors and recommended actions as depicted in Table 7.1. The second layer presents the sector level, and the third layer describes the project level PPP implementation framework.

Under the country level framework, 15 determinant factors were listed with corresponding recommended actions to be undertaken by different organisations for successful PPP implementation in Ethiopia (see section 1.1 to 1.15 of Table 7.1). These include integrating PPP in the government development plan, political and social stability, good governance, enabling PPP policy, and providing investment guarantees and financial support. In the second layer of the framework, 11 determinant factors were identified with their recommended actions to be implemented at the infrastructure sector level (see section 2.1 to 2.11 of Table 7.1). Among these, establishing sector-specific policy and regulatory framework, ensuring PPP implementation

sustainability, installing strong sector institutions for monitoring and evaluating PPP development, and establishing PPP procurement methods and criteria can be mentioned. At the project level, the framework has delineated ten determinant factors with proposed actions by different government institutions (see section 3.1 to 3.10 of Table 7.1). These include ensuring evaluation of PPP projects' cost and benefits and undertaking a detail feasibility study, conducting public consultations, appropriate risk assessment and allocation among parties, and selecting a robust private party.

Table 7. 1 Proposed PPP Implementation Framework in Ethiopia

1. Country Level				
No	**Determinant Factor**	**Recommended Action**	**Responsibility**	***Reference**
1.1	Draft government development plan with emphasis on private sector participation in infrastructure	• The next-generation development plan should include the role of PPP in infrastructure projects • Sectors for PPP development need to be delineated in the plan	• NPC • CA • MoF • EIC	• Section 5.6
1.2	Develop a master plan for PPP project implementation for different infrastructure sectors	• Conduct a study on country level long term infrastructure investment demand • Allocate the infrastructure demand into public financed and private financed • Develop PPP roadmap and strategy for a long period • Establish and update sound PPP pipeline projects for different sectors • Ensure stakeholders engagement in the essence of ownership both at the Federal and Regional levels	• NPC • CA • PPP-DG	• Section 5.6
1.3	Ensure political and social stability of the country	• Buy the trust and support of the public for PPP projects initiatives • Political leaders must show their support for PPP projects development to attract more investors • Ensure to provide a high-security priority and protection for the private sector investment • The government should take the risk of social and political issues and ensure to compensate the private sector for any insecurity in PPP contracts • Ensure freedom of mobility of professionals throughout the country • Engage or inform opposition political parties in the development of PPP projects	• Ruling Party • Opposition Parties • Federal Police • Regional Police	• Section 5.5 & Section 6.2.3.2.7
1.4	Develop a stable macro-economic policy	• Maintain stable economic growth • Contain inflation rate at an acceptable rate • Balance government revenue and expenditure • Avoid excessive borrowing to finance public investment	• NPC • MoF • NBE	• Section 5.5

		• Balance import and export deficit to stabilise the exchange rate • Ensure PPP projects have economic return before implementing		
1.5	Strengthen the capacity of the central PPP Directorate General	• Conduct short- and long-term PPP education program locally and internationally to staffs • Ensure the autonomy of the PPP-DG to recruit experienced PPP experts from the private sector with adequate incentives • Procure external skills and experience from competent PPP advisors • Establish incentive mechanisms to employees of the PPP-DG help to retain qualified employees • Allocate PPP projects Development Fund from budgetary sources and request from donor groups • Establish one-stop shopping for PPP investors at PPP-DG office • Ensure the PPP-DG to undertake administrative functions to recruit staffs and advisory services independently • Considering the decentralised organisational structure of the country, develop a capacity building program to regional authorities in PPP development	• MoF • PPP-DG • CA	• Section 6.3.3.2.1 & Section 6.3.3.2.3
1.6	Protect PPP procurement from political interference	• Appoint the Prime Minister as the champion of PPP development • Engage the Auditor General and the Anti-Corruption Commission in the PPP development process • Ensure the rule of law in PPP procurement • Regulate information disclosure regularly to the public on PPP project procurement • Keep evaluators of PPP projects from any influence • Develop guidelines for renegotiation of PPP concession contract	• The Prime Minister • PPP Board • Auditor General • Anti-Corruption Commission	• Section 6.2.4.2.3 & Section 6.3.3.2.6

1.7	Establish a system for transparent PPP procurement procedures	• Draft directives, guidelines and bidding documents for PPP projects procurement • Ensure to provide detail information to all PPP bidders equally including the evaluation procedures at the tendering stage • Make sure to minimize negotiations after the winning bidder is known • Disclose the information and reports to the public on the procurement of the PPP project though convenient media throughout the delivery of the project • Ensure that both the public and the private sector are transparent and open to the external stakeholders and users	• PPP Board • PPP-DG • CA	• Section 5.5 & Section 6.3.3.2.8.7
1.8	Establish a system for competitive PPP procurement procedures	• Draft and disseminate standard bidding documents for PPP projects procurement • Develop clear project idea and client requirements in the bidding documents • Use competitive procurement to achieve innovation, efficiency and cost-effectiveness • Prevent any government discretionary intervention on PPP tendering	• PPP Board • PPP-DG • CA	• Section 5.5
1.9	Ensure good governance of PPP development	• Communicate to the private sector and other stakeholders the governance arrangements for PPP projects procurement • Prevent corruption throughout the procurement process of PPP projects • Involve the public in decision-making throughout the procurement of PPP project • Ensure social acceptability and public affordability of PPP infrastructure project • Provide serviceable facilities to the public by employing enforceable contract for the performance • Promote transparency, accountability and fairness to promote private sector interest and public acceptance on PPP	• PPP Board • PPP-DG • CA	• Section 5.5 & Section 6.3.3.2.2

		• Disseminate information to users about the responsibility of the public and private partners in the PPP contract		
1.10	Develop a streamlined, transparent and clear PPP project approval policy	• Communicate PPP project screening criteria for public initiated and unsolicited proposals to stakeholders • Develop separate policy, regulation and guideline for unsolicited proposals acceptance • Prefeasibility study should be established as a prerequisite for PPP project screening • Ensure regional government support for PPP project implementation at the early stage	• NPC • PPP Board • PPP-DG • CA	• Section 5.5 & Section 6.3.3.2.2.1& 6.3.3.2.2.2
1.11	Establish a system to grant government support for PPP projects	• Control PPP projects' influence on government budget due to excessive commitment • Establish infrastructure fund for government commitment in PPP projects • Organise a team within the MoF to record and manage fiscal risk arising from government commitment for PPP projects • Provide a guideline for government support for economically viable projects through Viability Gap Fund	• MoF • NBE • PPP Board • PPP-DG • CA	• Section 5.8 & Section 6.3.3.2.8.3
1.12	Ensure the presence of enabling PPP policy	• In conformity with the general PPP policy and proclamation, develop a clear PPP strategy in development policies to be communicated to stakeholders • Establish a sector-specific PPP implementation policy and strategy for each infrastructure sector • Develop a policy framework for the domestic capital market to finance infrastructure projects • Develop a policy to encourage domestic private sector participation in the infrastructure sector	• NBE • PPP Board • PPP-DG • CA	• Section 5.5 & Section 6.3.3.2.6.1
1.13	Consider facilitating local funding from the local financial sector for PPP investors	• Use private sector capacity to raise funds for PPP projects	• MoF • NBE	• Section 5.7 & Section 6.2.3.2.7

		• Develop an infrastructure bank with a joint venture of public and private banks to provide local financing (local currency units) • Engage local banks in PPP project development process • Provide opportunities for local banks, insurers and public and private pension funds to participate as shareholders of PPP projects • Establish local banks capacity in PPP development and long-term lending decisions • Seek guarantees from multilateral investment agencies to PPP projects risks • NBE is required to develop a directive for PPP to promote private sector involvement in PPP projects	• Domestic Financial Institutions • Insurance Companies • Pension Funds	
1.14	Consider to avail credit and foreign exchange to private sector PPP investors	• Consider revisiting banking system regulation to provide credit and foreign currency for PPP investors in priority base • Allocate infrastructure fund reserve in foreign currency for PPP projects • Use foreign currency guarantee from multilateral development banks	• MoF • NBE • PPP-DG • CA	• Section 5.8 & Section 6.3.3.2.8.4
1.15	Provide specific investment guarantees to PPP projects	• Establish a particular regulation for protecting the investment of PPP and compensation mechanism for any damage • Consider providing regulation for intellectual property rights and compensation for violation • Establish a regulation for PPP project site compensation and ownership by the private sector • Consider providing specific incentives to PPP investors • Ensure availability and transferability of foreign currency • Solicit insurance provisions for foreign currency availability for PPP investors • Provide government guarantees for local financial institutions providing loan to PPP projects	• EIC • MoF • NBE • PPP-DG • CA	• Section 5.8

2. Sector Level				
No	**Determinant Factor**	**Recommended Action**	**Responsibility**	**Reference**
2.1	Develop sector-specific PPP policy	• Ensure the existence of sector policy for infrastructure development (road, energy) • In line with the General PPP Policy, establish PPP policy for each infrastructure sectors for private sector participation (road and energy) • Develop road tolling policy • Develop a tariff setting policy for the energy sector • Initiate overall infrastructure development policy	• NPC • PPP-DG • CA	• Section 5.7 & Section 6.3.3.2.4
2.2	Establish sector-specific legal framework for PPP	• Harmonize sector policies and regulations affecting PPP implementation • Consider establishing sector-specific regulation for PPP development • Issue PPP procurement directive to each sector • Develop PPP procurement guidelines for infrastructure sectors • Establish road tolling regulation for PPP projects • Develop tariff setting regulation for PPP projects • Establish a legal framework for dispute settlements for PPP projects • Establish regulation for the right of way compensation and possession for PPP projects • Establish a procurement policy and regulatory framework to manage privately initiated projects for each sector • Set up dispute arbitration mechanism for PPP projects	• PPP-DG • CA	• Section 5.7 & Section 6.3.3.2.5
2.3	Consider strong sector-specific institutional set up for PPP implementation	• Organise capable node PPP Units in infrastructure sectors (road and energy) • Develop within sector PPP units the capacity of specific infrastructure knowledge, financial due diligence, risk analysis, procurement, negotiation and contract management • Integrate and coordinate the linkage of line ministries responsible for PPP project development	• PPP-DG • CA • SOE	• Section 5.7 & Section 6.3.3.2.3

		• Establish an independent regulatory agency under the Ministry of Transport to monitor the performance of concession roads		
2.4	Establish a strong monitoring and evaluation system for PPP project implementation	• Launch a system for monitoring, reporting and ensuring compliance with PPP contract obligation and reporting underperformance • Avoid any delay in PPP project delivery to meet expectations • Allow the PPP-DG to review contracting agencies infrastructure projects procurement to ensure PPP options are considered • Develop contact management procedures and process manual • Ensure to provide quality service meeting set maintenance standards • Communicate the performance standard of PPP contracts to stakeholders • Establish a strong monitoring and evaluation team in the implementing agencies • Ensure transparency and accountability of PPP project implementation • Involve the Auditor General and Anti-corruption commission • Develop PPP project information disclosure guideline for pre and post procurement stage • Develop templates on PPP project information disclosure	• PPP-DG • CA • SOE	• Section 5.5 & Section 6.2.3.2.3
2.5	Ensure long term sustainability of PPP procurement	• Ensure PPP project financial, legal and technical feasibility before embarking on the implementation • Follow holistic approach to satisfy environmental, social and economic factors • Ensure at the feasibility stage the buildability of PPP projects • Confirm to enhance government integrated solution capacity in PPP project development • Encourage private companies with a previous track record of environmental protection in the evaluation criteria	• PPP-DG • CA • SOE • EEPA	• Section 5.9 & Section 6.3.3.2.6

		• Ensure the compliance of performance requirements for environmental and social factors in PPP contract • Build capacity in contracting authorities for monitoring and evaluation compliance • Conduct consultation with local stakeholders on the environment and social issues • Encourage local enterprises to participate in the formation of consortia with foreign companies for technology transfer • Maintain a continuous deal flow of PPP projects to demonstrate business opportunities for the private sector • Involve all concerned parties in the PPP development process • Encourage and provide incentives for renewable energy resource development in the PPP program • Ensure to select the right private party for successful PPP implementation		
2.6	Establish a well-structured tendering process for PPP	• Establish one-stop-shop for PPP investors service • Establish standard bidding documents for PPP projects to every sector • Communicate clear procurement procedures and processes for PPP projects • Develop streamlined project delivery and selection method • Make mandatory providing bidders with necessary clarification well in advance of deadlines • Announce government support (funded or contingent support) well in advance of bidding date • Communicate potential bidders the request for expression of interest through appropriate media outlets • Provide enough time for bidders to prepare their proposals • Notify the tender approval procedures to bidders in advance • Give the result of the tender evaluation and provide time for complaint	• PPP-DG • CA • SOE	• Section 5.9, Section 6.3.3.2.2 & Section 6.3.3.2.7
2.7	Develop a set of PPP evaluation criteria for PPP projects	• Consider the technical, financial and managerial capacity of the private partner • Set commercial principles in the evaluation criteria	• PPP-DG • CA • SOE	• Section 5.9

		• Set criteria for evaluation of health, safety and environmental track record of the private party • Consider the evaluation of the legal stance of SPV equity owners • Ensure objective evaluation criteria for innovative ideas • Establish an incentive mechanism for innovative ideas (e.g. renewable energy) • Modify PPP evaluation criteria to suit project specificity		
2.8	Develop PPP capacity building program to public and private sector players	• Develop the technical, financial and legal capacity of the PPP unit staffs in the contracting authorities • Organise regular training for local consultants, contractors, banks and insurance companies on PPP development • Develop multidisciplinary skills and knowledge of PPP • Create awareness on public institutions towards private sector investment for infrastructure • Maintain leadership succession to keep institutional knowledge • Build individual and institutional capacity of sector offices • Ensure to provide capacity building program to communities around the PPP project area in the form of the community development plan • Benchmark countries for adopting best practices from developed and developing countries for Ethiopian PPP development	• PPP-DG • CA • SOE	• Section 5.10, Section 5.5 & 6.3.3.2.8
2.9	Use value for money analysis technique	• Develop a guideline on how to estimate value for money achievement for PPP projects • Develop and regularly update the value for money analysis template and database for each sector projects • Consider the evaluation of the life cycle cost of PPP projects • Select best conventional infrastructure procurement (deign-bid-build, design-build and design-build-finance) for benchmarking to compute public sector comparator (PSC) • Compare PSC and PPP option at different stages of PPP development (project development, procurement and implementation)	• PPP-DG • CA • SOE	• Section 5.9 & Section 6.3.3.2.4.2

		• Pursue PPP option only when PPP total present value is less than the total present value of PSC conventional procurement • Issue guidance on the determination of discount rate for PSC and PPP option analysis • Protect the value for money analysis from any bias by engaging independent reviewers • Conduct detail risk assessment and allocation of PPP projects • Exercise due diligence to confirm PPP project bankability • Consider risk sharing of PPP projects at the early stage of development (e.g. geothermal steam generation) • Conduct country and sector level readiness to implement PPP projects as part of the feasibility study		
2.10	Develop appropriate concessionaire evaluation method for PPP procurement	• Consider bidder with a maximum total score of allotted points • Select bidder with lowest Net Present Value (NPV) of toll/tariff • Ensure to develop decision statement of must/want criteria • Confirm at the bidding stage the capacity of the private partner for better mobility	• PPP-DG • CA • SOE	• Section 5.9 & Section 6.3.3.2.2.1
2.11	Implement innovative procurement method for PPP projects	• Ensure to follow creative and innovative approaches in PPP development • Promote privately initiated PPP projects • Establish an incentive mechanism for innovative ideas (e.g. renewable energy) • Establish intellectual property rights law for PPP investors protection • Establish performance standards and database for traffic • Liberalize the infrastructure sectors to private sector participation • Unbundle infrastructure sectors with commercial principles	• PPP-DG • CA • SOE	• Section 5.9

3. Project Level				
No	**Determinant Factor**	**Recommended Action**	**Responsibility**	**Reference**
3.1	Establish through and realistic assessment system of the costs and benefits of PPP projects	• Develop cost and benefit assessment guideline and template • Conduct feasibility and detail feasibility studies to understand costs and benefits adequately • Consider the economic life (the useful life of the asset) of the infrastructure to compete for the cost and benefit • Capture capital, operating and financing costs of the infrastructure • Compute the direct, indirect and intangible benefits of the infrastructure • Use acceptable discount rate for computation from authorised sources • Consider operation costs after the completion of construction • Establish a strong scrutiny system at the early stage of PPP development to avoid later complication	• PPP-DG • CA • SOE	• Section 5.5 & Section 6.3.3.2.1.1
3.2	Conduct public consultation to win positive attitude of the public for PPP projects	• Ensure to benefit local economic development before implementing PPP projects • Develop a communication strategy for each PPP projects • Consult local communities and leaders on the development of PPP projects • Include the concerns of local communities and leaders on the PPP development • Involve opposition political leaders, community elders and non-governmental organisations in PPP development • Rehabilitate project-affected people sufficiently • Seek the opinion of academic and professional associations on PPP development • Negotiate tariffs based on affordability and willingness to pay of users and project viability	• PPP-DG • CA • SOE	• Section 6.2.3.2.7

3.3	Consider appropriate risk allocation and sharing of PPP projects	• Issue generic and sector-specific risk framework (matrix) template and guideline • Allocate risks to the party best able to manage the project risks when they ensue • Avoid the temptation of transferring all risks to the private or public party alone • Develop expertise in risk identification, classification, quantification, allocation and management in the PPP Unit • Ensure the private party to have the financial and managerial capability to manage the risks undertaken at the bidding stage • Ensure the private party is well conversant with the risks it assumes • Prevent any external influences on the risk allocation process	• PPP-DG • CA • SOE	• Section 5.5 & Section 6.2.3.2.4
3.4	Ensure to select a strong private partner for PPP projects	• Establish special purpose vehicle as a key player in the promotion of PPP business • Confirm the managerial, financial and technical strength of the private bidder at the procurement stage • Ensure to accelerate PPP project development • Ensure the private party has a positive relationship with the local community during implementation • Establish a system for PPP concessionaire's punishment for violating concession agreements and revoking the PPP project • Encourage experienced SOE to participate as equity shareholders of special purpose vehicle companies with foreign companies	• PPP-DG • CA • SOE	• Section 6.2.3.2.4
3.5	Assign strong PPP project management team for each project	• Establish a project management team which encompassing all relevant disciplines for PPP development • Conduct continuous capacity building program for PPP project management unit	• PPP-DG • CA • SOE	• Section 6.2.3.2.3

		• Pass decisions proactively for demands of the private party • Closely monitor the performance of the private partner		
3.6	Ensure the readiness of the PPP project for implementation	• Ensure to complete the removal of the right of way (obstruction) before PPP contract commencement • Resolve security problem before commencing PPP projects • Establish strong political support for PPP projects	• PPP-DG • CA • SOE	• Section 6.2.3.2.4
3.7	Establish a system to incentivize the private party for complying with social and environmental requirements	• Ensure strong monitoring and evaluation of the private partner's performance • Include incentive and penalty in the concession contract for compliance and incompliance	• PPP-DG • CA • SOE	• Section 6.2.3.2.3
3.8	Practice strong financial management discipline of the public sector	• Develop regulation and guideline on the procedure of refinancing and sharing the gains • Publish regularly audit report of the public partner to the public access • Prevent any corrupt practices in managing finance of the public sector • Control the revenue and expenditures of the PPP project • Disclose information to the public on the financial performance of the PPP project • Consult and disseminate information for tariff and toll charges in advance to the public • Disclose information on renegotiations of concession contracts	• PPP-DG • CA • SOE	• Section 6.3.3.2.1.4
3.9	Avoid continuous renegotiation at the procurement stage but complete in the fixed time period	• Complete the contract formation in a fixed time • Ensure to avoid delay in decision making in PPP project implementation • Take necessary precautions when structuring PPP projects to avoid delay • Establish PPP project dispute mediation committee comprising private and public party members	• PPP-DG • CA • SOE	• Section 6.3.3.2.5.2

3.10	Develop PPP projects progressively	• Confirm to conduct a detail feasibility study before PPP project implementation • Start PPP project development using pilot projects from each infrastructure sector • Record the success and failures of implemented PPP projects and formulate guidelines for next projects • Protect PPP implementation from unnecessary political interference • Ensure higher officials understanding of the complexity of PPP projects • Exercise strong planning disciplines by the public party	• NPC • PPP-DG • CA • SOE	• Section 6.3.3.2.8.2

*Reference to section of this thesis.

Note: **MoF**- Ministry of Finance, **NBE**- National Bank of Ethiopia, **NPC**- National Planning Commission of Ethiopia, **EIC**- Ethiopian Investment Commission, **EEPA**- Ethiopian Environmental Protection Authority, **PPP-DG**- PPP Directorate General, **CA**- Contracting Authority, **SOE**- State Owned Enterprise

7.4 Validation of PPP Implementation Framework

Validation is an essential step in research undertakings to assesses the credibility and acceptability of research findings by commissioning specific procedures (Creswell & Creswell, 2018; Cheung, 2009b). The validation is usually done at the final stage of research works (Cheung, 2009b). Validation is crucial in research activities to evaluate the appropriateness, objectivity, practicability, reliability and suitability of models or frameworks (Osei-Kyei & Chan, 2018b; Gupta, 1993). In this study, these validation spectrums were used to validate the proposed PPP implementation framework's credibility and quality in light with four validity features (Osei-Kyei & Chan, 2018b). The four validity aspects are internal validity, external validity, construct validity and content validity.

Internal validity is concerned with the relationship between cause and effect (Leedy & Ormrod, 2016). This validation aspect assesses the understandability of the proposed PPP implementation framework for practice in Ethiopia. External validity is preoccupied with the generalizability of the research findings or model (Hu, et al., 2016; Osei-Kyei & Chan, 2018b). This validation feature actually evaluates whether the proposed PPP implementation framework can be generalized in Ethiopia. Construct validity refers to the appropriateness of operationalization of theoretical constructs. This validation aspect assesses whether the research instrument measures what it was initially intended (Lucko & Rojas, 2010). In this context, it measures the comprehensiveness and appropriateness of the proposed PPP implementation framework (Osei-Kyei & Chan, 2018b). On the other hand, content validity deals with determining the content of the study findings reasonably represent the reality of the population (Lucko & Rojas, 2010; Leedy & Ormrod, 2016). Practically, the content validity assesses whether the developed PPP implementation framework ensures the realisation of successful PPP projects in Ethiopia if they are appropriately observed. The strategy employed to validate the framework in this study was soliciting participants' opinions on the proposed framework's findings through a questionnaire survey.

7.4.1 Design of Validation Questionnaire Survey

The validation of the proposed PPP implementation framework was undertaken using a questionnaire survey of experienced professionals in Ethiopia. The participants were provided with an explanation of the purpose of the survey and instructions for filling the questionnaire. The questionnaire was developed based on similar validation processes followed by Osei-Kyei & Chan (2018b) and Cheung (2009b). The questionnaire consisted of four parts. The first part was designed to record the background of the respondents. The second and third part of the questionnaire presented the existing PPP procurement system of Ethiopia and the proposed PPP implementation framework for examining the respondents, respectively. The last part of the questionnaire solicited the respondents' satisfaction on the proposed PPP implementation framework with a five-point Likert scale (1-poor, 2-average, 3-good, 4-very good, 5-excellent) (Osei-Kyei & Chan, 2018b; Cheung, 2009b).

The participants of the survey were selected based on three criteria (Cheung, 2009b). First, the participants must have experiences in the PPP development process in Ethiopia. Second, the respondents should have at least five years of experiences in PPP projects. Third, the respondents were required to involve in PPP projects at senior positions in public or private sector organisations. In this regard, ten participants from the public and private sector organisations were selected to complete the validation questionnaire. Among the identified participants, seven respondents filled and returned the questionnaire, as shown in Table 7.3.

7.4.2 Background of Respondents of the Survey

The respondents originated from the public sector (4 participants) and the private sector (3 participants) organisations, as shown in Table 7.2. The composition of the respondents increases the authenticity of the validation process. All the experts were experienced in PPP development and hold senior positions in their respective organisations. Six of the respondents had experienced between 6 and 10 years, and one of the participants had experienced more than twenty years.

Table 7. 2 Background of Validation Survey Respondents

No	Organisation	Position	Sector	Level of Education	Experience	Code
1	PPP-DG	PPP Projects Development & Monitoring Senior Expert	Public Sector	MSc	6-10 Years	RV1
2	PPP-DG	PPP Advisor	Public Sector	PhD	>20 Years	RV2
3	PPP-DG	PPP Legal Director	Public Sector	LLM	6-10 Years	RV3
4	PPP-DG	PPP Projects Development & Monitoring Senior Expert	Public Sector	MSc	6-10 Years	RV4
5	Korean Expressway Corporation	Director	Private Sector	MSc	6-10 Years	RV5
6	TM Geothermal Operations Plc	Deputy Chief Technical Officer	Private Sector	MSc	6-10 Years	RV6
7	ACWA Power-Private Energy Generation Development Company	General Manager	Private Sector	MSc	6-10 Years	RV7

7.4.3 Results of the Validation Survey

Based on four validation aspects (i.e. external validity, internal validity, construct validity and content validity), six questions were posed to participants as listed in Table 7.3. Two questions (1 and 6) were raised to assess the proposed PPP implementation framework's external validity. The mean score of question 1 was 3.57 *(good)*. This result indicates that the proposed PPP implementation framework is perceived to be reasonable in the context of Ethiopia. Question 6 was rated with a mean value of 4.43 *(very good)* which implies that the overall suitability of the proposed PPP implementation framework for Ethiopia was very good. In order to assess the internal validity of the framework, question 2 was proposed. The participants rated the question with a mean value of 4.29 *(very good)*. This finding implies that the proposed PPP framework was understandable for the use of practitioners in Ethiopia.

Table 7. 3 Validation Analysis of Proposed PPP Implementation Framework

No	Validation Question	Respondent							Mean
		RV1	RV2	RV3	RV4	RV5	RV6	RV7	
1	How do you rate the reasonableness of the proposed PPP implementation framework?	4	3	4	3	3	5	3	3.57
2	How do you rate the clarity/understandability of the proposed PPP implementation framework?	4	4	5	4	4	5	4	4.29
3	How do you rate the appropriateness of the proposed PPP implementation framework?	4	4	4	4	3	4	5	4.00
4	How do you rate the comprehensiveness of the proposed PPP implementation framework?	3	4	3	4	4	4	4	3.71
5	How do you think successful PPP projects can be realized by practitioners in Ethiopia if the proposed PPP implementation framework has adhered strictly?	3	4	4	5	3	4	5	4.00
6	How do you evaluate the overall suitability of the proposed PPP implementation framework for infrastructure development in Ethiopia?	4	5	5	4	4	4	5	4.43

The construct validity of the proposed PPP implementation framework was assessed with question 3 and 4. The participants rated question 3 with a mean value of 4.00 *(very good),* indicating that the framework's appropriateness was perceived as very good. Additionally, question 4 received a mean score of 3.71 *(good),* implying that the proposed PPP framework's comprehensiveness was acceptable. The content validity of the proposed PPP implementation framework was assessed using question 5. The respondents rated this question with a mean score of 4.00 *(very good)*. This score implies that successful PPP projects could be realised if practitioners rigorously follow the proposed PPP implementation framework in Ethiopia. Thus, all the validation questions of the framework received mean scores of more than 3 signifying that the proposed PPP implementation framework was validated to be appropriate, comprehensive, reliable, objective, replicable and suitable for PPP infrastructure development in Ethiopia.

Moreover, at the end of the validation process, some of the respondents commented on the proposed PPP implementation framework. Respondent RV7 was the view that the PPP implementation framework addressed the full life cycle of PPP development, and it could be further elaborated involving the relevant stakeholders to be effectively implemented. Respondent RV1 also commented that to promote the PPP implementation framework, government commitment, and awareness creation to key stakeholders about the PPP program would be crucial. Respondent RV1 further suggested that advanced and robust communication strategies would play a more significant role in disseminating PPP program to all stakeholders and properly implementing the PPP framework. Respondent RV3 mentioned that the local financial sector's capacity, foreign exchange availability and transferability issue, and liquidity mechanisms would need special attention by the government taking these as significant challenges in the implementation of PPP projects in Ethiopia. Respondent RV2 suggested developing PPP pipeline and doing actual projects would be more critical than the PPP implementation structure. Respondent RV2 believed that structures would never impede PPP development in a country, and it would be about the willingness to do PPP and having a potential champion. In this respect, it would be essential to understand that devising the PPP implementation framework alone without strong government commitment to PPP development would not enable to realize successful PPP projects in Ethiopia. Respondents RV4 and RV5 suggested that the South Korean and OECD countries PPP experiences would also be beneficial for developing PPP in Ethiopia. The relevant suggestions of the participants were considered and incorporated in the final proposed PPP implementation framework as shown in Table 7.4.

Table 7. 4 Incorporation of Respondents' Comments on Proposed PPP Framework

Respondent Code	Comment	Addressed in Section of Table 7.1
RV7	Engaging stakeholders	Sections 1.7, 1.9 & 3.2
RV1	Government commitment and awareness creation	Sections 1.6 & 1.9
RV1	Robust communications strategies	Section 2.4
RV3	Local financial sector's capacity, foreign currency availability and liquidity mechanisms	Sections 1.13 & 1.14
RV2	Doing actual projects than focusing on the structure	Section 3.10
RV4 & RV5	Benchmarking other countries	Section 2.8

7.5 Comparison of Existing and Proposed PPP Implementation Frameworks

The proposed PPP implementation framework benefits by filling the gaps identified in this study and improve the existing framework. The details of the proposed PPP implementation framework were presented in Table 7.1. In this section, the highlights of the improvement the proposed framework would have over the existing framework are provided. As shown in Table 7.5, the existing PPP framework in Ethiopia consists of the general PPP policy, the PPP proclamation and central institutional set up for PPP infrastructure procurement. Since the PPP framework in Ethiopia is at its early stage of development, it requires many improvements. This improvement includes developing PPP master plan and strategy for the country's infrastructure, enacting sector-specific policy and regulation, facilitating PPP investment incentives and local financing for PPP projects.

Table 7. 5 Comparison of Existing and Proposed PPP Implementation Frameworks

Existing PPP Framework	Proposed PPP Framework
Development policy • No clear strategy for PPP (see section 3.2 of Chapter 3) • No infrastructure policy • No master plan for infrastructure	Next development policy proposed to include (see section 1.1 & 1.2 of Table 7.1) • infrastructure policy • a master plan for PPP project implementation for different infrastructure sectors • allocate the infrastructure demand into public financed and private financed • develop PPP roadmap and strategy for a long period of time • sectors for PPP development need to be delineated in the plan • ownership both at the Federal and Regional levels would be ensured
General PPP policy • No sector-specific PPP policy	• sector-specific policies for PPP was proposed • a policy framework for the domestic capital market to finance infrastructure projects was proposed • a policy to encourage domestic private sector participation in the infrastructure sector was proposed
General PPP proclamation • No sector specific proclamation	• sector-specific regulations were proposed (see sections 2.1 & 2.2 of Table 7.1)
Investment law (see section 3.3 of Chapter 3) • No specific reference to PPP	Proposed to (see section 2.11 of Table 7.1) • promote privately initiated PPP projects • establish an incentive mechanism for innovative ideas (e.g. renewable energy) • establish intellectual property rights law for PPP investors protection • liberalize the infrastructure sectors to private sector participation • unbundle infrastructure sectors with commercial principles
Financial regulation (see section 3.4 of Chapter 3) • No specific support to PPP	Proposed to (see sections 1.13, 1.14 & 1.15 of Table 7.1) • consider revisiting banking system regulation to provide credit and foreign currency for PPP investors in priority base • allocate infrastructure fund reserve in foreign currency for PPP projects

	• use foreign currency guarantee from multilateral development banks • ensure availability and transferability of foreign currency • solicit insurance provisions for foreign currency availability for PPP investors • provide government guarantees for local financial institutions providing loan to PPP projects
Institutional structure for PPP management (see section 3.7 of Chapter 3) • PPP board • Central PPP Directorate General • Ministry of Finance • Public entities	Proposed to (see sections 2.3 & 2.4 of Table 7.1) • organise capable node PPP Units in infrastructure sectors • develop within sector PPP units the capacity of specific infrastructure knowledge, financial due diligence, risk analysis, procurement, negotiation and contract management • integrate and coordinate the linkage of line ministries responsible for PPP project development • allow the PPP-DG to review contracting agencies infrastructure projects procurement to ensure PPP options are considered • develop contact management procedures and process manual • communicate the performance standard of PPP contracts to stakeholders • establish a strong monitoring and evaluation team in the implementing agencies • ensure transparency and accountability of PPP project implementation • develop PPP project information disclosure guideline for pre and post procurement stage • develop templates on PPP project information disclosure
No sector-specific policy for PPP	Proposed to (see section 2.1 of Table 7.1) • develop a clear sector level PPP strategy in development policies to be communicated to stakeholders • Establish a sector-specific PPP implementation policy and strategy for each infrastructure sector • Develop a policy framework for the domestic capital market to finance infrastructure projects • Develop a policy to encourage domestic private sector participation in the infrastructure sector • Develop road tolling policy • Develop a tariff setting policy for the energy sector
No sector regulation for PPP	Proposed to (see section 2.2 of Table 7.1) • consider establishing sector-specific regulation for PPP development • issue PPP procurement directive to each sector

	• develop PPP procurement guidelines for infrastructure sectors • establish road tolling regulation for PPP projects • develop tariff setting regulation for PPP projects • establish a legal framework for dispute settlements for PPP projects • establish regulation for the right of way compensation and possession for PPP projects • establish a procurement policy and regulatory framework to manage privately initiated projects for each sector • set up dispute arbitration mechanism for PPP projects
No consideration for important institutions for PPP development	Proposed to (see sections 1.13 & 3.2 of Table 7.1) • involve the Auditor General and Anti-corruption commission • involve local banks and insurance companies • seek the opinion of academic and professional associations on PPP development • Involve opposition political leaders, community elders and non-governmental organisations in PPP development • Establish local banks capacity in PPP development and long-term lending decisions
PPP proclamation (see section 3.7 of Chapter 3) • Establish Project management team	Proposed to (see sections 3.1 to 3.10 of Table 7.1) • conduct a public consultation to win positive attitude of the public for PPP projects • assign strong PPP project management team for each project • practice strong financial management discipline of the public sector • avoid continuous renegotiation at the procurement stage but complete in the fixed time period • develop PPP projects progressively • conduct capacity building programs
PPP proclamation (see section 3.7 of Chapter 3) • Selection of the private partner	Proposed to (see sections 2.4, 2.5, 2.6, 2.7, 2.9, 2.10, 2.11, 3.1, 3.3 & 3.4 of Table 7.1) • ensure the readiness of the PPP project for implementation • establish a well-structured tendering process for PPP • develop a set of PPP evaluation criteria for PPP projects • ensure long term sustainability of PPP procurement • use-value for money analysis technique • develop an appropriate concessionaire evaluation method for PPP procurement • implement innovative procurement method for PPP projects • establish a thorough and realistic assessment system of the costs and benefits of PPP projects

	• consider appropriate risk allocation and sharing of PPP projects • ensure to select a robust private partner for PPP projects • establish a system to incentivize the private party for complying with social and environmental requirements

7.6 Implementation of the Proposed PPP Framework

Despite the challenges identified in this study, there are also opportunities to develop the Ethiopian PPP market. It is demonstrated in this study that the PPP route could deliver better outcomes compared with the conventional infrastructure procurement in Ethiopia. For successful implementation of the PPP scheme, the government political support through assigned champion would play a vital role. More importantly, capacity building programs should be organized in different PPP procurement disciplines to public sector employees responsible for managing PPP projects. The government should consider the critical recommendations provided in this study before aggressively implementing PPP projects in Ethiopia. In this respect, the government should develop policies, regulations, and guidelines to fill the gaps identified in this study.

Moreover, the proposed PPP framework's implementation should be undertaken by the responsible stakeholders mobilized by the PPP Directorate General (see Table 7.1). Sector implementing agencies must also play an active role in improving the existing PPP framework, including local banks and insurance companies. As suggested in the proposed PPP framework, the Auditor General and the Anti-Corruption Commission of Ethiopia involvement in implementing PPP projects would also ensure Ethiopia's PPP program's transparency and trustworthiness.

7.7 Summary of the Chapter

In this chapter, based on the study's findings, the PPP implementation framework has been proposed and validated to be adopted by practitioners for infrastructure development in Ethiopia and other similar developing countries. The framework depicted what should be done for successful PPP implementation at the country, sector and project levels by different organisations. A detailed comparison of the current and the proposed PPP frameworks was also highlighted to

provide the level of improvement the new PPP framework would provide over the existing one. Finally, suggestions were conveyed on the ways of implementing the proposed PPP framework in Ethiopia.

CHAPTER EIGHT: CONCLUSION AND RECOMMENDATION

8.1 Introduction to the Chapter

Extensive literature review followed by surveys were undertaken on the current state of PPP to identify shortcomings at various levels in its implementation and aim to address how best implement them in Ethiopia. In terms of performance, findings were used to develop a framework to show how PPP may be better adopted in Ethiopia. Conclusions drawn in the context of the research objectives are presented in this chapter. Moreover, the limitations of the research and recommendations for further research are also included in this chapter.

8.2 Summary of Main Findings

The study was designed to assess Ethiopia's enabling policies and regulatory environment to successfully implement PPP for infrastructure development based on recent experiences in other jurisdictions. To this effect, six research objectives were addressed by applying the research methods described in Chapter 4. The study's main findings are given below in the context of the corresponding objectives.

8.2.1 Objective 1: To Assess the Perceived Attractive Factors of PPP Infrastructure Development in Ethiopia

Governments around the world pursue PPP for infrastructure development for various reasons. In most developed countries, efficiency-related advantages of PPP weigh more than economic-related benefits usually mentioned as a reason for developing countries due to shortage of resources. Despite the above reasons, every country has its reason for pursuing the PPP model for infrastructure development. Identifying the attractive factors for PPP development in each country helps make informed decisions in implementing the PPP model.

This study identified 17 attractive factors for PPP implementation through a systematic literature review of published journal articles from different countries, as presented in section 2.11 of Chapter 2. These attractive factors were incorporated into a questionnaire to investigate the driving

factors for adopting PPP in Ethiopia. The results of the questionnaire survey were presented in section 5.4 of Chapter 5. The top five attractive factors of PPP implementation in Ethiopia were found to be “facilitate creative and innovative approaches”, “save time in delivering the project”, “solve the problem of public sector budget constraint”, “improve maintainability” and “enhance government integrated solution capacity”. Comparing these top factors with other countries in this study (section 5.4.4) has proved that each country has a priority for adopting PPP implementation.

The interview analysis of the case studies further strengthened the findings of the questionnaire survey. The Ethiopian infrastructure sector (road and energy) has been hugely affected by substantial project delay and cost overrun, maintenance backlogs and financial shortages. These challenges have necessitated seeking creative and innovative procurement methods to curb the challenges by the government, as reported in section 6.2.4.2.1 and 6.3.3.2.1 of Chapter 6. Extensive public borrowing for infrastructure development through state-owned enterprises and inefficient financial management have paralysed the government to get a loan from local and international lenders to continue investing in the infrastructure sector. Thus, Ethiopia's government has considered PPP as a magic bullet to come out of this obstacle. However, there are many roads ahead to travel by the government to realise PPP to tackle the financial constraints. In this regard, to attract the private sector to finance the infrastructure sector, the interview findings (section 6.3.3.2.8 of Chapter 6) suggested that the government should consider taking the following actions:

- Evaluation of the infrastructure sector performance(SOEs)
- The progressive development of PPP projects
- Incentive mechanism for renewable projects
- Foreign currency availability to PPP projects
- Assign champion for PPP development
- Ensure bankability of PPP projects
- Establish one-stop-shop for PPP projects
- Capacity building of government institutions

8.2.2 Objective 2: To Review Critical Success Factors of PPP Infrastructure Projects in Developing Countries

Critical success factors were studied in many developed and developing countries using different empirical methods. Identifying these factors would help the private and public parties make informed decisions to implement successful PPP projects. In this study, 26 critical success factors were identified through a systematic literature review, as presented in section 2.12 of Chapter 2. The most frequently mentioned critical success factors in the selected journal articles were stable macro-economic environment, strong private consortia, good governance, government involvement by providing guarantees, favourable legal framework, appropriate risk allocation and sharing, mature and available financial market, transparent and competitive procurement process, thorough and realistic assessment of the costs and benefits, project technical feasibility and public/community support.

Each country has a unique feature of the political, social and economic environment for private sector involvement in the infrastructure sector. In this respect, the importance of the critical success factors varies among the developing countries. Thus, it has been noted that determinant factors of successful PPP implementation need regular checking and update with the advancement of PPP experiences in countries to avoid possible obstacles and enhance good opportunities in the process.

8.2.3 Objective 3: To Assess the Critical Success Factors of PPP Infrastructure Development in Ethiopia

The questionnaire survey findings of selected professionals based in Ethiopia are presented in section 5.5 of Chapter 5. The top seven critical success factors in Ethiopia from the questionnaire survey were “the presence of an enabling PPP policy”, “well organised and committed public agency”, “transparent procurement process”, “favourable legal frameworks”, “stable political and social environment”, “good governance” and “appropriate risk allocation and sharing”. Most of the identified factors call for government intervention in the country's political, social, legal, governance and institutional dimensions to realise successful PPP projects.

From the interview findings presented in Chapter 6, additional critical success factors were identified for consideration in Ethiopia to successfully implement PPP projects. These essential factors are listed below.

- Coordination and cooperation of public agencies
- Protection of PPP projects from political influence
- The timely decision of the public sector
- Avoiding delay of foreign currency payments
- Regional governments support for PPP project development
- Sufficient compensation for land appropriation to project-affected people
- Strong organisational leadership in public agencies
- The liberalisation of the infrastructure sector from government dominion

8.2.4 Objective 4: To Evaluate the Government Policies and Regulations for PPP Infrastructure Development in Ethiopia

The findings of the questionnaire survey are presented in section 5.6 of Chapter 5. Industry practitioners believed that government development policies and strategies need to incorporate private sector participation in infrastructure development. Lack of specific policies and regulations has been noted to affect the effective implementation of PPP projects in Ethiopia significantly. In addition to this, assigning institutional setup and higher official champion for PPP development needs considerable attention from the government side.

Furthermore, the findings revealed that the government has to consider facilitating policy and regulatory provisions to support successful PPP implementation by the availability of credit and foreign currency exchange to the private sector, investment guarantees, and property rights protection. Moreover, the study suggested that sustainable and innovative procurement can be ensured through a well-structured tendering process, PPP evaluation criteria and methods, and value for money analysis rooted in Ethiopia's appropriate regulations and directives.

The interview findings of the road and energy sector respondents further revealed essential points. These findings include that sector-specific institutional, policy and regulatory frameworks for PPP

implementation play a significant role in mitigating the challenges the private and public sector players face in Ethiopia.

8.2.5 Objective 5: To Assess the Challenges of PPP Project Development in Ethiopia through Case Studies

This study's fifth objective was to assess PPP development challenges in Ethiopia through case studies. In this respect, the first performance-based road project in Ethiopia, Nekemte-Bure OPRC project, was identified and studied. In addition to this, the first privately financed geothermal projects, Corbetti and Tulu Moye IPP projects, were also assessed to understand Ethiopia's PPP environment.

The interview findings from the industry practitioners, as reported in Chapter 6, revealed that the private sector has a lot of hurdles to manoeuvre across in the premature PPP market of Ethiopia. Possession of the site for project development was identified as one of the most significant challenges in Ethiopia. This challenge calls for setting up a proper institutional and legal framework for appropriating land for PPP projects in advance of project implementation, considering the severe impact of failures to honour responsibilities on the public and private partners in the concession contract.

For a long time in Ethiopia, it has been common practice to implement public financed mega projects without sufficient public consultation. There was also no public scrutiny of government performance in megaproject development. This drawback has attracted the public's suspicion of public projects' implementation. Similarly, there is a lack of local community support for PPP projects in Ethiopia since projects were developed without sufficient public consultation at the initial stages of project development. Capacity limitations in project document preparation were also noted as a setback for successfully implementing PPP projects in Ethiopia. To mitigate this challenge, using experienced international transaction advisors to prepare project documentation could be considered as a short term solution whilst the local public institutions develop their capacity to take over the assignments and management from the transaction advisors in the long run.

Private sector investors commonly need a stable political and social environment for long term investment such as infrastructure financing in countries. Thus, the security problems encountered in case study projects have repercussion effect on future PPP projects. Federal and Regional government bodies need to establish special security apparatus to protect infrastructure projects and investment and pay compensations for any losses incurred to reassure the private sector confidence in Ethiopia. It was also noted in the case studies that lack of sector-specific policies and regulatory frameworks have also hindered the development of PPP in Ethiopia. As Ethiopia follows a codified civil law system, establishing appropriate policy and legal framework to dictate the public and private sector players can build investors' confidence in their decision-making.

The interview findings revealed that the disconnection and lack of coordination among government institutions for PPP development were other significant challenges in Ethiopia. In this regard, the central PPP Directorate General can play a significant role in the organisation and coordination of PPP implementing agencies through well-structured capacity building programs and communications. As part of this study, there was an attempt to draw lessons from the case studies for other developing countries with early stage of PPP development. The interview participants' primarily suggestion for other developing countries to follow was to establish an institutional and legal framework for PPP development. The other commended actions for developing countries include avoiding delay in decision-making by the public sector, balancing the public and private sector's interest, protecting PPP projects from political interference, and progressive development of PPP projects.

8.2.6 Objective 6: To Develop and Validate PPP Implementation Framework for Ethiopia

The research's final objective was to develop and validate a PPP implementation framework as an outcome of the research findings. Following a pragmatism approach, the study employed quantitative and qualitative techniques and combined their results in the proposed PPP implementation framework, as discussed in Chapter 4. The framework was developed by sorting out the country, sector, and project levels' determinant factors identified throughout the study to successfully implement PPP projects, as presented in Chapter 7. The framework further recommended corresponding actions to be undertaken by different government organisations in Ethiopia and similar other developing countries.

At the country level of the framework, the government bodies such as the Prime Minister Office, National Planning Commission, Ministry of Finance, National Bank of Ethiopia and Investment Commission were suggested to revisit the institutional, policy and regulatory environment of Ethiopia concerning developing level playing field for private sector participation in infrastructure financing as listed in section 7.3 of Chapter 7. At the sector and project levels of the framework, implementing agencies for PPP such as State-Owned Enterprises, PPP Directorate General, Contracting Authorities and PPP board of Ethiopia were also recommended to devise smooth procurement procedures and processes to attract the private sector effectively. To this end, domestic financial institutions, including insurance companies and pensions funds, were commended for being drawn into the PPP market of Ethiopia through proper communications by the government agencies.

Finally, the findings of this study would complement the government's effort to set up an effective and efficient PPP development program. Furthermore, this study's results could also inform the overall economic reform that the country has been undergoing recently in order to come out of the state-dominated economic policy to the private sector-led economic policy.

8.3 Implications of the Study

Adopting PPP is perceived as a solution to remedy the challenges encountered in conventional procurement in Ethiopia as discussed in the case studies. Nevertheless, as shown in this study, at present, the Ethiopia's PPP enabling environment has not been developed adequately, and the use of PPP market seems unmatured. As an outcome of the study findings, a PPP implementation framework is presented (Chapter 7) to enhance PPP development for the Ethiopia's infrastructure sector. In this regard, the determinant factors with their corresponding actions should be implemented strictly to minimise the risk of failure of projects funded through PPP in Ethiopia. The challenges encountered in the case studies could inform the government to take appropriate measures to improve Ethiopia's PPP environment. Thus, the government should take proactive steps suggested in the PPP implementation framework to enhance the enabling environment. In that case, the government could attract domestic and international developers into the PPP market. Emphasis should also be given to the successful completion of the existing PPP projects to

showcase the PPP market and develop the institutional capacity in handling PPP projects to boost the public perception and confidence of potential investors in Ethiopia.

8.4 Contribution of the Study to Body of Knowledge

The Ethiopian government has ambitions to adopt the PPP procurement route with the current policy and legal framework. The findings of this study will inform policymakers in Ethiopia about the critical considerations that should be addressed to successfully implement PPP infrastructure. Thus, this research has presented what should be done for successful PPP development based on the literature review findings, questionnaire survey, and case studies focusing on Ethiopia's policies and regulations for the first time. The results of this study make a significant contribution to the body of knowledge for the development of PPP in Ethiopia and other similar developing countries. The key contributions to knowledge are briefly described below.

- The literature review started by analysing the reasons for PPP implementation and conducive environment to apply the PPP procurement method successfully from international best practices. Subsequently, the presence of these enabling environment in the policy and regulatory framework of Ethiopia was evaluated. This initial exercise was conducted to identify the gaps and understand the study's relationship with existing literature.
- Previously, there was a reluctance from the government to use PPP due to state-led economic policy of the country pursued for several decades in Ethiopia. Thus, PPP is a recent phenomenon for infrastructure financing in Ethiopia. The study's findings have been incorporated in the development of PPP implementation framework (Chapter 7) to inform public and private sector players interested in engaging in PPP projects in Ethiopia.
- The empirical study undertaken in this research is an original endeavour as a similar study had not been conducted previously in Ethiopia. The study's findings would inform Ethiopia's unique local context with specific political, economic, social and financial governance to local and international infrastructure investors. The study methodology design in this research could also be replicated in other similar jurisdictions.

- The research added actual PPP case studies to the reference of global PPP practitioners. As demonstrated in the case studies of Chapter 6, lack of institutional, policy, and legal framework, especially in countries with codified or civil law, discourages private sector involvement in PPP projects due to delays in decision-making.
- In this study, the attractive and critical success factors identified through literature review (section 2.11& 2.12 of Chapter 2) and examined through questionnaire survey (section 5.4 & 5.5 of Chapter 5) have been further expanded to recognize additional factors found to be determinant from the case studies (Chapter 6) for successful implementation of PPP projects in Ethiopia and other similar developing countries at the early stage of PPP development.

8.5 Limitations of the Study

This research's outcome has many contributions to the development of PPP in Ethiopia and other similar developing countries. Nevertheless, the following constraints were noticed while conducting the study.

- The questionnaire survey was conducted in the energy and road sectors only because of their relative advancement of PPP implementation in these two sectors in Ethiopia. Thus, other infrastructure sectors were not included in the study. Nonetheless, relevant professionals were contacted to find representative responses in the questionnaire and interview surveys from the two sectors.
- The case studies were also selected from the energy and road sectors to understand Ethiopia's PPP environment. The study findings could have been improved if more case studies were included in the research. However, due to limited PPP projects in Ethiopia and time constraint to conduct the study, more PPP projects could not be analysed.
- Comparing Ethiopia's attractive and critical success factors with other countries would be more robust if the questionnaire was administered in these countries than using published articles produced in different years and set up.
- The number of participants of the two case studies was limited because of participants' reluctance to partake in face-to-face interviews and participants' tendency to keep PPP

projects information confidential. Despite the constraints, the required information was adequately obtained from experienced respondents.

8.6 Recommendation for Future Study

The following area of studies are suggested for future investigation in developing countries and Ethiopia:

- The questionnaire survey adopted for this research could be repeated in other developing countries, especially in Sub-Saharan African countries, to facilitate an international comparison with the Ethiopian respondents' results.
- In PPP projects, there is a range of risks to the public and private sector parties. Especially for foreign companies, the level of risk exposure in developing countries is higher than local companies. It is proposed to assess the risks associated with foreign investors compared with local private developers in PPP infrastructure projects in Ethiopia.
- The financing sector is monopolized by government and domestic companies borrowing yet with limited capacity. The fact that international financing institutions (foreign banks) that are trustworthy worldwide are not allowed to engage in domestic business could be among Ethiopia's possible barriers. Assessing the feasible financial mechanisms for the development of PPP infrastructure in Ethiopia calls for detail study.
- Limitations of domestic private sector capacity are among the challenges of most developing countries, compelling them to rely on foreign investors for their infrastructure development through PPP. Further research could be carried out on the role of domestic private sector players (banks, insurers, contractors, consultants, professionals, etc.) for PPP development in developing counties, including Ethiopia.
- Low foreign currency reserve has a significant impact on economic development activities, including infrastructure financing through PPP in developing countries. It is essential to investigate the mitigation solutions of convertibility and foreign currency availability problems for PPP projects in developing countries, including Ethiopia empirically.
- The first expressway (84.7km), Addis Ababa to Adama, was built and become operational in Ethiopia in 2014. The toll road was built through a commercial loan from the Chinese EXIM Bank (USD 350 million) and some Ethiopian Government's contribution out of the

total construction cost of ETB 11billion. The toll road is owned and managed by the state-owned enterprise, Ethiopian Toll Roads Enterprise. Understanding this toll road's performance in terms of finance, maintenance, and operation would be used to inform future PPP projects in Ethiopia. The acceptance of PPP projects by the general public primarily in the road sector should also be investigated in Ethiopia. Road users' willingness to pay toll road through direct tolling or taxation should be assessed empirically in Ethiopia.

- The significance of the proposed PPP framework in this study should be investigated empirically in actual PPP projects. To this effect, a comparison of projects developed under the proposed PPP framework and other projects implemented before introducing the framework could enable us to realise the framework's impact on PPP performance in Ethiopia.
- One of the problems of many developing countries is that they do not attract enough investment for the infrastructure sector from the private sector. Based on the proposed PPP implementation framework, Ethiopia should develop the infrastructure master plan of the country. Thus, further research could be conducted on the private investment from the international and domestic market that can be attracted to finance this master plan within a certain period. This study's findings could enable the government to make an informed decision on seeking alternative financing mechanisms to fill the gap.

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APPENDICES

APPENDIX A: QUESTIONNAIRE SURVEY TEMPLATE

Consent Form

Title of Project: Assessment of Government Policies and Regulations in the Process of Adopting Public-Private Partnership for Infrastructure Development in Ethiopia

Name of PhD Researcher: Getachew Yilma Debela

Academic Supervisors: Dr Michael Burrow and Dr Gurmel Ghataora

Fair Processing Statement

This information is being collected as part of a research project concerned with the assessment of government policies and regulations in the process of adopting Public-Private Partnership for infrastructure development in Ethiopia by the Department of Civil Engineering in the University of Birmingham. The information which you supply and that which may be collected as part of the research project will be entered into a filing system or database and will only be accessed by authorised personnel involved in the project. The information will be retained by the University of Birmingham and will only be used for the purpose of research, statistical and audit purposes. By supplying this information, you are consenting to the University storing your information for the purposes stated above. The information will be processed by the University of Birmingham in accordance with the provisions of the Data Protection Act 1998. No identifiable personal data will be published.

Statement of understanding/consent

1. I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time. ☐
3. I understand my information will be kept confidentially in paper and/or electronic records in accordance with the Data Protection Act. The University of Birmingham's Data Protection Policy (Data Protection Act 1998) can be found at http://www.legalservices.bham.ac.uk/dppolicy/ ☐
4. I freely give my consent to participate in this research study ☐

Name of participant: …….Date……Signature…….

Company information: ……...

Position held : ……..

Email :……..

Name of Researcher: Getachew Yilma Debela, Date: ----------, Signature [redacted]

PART I: GENERAL EXPERIENCE OF RESPONDENT

1. Please indicate your group of the organization below:

Public Sector ☐ Domestic Private Sector ☐ International Private Sector ☐

If other (please mention here): ……..

2. Please indicate the name of your organization below:

……..

3. Please indicate your primary role in your organization below:

……..

4. Please indicate here your level of education: ……..

5. How many years have you been involved in infrastructure projects?

1 - 5 years ☐ 6 - 10 years ☐ 11- 15years ☐ 16 - 20years ☐ Above 20 years ☐

6. In which infrastructure sector/s have you been involved?

……..

7. Have you ever been involved in Public-Private Partnership Energy/Road projects?

Yes ☐ No ☐

8. If your answer for question No.7 is Yes, how many years have you been involved in?

1 - 5 years ☐ 6 - 10 years ☐ 11- 15years ☐ 16 - 20years ☐ Above 20 years ☐

9. Considering the current public procurement of Energy/Road projects in Ethiopia, do you think value for money can be achieved, if the design, construction, financing, operation, and maintenance of Energy/Road projects are managed by the private sector through Public Private Partnership (PPP) arrangement?

Yes ☐ No ☐ I don't know ☐

PART III: ATTRACTIVE FACTORS FOR IPP/PPP IMPLEMENTATION IN THE ENERGY/ROAD SECTOR

1. The public sector has long been financing Energy/Road projects in Ethiopia predominately through the traditional contract arrangement. In recent years, however, the interest in adopting IPP/PPP projects to develop Energy/Road infrastructure has increased in Ethiopia. In this arrangement, the public sector seeks to transfer risks associated with the delivery and operation of the facilities. Many of these risks are related to time, cost, and quality objectives of projects. Concerned stakeholders suggest positive reasons for the government and the private sector to welcome this form of procurement, rather than continue adopting the traditional procurement method in Ethiopia. In view of the above, please rate the following factors in the relevant box based on Likert scale that you think attractive to adopt IPP/PPP in the Ethiopian Energy/Road sector so that the private sector can provide public facilities and services.

1: Unimportant; 2: Least important; 3: Moderately important; 4: Important; 5: Most important

No.	Attractive Factors for IPP/PPP	1	2	3	4	5
1	Solve the problem of public sector budget restraint					
2	Enhance government integrated solution capacity					
3	Reduce public money tied up in capital investment					
4	Facilitate creative and innovative approaches					
5	Reduce the total project cost					
6	Save time in delivering the project					
7	Transfer risk to the private sector					
8	Reduce public sector administration costs					
9	Benefit local economic development					
10	Improve buildability					
11	Improve maintainability					
12	Non-recourse or limited recourse to public funding					
13	Accelerate project development					
14	Private sector possess better mobility					
15	Private sector has the ability to raise funds for project					
16	Cap final service costs					
17	Technology transfer to local enterprises					

PART II: CRITICAL SUCCESS FACTORS (CSFS) FOR IPP/PPP IMPLEMENTATION IN THE ENERGY/ROAD SECTOR

1. Independent Power Project (IPP)/Public-Private Partnership (PPP) is a long-term agreement between a private party and a government entity in which the private partner mainly design, construct, finance, operate and maintain the asset. Under a typical IPP/PPP arrangement, the private party brings a significant proportion of financial capital (debt or equity) and expertise to develop the infrastructure, and in exchange, the public sector compensates the private partner with adequate remuneration and profit for the risks undertaken. However, prior to making capital decisions, private investors comprehensively scrutinize the partnership business environment in host countries. Governments must also carefully determine the extent to which their environment is conducive for the successful implementation of IPP/PPP projects. One of the critical steps in the development of such scrutiny is to identify, analyse, and categorize various factors that are critical to the success of IPP/PPP implementation.

   Taking into account the above facts, please rate each critical success factor for the implementation of IPP/PPP Energy/Road projects in Ethiopia by marking the relevant box based on a Likert scale from 1 - 5, where:

1: Unimportant; 2: Least important; 3: Moderately important; 4: Important; 5: Most important

No	IPP/PPP Success Factors	1	2	3	4	5
1	Well organized and committed public agency					
2	Transparent procurement process					
3	Competitive procurement process					
4	Political support					
5	Positive attitude towards IPP/PPP project implementation					
6	Government involvement by providing guarantees					
7	Good governance					
8	Presence of an enabling IPP/PPP policy					
9	Strong private consortia(joint venture of companies)					
10	Sound economic policy					
11	Thorough and realistic assessment of the costs and benefits					
12	Appropriate risk allocation and sharing					
13	Favorable legal frameworks					
14	Stable macro-economic environment					
15	A streamlined, transparent and clear project appraisal policy					
16	Presence of a pro-investment culture among the population in the country					
17	Project technical feasibility					
18	A strong monitoring and evaluation system for project implementation					
19	Technology Transfer					
20	Adequate knowledge and skills of IPP/PPP					
21	Stable political and social environment					
22	Mature and available financial market					
23	Dedicated PPP unit to support and promote IPP/PPP program					
24	Public/community support					
25	Willingness among parties to share authority					
26	Multi benefit objectives (public sector and private sector)					

PART III: GOVERNMENT POLICIES AND REGULATIONS TOWARDS THE IMPLEMENTATION OF IPP/PPP IN THE ENERGY/ROAD SECTOR

1. In your view, which public entity do you think should be involved in the procurement and administration process of IPP/PPP Energy projects in Ethiopia?

   Please give weight in the order of **1** for not responsible to **5** for most responsible as:

   1: Not Responsible; 2: Least Responsible; 3 Moderately Responsible; 4: Responsible; 5: Most Responsible

No.	Government Agency	1	2	3	4	5
1	PPP Director General					
2	The Ministry of Water, Irrigation and Energy					
3	The Ethiopian Energy Authority					
4	The Ethiopian Electric Power					
5	The Ethiopian Electric Utility					
6	The Prime Minister's office					

2. Which public entities do you think should be involved in the procurement and administration process of PPP road projects in Ethiopia?

   Please give weight in the order of 1 for not responsible to **5** for most responsible

   1: Not responsible; 2: Least Responsible; 3 Moderately Responsible; 4: Responsible; Most Responsible

No	Government Agency	1	2	3	4	5
1	PPP Directorate General					
2	The Ethiopian Roads Authority					
3	The Investment commission					
4	The Ministry of Finance					
5	The Ministry of Public Enterprises					
6	The Ethiopian Toll Road Enterprise					

3. How do you rate the impact of the following issues in relation to IPP/PPP Energy/Road projects procurement in Ethiopia?

   Please rate the issues in order of significance as:
   1: Very low; 2: Low; 3: Moderate; 4: High; 5: Very high

No.	Description	1	2	3	4	5
1	Lack of specific IPP/PPP legal framework for Energy/Road sector					
2	Absence of specific IPP/PPP policy for Energy/Road sector					
3	Lack of government commitment for IPP/PPP development*(assigned champion)*					
4	Absence of developed funding and financing instrument for IPP/PPP in local financial market					
5	Unavailability of institutional framework for IPP/PPP implementation					

4. In your view, do you think the following points are addressed adequately in the Ethiopian Government Growth and Transformation Plan (GTP-II) towards the private sector participation in the Energy sector?

   Please rate your level of agreement on the statements as:
   1: Strongly disagree; 2: Disagree; 3: Neutral; 4: Agree; 5: Strongly agree

No.	Description	1	2	3	4	5
1	The GTP-II prioritizes private investment in the context of IPP/PPP					
2	The GTP-II recognizes the fundamental role of the private sector in enabling the government to allocate its funds to strategic projects to facilitate a higher level of development					
3	The GTP-II acknowledges the private sector to play important role in financing and delivering public services					
4	The Government has clear strategy to determine which infrastructure projects would be best implemented as IPP/PPP in the plan					

5. To what extent do you think the following factors influence private sectors' interest to invest in IPP/PPP projects in Ethiopia?

   Please rate the influence that you consider relevant in order of significance as:

   1: Very low; 2: Low; 3: Moderate; 4: High; 5: Very high

No	Description	1	2	3	4	5
1	Incentives to the private sector to invest in IPP/PPP projects					
2	Protection of property rights					
3	Bilateral investment agreements					
4	Investment guarantees by government					
5	Availability of credit and foreign exchange to private sector					
6	Guarantee/securities by the Ministry of Finance to lenders of IPP/PPP investment					
7	Development of local capital market					
8	Cost of doing business					
9	Guarantees provided by the Multilateral Investment Guarantee Agency					
10	Guarantees provided by Multilateral lending institutions					

6. What improvements do you think need to be made in the public procurement to enhance the decision-making process, planning, tendering and execution of IPP/PPP projects in Ethiopia?

   Please indicate below your level of agreement as:

   1: Strongly Disagree; 2: Disagree; 3: Neutral; 4: Agree; 5: Strongly agree

No	Description	1	2	3	4	5
1	Need sector specific regulation for IPP/PPP procurement					
2	Require IPP/PPP procurement directive					
3	Develop a set of evaluation criteria for IPP/PPP					
4	Private and public sector capacity building					
5	Use value for money analysis					
6	Implement innovative procurement methods					
7	Ensure long term sustainability					
8	Allow flexibility in the procurement process					
9	Establish well-structured tendering process for IPP/PPP projects					
10	Develop appropriate concessionaire evaluation method for IPP/PPP projects					

2. Please provide below any comments and suggestions for effective implementation of IPP/PPP projects in Ethiopia:

_____

_____

_____

_____

End of questionnaire

Thank you for your valuable contribution!

APPENDIX B: CASE STUDY INTERVIEW GUIDE QUESTIONS FOR ROAD SECTOR

Consent Form

Title of Project: Assessment of Government Policies and Regulations in the Process of Adopting Public Private Partnership for Infrastructure Development in Ethiopia

Name of PhD Researcher: Getachew Yilma Debela

Academic Supervisors: Dr Michael Burrow and Dr Gurmel Ghataora

Fair Processing Statement

This information is being collected as part of a research project concerned with the assessment of government policies and regulations in the process of adopting Public Private Partnership for infrastructure development in Ethiopia by the Department of Civil Engineering in the University of Birmingham. The information which you supply and that which may be collected as part of the research project will be entered into a filing system or database and will only be accessed by authorised personnel involved in the project. The information will be retained by the University of Birmingham and will only be used for the purpose of research, statistical and audit purposes. By supplying this information, you are consenting to the University storing your information for the purposes stated above. The information will be processed by the University of Birmingham in accordance with the provisions of the Data Protection Act 1998. No identifiable personal data will be published.

Statement of understanding/consent

5. I confirm that I have read and understand the information sheet for the above study and have had the opportunity to ask questions. ☐
6. I understand that my participation is voluntary and that I am free to withdraw at any time. ☐
7. I understand my information will be kept confidentially in paper and/or electronic records in accordance with the Data Protection Act. The University of Birmingham's Data Protection Policy (Data Protection Act 1998) can be found at http://www.legalservices.bham.ac.uk/dppolicy/ ☐
8. I freely give my consent to participate in this research study ☐

Name of participant: …….Date……Signature…….

Company information: ……...

Position held : ……..

Email :……..

Name of Researcher: Getachew Yilma Debela, Date: ----------, Signature 

INTERVIEW QUESTIONS

1. Name of your organization:

2. What is your position in the management of the project?

3. What is your level of education?

4. How long have you been involved in the road sector?

5. Please comment on your experience on traditional methods of road project procurement in Ethiopia (such as DB, DBB) *(In terms of time of delivery, cost, quality, risk allocation, environmental and social issues, etc.).*

6. Do you think the Nekempte – Bure road project is suitable to implement using the Output and Performance Based Road Contract (OPRC) model?

7. Could you please explain the main difficulties or problems that the Ethiopian Roads Authority has been facing during the implementation of the Output and Performance Based Road Contract (OPRC) in Ethiopia? *(legal, political, financial, economical, lack of coordination, security problem, environmental and social issues, delay in handover of the site to the contractor, lack of capacity, lack of community support, etc.)*

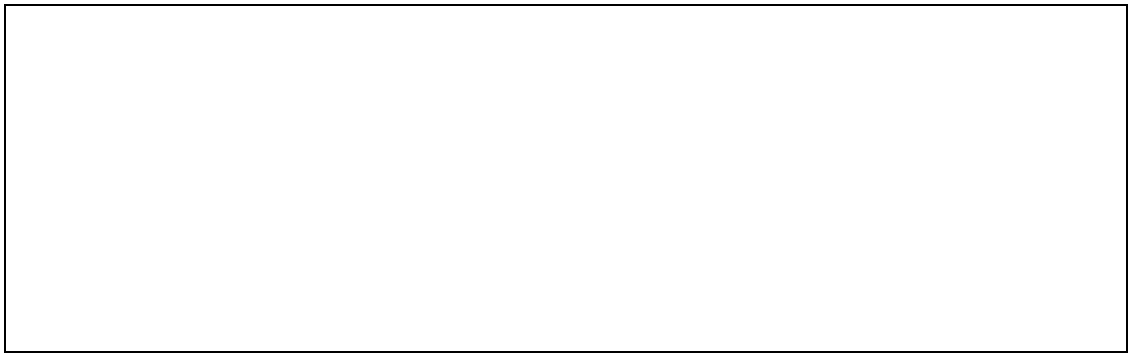
8. Could you please also explain the main difficulties or problems that the Contractor has been facing during the implementation of the Output and Performance-Based Road Contract (OPRC) in Ethiopia? *(Legal, financial, economical, lack of coordination, security problem, environmental and social issues, delays in handover of the site to the contractor, design changes, lack of capacity, lack of community support, etc.)*

9. Have you ever heard about Public-Private Partnerships (PPPs) road contracting (BOT, BOOT, DBFO, etc.)?

10. Do you think the experiences gained from the execution of Nekemte – Bure OPRC project can assist the adoption of PPP road projects in Ethiopia?

11. From your experience in the OPRC project, what are the factors which may affect the introduction of Public Private Partnership road projects in Ethiopia? *(Such as: inadequate government support, public agency inadequate management capacity, economic and social issues, legal and regulatory impediment, financial issues, inappropriate risk allocation, challenges in setting the performance standard of the contractors, ambiguities in contract documents, capacity of the contractor, political influence, technical problem, dispute settlement, etc.)*.

12. Please give an overall comment on the prospect of Public Private Partnership road projects in Ethiopia based on your experience in Nekempte – Bure OPRC Project.



End of interview.

Thank you!

APPENDIX C: CASE STUDY INTERVIEW GUIDE QUESTIONS FOR ENERGY SECTOR

Consent Form

Title of Project: Assessment of Government Policies and Regulations in the Process of Adopting Public Private Partnership for Infrastructure Development in Ethiopia

Name of PhD Researcher: Getachew Yilma Debela

Academic Supervisors: Dr Michael Burrow and Dr Gurmel Ghataora

Fair Processing Statement

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Statement of understanding/consent

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10. I understand that my participation is voluntary and that I am free to withdraw at any time. ☐
11. I understand my information will be kept confidentially in paper and/or electronic records in accordance with the Data Protection Act. The University of Birmingham's Data Protection Policy (Data Protection Act 1998) can be found at http://www.legalservices.bham.ac.uk/dppolicy/ ☐
12. I freely give my consent to participate in this research study ☐

Name of participant: …….Date……Signature…….

Company information: ……...

Position held : ……..

Email :……..

Name of Researcher: Getachew Yilma Debela, Date: ----------, Signature [redacted]

INTERVIEW QUESTIONS

13. Name of your organization:

14. What is your position in your organization?

15. What is your level of education?

16. How long have you been involved in the Energy sector?

1. Please comment on your experience on traditional methods of Energy procurement in Ethiopia such as EPC (in terms of time of delivery, cost, quality, risk allocation, environmental and social issues, etc.) What are the major factors that account for delay and cost overrun?

2. Do you think the governance of the Energy sector is effective and efficient in attracting the private sector to invest in IPP projects? If not? What are the reasons?

3. In your opinion, how do you evaluate the institutional capacity of the government organizations in the Energy sector (MWIE, EEP, EEU and EEA) in the procurement of Corbetti Geothermal and Tulu Moye IPP projects?

4. In your view, what are the major challenges in designing IPP procurement for the public/private sector participants in Ethiopia from your experience of Corbetti Geothermal and Tulu Moye IPP projects?

5. In your view, what are the main reasons for the delay of Corbetti and Tulu Moye Geothermal IPP projects to reach financial close?

6. In your opinion, what are the specific challenges in the procurement and implementation of Corbetti and Tulu Moye IPP Geothermal project?

7. In your view, what are the factors that have contributed to and detracted from IPP power generation development in Ethiopia and what lessons can be drawn for other developing countries?

8. In your opinion, what are the policy and regulatory issues that are difficult to implement IPP power generation projects in Ethiopia from your experience of Corbetti and Tulu Moye Geothermal IPP projects?

9. In your opinion, do you think the PPP Policy (2017) and PPP Proclamation (No.1076/2018) of Ethiopia can resolve the challenges faced in the procurement of the two IPP projects (Corbetti Geothermal and Tulu Moye)? How?

10. Finally, do you recommend any information that you think important to be included in this study?

End of interview.

Thank you!

APPENDIX D: VALIDATION QUESTIONNARE SURVEY TEMPLATE

Consent Form

Title of Project: Assessment of Government Policies and Regulations in the Process of Adopting Public Private Partnership for Infrastructure Development in Ethiopia

Name of Researcher: Getachew Yilma Debela

Academic Supervisors: Dr Michael Burrow and Dr Gurmel Ghataora

Fair Processing Statement

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Statement of understanding/consent

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14. I understand that my participation is voluntary and that I am free to withdraw at any time. ☐
15. I understand my information will be kept confidentially in paper and/or electronic records in accordance with the Data Protection Act. The University of Birmingham's Data Protection Policy (Data Protection Act 1998) can be found at http://www.legalservices.bham.ac.uk/dppolicy/ ☐
16. I freely give my consent to participate in this research study ☐

Name of participant: …….Date……Signature…….

Company information: ……..

Position held : ……..

Email :……..

Name of Researcher: Getachew Yilma Debela Date: …… Signature [redacted]

VALIDATION OF PROPOSED PPP IMPLEMENTATION FRAMEWORK IN ETHIOPIA

Introduction

The proposed PPP implementation framework has been developed after a comprehensive literature review, questionnaire survey and interview conducted in relation to infrastructure PPP development in the Ethiopian road and energy sectors.

Purpose of the questionnaire

The purpose of this questionnaire survey is to validate the proposed PPP implementation framework in terms of its appropriateness, objectivity, replicability, practicability, reliability and suitability for PPP infrastructure development in Ethiopia.

PART I: GENERAL EXPERIENCE OF RESPONDENT

1. Please indicate your group of organization below:

Public Sector ☐ Domestic Private Sector ☐ International Private Sector ☐

If other, please mention here: _____

2. What is your level of education?

BSc ☐ MSc ☐ PhD ☐

If other, please mention here: _____

3. How many years have you been involved in PPP infrastructure projects?

1 – 5 years ☐ 6 – 10 years ☐ 11 – 15 years ☐ 16 – 20 years ☐

If other, please mention here: _____

PART IV: VALIDATION QUESTIONS

4. Please evaluate the validation questions listed below with their corresponding scales (**1-poor, 2- average, 3-good, 4-very good and 5-excellent**)

No	Validation Question	Scoring Rate				
		1	**2**	**3**	**4**	**5**
4.1	How do you rate the reasonableness of the proposed PPP implementation framework in Ethiopia?					
4.2	How do you rate the clarity/understandability of the proposed PPP implementation framework?					
4.3	How do you rate the appropriateness of the proposed PPP implementation framework?					
4.4	How do you rate the comprehensiveness of the proposed PPP implementation framework?					
4.5	Do you think successful PPP projects can be realized by practitioners in Ethiopia if the proposed PPP implementation framework is adhered strictly?					
4.6	How do you evaluate the overall suitability of the proposed PPP implementation framework for infrastructure development in Ethiopia?					

5. Please suggest your comments below to improve the proposed PPP implementation framework in Ethiopia. ----------
---

End of the questionnaire.

Thank you for your valuable contribution!

APPENDIX E: LIST OF PUBLICATIONS

Journal Papers Accepted and Published

1. Getachew Yilma Debela, Gurmel Ghataora and Michael Burrow (2019): A Case Study on the Problems and Prospects of Output and Performance-Based Road Contracting (OPRC) in Ethiopia, International Journal of Construction Engineering and Management 2019, 8(1): 7-18 DOI: 10.5923/j.ijcem.20190801.02
2. Getachew Yilma Debela (2019): Critical Success Factors (CSFs) of Public-Private Partnership (PPP) Road Projects in Ethiopia, International Journal of Construction Management, DOI: 10.1080/15623599.2019.1634667
3. Getachew Yilma Debela (2019): Attractive Factors of Public-Private Partnership (PPP) for Road Projects in Ethiopia. Journal of Civil, Construction and Environmental Engineering. Vol. 4, No. 3, 2019, pp. 59-68. doi: 10.11648/j.jccee.20190403.11

Journal Papers Submitted and Accepted for Publication

4. Getachew Yilma Debela (2020): Driving Factors of Public-Private Partnership (PPP) for Energy Projects Development in Ethiopia, Journal of International Energy Sector Management

Journal Papers Submitted and under Review by Publishers

5. Getachew Yilma Debela (2020): Influencing Factors of Energy Projects Development in Ethiopia, Journal of Construction Innovation

Journal Papers Pending Submission

6. The Challenges and Prospects of Independent Power Projects in Ethiopia: Lessons to other Developing Countries