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Title: Infrastructure Development through PPP Scheme in Indonesia: Focusing on Toll Road Sector

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Infrastructure Development through PPP Scheme in Indonesia: Focusing on Toll Road Sector

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Summary

In Indonesia, the public-private partnerships (PPP) scheme was introduced with the expectation that it would fill the financial demand-supply gaps in the development of infrastructures. However, infrastructure development through the PPP scheme has faced a number of issues; only a limited number of PPP projects have reached financial close, and many of these projects were behind their original schedule. Considering the fact that the PPP scheme is struggling in Indonesia, this research, as a first step to activate the PPP scheme, investigated how and to what extent the current PPP scheme in Indonesia contributes to the formulation of PPP projects. In this research, the toll road sector was focused on, because this sector is the most advanced in delivering projects through the PPP scheme among the other sectors in Indonesia.

The research method utilised in this research is a multiple and heterogeneous case study method. The research compares the 18 PPP toll road projects that were included in the PPP book 2015, 2017, 2018 published by the Indonesian government. These projects include the projects that successfully reached financial close on time and also the projects that were/have been mired in project formulation due to any number of reasons. To heighten the validity and reliability of the study, both preliminary data (interviews with the PPP-related institutions) and secondary data (documents provided by the PPP-related institutions) were collected and analysed.

The major findings of this research are as follows: (1) The government's roles and responsibilities in the PPP scheme that is suggested as critical for smooth project formulation by previous researches are basically well developed. However, the legal environment; coordination among the related stakeholders, especially between the central and local governments; and provision of good candidate projects were not sufficient in some cases, and this insufficiency led to delayed project formulation in these projects. (2) The mechanism for concessionaire selection and risk allocation between the public and private sectors is already well developed in the toll road sector; this well-developed mechanism is deemed to contribute to smooth project formulation. (3) The mechanism for deciding sound financial packaging is basically well developed, and the Contractor Pre-Financing (CPF) system in particular is deemed to contribute significantly to timely financial close. However, misapplication of the procedure of deciding the financial scheme led to delay in some cases. (4) To sum up, for smooth project formulation all the way to financial close, all the factors mentioned above are deemed critical, which means that missing even one factor could lead to delay of the project formulation. It should be noted, however, that even though the PPP scheme is relatively well developed as a whole, there is still room to improve some parts of it in Indonesia to avoid delay.

Through investigating the Critical Success Factors (CSFs) leading to success/delay in the formulation of PPP toll road projects, this research found the critical issues related to sustainability of the PPP projects too: there are some potential risks in coverage of government guarantee, the government financial support, and the CPF system. It should be noted that there is a possibility that the PPP scheme in the toll road sector in Indonesia will not work well in the future due to these risks, even though it works relatively well at this moment as confirmed in the case projects.

Considering the findings above, this research recommends the following: (1) improvement in three factors related to the PPP scheme, namely in the coordination among the stakeholders, especially between the central and local governments; the quality of candidate projects; and the procedure for structuring the financial package to realise smoother project formulation without any delay; and (2) improvement of the PPP scheme itself, especially the government guarantee and/or financial support offered to heighten sustainability of the PPP toll road projects.

Keywords

Public-private partnerships (PPP), Infrastructure development, Critical Success Factors (CSFs) for PPP project, PPP toll road project, and Indonesia

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I would like to express deep gratitude to my company too for providing a wonderful opportunity to study and research the management of urban infrastructure development, especially infrastructure development through the PPP scheme, intensively for a year.

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Abbreviations

ADB	Asian Development Bank
AIIB	Asian Infrastructure Investment Bank
BAPPENAS	Ministry of National Development Planning
BCA	Bank Central Asia
BNI	Bank Negara Indonesia
BOT	Build-Operate-Transfer
BPJT	Indonesia Toll Road Authority
BPN	National Land Agency
BRI	Bank Rakyat Indonesia
BTO	Build-Transfer-Operate
CCGA	Central Coordinating Government Authority
CEXIM	Export-Import Bank of China
CMEA	Coordination Ministry for Economic Affairs
CPF	Contractor Pre-Financing
CSF	Critical Success Factor
DFAT	Department of Foreign Affairs and Trade
EIA	Environmental Impact Assessment
FBC	Final Business Case
FIRR	Financial Internal Return of Rate
GCA	Government Contracting Agency
IDB	Islamic Development Bank
IIF	Indonesia Infrastructure Finance
IIGF	Indonesia Infrastructure Guarantee Fund
IRR	Internal Return of Rate
IV	Independent Variable
JBIC	Japan Bank for International Cooperation
JICA	Japan International Cooperation Agency
KPPIP	Committee for Acceleration of Priority Infrastructure Delivery
LKPP	National Procurement Agency
MoF	Ministry of Finance
MPWH	Ministry of Public Works and Housing
NPV	Net Present Value
OBC	Outline Business Case
OECD	Organisation for Economic Cooperation and Development
PPP	Public-private partnerships
PSN	National Strategic Project
PVR	Present-Value-of-Revenue
PRJMN	National Medium-Term Plan
S-BOT	Supported Build-Transfer-Operate
SGA	Supportive Government Authority
SMI	Sarana Multi Infrastructure
SPV	Special Purpose Vehicle
USO	Universal Service Obligation
VGF	Viability Gap Funding
WACC	Weighted Average Cost of Capital
WB	World Bank

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Chapter 1: Introduction

1.1 Background

Infrastructure is an essential foundation in people's lives and also very important for the economic development of cities, countries, and regions. Significant attention is therefore being paid to the demand for and method of financing required infrastructure. Recently, many reports have highlighted the huge demand for infrastructure development and maintenance in the world. The authors have raised an alarm over the huge financial gap between demand and supply for infrastructure development, especially in developing countries. According to the World Bank (2015a), the infrastructure investment requirement in developing countries, excluding China, is estimated at 711 billion USD per year during 2014-2020, while available finance is estimated at only 259 billion USD, which is approximately 36.4 per cent of the demand. The other reports have different numbers due to different methods of estimation; however, the lack of supply against the demand for infrastructure development in developing countries is a common problem.

To fill the infrastructure investment gap, public-private partnership (PPP) schemes, utilising private investment for infrastructure projects, have become regarded as a possible solution, despite their limitations (OECD, 2012, McKinsey Global Institute, 2016, Asian Development Bank, 2017). Recently, the call for PPP schemes has been intensifying rapidly, because these schemes are considered to provide, in addition to the benefit of saving public investment, more efficient and cost-effective infrastructure service than conventional financing schemes that do not utilise the private sector's know-how (Hodge, Greve, et al., 2018). In this context, various PPP regulations and supporting financial facilities have been introduced in many countries to increase successful PPP projects.

Indonesia, which is a middle-income country with a GDP per capita of $3,603 in 2016 (World Bank, 2018b), is among the developing countries exploring PPP schemes. Indonesia is regarded as having the biggest infrastructure investment gap among the G20's countries (McKinsey Global Institute, 2016). Indeed, the huge demand for infrastructure development and the accompanying shortage of financial sources has become one of the hottest issues in the country and is being treated as a priority political topic. According to the Ministry of National Development Planning, demand for infrastructure represents approximately 369 billion USD for projects such as roads, transports, and electricity during 2015-2019; available central and local governments funds amount to approximately 152 billion USD, which is 41 per cent of the total demand (Committee for Acceleration of Priority Infrastructure Delivery, 2017, Ministry of National Development Planning (BAPPENAS), 2014). The government of Indonesia, as is the trend for financing infrastructure projects across the world, planned to fill the investment gap of 59 per cent mainly with PPP schemes totalling 135 billion USD, along with mobilising the funds of state-owned enterprises (SOEs) for 82 billion USD, which would meet 37 per cent and 22 per cent of the demand, respectively (Committee for Acceleration of Priority Infrastructure Delivery, 2017).

Privatisation, including PPP, in Indonesia has a relatively short history due to long-established centralised government. The history of Indonesia can be divided into three eras of government administrations. The first era is the Soeharto administration (1968-1998). Under the Soeharto administration, decision-making for infrastructure development in Indonesia was centralised, and infrastructure was financed by the state budget, which was the country's practice for a long time (OECD, 2012). However, in the late 1980s, regulations related to utilising private investment for the road and electricity sectors were introduced to accelerate infrastructure development, with private investment starting in the early 1990s (Japan

International Cooperation Agency (JICA), 2017). The same types of regulations were introduced for other sectors in the early 1990s (World Bank, 2011). As a result, approximately 20 billion USD in private money was invested in infrastructure, especially the electricity sector, before the Asian financial crisis of 1997, though slowdown of private investment continued between 1998 and 2004 due to the aftermath of the financial crisis (Japan International Cooperation Agency (JICA), 2017). However, it should be noted that there was no common regulation for PPP schemes during the period; instead, each ministry established its own sector's regulations to utilise private money.

The second era is the Yudhoyono administration (2005-2014). Foundation of the PPP scheme of Indonesia was established then, with various PPP support facilities and regulations forming during the period. In 2005, Presidential Regulation No. 67 of 2005 regarding Public Private Partnership in Infrastructure was issued as the first formal PPP regulation to improve the bidding procedures for projects. However, despite this regulation and several infrastructure summits involving private companies, no PPP project was concluded based on this regulation due to the lack of related support facilities during the first Yudhoyono administration (2005-2009). To fix the situation, various PPP support facilities were introduced through amendments of the regulation in 2010, 2011, and 2013 during the second Yudhoyono administration (2010-2014) (OECD, 2012): (1) Indonesia Infrastructure Guarantee Fund (IIGF), a SOE financed by the Ministry of Finance, established as a single window to provide guarantees for PPP projects, in the end of 2009 (IIGF, 2017b). (2) The Viability Gap Funding (VGF) scheme, whereby the government provides financial support for some portion of the construction costs of the project to make it financially feasible, was introduced in 2012 (KPPIPI, 2017). (3) State-owned financial institutes dedicated to providing finance to infrastructure projects in Indonesia and their feasibility studies, such as the Sarana Multi Infrastructure (SMI) and Indonesia Infrastructure Finance (IIF), were established in 2009 and 2010, respectively (SMI, 2016c, KPPIPI, 2017). (4) The so-called 'PPP book', which included PPP candidate projects with their basic information, necessary supports, and maturity, was started in 2009 and is now released periodically to the public to monitor the current status (BAPPENAS, 2017a). (5) A PPP unit in charge of PPP project formulation, including evaluation and approval of government support, was established by the Ministry of Finance in 2014 (BAPPENAS, 2017a). Finally, (6) the Committee for Acceleration of Priority Infrastructure Delivery (KPPIP) was established by the ministries related to infrastructure development to accelerate formulation of priority projects in 2014 (KPPIPI, 2017).

The third era is the Joko administration (2015-present), where infrastructure development utilising PPP schemes is emphasised to meet the National Medium Term Plan (RPJMN) 2015-2019 (Ministry of National Development Planning (BAPPENAS), 2014). Following the Yudhoyono administration, various new PPP support facilities were introduced with new PPP regulation (Presidential Regulation No. 38 of 2015) to realise the PPP project quickly: (1) The Availability Payment (AP) scheme, where the public provides a certain payment to the project in return for the project's infrastructure services with a given service level, was introduced in 2015 (KPPIPI, 2017). (2) Direct appointment schemes, where the public chooses the concessionaire for a project without a bidding process in cases where the project fulfils a certain criteria, was introduced in 2015 (JICA, 2017). (3) Unsolicited project schemes, where the public adopts a project proposed by the private sector, were introduced in 2015 (BAPPENAS, 2017a). (4) A new land acquisition law that defined a concrete time frame, procedure, and a single administrative authority for land acquisition, was started in 2015 (KPPIPI, 2017). Finally, (5) new ministries, namely the Coordinating Minister of

Maritime Affairs and Minister of Environment and Forestry, were added to KPPIP in 2016 (Committee for Acceleration of Priority Infrastructure Delivery, 2017).

As mentioned above, there is a huge demand for infrastructure investment in Indonesia, and recently the government has introduced a policy to utilise the PPP scheme to meet the financial demand. Led by the president's initiative, PPP regulation and support facilities in Indonesia have been well developed during a relatively short period. As a result, compared with other developing countries in the ASEAN region, Indonesia is now regarded as one of the best countries in terms of the environment for PPP projects (UNESCAP, 2017).

1.2 Problem Statement

In contrast to the various arrangements of PPP support facilities and regulations, it is difficult to say that PPP in Indonesia has been successful so far in terms of 1) the number of projects financially closed, 2) time spent for project formulation, and 3) clarity of the selection methodology for candidate projects.

The first problem, which has been deemed to be serious, is that formulation of PPP projects in Indonesia has been difficult. As of November 2017, only 12 projects have been financially closed since the new PPP regulations (the Presidential Regulation No. 38 of 2015) were introduced by the Joko administration (PT Sarana Multi Infrastruktur, 2017); that number of projects excludes the projects of two sectors regarded as non-PPP sectors in Indonesia, namely the Information and Communications Technology (ICT) sector, which is basically financed only privately due to its profitable characteristic, and the Power sector, which has its own financial framework such as the Independent Power Producer (IPP) scheme. According to the OECD (2012), before the Presidential Regulation No. 38 of 2015, 91 projects were selected as candidate PPP projects at the first Infrastructure Summit in 2005; the list of projects was periodically updated, with 100 projects listed in 2010. After 2009, all the candidate PPP projects had been entered into the PPP book with their basic information, necessary supports, and maturity. The successive PPP books had 100 candidate PPP projects in 2010, 79 in 2011, 58 in 2012, 27 in 2013, and 61 in 2015 (Ministry of National Development Planning (BAPPENAS), 2016). However, it is noted that only a few candidate PPP projects actually reached financial close, and many projects were simply thrown out due to the difficulty of formulation encountered over the past 13 years, since the PPP scheme was introduced and before the Joko administration began.

Moreover, regarding the projects financially closed and the projects being tendered, not all of them went smoothly. Some projects in the ICT and Toll Road sectors were formulated in a relatively timely manner; on the other hand, some projects faced a significant delay of financial close, with some projects being cancelled. For example, the Umbulan Water Supply projects, applying VGF and IIGF guarantee, started its pre-qualification before 2011, though its financial contract was concluded in December 2016 (PT Sarana Multi Infrastruktur, 2017); the Central Java Power Plant project, applying IIGF guarantee, was one of the candidate PPP projects in 2006, with its IIGF guarantee contract and finance contract being signed in 2011 and 2016, respectively (OECD, 2012, SMI, 2017); the Bandar Lampung Water Supply project started its pre-qualification in 2012, but the bidding process was cancelled due to a failure of tender and retender and has been on-going since 2015 (Nusantara Economics, 2017, SMI, 2017).

Lastly, the list of candidate PPP projects in the PPP book is not reliable. The list plays an important role not only in providing a common understanding of the current project situation but also in limiting the projects that can take PPP support from the government. In other words, a project not listed in the PPP book cannot be financed with government support

on an ad-hoc basis, even if it is a good project. Subsequent PPP books may be published up to two years apart; thus there is a possibility that a project not listed in the latest PPP book will have to wait for the next update in two years. Many projects taken out of the book are also naturally out of date by the time of the next update. According to the Ministry of National Development Planning (2016), 43 candidate PPP projects, which accounted for approximately 70% of the total projects in the PPP book of 2015, were removed for the PPP book of 2017. This drastic shuffling of candidate projects is common, and so far it has left private and even public parties confused.

As mentioned in the background, the Indonesian government has tried to solve the problem by introducing various PPP support facilities to attract the private sector; however it has had difficulty finding, apprising, and formulating PPP projects, which is a problem other countries have also been facing. Numerous intertwined factors are preventing PPP projects from being formulated, including the administration meant to enable utilisation of PPP support facilities still being incomplete (Japan Bank for International Cooperation (JBIC), 2013). Therefore, to promote the PPP scheme in Indonesia, it is important to review how well the existing PPP schemes work and analyse the reasons why delay in project formulation often occurs. Gathering this information will prove more helpful than just introducing new support facilities one after another.

1.3 Research Objectives

To understand the maturity of the current PPP scheme in Indonesia, the research objective of this thesis is to assess how and to what extent the current PPP scheme contributes to the formulation of PPP projects, especially in the toll road sector in Indonesia.

1.4 Provisional Research Question

The main research question is: “Which factors related to the current PPP scheme lead to success or delay in the formulation of PPP toll road infrastructure projects in Indonesia?”

According to previous studies, PPP projects have numerous critical success factors. These factors can be categorised into four main groups: appropriate governmental roles and responsibilities, appropriate concessionaire selection, appropriate risk allocation between the public and private sectors, and appropriate financial packages. In this research, the relationships between each factor in these four groups and the result of development of the PPP toll projects (success/delay) are assessed carefully.

The sub-questions to be examined alongside the main question align with the four main critical success factor groups in PPP projects. These sub-questions are as follows:

1) How and to what extent do the government’s roles and responsibilities lead to success/delay in the formulation of the PPP toll road infrastructure projects in Indonesia?
2) How and to what extent does the concessionaire selection process lead to success/delay in the formulation of the PPP toll road infrastructure projects in Indonesia?
3) How and to what extent does risk allocation between the public and private sectors lead to success/delay in the formulation of the PPP toll road infrastructure projects in Indonesia?
4) How and to what extent does a sound financial package lead to success/delay in the formulation of the PPP toll road infrastructure projects in Indonesia?

1.5 Significance of the Study

The PPP scheme is critical in filling the huge financial demand-supply gap in infrastructure development in Indonesia. It is true that PPP projects have not been formulated successfully in many cases, and their achievement is still far from the planned target. However, it is also true that some projects, especially in the toll road sector, have reached financial close, breaking their standstill situation. In this research, by analysing real PPP toll road projects that reached financial close or that are still in the preparation stage as case projects, the author has investigated the factors leading to the success/delay of the PPP project in Indonesia. The revealed factors can be utilised by policymakers to improve the current administration for PPP schemes and to consider future new support facilities.

As for research on the PPP scheme in Indonesia, the topics have been mostly on the introduction of new schemes or the application of PPP support facilities for a new project; few have researched the impact of introduced facilities by analysing real projects. This might be because Indonesia had few PPP support facilities only a decade ago, and therefore the introduction of new facilities attracted more attention from academics as well as from public administrators. This research is expected to cause a change in this trend and provoke additional research on how to activate existing facilities. The author strongly believes that moving forward by reviewing past policy measures will contribute to further improvement of the environment for PPP projects in Indonesia.

1.6 Scope and Limitations

In this research, the toll road sector was mainly focused on due to time constraints. The toll road sector is the most active sector for PPP schemes in Indonesia and has seen the most projects financially closed and under preparation compared with other sectors; therefore, the analysis drawn from the toll road sector is deemed to represent the other sectors to some extent. To supplement the gap in the analysis between the toll road sector and other sectors, as much information particular to the PPP toll road projects and regarding all PPP infrastructure projects was collected as possible. Nonetheless, there is a limitation, because all the sectors have their own natures due to different stakeholders and business customs.

Another important limitation is a lack of sample projects. Due to the limited number of PPP projects identified by the Indonesia government as of now (projects financially closed and under preparation), the analysis in this research is still hypothetical from a statistical point of view. Also, the results of the interviews are not of unchanged opinion across time; the perceptions of public administrators, including their enthusiasm, could change due to shifts in key personnel in the ministries and institutions. Moreover, there is a possibility that the answerer's own perceptions could have biased some answers on the questionnaire.

However, it is noted that this research is valuable, despite some limitations, in terms of providing new insight for public administration and for research on the PPP scheme in Indonesia. It is expected that the same type of research, with more projects and sectors and with deeper interviews, will be conducted in future work.

Chapter 2: Literature Review

2.1 Introduction

In this chapter, literature related to PPP is carefully reviewed. The contents presented in this chapter are composed of three main topics: general information of PPP (**Section 2.2**); PPP in the road sector (**Section 2.3**); and the Critical Success Factors (CSFs) of PPP projects (**Section 2.4** and **Section 2.5**). **Section 2.2** introduces the definition and characteristics of PPP, several models differentiating PPP projects, and the typical structure and administration of PPP projects. The following **Section 2.3** elaborates on the characteristics and trends of the road sector, including sources of finance and risk allocation options for PPP toll road projects. In **Section 2.4** and **Section 2.5**, the theory of the CSFs of PPP projects, which has become one of the hottest topics in the field of the PPP study, is introduced. Based on numerous past studies on CSFs, all the factors pointed out as important for the success of PPP projects so far are summarised, along with the four groups (pillars) to create the conceptual framework. Following the literature review, this chapter culminates with the conceptual framework to be utilised as a basis of this research (**Section 2.6**).

2.2 Overview of PPP

2.2.1 Definition and Characteristics of PPP

PPP is simply a collaboration on infrastructure development between public and private sectors. The term PPP was first used for typical urban renewal projects in the US in the 1950s and 1960s; the concept has since spread across the world including to developing countries (Eduardo Engel, Ronald D. Fischer, et al., 2014, E. R. Yescombe, 2007). Especially in the late 1980s, PPP schemes grew in popularity due to the public-sector reform in the UK under the Thatcher government, referred to as the New Public Management, which aimed at so-called small government that promoted decentralisation of government through privatisation of public services (E. R. Yescombe, 2007, Jomo KS, Anis Chowdhury, et al., 2016). It is noted that PPP schemes are different from absolute privatisation, though they are sometimes confused since both utilise private funds (Asian Development Bank, 2008). Moreover, PPP schemes have a very broad meaning. They are sometimes also used, for example, for social projects such as combating malaria, as PPP allow the governments of developing countries, international cooperation donor agencies, and the private sector in the international development field to collaborate (World Bank, 2017, E. R. Yescombe, 2007, OECD, 2012). Previous literature has adopted many definitions (Roehrich, Lewis, et al., 2014). To avoid ambiguity, in this research, the following definitions of PPP, in the context of infrastructure development, are adopted:

> *"The transfer (for a limited period) of integrated services relating to the planning, construction, financing, maintenance and operation of public infrastructure (lifecycle approach) that were previously performed by the public sector to private partners." (Barbara Weber, Mirjam Staub-Bisang, et al., 2010a, p89)*

> *"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, 2017, p5)*

PPP schemes have the following main characteristics: 1) a private company provides services in a certain period based on the contract which defines project scope and cost of services; 2) the private company bears the capital cost of infrastructure investment and

recovers the cost by collecting user charge and/or government budget allocation; 3) project risks are shared among the public and private parties; and 4) the public provides regulations and supports, such as the creation of a good environment for the investment and acquisition of land to make projects happen (Jomo KS, Anis Chowdhury, et al., 2016, Barbara Weber, Mirjam Staub-Bisang, et al., 2010a). Due to these characteristics, both advantages and disadvantages are suggested by a lot of literature. As an advantage, for instance, PPP could heighten the 'value for money' of the project (infrastructure services could achieve higher quality and more efficiency by utilising private experience, know-how, and capital), minimise public budget expenditure by utilising private funds, and generate innovation and make the project life-cycle cost less and take less time through competition among the private companies (Kwak, Chih, et al., 2009, Barbara Weber, Mirjam Staub-Bisang, et al., 2010a). On the other hand, as drawbacks, PPP could be delayed due to lack of experience and knowledge in the country and complex negotiation processes on project models including risk allocation, become costly as the private cannot borrow money with low conditions like the public, become a monopoly situation by providing high service fees to users, and make private companies hesitate to participate in the projects due to the complicated and long process (Kwak, Chih, et al., 2009).

2.2.2 Organisation Models of Infrastructure Projects and PPP

Infrastructure projects, including PPP projects, have different organisational models based on their individual characteristics. According to Kwak, Chih, et al., 2009, Barbara Weber, Mirjam Stau - Bisang, et al. (2010a), the organisational models are composed of five sub-models: (1) the privatisation models, (2) the partnership models, (3) the contractual models, (4) the business models, and (5) the financing models. In this sub-section, these sub-models are summarised based on Barbara Weber, Mirjam Stau - Bisang, et al. (2010a).

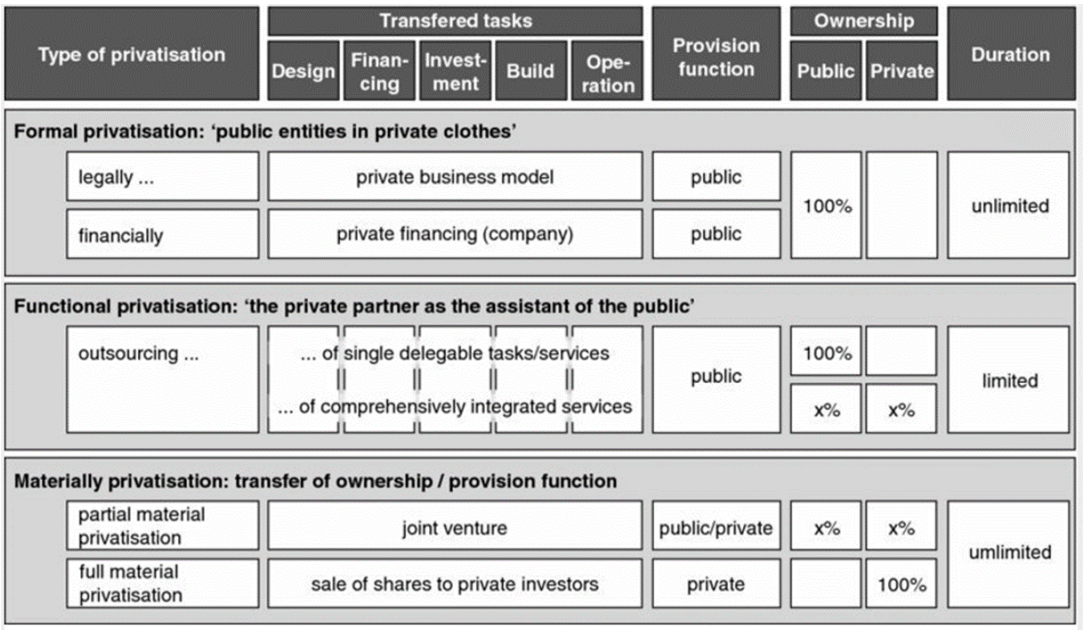
(1) Privatisation Models

Infrastructure projects have their own degree of involvement of private parties (degree of privatisation). This degree can be organised by the following point of views: the private sector's tasks in the project, such as design, financing, building, operation, and ownership; the parties responsible for planning, delivering, and maintaining the infrastructure services' quantity and quality; the ownership of the physical infrastructure; and the duration of the privatisation. By using these criteria, infrastructure projects can be classified into three different types, reflecting the different degree of privatisation, as following and in **Figure 1**;

a. Formal privatisation: public company (i.e. state-owned company (SOE)) takes care of all tasks (design, finance, build, and operate) on behalf of the public, though ownership and responsibility for the infrastructure assets remain public. Duration of privatisation is unlimited, since the ownership and responsibility are not transferred to the public company. This type of privatisation can be regarded as 'public entities in private clothes'.
b. Functional privatisation: the public outsources single/comprehensive task(s) to the private sector for a certain period. Responsibility for the services basically remain in the public, though only the public, or both the public and the private, can have the ownership. Barbara Weber, Mirjam Staub-Bisang, et al. (2010a) define the case that the public outsources not singly but comprehensively integrated tasks (i.e. building and operating the project) to the private as the PPP.
c. Material privatisation: all tasks are taken care of by the private sector (full material privatisation) or both the private and public (partial material privatisation).

Responsibility for the services and the ownership of infrastructure are fully transferred from the public to the private in full material privatisation, while they are shared between the private and the public in partial material privatisation. It is noted that this type of privatisation is on a permanent basis.

Figure 1: Type of Privatisation



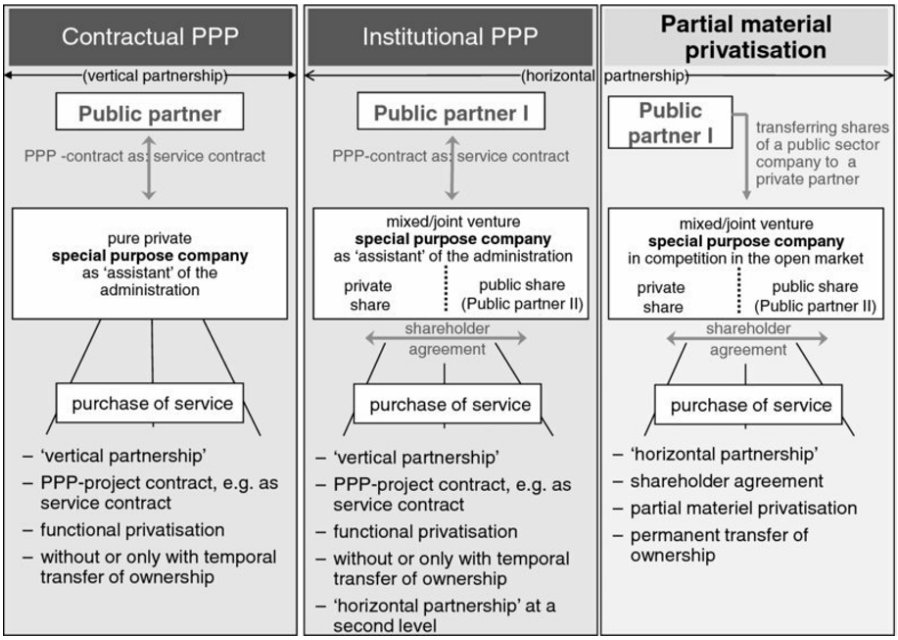
Source: Barbara Weber, Mirjam Staub-Bisang, et al. (2010a, p93)

Infrastructure projects have shifted to materially privatisation in many countries under the boom of New Public Management. However, there are different trends among the sectors. For instance, energy, telecommunication, and specific transportation such as airport and harbour sectors often evolve to materially privatisation because of their profitable and competitive nature. On the other hand, sectors with a highly public nature, such as roads and water supply, tend to take the form of functional privatisation or formal privatisation.

(2) Partnership models

Infrastructure projects can be organised with a form of partnership between the private and public, as in **Figure 2**. There are two types of partnership: vertical partnership, where a pure private company conducts the tasks (design, finance, build, and operate) under a service contract with the public, and horizontal partnership, where a mixed/joint company between the public and the private conducts tasks under a service contract with the public or by transferring the responsibility and ownership of the project from the public to the private. Especially in PPP projects, the vertical partnership and horizontal partnership are also called contractual PPP and institutional PPP, respectively in their natures. It is noted that the contractual PPP can allocate risks of the project between the public and the private more clearly than the institutional PPP, as their responsibilities and tasks are clearly demarcated.

Figure 2: Structures of Partnership Models



Source: Barbara Weber, Mirjam Staub-Bisang, et al. (2010a, p101)

(3) Contractual models

There are various contractual types of partnerships depending on the objective of the project; therefore, they can be organised based on their contractual agreements reflecting a degree of private involvement in the project (Kwak, Chih, et al., 2009, Barbara Weber, Mirjam Staub-Bisang, et al., 2010a). **Table 1** shows the typical PPP contract types with demarcation of roles between public and private. Public-sector procurement is a conventional pubic project where the public sector has all responsibilities for finance, construction, operation, maintenance, and ownership, while Build-Own-Operate (BOO) is private project where private has all responsibilities, though BOO is sometimes regarded as PPP. In a franchise, sometimes known as lease or *Affermage* especially in France, the public leases out its assets to private, while the private implements operation and maintenance as well as user fee collection. On the other hand, Design-Build-Finance-Operate (DBFO), Build-Transfer-Operate (BTO), and Build-Operate-Transfer (BOT) are usually regarded as PPP. These three types of contracts are also called 'concession' contracts, and are defined as a contract that

> *makes the private sector operator (concessionaire) responsible for the full delivery of services in a specified area, including operation, maintenance, collection, management, and construction and rehabilitation of the system. Importantly, the operator is now responsible for all capital investment. Although the private sector operator is responsible for providing the assets, such assets are publicly owned even during the concession period.* (Asian Development Bank, 2008)

It is noted that there are slight differences of definition for PPP contract types among the literature, and that other PPP contracts not mentioned here, such as Design-Build-Lease-Operate-Transfer (DBLOT) and Design-Build-Rent-Operate-Own (DBROO) also exist; however, it is important that any types of contracts in the PPP scheme are designed considering whole lifecycle: planning, financing, construction, operation, and maintenance, and that roles and risks are allocated between public and private during the concession period.

Table 1: Public and Private Provision of Infrastructure

Public and private provision of infrastructure

	Public project ◄					► Private project
			◄ Public–Private Partnership			►
Contract Type	**Public-sector procurement**	**Franchise (*Affermage*)**	**Design-Build Finance-Operate (DBFO)***	**Build-Transfer-Operate (BTO)****	**Build-Operate-Transfer (BOT)*****	**Build-Own-Operate (BOO)**
Construction	Public sector(2)	Public sector(2)	Private sector	Private sector	Private sector	Private sector
Operation	Public sector(3)	Private sector	Private sector	Private sector	Private sector	Private sector
Ownership(1)	Public sector(4)	Public sector	Public sector	Private sector during construction, then public sector	Private sector during Contract, then public sector	Private sector
Who pays?	Public sector	Users	Public sector or users	Public sector or users	Public sector or users	Private-sector offtaker public sector(5), or users
Who is paid?	n/a	Private sector	Private sector	Private sector	Private sector	Private sector

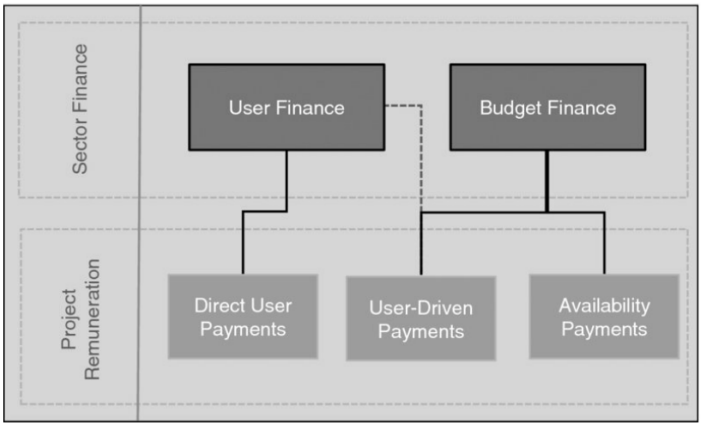
* Also known as Design-Construct-Manage-Finance (DCMF) or Design-Build-Finance-Maintain (DBFM)
** Also known as Build-Transfer-Lease (BTL), Build-Lease-Operate-Transfer (BLOT) or Build-Lease-Transfer (BLT)
*** Also known as Build-Own-Operate-Transfer (BOOT)
(1) In all cases, ownership may be in the form of a joint venture between the public and private sectors (*cf.* §17.5).
(2) Public sector normally designs the Facility and engages private-sector contractors to carry out construction on its behalf (design-bid-build).
(3) Public sector may enter into service (outsourcing) contracts (for operation and maintenance) with private-sector contractors.
(4) Ownership may be through an independent publicly-owned Project Company, *i.e.* a 'Public-Public Partnership' (*cf.* §17.2.2).
(5) The BOO Contract form applies to PPPs in the minority of cases where ownership of the Facility does not revert to the Public Authority at the end of the PPP Contract (*cf.* §15.11).

Source: E. R. Yescombe (2007, p12)

(4) Business Models

PPP schemes can also be divided based on their source of revenue or the way of cost recovery of the project; as shown in **Figure 3**, one is 'budget finance' and another is 'user finance' (Barbara Weber, Mirjam Staub-Bisang, et al., 2010a, E. R. Yescombe, 2007). Budget finance is to utilise the government budget as project remuneration to recover the project cost; thus, the project can hedge the demand risk (revenue risk). According to Barbara Weber, Mirjam Staub-Bisang, et al. (2010a), there are the 'availability payments' scheme and 'user-driven payments' scheme in budget finance. Examples of the former scheme are availability-based payments, where a fixed amount is paid in case the availability of premises and facilities is achieved, and performance-based payments, where the amount corresponding to the services is paid based on the contract. The latter scheme is similar to the former scheme in terms of use of the government budget; however, the amount of remuneration is decided based on user demand in the latter scheme (i.e. the so-called 'shadow toll' scheme, where a private company obtains the revenue corresponding to the frequency/intensity of the traffic from the government is utilised for some toll road projects). On the other hand, user finance recovers the project cost by collecting user fees, such as tolls and charges; therefore, the project has a significant demand risk. User finance has several types: compulsory usage type, such as the water network; quasi-compulsory usage type, such as bridges over rivers; free choice of usage type, such as telephone providers (Barbara Weber, Mirjam Staub-Bisang, et al., 2010a). It is noted that there is also a business model combining both budget finance and user finance to make the project bankable.

Figure 3: Source of Revenue and Remuneration Structure



Source: Barbara Weber, Mirjam Staub-Bisang, et al. (2010a, p102)

(5) Financing Models

Infrastructure projects can also be organised by their financial sources. Under the conventional public projects, the public finances capital and operational costs of the projects by utilising the public budget, issuing government bonds, or lending loans from multilateral and/or bilateral financial development institutions. There are more available financial sources for PPP and private projects, since financing the capital expenditure before the occurrence of cash flow from the project is the responsibility of the private under these types of project. For that, the following financing instruments are considerable: equity finance, such as equity (cash) injection or provision of non-cash project assets, such as land and equipment to the project company by sponsors and/or finance investors; debt financing, such as (senior) loans from private/development banks in the country and/or multilateral and bilateral financial development institutions, and the issue of project bonds in the capital market; and mezzanine financing, such as interest-bearing loans subordinate to senior debt (Barbara Weber, Mirjam Staub-Bisang, et al., 2010d).

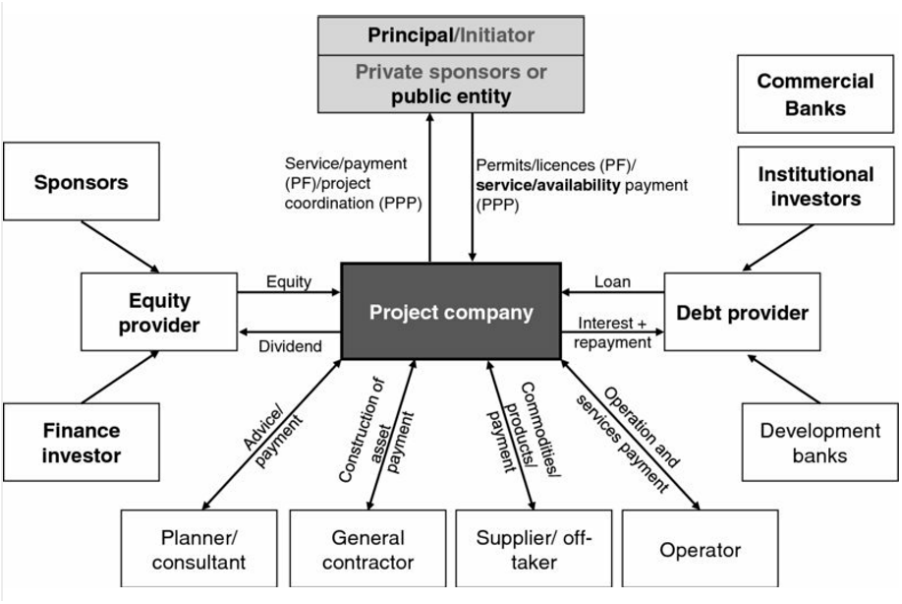
As for types of debt finance, project finance, where the project company borrows loans with the creditworthiness of the project itself and repays the loans using the cash flow from the respective project, has become popular, as well as conventional corporate finance, where the private sponsors of the project borrow loans with the sponsors' creditworthiness. Project finance is preferable for projects that have a profitable nature, transparent and proper risk allocation, and are relatively large scale enough to cover the administrative cost (Barbara Weber, Mirjam Staub-Bisang, et al., 2010c).

2.2.3 General Structure and Administration of PPP Project

There are various types of PPP projects, as seen in **Sub-Section 2.1.2**; however, it is possible to define the typical structure of PPP projects with flow of funds, as in **Figure 4**. It is noted the types of concession contracts, such as BOT, BTO, and DBFO, basically have this structure, though cash flow can become different depending on the source of revenue of the project. Under the PPP project, the private project company formed for the project, called the Special Purpose Vehicle (SPV), has various contracts with the government, financial institutions, consulting companies, and engineering companies for the project. First, the SPV has a project concession agreement with the government with detailed conditions, including subsidies, if any. For physical construction and operation and maintenance, the SPV usually

contracts out them to the subcontractors. To finance the project, the SPV utilises investment from equity investors such as project sponsors (strategic investors) and financial investors, and also borrows loan from lenders, such as development financial institutions in the country, multilateral and bilateral development institutions, and domestic commercial banks to minimise the cost of finance (World Bank, 2017). With these arrangements with related institutions, the SPV is able to provide services to users in return for user fees.

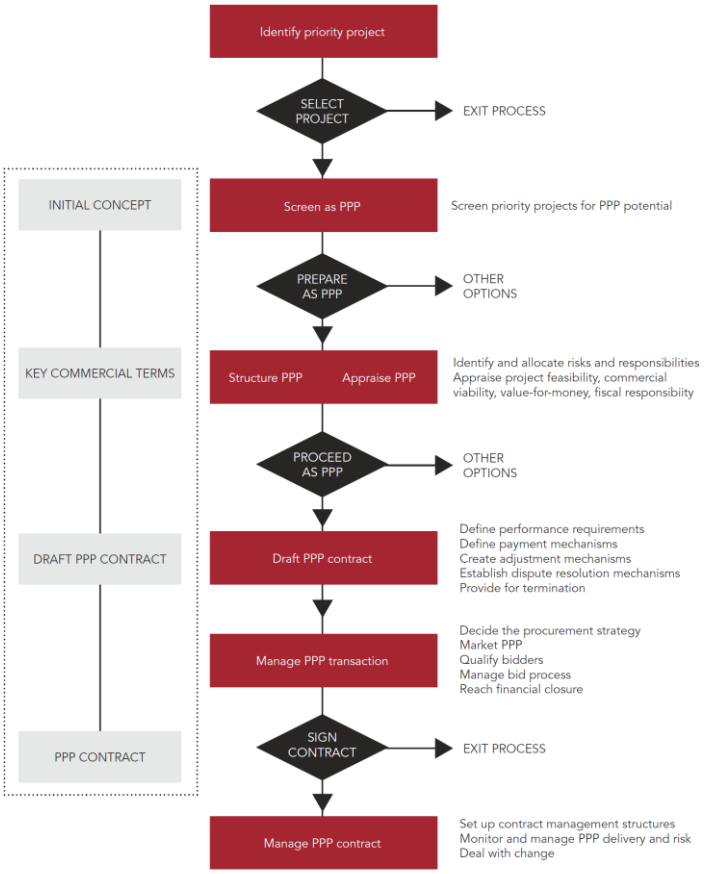
Figure 4: Typical PPP Project Structure with Flow of Funds



Source: Barbara Weber, Mirjam Staub‐Bisang, et al. (2010c, p304)

With regard to formulation of PPP projects, **Figure 5** shows a typical process. The process of PPP project formulation has much similarity with those of conventional public projects. Both types have the stage of selecting candidate projects through a simple study; preparing for information for due diligence through studies, such as feasibility study; appraising the project from technical, economic, legal, environmental, and social point of views; bidding and financial closure of the project; and implementing and monitoring the project status. However, it is noted that there is a difference in the timing of financial closure between the conventional public project and the PPP project. Under the conventional public project, financial arrangement is normally concluded before bidding since the public is responsible for finance and secures the budget/credit line before the transaction, whereas under the PPP project, financial close is after bidding since finance is one of the private's task and the cost of the project is one of the criteria of the bidding (Babatunde, Perera, et al., 2016). Also, under the PPP project, the structuring process of the project, such as defining service requirements, payment mechanisms, and government support, tends to take time due to complicated discussion among the many related actors with different intentions; therefore, it is considered important to confirm where the bottleneck is in the process when the project gets stuck.

Figure 5: Typical Process of Formulation of PPP Project



Source: World Bank (2017, p71)

2.3 PPP in Road Sector

In general, the road sector is comprised of the national road networks (primary road networks) with the regional and municipal sub-road networks (secondary/tertiary road networks). In many cases, the central government or a governmental agency has responsibility for planning the national road networks from planning to implementation (construction, operation, and maintenance). For the regional and municipal sub-road networks, local governments are responsible for implementation while the central government or governmental agency is still responsible for the planning. This is because roads are regarded as a 'common asset' across the world; therefore, it is considered that the central government should have ultimate responsibility, especially in the planning and ownership of the physical assets (Barbara Weber, Mirjam Staub-Bisang, et al., 2010b, EuroMed Transport Project, 2008).

With regard to the financing sources, both the national roads network and the regional and municipal sub-road networks have traditionally utilised general taxes and/or indirect user payments, such as the fuel tax and vehicle ownership tax, since the indirect user payments have been enough to finance entire road projects for a long time (EuroMed Transport Project, 2008). However, due to an increase of demand for road development and the legal difficulty of earmarking road revenue from the indirect user payments to particular road projects (because of laws in many countries, the indirect user payments have become part of the general budget) (Barbara Weber, Mirjam Staub-Bisang, et al., 2010b, EuroMed Transport

Project, 2008), direct road user charges such as tolls (based on mileage) and vignette/toll stickers (based on time period) were introduced in a number of countries (i.e. all the countries in the EU, except Finland, introduced Tolls/Vignette in the European Union (EuroMed Transport Project, 2008)). These direct road user charges generated additional income and also made it possible to earmark the revenue to the transport sector or the road sector. However, they also have drawbacks. Tolls have the following potential problems: high implementation cost due to complex toll-collecting operations; prolonged political discussion on the project; and insufficient economic profit due to low traffic volume. Vignette has the critical problem of no direct relationship with actual road usage. Out of direct road user charges, Tolls are more dominant than Vignettes since it is difficult for the latter to control traffic because they are normally fixed price regardless of frequency of use (Barbara Weber, Mirjam Staub-Bisang, et al., 2010b). A summary of road sector financing sources with advantages and disadvantages is shown in **Fig 6**.

Figure 6: Financing Sources with Advantages and Disadvantages in the Road Sector

	Advantage	Disadvantages
Direct road user charges		
Tolls	• Direct relationship to usage, flexible (different tolls for different daytimes, etc possible) • Easy to ear-mark • Economically beneficial on congested roads	• Can be costly to implement • Can be politically difficult to accept • Because of diversions, economic benefits of road are reduced, if road is not congested
Vignette	• Easy to implement • Easy to ear-mark • Cheap to implement	• No direct relationship to usage
Indirect road user charges		
Fuel tax	• Easy to implement, cheap to collect	• Direct relationship to road usage only via fuel consumption • Earmarking politically difficult
Vehicle ownership tax	• Easy to implement, cheap to collect	• No relationship to road usage • Earmarking politically difficult

Source: EuroMed Transport Project (2008, p94)

With the introduction of direct road user charges, the private sector has been more involved in the road sector. Beyond the simple tasks of operation and maintenance, PPP models, especially BOT where the SPV is responsible for finance, construction, and operation and maintenance by utilising tolls, has become popular, especially for costly road infrastructure projects such as long distance primary road networks and bridges/tunnels in order to avoid government expenditure to the capital cost (Barbara Weber, Mirjam Staub-Bisang, et al., 2010b). It is logically true that toll roads with high traffic to cover construction fees and operation and maintenance fees can be fully privatised. However, such material privatisation with asset transfer generally doesn't happen; instead, BOT with time-limited concessions are utilised because of the road sector's 'common asset' nature (Barbara Weber, Mirjam Staub-Bisang, et al., 2010b, EuroMed Transport Project, 2008). PPP is an appropriate scheme for the road sector not only from the financial aspect but also from the technical aspect. It is relatively easy to define technical requirements (quality and service) of road infrastructure with a contract; therefore, the concessionaire could fulfil the requirement in a more efficient way than a public conventional project if there is an appropriate penalty, such

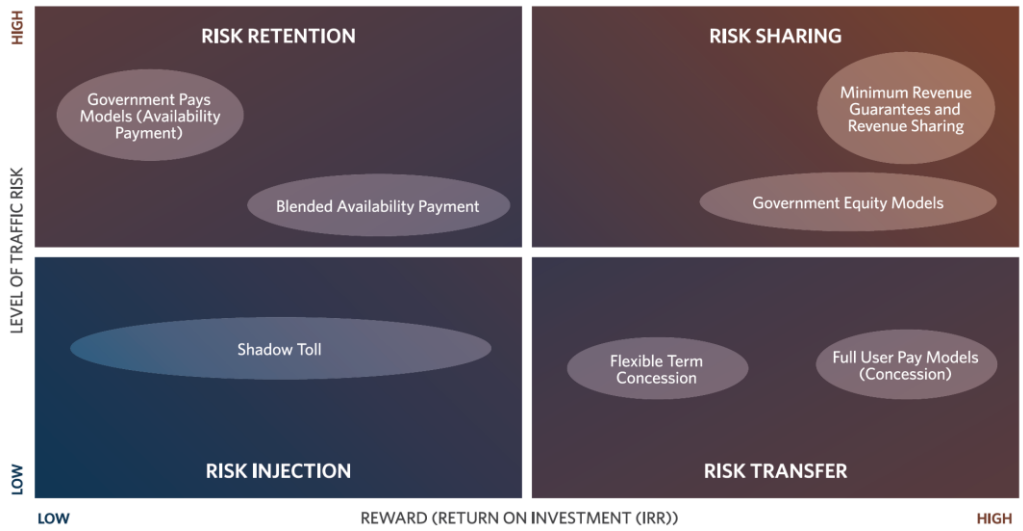
as a contractual default in the contract (Eduardo Engel, Ronald D. Fischer, et al., 2014). For example, private's involvement in maintenance with a long-term performance-based contract can reduce maintenance costs by up to 50 per cent compared with maintenance done by the public (EuroMed Transport Project, 2008). Because of the above appropriateness of applying PPP schemes to the road sector, PPP has spread to the road sector in both developed and developing countries (Eduardo Engel, Ronald D. Fischer, et al., 2014).

The road sector has two critical risks compared to other sectors: high traffic and revenue risk. Traffic risk is the risk that volume of traffic become less than forecast, and revenue risk is the risk that the revenue become less than estimated due to low traffic volume/toll rates and/or failure of Toll collection (World Bank, 2018a). A number of studies suggest that traffic risk and its corresponding revenue risk are high in the road sector; traffic forecasts are substantially inaccurate (usually overestimation) in many cases (Public-Private Infrastructure Advisory Facility (PPIAF), 2017). Traffic forecasts are generally inaccurate even in the short term and almost useless in the long term (Eduardo Engel, Ronald D. Fischer, et al., 2014); therefore, it is important to allocate the traffic/revenue risk properly between the public and private to realise toll road projects. **Fig 7** shows the risk allocation options for PPP toll road projects. Toll road projects are divided into four groups based on level of traffic risk and level of reward (financial profitability); each group has an appropriate source of revenue (Public-Private Infrastructure Advisory Facility (PPIAF), 2017).

1) Risk transfer: in the case that traffic risk is relatively low and manageable, and reward is relatively high, traffic risk could be transferred to the private. In this case, full user-pay models (fixed-term BOT concession) or flexible-term BOT concession are suitable; the latter is also called a Present-Value-of-Revenue (PVR) contract. Eduardo Engel, Ronald D. Fischer, et al. (2014) recommends the PVR contract for toll road projects where the traffic demand cannot be controlled by the SPV, as the PVR contract can completely remove traffic risk from the private and decrease the contract amount by reducing the risk premium. The PVR contract was first applied in Chile in 1998 and became a standard bidding procedure in 2008 (Eduardo Engel, Ronald D. Fischer, et al., 2014).
2) Risk sharing: in the case that both traffic risk and reward are relatively high, traffic risk could be shared between the public and private. In this case, government financial supports in return for revenue sharing, such as minimum revenue guarantee or government's equity injection, are recommended to support the project bankability just in case. To maintain moderate profit for the private, a mechanism that enables revenue sharing of the upside of traffic risk (surplus revenue) is generally with a minimum revenue guarantee (Public-Private Infrastructure Advisory Facility (PPIAF), 2017).
3) Risk retention: in case traffic risk is relatively high, and reward is relatively low, traffic risk should be remained in the public, and substantial government financial supports are required to make the project bankable. In this case, availability payments that the public periodically pay fixed fees to the SPV or blended availability payments that are combination of availability payment and use-pay model are recommended. The availability payment model has become popular, especially in municipal-level projects (with low profitability) in many countries, such as the United States, the United Kingdom, Netherlands, and Finland (Barbara Weber, Mirjam Staub-Bisang, et al., 2010b, Eduardo Engel, Ronald D. Fischer, et al., 2014).
4) Risk injection: in case both traffic risk and reward are relatively low, some traffic risk can be transferred to the private. In this case, shadow tolls where the SPV obtains the revenue corresponding to traffic not from users but from the

government are recommended. Shadow tolls have been utilised in countries such as the United Kingdom, Portugal, and Spain (Barbara Weber, Mirjam Staub-Bisang, et al., 2010b, Public - Private Infrastructure Advisory Facility (PPIAF), 2017).

Figure 7: Risk Allocation Options for PPP Toll Road Projects



Source: Public - Private Infrastructure Advisory Facility (PPIAF) (2017, p64)

2.4 Critical Success Factor (CSF) of PPP

With the worldwide boom of PPP and the various failures in terms of cost, time, and quality due to the feature of PPP, the broad range of risks, multiple parties involved, lack of experience, and so on, a need for a workable and efficient protocol for a successful project has occurred (Zhang, 2005a). To identify the best ways of realising PPP projects successfully, researchers have tried to apply the concept of the critical success factor (CSF) to the PPP scheme (Osei-Kyei and Chan, 2015, Liu, Love, et al., 2014). The CSF model was invented in the field of management study in the 1970s (Mohr and Spekman, 1994) and defined as the *'few key areas of activity where favourable results are absolutely necessary for a manager to reach his/her goals' (John F. Rockart, 1982, p4)*. During the 1990s, when the PPP concept started to grow (Gunnigan and Rajput, 2010), researchers conducted questionnaire surveys, interviews, and case studies, summarising the CSF for PPP projects (Osei-Kyei and Chan, 2015). So far, there is diverse research in different countries, sectors, types of business structures, and stages, such as the design stage, appraisal stage, and implementation stage.

Osei-Kyei and Chan (2015) summarised research on the CSF of PPP projects from 1990 to 2013. They selected nine academic journals that had published research on the SCF of PPP projects at least twice and analysed all 27 research papers in those journals. In the research, a total of 37 CSFs were presented with the top priority factors of: 'appropriate risk allocation and sharing', 'strong private consortium', 'political support', 'public/community support', and 'transparent procurement'. **Table 2** shows the detailed result. It is noted that the past research focused more on Australia (4 papers), the U.K. (3 papers), China (3 papers), and Hong Kong (2 papers), though 7 papers investigated internationally common CSFs. Osei-Kyei and Chan (2015) also showed, summarising the number of researches published in each year, that research in the field has become popular since 2010, with an increasing trend of

utilising the PPP scheme due to the 2007/2008 global economic recession, and predict this boom will continue in the future.

Table 2: PPP CSFs Identified by Studies from 1990 and 2013

Critical success factors (CSF)	Total	Critical success factors (CSF)	Total
Appropriate risk allocation and sharing	13	Political stability	3
Strong private consortium	12	Competitive financial proposals	3
Political support	9	Mature and available financial market	3
Public/community support	8	Acceptable level of tariff	3
Transparent procurement	8	Streamline approval process	3
Favorable legal framework	7	Compatibility skills of both parties	2
Stable macroeconomic condition	7	Choosing the right partner	2
Competitive procurement	6	Good leadership and entrepreneurship skills	2
Strong commitment by both parties	6	Sound economic policy	2
Clarity of roles and responsibilities among parties	6	Well organized and committed public agency	2
Financial capabilities of the private sector	5	Good governance	2
Technology innovation	5	Clear goals and objectives	2
Good feasibility studies	5	Employment of professional advisors	2
Open and constant communication	5	Financial accountability	2
Detailed project planning	5	Consistent monitoring	2
Government providing guarantees	5	Reliable service delivery	2
Trust	4	Environmental impact of project	2
Selecting the right project	4		
Long term demand for the project	4		
Clear project brief and design development	4		

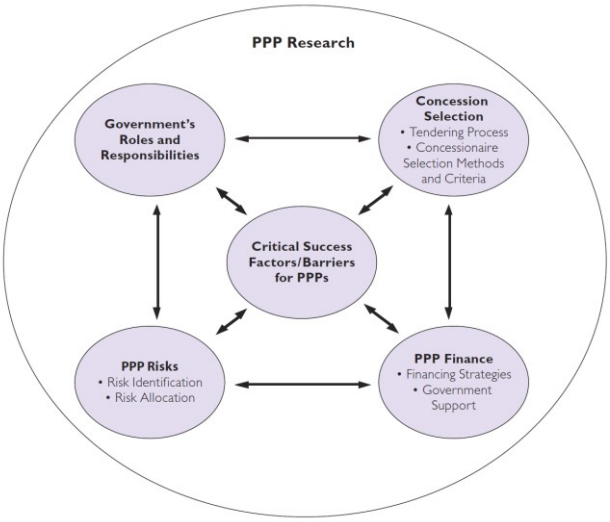
Source: prepared by author based on Osei-Kyei and Chan (2015)

There is also research on the CSF of PPP projects in Indonesia and Indonesia-like countries that had problems, especially in the financial closure stage, though some of them are excluded from **Table 2** because they were published after 2014 and/or they were published in a journal that didn't have any other research in the field. For example, Chou and Pramudawardhani (2015) and Wibowo and Wilhelm Alfen (2014) analysed the CSF of PPP in Indonesia through a questionnaire survey, and identified the important CSFs: integration with national and local planning; mechanisms to coordinate PPP needs; clear defined and demarcated responsibilities and roles of parties; favourable legal and financial framework; strong political support; commitment and responsibility of public and private; transparency procurement process; and good governance/government support. Babatunde, Perera, et al. (2016) investigated the CSFs especially for avoiding financial close delay through a questionnaire survey of Nigerian cases and identified them as: strong bankability of PPP projects; stable economic policy; strong financial, technical, and managerial capabilities of the concessionaire; strong public institutions; creditworthiness of project sponsors and partner; favourable macroeconomic environment; strong legal environment; and low contingent liabilities.

It is noted that there are problems in most past research. First, too many CSFs are identified in the literature. This is considered to be because many researches utilise questionnaire survey to PPP practitioners and academicians as many as possible, therefore almost similar answers/answers in cause-effect relationship are sometimes counted as different CSFs. Second, respondents of the questionnaire survey are not always in an appropriate position in the PPP-related institutions. Moreover, questionnaire survey has been deemed to be not an appropriate research method for a country such as Indonesia, which has few successful PPP projects.

As solution for too many CSFs, Kwak, Chih, et al. (2009) provide a 'conceptual classification framework of PPP research' where the success or failure of a PPP project depends on four main pillars, as shown in **Fig 8**: (1) appropriate government's roles and responsibilities; (2) appropriate concessionaire selection; (3) appropriate risk allocation between the public and private; and (4) a sound financial package. The paper also stated that the CSFs presented in the research are mostly able to be categorised into these four pillars.

Figure 8: Conceptual Classification Framework of PPP Research



Source: Kwak, Chih, et al. (2009, p57)

2.5 CSFs Identified in the Previous Research

In this section, the CSFs identified in various past research, including cases for Indonesia, are re-summarised based on the four pillars in the conceptual classification framework of Kwak, Chih, et al. (2009). It is noted that CSFs in the stages of construction works are excluded, since the current PPP projects in Indonesia face issues mostly before the finance close.

(1) First Pillar: Appropriate Government's Roles and Responsibilities

The government plays a critical role in developing PPP infrastructure projects, since most PPP projects are proposed by the government, and the ultimate responsibility for delivering a service is with the government. The number of CSFs related to the government's roles and responsibilities identified in the previous research is the majority of the four pillars (see **Table 2** for detail). According to the research, those CSFs are:

(1-1) Favourable social, legal, and economic environment:
The private sector's willingness to join a PPP project depends on the social, legal, and economic environment of the country since that affects the profitability and feasibility of the project (Zhang, 2005b). The government should stabilise the macroeconomic and political situation in the country where the project is developed. A sound legal and regulatory framework enables the private to structure a contractual vehicle for the PPP project. Secure and proper risk allocation should be developed to attract private investment (Zhang, 2005b, Pongsiri, 2002, Kwak, Chih, et al., 2009).

(1-2) Central coordinating government authority and supportive government authority:

A central coordinating government authority (CCGA) that coordinates and reconciles conflicts among the government and governmental agencies, including at the local level, with different objectives and interests should be developed to efficiently handle the problems in the project (Zhang, 2005b, Abdel Aziz, 2007, Kwak, Chih, et al., 2009). The CCGA is also useful to avoid duplication of administration among the parties on PPP projects (Zhang, 2005b). A supportive government authority (SGA) should play the role of providing necessary support in the processes of a PPP project, such as preparation of standardised model contracts/tender documents, formulating feasible studies, debottlenecking legal and financial barriers to the project, and providing government guarantee/financial supports (Zhang, 2005b).

(1-3) Clear demarcation of roles and responsibilities:

There are different governmental departments and agencies at both the central and local level that are related to PPP projects that have different objectives and interests; therefore, lack of a clear division of their roles makes the project formulation process complicated (Zhang, 2005b). To remove the private parities' hesitation to participate in the PPP project due to the unclearness of an appropriate communication window, responsibilities and roles should be clearly defined among the CCGA, SGA, and private parties (Zhang, 2005b).

(1-4) Providing a good PPP candidate project:

There are a number of contractual and business models in the PPP project, as shown in **Section 2.2**. The most appropriate model varies depending on the features of the project, such as the country, sector, and demand for the project. In addition, there are also technological and environmental issues that should be considered before the appraisal. To avoid any future problems in all aspects, it is important to conduct a good feasibility study, select a good candidate project, and share the information with the PPP-related parties with strong commitment (Jefferies, Gameson, et al., 2002, Li, Akintoye, et al., 2005).

(1-5) Strong commitment of the government:

Strong governmental and political commitment for the projects is important for the private parties to obtain approvals, such as government financial support and land acquisition, smoothly (Jacobson and Ok Choi, 2008, Osei-Kyei and Chan, 2015). With strong governmental and political commitment, private investors are able to participate in the project easily (Organisation for Economic Co-operation and Development, 2008, Osei-Kyei and Chan, 2015).

(1-6) Collecting and sharing the PPP experience:

Experience with PPP projects is very important for dealing with the necessary administrations in a timely manner. It is found that smooth identification and obtainment of the necessary documentation is difficult, especially for parties without experience (Pieters, Lotz, et al., 2014, Babatunde, Perera, et al., 2016). Therefore, it is critical for the government or governmental agency to collect and analyse the PPP practices in the country (Zhang, 2005b, Kwak, Chih, et al., 2009). The practices should be reflected in the guidelines/documents and shared with the PPP-related institutions. Also, experienced staff and institutions should be involved in the new projects.

(2) Second Pillar: Appropriate Concessionaire Selection

A concessionaire is important for successful PPP projects because it is basically responsible for all stages of the project: financing, design, construction, operation, and maintenance. The PPP concessionaire should be a strong private consortium with strong capability in technic, operation, and maintenance to handle the complexity of the PPP project (Zhang, 2005a, Kwak, Chih, et al., 2009, Osei-Kyei and Chan, 2015). Therefore, it is critical to select an appropriate concessionaire for the project by using the following (Kwak, Chih, et al., 2009):

(2-1) Well-structured and improved tendering process:
The tendering process should be structured with an invitation stage, pre-qualification tender stage, evaluating tender stage, and negotiating stage (Kwak, Chih, et al., 2009). This structure is the same as in a conventional public project; however, the following points should be considered to achieve an efficient tendering process, since the PPP project is much more complicated than the conventional one: (1) standard procedure for communicating with the prospective bidders and market testing with transparency before the tendering process; (2) clear definition of core project requirements or minimum service standards; (3) early involvement of financers during the tendering process; and the others (Zhang, 2005b).

(2-2) Appropriate evaluation method:
For concessionaire selection, an appropriate method should be chosen from various evaluation methods, such as the simple scoring method, Net Present Value (NPV) method, multi-attribute analysis, and two-envelop method, based on the project features, though some research recommends the NPV method and multi-attribute analysis in particular (Kwak, Chih, et al., 2009, Zhang, 2004). Financial, technical, social, environmental, and managerial criteria are generally utilised as the evaluation criteria (Tiong and Alum, 1997, Kwak, Chih, et al., 2009). The evaluation method of the PPP project is almost same as that of a conventional project; however, it is noted that, under the PPP project, 'value for money' or cost-benefit performance throughout the project's life cycle should be calculated and compared among proposals and with a conventional project (Zhang, 2005b).

(3) Third Pillar: Appropriate risk allocation between the public and private

There are a number of risks in the financial, technical, social, and environmental aspects, such as construction risk, revenue/demand risk, and land acquisition risk, in any infrastructure project. Allocation of these risks is one of the most important features of the PPP project, as all the risks, except risks related to construction work, are basically borne by the public under conventional public projects. There are plenty examples of projects that fail to reach financial close due to prolonged argument on risk sharing and/or managing the risks properly in both the planning and implementation stages (Zhang, 2005a, Froud, 2003, Kwak, Chih, et al., 2009). Therefore, how to allocate risks effectively and efficiently is one of the most important factors for the success of the PPP project, as many researchers suggest (Osei-Kyei and Chan, 2015). Unfortunately, there is no clear answer for the appropriate risk allocation, since the risks and capability of the parties concerned are different among the projects, sectors, and countries; however, in general, it is recommended that risks should be allocated to the parties that can mitigate and manage them the best (Roumboutsos and Anagnostopoulos, 2008, Osei-Kyei and Chan, 2015). Based on this principle, Kwak, Chih, et

al. (2009, p69) states, *'risks that are related to the environment within which the project is implemented should be retained by the government, while the risks that are directly related to the project are mostly allocated to the private sector. Some risks that are beyond the control of both the public and private sectors should be shared by both parties'*. Antonio Estache and John Strong (2000) and UNESCAP (2008) show examples of risk allocation matrix in **Table 3**.

Table 3: Example of Risk Allocation of PPP Project

Risk	Contractor	Operator	Equity	Lenders	Government	Insurance	Unallocated
1. Construction overruns/delays	*						
2. Change in legal regimes					*		
3. Land acquisition					*		
4. Approvals/ licences/permits	*				*		
5. Variations	*				*		
6. Taxation	*		*	*	*		
7. Tariffs and charges		*	*		*		
8. Revenue/Traffic/ Demand			*	*	*		
9. Operation		*					
10. Maintenance		*					
11. Defects liability		*					
12. Natural disaster						*	
13. Industrial action		*	*		*		
14. Environmental			*		*		
15. Civil disobedience		*			*		
16. Insurance						*	
17. Force majeure							*
18. Confiscation					*		
19. Interest rate risk			*	*			

Source: UNESCAP (2008)

In order to find the risks and realise the appropriate risk allocations, the following are deemed to be the CSFs in the third pillar:

(3-1) Clear mechanism to decide risk allocation:
The standard risk allocations for the PPP project in different sectors and contractual schemes should be developed through sufficient discussion between the public and private, and utilised as a guideline in the particular project's formulation stage. Osei-Kyei and Chan (2015) emphasise the necessity of a mechanism to help in the discussion of allocating risks. Involvement of an expert is also deemed effective.

(3-2) Government/governmental agency's support facility for taking critical risks:
The government/governmental agency should have support facilities to take critical risks in a project with clear administrative procedure to realise the project without any confusion or delay. Examples of risk mitigation measures are: foreign exchange

guarantees, tax reduction, guarantees for inflation and interest rates, expansion of concession period in case of force majeure, and compensation for loss caused by changes of laws, regulations, and policies (Zhang, 2005a).

(4) Fourth Pillar: Sound Financial Package

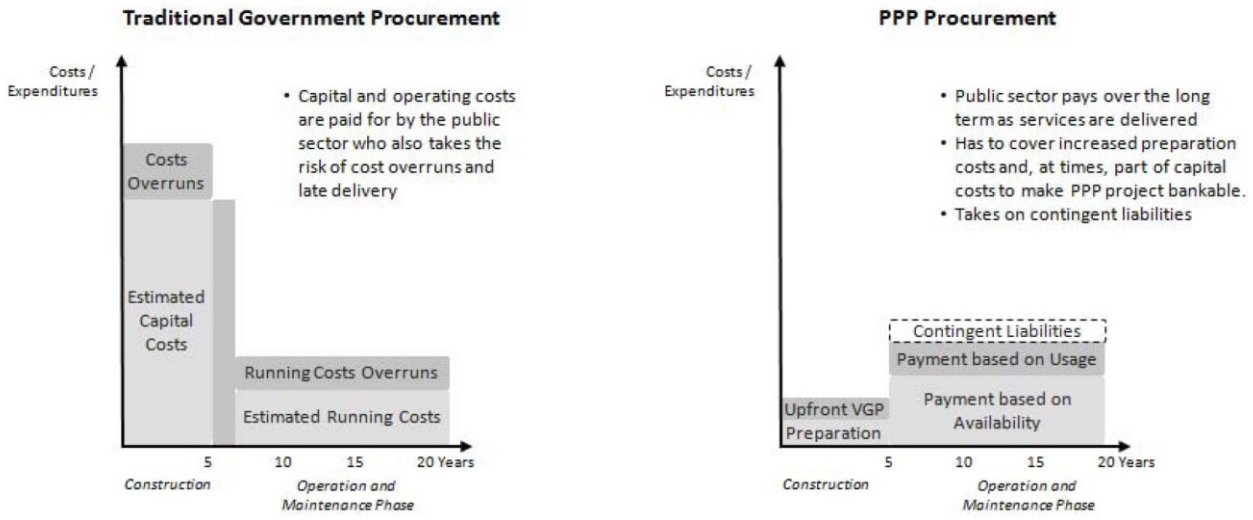
A financial package is very important for PPP projects since projects have to recover the project cost only by revenue from service users and the residual value of project assets (Merna and Dubey, 1998, Zhang, 2005a). There are various financial instruments, such as debt, equity, and mezzanine finance; appropriate instruments and balances of them are critical for maximising the financial efficiency of the project. To make the project financially feasible and encourage private investors to participate in the project, the following CSFs are essential:

(4-1) Mature and available financial market:
PPP projects often require sophisticated and user-friendly financial instruments to secure profit for the SPV, such as loans denominated in same currency as revenue (normally local currency); long-term loans; fixed and low interest rate loans; standby facilities in case of revenue shortfalls or cash flow problems; and low financial charges (Schaufelberger and Wipadapisut, 2003, Zhang, 2005a). The financial capability of private banks to provide such financial instruments is generally limited, especially in developing countries, as private financial institutions (banks) tend to avoid repayment risk. Therefore, state-owned financial institutions dedicated to infrastructure development are expected to fill the financial gap that the private financial institutions cannot fill.

(4-2) Government/governmental agency's financial support:
In case the anticipated revenue is not enough to recover the project cost, the government or a governmental agency's financial support is useful to make the project bankable. The support includes: (1) viability gap funding (VGF) that is financial support for the capital investment of the project; (2) minimum guaranteed revenue to minimise the demand/revenue risk; (3) budget financing for the remuneration, such as availability payment and shadow-toll payment; (4) a payment adjustment mechanism for stable revenue; and (5) present value of revenues (PVR) contracts that allow the extension of concession periods to recover the project cost in case the revenue is lower than expected (Zhang, 2005a, Zhang, 2005b, Eduardo Engel, Ronald D. Fischer, et al., 2014). An image of the VGF scheme and the Availability Payment scheme is in **Fig 9**. Eduardo Engel, Ronald D. Fischer, et al. (2014) recommends not allocating demand/revenue risks to the private to attract private investors; however, the amount of financial support related to the demand/revenue risks should be considered well, since generating too much profit for the private might also raise concern (Kwak, Chih, et al., 2009).

(4-3) Clear procedure for structuring the financial package:
Clear administrative procedure for structuring the financial package from the feasibility study stage is important to avoid any confusion during the finance structuring process. Government/governmental agency staff and/or private investors might not have sufficient knowledge and experience for structuring financial packages, especially in developing countries, therefore structuring assistance by veteran experts from financial institutions should be arranged by the government/governmental agencies (Kwak, Chih, et al., 2009).

Figure 9: Image of VGF and Availability Payment



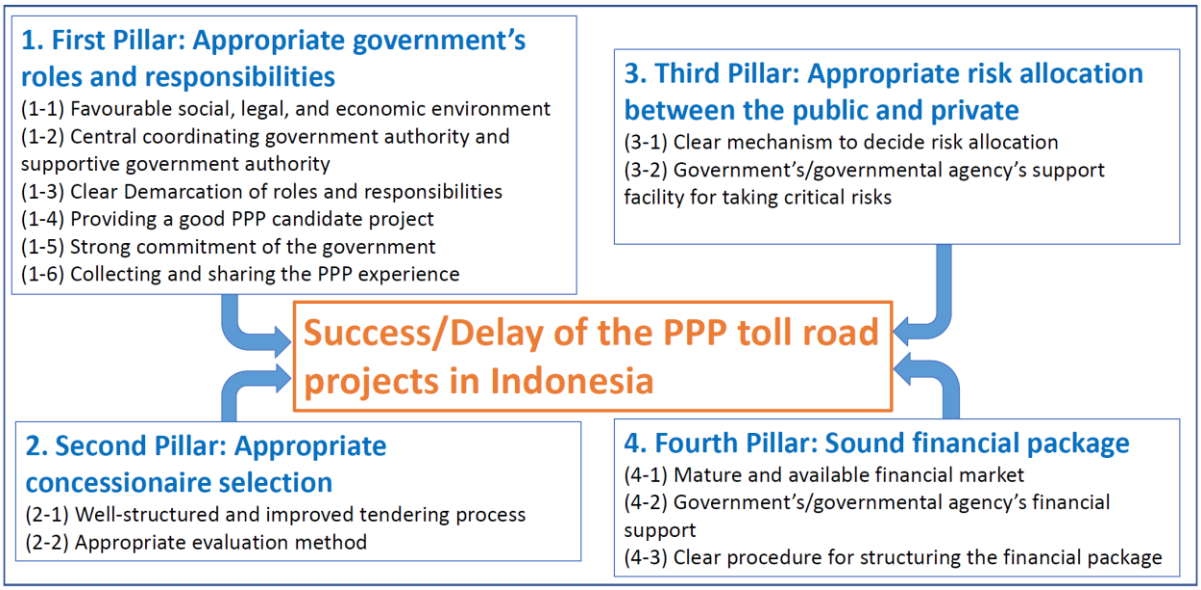
Source: World Bank (2015b, p6)

2.6 Conceptual Framework

Based on the literature review, the conceptual framework in this research is drawn in **Fig 10**. There are four main independent variables created by Kwak, Chih, et al. (2009), namely: (1) appropriate governmental roles and responsibilities, (2) appropriate concessionaire selection, (3) appropriate risk allocation between the public and private, and (4) sound financial package. These are comprised of the CSFs that the past literatures have pointed out so far, as shown in **Fig 10**. In this research, research was conducted based on the conceptual framework that four independent variables lead to success/delay of PPP projects in Indonesia (the dependent variable).

It is noted that the government's role and responsibility are sometimes related to the other three independent variables (concessionaire selection, risk allocation between the public and private, and sound financial package) since the government is involved in these processes to a greater or lesser extent; however, these are regarded as different independent variables separated from the general governance factors in this conceptual framework. This is because these are important features of the PPP projects that differentiate the PPP projects from the conventional public projects; therefore, it is deemed that these factors actively affect the result of PPP projects. There is also a possibility that the general governance factors indirectly affect the result of the PPP projects through the other variables (the other variables being mediating variables rather than independent variables in this case); however, the general governance variables and the other three variables are independent from one another in this conceptual framework in order to make the framework simple. In other words, the variable of 'appropriate governmental roles and responsibilities' has general governance factors other than the processes of concessionaire selection, risk allocation between the public and private, and sound financial package.

Figure 10: Conceptual Framework



Source: Prepared by author

Chapter 3: Research Design and Methods

3.1 Introduction

As explained in **Chapter 1**, this research is aimed at investigating the main factors that lead to the success of PPP projects in Indonesia in order to know more about the background of the current situation where only a small number of projects successfully reach to financial close. Therefore, this research has an exploratory nature. This research adopted the theory of the CSF for the PPP projects derived from many research in that field across the world (i.e. Kwak, Chih, et al. (2009)) for its base of analysis, and investigated which factors contribute to the success/delay of PPP toll road projects in Indonesia. As such, this research is categorised as explanatory research rather than exploratory research. Based on multiple and heterogeneous case study of the PPP toll road projects that successfully reached financial close on time, as well as the PPP toll road projects that were/have been prolonged in the project formulation (to financial close), important factors for the success/delay of PPP toll road projects are expected to be brought to light with high validity. In this chapter, detailed research design, including operationalisation, research strategy, and data collection and analysis methods, are explained.

3.2 Definitions of Key Concepts

Key concepts utilised in this research are defined in **Table 4**.

Table 4: Definitions of Key Concepts

Concept	Definition
PPP projects in Indonesia	PPP projects in Indonesia are defined as projects that follow the PPP regulation of Indonesia (Presidential regulation number 67 year 2005 revised as Presidential Regulation Number 38 Year 2015 later). The PPP projects are included in the PPP book published annually by BAPPENAS through confirmation of the related institutions. It is noted that PPP projects in Indonesia have a narrower definition than the general definition; the projects that involve the private but don't apply PPP regulation are not regarded as PPP (i.e. the projects that follow the particular regulation in the sector, such as IPP power projects)
Success of the project	There are a lot of meanings of the 'success' (benefit) of a project, such as high value for money, smooth procurement, introduction of private sector efficiency, and risk transfer (Pollit, 2005, Fitzgerald, 2004, Jens et al., 2014, Young et al., 2009, Zhang, 2005). However, in this research, 'success' of a project is defined as smooth administration up to financial close, considering the current prolonged administration of PPP projects formulation (not implementation) in Indonesia.
Government's roles and responsibilities	Government's roles and responsibilities in a PPP project are defined as how and to what extent the government (public) sector is involved in the development and management of a PPP project (Kwak, Chih, et al., 2009).
Concessionaire selection	Concessionaire selection is defined as a selection of a consortium formed for a PPP project that is responsible for finance, design, construction and operation, and maintenance through the bidding processes (Kwak, Chih, et al., 2009).
Risk allocation between the public and private	Risk allocation between the public and private is defined as sharing the risks of the PPP project in financial, technical, social, and environmental aspects that are borne by the public under the conventional public project with private parties.
Sound financial package	Sound financial package is defined as an appropriate financial plan for the PPP project considering governmental financial support and finance sources to generate profit enough to make the project financially feasible.

Source: prepared by Author

3.3 Operationalisation of Variables and Indicators

The operationalisation of key concepts and independent variables, as well as dependent variables, are shown in **Table 5**. **Table 5** also provides indicators that are utilised to measure each independent/dependent variable properly and data sources with their natures. Detailed definitions of the indicators of independent/dependent variables are described in **Table 6**.

Table 5: Variables and Indicators

Category of variables	Variables		Indicators	Data source	Nature of Data Source
1. Appropriate government's roles and responsibilities **(Independent Variable)**	1-1	Favourable legal environment	1. Existence of stout legal and regulatory framework of PPP	1. Interview with key stakeholders (primary data) 2. Report issued by the related institutions (secondary data)	Qualitative
	1-2	Central coordinating government authority and supportive government authority	1. Existence of central coordinating government authority and supportive government authority 2. Actual situation of function of the authorities		
	1-3	Clear demarcation of roles and responsibilities	1. Existence of regulation on the demarcation and coordination 2. Actual situation of the demarcation		
	1-4	Providing a good PPP candidate project	1. Readiness of the project as of becoming the candidate		
	1-5	Strong commitment of the government	1. Existence of supporting statement from the government 2. Actual situation of the support from the government		
	1-6	Collecting and sharing the PPP experience	1. Existence of system of collecting and sharing the PPP experience 2. Actual situation of sharing the information		
2. Appropriate concessionaire selection **(Independent Variable)**	2-1	Well-structured and improved tendering process	1. Existence of tendering process format 2. Actual situation of the process		
	2-2	Appropriate evaluation method	1. Existence of the established evaluation method 2. Actual situation of the evaluation method		
3. Appropriate risk allocation between the public and private **(Independent Variable)**	3-1	Clear mechanism to decide risk allocation	1. Existence of the mechanism to decide risk allocation 2. Appropriateness of the risk allocation		
	3-2	Government's support facility for taking critical risks	1. Maturity and coverage of the government guarantee		Qualitative and quantitative

4. Sound financial package **(Independent Variable)**	4-1	Mature and available financial market	1. Availability and amount of finance from the market		
	4-2	Government's financial support	1. Availability and amount of the support		
	4-3	Clear procedure for structuring the financial package	1. Existence of the established procedure 2. Actual situation of the procedure		Qualitative
5. Result of the project **(Dependent Variable)**	5-1	Result of the project in terms of the project formulation process	1. Success/delay of project in the project formulation process		Quantitative

Source: Prepared by Author

Table 6: Definition of Indicators

	Variable	Indicator	Definition
1-1	Favourable legal environment	1. Existence of stout legal and regulatory framework of PPP	Whether the legal and regulation framework of PPP project is clear enough for both the public and private to formulate without any confusion whether the project exists or not.
1-2	Central coordinating government authority and supportive government authority	1. Existence of central coordinating government authority and supportive government authority	Whether the central coordinating government authority leading stakeholders related to PPP projects and supportive government authorities in charge of administrations of PPP exist or not.
		2. Actual situation of function of the authorities	How well the central coordinating government authority and supportive government authorities work in formulation of PPP projects. To what extent the authorities implement their mandates and roles.
1-3	Clear demarcation of roles and responsibilities	1. Existence of regulation on the demarcation and coordination	Whether regulation on demarcation and coordination of the roles and responsibilities in formulating PPP projects among the central coordinating government authority, the supportive government authorities, and the private exists or not.
		2. Actual situation of the demarcation	To what extent stakeholders' roles and responsibilities are demarcated and coordinated in actual formulation processes.
1-4	Providing a good PPP candidate project	1. Readiness of the project as of becoming the candidate	To what level the project is prepared when it becomes regarded as candidate project (included in the PPP book), especially in terms of financial and technical aspects.
1-5	Strong commitment of the government	1. Existence of supporting statement from the government	Whether commitment of support for the project by the government (i.e. selecting the project as a national priority project and manifestation of the project to the public) exists or not.
		2. Actual situation of the support from the government	What kind of support the project obtained from the government.
1-6	Collecting and sharing the PPP experience	1. Existence of system of collecting and sharing the PPP experience	Whether a clear system of collecting the PPP experience and sharing that with the staff in charge of PPP projects in related institutions exists or not.
		2. Actual situation of sharing the information	To what extent the PPP's lessons learned are collected and shared with staff in charge of PPP projects in related institutions.
2-1	Well-structured and improved	1. Existence of tendering process	Whether clear tendering process format for PPP projects exists or not.

	tendering process	format	
		2. Actual situation of the tendering process	To what extent actual procurement of PPP projects followed the format of tendering process. Whether any issues of the tendering process by applying the format exist or not.
2-2	Appropriate evaluation method	1. Existence of the established evaluation method	Whether clear evaluation methods for PPP projects exist or not.
		2. Actual situation of the evaluation method	To what extent actual evaluation of PPP projects followed the format of tendering process. Whether any issues of the evaluation by applying the evaluation method exist or not.
3-1	Clear mechanism to decide risk allocation	1. Existence of the mechanism to decide risk allocation	Whether clear mechanisms for deciding risk allocation of PPP projects among related stakeholders (including government guarantee) exist or not.
		2. Actual situation of the risk allocation	To what extent actual projects followed the mechanism. Whether any issues of the risk allocation by applying the mechanism exist or not.
3-2	Government's support facility for taking critical risks	1. Maturity and coverage of the government guarantee	To what extent government guarantee covers the risk and contributes to reducing the project risks taken by the private. Whether issues in the government support facilities or inadequate points from the private viewpoint exist or not.
4-1	Mature and available financial market	1. Availability and amount of finance from the market	To what extent financial institutions finance/invest toll road projects in Indonesia. Whether concrete criteria to decide investment and the amount of finance exist or not.
4-2	Government's financial support	1. Availability and amount of the support	To what extent the government provides financial support with toll road projects in Indonesia. Whether concrete criteria to decide provision of the support and the amount of the support exist or not.
4-3	Clear procedure for structuring the financial package	1. Existence of the established procedure	Whether clear mechanisms to structure the financial package of PPP projects among related stakeholders exist or not.
		2. Actual situation of the procedure	To what extent actual projects followed the procedure. Whether any issues of the procedure by applying the mechanism exist or not.
5-1	Result of the project in terms of the project formulation process	1. Success/delay of project in the project formulation process	Whether the projects are formulated up to the financial close in accordance with the original schedule or not. It is noted that the implementation stage of the projects is not considered in this research, considering the current prolonged administration in the project formulation stage (not implementation stage) in Indonesia.

Source: Prepared by Author

3.4 Research Methods and Strategies

In this research, the multiple and heterogeneous case study method was applied to the PPP toll road projects that successfully reached financial close on time as well as the PPP toll road projects that were/have been stuck in project formulation (to financial close) for some reasons. This is because there are a limited number of research units, especially for successful PPP projects in Indonesia so far; on the other hand, there are a large number of independent variables, as seen in the previous section. In-depth research, rather than breadth research, is required to evaluate the PPP facilities in Indonesia properly, since the environment for PPP projects are different among countries, and Indonesia has a particular environment. The heterogeneous case study approach comparing successful and delayed projects is important to understand more clearly which factors lead PPP projects to success. In this research, the toll road sector was particularly investigated because most of the projects that reached financial

close so far or are under preparation are toll road projects (the other relatively active sectors so far are the water supply sector, ICT sector, and power sector). However, it should be noted that the result could be applied to other sectors to a high extent, as basic scheme structures such as the regulations, government's financial supports, and government's guarantee are common among the sectors, though each sector has different characteristics and stakeholders.

As a disadvantage of the case study method, there is a possibility of low validity and reliability of the research due to the small number of units used (Sandra van Thiel, 2014). To overcome the problem, this research investigated not only one project but also compared a set of similar projects (several successful and delayed projects) to increase the external validity (generalisation of the cases). The study also used 'triangulation', or collecting information from several data sources (Bailey, 1992), which was applied to heighten reliability; both primary data from interviews with key stakeholders in different institutions and secondary data of reports/documents issued by the government were utilised.

3.5 Case Selection Criteria

To conduct multiple case studies with high validity and reliability, all 18 PPP toll road projects mentioned in the PPP book from 2015, 2017, and 2018 published by the Ministry of National Development Planning (BAPPENAS) were selected as case projects. These include various projects in different states: the projects that reached financial close and the projects that have been under preparation, regardless of whether the project formulation process is on time or behind the schedule, as well as the projects that were dropped from being candidates. It is noted that these projects were categorised into the success group and the delayed group (dependent variable) to assess the relationship between the independent variable and dependent variable based on the results of data collection (6 successful projects, 9 delayed projects, and 3 exceptional projects; see **Section 4.1** for detail). It should also be noted that the old candidate PPP projects that were included in the PPP book before 2015 were not the objective of the case study. This is because the old projects normally don't have clear records of discussions due to lack of institutional memory in the ministries, and also it is difficult to contact officers from that time due to changes in personnel. However, this purposive selection based on the recent PPP books is deemed appropriate since new PPP regulations and support facilities for analysis in this study were introduced recently.

The number of research samples,18, is deemed enough to find the right answer with high validity and reliability. It is true that the research samples can be too much if information is collected from each project without any overlapping, because the case study research method is generally time-consuming due to its nature, which requires considerable information for in-depth investigation (Sandra van Thiel, 2014). However, in this research, much of the information, such as regulations on PPP and procedure of concessionaire selection, overlaps among the cases, and as such researching 18 cases is considered realistic even in a limited time.

3.6 Data Collection Methods

In this research, data was collected through interviews with key persons involved in PPP projects. **Annex** contains the interview questions. To obtain various information from different perspectives in a limited time, purposive sampling, especially the quota sampling method, or collecting the information from the representative parson(s) from different institutions, was applied. It is noted that only the interviewees and respondents who had a

deep understanding of practical knowledge on PPP projects in Indonesia were selected to obtain more accurate information. The selected persons are also in management positions in institutions that have comprehensive information of and responsibilities for the projects. As for the interview, the semi-structured interview approach, which is conducting an interview based on a topic list (Sandra van Thiel, 2014), was adopted because the information on the independent variables in **Table 5** is required while new information unpredicted in advance is also valuable for the research.

In addition to primary data through the interviews, secondary data was also acquired to supplement the information from the interview as well as to heighten the validity and reliability of the primary information. The secondary data utilised is academic literature and reports/documents issued by the government, governmental institutions, and private institution related to the PPP projects. Data sources of primary data and secondary data are in **Table 7** and **Table 8** below.

Table 7: Data sources of Primary Data (Interview)

	Institution	Position	Responsibility and role
1	Indonesia Toll Road Authority (BPJT)	Head of subdivision (planning) and other staff	Planning and implementation of all toll roads in Indonesia, including PPP projects, as an authority
2	Ministry of National Development Planning (BAPPENAS)	Officers in charge of PPP projects	Managing PPP projects in Indonesia
3	Coordination Ministry for Economic Affairs (CMEA)	Head of subdivision (land transport) and staff in charge of PPP	Managing transportation projects, including PPP projects, in Indonesia
4	The Committee for Acceleration of Priority Infrastructure Delivery (KPPIP)	Director of transportation and staff in charge	Managing national strategic projects and priority projects through coordinating related ministries/institutions
5	Ministry of Finance	Deputy director (PPP unit) and sub-directors	Managing PPP projects, especially the financial aspects
6	Sarana Multi Infrastruktur (SMI)	Officers in charge of PPP toll road projects	Financing infrastructure projects in Indonesia as a governmental financial institution (state-owned company: SOE)
7	PT Indonesia Infrastructure Finance (IIF)	Officer in charge of PPP toll road projects	Financing infrastructure projects in Indonesia as a governmental financial institution
8	Indonesia Infrastructure Guarantee Fund (IIGF)	Officers in charge of PPP toll road projects	Guarantee of infrastructure projects in Indonesia as a governmental financial institution (SOE)
9	Hutama Kariya	Officer in charge of finance of toll road project	Investing in toll road projects (especially Trans Sumatra toll road projects) in Indonesia (SOE)
10	Hutama Marga Waskita	Officers in charge of toll road project	Concessionaire of Kuala Tanjung-Tebing Tinggi-Parapat Toll road project (joint venture among SOEs)

Source: Prepared by Author

Table 8: Data Sources of Secondary Data (Documents)

	Data (Name of Document)	Source
1	Public Private Partnership: Toll road development in Indonesia (presentation material)	Indonesia Toll Road Authority (BPJT)
2	Toll road investment opportunities (presentation material)	
3	Project summary document	
4	Study on VGF and supported PPP schemes	Ministry of Public Works and Housing
5	Report on PPP infrastructure project in Indonesia 2018	Ministry of National Development Planning (BAPPENAS)
6	Report on PPP infrastructure project in Indonesia 2017	
7	Report on PPP infrastructure project in Indonesia 2015	
8	Report on national strategic projects and priority projects in Indonesia	The Committee for Acceleration of Priority Infrastructure Delivery (KPPIP)
9	Key improvements in infrastructure delivery in Indonesia (presentation material)	
10	Study on VGF	Ministry of Finance
11	Government support and facilities for PPP projects in Indonesia (brochure)	
12	PPP projects in Indonesia: issues and challenges (presentation material)	Sarana Multi Infrastruktur (SMI)
13	Exploiting the infrastructure financing boom in Indonesia (presentation material)	
14	Investment Book 2016	
15	Risk allocation guide on PPP projects	Indonesia Infrastructure Guarantee Fund (IIGF)
16	The role of IIGF in infrastructure development in Indonesia (presentation material)	

Source: Prepared by Author

3.7 Data Analysis Methods

In this research, collected data was summarised in line with a dependent variable (result of the project) and 4 independent variables (1. appropriate government's roles and responsibilities; 2. appropriate concessionaire selection; 3. appropriate risk allocation between the public and private; and 4. sound financial package in the toll road sector) for 18 case projects. Following that, by comparing the similarities and differences of the statuses in the (sub-)independent variables (positive/neutral/negative) and those of the dependent variables (success/delay) among the case projects, the causal relationships between the (sub-)independent variables and dependent variables were analysed in a qualitative manner.

3.8 Validity and Reliability of the Research

In general, the case study method this research applied has a problem with both external validity and internal validity: external validity, or whether results of the research are generalised, is generally low, as only a small number of units are researched in the case study, and internal validity, or whether information is correctly collected and interpreted, also becomes low in case that data collection and analysis rely on any particular method (Sandra van Thiel, 2014). However, in this research, both external and internal validity were heightened by some measures.

To increase the external validity, not only one project but 9 successful projects (including 3 exceptional projects; see **Section 4.1** for detail) and 9 delayed projects were

investigated to ensure the result from one successful case with information from the other 8 successful cases, and also to ensure the result from one delayed project with the other 8 delayed projects. Through this replication process of the results, validity and reliability of the results were strengthened enough to generalise to some extent; the results from the PPP Toll road projects in this study might be applicable to the other PPP Toll road projects in Indonesia. Another issue of generalisation is the application of this research to PPP projects in the other sectors. It is true that there is difficulty applying results from a particular sector to all the other sectors in general because each sector has different characteristics and stakeholders. However, in case of this research, it is expected that the results could be applied to the other sectors to some extent, as basic PPP scheme structures, such as the regulations, government's financial supports, and government's guarantee, are common among the sectors.

As a countermeasure to low internal validity, 'triangulation', or collecting information from several data sources (Bailey, 1992), was applied. In this research, both primary data from interviews and secondary data from documents/reports were utilised to confirm the information from each other, as explained in **Section 3.4**. Moreover, answers for the same questions were collected from several interviewees in different institutions to avoid interviewees' biases and make the information more valid and reliable. It should also be noted that the information brought from the interviewees is deemed relatively reliable, though some bias derived from personal understanding is inevitable, as all the interviewees are practitioners of PPP projects in Indonesia and especially interviewees of the government institutions are in management position to understand comprehensive information.

Chapter 4: Research Findings

4.1 Introduction

This chapter presents the findings from the research based on the research design and methods described in **Chapter 3**. The scope of the case study in this research covers 18 toll road projects mentioned in the PPP books from 2015, 2017, and 2018 published by the Ministry of National Development Planning (BAPPENAS) of the Government of Indonesia, including (1) the Manado-Bitung Toll Road project; (2) the Balikpapan-Samarinda Toll Road project; (3) the Pandaan-Malang Toll Road project; (4) the Krian-Legundi-Manyar Toll Road project; (5) the Jakarta-Cikampek II Elevated Toll Road project; (6) the Batang-Semarang Toll Road project; (7) the Serpong-Balaraja Toll Road project; (8) the Cisumdawu Toll Road project; (9) the Serang-Panimbang Toll Road (51 km) project; (10) the Serang-Panimbang Toll Road (33 km) project; (11) the Jakarta-Cikampek South Toll Road project; (12) the Probolinggo Banyuwangi Toll Road project; (13) the Semarang Demak Toll Road project; (14) the Yogyabawen Toll Road project; (15) the Surabaya Madura Toll Road project; (16) the Batu Ampar–Muka Kuning-Hang Nadim Toll Road project; (17) the Sukabumi Ciranjang Toll Road project; and (18) the Yogya Solo Toll Road project.

First, **Table 9** summarises the status of these projects (dependent variables) with great objectivity based on the PPP books and the project summary document provided by the BPJT. To evaluate whether the projects were a success/delayed, information about the current status and time-sequence status of the case projects was extracted from the PPP books from 2015, 2017, and 2018, and the project summary document provided by the BPJT was utilised.

Table 9: Current status of the 18 PPP toll case projects

	Name of Project	Actual status as of this research	Detailed actual status as of this research	Information Source of Status
1	Manado-Bitung Toll Road	Financially closed **(Delayed)**	- PPP agreement: 9 June 2016 - Financial Close:13 Oct 2017 - Delay in project formulation for years; the project is listed from PPP book 2013	- PPP Book 2018, 2017, 2015, and 2013 - project summary document
2	Balikpapan-Samarinda Toll Road		- PPP agreement: 9 June 2016 - Financial Close: Contractor Pre-Financing (CPF) - Delay in project formulation for years; the project is listed from PPP book 2013	
3	Pandaan-Malang Toll Road		- PPP agreement: 9 June 2016 - Financial Close: 13 Oct 2017 - Delay in project formulation for years; the project is listed from PPP book 2013	- PPP Book 2018, 2017, 2015, and 2013 - project summary document - BCA Website
4	Krian-Legundi-Manyar Toll Road	Financially closed **(Success: not delayed)**	-PPP agreement: 5 Dec 2016 - Financial Close: Contractor Pre-Financing (CPF)(Guarantee: 22 Feb 2017) - Delay in project formulation not observed	- PPP Book 2018 and 2017 - project summary document
5	Jakarta-Cikampek II Elevated Toll Road		-PPP agreement: 5 Dec 2016 - Financial Close: Contractor Pre-Financing (CPF)(Guarantee: 22 Feb 2017) - Delay in project formulation not observed	
6	Batang-Semarang Toll Road		-PPP agreement: 27 April 2016 - Financial Close: Contractor Pre-Financing (CPF) - Delay in project formulation not observed	
7	Serpong-Balaraja Toll Road	Financially closed **(Delayed)**	-PPP agreement: 9 June 2016 - Financial Close: 16 Dec 2016 - Delay in project formulation for 3-4 years; pre-qualification process was in 2012	- PPP Book 2018, 2017, 2015, and 2013 - project summary document
8	Cisumdawu Toll Road		-PPP agreement: 22 Feb 2017 - Financial Close: 22 Dec 2017 - Delay in project formulation for years; the project is listed from PPP book 2013	

9	Serang-Panimbang Toll Road (51 km)	Financially closed **(Success: not delayed)**	-PPP agreement: 22 Feb 2017 - Financial Close: Contractor Pre-Financing (CPF) - Delay in project formulation not observed	- PPP Book 2018 and 2017 - project summary document
10	Serang-Panimbang Toll Road (33 km)	Under preparation **(Delayed)**	- Tender ongoing (PQ done) - Delay in project formulation for years; already tender in Dec 2016.	
11	Jakarta–Cikampek South Toll Road	Financially closed **(Success: not delayed)**	-PPP agreement: 29 Dec 2017 - Financial Close: not yet; Oct 2018 (plan) - Delay in project formulation not observed	
12	Probolinggo Banyuwangi Toll Road		-PPP agreement: 14 Dec 2017 - Financial Close: Contractor Pre-Financing (CPF) - Delay in project formulation not observed	
13	Semarang Demak Toll Road	Under preparation **(Delayed)**	- FBC (Final Business Case) study ongoing. - Process is Backward; already tendered in Dec 2016.	- PPP Book 2018 and 2017
14	Yogyabawen Toll Road		- FBC (Final Business Case) study ongoing. - Delay in project formulation; prepared from Dec 2016.	
15	Surabaya Madura Toll Road	**O&M contract (not BOT); not delayed**	- Just change of the concessionaire (Toll Road was already operated)	
16	Batu Ampar – Muka Kuning – Hang Nadim Toll Road	**Direct appointment (no bidding); not delayed**	- Dropped from the pipeline (PPP Book 2015 includes this project.)	- PPP Book 2018, 2017, and 2015
17	Sukabumi Ciranjang Toll Road		- Dropped from the pipeline (PPP Book 2017 includes this project.)	- PPP Book 2018 and 2017
18	Yogya Solo Toll Road	Under preparation **(Delayed)**	- Dropped from the pipeline (PPP Book 2017 includes this project.)	

Source: Prepared by the author

The case projects can be divided into two categories: success projects and delayed projects. Based on the secondary data analysis, it is apparent that the success projects include (1) the Manado-Bitung Toll Road project; (2) the Balikpapan-Samarinda Toll Road project; (3) the Pandaan-Malang Toll Road project; (7) the Serpong-Balaraja Toll Road project; (8) the Cisumdawu Toll Road project; (10) the Serang-Panimbang Toll Road (33 km) project; (13) the Semarang Demak Toll Road project; (14) the Yogyabawen Toll Road project; and (18) the Yogya Solo Toll Road project. The delayed projects include (4) the Krian-Legundi-Manyar Toll Road project; (5) the Jakarta-Cikampek II Elevated Toll Road project; (6) the Batang-Semarang Toll Road project; (9) the Serang-Panimbang Toll Road (51 km) project; (11) the Jakarta-Cikampek South Toll Road project; and (12) the Probolinggo Banyuwangi Toll Road project. It turned out that (15) the Surabaya Madura Toll Road project, (16) the Batu Ampar–Muka Kuning-Hang Nadim Toll Road project, and (17) the Sukabumi Ciranjang Toll Road project did not apply the ordinary PPP toll road scheme, which is the BOT scheme with bidding (see **Sub-section 4.2 (6)** for the details); however, delays in the project formulation were not observed for these projects. In this sense, these three projects can be regarded as success projects, even though they are not officially regarded as success PPP projects by the Indonesia government.

Focusing on the 18 PPP toll road case projects, the next section presents findings on the four major independent variables: the appropriate government roles and responsibilities; the appropriate concessionaire selection; the appropriate risk allocation between the public and private; and the sound financial package in the toll road sector. It should be noted that some variables do not differ among the projects since they are common to all the PPP projects/toll road projects. For example, the methodology of the concessionaire selection is (almost) the same for all the projects.

4.2 Evaluation of Government Roles and Responsibilities

With regard to all the PPP toll road projects in Indonesia, this section first evaluates six sub-independent variables: ‘appropriate government roles and responsibilities’;

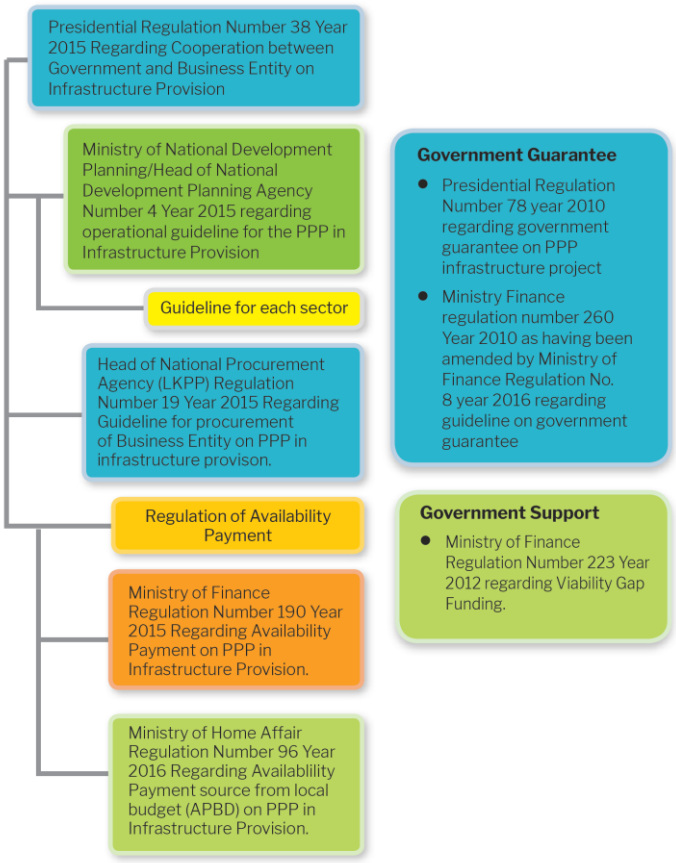
'favourable legal environment'; 'central coordinating government authority and supportive government authority'; 'clear demarcation of roles and responsibilities'; 'providing a good PPP candidate project'; 'strong commitment of the government'; and 'collecting and sharing the PPP experience'. Then the actual situations are confirmed for the selected 18 toll road projects.

(1) Favourable legal environment: sub-independent variables (1-1)

Overall, it was proven, from the interviews and the secondary data, that the legal framework for PPP projects has recently been developed with clarity and applied to the toll road sector.

The legal framework for PPP projects has been well developed since it was first established in the 1980s, particularly in the power and toll road sectors. The first presidential regulation regarding PPP in infrastructure provision (Presidential Regulation No. 67 of 2005) was established in 2005 under the administration of former president Yudhoyono (2005-2014). The presidential regulation was amended three times—in 2010, 2011, and 2013—under the Yudhoyono administration. The latest presidential regulation (Presidential Regulation No. 38 of 2015) was established under the current Jokowi administration in 2015. The Presidential Regulation No. 38 of 2015 is the basis on which all of the PPP infrastructure projects in Indonesia and all the ministerial regulations and detailed rules regarding PPP projects have been developed. **Figure 11** summarises the Presidential Regulation No. 38 of 2015 and the major ministerial regulations.

Figure 11: Legal Framework for PPP Infrastructure Projects in Indonesia



Source: BAPPENAS (2017a, p8)

According to the BAPPENAS (2017a) and the Ministry of Finance, the Ministerial Decree of National Development Planning No.4 of 2015 regarding the operational guideline for the PPP in Infrastructure Provision and Head of the National Procurement Agency (LKPP) Regulation No. 19 of 2015 regarding the guideline for the procurement of the business entity on PPP in the infrastructure provision are the major legal basis for PPP business processes along with the Presidential Regulation No. 38 of 2015. These regulations clearly and concretely define the necessary procedure for the formulation of PPP projects in the planning, the preparation, and the transaction stages (see **Sub-section 4.2 (3)** for details).

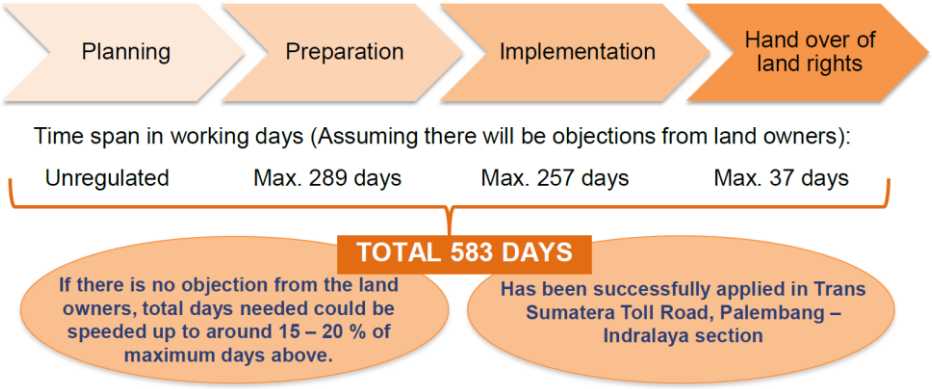
In addition to the Ministerial Decree of National Development Planning No.4 of 2015 and LKPP Regulation No. 19 of 2015, the BAPPENAS (2017a) also mentions three regulations on the government support that makes projects bankable through its financial support: Ministry of Finance Regulation No. 190 of 2015 regarding Availability Payment on PPP infrastructure provision; Ministry of Finance Regulation No. 223 of 2012 regarding Viability Gap Funding; and Presidential Regulation No. 78 of 2010 regarding government guarantee on the PPP infrastructure project and Ministry of Finance Regulation No. 8 of 2016 regarding guideline on government guarantee. Moreover, the Ministry of Finance introduced Project Development Facility (PDF) that helps the government contracting agency (GCA) to create pre-feasibility study and bidding documents and conduct a transaction process based on Presidential Regulation No. 75 of 2014 regarding the acceleration of the prioritised infrastructure provision and Ministry of Finance Regulation No. 129 of 2016 regarding project development facility.

The regulations mentioned above are related to the administration of PPP project formulation and government financial support/guarantee that the Ministry of Finance and the BAPPENAS introduced as the basic legal framework for the success of PPP projects. On the other hand, it was apparent, through interviews with the BPJT and KPPIP, that improving the land acquisition procedure has substantially contributed to the acceleration of the financial close of the projects that accompany land acquisition, since financial institutions normally require a certain level of land acquisition for the financial close in order to ensure project realisation. Law No. 2 of 2012 on Land Acquisition for Public Interest, the so-called new land acquisition law, introduced a concrete procedure of land acquisition with a rigid time frame (**Fig 12**). The law also established the national land agency (the BPN) that is the sole agency responsible for the implementation of land acquisition to achieve more efficient administration. According to the KPPIP, these improvements enabled the land acquisition to be completed within 583 days at most, even when a dispute about the compensation price between the land owners and the BPN occurs. The KPPIP also explained that the Ministry of Finance Regulation No. 219 of 2015 regarding state assets management established the State Asset Management Agency (BLU LMAN) to provide funding for land acquisition related to the public works, especially toll road projects on behalf of the GCA (Ministry of Public Works and Housing/BPJT for toll road projects). Moreover, to avoid the delay of the land acquisition process due to lack of the government (BLU LMAN) budget, Presidential Regulation No. 30 of 2015 regarding the Land Acquisition Implementation for Developing Public Facilities enabled the private entities to pay land acquisition fees first on the condition that they are reimbursed by BLU LMAN after the completion of the land acquisition.

According to interviews with the BPJT and KPPIP, the Presidential Regulation No. 38 of 2015 also contributed to the acceleration of the tender process by separating it from land acquisition to some extent. Before the regulation, the tender was normally conducted after the land acquisition process reached a certain level (i.e. 50% of the land acquisition has been completed in one section for the project) as otherwise the project has to wait for a long time until its financial close. However, after this regulation, the tender process can proceed once location determination of the necessary lands is completed by the local government (**Fig 12**

presents the preparation stage). Moreover, the Contractor Pre-Financing (CPF) scheme that enables the contractors to commence their construction works through their own funds (equity) without waiting for financial close was introduced to accelerate the implementation of the projects. Due to this scheme, the construction works can now proceed regardless of the land acquisition progress or financial close. **Section 4.5** explains the details of the CPF scheme.

Figure 12: Time Frame of Land Acquisition



Source: KPPIP (2015, p11)

(2) The central coordinating government authority and supportive government authority with their clear demarcation of roles and responsibilities: sub-independent variables (1-2) and (1-3)

In the field of the PPP infrastructure project in Indonesia, there are various stakeholders due to the complex nature of the PPP scheme. According to interviews with the institutions related to the PPP projects (primary data) and the documents provided by the government (secondary data), it is clearly understood that there are both central coordinating government authorities and supportive government authorities for PPP projects in Indonesia. **Table 10** summarises the histories of the stakeholders relative to the PPP toll road projects and their roles and responsibilities.

Table 10: Institutions Related to PPP Toll Road Projects

	Name of Institution	Role and Responsibility	Type of authority
1	Toll Road Authority (BPJT)	BPJT was established in 2005 based on Law No. 38 of 2004. BPJT took over the role and responsibility of management of entire toll roads in Indonesia from Jasa Marga (SOE). The role and responsibility include 1) preparation/planning of toll road concession, procurement of projects, and conducting land acquisition, and 2) supervision (monitoring and evaluation) of toll road operation including quality of road and service.	Government Contract Agency (GCA)
2	Coordination Ministry of Economic Affairs (CMEA)	The CMEA is the ministry in charge of coordination of projects related to economic issues including toll road projects. The supervision includes not only monitoring, but also debottlenecking the issues occurred during the project. According to an interview with the CMEA, the CMEA focuses more on projects in the implementation stage (after bidder is awarded) since the planning stage is managed mainly by the GCA and BAPPENAS. The CMEA provides OBC preparation service for the PPP project through KPPIP.	Central coordinating government authority (CCGA)
3	The Committee for Acceleration of Priority Infrastructure Delivery (KPPIP)	The KPPIP was established to accelerate priority infrastructure projects (not only PPP projects) based on Presidential Regulation No. 75 of 2014. KPPIP is led by CMEA and Coordination Ministry of Maritime Affairs (in charge of coordination of projects related to maritime affairs) with member institutions below: Ministry of Finance, BAPPENAS, Minister of Agrarian and Spatial Planning (BPN), Minister of Environment and Forestry. KPPIP's role and responsibility is mainly 1) providing OBC study and Environment Impact Assessment (EIA) study, 2) determination of finance structure of projects, 3) monitoring the project and debottlenecking the issues	

		occurred during the project, and 4) planning strategy for acceleration of the infrastructure delivery. According to an interview with the KPPIP, the KPPIP monitors all the priority projects in all stages (both planning sate and implementation stage) on a weekly/semi-weekly basis. The coordination meeting among related institutions is held once the issue is found in the project. The KPPIP explained that it also continuously monitors national strategic project even though its official mandate is only for priority projects.	
4	PPP Joint Office	The PPP Joint Office was established in December 2016 to assist the GCA and investors' activity of formulating PPP projects. The PPP Joint Office is not a structural system, but an organised cluster composed of institutions related to PPP projects. The participated institutions are the BAPPENAS, CMEA, Ministry of Finance, Ministry of Home Affairs, Indonesia's Investment Coordinating Board (BKPM), National Public Procurement Agency (LKPP), and Indonesia Infrastructure Guarantee Fund (IIGF). The PPP Joint Office's role and responsibility is 1) facilitation/coordination of the stakeholders related to PPP project such as the GCA, SPV, and governmental institutions to accelerate the project formulation and implementation and 2)capacity building for PPP project implementation. According to an interview with the CMEA and BAPPENAS (a member of PPP Joint Office), there is a system whereby representatives from all the related institutions gather and discuss in the office on an ad hoc basis (approximately twice a week) to confirm the latest situation and solve issues occurred in projects.	
5	Director of Transport /Director of PPP, Ministry of National Development Planning (BAPPENAS)	BAPPENAS has two directors related to PPP toll road projects; one is Director of Transport and another is Director of PPP and Finance Engineering. BAPPENAS's role and responsibility is mainly in the project planning stage. The Director of PPP and Finance Engineering facilitates the GCA (BPJT) to plan and prepare the PPP project properly in line with the relevant plans/regulations such as PPP planning regulation and national development plan. It also has role and responsibility of publishing the PPP book by selecting the candidate PPP projects proposed by the GCA (BPJT). The Director of Transport, on the other hand, provides recommendations/suggestions from a technical point of view. According to an interview with the BAPPENAS, communication between the BAPPENAS and the GCA (BPJT) is quite good and the BAPPENAS could update its database on the latest status of each project on a weekly/semi-weekly basis. The BAPPENAS is basically in a position to check and confirm the plan and the OBC delivered by the GCA (BPJT) and provides comments/ recommendations to fulfil requirements of the relevant regulations, since the GCA has ownership of the project. For project formulation, the BAPPENAS provides 5 OBC studies for PPP projects per year in order to accelerate formulation of PPP projects.	
6	PPP Unit, Ministry of Finance	The PPP Unit of Ministry of Finance was established in 2014 to prepare and improve the government financial support to PPP projects such as Viability Gap Funding (VGF) and Availability Payment (AP). It also has the role and responsibility of evaluating the financial and economic aspects of the projects as well as providing the Project Development Facility (PDF) that supports preparing FBC study and transaction assistance. According to the BPJT and BAPPENAS, the MoF is more influential on the PPP projects applying the government financial support while it usually doesn't care so much for the projects without financial government support.	Supportive government authority (SGA)
7	Indonesia Infrastructure Guarantee Fund (IIGF)	The IIGF was established in December 2009 as a single window of the government guarantee for PPP infrastructure projects. IIGF is a SOE funded by the MoF. The IIGF's role and responsibility is 1) provision of government guarantee for the GCA's default to the PPP projects (SPV) and 2) provision of Project Development Facility (PDF) that supports preparing FBC study and transaction assistance based on the request from the MoF.	
8	National Public Procurement Agency (LKPP)	The LKPP was established as an independent institution (non-ministerial government agency) governed directly by the presidential office in December 2007. It provides assistance and supervision to procurement of the PPP projects. It also prepares the general regulations regarding procurement of PPP projects. According to the BPJT, the LKPP is not as much involved in PPP toll road projects, since the BPJT can conduct procurement of PPP toll road projects without any problems by itself due to its abundant experience.	
9	Indonesia's Investment Coordinating Board (BKPM)	The BKPM was established as a window for investors in 2009. Its role and responsibility in a field of PPP projects is to provide information of PPP projects to investors and assist the GCA (BPJT)'s market sounding by inviting private investors.	

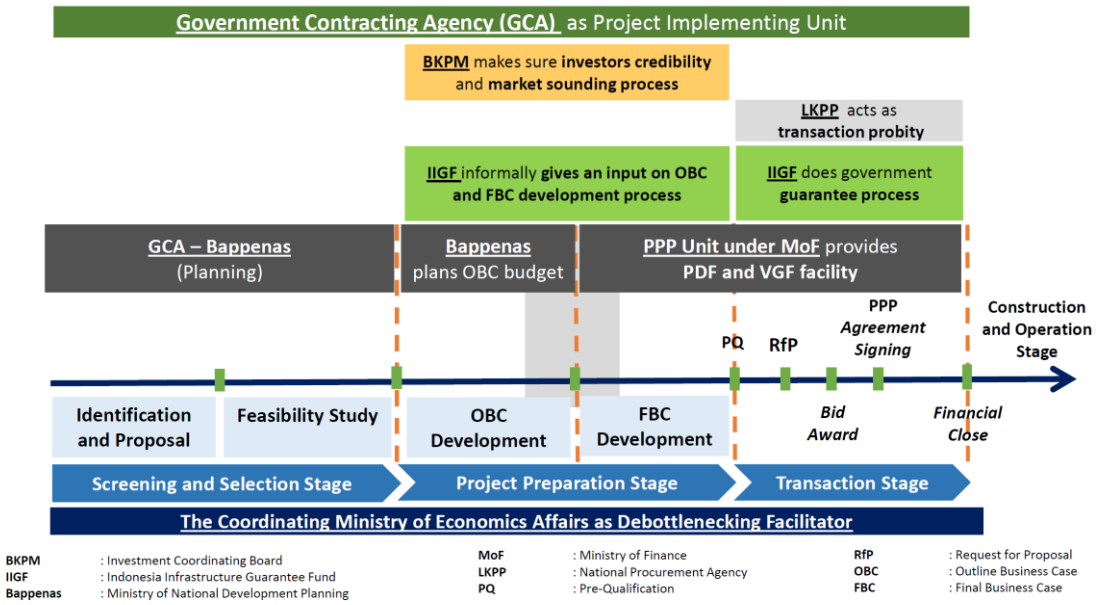
Source: prepared by the author

It is noted that there are no single but some institutions that are deemed to play roles as central coordinating government authorities: The Coordination Ministry of Economic Affairs (CMEA); the Committee for Acceleration of Priority Infrastructure Delivery (KPPIP); the Ministry of National Development Planning (BAPPENAS); and the PPP Joint Office. **Figure 13** summarises the involvement of these institutions in the project formulation process

with its timeline. By all appearances, the PPP Joint Office has played the role of central coordinating government authority since its establishment in 2016. However, it does not have a structural/formal system. Therefore, in reality, the other formal ministries/ministerial institutions that are of a coordinating nature, such as the CMEA, KPPIP, and BAPPENAS, play the role of the central coordinating government authority.

According to interviews, these three institutions (the CMEA, KPPIP, and BAPPENAS) have relatively good demarcation and coordination amongst each other. The BAPPENAS mainly takes care of the project screening and selecting stage (planning stage) whereas the CMEA focuses more on the implementation (construction) stage. The KPPIP is involved in all the processes as a kind of leading coordinator because of its multi-institutional structure of organisation. The KPPIP's formal mandate on monitoring and debottlenecking is only for the priority projects; however, in practice, it also covers the national strategic projects at almost the same level as the priority projects. All the PPP toll road projects in Indonesia have so far been categorised as either priority projects or national strategic projects, which means all the projects have been enjoying support from the KPPIP. To summarise, in the PPP toll road sector, the KPPIP leads to coordinate the related institutions throughout the project planning and implementation stages in cooperation with the CMEA and BAPPENAS. It is noted that the KPPIP, CMEA, and BAPPENAS play the role of coordinator, and it is the GCA (BPJT) that carries all the processes themselves from planning to operation in principle.

Figure 13: Involvement of Institutions in the PPP Project Formulation Process



Source: BAPPENAS (2017b, p1)

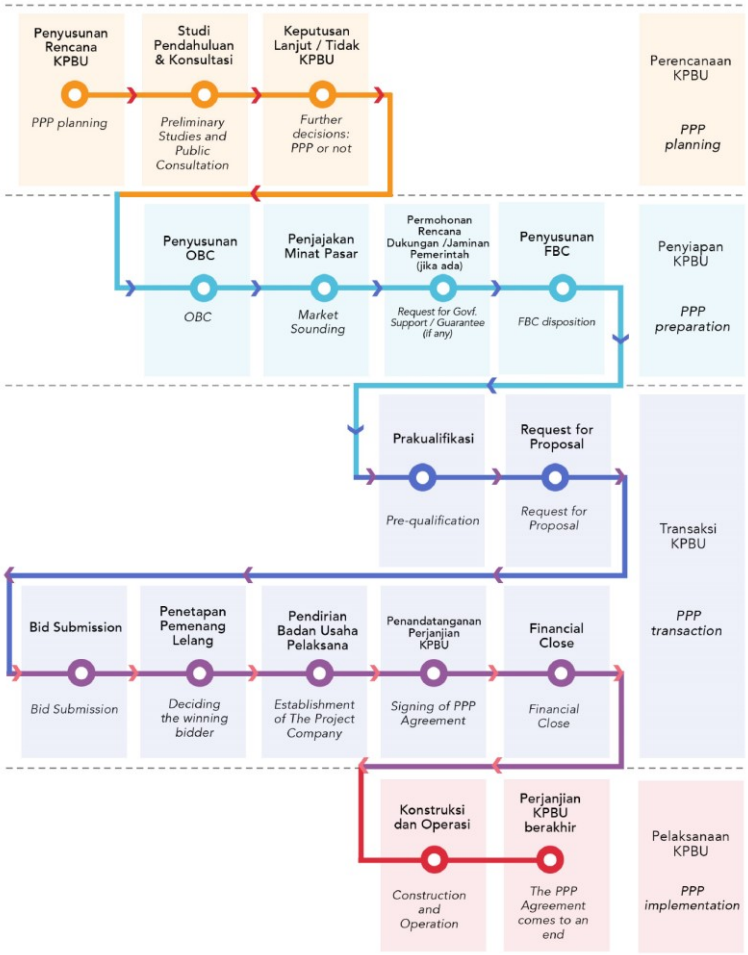
As for the supportive government authorities, **Figure 13** shows that there is a clear demarcation of roles and responsibilities among the institutions. On the other hand, the OECD (2012) points out the lack of coordination between the GCA (the BPJT) and the MoF/IIGF in the arrangement of the government financial support/government guarantee during the project preparation stage. However, there is now a clear and concrete administration procedure, wherein both the MoF and IIGF are involved in the project preparation process if the government support is applied to the project, as **Figure 13** describes. Consequently, demarcation and coordination inside/among the CCGA and the

SGA are considered relatively good at the central government level at this time. According to interviews, the current concerns are deemed to be 1) lack of coordination among institutions regarding support for the OBC study and PDF (FBC study and technical assistance), and 2) miscommunication between MoF and the GCA (BPJT)/BAPPENAS regarding use of the government financial support (i.e. the BPJT and BAPPENAS explained they prefer not to use the scheme involving the MoF, such as the VGF, because it took a long time for the MOF to consider, while the MOF explained the administration speed is now fast and that is no longer an issue). However, on the whole, there is no real problem with the coordination and demarcation of the institutions at the central government level in the PPP toll road sector. This is because the sector is relatively mature compared with the other sectors and because the BPJT clearly understands the appropriate institutions to communicate to about formulating the PPP projects.

(3) Providing a good PPP candidate project: sub-independent variables (1-4)

According to the LKPP Regulation No. 19 of 2015 and the Presidential Regulation No. 38 of 2015, the formulation and implementation procedures of PPP projects are divided into the planning, preparation, transaction, and implementation stages explained in **Figure 14**. Prior to the transaction stage, several studies are conducted for formulating well-prepared, quality PPP projects; preliminary studies for deciding whether the PPP projects are eligible and the basic study for the project are conducted during the planning and preparation stages respectively, and the detailed design study is conducted for the bidding followed by the basic study.

Figure 14: Formulation and Implementation Procedures of PPP Projects



Source: Ministry of Finance (2017, p5)

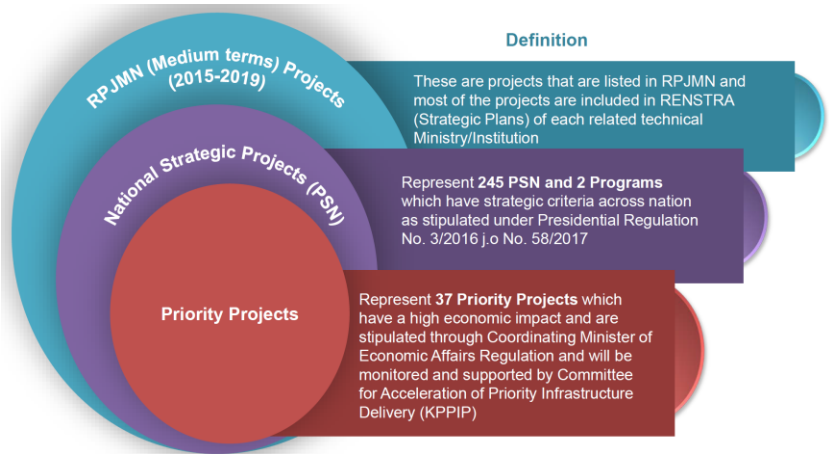
The concrete, preliminary study is conducted by the Ministry or the representative institution of the PPP project (GCA) first in the planning stage to confirm the need to adopt the PPP scheme and requirement for realising the project. The preliminary study comprises a series of studies, such as a need analysis of the project, including an analysis of the support from related stakeholders; a plan for the PPP financing structure with its finance source; an analysis of the value for the money of the project considering the efficiency of the service delivery and transfer of knowledge and technology; and the tender procedure with a schedule. As a result of the planning stage, the preliminary studies and the PPP book are prepared. In the preparation stage, two more studies are conducted. The first study is the Outline Business Case (OBC) study, which is a so-called pre-feasibility study. The OBC study consists of studies of all the aspects necessary for the project appraisal such as legal, technical, financial, risk management, and environmental and social aspects. Another study is the Final Business Case (FBC) study, a so-called feasibility study that contains the information on the project necessary for the related ministries/institutions to approve it. The FBC study is finalised after the public consultation that confirms the environmental and social aspects as well as PPP readiness and the market sounding to the institutions related to PPP projects, including the business entities. It should be noted that government support, such as viability gap funding and availability payment and/or government guarantee, is considered and requested, if at all, before finalisation of the FBC study.

All the PPP toll road projects have been following this process; therefore, the candidate projects should be well-prepared. However, from the interviews, it was apparent that some projects faced drastic change in the technical/financial aspects during the preparation stage or following the detailed design period due to poor studies at the previous stage (i.e. drastic technical change occurs in the detailed design study period due to the poor quality of the FBC).

(4) Strong commitment of the government: sub-independent variables (1-5)

In Indonesia, all the infrastructure projects are categorised according to their priority. First, infrastructure projects are divided into PRJMN (National Medium-Term Plan) 2015-2019 projects or non-PRJMN projects. In the PRJMN projects, 245 projects and 2 programs were selected as the National Strategic Project (PSN), and 37 projects were selected as the priority projects in the President Regulation No. 3 of 2016 and No. 58 of 2017. The KPPIP categorises the projects requested by the President/Vice President (so-called 'top-down projects') and projects requested by the line ministries (so-called 'bottom-up projects') based on criteria such as project size and economic impact. **Figures 15** and **Figure 16** provide images of the categorisation of the infrastructure projects and sectoral and locational information on the projects, respectively. It is understood that the PSN projects have diversity in terms of both the sector and the location, as reflected by the policy of 'equally development among regions'; however, the toll road sector has the greatest number of projects (74 projects) among 17 infrastructure sectors. In terms of investment value, the toll road sectors are in the third position (USD 52.6 billion) followed by the energy (USD 95.5 billion) and electricity sectors (USD 79.6 billion).

Figure 15: Categorisation of the Infrastructure Projects

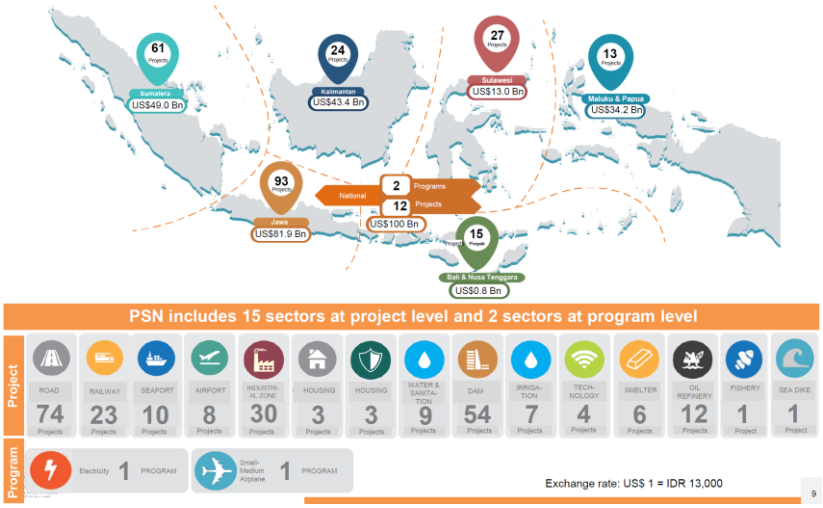


Source: KPPIP (2017, p6)

The PSN projects, particularly the priority projects, can be understood as constituting a strong commitment on the part of the government. Based on the President Regulation No. 75 of 2014, the priority projects can obtain, due to their importance, special treatment from the KPPIP such as: continuous monitoring of the progress and debottlenecking the issues by communicating with the related institutions if any; development/redevelopment of the OBC (pre-feasibility) study; determination of finance scheme; and determination of the way of acceleration of the project realisation. According to the KPPIP, it has been following up the latest status of both the priority projects and the PSN projects on a weekly/semi-weekly basis in order to keep up with the original schedule. The KPPIP also explained that its official mandate is only for the priority projects; however, it also covers all the PSN projects in the

toll road sector at the same level as the priority projects, although it cannot develop/redevelop the OBC (pre-feasibility) study for the PSN projects.

Figure 16: Sectoral and Locational Information on the PSN Projects



Source: KPPIP (2017, p9)

(5) Collecting and sharing the PPP experience: sub-independent variables (1-6)

With regard to the toll road sector, experiences and lessons learnt about the PPP projects have been well collected and relayed to the actual administrations, such as the methodology of selecting the appropriate financing structure, governmental support, and procurement (these methodologies are explained in the following sections). This is because the toll road projects have a long history with the BOT project; the BOT scheme was first applied in the 1980s, although all the projects were by direct appointment to the SOE (Jasa Marga) at that time, and the BOT scheme adopted bidding in 2004, based on the Law No. 38 of 2004. After the introduction of the first PPP regulation in 2005, the PPP scheme has been developing fast in the toll road sector because the basis of the BOT scheme through the bidding already existed and the staff members of the BPJT and other institutions already understood how to plan and deliver PPP toll road projects. Based on interviews with several staff members of the BPJT, KPPIP, BAPPENAS, MoF, and other institutions, it appeared that all the institutions observed a high level of understanding about the administration of PPP toll road projects from planning to implementation.

According to the PPP unit of the BAPPENAS, it has a facility for sharing the successful PPP experience with the GCAs in the central and local governments. The BAPPENAS provides general information on the PPP scheme and its procurement method to the officers in charge of PPP projects in each GCA through several training sessions per project; the trainees who have participated in the training then disseminate the knowledge within their institutions. Moreover, the BAPPENAS can provide a seminar related to PPP knowledge on an ad hoc basis by request from the GCAs. The BAPPENAS also explained that almost all the sectors still require such training due to lack of knowledge and experience of the PPP scheme; however, it has never provided support to the BPJT as the BPJT already has plenty of knowledge and experience. The BPJT explained that it sometimes attends seminars and training, but only in the role of trainer/speaker and not that of trainee/audience.

(6) Government's roles and responsibilities in the 18 PPP toll road projects (case study projects)

Table 11 summarises the government's roles and responsibilities in the 18 PPP toll road projects (case study projects), based on the interviews and secondary data.

Table 11: Government's roles and responsibilities in the pilot projects

<table>
<tr><th></th><th>Name of Project with project amount</th><th>Legal environment</th><th>CCGA and SGA</th><th>Provision of a good PPP candidate</th><th>Commitment of the government</th><th>Collecting and sharing PPP experience</th><th>Delay of formulating project</th></tr>
<tr><td>1</td><td>Manado-Bitung Toll Road</td><td rowspan="3">No law/regulation regarding land acquisition and tender acceleration during preparation of the project</td><td rowspan="3">lack of coordination between the central and local government regarding land acquisition</td><td rowspan="8">No drastic change in financial/ technical design</td><td rowspan="2">Priority Project</td><td rowspan="15">Well done in entire toll road sectors</td><td rowspan="3">Delay in project formulation for years</td></tr>
<tr><td>2</td><td>Balikpapan-Samarinda Toll Road</td></tr>
<tr><td>3</td><td>Pandaan-Malang Toll Road</td><td rowspan="7">National Strategic Project (PSN)</td></tr>
<tr><td>4</td><td>Krian-Legundi-Manyar Toll Road</td><td rowspan="3">Well-developed and applied</td><td rowspan="3">Good demarcation and coordination</td><td rowspan="3">Delay in project formulation not observed</td></tr>
<tr><td>5</td><td>Jakarta-Cikampek II Elevated Toll Road</td></tr>
<tr><td>6</td><td>Batang-Semarang Toll Road</td></tr>
<tr><td>7</td><td>Serpong-Balaraja Toll Road</td><td>No law/regulation regarding land acquisition and tender acceleration during preparation of the project</td><td>lack of coordination between the central and local government regarding land acquisition</td><td>Delay in project formulation for years</td></tr>
<tr><td>8</td><td>Cisumdawu Toll Road</td><td rowspan="7">Well-developed and applied</td><td>lack of coordination between the central and local government regarding studies</td><td>Alignment of toll road was drastically changed due to poor studies</td></tr>
<tr><td>9</td><td>Serang-Panimbang Toll Road (51 km)</td><td rowspan="3">Good demarcation and coordination</td><td rowspan="2">Finance scheme was drastically changed due to poor studies</td><td rowspan="2">Priority Project</td><td>Delay in project formulation not observed</td></tr>
<tr><td>10</td><td>Serang-Panimbang Toll Road (33 km)</td><td>Delay in project formulation for years</td></tr>
<tr><td>11</td><td>Jakarta – Cikampek South Toll Road</td><td rowspan="6">No drastic change in financial/ technical design</td><td>National Strategic Project (PSN)</td><td rowspan="3">Delay in project formulation not observed</td></tr>
<tr><td>12</td><td>Probolinggo Banyuwangi Toll Road</td><td>Priority Project</td></tr>
<tr><td>13</td><td>Semarang Demak Toll Road</td><td>lack of communication inside the Ministry of Public Works and Housing/ lack of communication with the political authority</td><td>National Strategic Project (PSN)</td><td>Delay in project formulation for years</td></tr>
<tr><td>14</td><td>Yogyabawen Toll Road</td><td>lack of coordination between the central and local government regarding studies</td><td>Priority Project</td><td>Delay in project formulation</td></tr>
<tr><td>15</td><td>Surabaya Madura Toll Road</td><td>Good demarcation and coordination</td><td>National Strategic Project</td><td># O&M contract (not BOT); No delay</td></tr>
</table>

16	BatuAmpar – MukaKuning – Hang Nadim Toll Road			Project is changed to public (SOE) project from PPP due to new policy	(PSN)		# Direct appointment (no bidding); No delay
17	Sukabumi Ciranjang Toll Road			Project is combined to the adjacent project to accelerate			
18	Yogya Solo Toll Road		lack of coordination between the central and local government regarding studies	No drastic change in financial/ technical design			Delay in project formulation for years

Source: prepared by the author

First, the legal framework for the formulation of PPP infrastructure projects and land acquisition related to the PPP projects has been well developed and applied to all of the case projects. According to the BPJT and KPPIP, the legal framework serves all the projects well and no critical issue has been observed at this time. However, there is the fact that old projects, namely, (1) the Manado-Bitung Toll Road project; (2) the Balikpapan-Samarinda Toll Road project; (3) the Pandaan-Malang Toll Road project; and (7) the Serpong-Balaraja Toll Road project were previously delayed in the project formulation stage due to prolonged land acquisition as there was no clear regulation about to land acquisition and tender acceleration such as Law No. 2 of 2012 and the Presidential Regulation No. 38 of 2015. It is true that not only the regulation regarding land acquisition, but also the rigid legal framework for the formulation and procurement of PPP projects did not exist before 2015. However, this was not a problem for these old projects because the procedure of project formulation and procurement have been developed to a certain level in the toll road sector since state-owned enterprise and private companies have been involved in toll road BOT projects as concessionaire beginning in the 1980s and based on the sectoral regulations and the previous PPP regulations (Presidential Regulation No. 67 of 2005 and its amendments).

For all the case projects, demarcation and coordination among the central coordinating and supportive government authorities can be evaluated as at a high level, that is, at the level of the central government. However, (13) the Semarang Demak Toll Road project was thought to have been delayed due to lack of coordination/communication in the central government. According to the BPJT and KPPIP, the pre-qualification of the project had already begun in 2017; however, the process was suspended, and it was decided that the project should be incorporated into a sea embankment project in Semarang City (a change in the project scope). This project is now at a stage of preparation of re-tender. It is deemed that this sudden scope change was due to lack of communication inside the Ministry of Public Works and Housing or lack of communication with the political authority, though administrative staff members in both the BPJT and KPPIP were not sure about the background details.

Compared to the high-level coordination and demarcation in the central government institutions, there is/was room for improving the coordination and demarcation between the central and local governments. According to interviews, in the 18 toll road case projects focused on in this study, there were projects whose land acquisition processes were prolonged due to the lack of coordination between the central and local governments as well as projects whose processes of studies were prolonged due to lengthy discussions between the central and local governments. The details of these projects are as follows:

- **Projects whose land acquisition processes were prolonged due to lack of coordination between the central and local governments:**

(1) the Manado-Bitung Toll Road project; (2) the Balikpapan-Samarinda Toll Road project; (3) the Pandaan-Malang Toll Road project; and (7) the Serpong-Balaraja Toll Road project.

As mentioned previously, these projects were prolonged because of lack of clear and concrete regulation about land acquisition and tender acceleration such as the Law No. 2 of 2012 and the Presidential Regulation No. 38 of 2015. Another possible reason for the prolongation was that there were no strong institutions that could coordinate the BPJT with the local government with regard to land acquisition processes, such as the KPPIP (established in 2014). According to the KPPIP, the Law No. 2 of 2012 was first applied after the KPPIP was established, and it selected the priority projects and national strategic projects, including the four projects mentioned above. This means there was no active coordination institution before 2014.

- **Projects whose processes of studies were prolonged due to lengthy discussions between the central and local governments:**

(8) the Cisumdawu Toll Road project; (14) the Yogya-Bawen Toll Road project; and (18) the Yogya-Solo Toll Road project.

(8) The Cisumdawu Toll Road project faced a drastic alignment change in the detailed design study because of the lack of quality of the previous study, which was made without the local government's serious involvement in the design of the toll road. As for the other two projects, they are located in Yogjakarta, which is a special place because of its world heritage and numerous historical sites, as well as the Indonesian king who still governs the region[1]. According to the BPJT and KPPIP, the projects in such places tend to be prolonged due to lengthy discussions between the central and local governments as there are many agendas to discuss for preservation of the historical sites and the governor is an influential political player. In both (14) the Yogya-Bawen Toll Road project and (18) the Yogya-Solo Toll Road project, it took a long time for the central and local governments to reach an agreement about the design of the toll road[2].

With regard to the quality of the PPP candidate projects, some projects were well-prepared through the studies, but other were not. Based on the interviews, issues relating to the technical/financial design of the project were reported on (8) the Cisumdawu Toll Road project, (9) the Serang-Panimbang Toll Road (51 km) project, and (10) the Serang-Panimbang Toll Road (33 km) project, even though these projects are/were listed in the PPP book through the preliminary studies. Moreover, (16) the BatuAmpar–MukaKuning–Hang Nadim Toll Road project and (17) the Sukabumi Ciranjang Toll Road project were dropped

[1] Sri Sultan Hamengku Buwono X, the governor of Yogyakarta Special Region (DIY) is the last king leading the local government in Indonesia

[2] The local government has requested the design considering the following points; securing the undiscovered site of Prambanan (world heritage); avoiding damage in case of volcanic explosion of Mt. Merapi; and securing level of exiting regional economy (not disturbing economic centres such as markets), and the design was finally decided as an elevated toll road on the existing road/ditch to avoid vast land acquisition. According to BPJT, in addition to Yogjakarta, Bali is also a difficult place for toll road projects due to its special nature as a tourist place and traditional culture.

from the PPP candidate projects due to a change in policy following the preliminary studies, though these are regarded as inevitable or minor. It is noted that (14) the Yogya-Bawen Toll Road project and (18) the Yogya-Solo Toll Road project were excluded from this category because their underlying problem was the coordination between the central and local governments rather than the poor quality of the study at the previous stage.

Details of the changes that occurred in the above-mentioned projects during the preparation stage or detailed design period are as follows:

(8) The Cisumdawu Toll Road project

This project comprises six sections: Section I (12.025 Km); Section II (17.350 Km); Section III (3.750 Km); Section IV (7.200 Km); Section V (15.900 Km); and Section VI (4.048Km). This project also applies the Supported Build Operate Transfer (S-BOT) scheme whereby the government provides physical construction support for some portions of the project while the private company finances the other portions. In this project, Sections I and II were financed by the Export-Import Bank of China (CEXIM), though some portions of Section I were also financed through the state budget. The other sections (Sections III, IV, V, and VI) will be financed by the private company that wins the tender. According to the BPJT and KPPIP, the tender for the private portion has been prolonged due to a drastic change in the alignment of the toll road during the detailed design study. This is because the previous feasibility study did not take into account the realistic situation; the alignment was across the forestry area and certain public facilities such as a school. According to the KPPIP, this kind of alignment change often happens if the study is low budget and conducted by poor consultants; however, a change as drastic as took place with this project would constitute a rare case.

(9) The Serang-Panimbang Toll Road (51 km) project and (10) the Serang-Panimbang Toll Road (33 km) project

These projects were previously a single project slated to be financed by the BOT with availability payment scheme. However, the project was divided into two portions, the 51-km portion [Section I Serang-Rangkasbitung (26.5 Km) and Section III Bojong-Panimbang (24.4 Km], and the 33-km portion [Section II Rangkasbitung-Bojong (33 Km)] due to budget constraints for the availability payment for the whole section. Through a series of discussions, it was decided that the 51-km portion would be financed by a pure BOT because, based on the Internal Return of Rate (IRR) calculation, this portion is financially feasible. As for the 33-km portion, according to the KPPIP, the government considered financing it through just the state budget or BOT with an availability payment scheme as this portion is financially unfeasible due to low traffic. However, the BPJT gave up the idea because the BPJT prioritises non-toll roads for use of the state budget. Hence, the BPJT requested loans from development banks to the MoF and the BAPPENAS to make up for the lack of funding. After considering the prolonged discussion about the finance source of the 33-km portion, the BPJT decided to proceed with the 51-km portion separately from the 33-km portion. As of the time of the interviews, the 33-km portion was still under the bidding process while the 51-km portion had already reached financial close in February 2017.

(16) The BatuAmpar–MukaKuning–Hang Nadim Toll Road project

This project was included as a potential PPP project in the 2015 PPP Book after the preliminary survey; however, it was dropped from the following PPP books. According to the BPJT, this is because this project was directly assigned to the SOE of the Hutama Karya company along with the other 23 toll road projects in Sumatra Ireland (the Trans Sumatra Toll Road project) by the President Regulation No. 117 of 2015 in order to realise the project as soon as possible. The Trans Sumatra Toll Road project is one of the most important projects under the current Joko administration. However, most of the toll roads are financially unfeasible. Accordingly, the government decided not to utilise the PPP scheme but instead, the funding for the SOE. The President Regulation was passed after the issue of the 2015 PPP Book, which means no one could have predicted that the project would be treated, especially at the time the preliminary survey was conducted. This is why a change in the financial design of this project was seen as inevitable.

(17) The Sukabumi Ciranjang Toll Road project

This project was included as an under-preparation PPP project in the 2017 PPP Book. However, after a preliminary survey, it was dropped from the following PPP books. According to the BPJT, this project was directly appointed to the concessionaire (the PT Waskita Toll Road) of the adjacent toll road (Ciawi-Sukabini Toll Road) based on the President Regulation No. 38 of 2015. After the introduction of the regulation, the so-called 'extension of scope of work' applied to this project became possible provided the particular requirement was fulfilled. 'Extension of scope of work' was applied to this project in order to accelerate the project realisation, and according to the BPJT, some other projects also enjoyed this treatment. It is true that there was a change in the procurement method in this project; however, the nature of the financial/technical aspects of this PPP project is the same as before. Consequently, the change in the project plan can be regarded as minor.

With regard to government commitment, **Table 11** shows the categorisation of all the 18 PPP toll road projects into priority projects or PSN projects. Therefore, all the projects have been well monitored not only by the GCA (BPJT), but also by the KPPIP. According to interviews with both the BPJT and KPPIP, the KPPIP provides support for the development of studies for some priority projects. One of these is the Environmental Impact Assessment (EIA) study for (10) the Serang-Panimbang Toll Road (33 km) project. Another is the OBC and EIA studies for (14) the Yogyabawen Toll Road project. As mentioned earlier, the KPPIP cannot provide support for the development of studies for PSN projects. However, this is not deemed critical because, according to the BAPPENAS and MoF, the BPJT is normally able to conduct studies with its own budget as it has plenty of funding. Hence the BPJT has never requested the support of the BAPPENAS and MoF for the development of studies.

As for the sub-independent variable of 'collecting and sharing the PPP experience', there is a highly developed system of collecting and sharing information regarding PPP projects among the stakeholders in all the toll road sectors, including 18 PPP toll road case projects.

(7) Section Conclusion

In this section, the independent variable of the 'government's roles and responsibilities' in the PPP projects was evaluated by examining the sub-independent variables. The sub-independent variables were examined first for the general PPP toll road projects in Indonesia, and the actual situations were then confirmed for the selected 18 PPP toll road projects.

As for the sub-independent variable of the 'legal environment' (1-1), it was proven that there are now clear and well-structured laws and regulations relating to PPP projects, including those relating to land acquisition, the lack of which has caused a critical delay in the implementation of many projects in the past. Regarding the sub-independent variables of the 'central coordinating government authority and supportive government authority and their demarcation and coordination' (1-2 and 1-3), there are now well-organised authorities, although instead of a single institution, multiple institutions (the CMEA, KPPIP, and BAPPENAS) play the role in the central coordinating government authority, which is different from other countries. From a series of interviews, it was apparent that demarcation and coordination among the institutions are generally good at a central government level, although there is still room for improving the coordination between the central and local governments regarding administrations on land acquisition and project studies. As for the sub-independent variable of 'providing a good PPP candidate project' (1-4), it can be inferred that a clear procedure on formulating the studies on the projects prior to the bidding contributes to the provision of good candidate projects; however, a drastic change of technical/financial design due to poor prior studies was also reported. As for the sub-independent variable of a 'strong commitment of the government' (1-5), there is now a clear system whereby the government can prioritise projects, and then these prioritised projects can enjoy support from the government. With regard to 'collecting and sharing the PPP experience', sub-independent variables (1-6), there is a highly developed system of collecting and sharing information regarding PPP projects among the stakeholders in all the toll road sectors.

Table 12 summarises the actual situation of 'government's roles and responsibilities' in the selected 18 PPP toll road case projects using a scale (+: positive; 0: neutral; -: negative). It has been noted that the projects which are delayed in their formulation process have a negative status in the sub-independent variable(s) of 'legal environment'(1-1) and/or 'central coordinating government authority and supportive government authority and their demarcation and coordination' (1-2 and 1-3), and/or 'providing a good PPP candidate project' (1-4)[3], while the other sub-independent variables ('strong commitment of the government' (1-5) and 'collecting and sharing the PPP experience' (1-6) represent a positive status for all the projects. It can be understood that the positive factors in the sub-independent variables (1-5 and 1-6) do not cancel out the negative factor(s) in the other sub-independent variables (1-1, 1-2, 1-3, and 1-4). In other word, positive, or at least non-negative, status in all the sub-independent variables is required for the timely formulation of the PPP toll road projects. It should also be noted that the legal environment is now already developed, and a 'strong commitment of the government' (1-5) and 'collecting and sharing the PPP experience' (1-6) are deemed relatively easy to achieve considering the current situation. Consequently, the critical factors in the future success of the project in terms of the speed of the project formulation is considered 'central coordinating government authority and supportive government authority and their demarcation and coordination' (1-2 and 1-3) as well as

[3](9) the Serang-Panimbang Toll Road (51 km) project doesn't delay despite of provision of a poor PPP candidate in the study, however, the Serang-Panimbang Toll Road project as a whole (9) the Serang-Panimbang Toll Road (51 km) project and (10) the Serang-Panimbang Toll Road (33 km) project delays.

'providing a good PPP candidate project' (1-4). By comparing these two, it can be inferred that the former is more critical than the latter. This is because all the projects with negative status in the former sub-independent variable were, without exception, delayed in the formulation stage, while some projects with negative status in the latter sub-independent variable were not delayed. This means that even though there are some problems in the design/studies of the projects (especially in financial matters), there is still a possibility of avoiding/mitigating the delay of the project formulation by changing the project design.[4] Regarding a 'strong commitment of the government' (1-5) and 'collecting and sharing the PPP experience' (1-6), it should be noted that these are also deemed important based on the information brought to light through interviews. This is because the former is strongly related to the level of coordination among the related stakeholders, and the latter significantly affects the other independent variables including 1) appropriate concessionaire selection (independent variable 2); appropriate risk allocation between the public and private (independent variable 3); and a sound financial package in the toll road sector (independent variable 4).

Table 12: Summary of the Actual Situation of the Government's Roles and Responsibilities in the 18 PPP Toll Road Projects with the Scale

	Name of Project with project amount	Legal environment	CCGA and SGA	Provision of a good PPP candidate	Commitment of the government	Collecting and sharing PPP experience	Delay of formulat-ing project
1	Manado-Bitung Toll Road	-	-	+	+	+	Yes
2	Balikpapan-Samarinda Toll Road	-	-	+	+	+	
3	Pandaan-Malang Toll Road	-	-	+	+	+	
4	Krian-Legundi-Manyar Toll Road	+	+	+	+	+	No
5	Jakarta-Cikampek II Elevated Toll Road	+	+	+	+	+	
6	Batang-Semarang Toll Road	+	+	+	+	+	
7	Serpong-Balaraja Toll Road	-	-	+	+	+	Yes
8	Cisumdawu Toll Road	+	-	-	+	+	
9	Serang-Panimbang Toll Road (51 km)	+	+	-	+	+	No
10	Serang-Panimbang Toll Road (33 km)	+	+	-	+	+	Yes
11	Jakarta – Cikampek South Toll Road	+	+	+	+	+	No
12	Probolinggo Banyuwangi Toll Road	+	+	+	+	+	
13	Semarang Demak Toll Road	+	-	+	+	+	Yes
14	Yogyabawen Toll Road	+	-	+	+	+	
15	Surabaya Madura Toll Road	+	+	+	+	+	No # unusual project
16	BatuAmpar Muka Kuning–Hang Nadim Toll Road	+	+	-	+	+	
17	Sukabumi Ciranjang Toll Road	+	+	-	+	+	
18	Yogya Solo Toll Road	+	-	+	+	+	Yes

Source: prepared by the author

4.3 Evaluation of Concessionaire Selection

In this section, two sub-independent variables of 'appropriate concessionaire selection'; 'well-structured and improved tendering process'; and 'appropriate evaluation method' are first evaluated with regard to all the PPP toll road projects in Indonesia, and the actual situations are confirmed for the selected 18 toll road projects.

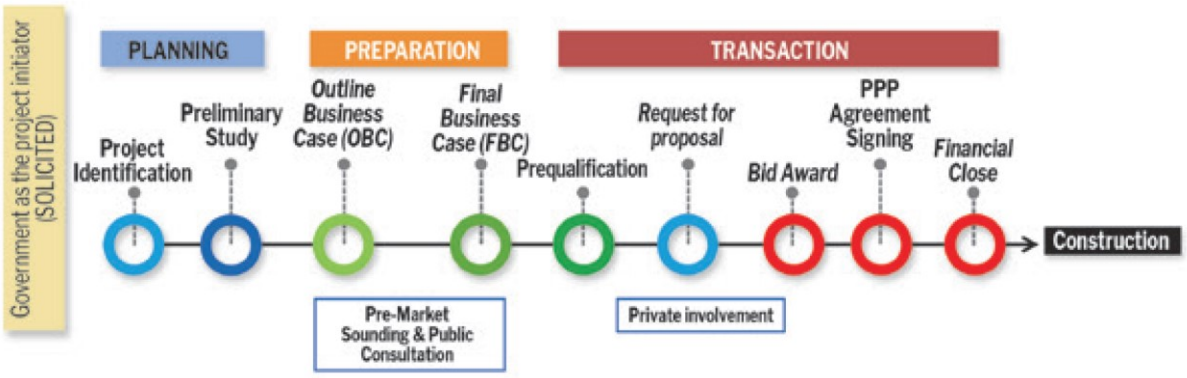
[4] i.e. (9) the Serang-Panimbang Toll Road (51 km) project did not delay because BPJT decided to proceed the project first separately from (10) the Serang-Panimbang Toll Road (33 km) project; and (16) the Batu Ampar–Muka Kuning–Hang Nadim Toll Road project and (17) the Sukabumi Ciranjang Toll Road project was not delayed but was combined with the other projects though they did not follow the formal (tender) procedure of a PPP project.

(1) Well-structured and improved tendering process: sub-independent variables (2-1)

First of all, the PPP scheme in Indonesia allows two different types of projects: one is a solicited project that is initiated by the government, and the other is an unsolicited project that is proposed by the private side. There are many differences in the project formulation processes between the two types of projects.

A solicited project can be recognised as a conventional PPP project because, like the pure public project, it is initiated by the government. As explained in **Section 4.2**, there are three stages before construction: the planning, preparation and transaction (tendering) stages (**Fig 17)**. This structure is basically the same as the structure for the pure public projects; however, PPP projects require a more detailed study before the transaction stage. The FBC study generally includes an analysis of the allocation of the various risks of the project between the private and the public sectors as well as the need for government financial support and government guarantee in case the government defaults on its responsibility. Moreover, during the preparation stage, there are public consultations that constitute opportunities for the GCA to discuss the finance structure and government support with potential investors, financial institutions, the IIGF, and the other stakeholders.

Figure 17: Project Formulation Flow of Solicited Project



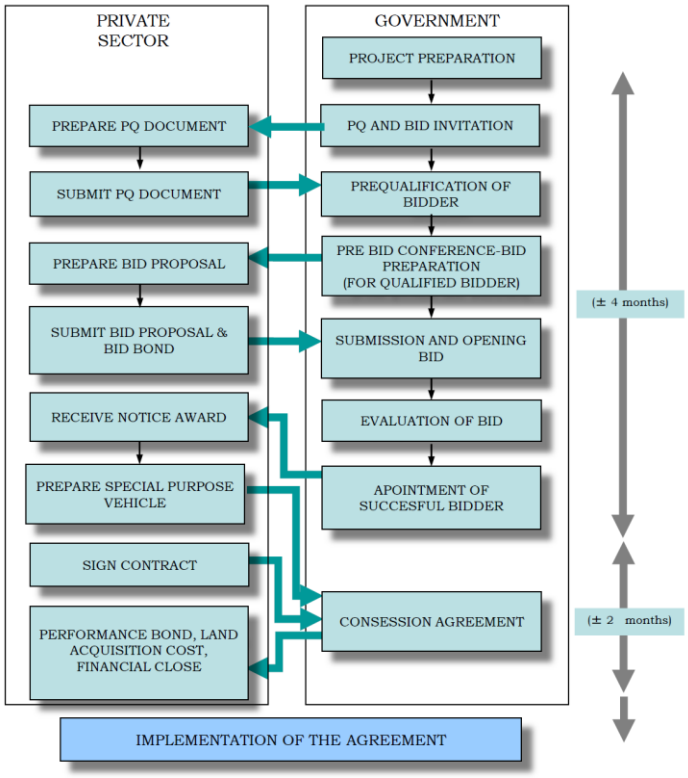
Source: BAPPENAS (2017a, p15)

For the transaction process of solicited PPP projects, the concessionaire of the project is selected by the public tender based on the President Regulation No. 38 of 2015. The public tender generally includes the prequalification stage and the subsequent limited tender stage. **Fig 18** shows the details of the transaction process. Based on the BPJT (2015), the prequalification is announced through national media, such as newspapers and the industry journals, in order to invite all the potential investors. Any private investor can participate in the prequalification; however, only the participants who fulfil the requirement mentioned in the prequalification document can pass the prequalification. The participants who successfully pass the prequalification appear on the shortlist issued by the government and they are entitled to proceed to the limited tender. Prequalification normally does not require a detailed proposal; therefore, it is sometimes begun without waiting for the land acquisition progress or the decision of the detailed financial/technical design. This sometimes causes delay after the prequalification or redoing the prequalification, such as in the case of (7) the Serpong-Balaraja Toll Road project. In the public tender, both the technical and financial proposals of the participants are evaluated (the details of the evaluation method are introduced in the next sub-section.). Based on the evaluation, the participant at the highest position is appointed the concessionaire of the project. Even if only one tender participant

fulfils the minimum standard set by the GCA, based on the President Regulation No. 38 of 2015, the tender can be continued and the passed tender participant can conclude the PPP agreement after the GCA obtains approval from the Minister. According to the BPJT and the BAPPENAS, it normally takes about 6-8 months from the prequalification to the PPP agreement. It is noted that there is a possibility that the project has to wait for financial close after the PPP agreement if the banks hesitate to conclude the loan agreement due to the poor progress of the land acquisition. However, this problem has been becoming tolerable because the Contractor Pre-Financing (CPF) scheme has become important in the PPP toll road projects (see **Sub-section 4.5 (1)** for the details).

Basically, the PPP projects in Indonesia have to be procured by the public tender based on the procedure mentioned above. However, direct appointment to a particular private company is also allowed in case only one participant is eligible for prequalification, or fulfilling the following condition; the infrastructure has already been under construction or operation by a certain private company; only one private company can realise the project due to its special technology; a certain company possesses all/almost all the necessary land for the project. This rule is the basis of 'Extension of scope of work' and was applied to (17) the Sukabumi Ciranjang Toll Road project as mentioned in the previous section.

Figure 18: Tender Process of the PPP Toll Road Project



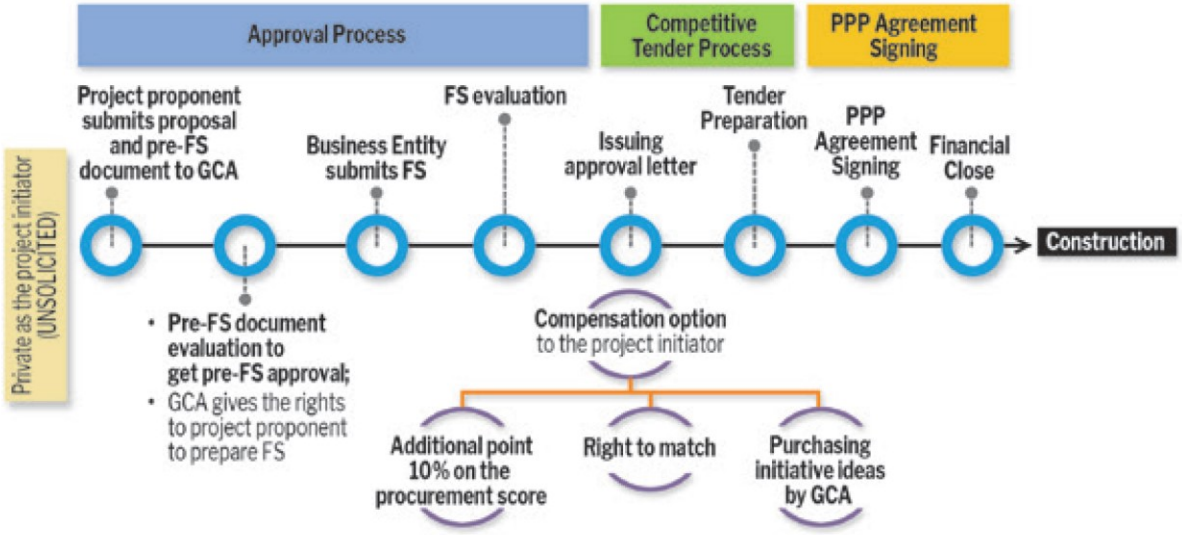
Source: BPJT (2015, p10)

Figure 19 explains the project formulation flow for an unsolicited project. Unlike a solicited project, all the studies, such as the pre-feasibility and feasibility studies, are prepared by private companies as the initiator of the project, and the GCA only has to evaluate and comment on the study before providing its approval. The feasibility study normally includes a detailed financial analysis through communication with financial institutions, the IIGF, and the other stakeholders to judge the profitability seriously. Unsolicited projects have advantages for the GCA because the GCA does not need to prepare the studies by itself, and

also the studies prepared by the private companies tend to be relatively accurate because they are important for the profitability. According to the BPJT, the number of proposals for an unsolicited project to the BPJT has been increasing, and unsolicited projects will become dominant in the PPP toll road sector in the near future. There are 2 projects that have reached PPP agreement, 9 projects that were approved by the BPJT, and 8 projects that are currently under study. However, it should be noted that there has been no activity on 18 projects even though they have been proposed as unsolicited projects to the BPJT by the private companies.

The transaction process for the unsolicited projects is basically the same as for the solicited projects in terms of structure. The transaction process comprises the prequalification stage and the subsequent limited tender stage. However, the initiator of the project can take compensation for its proposal by choosing from three options. The first option is an additional 10% on the procurement score (for financial and/or technical score depended on the project), which means the initiator has an advantage for the bid evaluation compared with the other bidders. The second option is the right to match to the other bidders with a better condition (i.e. lower price). Under this option, even if the other bidders propose better conditions, the initiator can win the bidding if it can re-propose the same condition. The third option is selling the project idea to the GCA. In this case, the initiator cannot participate in the bidding any more.

Figure 19: Project Formulation Flow of the Unsolicited Project



Source: BAPPENAS (2017a, p16)

As seen so far, it can be inferred that the BPJT has highly developed and well-structured tendering processes for both solicited and unsolicited projects. Moreover, there is an organised process that the BPJT communicates with the potential bidders, financial institutions, the IIGF, and other stakeholders during the preparation stage to make the tender success.

(2) Appropriate evaluation method: sub-independent variables (2-2)

As mentioned in the previous sub-section, both solicited and unsolicited projects have a prequalification stage and a subsequent limited tender stage in the concessionaire procurement process. As for the prequalification, the basic capability to deliver the project is assessed. According to the Ministerial Regulation No. 18 of 2010 regarding procurement of the toll road companies, the following aspects are normally assessed in the prequalification:

1) the record of the financial situation of the project companies (i.e. debt equity ratio and debt ratio, and so on; for the last 3 years) and the funding capacity of the project companies considering the future cash flow of the project and the investment of the current and prospective projects; and 2) the project companies' experience in delivering the same type of PPP projects, especially in Indonesia and/or the south east Asian countries (for the last 5 years). Only those companies whose total score when calculated with the weight of the financial status (80%) and the experience (20%) exceed 60 out of 100 points have the right to proceed to the limited tender stage. The details of the prequalification criteria are elaborated in the prequalification document that all the private companies can access.

In the limited tender stage, the two-envelope bidding procedure in the single-stage is normally applied. According to this procedure, the private companies eligible for the limited tender are requested to provide 1) a technical proposal (i.e. construction, toll collection management, traffic management, maintenance of the toll road, and so on) with the concession schedule and other administrative documents, and 2) the financial proposal (i.e. the source of funding, the project cost, the toll revenue, the operation and maintenance cost, the Net Present Value (NPV) and the Internal Return of Rate (IRR) of the project, and so on, at the same time. Technical proposals are opened and evaluated first, and then the financial proposals of only the companies that fulfil the minimum requirement for the technical aspect are opened and evaluated. For the evaluation of the financial proposal, two methodologies are normally chosen for the BOT project. One is the tender based on the lowest toll tariff. According to this methodology, the company whose toll tariff proposal is the lowest wins the bid. Another is the tender based on contribution to the Trans Sumatra Toll Road projects. Following this methodology, the amount of length (km) the company contributes to construction of the Trans Sumatra Toll Roads by utilising the profit from the tendered toll road project is compared to that of the bidders. According to the BPJT, the latter methodology is generally applied to the profitable toll road projects. For the S-BOT project, the tender with the lowest government support is utilised. Following this methodology, the bidders compete against the amount of the government support (partial construction of the toll road) under the given condition of the concession period and toll tariff. The bidder who proposes the lowest government support wins the bid.

As seen above, the evaluation method of the bidding for all the types of PPP toll road projects (solicited BOT projects, solicited S-BOT projects, and unsolicited BOT projects; it is noted that an unsolicited S-BOT project is not allowed due to the regulation) is highly developed and well prepared.

(3) Concessionaire selection in the 18 PPP toll road projects (case study projects)

Overall, according to the BPJT, there has been no issue of delay of procurement in the 18 PPP toll road case projects due to lack of clarity of the tendering process as well as inappropriateness of concessionaire evaluation. With regard to the 18 PPP toll road projects, **Table 13** summarises the information on the tendering and the evaluation method, based on an interview with the BPJT.

The 18 PPP toll road projects include variety of project types and evaluation criteria. However, it was observed that all the tendered projects except (7) the Serpong-Balaraja Toll Road project successfully completed their tendering processes within the standard schedule without retendering. The PPP books and related newspapers also show evidence of smooth procurement for these projects within 6-8 months. It has been noted that (7) the Serpong-Balaraja Toll Road project was delayed for several years after the prequalification. However, this was not because of the structure of the tendering process, but because of the slow progress of the land acquisition. It is also understood that most of the projects were

considered to be prepared well for their tenders because more than 2 bidders participated in the limited tender. It is true that 3 projects (1) the Manado-Bitung Toll Road project, (9) the Serang-Panimbang Toll Road (51 km) project, and (11) the Jakarta – Cikampek South Toll Road project had only 1 bidder each; however, these cases are also eligible under the President Regulation No. 38 of 2015. This means that both the tendering process and the evaluation method for the PPP toll road project in Indonesia are already highly developed and no delay normally occurs.

Table 13: Summary of the Tender and Evaluation Method of 18 PPP Toll Road Projects

<table>
<tr><th rowspan="2"></th><th rowspan="2">Name of Project</th><th colspan="3">Type of project</th><th colspan="3">Evaluation criteria</th><th rowspan="2">Number of bidders (limited tender)</th><th rowspan="2">Result of tender</th></tr>
<tr><th>Solicited BOT</th><th>Solicited S-BOT</th><th>Unsolicited BOT</th><th>Lowest tariff</th><th>Contribution to Sumatra Toll project</th><th>Minimum government support</th></tr>
<tr><td>1</td><td>Manado-Bitung Toll Road</td><td></td><td>X</td><td></td><td></td><td></td><td>X</td><td>1</td><td rowspan="6">Successfully done within the standard bidding time without retendering</td></tr>
<tr><td>2</td><td>Balikpapan-Samarinda Toll Road</td><td></td><td>X</td><td></td><td></td><td></td><td>X</td><td>2</td></tr>
<tr><td>3</td><td>Pandaan-Malang Toll Road</td><td>X</td><td></td><td></td><td>X</td><td></td><td></td><td>4</td></tr>
<tr><td>4</td><td>Krian-Legundi-Manyar Toll Road</td><td></td><td></td><td>X</td><td></td><td>X</td><td></td><td>2</td></tr>
<tr><td>5</td><td>Jakarta-Cikampek II Elevated Toll Road</td><td></td><td></td><td>X</td><td></td><td>X</td><td></td><td>2</td></tr>
<tr><td>6</td><td>Batang-Semarang Toll Road</td><td>X</td><td></td><td></td><td></td><td>X</td><td></td><td>2</td></tr>
<tr><td>7</td><td>Serpong-Balaraja Toll Road</td><td></td><td></td><td>X</td><td>X</td><td></td><td></td><td>2</td><td>Tender process suspended for years</td></tr>
<tr><td>8</td><td>Cisumdawu Toll Road</td><td></td><td>X</td><td></td><td></td><td></td><td>X</td><td>2</td><td rowspan="5">Successfully done within the standard bidding time without retendering</td></tr>
<tr><td>9</td><td>Serang-Panimbang Toll Road (51 km)</td><td colspan="3" rowspan="2">Solicited S-BOT as a whole</td><td colspan="3">No data</td><td>1</td></tr>
<tr><td>10</td><td>Serang-Panimbang Toll Road (33 km)</td><td colspan="3">N/A (under preparation)</td><td>N/A</td></tr>
<tr><td>11</td><td>Jakarta – Cikampek South Toll Road</td><td></td><td></td><td>X</td><td colspan="3">No data</td><td>1</td></tr>
<tr><td>12</td><td>ProbolinggoBanyuwangi Toll Road</td><td>X</td><td></td><td></td><td>X</td><td></td><td></td><td>2</td></tr>
<tr><td>13</td><td>Semarang Demak Toll Road</td><td colspan="9">N/A (Under preparation)</td></tr>
<tr><td>14</td><td>Yogyabawen Toll Road</td><td colspan="9">N/A (Under preparation)</td></tr>
<tr><td>15</td><td>Surabaya Madura Toll Road</td><td colspan="9">N/A (O&M contract)</td></tr>
<tr><td>16</td><td>BatuAmpar – MukaKuning – Hang Nadim Toll Road</td><td colspan="9">N/A (Direct appointment)</td></tr>
<tr><td>17</td><td>SukabumiCiranjang Toll Road</td><td colspan="9">N/A (Direct appointment)</td></tr>
<tr><td>18</td><td>Yogya Solo Toll Road</td><td colspan="9">N/A (Under preparation)</td></tr>
</table>

Source: prepared by the author

(4) Section Conclusion

In this section, the independent variable of 'concessionaire selection' in the PPP projects was evaluated by examining its sub-independent variables. The sub-independent variables were first examined for the general PPP toll road projects in Indonesia, and the actual situations were then confirmed for the selected 18 PPP toll road projects.

As for the tendering process, the sub-independent variable (2-1), it was apparent that there is a well-structured and improved system for the PPP projects in all sectors, including the toll road sector. The tendering system covers both solicited and unsolicited projects. In order to make the tender more successful, particularly in the toll road sector, there is an

organised process according to which the BPJT communicates with the potential bidders, financial institutions, the IIGF, and the other stakeholders during the preparation stage. As for the evaluation method, sub-independent variable (2-1), it was proven that there is also an appropriate and detailed evaluation method for both solicited and unsolicited projects in the toll road sector, regardless of the finance scheme (BOT or S-BOT).

Table 14 summarises the actual situation of 'concessionaire selection' for the selected 18 PPP toll road projects using the scale (+: positive; 0: neutral; -: negative). It was apparent that of the projects only (7) the Serpong-Balaraja Toll Road project was delayed in the tendering process. Moreover, (7) the Serpong-Balaraja Toll Road project was delayed due to the slow progress of the land acquisition, which means no project has been delayed due to poor tendering system and/or evaluation method. It is true that it is difficult to evaluate to what extent a well-structured and improved tendering process and appropriate evaluation method contribute to the smooth tendering process because there is no project that has a negative evaluation in the tendering process. However, at least it can be said that the current tendering process with its evaluation method is enough to deal with the bidding within a target timeline.

Table 14: Summary of the Actual Situation of Concessionaire Selection in the 18 PPP Toll Road Projects with the Scale

<table>
<tr><th></th><th>Name of Project</th><th>Tendering process</th><th>Evaluation method</th><th>Delay in the tendering process</th></tr>
<tr><td>1</td><td>Manado-Bitung Toll Road</td><td rowspan="12">+</td><td rowspan="12">+</td><td rowspan="6">+</td></tr>
<tr><td>2</td><td>Balikpapan-Samarinda Toll Road</td></tr>
<tr><td>3</td><td>Pandaan-Malang Toll Road</td></tr>
<tr><td>4</td><td>Krian-Legundi-Manyar Toll Road</td></tr>
<tr><td>5</td><td>Jakarta-Cikampek II Elevated Toll Road</td></tr>
<tr><td>6</td><td>Batang-Semarang Toll Road</td></tr>
<tr><td>7</td><td>Serpong-Balaraja Toll Road</td><td>-</td></tr>
<tr><td>8</td><td>Cisumdawu Toll Road</td><td rowspan="5">+</td></tr>
<tr><td>9</td><td>Serang-Panimbang Toll Road (51 km)</td></tr>
<tr><td>10</td><td>Serang-Panimbang Toll Road (33 km)</td></tr>
<tr><td>11</td><td>Jakarta – Cikampek South Toll Road</td></tr>
<tr><td>12</td><td>ProbolinggoBanyuwangi Toll Road</td></tr>
<tr><td>13</td><td>Semarang Demak Toll Road</td><td colspan="3" rowspan="6">N/A</td></tr>
<tr><td>14</td><td>Yogyabawen Toll Road</td></tr>
<tr><td>15</td><td>Surabaya Madura Toll Road</td></tr>
<tr><td>16</td><td>BatuAmpar – MukaKuning – Hang Nadim Toll Road</td></tr>
<tr><td>17</td><td>SukabumiCiranjang Toll Road</td></tr>
<tr><td>18</td><td>Yogya Solo Toll Road</td></tr>
</table>

Source: prepared by the author

4.4 Evaluation of Risk Allocation between the Public and Private

In this section, two sub-independent variables of 'appropriate risk allocation between the public and private'; 'clear mechanism to decide risk allocation'; and 'government's/governmental agency's support facility for taking critical risks' are evaluated with regard to all the PPP projects in Indonesia. The actual situation of the risk allocation in the PPP projects is also confirmed by analysing the selected 18 PPP toll road projects.

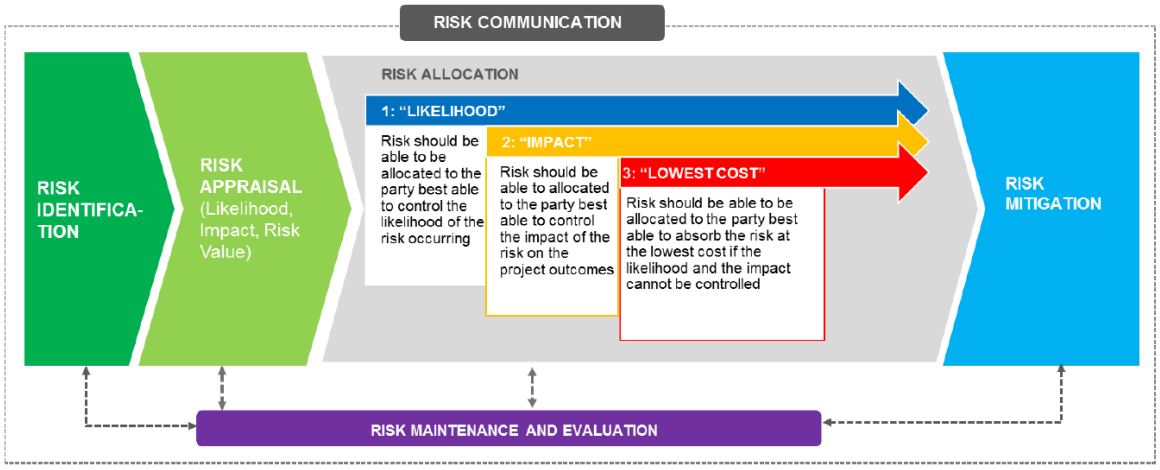
(1) Clear mechanism to decide risk allocation: sub-independent variables (3-1)

According to interviews with the BPJT and the IIGF, it was understood that there is a clear mechanism for deciding the risk allocation of the PPP projects in all the sectors in Indonesia. The risk allocation is defined clearly in the PPP agreement between the GCA and the private company. However, the way to allocate the risks between the public and the

private sector is discussed from the beginning stage of the project formulation (the PPP planning stage and the PPP preparation stage before the prequalification). According to the IIGF, the decision-making process on the risk allocation proceeds along with the discussion on the government guarantee from the IIGF as the discussions affect each other.

The PPP projects that require government guarantee, which is now standard in the toll road sector, have to follow the risk allocation principle prepared by the IIGF. The risk allocation principle applied to the PPP projects in Indonesia is, as **Fig 20** describes, that risk should be allocated to the party best able to control 1) the likelihood of the risk, 2) the impact of the risk, and 3) the risk at the lowest cost (in case the likelihood and impact of the risk cannot be controlled) in order to achieve the maxim value for the money with the most efficient risk allocation. For risks difficult to avoid/mitigate, such as a *force majeure* event, the IIGF suggests that these risks be shared between the public and the private sectors. This principle is highly appreciated because it is completely in line with the theory of risk allocation of the PPP project suggested by a number of literatures. It should be noted that the IIGF recommends not only sharing the risk between the public (the GCA) and the private (the private company), but also mitigating the risk by utilising risk mitigation countermeasures (i.e. new technology to minimise the amount of land necessary for construction works; derivatives to hedge increase exchange/interest rate; the government guarantee and financial support; and so on).

Figure 20: Risk Allocation Flow with its Principle



Source: IIGF (2017a, p37)

In order for the GCAs to formulate the risk allocation of their project effectively and efficiently, the IIGF prepares the Risk Allocation Guideline based on its risk allocation principle. The guideline defines models of the risk allocation in all the infrastructure sectors, including the toll road sector, in detail. According to the IIGF, the risk allocation models are periodically revised with the related stakeholders to make the PPP project more realistic and attract more private investors. Based on the risk allocation models defined in the Risk Allocation Guideline, **Table 15** summarises the basic risk share in the PPP toll road project in Indonesia. As for site risk, both the public and the private sectors bear this risk. It has been noted that the risk of land acquisition, which is one of the most problematic issues in the project implementation, is borne by the public. Risks related to project implementation, such as design, construction, and commissioning risk, sponsor risk, financial risk, and operation risk are essentially borne by the private sector with only government payment risk (i.e.

disbursement of VGF and refund of the land bailout fund) is covered by the public. On the other hand, risks related to the government task such as network connectivity risk, interface risk, and political risks are borne by the public. Regarding revenue risk, the public and private sectors share the risk. Under the BOT/S-BOT scheme, the demand risk is basically borne by the private sector. However, the demand risk of the first 5 years (the ramp-up period) can be hedged by the government fund with repayment obligation in the future if the public and the private parties agree. Under the BOT with availability scheme, the demand risk is completely covered by the public. For tariff risk, the incorrect estimation of the initial/future tariff is the responsibility of the private sector, while timely and appropriate tariff adjustment, which is made biennially as long as the toll fulfil a certain service level, is the responsibility of the public.

Table 15: Risk Allocation in the PPP Toll Road Project in Indonesia

	Name of Risk Category		Name of Risk	Public	Private
1	Site risk	1-1	Land Acquisition risk (including cost overrun)	X	
		1-2	Disruption of the community conveniences due to construction (i.e. community access, health, living environment, and so on)		X
		1-3	Landsite Unsuitability risk (i.e. due to contamination/ pollution of site)	X	X
		1-4	Risk related to an unexpected location (i.e. delay/ route change due to unforeseen utilities/ soil condition)	X	X
2	Design, construction and commissioning risk	2-1	Planning risk		X
		2-2	Design risk		X
		2-3	Completion risk		X
		2-4	Cost overrun risk		X
		2-5	Commissioning risk (i.e. fail of commissioning result/ delay of commissioning date)		X
3	Sponsor risk	3	Sponsor risk(default of project company, project sponsor, and lender)		X
4	Financial risk	4-1	Financing risk (Financer not provide funding)		X
		4-2	Financial parameter risk ((i.e. change of interest/exchange rate)		X
		4-3	Insurance risk		X
		4-4	Government payment risk (i.e. disbursement of VGF and Refund of land bailout fund)	X	
5	Operating risk	5-1	Maintenance risk		X
		5-2	Latent defect risk		X
		5-3	Technology risk		X
		5-4	Utilities risk		X
		5-5	Resource or input risk		X
		5-6	Industrial relations risk		X
6	Revenue risk	6-1	Demand risk	(X)	X
		6-2	Tariff risk	X	X
7	Network connectivity risk	7-1	Connectivity with the existing network risk	X	
		7-2	Network development risk	X	
		7-3	Competing facility/competitor risk	X	
8	Interface risk	8	Interface risk (i.e. Disparity of time and quality of works by government)	X	(X)
9	Political Risk	9-1	Transferability risk (i.e. currency inconvertibility/ non-transfer)	X	
		9-2	Expropriation risk	X	
		9-3	Change in Law	X	
		9-4	Regulatory consent risk (i.e. fail/delay of obtaining necessary approval)	X	
		9-5	General change in law risk (including Tax rate)		X
10	Force majeure risk	10	Force majeure risk (i.e. natural disaster and weather)	X	X
11	Asset ownership risk	11	Asset ownership risk (i.e. asset loss due to fire)		X

Source: prepared by the author based on the IIGF (2017a, p64)

For PPP toll road projects in Indonesia, the risk allocation model suggested by the IIGF is generally utilised. According to the BPJT, BPJT also has the basic risk allocation model (matrix) for the PPP toll road project and shares it with the PPP-related institutions. It should be noted that the BPJT's risk allocation model is completely in line with the IIGF's. From interviews with various institutions, it was observed that the PPP-related institutions,

including the financial institutions, regard the BPJT's risk allocation model as a given (fixed) thing, which means there is no room for delay of determination on risk allocation due to prolonged discussion. Indeed, there was no issue in the process of determination of the risk allocation for the 18 PPP toll road projects, according to the BPJT as the risk allocations simply follow the IIGF's (BPJT's) risk allocation model. Moreover, beyond a timely determination of the risk allocation, appropriate risk allocation led by the IIGF with the government guarantee facility is deemed to positively affect the market of the PPP toll road sector. This point is analysed in detail in the following sub-section.

(2) Government's/governmental agency's support facility for taking critical risks: sub-independent variables (3-2)

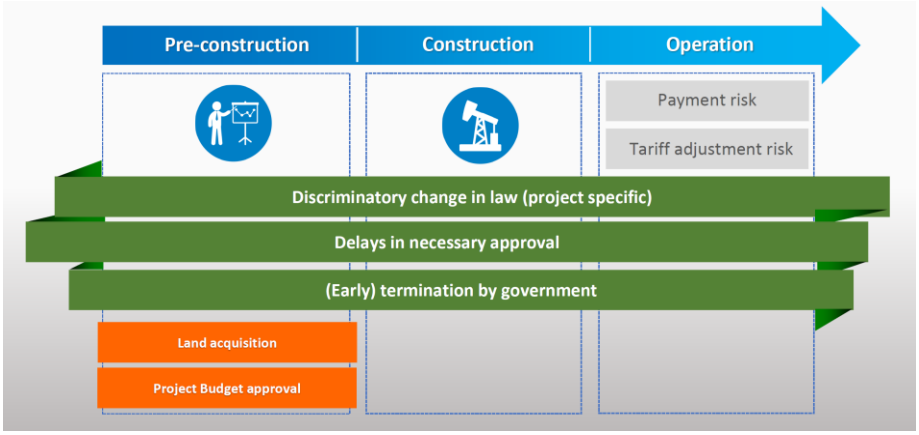
In order to realise the PPP infrastructure projects more by mitigating the risks of the projects, in Indonesia, there is the government agency's support facility to provide the government guarantee to the private companies. As **Table 10** shows, the IIGF was established in 2009 as a single window institution (SOE) owned by the MoF and providing the government guarantee for the PPP infrastructure projects, and the PPP-related institutions, such as the GCAs, the toll road companies, and the financial institutions now can enjoy the guarantees from the IIGF.

The establishment of the IIGF has three other purposes besides simply providing the guarantee. The first purpose is "to improve good governance, consistency, and transparency in guarantee provision" (IIGF, 2018, p5). According to the MoF, the MoF provided the government guarantee to the PPP projects before the establishment of the IIGF. However, the administration procedures were disorganised and unclear; therefore, it generally took a longer time to conclude the guarantee agreement. The second purpose of the establishment of the IIGF is "to minimize the possibility of sudden shock to the state budget and to ring-fence the government's contingent liability" (IIGF, 2018, p5). This off-balance sheet policy also enables the IIGF to provide the appropriate guarantee without considering the state's balance sheet. The third purpose is "(to) improve the quality of creditworthiness, especially the bankability of PPP projects in the field of infrastructure" (IIGF, 2018, p5). According to the BPJT, the PPP toll road projects in Indonesia are generally financed with 70% debt and 30% equity; this means the private toll road companies have to acquire loans in order to finance the majority of the project cost. In Indonesia, the semi-project finance scheme (see **Sub-section 4.5 (1)** for the detail) is applied to the PPP toll road projects. Therefore, the profitability and cash flow of the projects are extremely important for the banks to decide the conditions of the loan. Toll road projects naturally have huge investment costs (i.e. hundreds of million USD) as well as a lengthy project period (i.e. 30-40 years). They also have many uncertainties, for example, the volume of the traffic. Due to the high-risk premium, the conditions of the loan tend to be severe. The IIGF's government guarantee, according to the IIF and the SMI, is a facility that enables the banks to provide the loans with more concessional conditions by releasing risks. Availability of the concessional loans is considered to confer various benefits on the PPP projects. It is expected that more private investors are attracted to participate in the project, which leads to more competitive bidding and the projects can achieve higher quality, lower prices, and greater efficiency. In addition, the market of the sectors would expand further because the private companies without strong financial conditions can also acquire the loan thanks to the guarantee.

In principle, the IIGF's guarantee covers the GCA's financial obligation to the private companies from the pre-construction stage to the operation stage, as **Figure 21** shows. It should be noted that the risks borne by the public, which **Table 15** defines (the IIGF's risk allocation matrix), are basically covered by the IIGF's guarantee. According to the IIGF, in case the GCA fails to make some payments stipulated in the PPP contract to the private

company, the IIGF can pay on behalf of the GCA first, and the IIGF will be reimbursed by the GCA based on the recourse agreement between the IIGF and the GCA. For receiving this benefit, the concessionaires (private companies) have to pay the upfront fee (0.33%-0.67% of the debut) and the semi-annual recurring fee (0.76%-1.83% of the debt) (Fadil Arif Nadia, 2016).

Figure 21: Coverage of the IIGF's Guarantee



Source: the IIGF (2017b, p10)

The IIGF's guarantee provides coverage for risks in the toll road sector. These risks include land acquisition risk, tariff adjustment risk, payment risk in the ramp up period, political risk (including project budget approval, discriminatory changes in the law, and delays in necessary approval), termination, and *force majeure*. The guarantee is summarised, based on the IIGF (2016) and Fadil (2016) as follows: First, in case the land acquisition process is delayed more than 6 months and the private company cannot implement the construction works in a timely manner, compensation is paid to the private company in cash. The amount of the compensation is determined by considering any delay period, inflations, and construction costs. In case the State Asset Management Agency (BLU LMAN) cannot provide the land acquisition fees on time, bailout of the payment is provided by the IIGF. As for the tariff adjustment, in case it is delayed more than 6 months although the toll private company fulfils the necessary requirement, compensation is paid to the private company in cash. The amount of the compensation is determined by considering tariff differences and traffic volume during the delay period. As for payment risk during the ramp up period, in case the toll revenue is below 70%-80% of the repayment of the interest during the first 5 years of the operation period, the IIGF provides the limited liquidity fund to fill the gap. Regarding political risk, in case the impact continues for more than 6 months, cash compensation is provided to maintain the original IRR. Even if the impact is short (less than 6 months), cash compensation considering the opportunity profit is provided. As for the event of termination and *force majeure*, the toll private companies are compensated for 100% and 50% of the equity and the debt, respectively.

With regard to the detailed conditions of the guarantee (i.e. the sealing of the amount of the guarantee and the validity period), they are determined through the IIGF's appraisal regarding the financial, technical, legal, and environmental aspects. According to the IIGF, co-guarantee with the MoF is provided in case the project cost is too great for the IIGF to cover the risks by itself due to the limitation of the financial capability. In the case of co-guarantee, the IIGF is still a single window institution when it comes to the process of determination of the government guarantee, and it communicates with the related stakeholders and makes decisions by itself. According to the BPJT, as with the determination

process of the risk allocation, that of the government guarantee is already also standardised through a series of toll projects, and there was/is no issue of the process so far.

(3) Risk allocation in the 18 PPP toll road projects (case study projects)

When it comes to the 18 PPP toll road projects, it can be understood that, based on the interviews with the BPJT, no issue occurred in the determination processes of both risk allocation and government guarantee. As mentioned in **Section 4.3**, the PPP books and newspapers also show that the 18 PPP toll road projects were on schedule in their transaction processes, which involved the appraisal and discussion of risk allocation and government guarantee. It is true that there was no issue in the projects in terms of time. However, similarities/differences in the coverage of the guarantee among the projects, as well as the level of achievement of the original purposes of the guarantee; achieving more competitive bidding and more expansion of the market (variety of the investors) are also examined here in order to understand the impact of the government guarantee.

For the purpose of analysing the impact of the government guarantee, **Table 16** summarises information on the guarantee provided, the number of bidders, and the winner of the bidding regarding the 18 PPP toll road projects based on the BAPPENAS (2017a), the IIGF (2017b), and interviews with the BPJT. First it is understood that all the PPP toll road projects in Indonesia utilise the government guarantee. Almost all the guarantees able to be provided in accordance with a regulation (guarantee for land acquisition, demand during the ramp up period, tariff adjustment, politics, and termination) are applied to all the projects. According to the BPJT and SMI, the guarantee for demand during the ramp up period is applied only for those projects in which traffic demand is difficult to predict due to lack of information. These types of projects are located mostly in non-Jawa Ireland, and there is insufficient historical data on the traffic volume around the project area. The guarantee of land acquisition is applied to all the projects with high traffic volume except (5) the Jakarta-Cikampek II Elevated Toll Road that does not require the land for the project because of its elevated design. As mentioned in **Section 4.2**, land acquisition is one of the major issues that often emerges and is critical for the construction of the toll road projects. Consequently, this guarantee is deemed extremely important for all the stakeholders of the projects. It should also be noted that a guarantee of termination is provided to all the projects and the amounts of the guarantees are large enough to cover the entire construction cost and/or the entire project cost (including the land acquisition cost and the operation and maintenance cost). According to the SMI, the toll road companies as well as the financial institutions are the most afraid of sudden termination because all the paid cost becomes useless and no profit results in that case. Consequently, this guarantee of the termination risks with high amount is thought to heavily attract the private companies.

Table 16: Guarantee Information

	Name of Project with project amount	Risks covered by the guarantee	Main Guarantor	Number of bidders	Winner of the bidding
1	Manado-Bitung Toll Road (investment cost: IDR 5.12 Tn; construction cost: IDR 3.27 Tn)	Total guarantee amount: IDR 5.1 Tn Guarantee Period: 15 Years Main risks covered: • Land Acquisition (IDR 896 Bn) • Ramp up period (IDR 375 Bn) • Tariff adjustment (IDR 200 Bn) • Political • Termination (IDR 3.2 Tn)	IIGF	1	1. PT Jasa Marga (SOE)(65%) 2. PT WijayaKarya (SOE)(20%) 3. PT Pembangunan Perumahan (SOE) (15%)
2	Balikpapan-Samarinda Toll Road (investment cost: IDR 9.97 Tn; construction cost: 6.54 Tn)	Total guarantee amount: IDR 10 Tn Guarantee Period: 15 Years Main risks covered: • Land acquisition (IDR 2.1 Tn) • Ramp up period (IDR 241 Bn) • Tariff adjustment (IDR 200 Bn) • Political • Termination (IDR 6.1 T)	IIGF	2	1. PT Jasa Marga (SOE) (55%) 2. PT WijayaKarya(SOE) 3. (15%) 3. PT PembangunanPerumahan (SOE) (15%) 4. PT BangunTjiptaSarana (15%)
3	Pandaan-Malang Toll Road (investment cost: IDR 5.97 Tn; construction cost: 3.81 Tn)	Total guarantee amount: IDR 6 Tn Guarantee Period: 15 Years Main risks covered: • Land acquisition (IDR 1.5 Tn) • Ramp up period (IDR 81 Bn) • Tariff adjustment (IDR 200 Bn) • Political • Termination (IDR 5.2 Tn)	IIGF	4	1. PT JasaMarga (SOE) Tbk. (60%) 2. PT Pembangunan Perumahan (SOE) (35%) 3. PT Sarana Multi Infrastruktur (SOE) (5%)
4	Krian-Legundi-Manyar Toll Road (investment cost: IDR 12.22 Tn; construction cost: 8.4 Tn)	Total guarantee amount: IDR 9.8 Tn Guarantee Period: 15 Years Main risks covered: • Land acquisition (IDR 249 Bn) • Tariff adjustment (IDR 200 Bn) • Political Risk (IDR 400 Bn) •Termination (IDR 9 Tn)	IIGF MoF (co-guarantee)	2	1. PT Waskita Toll Road (Subsidiary of PT Waskita (SOE)) (55%) 2. PT EnergiBumi Mining (25%) 3. PT PancaWira Usaha Jawa Timur (20%)
5	Jakarta-Cikampek II Elevated Toll Road (investment cost: IDR 16.23 Tn; construction cost: 11.67 Tn)	Total guarantee amount: IDR 17.0 Tn Guarantee Period: 15 Years Main risks covered: • Tariff adjustment (IDR 200 Bn) • Political Risk (IDR 400 Bn) • Termination (IDR 16.4 Tn)	IIGF MoF (co-guarantee)	2	1. PT Jasa Marga (SOE) (80%) 2. PT RanggiSugironPerkasa (20%)
6	Batang-Semarang Toll Road (investment cost: IDR 11.05 Tn; construction cost: 7.66 Tn)	Total guarantee amount: IDR 9.8 Tn Guarantee Period: 15 Years Main risks covered: • Land acquisition (IDR 754 Bn) • Ramp up period (IDR 200 Bn) • Tariff adjustment (IDR 200 Bn) • Political Risk • Termination	IIGF	2	1. PT Jasa Marga (SOE) Tbk. (60%) 2. PT Waskita Toll Road (40%)
7	Serpong-Balaraja Toll Road (investment cost: IDR 6.04 Tn; construction cost: 2.7 Tn)	Main risks covered: • Land acquisition • Tariff adjustment • Political Risk • Termination # There is no clear available data because this project was formulated before the Presidential Regulation No.38 of 2015	MOF (IIGF doesn't cover)	2	1. BumiSerpongDamai (45%) 2. PT AstratelNusantara (25%) 3. PT TransindoKaryaInvestama (25%) 4. PT SinarUsahaMahitala (5%)
8	Cisumdawu Toll Road (investment cost: IDR 8.41 Tn; construction cost: 5.58 Tn)	Total guarantee amount: IDR 8.2 Tn Guarantee Period: 15 Years Main risks covered: • Land acquisition (IDR 1.0 Tn) • Tariff adjustment (IDR 200 Bn) • Political Risk (IDR 400 Bn) • Termination (IDR 5,8 Tn)	IIGF MoF (co-guarantee)	2	1. PT Citra Marga NusaphalaPersadaTbk (51%) 2. PT Waskita Toll Road (SOE) Tbk (15%) 3. PT PembangunanPerumahan(SOE) (14%) 4. PT BrantasAbipraya (10%) 5. PT JasaSarana (10%)
9	Serang-Panimbang Toll Road (51 km) (investment cost: USD 391.6 Mn (estimated))	Total guarantee amount: IDR 7.4 Tn Guarantee Period: 15 Years Main risks covered: • Land acquisition (IDR 1.0 Tn) • Tariff adjustment (IDR 200 Bn) • Political Risk (IDR 400 Bn) • Termination (IDR 5.83 Tn)	IIGF MoF (co-guarantee)	1	1. PT WijayaKarya (SOE) (80%) 2. PT PembangunanPerumahan(SOE) (15%) 3. PT JababekaInfrastruktur (5%)
10	Serang-Panimbang Toll			N/A	N/A

	Road (33 km) (investment cost: N/A; construction cost: N/A)				
11	Jakarta – Cikampek South Toll Road (investment cost: IDR 14.69 Tn; construction cost: IDR 8.8 Tn)	No available data	No data	1	1. PT Jasa Marga (SOE) (80%) 2. PT WiraNusantaraBumi (20%)
12	ProbolinggoBanyuwangi Toll Road (investment cost: USD 1,718.8 Million (estimated))	Total guarantee amount: USD 1.5 Bn Guarantee Period: 15 Years Main risks covered: •Land Acquisition • Tariff adjustment •Political Risk •Termination	IIGF MoF (co-guarantee)	2	1. PT JasaMarga (SOE) 2. others
13	Semarang Demak Toll Road	N/A (under preparation)			
14	Yogyabawen Toll Road	N/A (under preparation)			
15	Surabaya Madura Toll Road	N/A (only change of the concessionaire)			
16	BatuAmpar – MukaKuning – Hang Nadim Toll Road	N/A (Direct appointment)			
17	SukabumiCiranjang Toll Road	N/A (Direct appointment)			
18	Yogya Solo Toll Road	N/A (under preparation)			

Source: prepared by the author

As for the number of bidders, as mentioned in **Section 4.3**, it is understood that several private companies participated in the bidding (limited tender) in most of the projects (73%; 8 projects out of all the 11 tendered projects). Some may understand this means the provision of the government guarantee achieved more competitive bidding and further expansion of the market (variety of the investors). However, it is deemed too early to conclude this.

Winner of the bidding in **Table 16** shows that the state-owned enterprise (SOE) or the subsidiary of the SOE won the bidding in most of the projects (82%; 9 out of all the 11 tendered projects). In particular, PT JasaMarga, the SOE that has been in a dominant position in the toll road sector before[5] still has a major share in the case projects; it won 7 projects out of 11 tendered projects (64%). This might suggest only the SOEs that have huge capital and a relationship with the government can win the bidding despite the introduction of the government guarantee. Participation of new investors in the toll road sector in Indonesia is therefore still limited. During the interview, staff members of the BPJT also explained that the winners are still the same as before. On the other hand, with regard to the 2 projects that non-SOE won, (7) the Serpong-Balaraja Toll Road and (8) the Cisumdawu Toll Road, the toll road companies are formed mostly with the private companies with minimal involvement of the SOEs[6].This might be a sign there will be greater involvement of the pure private companies in the future. As evidence supported this point of view, Fadil (2016) reported that relatively small toll road companies have appreciated the government guarantee to support projects, while PT JasaMarga does not require the government guarantee. Whatever the case, it is a fact that we cannot assert the cause-and-effect relationship at this time, though it is

[5]PT Jasa Marga was established as a toll road authority of Indonesia (the BPJT plays this role now) as well as a toll road company in 1978 and developed and operated almost all the toll roads until 2004. Even after 2004, when private companies were able to participate in the projects under the BPJT, PT Jasa Marga was still in a dominant position in the toll road sector due to its abundant experience and huge capital. According to Fadil (2016), the share of PT Jasa Marga in all toll roads in Indonesia during 2004 and 2014 was 79% (15 out of 19 projects).

[6]Major shareholders of the company of (7) the Serpong-Balaraja Toll Road project are large conglomerates in Indonesia (Sinar Mas group and Astra group), while major shareholder of (8) the Cisumdawu Toll Road project is structured by the non-conglomerates company including overseas (Singapore) company.

difficult to judge from the current information whether the government guarantee contributed to broaden the variety of the investors.

(4) Section Conclusion

In this section, the independent variable of 'risk allocation between the public and private' in the PPP projects was evaluated by examining its sub-independent variables. The sub-independent variables were examined for the general PPP toll road projects in Indonesia first, and the actual situations were then confirmed for the selected 18 PPP toll road projects.

From the mechanism for deciding risk allocation, the sub-independent variable (3-1), it was apparent that there is already a clear mechanism for all the sectors, including the toll road sector, and there is no room for the projects to become delayed due to the prolongation of decision making about the risk allocation. It also turned out that the IIGF has the Risk Allocation Guideline that is basically in line with the international/theoretical standard of risk allocation. In addition, there is a rule that the GCAs have to follow the guideline for the risk allocation of the projects in order to utilise the IIGF's guarantee facility. Moreover, in the toll road sector, the BPJT already has its own risk allocation principle as a standard based on the IIGF's Risk Allocation Guideline; therefore, all the PPP toll road projects now simply follow the principle. As for the government's/governmental agency's support facility for taking critical risks, sub-independent variable (3-2), there is now the IIGF that is a single window institution for providing the guarantee for the PPP project in all the infrastructure sectors including the toll road sector. The IIGF's guarantee basically covers the BPJT's financial obligation to the toll road companies. From interviews with the financial institutions, it was apparent that the IIGF's guarantee is quite important for the toll road companies, especially non-SOE companies, to obtain loans from financial institutions, which means the guarantee contributes to the timely formulation of the projects and, moreover, might expand the market (the variety of the investors) of the toll road sector.

As for the selected 18 PPP toll road projects, **Table 17** summarises the actual situation of 'risk allocation between the public and private' in the projects using the scale (+: positive; 0: neutral; -: negative) It is noted that the clear mechanism for deciding risk allocation and the IIGF's guarantee are applied to all the tendered projects, and there is no project that was delayed due to the prolongation of the decision making regarding risk allocation and guarantee. Therefore, based on the results of the case projects, it can be judged that the mechanism for deciding risk allocation and providing the government guarantee have worked successfully so far in terms of the speed of the project formulation (the definition of success in this study). However, regarding the primary purpose of the government guarantee, more competitive bidding, and further expansion of the market (the variety of the investors), it cannot be judged whether these were achieved or not from the case projects at this time because non-SOE toll road companies (the new market entrants) won only two projects while the SOEs (traditional players) won most of the others.

Table 17: Summary of Actual Situation of Risk Allocation between the Public and Private in the 18 PPP Toll Road Projects with the Scale

	Name of Project	Risk allocation	Government guarantee	Delay associated with decision of risk allocation and guarantee	Status of the awarded toll road company
1	Manado-Bitung Toll Road	+	+	No	SOE
2	Balikpapan-Samarinda Toll Road				
3	Pandaan-Malang Toll Road				
4	Krian-Legundi-Manyar Toll Road				
5	Jakarta-Cikampek II Elevated Toll Road				
6	Batang-Semarang Toll Road				
7	Serpong-Balaraja Toll Road				Non-SOE
8	Cisumdawu Toll Road				
9	Serang-Panimbang Toll Road (51 km)				SOE
10	Serang-Panimbang Toll Road (33 km)	N/A			
11	Jakarta – Cikampek South Toll Road	+	+	No	SOE
12	Probolinggo Banyuwangi Toll Road				
13	Semarang Demak Toll Road	N/A			
14	Yogya bawen Toll Road				
15	Surabaya Madura Toll Road				
16	Batu Ampar – Muka Kuning – Hang Nadim Toll Road				
17	Sukabumi Ciranjang Toll Road				
18	Yogya Solo Toll Road				

Source: Prepared by Author

4.5 Evaluation of Financial Package

In this section, the three sub-independent variables 'mature and available financial market', 'government's/governmental agency's financial support', and 'clear procedure for structuring the financial package' are evaluated with regard to all PPP projects in Indonesia. The actual situation of the financial package in the PPP project is also confirmed by analysing the selected 18 PPP toll road projects.

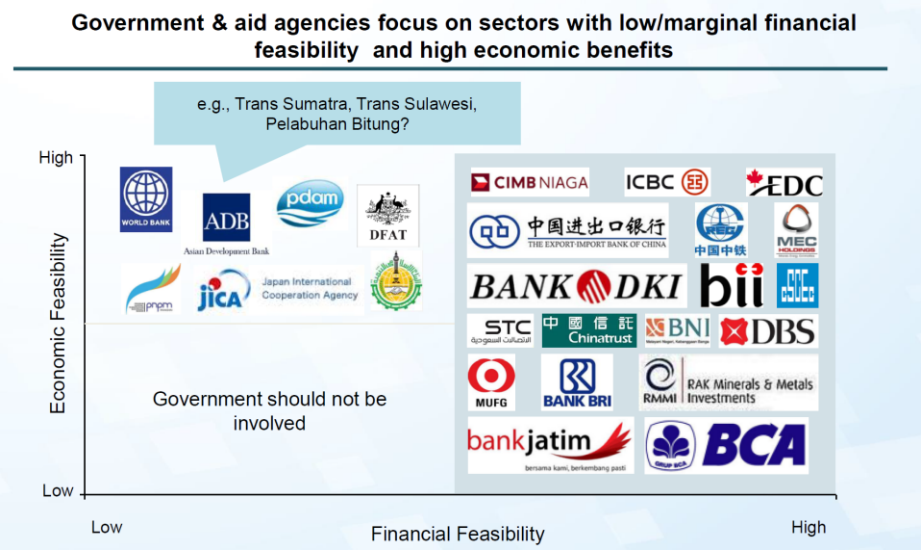
(1) Mature and available financial market: Sub-independent variables (4-1)

According to the interviews with SMI and IIF representatives, infrastructure finance has been booming, and the government policy to accelerate infrastructure development by utilising the PPP scheme has only intensified the Indonesian financial market's appetite to finance PPP infrastructure projects as long as the projects have profitability. These interviews also explained how the guarantee by the IIGF has contributed to mitigating the financial institution's hesitation to invest in the PPP projects. According to SMI (2016a), examples of which financial institutions are involved/will be involved are summarised in **Fig 22**. There are a number of commercial banks available to finance the profitable infrastructure projects such as Bank Rakyat Indonesia (BRI), Bank Mandiri, Bank Central Asia (BCA), and Bank Negara Indonesia (BNI)[7]. Moreover, overseas foreign financial institutions such as the DBS bank (Singapore), Export-Import Bank of China (CEXIM) (China), Japan Bank for International Cooperation (JBIC) (Japan), and MUFG Bank (Japan) are also available if some specific conditions are fulfilled. According to SMI, commercial banks can generally provide loans with repayment periods of 7-10 years or less; however, the ordinary project life of infrastructure projects is much longer (i.e. 30-40 years for toll road projects). With regard to projects that are not financially feasible but economically feasible, there are also a number of development financial institutions available to finance such infrastructure projects in

[7] These banks are the four biggest banks in Indonesia in terms of total assets. BRI, Bank Mandiri, and BNI are SOEs, while BCA is a private bank.

Indonesia, such as the World Bank (WB), Asian Development Bank (ADB), Department of Foreign Affairs and Trade (DFAT) of the Australian government (Australia), and Japan International Cooperation Agency (JICA) (Japan). These development financial institutions can provide concessional loans, which offer a lower rate and longer repayment than the commercial banks, to realise unprofitable projects. However, these projects then have to follow the international rules (i.e. the Environmental and Social Safeguard Policies of the World Bank and the Procurement and Consultant Employment Guidelines of the World Bank and Asian Development Bank) to enjoy the benefits.

Figure 22: Financial Institutions in the PPP Sectors in Indonesia

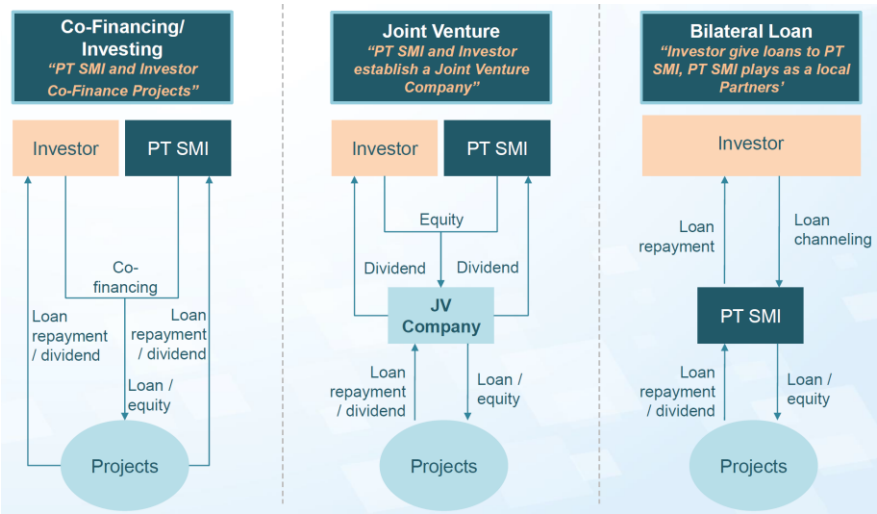


Source: SMI (2016a, p40)

In addition to the above-mentioned financial institutions, there is a relatively new development financial institution (non-bank) now active in the PPP infrastructure financial market, namely SMI. SMI is a SOE owned by the MoF. SMI was established in 2009 as a catalyst institution to accelerate infrastructure development. According to SMI, SMI is just a catalyst; therefore SMI can provide its loans/investments in cases when the commercial banks have a limitation that prevents them from financing the project by themselves. Per SMI's policy, SMI takes the initiative for non-profitable projects such as the Trans Sumatra Toll road projects, but just follows the commercial banks' lead for profitable projects. With regard to finance and basic scheme, in addition to the co-financing/investing scheme, SMI can establish a joint venture for projects (i.e. a special purpose vehicle [SPV]) with other investors and also provide other loans/investments by utilising the loans/investments from the investors (referred to as two-step financing through SMI) as summarised in **Fig 23**. Regarding the conditions of the loan, SMI can provide more concessional loans than the commercial banks (generally, SMI's grace period is up to 30 years, and its interest rate is 50-100 bp lower the commercial banks). However, SMI considers the conditions carefully through discussion with the commercial banks so as not to crowd out the commercial banks from the market. The SMI representatives also emphasised the ability of SMI's innovative financial and investment products to fill the gap of capacity of the commercial banks. These products include (1) long-term (more than 5 years) products, such as a senior loan, subordinated loan, mezzanine finance, and equity investment, as well as (2) short-term (less than 5 years) products, such as bridging finance and cash deficiency support (CDS).

Moreover, SMI can issue both bonds for institutional investors and private equity/infrastructure funds to finance infrastructure projects by utilising the fund.

Figure 23: Finance and Investment Scheme



Source: SMI (2016c, p31)

The government of Indonesia established, in addition to SMI, IIF in 2009. IIF is a private financial institution dedicated to infrastructure development in Indonesia. Different from SMI, IIF finances/invests only in profitable projects, just as the commercial banks do. However, IIF plays an important role in leading these infrastructure projects, because there was no such dedicated financial institution in Indonesia before. The shareholders of IIF are SMI (34.29%), ADB (16.94%), IFC[8] (16.94%), DEG[9] (16.94%), and SMBC[10] (14.89%), so IIF has a dual nature that incorporates governmental elements and elements of international organisations. According to IIF, IIF's portfolio is still limited since IIF often faces situations where it cannot finance/invest in projects because the projects don't align with the international rules of the international shareholders, especially the Environmental and Social Safeguard Policies of the World Bank.

With regard to finance schemes in the toll road sector, it should be noted that the so-called semi-project finance scheme is utilised in Indonesia. According to SMI, none of the financial institutions in Indonesia, including SMI, can take the demanded risk. Therefore, they provide loans on a basis of full-recourse project finance, which means the sponsors have an obligation to repay the loan in the case that the toll revenue is insufficient to repay the loan. SMI explained there are two ways to compensate the financial gap depending on the situation. The first method of compensation is equity injection to the SPV, and the other is a shareholder loan. This semi-project finance scheme is different from the standard finance scheme for PPP projects (non-recourse/limited-recourse project finance) in other countries. Therefore, it is deemed that government financial support to mitigate the demand risk is necessary for further development of the financial market of the PPP toll road projects in Indonesia.

Another feature related to the finance aspect of toll road projects in Indonesia is the contractor pre-finance (CPF) system mentioned earlier. The CPF system was introduced to

[8] International Finance Corporation of World Bank Group

[9] German Investment Corporation of KfW (German government-owned development bank) group

[10] Sumitomo Mitsui Banking Corporation (Japanese private bank)

accelerate the project implementation. Under the system, contractors can start construction works by utilising their own funds and are reimbursed by the toll road company. According to BPJT, the repayment period for the toll road company to repay the contractors is approximately 5 years with a grace period of a few years, though it can vary depending on the project. The toll fee is utilised for the repayment, but the toll road company has to find another finance source if the toll fee is not enough. The CPF system is very important in terms of speed of project formulation (up to financial close), because the commercial banks tend to suspend financial close until the land acquisition process reaches a certain level[11]. Without the CPF system, there is a possibility that financial close will take a long time, depending on the land acquisition situation, after the PPP agreement with the awarded concessionaire. As for the CPF system, apprehension in the institutions also exists; BPJT explained that the CPF system is a relatively new system, and therefore nobody is sure at this moment whether the private toll road companies can acquire the finance (loans) from the banks in the future. In addition, there is another issue in the possibility that the pure private companies may find it increasingly difficult to participate in the toll road projects, because the toll road companies and construction companies have to have enough financial capability to follow the CPF system.

(2) Government's financial support: Sub-independent variables (4-2)

In the Indonesian infrastructure sector, several government's financial support has been introduced. First, viability gap funding (VGF) is the financial support for capital investment of the project and is available in case the estimated profit is not enough for the private company to implement the project. According to the MoF, VGF's appropriateness and necessity are examined during the preparation stage. The maximum amount of VGF to be provided is determined by announcing a proposal request during the tender process. VGF is provided in cash during the construction and/or at the beginning of the operation. However, according to BPJT and the other PPP-related institutions, VGF's scheme has never been utilised and S-BOT scheme (partial construction support) has been applied for the Indonesian road sector. BPJT explained that MoF's administration of VGF scheme took a long time and that the available amount of VGF was lower than GCA's expectations. Therefore, BPJT doesn't want to utilise the VGF scheme. The first project to apply VGF was a Umbulan Water Supply project and took over 3 years to determine the VGF and the project's structure during the tender process (SMI, 2017). Bandar Lampung Water Supply project, another VGF applied project, was suspended for approximately 5 years because no private company bid on it due to its low amount of VGF.

In terms of financial effects on the private company, the S-BOT scheme is the same as VGF. However, it has a different meaning from the viewpoint of administration and technical aspects. For BPJT, applying the S-BOT scheme means that BPJT has to finance the partial construction on its own while MoF pays for the VGF. A critical issue is that the Ministry of Public Works and Housing (MPWH) prefers to use its budget for non-toll roads, therefore obtaining financial resources for the partial construction of toll roads. For most recent S-BOT projects, BPJT has utilised loans from China (CEXIM) since the CEXIM has an appetite to finance the project. According to BPJT, the partial construction of the S-BOT scheme relies on the CEXIM loan and intends to expand its alternatives to the other international financial institutions such as WB, ADB, Asian Infrastructure Investment Bank (AIIB), Islamic Development Bank (IDB), and JICA for more sustainability. On the other hand, for the toll

[11] In most case, land acquisition in at least one section (one toll gate to another toll gate) is required for financial close, according to BPJT.

road companies, there is an issue of interface risk (Mahani, Tamin, et al., 2017). The toll road companies have to operate and maintain the parts constructed by the other contractors, at the risk of failure. However, according to Mahani, Tamin, et al. (2017), the state-owned toll road companies prefer the S-BOT scheme, probably due to their suspicion against VGF's payment. Therefore, the public and the private sectors agree to use the S-BOT scheme instead of the VGF.

The second financial support is an available payment scheme in which the government pays a certain fee in exchange for toll road companies' services (construction, operation, and maintenance). The availability payment scheme is excellent for both the public and the private in the toll road sector. From a public viewpoint, the BPJT can secure quality of the toll roads' construction, operation, and maintenance because availability payment is provided only if the service requirement mentioned in the contract is fulfilled. On the other hand, from a private viewpoint, the toll road company does not need to bear the demand/revenue risk that is one of the most serious risks for profitability. However, despite these benefits, the availability payment scheme has never been utilised in the toll road sector. According to BPJT and MoF, the financial sources for availability payment have to be arranged by the MPWH (BPJT), yet this is against MPWH policy and the state budget is utilised only for the non-toll roads; making it difficult to use in the toll road sector. In Indonesia, only one project applied the availability payment scheme so far: Palapa Ring project (ICT sector), which uses the special unused funds (Universal Service Obligation (USO) Fund[12]).

The third financial support is, though this is only for the toll road sectors, the guarantee for the revenue during the ramp-up period (first 5 years of the operation period) mentioned in **Section 4.4**. This guarantee is applied only to the toll roads that have a revenue (traffic demand) that is difficult to predict. At the beginning stage of the project, this guarantee is helpful to maintain certain level of cash flow (**Section 4.4)**.

In Indonesia, there are no financial supports such as shadow-toll payment, payment adjustment mechanism for stable revenue, and present value of revenue (PVR) contracts that allow the concession period's extension to secure the expected profit level. Based on the information from SMI, the revenue risk has to be borne more by the public to promote the private company's participation. On the other hand, the financial source issue must occur when the government's compensation of the revenue to the toll road companies is discussed.

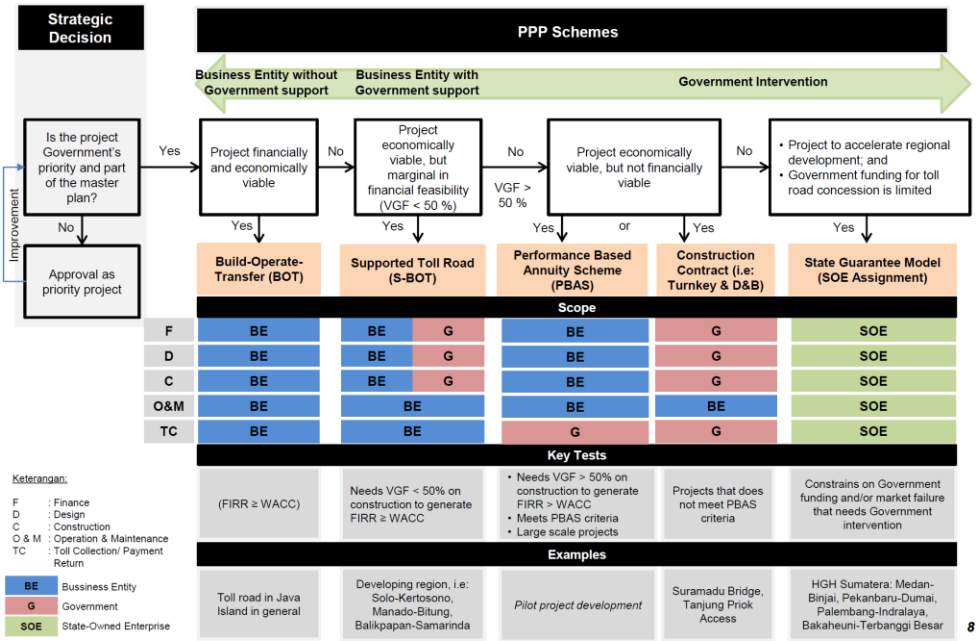
(3) Clear procedure for structuring the financial package: sub-independent variables (4-3)

To structure the PPP's financial package for the infrastructure projects, through the interviews it was proved that there is clear procedure in Indonesia. According to the BPJT, the procedure can be summarised in **Fig 24**. Basically, the financial package is systematically determined based on the projects' profitability. First, the financially feasible projects (Financial Internal Return of Rate (FIRR) is bigger than Weighted Average Cost of Capital (WACC)) are delivered in the BOT scheme. If the projects are not financially feasible (FIRR is less than WACC) but their financial condition can be improved with government support (less than 50% of the project amount), making FIRR more than WACC, the S-BOT scheme is applied. If the project's profitability is much worse, or the government's support necessary to maintain the financial condition is more than 50% of the project amount, the BOT with

[12] USO Fund was funded in 2005 to implement the telecommunication infrastructure projects to solve the gap in the telecommunication infrastructures between the urban areas and the local areas of the country (i.e. provision of telephone and internet service to the remote areas). All the telecommunication operators in Indonesia are obliged to pay 1.25% of the gross revenue per a year.

availability payment scheme or the conventional public construction scheme is applied. As for the projects that the government cannot provide financial support because of their size and low profitability but that are important for regional development, the SOE is directly appointed as the project's concessioner and the SOE is obliged to finance the operation and maintenance (i.e. Trans Sumatra Toll Road projects). According to BAPPENAS and BPJT, projects under this appointment scheme are regarded not as a PPP project but as a public project because the SOE is one of the public entities.

Figure 24: Selection Criteria of Financial Schemes of PPP Toll Road Projects

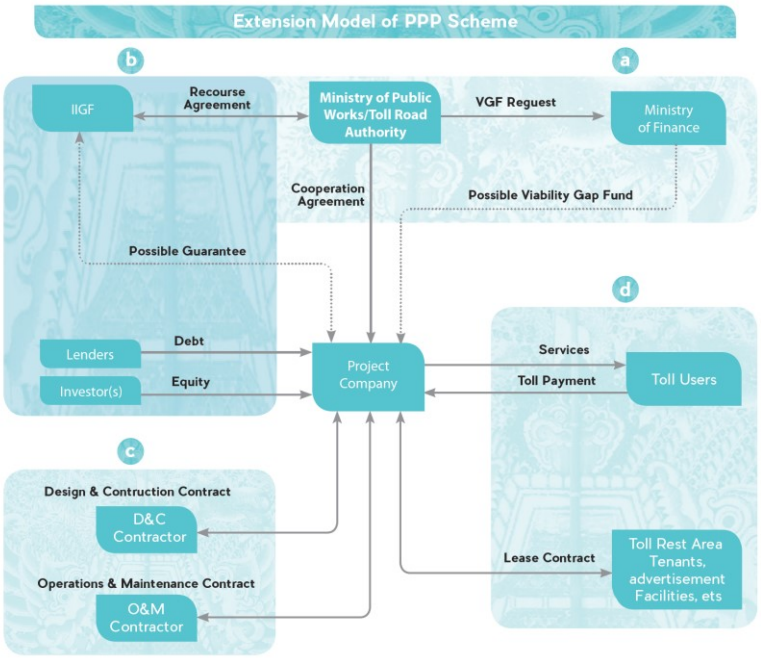


Source: BPJT (2015, p8)

According to interviews with PPP-related institutions, it was observed that all the institutions understand these criteria well. However, there is a reality that the availability payment scheme has never been utilised due to the MPWH policy that provides its budget with non-toll roads. Recently, the conventional public construction project scheme is also not utilised for the same reason. Instead, the S-BOT scheme or the direct appointment scheme are used for the projects that are not financially feasible. This ambiguous criteria use among the S-BOT scheme, the BOT with availability payment scheme, the conventional public construction scheme, and the direct appointment scheme could make the PPP financial scheme's administration and selection complicated. The direct appointment scheme, which is a recently major scheme due to the Trans Sumatra Toll Road projects, can utilise finance sources from the financial market, even though it is a public project. According to Hutama Karya (SOE for Trans Sumatra Toll Road projects) and SMI, Hutama Karya is guaranteed by the MoF for projects' payment obligations, therefore financial institutions such as SMI and other commercial banks can securely provide loans/investments to the projects.

The relationship and structure of the related institutions in the PPP toll road projects are summarised in **Fig 25**. In Indonesia, all the PPP toll road projects basically have this structure regardless of their finance schemes; there is no need to consider the structure on a case-by-case basis. According to interviews, it was observed that this structure is well understood among the stakeholders in the sectors, avoiding confusion when structuring the financial package. It should be noted that the VGF scheme is not utilised in reality, therefore the MoF's involvement regarding the VGF ((a) in **Fig 25**) is negligible.

Figure 25: Stakeholder's Structure in PPP Toll Road Project



Source: SMI (2016b, p49)

(4) Financial package in the 18 PPP toll road projects (case study projects)

The 18 case study PPP toll road projects' applied financial packages are summarised in **Table 18** based on interviews to BPJT, SMI, and IIGF. As for the finance scheme, it can be confirmed that all the projects apply semi-project finance, in which toll companies have ultimate responsibility to repay the loans. As mentioned earlier, the financial institutions cannot risk the toll road projects, therefore only the semi-project finance is utilised.

Table 18: Financial Packages of 18 PPP Toll Road Projects (Case Study Projects)

	Name of Project with project amount	Finance scheme	Financer	Financial support	Change of structuring financial package	Delay related to structuring financial package
1	Manado-Bitung Toll Road	Semi-project finance	BNI, BCA, Bank Mandiri, and SMI	- Partial construction (S-BOT) - Guarantee for the revenue during the ramp-up period	Change from VGF scheme to S-BOT scheme	yes
2	Balikpapan-Samarinda Toll Road		Financial close through Contractor Pre-Financing (CPF)	- Partial construction (S-BOT) - Guarantee for the revenue during the ramp-up period	No	No
3	Pandaan-Malang Toll Road		BNI, BCA, and Bank Mandiri SMI (as equity investor)	Guarantee for the revenue during the ramp-up period	No	No
4	Krian-Legundi-Manyar Toll Road		Financial close through Contractor Pre-Financing (CPF)	No	No	No
5	Jakarta-Cikampek II Elevated Toll Road		Financial close through Contractor Pre-Financing (CPF)	No	No	No
6	Batang-Semarang Toll Road		Financial close through Contractor Pre-Financing (CPF)	Guarantee for the revenue during the ramp-up period	No	No

7	Serpong-Balaraja Toll Road		Bank Mandiri, Bank BNI and SMI	No	No	No
8	Cisumdawu Toll Road		No Data	Partial construction (S-BOT)	No	No
9	Serang-Panimbang Toll Road (51 km)		Financial close through Contractor Pre-Financing (CPF)	No	Change from AP scheme to S-BOT scheme	No
10	Serang-Panimbang Toll Road (33 km)	TBD	TBD	Partial construction (S-BOT)		Yes
11	Jakarta – Cikampek South Toll Road	Semi-project finance	BNI, BCA, and Bank Mandiri	No	No	No
12	Probolinggo Banyuwangi Toll Road		Financial close through Contractor Pre-Financing (CPF)	No	No	No
13	Semarang Demak Toll Road	N/A (under preparation)				
14	Yogya bawen Toll Road	N/A (under preparation)				
15	Surabaya Madura Toll Road	N/A (only change of the concessionaire)				
16	Batu Ampar – Muka Kuning – Hang Nadim Toll Road	N/A (Direct appointment)				
17	Sukabumi Ciranjang Toll Road	N/A (Direct appointment)				
18	Yogya Solo Toll Road	N/A (under preparation)				

Source: prepared by Author

As for the financer, (1) Manado-Bitung Toll Road project, (3) Pandaan-Malang Toll Road project, (7) Serpong-Balaraja Toll Road project, and (11) Jakarta – Cikampek South Toll Road project reached financial close with syndicate loans from the four biggest commercial banks in Indonesia (BRI, Bank Mandiri, BCA, and BNI) and SMI. According to BPJT, there was no delay caused by the loan agreements' conclusion after the concessionaire awarded these projects. BPJT explained that these projects are relatively profitable, and therefore it was easy for the toll road companies to acquire the loans since the banks did not have to worry about the toll road companies defaulting due to lack of revenues. SMI is involved in all these projects and explained its participation as a catalyst to realise these projects; SMI's participation provides the projects with a kind of certification showing that the projects fulfil certain qualities: financial, technical, environmental. According to SMI, its participation as the equity investor like in the (3) Pandaan-Malang Toll Road project has a big positive impact for the financial institutions providing their loans. It is also understood that more than half of the projects (6 projects out of 10 financially closed projects) apply the Contractor Pre-Financing (CPF) system. The CPF system allows construction companies to commence construction works using their own fund before concluding loan agreements with financial institutions. Later, the toll road companies will repay the construction companies. Therefore, financial close under the CPF scheme is achieved when the CPF agreement is concluded, when the project no longer has to wait for loan agreement with financial institutions.

Regarding financial support, (1) Manado-Bitung Toll Road project, (2) Balikpapan-Samarinda Toll Road project, (3) Pandaan-Malang Toll Road project, (6) Batang-Semarang Toll Road project, and (8) Cisumdawu Toll Road projects enjoy the partial construction support (S-BOT scheme) and/or guarantee for the revenue during the ramp-up period. As mentioned in **Sub-section 4.4 (2)** and **Sub-section 4.4 (3)**, these projects are originally less profitable and/or their revenue prediction (traffic volume) is difficult to be estimated. According to BPJT and IIGF, there was no issue during structuring the S-BOT scheme and the IIGF's guarantee in the 18 PPP toll road projects since necessary administrative procedures are already developed well.

The interviews proved that there were changes in financial packages due to the financial schemes' ambiguous use of criteria in (1) Manado-Bitung Toll Road project and (9, 10) Serang-Panimbang Toll Road project, which caused a delay in the financial package structuring. The former project was supposed to apply the VGF scheme first, yet changed to

the S-BOT scheme. The latter project changed its financial scheme from the availability payment scheme to the S-BOT scheme because the MPWH couldn't allocate its budget for the continuous payment.

(5) Section Conclusion

In this section, the independent variables for 'financial packages' in the PPP projects were evaluated by examining its sub-independent variables. The sub-independent variables were examined for the general PPP toll road projects in Indonesia first, and the actual situations were then confirmed for the selected 18 PPP toll road projects.

As for mature and available financial market in Indonesia, sub-independent variables (4-1) appeared in a number of private financial institutions that can finance the PPP infrastructure projects, including toll road projects and international or bilateral development financial institutions. In addition, the government's financial institutions, namely SMI and IIF, now exist in Indonesia. SMI plays a catalyst role to make the project bankable by filling the financial gap that other financial institutions cannot. The following financial schemes proved to be used in the Indonesian toll road sector: the semi-project finance scheme in which the sponsor has the ultimate responsibility of repaying the loans; and the contractor pre-finance (CPF) scheme in which the contractors can start construction works using their own funds without waiting for the loans' arrangement. As for government financial support, sub-independent variables (4-2), show that there are available supports in the toll road sector: S-BOT scheme is when the government constructs parts of the toll road as a subsidy; availability payment scheme is when the government pays certain fee in exchange for the toll road companies' services; and the IIGF's guarantee for the revenue during the ramp-up period. The other financial support schemes such as shadow-toll payment, payment adjustment mechanism for stable revenue, and present value of revenue (PVR) contracts have not yet been developed. The procedure to structure the financial package shows that there is a clear and well-structured procedure in the toll road sector that is shared with the related stakeholders. However, some projects did not follow the procedure, which caused delays in the financial package's structuring.

The actual situation of 'financial package' in the 18 PPP toll road projects is summarised with the scale (+: positive; 0: neutral; -: negative) in **Table 19**. It can be understood that projects delayed in structuring financial package only in case the procedure for structuring the financial package is not applied well. It also shows that the government's financial support has nothing to do with the delays in structuring financial package. On the other hand, there may be a correlation between the government's financial support and the wrong application of procedures to structure the financial package (this only occurred in the projects applying for government financial support), though this cannot be proved by the case projects due to a lack of data samples; the government's financial support may make the discussion more complicated due to many stakeholders which leads to irregular uses of the procedures needed to structure the financial package. If this is true, applying the government financial support is a potential risk that delays the financial package's structuring. The financial market's maturity and availability is deemed the most important condition for smooth structuring because the project cannot be financially closed without financial resources. Its importance is not seen in the case projects because they all have a positive status regarding the financial market's maturity and availability. It should be noted that 6 out of 10 case projects reached their financial close by applying the Contractor Pre-Financing (CPF) system, which is now a standard way to close. Thanks to the CPF system, the close occurred having yet acquired the loans. Therefore, there is a potential risk in the Indonesian PPP toll road sector; companies take a long time to acquire loans or cannot acquire any loans

in the future, although for now there are no visible issues nor delays financial package structuring.

Table 19: Actual Situation Summary: Structuring Financial Packages in the 18 PPP Toll Road Projects with the Scale

<table>
<tr><th></th><th>Name of Project</th><th>Financial market availability and maturity</th><th>Government financial support</th><th>Procedure for structuring the financial package</th><th>Delay related to structuring financial package</th></tr>
<tr><td>1</td><td>Manado-Bitung Toll Road</td><td rowspan="12">+</td><td rowspan="2">+</td><td>-</td><td>Yes</td></tr>
<tr><td>2</td><td>Balikpapan-Samarinda Toll Road</td><td rowspan="6">+</td><td rowspan="6">No</td></tr>
<tr><td>3</td><td>Pandaan-Malang Toll Road</td><td rowspan="2">0</td></tr>
<tr><td>4</td><td>Krian-Legundi-Manyar Toll Road</td></tr>
<tr><td>5</td><td>Jakarta-Cikampek II Elevated Toll Road</td><td rowspan="3">+</td></tr>
<tr><td>6</td><td>Batang-Semarang Toll Road</td><td>+</td></tr>
<tr><td>7</td><td>Serpong-Balaraja Toll Road</td><td>0</td></tr>
<tr><td>8</td><td>Cisumdawu Toll Road</td><td>+</td><td>-</td><td>Yes</td></tr>
<tr><td>9</td><td>Serang-Panimbang Toll Road (51 km)</td><td rowspan="2">+</td><td rowspan="2">-</td><td rowspan="2">Yes</td></tr>
<tr><td>10</td><td>Serang-Panimbang Toll Road (33 km)</td></tr>
<tr><td>11</td><td>Jakarta – Cikampek South Toll Road</td><td rowspan="2">0</td><td rowspan="2">+</td><td rowspan="2">No</td></tr>
<tr><td>12</td><td>Probolinggo Banyuwangi Toll Road</td></tr>
<tr><td>13</td><td>Semarang Demak Toll Road</td><td colspan="4" rowspan="6">N/A</td></tr>
<tr><td>14</td><td>Yogya bawen Toll Road</td></tr>
<tr><td>15</td><td>Surabaya Madura Toll Road</td></tr>
<tr><td>16</td><td>Batu Ampar – Muka Kuning – Hang Nadim Toll Road</td></tr>
<tr><td>17</td><td>Sukabumi Ciranjang Toll Road</td></tr>
<tr><td>18</td><td>Yogya Solo Toll Road</td></tr>
</table>

Source: prepared by Author

4.6 Chapter Conclusion

This chapter analysed the four main independent variables for the success of the PPP toll road projects in Indonesia, considering the projects' speed of formulation; 1. appropriate government's roles and responsibilities; 2. appropriate concessionaire selection; 3. appropriate risk allocation between the public and private; and 4. sound financial package were assessed in detail for PPP toll road projects, focusing on the 18 PPP toll road case projects. The information was collected by interviewing the related institutions (primary data) and reviewing the documents provided by the institutions and literatures (secondary data) and analysed to understand each independent variable's current situation and to what extent it influenced the success or delayed the PPP toll road case projects.

Overall, the findings for the entire PPP toll road sector were summarised. First, as for the government's roles and responsibilities (independent variable 1), it was confirmed that there are favourable legal environment, system of providing government commitment, and mechanism of collecting and sharing the PPP experience. However, there are some issues in coordinating among the related stakeholders, especially between the central and local governments regarding land acquisition, and in conducting studies to provide a good PPP candidate project. Second, for the concessionaire selection (independent variable 2) and the risk allocation between the public and private (independent variable 3), there are well developed and improved tendering system with a good evaluation methodology and a clear risk allocation mechanism to apply a guarantee from the IIGF. Lastly, the financial package (independent variable 4) is within a financial market that is already mature and that has clear structuring procedures that consider the government's financial support; however, the procedure sometimes does not work properly.

Based on the interviews and the documents, the evaluation of the independent variables' actual situation in the 18 PPP toll road case projects is summarised with the scale (+: positive; 0: neutral; -: negative) in **Table 20**. It shows that most the independent variables

have a positive status in all or most projects, which means that the PPP project's critical success factors suggested by the previous research are mostly fulfilled in the PPP toll road projects in Indonesia. Especially, 8 out of 13 sub-independent variables were perfectly achieved and significantly contribute to a smooth project formulation: project commitment and information collecting and sharing (variable 1-5 and 1-6); appropriate concessionaire selection (variable 2); appropriate risk allocation between public and private (variable 3); financial market maturity and availability and government financial support (variable 4-1 and 4-2). Despite these positive factors, 9 out of 18 projects (50%) were delayed. This is apparently because of the other independent variables' negative status: appropriate government's roles and responsibilities (variable 1-1, 1-2, 1-3, and 1-4) and financial package (variable 4-3). Moreover, this suggests that the positive status in many sub-independent variables cannot cancel the negative status in the other sub-independent variables. This means that a positive status in all the sub-independent variables is required for smooth project formulation, with some exceptions[13]. The independent variables that have a negative status in the case projects are: legal environment (variable 1-1) and the central coordinating government authority and supportive government authority (variable 1-2 and 1-3) are more critical to the project's formulation delay than the provision of a good candidate project (variable 1-4) and clear procedures for financial package structuring (variable 4-3). All the projects with a negative status in the former sub-independent variables (1-1, 1-2, and 1-3) delayed the project formulation, while not all the projects with negative status in the latter sub-independent variables (1-4 and 4-3) delayed. It is difficult to formulate the projects smoothly without a stout legal framework that the stakeholders can easily follow and coordinate the land acquisition process and studies' creation. On the other hand, poor candidate projects (especially in terms of financial design) and misapplication of structuring procedures are still manageable if the government provides special treatment to accelerate the projects[14]. The legal environment is now well developed and there is little possibility for future delays to occur due to a lack of legal framework. Therefore, a project's most important success factor is the proper coordination among the related stakeholders for a timely project formulation, and success factors to provide a good candidate project and clear structuring procedures.

Through data collection and analysis, it was also confirmed that there are potential problems/risks in PPP toll road projects regarding the coverage of the IIGF's guarantee, the government financial support, and the Contractor Pre-Financing (CPF) system. Under the current system of the IIGF's guarantee and government financial support, demand risk (revenue risk) is basically borne by the toll road companies. Therefore, there is the risk that only traditional SOEs with huge capital can participate in the project despite the government guarantee's primary purpose; more competitive bidding and more market expansion (variety of the investors). Regarding government financial support, S-BOT scheme that the government provides some part of construction works with multilateral/bilateral financial development loans instead of VGF (subsidy in cash) is applied for the BPJT to avoid time-consuming communication with the MoF. Therefore, there is a potential risk that projects formulation process become complicated and take a long time due to lack of experience with VGF system. As for the CPF system, the concern is that the toll road companies cannot acquire any loans or take a long time to acquire loans in the future, and the projects could stay stuck at the implementation stage, since the CPF system does not guarantee future

[13] i.e.: (9) Serang-Panimbang Toll Road (51 km) project; (16) Batu Ampar – Muka Kuning – Hang Nadim Toll Road project; and (17) Sukabumi Ciranjang Toll Road project.

[14] i.e.: (9) Serang-Panimbang Toll Road (51 km) project; (16) Batu Ampar – Muka Kuning – Hang Nadim Toll Road project; and (17) Sukabumi Ciranjang Toll Road project.

financial arrangements but allows the contractors to commence construction works using their own funding to accelerate the project's implementation.

Table 20: Summary: Independent Variables (IVs) Actual Situation in 18 PPP Toll Road Projects with the Scale

<table>
<tr><th rowspan="2"></th><th rowspan="2">Project Name</th><th colspan="4">Government's roles and responsibilities
IV (1)</th><th>Concessionaire selection
IV (2)</th><th>Risk allocation between public and private
IV (3)</th><th colspan="2">Financial package
IV (4)</th><th rowspan="2">Formulating project delay</th></tr>
<tr><th>Legal environment
Sub-IV (1-1)</th><th>Stakeholders coordination
Sub-IV (1-2, 1-3)</th><th>Good candidate project
Sub-IV (1-4)</th><th>Commitment/ collecting and sharing information
Sub-IV (1-5, 1-6)</th><th>Developed tendering system/ appropriate evaluation methodology
IV (2-1, 2-2)</th><th>Clear mechanism to decide risk allocation/ IIGF guarantee
IV (3-1, 3-2)</th><th>Financial market maturity and availability/ government financial support
IV (4-1, 4-2)</th><th>Clear procedure for structuring the financial package
IV (4-3)</th></tr>
<tr><td>1</td><td>Manado-Bitung Toll Road</td><td rowspan="3">-</td><td rowspan="3">-</td><td rowspan="6">+</td><td rowspan="18">+</td><td rowspan="12">+</td><td rowspan="12">+</td><td rowspan="12">+ / 0
(0: government financial support is not for all the project)</td><td>-</td><td rowspan="2">Yes</td></tr>
<tr><td>2</td><td>Balikpapan-Samarinda Toll Road</td><td rowspan="5">+</td></tr>
<tr><td>3</td><td>Pandaan-Malang Toll Road</td><td rowspan="4">+</td><td rowspan="2">No</td></tr>
<tr><td>4</td><td>Krian-Legundi-Manyar Toll Road</td><td rowspan="3">+</td></tr>
<tr><td>5</td><td>Jakarta-Cikampek II Elevated Toll Road</td><td rowspan="3">+</td></tr>
<tr><td>6</td><td>Batang-Semarang Toll Road</td><td rowspan="2">-</td></tr>
<tr><td>7</td><td>Serpong-Balaraja Toll Road</td><td>-</td><td rowspan="2">-</td><td rowspan="3">-</td><td rowspan="2">Yes</td></tr>
<tr><td>8</td><td>Cisumdawu Toll Road</td><td rowspan="11">+</td><td rowspan="3">-</td></tr>
<tr><td>9</td><td>Serang-Panimbang Toll Road (51 km)</td><td rowspan="5">+</td><td>No</td></tr>
<tr><td>10</td><td>Serang-Panimbang Toll Road (33 km)</td><td rowspan="4">+</td><td>Yes</td></tr>
<tr><td>11</td><td>Jakarta – Cikampek South Toll Road</td><td rowspan="3">+</td><td rowspan="2">No</td></tr>
<tr><td>12</td><td>Probolinggo Banyuwangi Toll Road</td></tr>
<tr><td>13</td><td>Semarang Demak Toll Road</td><td rowspan="3">-</td><td rowspan="4">N/A</td><td rowspan="4">N/A</td><td colspan="2" rowspan="4">N/A</td><td>Yes</td></tr>
<tr><td>14</td><td>Yogya bawen Toll Road</td><td rowspan="3">No
unusual project)</td></tr>
<tr><td>15</td><td>Surabaya Madura Toll Road</td><td rowspan="3">+</td></tr>
<tr><td>16</td><td>Batu Ampar – Muka Kuning – Hang Nadim Toll Road</td><td rowspan="2">-</td></tr>
<tr><td>17</td><td>Sukabumi Ciranjang Toll Road</td></tr>
<tr><td>18</td><td>Yogya Solo Toll Road</td><td>-</td><td>+</td><td>Yes</td></tr>
</table>

Source: prepared by Author

Chapter 5: Conclusions and Recommendations

In this study, the research objective was to assess how and to what extent the current PPP scheme contributes to the formulation of projects in the Indonesian toll road sector. The main research question was as follows: "Which factors related to the current PPP scheme lead to success/delay in the formulation of PPP toll road infrastructure projects in Indonesia?". To answer this main question and its associated sub-questions, data collection and analysis were conducted and focused on 18 PPP toll road case projects.

In this chapter, the sub-questions' answers are presented by summarising the collected and analysed data. In addition, other findings from this research, recommendations, and ideas for future research are introduced.

5.1 Answers to Sub-questions

(1) Sub-question: How and to what extent do the government's roles and responsibilities lead to success or delay in PPP toll road infrastructure projects?

Analysis of the interviews and documents show that the government's roles and responsibilities are critical for the smooth formulation of PPP toll road projects. A favourable legal environment and proper coordination between central and supportive government authorities is considered critical. Without those elements, the project formulation process is delayed (up to its financial close). There were no clear laws and regulations regarding land acquisition processes before, which caused some delays in projects due to the administration's confusion. Now, clear laws and regulations exist. Coordination among the stakeholders within the central government is relatively good. Coordination between the central and local governments, however, is not always good during the land acquisition process or while conducting studies. The poor coordination caused some delays in projects due to misunderstandings and prolonged discussion between the central and local governments. Basing a PPP project based on good studies is important for successful project formulation. Providing good studies is deemed to be relatively controllable, unlike legal environment issues or coordination problems among the stakeholders. Regarding the government's commitment and information collecting and sharing, the government strongly contributes to smooth project formulation based on the information given by the institutions.

(2) Sub-question: How and to what extent does the concessionaire selection process lead to success/delay in the formulation of PPP toll road infrastructure projects in Indonesia?

By analysing the interviews and documents, it is confirmed that both well-structured and improved tendering systems and an appropriate evaluation methodology are critical for a project formulation's success. There are various project types in the PPP toll road project: BOT projects, S-BOT projects, solicited projects, and unsolicited projects. The current tendering system and the evaluation methodology cover all the types of projects since, historically, the private sector has long been involved with the toll road sector, and concessionaire selection methods have therefore been developed over time. This advanced concessionaire selection system is very important for both the public and the private sectors to implement the bidding of complicated PPP projects in a timely manner without any confusion. In the PPP toll road case projects, there were no delays due to these deficiencies.

(3) Sub-question: How and to what extent does risk allocation between the public and private sectors lead to success/delay of formulation of PPP toll road infrastructure projects in Indonesia?

By analysing the interviews and documents, it can be confirmed that clear mechanisms that decide risk allocation and the IIGF's guarantee are critical for successful project formulation. It is difficult to evaluate exactly why the case projects were successful, since all the projects applied appropriate risk allocation based on the guidelines and IIGF's guarantee. The MoF took a long time to arrange the guarantee due to unorganised and unclear administration before establishing IIGF. In turn, the IIGF's guarantee significantly contributes to successful projects and fast project formulation. Also, clear and non-negotiable mechanisms decide the risk allocation and help avoid longer discussions: there is no room for delays related to risk allocation decisions because all the PPP projects utilising the IIGF's guarantee must follow the risk allocation guidelines. Indeed, in the PPP toll road case projects, no project was delayed in deciding on the risk allocation and the guarantee.

(4) Sub-question: How and to what extent does a sound financial package lead to success/delay of formulation of the PPP toll road infrastructure projects in Indonesia?

By analysing the interviews and documents, it can be confirmed that mature and available financial market, government financial support, and clear structuring procedures for the financial package are critical for a successful project formulation. The case projects prove that misplaying the structuring procedures tends to delay the project's formulation. This could be avoided in some cases if the government provides special treatment to accelerate the projects. The financial market's maturity and availability is very critical for smooth project formulation because the project cannot be closed without finance resources. In Indonesia, there are now commercial financial institutions with an appetite to finance infrastructure projects. Governmental development financial institutions fill the financial gap. Moreover, there is the Contractor Pre-Financing (CPF) system that significantly contributes to the success of the projects in speeding up the project's formulation. The CPF system allows construction companies to start building by utilising their own funds before arranging their loan; avoiding delays due to financial arrangements. The government's support does not delay a project but could delay its formulation by making the financial package's structuring more complicated.

5.2 Research's Other Findings

Findings show that there are some potential risks in the IIGF's guarantee coverage, the government's financial support, and the Contractor Pre-Financing (CPF) system.

First, the IIGF's guarantee covers only the default risks of the BPJT's payment responsibility. It does not cover the demand risk (revenue risk). The demand risk (revenue risk) is basically borne by the toll road companies though the guarantee for demand risk during ramp-up period is sometimes available. Under this condition, only the traditional SOEs with huge capital such as Jasa Marga can participate in the project due to uncertainty of financial profit/loss. This situation is concerning, as if it continues in the future, the toll road sector will be dominated by a few SOEs, and the other players will never grow. Moreover, this growth limitation of the pure private players is considered a risk from a sustainable development viewpoint, because the SOEs have also financial limitations.

Second, the government's financial support has two problems: The first is that the availability payment scheme is not utilised. The second is that only the S-BOT scheme, not the VFG scheme, is being utilised. The availability payment scheme is attractive for the private companies because it releases the demand risk from the private side. However, the

availability payment scheme has never been applied in the toll road sector because the MPWH has a policy of utilising its own budget for non-toll road projects. The scheme is thus viewed as an unrealistic option. As for the S-BOT scheme, the MPWH and BPJT provide financial support for parts of the construction by utilising multilateral/bilateral financial development institutions' loans. This is a risk of sustainable development in the toll road sector because such loans are not always available. When loans are not available for the S-BOT scheme, the VGF scheme might be utilised as an alternative, but the formulation process is longer and more complicated.

Third, the CPF is an innovative system in terms of timely financial close. However, from a sustainability viewpoint, it has risks. Because the CPF system doesn't guarantee future loan arrangements, toll road companies may not be able to acquire any loans or may face long waiting periods before they can acquire future loans. Moreover, only the companies with strong financial conditions can make an advanced payment, so the issue regarding SOEs' dominance could arise here as well, as in the case of the IIGF's guarantee.

5.3 Recommendations

(1) Improvement of the coordination among the stakeholders, candidate project quality, and structuring procedures for the financial package to conduct smooth project formulation

Half of the case projects had delays in the projects' formulation (up to financial close). Based on this research's results, there is a room for improvement in the coordination among the stakeholders, the candidate projects' quality, and the structuring procedures for the financial package to conduct smooth project formulation. Other critical success factors have been achieved correctly, such as appropriate concessionaire selection and risk allocation between the public and private sectors. But these three factors need improvement.

Coordination among stakeholders is especially important since it affects the other two factors. Some institutions, such as KPPIP, BAPPENAS, and the PPP Joint Office in Indonesia, are responsible for coordinating with the related institutions. The coordination within the central government was reported to be good. This strong coordination should establish a system to strengthen the coordination between the central and local governments when, for example, they are evaluating land acquisition or conducting studies.

(2) PPP scheme improvement considering sustainability

It is recommended to pay attention not only to smooth project formulation, but also the PPP toll road project's sustainability. As explained in **Section 5.2**, three potential risks should be improved upon: coverage of the IIGF's guarantee, the government financial support, and the CPF system.

First, the PPP toll road project market can be expanded by attracting more private companies with mitigating toll road companies' demand risks (revenue risks) by the IIGF's guarantee and/or the government financial support. To achieve this, BPJT and IIGF are recommended to consider risks and financial capability as well as the private companies' demand. To avoid administrative confusion caused by the sudden change of financial support methods from the S-BOT scheme to the VGF scheme, some projects applying the VGF scheme should be developed as model projects. If toll road companies' demand risks are mitigated and the VGF scheme becomes available, bankability should become higher. Therefore, the risks under the CPF scheme that toll road companies cannot acquire any loans or take a long time to acquire loans can also be mitigated.

5.4 Further Study

This research focused on 18 PPP toll case projects and examined some of the problems that led to delay in some case projects' formulation. The three main problems were with coordination among stakeholders, candidate projects' quality, and the structuring of the financial package procedures. Understanding of the underlying reasons why these negative statuses occur in some projects is limited. Not all administration staffs for each project were interviewed in this research. In addition, due to time constraints, no interviews were conducted with local governments. Therefore, to deepen the negative statuses' understanding, a more detailed case study research could focus on a small number of projects.

In a few years, a more detailed case study would be helpful to further understand the research question "Which factors related to the current PPP scheme lead success/delay in the formulation of PPP toll road infrastructure projects in Indonesia?" Indeed, more research samples will be available after some time has gone by. Also, a follow-up research on the progress or the result of the 18 PPP toll road case projects during/after the implementation stage would be meaningful, since this research only focused on the projects' formulation stage (up to financial close), and technical/financial issues can occur during the implementation stage too. Beyond the toll road sector, the same type of research could be applied to other PPP infrastructure sectors since they may face more serious situations as projects are formulated (few to no PPP projects have reached financial close in other sectors) and also because there are different stakeholders and issues involved.

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Annex: Interview Questions Summary

Interview questions for Critical Success Factors of PPP projects in Indonesia

Interviewee:

A: Toll road authority;
B: Ministry of Public Works and Housing;
C: PPP division of BAPPENAS;
D: CMEA
E: Director of transport, KPPIP;
F: PPP unit, Ministry of Finance;
G: SMI;
H: IIF;
I: IIGF;
J: Toll road company (Hutama Karya and Hutama Marga Waskita);

	Variable	Indicator	Questions	Interviewee
1-1	Favourable legal environment	1. Existence of stout legal and regulatory frameworks of PPP	1) Are there legal and regulation frameworks for the PPP project?	A, B, C, D, E, F, G, I
			2) Are there any problems/ agendas necessary to be improved in the legal and regulation frameworks?	
			3) Are there legal and regulation frameworks specific to Toll Road PPP projects?	A, B, C, D, E, J, G, I
			4) Are there any problems/ agendas to be improved in the legal and regulation framework for toll road?	
1-2	Central coordinating government authority and supportive government authority	1. Existence of Central coordinating government authority and supportive government authority	1) Is there a central coordinating government authority leading the related institutions?	A, B, C, D, E, F, I
			2) Are there supportive government authorities in charge of PPP administration (conducting studies, calculation of VFM, selecting projects, creating bidding documents, procurement, considering governmental supports)?	
		2. Actual situation of authorities functions	1) Does the coordination government achieve its mandate and roles?	
			2) Are the coordination government's functions satisfactory for implementing PPP projects?	
			3) Do the supportive government authorities achieve their mandates and roles?	
			4) Are the supportive government authorities' functions satisfactory for implementing PPP projects?	
1-3	Clear Demarcation of roles and responsibilities	1. Existence of regulation on the demarcation	1) Are there any regulations that demark the roles and responsibilities?	A, B, C, D, E, F, I
			2) What is the demarcation of the roles and responsibilities in formulating PPP projects among the central and supportive government authorities?	
		2. Actual situation of the	1) Is the demarcation clear in the actual administration?	

		demarcation	2) Are there any problems/ agendas to be improved in the demarcation?	
1-4	Providing a good PPP candidate project	1. Readiness of the project as of becoming the candidate	1) What are the procedures and criteria to choose projects as the PPP projects?	A, C, D, E, F, I
			2) Are there any projects that are faced with stuck situations after being regarded as PPP projects? And why?	
			3) Overall, to what extent is the project prepared when it becomes regarded as a 'ready' candidate project, especially in terms of financial package?	
1-5	Strong commitment of the government	1. Existence of supporting statement from the government	1) Do projects have government commitment and support for the project (i.e. selecting the project as a national priority project, manifestation of the project to the public, etc.)?	A, C, D, E, F
			2) Why do the projects have special support? (what are the projects' backgrounds?)	
		2. Actual situation of the support from the government	1) What kind of support do the projects obtain from the government? 2) Are there any problems/ agendas that need to be improved in the government commitment?	
1-6	Collecting and sharing the PPP experience	1. Existence of system of collecting and sharing the PPP experience	1) Is there system of collecting and sharing the PPP experience with the PPP-related institutions?	A, C, D, E, F, G, I
			2) What are the system details (procedure, activities, etc.)?	
			3) Is the system defined in any regulation?	
		2. Actual situation of sharing the information	1) To what extent the PPP's lessons learnt are collected and shared with staffs in charge of PPP projects in related institutions	
			2) What kind of knowledge is helpful for formulating the project?	
			3) Are there any problems/ agendas to be improved in sharing the information?	
2-1	Well-structured and improved tendering process	1. Existence of tendering process format	1) Is there a clear tendering process format for PPP projects?	A, E, F, I, J
			2) What are the format details (PQ/two-envelop/value for money, etc.)?	
			3) What are the differences with the conventional public projects?	
		2. Actual situation of the tendering process	1) To what extent do actual procurement of PPP projects follow the tendering process format?	
			2) Are there any problems/ agendas to be improved in the tendering process by applying the format?	
2-2	Appropriate evaluation method	1. Existence of the established evaluation method	1) Is there a clear evaluation method for PPP projects?	A, E, F, I, J
			2) What are the evaluation criteria (value for money, the price, toll fee, etc.)?	
		2. Evaluation method actual situation	1) To what extent do the evaluations of PPP projects follow the tendering process format?	

			2) Are there any problems/ agendas to be improved in the evaluation using an evaluation method?	
3-1	Clear mechanism to decide risk allocation	1. Existence of the mechanism to decide risk allocation	1) Is there clear mechanism that decides risk allocation of PPP projects among related stakeholders (including government guarantee)?	A, E, F, G, I, J
			2) What are the mechanism details (criteria to decide risk allocation, negotiation method, calculation of risk, etc.)?	
		2. Risk allocation actual situation	1) To what extent do actual projects follow the mechanism?	
			2) Are there any problems/ agendas to be improved in the risk allocation by applying the mechanism?	
3-2	Government's support facility for taking critical risks	1. Government support maturity	1) To what extent does the government guarantee contribute to reducing the project's risks for private institutions?	A, E, F, G, I, J
			2) Are there any problems/ agendas necessary to be improved in the government support facilities (from the private viewpoint)?	
4-1	Mature and available financial market	1. Availability and amount of finance from the market	1) To what extent do financial institutions finance/invest in toll road projects in Indonesia?	A, C, E, F, G, H, I, J
			2) Are there concrete criteria needed to decide investments and the amount of finance?	
			3) Are there any problems/ agendas to be improved in the availability of finance?	
4-2	Government's financial support	1. Availability and amount of the support	1) To what extent does the government provide financial support with toll road projects in Indonesia?	A, B, C, D, E, F, G, H, I, J
			2) Are there concrete criteria needed to provide an amount of support?	
			3) Are there any problems/ agendas necessary to be improved in the government support?	
4-3	Clear procedure for structuring the financial package	1. Existence of the established procedure	1) Is there a clear mechanism to structure the financial package of PPP projects among related stakeholders?	A, C, E, F, G, H, I, J
			2) What are the mechanism details (financial packaging flow, criteria to decide financial package, negotiation method, etc.)?	
		2. Procedure's actual situation	1) To what extent do actual projects follow the procedures?	
			2) Are there any problems/ agendas to be improved in the procedure by applying the mechanism?	