

The risks of construction grant support in toll road investment faced by Indonesia's government

Iris Mahani^{1,*}, Rizal Z.Tamin¹, Krishna S.Pribadi¹, and Andreas Wibowo²

¹Construction Engineering and Management Research Group, Faculty of Civil and Environmental Engineering, Institut Teknologi Bandung, Bandung, Indonesia

²Research and Development Centre of Residential and Housing, Ministry of Public Work and Housing, Bandung, Indonesia

Abstract. In order to increase the role of private sector in infrastructure implementation in Indonesia, the Indonesia government facilitates Public-Private Partnership (PPP), such as by providing Viability Gap Funding (VGF) in the form of construction grants. Some projects get a construction grant but in toll road investment, the support is provided in another form. If the government provides construction grant on toll road investment, there would be risks that government need to face. This study aims to identify the said risks and analyse them so that the government could mitigate the risks. It is also could be used for devising public policy. This study is conducted qualitatively based on interviews with government officials, businessmen, and members of society. Based on the risk identification at each stage of the given support, there are 9 (nine) risks. After preliminary screening, the qualitative analysis and validation indicate that there are 4 (four) risks that must be mitigated by the government. These risks include: the possibility of being disapproved by the finance ministry, the approval process at the finance ministry takes a long time, it is too costly the state budget could not provide it and lastly, the difficulty of obtaining approval from the legislative.

1 Introduction

According to the National Development Planning Agency (Bappenas, 2014) [1]. Indonesia has a target to operate 1000 km new toll roads in 2014-2019. A financially feasible toll road is the first criteria to make toll road investors or businessmen have the interest to invest. There are some toll roads that have not financially feasible which result in high investment cost, low revenue, or both. High investment cost is caused by pricy construction cost or pricy land acquisition cost or both. The high construction cost is usually caused by the construction difficulty so that it needs many bridges, tunnels or other elevated structures. The low revenue is usually initiated by low traffic volume or the user's low payment ability or both. To increase financial feasibility, the Government of Indonesia (GOI) needs to give support to the Internal Rate of Return (IRR). One of the methods is to give Viability Gap Funding (VGF). Based on the survey, 81.8% of government officers and privates agree that the government needs to provide support to increase financial feasibility of toll road investments because it will be beneficial in improving the investment and accelerating the growth of toll roads in Indonesia. (Mahani, 2015) [2]. Government's support has the greatest effectiveness in increasing IRR and NPV is construction cost. (Mahani, 2016) [3].

Since 2012, the Government of Indonesia (GOI) has issued Viability Gap Funding (VGF) policy for PPP infrastructure project through the ministry of finance decision (PMK) No.223/2012 [4]. This policy is clarified with PMK 143/2013[5] no PMK 170/2015[6] on VGF Guidelines by Part of Construction Grant in Infrastructure Public-Private Partnership (PPP). One of VGF purposes is to improve the financial feasibility for PPP's infrastructure project, included toll road. VGF is also mentioned in the President Regulation No.38/2015[7] about PPP in Infrastructure Project and it would be regulated by the ministry of financing. VGF is given by construction grant. It is possible for a construction grant to be implemented in Indonesia because the regulation is already completed. (Mahani, 2013) [8]. The government (ministry of financing) is ready to implement it and the toll road executants hope for it (Mahani, 2015) [9]. However, in toll road investment, construction grant has never been implemented. One of the reasons is the amount of risk that must be dealt with by the government.

* Corresponding author: irismahani1970@gmail.com

2 Literature review

2.1 Construction grant

Construction grant is part of Viability Gap Funding (VGF). It means the funds that the VGF company transfers to an institution or to a private party on behalf of the institution to cover part or all of the difference between the expected true cost of a PPP project and expected revenue from the tariff charged or unitary payment, made for the services provided by a PPP project and it includes capital and operating VGF (Ministry of finance government of Pakistan, 2007)[10]. VGF can be in different forms, including but not limited to capital grant, subordinated loans, O&M support grants or interest subsidy. A mix of capital and revenue support may also be considered (Deulkar & Shaikh, 2013)[11].

In Indonesia, VGF is given by construction grant. It is explained in PMK 170/2015. VGF is government support in the form of financial contributions that are financial given to the PPP Project by Regulation of the Minister of Finance, which regulates VGF in part of the construction Costs in the PPP Project. It's also applied in Pakistan, India, Malaysia, etc. Construction grant is chosen because:

- New institution is not needed.
- Short term funding commitment.
- There is no contingent liability because the budget is definite.
- Short term support management.

Figure 1 shows the principle of construction grant.

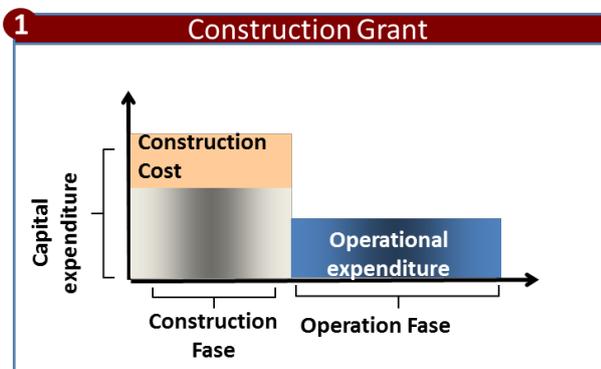


Fig. 1. Principle of construction grant Ministry of Finance, 2013[12]

Construction cost in PPP project included: construction cost, equipment cost, installation cost, interest rate of loan along of construction, and other related cost. Land acquisitions and tax incentive are not included in Construction cost. Construction grant is given in the PPP Project with the following criteria:

- a. PPP Projects that have fulfilled eligibility economy but have not fulfilled financial feasibility;
- b. PPP Project apply the principle of paying users;
- c. PPP Project with the total investment costs less than Rp.100,000,000,000 (one hundred billion rupiahs);

- d. PPP Project that applies an open and competitive auction process;
- e. Financial feasibility would be fulfilled if given construction grant.

In Indonesia, the procedure of Construction Grant can be seen in figure 2.

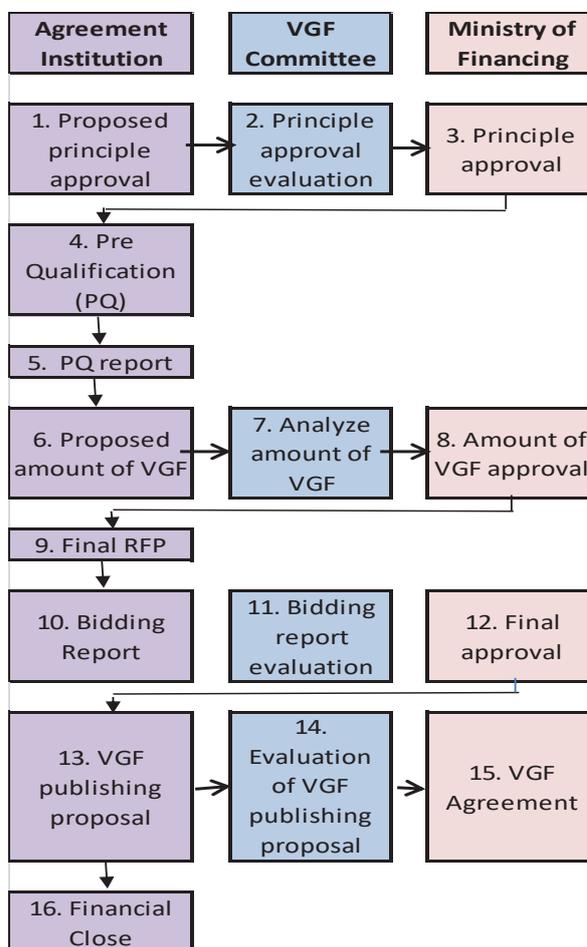


Fig. 2. The procedure of Construction Grant in Indonesia (PMK 143/2013 jo 170/2015)

2.2 Risk

Risk is the probability of a threat that is intentionally or accidentally triggers a condition that has an impact on an activity (Keith et al, 2006)[13]. To deal with the risks, risk management is required. Risk management includes risk identification, risk analysis, and risk allocation. This paper only discuss until risk analysis. Risk identification is the first step to register as many risks as possible. The Techniques that can be used in risk identification includes brainstorming, surveys, interviews, historical information, work groups, etc.

Risk analysis includes based on qualitative analysis that can be determined based on the frequency / likelihood (P) and impact (I) caused. Risk (R) that occurs:

$$R = P * I \tag{1}$$

Based on these results, a risk matrix is created by grouping acceptable risks and unacceptable risks until eventually the risk must be handled.

3 Methodology

Risk analysis will be done through qualitative method. The step of this study can be seen in figure 3.

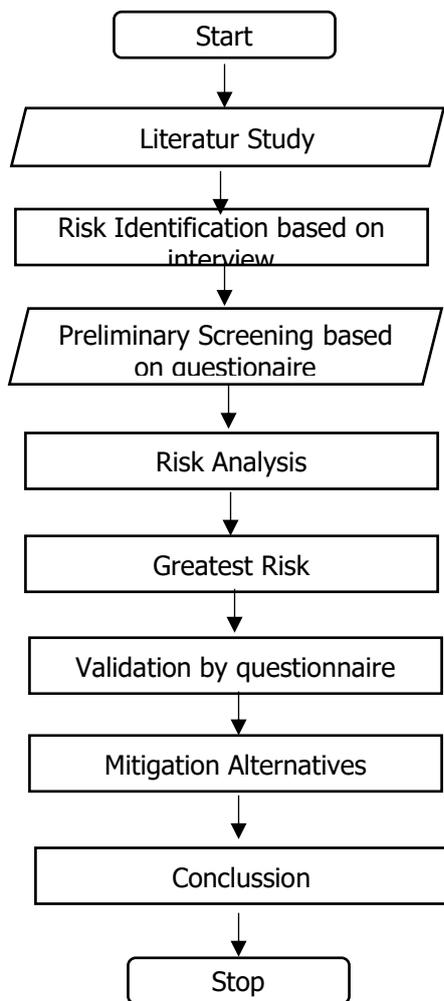


Fig. 3. Steps of Qualitative Risk Analysis

Risk identification is carried out by identifying risks that occur at each stage of providing support based on literature studies or expert views. Preliminary screening is carried out to prioritize risks that are most likely to occur for subsequent analysis. Risk analysis is needed to choose the greatest risks so that the government can prepare their mitigations. The next step is validation. The respondents are from the government, toll road business entities, and semi-government institution. The government was represented by the Ministry of Finance and Toll Road Regulatory Agency (BPJT), Toll Road Business Entities was represented by PT Jasa Marga and PT Marga Utama Nusantara, while the semi-government agency was represented by the Indonesian Infrastructure Guarantee Fund (IIGF). The last step is how to migrate the valid high risk. To solve this, the author had done interviews with some expert. They are from PT Jasa Marga, PT Marga Utama Raya, Ministry of finance a BPJT.

4 Analysis

As explained earlier, in this study the risk is taken from each stage of the support process. The Analysis includes:

- Preparation of the stages of giving each support- Identification of risks at each stage through the fishbone diagram.
- Description and Preliminary Screening of risks that occur based on interviews and ignoring risks that are 1, 2 and 3.
- Risk assessment for risks that have values of 4 and 5.

4.1 Risk identification

The first step in risk analysis is risk identification. It is done by brainstorming/interview. Respondents included government, toll road business entities, and semi-government institution. There are 12 (twelve) respondents. The result of identification can be seen in Table 1.

Table 1. Risk identification

Stage	Activity	Risk Identification	Risk No.
1	BPJT proposes to the finance ministry	- Not Approve - Limited budget - Need long time	B1 B2 B3
2	The Ministry of Finance submits to the DPR the approval of the VGF in the APBN	- Need long time	B4
3	BPJT propose government's guarantee to IIGF	- Need long time	B5
4	Bidding by BPJT	Little bidders	B6
5	Construction by contractor	- price increase - contractor default - delays	B7 B8 B9

4.2 Preliminary screening

Based on this identification, the interviews then conducted as the basis of preliminary screening. The value of preliminary screening is based on how many respondents stated that the risk exists. The interviews result can be seen in Table 2.

Table 2. Interview result

Risk No.	Number of Respondent agree	(%)
B1	11	91,67
B2	11	91,67
B3	10	83,33
B4	10	83,33
B5	11	91,67
B6	6	50,00
B7	7	58,33
B8	5	41,67
B9	8	67,0

Based on the percentage of agreement from respondents, the score for preliminary screening can be seen on Table 3.

Table 3. The Score of preliminary screening

(%) Agreement Respondent	Score	Criteria
0 < X ≤ 20%	1	Low
20% < X ≤ 40%	2	Low
40% < X ≤ 60%	3	Low
60% < X ≤ 80%	4	High
80% < X ≤ 100%	5	High

The preliminary screening can be seen in Table 4.

Table 4. Preliminary Screening

Risk No.	Description	Preliminary Screening
B1	Probably not approved by the finance minister	5
B2	It takes a long time to prepare administration for the submission of a construction grant	5
B3	Large budget needs	5
B4	It takes a long time to get DPR approval	5
B5	It takes a long time to file a guarantee	5
B6	Little bidders	3
B7	Increase in construction costs	3
B8	Contractor default	3
B9	Delay	4

4.3 Qualitative risk analysis

Based on preliminary screening, the high risks is analysed qualitatively. There are B1, B2, B3, B4, B5 and B9. The Analysis is based on questionnaire given to respondents to determine the probability and impact. The result of qualitative risk analyses can be seen in figure 4.

Probability		Qualitative Analysis R = P * I				
81-100% the occurrence of the total project	5					B2,B3
61-80% the occurrence of the total project	4		B9			B1,B4
41-60% the occurrence of the total project	3					B5
21-40% the occurrence of the total project	2					
0-20% the occurrence of the total project	1					
		1	2	3	4	5
Impact		Does not affect other activities	Affect to another activity	Affect to 2 others activities	Affect to 3 others activities	Affect to 4 or more others activities

Fig. 4. Qualitative risk analysis

From the analysis, it shows that the high risks are B1, B2, B3, and B4. The risks must be mitigated so that the construction grant can be implemented in toll road investment in Indonesia. Risk number B5 and B9 can be

tolerated, thus they might not be included in special mitigation.

4.4 Validation

The validation of risks based on interviews with the respondents. Validation process can be seen in Figure 5.

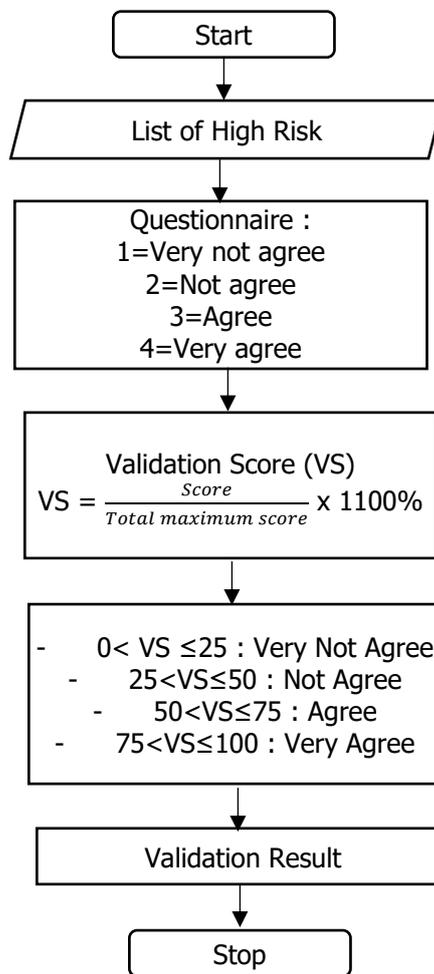


Fig. 5. Validation process

The validation result can be seen on Table 5.

Table 5. Validation result

Risk No.	Risk	Score of Validation (1-4)	Conclusion
B1	Probably not approved by the finance minister	80	Very Agree
B2	It takes a long time to prepare administration for the submission of a construction grant	82,5	Very Agree
B3	Large budget needs	80	Very Agree
B4	It takes a long time to get DPR approval	70	Agree

Based on the interviews, the respondents agree that those risks are high, so the government must mitigate if they want to implement a construction grant in toll road investment in Indonesia. The risk of probably not approved by the finance minister might be because of the requirements to get a construction grant is difficult, thus there is a possibility that the application is not approved for various reasons.

Most likely, it will take a long time in the submission of construction grant because the requirements in the finance ministry are rather tight and must go through a feasibility support committee etc. If this happens, it will result in the resignation of the auction and means that the construction will also be delayed so that the construction costs and the consequences will be greater. Which makes the support that the government has to spend is getting bigger, thus the risk number B2 may be a high risk.

Because of the support payments upfront, if the need is large, then the government will experience a deficit considering that the budget provided for VGF has a very limited impact. If this happens, it means that the toll road development will retreat and it will have an impact on construction costs and so on, so the risk number B3 be a high risk.

The risk number B4 is because of Indonesia's House of Representatives' (DPR) schedule is time-specific so that the submission must be on time. If it cannot get approval when the next schedule, such as an auction, construction, and so on will be late as well.

4.5 Risk mitigation

Based on the results of the risk analysis, risk mitigation is needed for very high risks that need to be handled. To mitigate the risk of not obtaining approval from the finance ministry, the things that can be done include:

- Evaluate the limits for providing support that can be reduced to a maximum of 40%.
- Establish a public service institution that specifically accommodates funds to solve the problem of budget submission in the finance ministry.

Risks related to the submission proposal that need a long-time to process can be mitigated with:

- Improving coordination between sectors and reduce those that are not needed.
- Clarifying the guidelines and regulations of the procedure for support application.
- Establishing a special institution in the Toll Road Regulation Body (BPJT) that specifically handles the complete application for support.

Risks related to over budget that is faced by the State Budget could be mitigated by:

- Evaluating the limits for providing support that can be reduced to a maximum of 40%.
- Coordinating regulation to allocate VGF in Nation Budget is needed.
- VGF's annual budget is needed
- Increase creativity and efficiency to construction cost
- Evaluating and planning toll rates
- Establishing a public service board that specifically handles VGF in BPJT.

Lastly, the risks related to the 'need a long-time to be approved' by DPR, can be mitigated by:

- Establishing a public service board that specifically accommodates funds to solve the problem of budget submission in the finance ministry.
- Confirming that the construction of toll roads will promote its development and its high potential.
- Socialization and coordination with Parliament.

5 Conclusion

From this study, it can be concluded that:

1. There are 4 (four) risks that must be mitigated by the government. These risks include: the possibility of being disapproved by the finance ministry, the approval process at the finance ministry takes a long time, it is too costly the state budget could not provide it and lastly, the difficulty of obtaining approval from the legislative.
2. Some regulation is needed to implement construction grant, such as:
 - Evaluating the limits of providing support that can be reduced to best practices to a maximum of 40%.
 - Establishing a public service institution that specifically accommodates funds to solve the problem of budget submission in the finance ministry.
 - Improving coordination between sectors and reduce those that are not needed.
 - Clarifying the guidelines and regulations of the procedure for support application.
 - Establishing a special institution in the BPJT that specifically handles the complete application for support application.
 - Coordinating regulation to allocate VGF in Nation Budget is needed.
 - VGF's annual budget is needed.
 - Increase creativity and efficiency to construction cost.
 - Evaluating and planning toll rates.
 - Confirming that the construction of toll roads will promote its development and its high potential.
 - Socialization and coordination with Parliament.

References

1. Bappenas, *Rencana Pembangunan Jangka Menengah* 2015-2019 (2014)
2. I. Mahani, R. Z. Tamin, *Perbandingan construction grant dan Minimum Revenue Guarantee (MRG)*, Prosiding Seminar Nasional Teknik Sipil IX-2015, 663-670 (2015)
3. I. Mahani, R. Z. Tamin, *Dukungan non kontijen untuk meningkatkan kelayakan finansial jalan tol di Indonesia*, Prosiding Konferensi Nasional Pascasarjana Teknik Sipil 2016, III - 10- 18 (2016)
4. PMK No. 223/PMK/2012 tentang *Pemberian Dukungan Kelayakan Atas Sebagian Biaya Konstruksi Pada Proyek Kerjasama Pemerintah Dengan badan Usaha*

5. PMK 143/2013 tentang *Panduan Pemberian Dukungan Kelayakan Atas Sebagian Biaya Konstruksi Pada Proyek Kerjasama Pemerintah Dengan badan Usaha*
6. PMK 170/2015 tentang *Perubahan PMK No 143/2013 tentang Panduan Pemberian Dukungan Kelayakan Atas Sebagian Biaya Konstruksi Pada Proyek Kerjasama Pemerintah Dengan badan Usaha*
7. Perpres No..38 tahun 2015 tentang *Kerjasama Pemerintah Dengan Badan Usaha Dalam Penyediaan Infrastruktur*
8. I. Mahani, R. Z. Tamin, *Kajian alternatif dukungan pemerintah pada jalan tol yang tidak layak secara finansial di Indonesia*, Prosiding Konferensi Nasional Pascasarjana Teknik Sipil 2013, 434-442 (2013)
9. I. Mahani, R. Z. Tamin, *Kajian penerapan kebijakan dukungan kelayakan (Viability Gap Funding)*, Prosiding Kolokium Jalan dan Jembatan 2015, IV-45-51 (2015)
10. Ministry of Finance Government of Pakistan: *Draft Guidlines on Viability Gap Funds for PPP Project* (2007)
11. Deulkar WN dan Shaikh AF (2013): *Viability Gap Funding Scheme For Infrastructural Development*, Int.Jurnal Structural & Civil Engineering Research, **Vol 2** No.4 No.V
12. Ministry of Finance: *Dukungan Kelayakan Proyek Kerjasama (VGF)* (2013)
13. K.R. Molenaar, J.E. Deekman, D.B. Ashley: *Risk Assessment & Allocation for Highway Construction Management*, FHWA October (2006)