

**FINANCIAL MODEL OF VIABILITY GAP FUND:  
CASE STUDY ON PALEMBANG-INDRALAYA TOLL ROAD PROJECT**  
*Model Keuangan Dana Dukungan Kelayakan:  
Studi Kasus Proyek Jalan Tol Palembang-Indralaya*

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Abstrak

Penyediaan infrastruktur merupakan peringkat lima penyebab sulitnya melakukan bisnis di Indonesia. Oleh karena itu Pemerintah Indonesia terus mempercepat pembangunan infrastruktur baik dalam hal pembiayaan, insentif maupun skemanya khususnya melalui skema Kerjasama Pemerintah Swasta (KPS). Salah satu terobosan yang dilakukan oleh pemerintah dalam skema KPS adalah dengan memberikan dukungan dalam bentuk dana tunai untuk biaya konstruksi proyek yang disebut *Viability Gap Fund* (VGF), yang bertujuan untuk membuat sebuah proyek yang sebelumnya tidak layak secara finansial tetapi layak secara ekonomi menjadi layak secara finansial dan ekonomi. Penelitian ini bertujuan untuk mendeskripsikan tentang kemungkinan VGF dalam mempercepat pembangunan infrastruktur melalui skema KPS, serta melakukan model keuangan untuk menghitung apakah VGF benar-benar dapat membuat suatu proyek layak secara finansial dengan studi kasus pada Proyek Jalan Tol Palembang-Indralaya. Metodologi yang digunakan dalam penelitian ini adalah metode kuantitatif dengan menggunakan analisis keuangan. IRR dan NPV digunakan sebagai parameter keuangan utama untuk menentukan kelayakan finansial suatu proyek. Jika ada kesenjangan antara IRR atau NPV proyek dengan IRR atau NPV standar proyek jalan tol di Indonesia, VGF akan diberikan untuk menutup perbedaan tersebut. Penelitian ini menunjukkan bahwa VGF membuat Proyek Jalan Tol Palembang-Indralaya yang sebelumnya tidak layak secara finansial menjadi layak secara finansial.

Kata kunci: viability gap fund, infrastruktur, dukungan pemerintah, model keuangan

Abstract

Inadequate supply of infrastructure is number five of the most problematic factors for doing business in Indonesia. Therefore Government of Indonesia (GoI) continues to accelerate the development of infrastructure either in terms of financing, incentives, and especially through Public Private Partnership (PPP) scheme. One of the breakthroughs made by the government in the PPP scheme is by providing support in the form of cash funds for the construction cost of the project also called *Viability Gap Fund* (VGF), in order to make a project that was previously financially unviable to become financially viable. This study aims to describe about the possibility of VGF in accelerating infrastructure development through PPP scheme, as well as conduct a financial model to calculate whether VGF really can make a project financially viable with a case study on the Palembang-Indralaya Toll Road Project. Methodology used in this study is quantitative method with the financial analysis. IRR and NPV are used as main financial parameters to determine financial viability of the

project. The research shows that VGF will make Palembang-Indralaya Toll Road Project become financially viable.

Keywords: viability gap fund, infrastructure, government support, financial model

JEL Classification: R42, H74, H76, G12

## I. INTRODUCTION

Inadequate supply of infrastructure is number five (after corruption, access to financing, inflation, and inefficient government bureaucracy) of the most problematic factors for doing business in Indonesia according to the Global Competitiveness Report 2014-2015 (Schwab, 2014). To solve this problem, Government of Indonesia (GoI) continues to accelerate the development of infrastructure in many ways. One of them is through the Public Private Partnership (PPP) or Built Operate Transfer (BOT) or Public Private Investment (PPI). PPP is used for public infrastructure project that involved private sector participation especially in the form of financing. PPP schemes involve private participation in many forms, such as build, operate, transfer (BOT), build, operate, own and transfer (BOOT), build and transfer (BT), reconstruct, operate and transfer (ROT), operate and transfer (OT) (Chen, Liou, & Huang, 2012).

In 2014, around 139 low and middle income countries already implement this scheme for the energy, transport and water project. In addition, in the period 1990 to 2014 there are more than 6000 projects. While in year 2014, total investment in the energy, transport and water project is US\$107.5 billion and Brazil is the country with the largest investment which is US\$44.2 billion (World bank, 2014). In the area East Asia and Pacific, PPP succeed to attract US\$11.5 billion or around 11% of global investment in 46 new projects. China received 35 projects with the total investment US\$2.5 billion, followed by Thailand with five projects, and Indonesia, Lao PDR and Vietnam with two projects. One of the project in Indonesia is Sarulla Geothermal Energy with total investment US\$1,541 million (World bank, 2014).

Some infrastructure projects already used PPP scheme, although the number of projects are still below the government's expectation. Therefore, the GoI have to play its role by constantly improving this scheme. This is due to whether funds come from public or private, without government role then the project will not be succeed (Kumaraswamy & Zhang, 2001; Chen et al., 2012). Kumaraswamy & Zhang (2001) gave two example of PPP scheme that were unsuccessful because of less government role. These projects are Bangkok elevated transport system in Thailand and Tha Ngone bridge project in Lao PDR. The project in Thailand is a 60 km elevated system and a road through the heart of capital. This project was failed since the lack of governmental assistance in resolving the conflict with a nearby competitive tollway and a sudden request from the government to change the scheme from elevated to underground. While the project in Lao PDR is the project to build a bridge across Nam Ngum River to replace an existing ferry. It is also failed because of the number of vehicles across the bridges are belowed projected. This happen since the government did not intervence the tariff so that the tariff was very high especially for the Lao PDR citizens. There are two main government role in respect to PPP scheme, which are (i) effectively attract needed fund for national infrastructure development which can be achieved by creating favorable investment environment, and (ii) to proactive involve and play role in the whole project development process including project identification, feasibility, request for proposal, evaluation of proposal, tender negotiation, franchise award, checking of design and construction quality, and continuous monitoring of project operation performance and service quality (Kumaraswamy & Zhang, 2001).

In Indonesia, government already gave many support for the PPP scheme, among others are the land fund, infrastructure fund, the guarantee fund, project development fund, and geothermal fund (Damayanty & Setiawan, 2012). Currently, one of the breakthroughs made by the government in the PPP scheme is by providing support in the form of cash funds for the construction cost of the project called Viability Gap Fund (VGF). This incentives is given to create a project that was previously financially unviable to become financially viable. Support in the form of cash is expected to accelerate infrastructure development, especially for projects which are financially less viable. This support in accordance with the opinion of Kumaraswamy & Zhang (2001) and Wibowo & Kochendorfer (2005) in Chen et al., (2012) who said that for the projects which are economically feasible but financially non-viable, then government should give support in the form of guarantee, subsidies and other forms of aid.

This study aims to describe about the possibility of VGF in accelerating infrastructure development through PPP scheme as well as conduct a financial model to calculate whether VGF really can make a project become financially viable with a case study on the Palembang-Indralaya Toll Road Project.

## **II. LITERATURE REVIEW**

### **2.1. What and Why PPP**

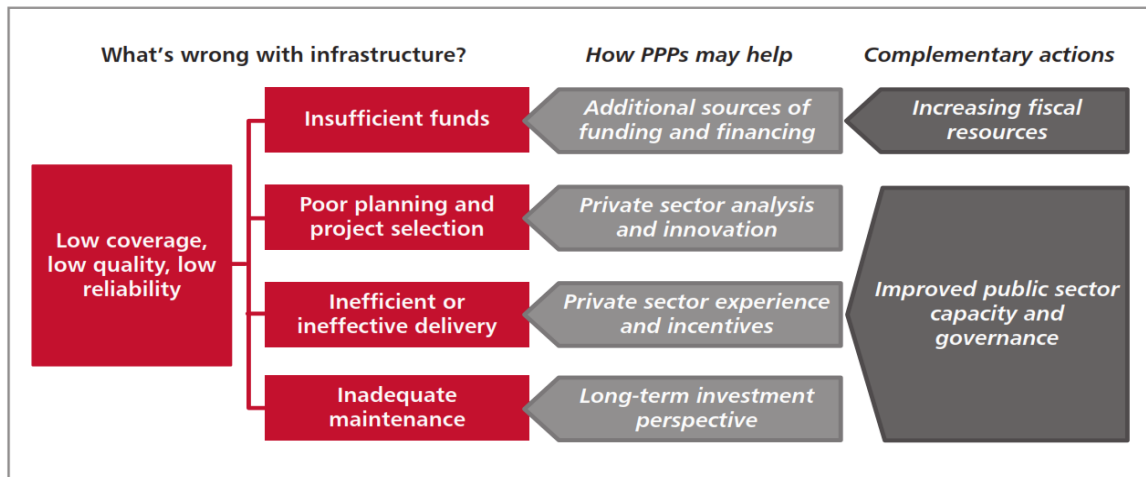
According to Public-Private Partnership Reference Guide Version 2.0 (World Bank, Asian Development Bank, & Inter-American Development Bank, 2014), PPP is

*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.*

While Public-Private Partnership Handbook state the definition of PPP as a range possible relationships between public and private sector in developing infrastructure and other services (Asian Development Bank, 2008). Based on that definition, the key word of PPP is relationship between public and private sector in providing services or assets for the society usually in the form of infrastructure.

Many sector have been using PPP in their development, such as power generation and distribution, water and sanitation, garbage disposal and processing, hospitals, school building, stadiums, prisons, railways, roads, housing, billing and information technology systems (Asian Development Bank, 2008). While there are several sector can be used PPP scheme in Indonesia which are transportation, roads, water resources and irrigation, drinking water, waste water management, garbage processing, telecommunications and informatics, electricity, oil and gas and renewable energy, energy conservation, urban facilities, educational facilities, sport and art facilities, infrastructure for area, infrastructure for tourism, infrastructure for health, prisons, and housing (Republik Indonesia, 2015).

PPP is used to cover some challenges facing by infrastructures. Figure 2.1. described what is the infrastructure challenges and how PPP can help it. In case of Indonesian, government budget constraint is the main reason why GoI invite participation of the private sector through PPP schemes (Damayanty & Setiawan, 2012). Table 2.1. shows the ratio of government infrastructure spending to GDP. The ratio is always below 2%, except for year 2015, while most of fuel subsidy has been eliminated. General concession said that the ideal infrastructure spending is 5% of GDP in order to accelerate economic development. In addition, the quality of the infrastructure, technology, effective and efficient delivery are also the others reason why government using PPP.



**Figure 2.1.** Infrastructure Challenges and How PPP Can Help It

Source: World Bank et al., 2014

**Table 2.1.** Ratio of Infrastructure Spending to GDP Indonesia (trillion Rp)

	2011	2012	2013	2014	2015
	Real	Real	Real	APBNP	APBNP
Capital spending	114,2	145,5	155,9	177,9	290,3
GDP	7.831,7	8.615,7	9.524,7	10.542,7	11.143,6*
Ratio of capital spending to GDP (%)	1,46%	1,69%	1,64%	1,69%	2,61%

\* target

Source: Ministry of Finance and BPS

## 2.2. Government Support and Guarantee

GoI already gave many supports and guarantees in order to accelerate the development of infrastructure through the PPP scheme. These guarantees and support are (Damayanty & Setiawan, 2012):

1. The land fund. This subsidy used to support investors to finance land acquisition and to overcome the problem on uncertainty of land price. This subsidy especially given to the toll road project. By this support, the government will reimburse the land acquisition cost until 110% of total land cost.
2. The infrastructure fund. This support given to private sector through PT Sarana Multi Infrastruktur (Persero) / PT SMI, which is a state owned enterprise (SOE) which intended to manage the infrastructure fund.
3. The guarantee fund. This guarantee is given by the GoI through PT Penjaminan Infrastruktur Indonesia (Persero) / The Indonesian Infrastructure Guarantee Fund (IIGF), which is SOE to manage the provisions of any guarantee given to PPP projects. Based on Presidential Regulation No. 78/2010 and Minister of Finance Regulation No.260/2010 all the request of government guarantee must first through IIGF. However, Ministry of Finance is still possible to give the guarantee as long as the partnership of IIGF and other insurance providers are not able to provide full guarantee.
4. Project Development Fund. This is government support to ensure the quality of project preparation, since one of the biggest problems in PPP scheme is inability of Government

Contracting Agency (GCA) to set up good project preparation in order to attract investors. Therefore GoI assign PT SMI to do the project preparation for some projects.

5. Geothermal Fund. Related to the geothermal power plant project, GoI gives incentives in the form of providing additional data/information about geothermal reserves and financing/loan to the developer on the exploration stage, which expected to reduce resources risk.
6. Viability gap fund. It is a government support in the form of cash to make one project that economically viable and financially unviable become economically and financially viable.

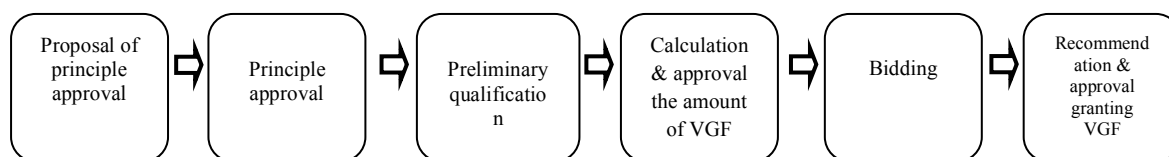
### 2.3. What is VGF?

*Viability gap fund* or in Indonesia called *Dana Dukungan Kelayakan* is funds provided by the government for infrastructure projects in PPP scheme to make project that were previously economically viable but financially unviable to become economically and financially viable (Setiawan & Damayanty, 2012). While Ministry of Finance No. 223/2012 said that the meaning of *Dukungan Kelayakan* is

*dukungan pemerintah dalam bentuk kontribusi fiskal yang bersifat finansial yang diberikan terhadap Proyek Kerja Sama dalam bentuk dan menurut tata cara sebagaimana diatur dalam Peraturan Menteri ini.*

The purposes of VGF are (i) improving the financial feasibility of the project in order to increase the interest and participation of private sector, (ii) increasing the certainty of project procurement in the PPP scheme in accordance with the quality and the planned time, and (iii) realizing the public services at a rate that is affordable by the community (Kementerian Keuangan, 2012).

VGF can only be given if there is no other alternative to make a project financially viable (last resort). The amount of VGF that can be granted is a certain portion (not dominating) of construction cost of the project, which includes the construction costs, equipment costs, installation costs, interest cost during the construction period, and other costs related to construction, but excluding costs related to land acquisition and tax incentives. Mechanism of providing can be seen in Figure 2.2.



**Figure 2.2.** Mechanism of Granting VGF

Source: Damayanty & Setiawan, 2013

The practice of VGF have been implemented in many countries, such as India (Setiawan & Damayanty, 2012), Korea (OECD, 2013), China (T sukada, 2005), and other countries. Until 2011, in India there were 123 projects have been giving and will get VGF (Setiawan & Damayanty, 2012).

### 2.4. The Rationale of VGF

Abednego & Ogunlana (2006) found that proper risk allocation should be done in order to make the private sector interested to invest in PPP scheme. This can only be achieved if it considers the type of risk (what) to be allocated, which party should accept the risk (who), when to allocate the risk as well as application of proper strategy to prevent or minimize its consequences (how). Incapability to control risk properly will be reflected in absence of good project governance, thus resulting in an unsuccessful project.

Infrastructure projects usually require huge and long time investment. Although, it is user pay scheme projects, but generally the amount paid by the customer is not enough to cover the investment. So that, only a few private sector want to invest in this area. Therefore it needs a fair risk sharing between private and public sector.

In the toll road infrastructure, barriers faced by investors generally either overly high construction cost or low prediction on traffic volume which will automatically reduce profit or cost recovery of the operator (Antono, 2009). Therefore the government subsidies are needed in the construction phase of the project in order to minimize the risks faced by the private sector. In this case, there are 4 types of subsidies that can be provided by the Government, which are (i) minimum revenue guarantee, (ii) funding based on the existing assets yields, (iii) providing land and bearing construction cost for roads, and (iv) take of pay agreements (Chen et al., 2012). These subsidies increase financial viability of the projects, so that private sector interested to invest in the infrastructure projects.

## **2.5. How to calculate a project is feasible or not?**

The result of the financial model will show the financial viability of the project. It represents with parameters such as Net Present Value (NPV), Internal Rate of Return (IRR) as well as Break Even Point (BEP). The NPV is a parameter to give a signal for the investor, in which positive figure meaning the project gives positive value to the project and therefore adding more wealth to the investor. Furthermore, in order to measure the acceptable return, the IRR was used to reflect the minimal return that investor willing to achieve, as it shows the return gained by investor while the NPV is zero. In addition, the BEP number will give a parameter how long the investment cost will be recovered by the project revenue, so the investor can start receive the return. All of the parameters were resulted from the stream of cash flow of the financial model.

## **III. METHODOLOGY**

Methodology used in this study is quantitative method with the financial analysis. IRR and NPV are used as main financial parameters to determine financial viability of the project. These financial figures will be analysed and benchmarked to the standar IRR and NPV for toll project in Indonesia. Once there is a gap between the project IRR or NPV and the standard IRR or NPV, VGF will be given to close the difference.

Monte Carlo analysis is also used in order to capture the randomness of variable input changing in the future so that the model can be transformed to the stochastic model. Monte carlo simulation is a technique used to understand the impact of risk and uncertainty in financial, project management, cost, and other forecasting models (RiskAMP, 2012). With the Monte Carlo simulation, a random value is selected for each of the tasks, based on the range of estimates. The model is calculated based on this random value. A typical Monte Carlo simulation calculates the model hundreds or thousands of times, each time using different randomly-selected values. When the simulation is complete, then we will have a large number of results from the model, each based on random input values. These results are used to describe the likelihood, or probability, of reaching various results in the model (RiskAMP, 2012).

## **IV. RESULTS AND DISCUSSION**

### **4.1. Financial Analysis**

The financial analysis were conducted to examine project financial viability by calculating The NPV and IRR of the project. The less financial viability of the project, the less investor is attracted to

invest to the project. In order to do the analysis, this study used financial data from Palembang-Indralaya Toll Road Business Plan Model 2008. In addition, some assumptions are taken from Financial Analysis of Palembang-Indralaya Toll Road (Yuanda & Haneman, 2008).

The basic financial data and assumptions were used in this study as stated in Table 4.1.:

**Table 4.1.** Financial Data and Assumption

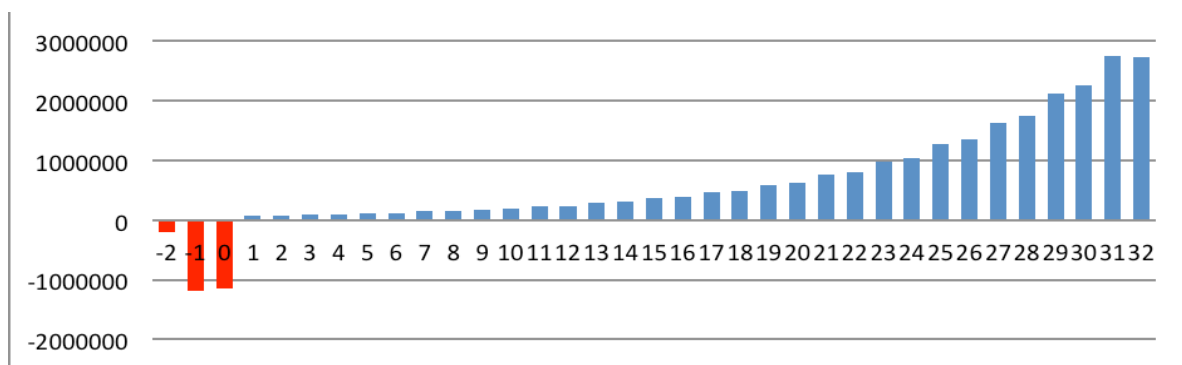
<b>Investment Cost (Rp. Million)</b>		
<b>Detail</b>	<b>%</b>	<b>Investment</b>
<b>Investment Cost (Rp.million)</b>		
Land Acqusition		293.200
Design (FED)	2,00	13.750
Construction and Toll Facilities		687.500
Toll Equipment	1,50	10.313
Supervision	1,5	10.313
Escalation	7,0	128.111
Contingensi	10,0	68.750
VAT10%	10,0	23.124
Overhead	2,00	13.750
Financial Cost	1,25	19.289
IDC		122.504
<b>Total</b>		<b>1.097.403</b>
<b>Financial Assumption</b>		
<b>Assumptions:</b>		<b>Unit</b>
Length of Road	22	Km
Loan Interest	14%	
Cost per Km	49.882	(Rp. Million)
Depreciation and Amortisation	32	year (liniear)
<b>Toll Tariff</b>		
- Gol I	320 <sup>1</sup>	Rp/Km
- Gol II	570	Rp/Km
- Gol III	820	Rp/Km
- Gol IV	1.070	Rp/Km
- Gol V	1.320	Rp/Km
Increasing Tariff	7%	Biennial
WACC	11,8%	
Debt Ratio	70%	
Equity Ratio	30%	
Tax	30%	
Operation and Maintenance	15%	(from revenue)
Cost of Equity	16%	
<b>Traffic Volume Assumptions</b>		
<b>Traffic</b>	<b>year 2010</b>	<b>Unit</b>
<b>Average Daily Traffic</b>		
- Gol (Class) I	415.514	Car-km/day
- Gol (Class) II	29.326	Car-km/day
- Gol (Class) III	19.558	Car-km/day
- Gol (Class) IV	14.674	Car-km/day

<sup>1</sup> BKBOOK Palembang Indralaya Toll Road (*Besar Keuntungan Biaya Operasi Kendaraan-Return from Car Operational Expense*). This figures indicate the operational cost saving gained by car user should they use toll road rather than ordinary road.

- Gol (Class) V	9.768	Car-km/day
<b>Car/day</b>		
- Gol (Class) I	18.887	Car/day
- Gol (Class) II	1.333	Car/day
- Gol (Class) III	889	Car/day
- Gol (Class) IV	667	Car/day
- Gol (Class) V	444	Car/day
Total	22.220	Car/day
<b>Traffic Composition</b>		
- Gol I	85%	
- Gol II	6%	
- Gol III	4%	
- Gol IV	3%	
- Gol V	2%	

The project assumptions are defined based on three main categories namely investment figures, financial assumptions and traffic predictions. All of these assumptions are taking into the financial model which will lead to the financial feasibility of the project. It is derived from the project cash flow, in which comprise the calculation of present value of total revenue minus the investment costs and operational costs. The revenue itself is generated from the daily traffic multiplied by the tariff, while the operational costs are assumed by specific percentage of the revenue. In addition, the investment costs are calculated by sum up the construction costs as well as the cost of financing to get the loan and equity to finance the project.

The financial parameters of the Palembang-Indralaya Toll Road were generated from the free cash flow stream, in which taking into account the growth of traffic derived from the GDP growth forecast (Yuanda & Haneman, 2008). The cash flow stream of the projects can be seen in Figure 4.1.



**Figure 4.1.** Free Cash Flow of the Project

The cash flow graph represents the cash waterfall of the project, in which, essentially meaning as the net cash from the project available to the investors or equity holders. The bar below zero line represents initial outlay of investment cost, which will be disbursed in the 3 years of construction periods with the sum of the cost is Rp 1.097.403 millions. Meanwhile, the bar above zero line indicates the project cash flow, namely net sum of revenue minus expenses including operation and maintenance, depreciation, interest, and tax. The project generates Rp 80.147 million positive cash flow in the first year of operation period and increase gradually until reach Rp 2.726.854 millions in the end of the concession period. These calculations are put it together to determine project financial viability, in which the results as follow:

NPV	(382.014)
IRR	10,59%
BEP	Year 15

The net present value of the project is negative 382.014, meaning that by investing to the project, the wealth of investor will decrease by Rp 382.014 million. Moreover, in order to get the neutral impact (NPV = 0), investor must gain at least project return of 10,59% (IRR). The IRR figure is far below the standard, in which the standard return of toll road in Indonesia is 15% (Antono, 2009).

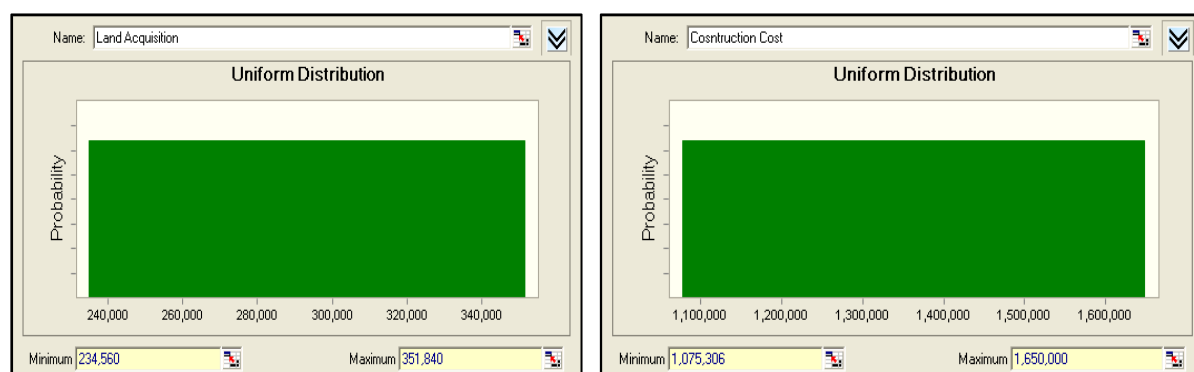
Based on the financial viability parameters above, it can be concluded that the project is financially not viable, so the investor will not interested to invest in the project. However, the calculation was done in the deterministic model. It does not take into account the possibility of variable input change, for example the changing of traffic forecast, tariff, as well as the project cost. In order to capture the randomness of variable input changing in the future, this study will use Monte Carlo Simulation with Crystal Ball, so the model is transformed to the stochastic model.

#### 4.2. Monte Carlo Analysis.

##### 4.2.1. Defining the Distribution of Significant Independent Variables

Basically, the financial model set up the variable inputs (Table 4.1) as the independent variable, while the financial viability parameters (NPV and IRR) as an output or dependent variable. In order to simulate the NPV and IRR figures, the study has determined the independent variables that significantly influence the NPV and IRR calculation. There are a lot of risks that threat the financial viability of toll road in Indonesia, among others are tender duration risk, competition risk, concession contract risk, concession contract risk, land acquisition risk, traffic volume risk, toll tariff risk, investment cost risk, overloading risk, construction risk, legal and institutional support risk, inflation risk, and interest rate risk (Wirahadikusumah, Sapitri, Susanti, & Soemardi, 2014). This study will use four of those risks as the most significant factor that influences the NPV and IRR, which are land acquisition risk, construction risks, traffic/demand risk, as well as political risk related with the tariff adjustment.

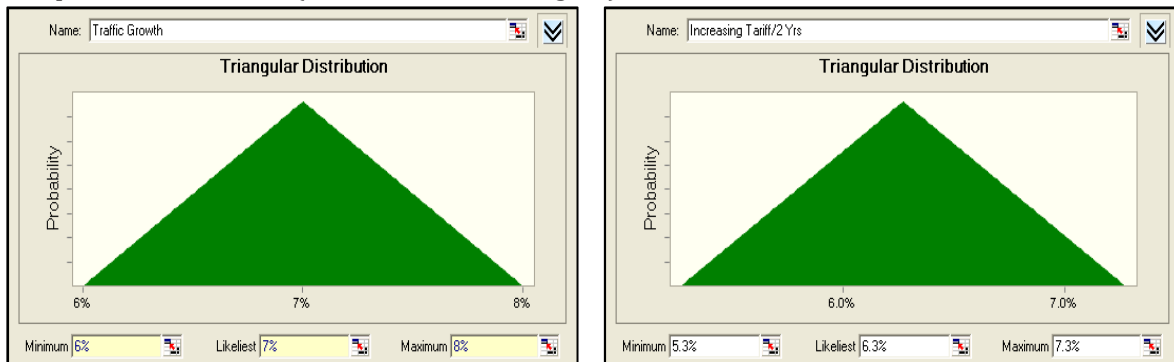
Furthermore, the distribution of that risk factor should be defined, as it can be seen in Figure 4.2., 4.3., and 4.4.



**Figure 4.2.** The Probability Distribution of Land Acquisition and Construction Cost

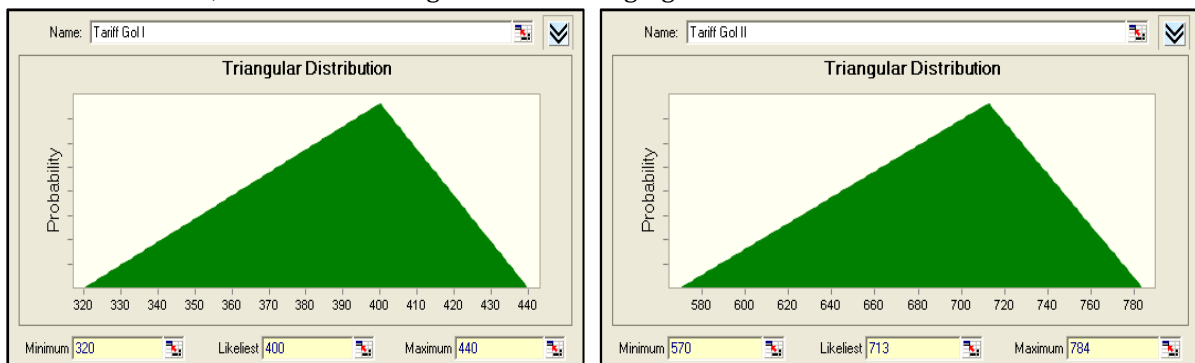
The land acquisition is defined in uniform distribution, which the minimum of land acquisition cost will be 25% below the baseline assumption in the financial model, and maximum will reach 120% of it. In addition, The construction cost also defined as uniform distribution, while

the minimum cost will be Rp 1.075.306 million (Yuanda & Haneman, 2008) and maximum cost will be Rp 1.650.000 million (120% of the model figure).



**Figure 4.3.** The Probability Distribution of Traffic Growth and Tariff Adjustment

Furthermore, the growth of the traffic is defined as triangular distribution, as it is likely will follow the GDP growth in Palembang on 7% growth rate (Yuanda & Haneman, 2008), while the range of the traffic growth changing is  $\pm 1\%$ . In addition to that, the biennial tariff adjustment as regulated by government will be adjusted to the inflation rate, in which the 5 years average of inflation rate is 6,27% with the range inflation changing is  $\pm 1\%$ .

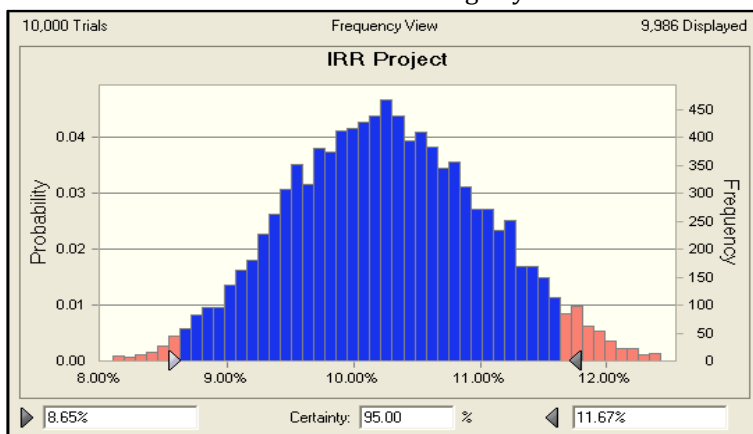


**Figure 4.4.** The Probability Distribution of Tariff Class I and II

Finally, the tariff is defined as triangular distribution, with the basic tariff set up from BKBOK Palembang Indralaya Toll Road is Rp 400/km, and the range of tariff is minimum 25% below BKBOK and maximum 10% above BKBOK.

#### 4.2.2. The Crystal Ball Simulation

The simulation of the IRR number using Crystal Ball can be in Figure 4.5.,



**Figure 4.5.** The Simulation of IRR Using Crystal Ball

Using the confidence level of 95%, the IRR number will range from 8.65% to 11.67%. The figures range is still far below the standard IRR of toll road project in Indonesia which is 15%. Furthermore, the Crystal Ball also defines the degree of variable that most influence the IRR calculation (Figure 4.6.).

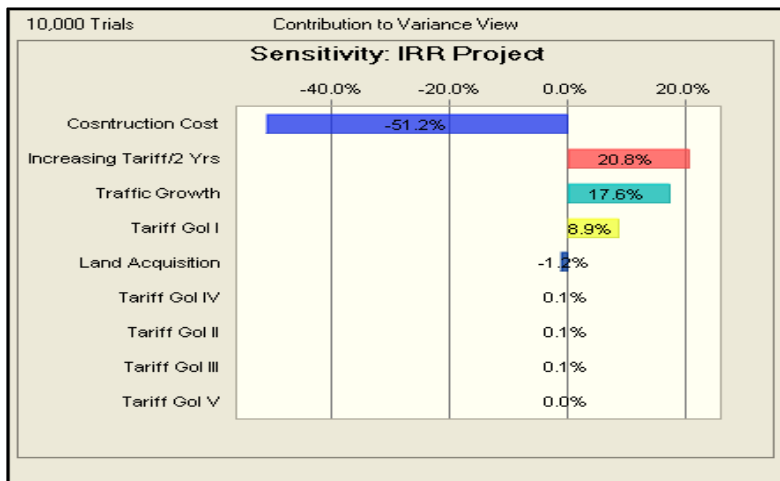


Figure 4.6. The Degree of the Most Influence IRR

It can be seen from Figure 4.6. that the construction cost is the biggest factor that influence the IRR, followed by the tariff adjustment, traffic growth and tariff Class I. The construction cost influence the IRR in the opposite way, meaning that the increasing of construction cost will result in the decreasing of IRR. Armed with this evidence, it is explained that the most uncertainty is associated with construction cost. This might mean that the project management’s top priority should be getting costs lowered.

Furthermore, the NPV simulation resulted from Crystal Ball calculation can be seen in Figure 4.7,

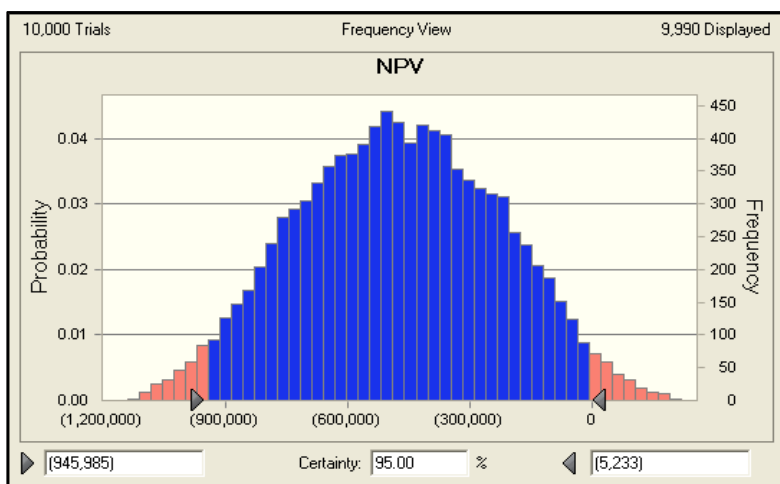
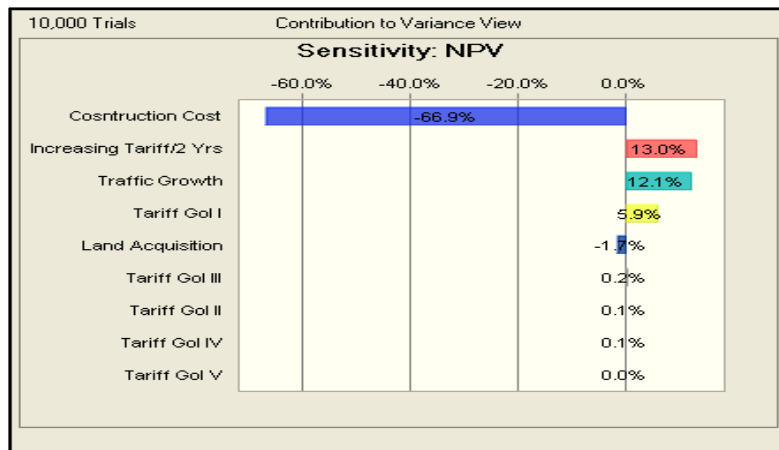


Figure 4.7. NPV Result from the Crystal Ball



**Figure 4.8.** The Degree of the Most Influence NPV

Using the level of confidence 95%, the Project's NPV is determined between negative 945.985 to negative 5.233. By interpreting this result, which Project's NPV is less than 0, meaning that the project should be rejected from the investment decision. The construction cost is greatly influence the NPV calculation as a negative coefficient. It is confirmed that, the construction cost should be put into a big attention of the project management to be handled and well managed.

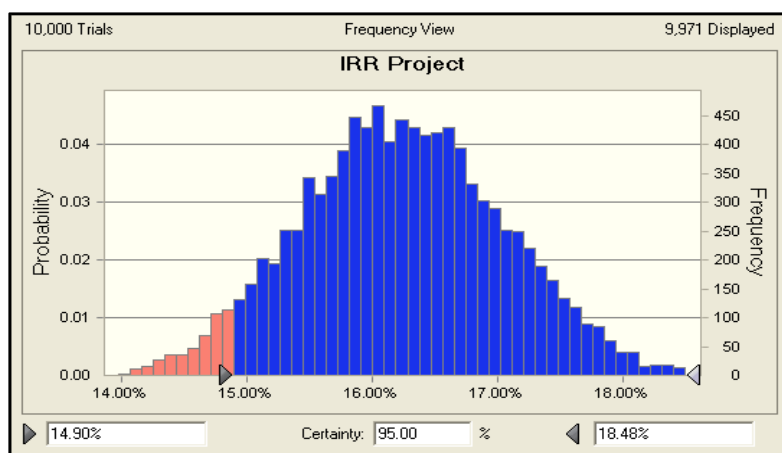
To sum up, by using the Monte Carlo simulation, it also can be confirmed that project is financially not viable. Hence, the project is not attractive to the investors.

#### 4.3. Government Fiscal Support to Increase Financial Viability

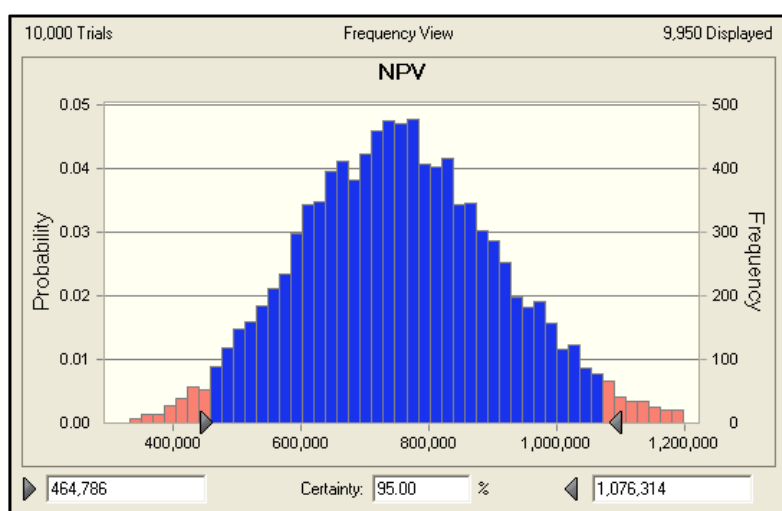
As it can be seen from the sensitivity chart above, the most significant factor that influences the IRR and NPV is the construction cost. It gives direction to the government to provide government support to lower the construction cost borne by the investor. According to the Ministry of Finance Regulation No 223/Year 2012, the government can provide fiscal support in form of cash as well known as VGF to the PPP Project. Basically, The VGF is a government spending that given to the PPP project, as a part of construction subsidy. However, the amount of VGF should not dominate the construction cost. Furthermore, the government also specifically provides Land Fund to support Toll Road Investor to acquire the land. According to the Land Fund mechanism, the government will reimburse the land acquisition cost until 110% of total land cost.

Referring to the fiscal support as explained above, in order to attract the investor to invest to the Palembang-Indralaya Toll Road Project, government should provide appropriate government support to increase the project financial viability. The VGF can cover maximum 50% of the construction cost namely 687,500 and Land Fund will reimburse the land acquisition until 110% of the land cost valued by the independent appraisal. In addition, according to the standard developed by Ministry of Public Works and Public Housing, the IRR of toll road in Indonesia should be at least 15% (Antono, 2009). It will make the investor interested enough to invest their money to the project.

By combining the VGF and Land Fund support and setting up the IRR 15%. It can be seen in Figure 4.9. and 4.10, with confidence level 95%, the IRR will increase within the range of minimum 14.90% until 18.48%, while, the NPV also range from 464.786 to 1.076.314.



**Figure 4.9.** IRR Calculation After Being Given VGF and Land Fund Support



**Figure 4.10.** NPV Calculation After Being Given VGF and Land Fund Support

In conclude, the government support in form of VGF and land fund, effectively elevate the project financial viability.

## V. CONCLUSION

VGF is one of the breakthroughs from GoI to accelerate the development of infrastructure using PPP scheme. It is given in order to make financially unviable project to become financially viable project so that private sector interested to invest in the infrastructure projects. Based on the case study of Palembang-Indralaya Toll Project, VGF succeed to elevate the project financial viability. Before being given the VGF and land fund support, the IRR and NPV of project only 8.65% - 11.67% and -945.985 to -5.233, while after given VGF and land fund support, then IRR and NPV of the project become 14.90% - 18.48% and 464,786 to 1,076,314.

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