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Ministry of Planning and Investment

VGF Survey for PPP Projects in Viet Nam

Final Report

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Preface

This report is the final report of "Basic Information and Collection Survey for PPP System Design in Vietnam".

The purposes of this survey under the business instruction form of JICA are as follows.

- 1) Based on the experience of the infrastructure development project in Japan, calculate the public subsidy rate for appropriate PPP projects in Vietnam and prepare materials to promote the understanding of the Vietnamese government officials.
- 2) Collect and analyze information on appropriate VGF (Viability Gap Funding) implementation mechanism and compile materials that can be used for future support to Vietnamese government.

However, under the request of MPI during the mission in Vietnam, the main objective of this survey was determined as "to propose the new VGF mechanism in Vietnam". Therefore this report, consisting of two parts as below, covers this main object and refers the subject instructed to implement by the JICA business instruction form.

Part 1, consisting of four chapters, shows the results of our survey on the ways to improve the VGF system in Vietnam. Chapter 1 describes the outline of the current VGF system in Vietnam, the usage situation, and its problems. In Chapter 2, we propose a new VGF mechanism aiming at improvement of the existing VGF system. In Chapter 3, since utilizing ODA loan is prerequisite as a source of funds for the VGF mechanism, we discuss how to utilize ODA loan. In the last chapter 4, we present a Road Map for concrete realization toward establishment of a new VGF mechanism and suggest the way of approach to solve any problems.

Part 2, consisting of two chapters, describes the result of our research of the application conditions of VGF in the five sectors (roads, water supply facilities, sewerage facilities, waste disposal facilities, hospitals) where VGF is expected to be utilized in Vietnam in the future, referring to the experience in Japan. In Chapter 5, we introduced the "subsidy rate of public infrastructure projects in Japan" to clarify the way of calculation of subsidy in PFI project in Japan. And then in Chapter 6, our survey of "analysis of proper subsidy rate in PPP project in Vietnam" is introduced. Further in the chapter, by taking one case project from each sector, making various assumptions and conducting cash flow analysis, the rough initial VGF required amount is calculated and finally the required amount of VGF is estimated as well. In addition, we select promising projects for each sector, and make projection of the VGF requirement for each sector, and use it as a reference for calculating the grant amount of the VGF yen loan mentioned in Part 1.

We hope that the VGF system proposed in this report will help to improve the VGF system in Vietnam.

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Supporting Document : Final Report of “Data collection survey on the concession project for operation and maintenance of expressway in Vietnam and Japan”

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Abbreviations

ADB	Asian Development Bank
AP	Availability payment
ASA	Authorized State Agency
BLT	Build - Lease - Transfer
BOO	Build - Own - Operate
BOT	Build - Operate - Transfer
BT	Build - Transfer
BTO	Build - Transfer - Operate
CAPEX	Capital Expenditure
CIT	Corporate Income Tax
DARD	Department of Agriculture and Rural Development
DBO	Design - Build - Operate
DOC	Department of Construction
DOH	Department of Health
DONRE	Department of Natural Resource and Environment
DOT	Department of Transport
DPEP	Dau Giay – Phan Thiet Expressway
DPI	Department of Planning and Investment
DRVN	Directorate for Roads of Viet Nam
EIA	Environmental Impact Assessment
EIRR	Economic Internal Rate of Return
ENPV	Economic Net Present Value
FIRR	Financial Internal Rate of Return
FS	Feasibility Study
FY	Fiscal Year
HCM	Ho Chi Minh City
IRR	Internal Rate of Return
JICA	Japan International Cooperation Agency
JPY	Japanese Yen
JSC	Joint-Stock Company
MARD	Ministry of Agriculture and Rural Development
MOC	Ministry of Construction
MOE	Ministry of Environment
MOF	Ministry of Finance
MOH	Ministry of Health
MOIC	Ministry of Information and Communication
MOIT	Ministry of Industry and Trade
MONRE	Ministry of Natural Resource and Environment
MOT	Ministry of Transport
MPI	Ministry of Planning and Investment

MTPIP	Mid-term Public Investment Plan
O&M	Operation & Maintenance
ODA	Official Development Assistance
OPEX	Operational Expenditure
PC	People's committee
PDF	Project Development Facility
PFI	Private Finance Initiative
PMU	Project Management Unit
PPA	Public Procurement Agency
PPP	Public Private Partnership
SPC	Special Purpose Company
URENCO	Urban Environment Company
USD	United States Dollar
VAT	Valua-Added Tax
VGf	Viability Gap Funding
VND	Vietnamese Dong
WB	World Bank
WTP	Water Treatment Plant
WWTP	Waste Water Treatment Plant

PART 1: IMPROVEMENT OF THE VGF MECHANISM IN VIET NAM

CHAPTER 1 CURRENT VGF SYSTEM IN VIET NAM

1.1 Regulatory Framework and Track Record of PPP

1.1.1 Regulatory Framework

(1) Outline of PPP Regulatory Framework

Prior to introducing PPP Regulatory Framework in Viet Name, the legal system of Viet Nam is examined. The legal system of Viet Nam consists of the following regulations. The regulations are shown in order of superiority.

- Constitution
- Law
- Resolution of the National Assembly)
- Ordinance of the National Assembly Standing Committee
- Decree
- Decision of the Prime Minister
- Circular

Particularly, with regard to PPP, laws which are established by the National Assembly, are superior to other regulations such as decrees, prime minister's decision, and circulars.

The Decree on Public-Private Partnership Investment Form which came in force in April 2015 is the primary regulation which governs PPP in Viet Nam. Before establishment of this circular, there were several PPP-related regulations such as “Decree No. 108 on Build-Operate-Transfer (BOT), Build-Transfer-Operate (BTO) and Build-Transfer (BT) investments (Decree No. 108/2009/ND-CP) ” and “Decision No. 71 on pilot PPP projects (Decision No. 71/2010/QD-TTg) ”. However, these regulations are discussed and replaced by Decree No. 15.

Regarding VGF, article No. 11 of Decree No. 15 stipulates as follows:

“2. The State investment capital for participation in the project implementation shall be used for conducting the following activities: a) To provide capital support to the construction of facilities with regard to projects having business activities and collecting user fees, but the revenues are not sufficient for recovering investment capital and gaining profits;”

Decree No.15 does not use the term “VGF”, however, the function of the above-mentioned government support is nothing but that of VGF. The Study Team also confirmed with MPI officers that they also recognize this stipulation as the legal basis of VGF system in Viet Nam.

Other PPP-related laws and decrees are shown in Table 1-1.

Table 1-1 PPP-related Laws and Decrees in Viet Nam

Laws and regulations	Effectua tion Date	Description
Decree No. 15/2015/NĐ-CP on investment in the form of Public-private partnership	14/2/2015	Provide the regulation on the sectors and requirements, procedures for execution of the investment projects developed in the form of public-private partnerships; the management and use of the State funding for execution of investment projects; the government's investment incentive and assurance policies, and government agencies' responsibilities for management of the investment projects developed in the form of public-private partnership
Law on Public Investment No.49/2014/QH13	18/06/2014	Provides the management and use of the capital budget for public investment; the state management of public investment; the rights, obligations and responsibilities of agencies, organizations and individuals involved in public investment activities.
Law on Bidding No. 43/2013/QH13	01/07/2014	Provides the bidding procedures, methods and criteria to be used in the public procurement, including construction works and provision of services.
Law on State Budget No. 83/2015/QH13	25/06/2015	Provide the planning, implementation, audit, statement, and supervision of state budget; responsibilities and entitlements of agencies, organizations, units, and individuals relevant to state budget.
Decree No. 30/2015/NĐ-CP on Guidelines for some articles on investor selection of the law on bidding	17/07/2015	Provides supplemental rules and regulations for Law on Bidding No. 43/2013/QH13 which is specific to the selection of investors of PPP projects
Decree No. 77/2015/NĐ-CP on annual and medium-term public investment	10/09/2015	Details the formulation, appraisal, approval, plan assignment, implementation, monitoring, plan implementation appraisal and adjustment of annual and medium-term public investment plan of the country, Ministries, central sectors and localities.
Decree No. 131/2015/NĐ-CP on guidance on projects of national significance	25/12/2015	Specify guidance on projects of national significance, including: Organization and operational modality of the State Assessment Council; documentation and procedures for application for assessment and contents of assessment of projects of national significance; hiring of inspection consultants, and costs of assessment and inspection of projects of national significance
Decree No. 136/2015/ND-CP on Guidance on implementation of certain articles of the law on public investment	31/12/2015	Provides interpretation and implementation guidance in relation with implementation of articles of the law on public investment
Decree No. 16/2016/NĐ-CP on management and use of official development assistance and concessional loans granted by foreign sponsors	16/03/2016	Provides for management and use of official development assistance (ODA) and concessional loans granted by foreign governments, international organizations, inter-government or international organizations, governmental organizations authorized by foreign governments (hereinafter referred to as foreign sponsors) to the State or the Government of Socialist Republic of Vietnam.

Source: JICA Study Team

As of July 2017, there were 1 decision and 8 circulars issued by the Prime Minister and other Ministers (1 Prime Minister's Decision, 3 MPI Circulars, 1 MOF Circular, 1 MOT Circular, 2 MOIT Circular, and 1 MOIC Circular) as shown in Table 1-2.

Table 1-2 PPP-Related Decision and Circulars in Viet Nam

Name of Decision/Circular	Issuer	Effectuation Date
1. DECISION (No. 23/2015/QD-TTg) Providing the mechanism whereby the state uses land to make payments to investors implementing construction investment projects in the form of BT	PM	26/06/2015
2. CIRCULAR (No. 06/2016/TT-BKHDT) Guiding a number of articles of decree No. 15/2015/ND-CP) by the government on investment in the form of Public-Private Partnerships	MPI	28/06/2016
3. CIRCULAR (No.02/2016/TT-BKHDT) Guidance on preliminary project selection, establishment, appraisal, and feasibility study report on investment project under form of Public-Private Partnership	MPI	01/03/ 2016
4. CIRCULAR (No. 15/2016/TT-BKHDT) On guidelines for pre-qualification document, bidding documents on selection of investors carrying Public-Private Partnership Projects	MPI	29/09/2016
5. CIRCULAR (No.:55/2016/TT-BTC) Providing for certain contents of financial management of investment projects in the form of Public-Private Partnership and costs of investor selection	MOF	23/03/ 2016
6. CIRCULAR (No.86/2015/TT-BGTVT) Detailing guidance on investment sectors and contents of feasibility study reports of Public-Private Partnership investment projects in Transportation Sector	MOT	31/12/2015
7. CIRCULAR (No. 38/2015/TT-BCT) Detailing certain contents of the investment in the form of Public-Private Partnership under the authority of the Ministry of Industry and Trade	MOIT	30/10/2015
8. CIRCULAR (No. 23/2015/TT-BCT) Sequence and procedures for financing Thermo-Power Plant Project in the form of BOT contract	MOIT	13/07/2015
9. CIRCULAR (No. 21/2016/TT-BTTTT) On guidelines for Public-Private Partnerships investment model under management of the Ministry of Information and Communication	MOIC	30/09 2016

Source: JICA Study Team

The above-mentioned decision and circulars do not touch up on VGF system which is stipulated in Article No. 11 of Decree No. 15. In short, Viet Nam has the legal basis of VGF; however, there is no such a regulation which stipulates detailed VGF procedures, including application, approval, budgeting, disbursement and documentation format.

(2) PPP-promoting Organizations

The organization who assumes the role to promote PPP in Viet Nam is the Public Procurement Agency (PPA) of MPI. Basic roles and responsibilities of MPI is stipulated in Article 64 of Decree No. 15. There is the Public-Private Partnership Office under PPA, who is in charge of PPP institutional building and operation as well as promotion of individual PPP projects. The units consists of approximately 12 officers including the head; however, compared to the PPP Center of the Philippines for example, which consists of more than 100 staff and consultant, the number of staff is small.

With regard to ASAs, establishment of PPP units is stipulated in Article 8 of Decree 8, but the decision

whether to establish such units are up to individual ASAs. At ministry level, MOT has established a PPP Unit, while other ministry has not yet. At provincial PC level, same is the case. For example, Ho Chi Minh City and Hanoi City have established the Public Private Partnership Division under Department of Planning and Investment, while other provincial PCs have not necessarily done so.

(3) PPP-Applicable Sector and PPP project implementation process

Article 4 of Decree No. 15 stipulates eligible sectors for PPP. The five sectors which are covered by the JICA VGF Survey are included in the eligible sectors.

- Infrastructure facilities for traffic and transportation and relevant services;
- Lighting systems; water supply systems; drainage systems; waste and wastewater collection and treatment systems; social housings, resettlement housings, cemeteries.
- Power plants, power transmission lines.
- Infrastructure facilities in healthcare, education, training, vocational training, culture, sport and other relevant services; office buildings of state agencies.
- Commercial, scientific and technological, hydro-meteorological infrastructure facilities, infrastructure facilities of economic zones and information technology parks; information technology applications.
- Agricultural and rural infrastructure facilities, development services for connecting the production with the processing and sales of agricultural products.
- Other sectors pursuant to Prime Minister's decision.

PPP projects for which state budget is applied are classified into several categories as shown in the following table, as stipulated by Article 6-10 of the Public Investment Law¹. As can be seen from the table, the classification is made based on three criteria: namely, investment amount, project importance and sectors.

The Public Investment Law stipulates planning and implementing procedures for each project category, including project approving authorities. Article 4 of the law states that “public investment project means an investment project entirely or partially financed by public investment funds” and according to MPI, any PPP projects which receive VGF is regarded as “public investment project” and have to follow the classification and the procedures and stipulated in the law. Also, according MPI, the classification of project are done not by the amount of VGF, but by the amount of investment amount, according to Article 5 of the law.

¹ Public Investment Law Article 4, Clause 13 stipulates that public investment project means an investment project entirely or partially financed by public investment funds. According to MPI, PPP projects with VGF is regarded as public investment project based on this stipulation.

Table 1-3 Project Classification under Public Investment Law

Important National Projects (Art. 7)	1	Projects that expense the government budget over VND 10 trillion		
	2	Projects that may entail the following considerable impacts on the environment		
		A) Nuclear power plant B) Projects that require changes in the following land use: national parks, nature reserves, landscape protected areas, forest areas over 50 ha reserved for scientific research, basin protection forests over 50 ha, protected forests over 500 ha that provide protection against wind, sand, wave, and coastal erosion, production forests over 1000 ha		
	3	Projects that require changes in urban land use in wetlands where several species of rice are cultivated over 500 ha		
	4	Project that require relocation of more than 20,000 habitants in mountainous areas and over 50,000 residents in other areas		
5	Projects that require adoption of special rules or policies by National Assembly			
Group A (Art. 8) ※Except projects described in Art. 7	Projects corresponding the conditions specified on the right, regardless of investment amount	a	Projects located in districts including special national heritages	
		b	Projects located in highly critical districts for national defense and security defined in Defense and National Security Law	
		1 c	Projects that contain confidential information on national defense and security	
		d	Projects that produce hazardous substances and explosives	
	Total capital invested over VND 2.3 trillion	dd	Infrastructure projects in Industrial Parks or Export Processing Zones	
		2	a	Projects of transportation infrastructure including bridge, seaport, river port, airport, railway, and national highway
			b	Projects of power generation
			c	Projects of exploration of oil and gas
			d	Projects of chemistry, fertilizer, and cement
			dd	Mechanical engineering and metallurgy
			e	Mineral extraction and processing
	Total capital invested over VND 1.5 trillion	g	Housing construction	
		3	a	Projects of transportation excluding above 2.a
			b	Projects of irrigation
			c	Projects of water supply, drainage and technical infrastructure equipments
			d	Projects of electric engineering
			dd	Projects of information communication technology and audio equipment manufacturing
			e	Projects of medicinal chemistry
			g	Projects of raw material manufacturing excluding above 2.d
			h	Projects of machine construction facility excluding above 2.dd
	i	Projects of post and telecommunications		
	Total capital invested over VND 1 trillion	4	a	Agriculture, forestry, fishery industry
			b	National parks and nature conservation
			c	Technology infrastructure in new urban areas
d			Industrial projects excluding those described in above CL. 1, 2 and 3	
Total capital invested over VND 800 billion	5	a	Health care, culture, education	
		b	Scientific research, information science, wireless communication, television broadcasting	
		c	Warehouse	
		d	Tourism, physical education, sports	
		dd	Projects of civil engineering excluding above 2.g housing construction	
Group B (Art. 9)	1	Projects in the sector corresponding Art. 8 CL. 2 with total invested capital over VND 120 billion and less than 2.3 trillion.		
	2	Projects in the sector corresponding Art. 8 CL. 3 with total invested capital over VND 80 billion and less than 1.5 trillion		
	3	Projects in the sector corresponding Art. 8 CL. 4 with total invested capital over VND 600 billion and less than 1 trillion		
	4	Projects in the sector corresponding Art. 8 CL. 5 with total invested capital over VND 45 billion and less than 800 billion		
Group C (Art. 10)	1	Projects in the sector corresponding Art. 8 CL. 2 with total invested capital less than VND 120 billion		
	2	Projects in the sector corresponding Art. 8 CL. 3 with total invested capital less than VND 80 billion		
	3	Projects in the sector corresponding Art. 8 CL. 4 with total invested capital less than VND 60 billion		
	4	Projects in the sector corresponding Art. 8 CL. 5 with total invested capital less than VND 45 billion		

Source: JETRO

The implementation process of a PPP project is stipulated as follows in the Decree No. 15.

Table 1-4 PPP Project Implementation Process

Process		Decree No.15	Note
1	Formulation and Publication of Projects	Chapter 3	<ul style="list-style-type: none"> • Project of National Importance follow stipulations in the Public Investment Law (A17) • Head of an ASA approve Group A-C projects (A17) • Approval-in-principle is required in prior to project approval by ASAs when VGF is applied. (A17)
2	Formulation, appraisal, and approval of the Feasibility Study Reports	Chapter 4	<ul style="list-style-type: none"> • The Prime Minister approves projects of national importance (A27) • Head of an ASA approves other projects except the case where ODA fund is applied. (A27)
3	Selection of Investor and Signing of Investment Agreement and Project Contract	Chapter 5	—
4	Investment Registration and Establishment of Project Enterprise	Chapter 6	—
5	Project Implementation	Chapter 7	—
6	Finalization and Transfer of Project Facilities	Chapter 8	—

Source: Decree No. 15

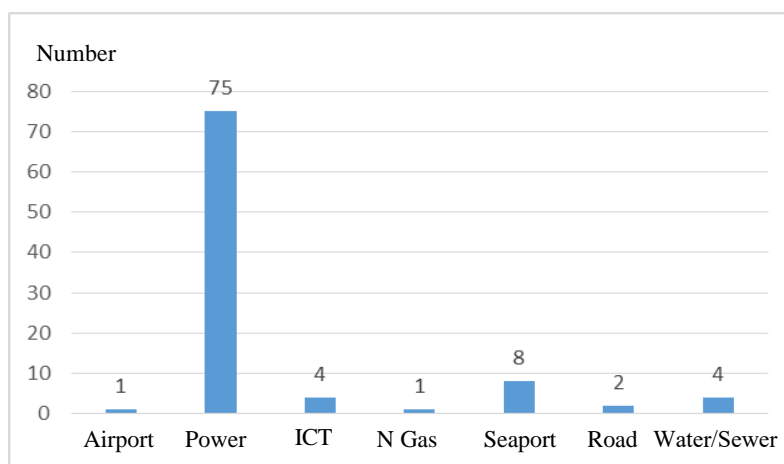
1.1.2 Analysis of PPP Project Track Record in Viet Nam

(1) Data obtained from PPI Database and Interviews during the Field Research

According to the PPP database of the World Bank, the total number of PPP project which achieved financial closing during 1990 and 2014 is 95. Most of the PPP projects belong to power sector (75 projects), followed by seaport sector (7 projects), ICT sector (4 projects) and water sector (4 projects). Apparently the number of PPP projects in sectors other than power sector has been limited.

Almost the same information was obtained from interviews with government stakeholders, including MPI, sector ministries, and provincial people's committees. In the meetings, the following key information was obtained from the government stake holders in addition to the one obtained from the World Bank statistics:

- Most PPP projects in Vietnam, except some in power sector, have been proposed and carried out by unsolicited basis.
- There has been no PPP project which has been carried out following the procurement procedure of Decree No. 15. (As of June 2017)
- There has been no PPP project for which VGF is applied based on a stipulation of Decree No.15.



Source: The World Bank PPI Data Base

Figure 1-1 PPP Projects Track Record in Viet Nam

As observed above, Viet Nam does have a VGF system; however, there has not been even single case of PPP project for which VGF is applied. It might be fair to say that the decree is still new and there has not been sufficient time to prepare PPP projects with VGF; however, the JICA Study Team deems that there are also fundamental institutional and operational bottlenecks regarding the current VGF system.

Based on the recognition, the JICA Study Team conducted extensive research and came up with the finding that the following factors are actual bottlenecks.

- Many ASAs think it will take a very long time if they strictly follow the procedures stipulated in the Public Investment Law and Decree No.15.
- There is no concrete guideline or manual of application of VGF, and private investors and ASAs do not know how to apply and effectively use VGF.
- There are no regulations which explain how PPP project and VGF shall be dealt with under MTPIP.
- Public organizations do not have enough funding for infrastructure investment and rely on unsolicited proposals from the private sector including its financial capability.

(2) Financing Source of PPP projects in Viet Nam

Regarding financing source of PPP projects, the following fact is confirmed from analysis of available financing data of PPP projects which is available in the World Bank statistics.

- Most of the investors in PPP projects are Vietnamese companies.
- Before 2011, most of the project loans were provided by local banks. After 2011, loans from foreign financial institutions have been increasing.

Firstly, the investment hurdle for PPP projects in Viet Nam is still high in general. This statement is based on facts that many of PPP projects take form of “end-user-pay” where investors are exposed to foreign exchange risk and that most of PPP projects have been initiated by private sector investors that

have to shoulder virtually all risks associated with the project investment².

Secondly, in spite of the fact above, it is interesting to observe that lending from foreign financial institutions have been increasing. It is considered that this is due to increase in of number of projects, especially in power sector, and the experience and project track records have been accumulated. This succeeded to establish the power sector PPP project model and it improved the accuracy and reliability of due diligence work to be conducted by financial institutions.

² In many power sector projects, it is structured so that investors do not shoulder foreign exchange risk. On the other hand, investment hurdles for PPP projects seem higher due to issues of currency conversion guarantee and payment guarantee against offtakers.

Table 1-5 PPP Project List with Information of Financial Source (2000-2016)

Project name/ Sector/Contract Year/ Revenue sources	Type of contract/ debt equity ratio	Financier	Classification of financier	Loan Amount (\$ Million)	Investor(s)
An Khanh 1 Coal Plant Power	BOO 85/15 2011	Bank of Communications	International	35.75	An Khanh Electricity (100% Vietnam)
		China Construction Bank	International	35.75	
		China Construction Bank	International	35.75	
		EX-IM Bank of China	International	35.75	
PPAWPA Agreement					
BT National Highway 20 Road User Fee	BOT 91/1 2013	DBS Bank	International	17	Dong Mekong Construction (50% / Vietnam), Petrovietnam (30% / Vietnam), Cuu Long Corporation (10% / Vietnam), Lanka Building Material Corporation (10% / Sri Lanka)
		Deutsche Bank	International	10	
		Goldman Sachs	International	12.5	
		Mitsubishi UFJ Financial	International	35	
		Other Commercial Bank Bank of Yokohama	International	10	
		Other Commercial Bank Nippon Telegraph and Telephone Corporation	International	17	
		Other Commercial Bank Nomura	International	20	
		Other Commercial Bank Shizuoka	International	10	
		SMBC	International	48.5	
		Soc Gen	International	35	
		Sumitomo	International	35	
		Hoi Xuan Hydro Power Plant Power	BOT 62/38 2016	Bank of Tokyo, Misubishi	
Goldman Sachs	International			41.67	
ING	International			41.67	
Not Available					
Mong Duong II Thermal Power Plant Power	BOT Not Available 2011	BNP Paribas	International	100	China Investment Corporation (19%/China), Posco (30% /Korea), AES Corporation (51% United States)
		Credit Agricole	International	150	
		DZ Bank	International	45	
		Export-Import Bank of Korea (Kexim)	International	342	
		HSBC	International	95	
		ING	International	135	
		Mizuho	International	84.64	
		Natixis	International	95	
		Other Commercial Bank	International	45	
		Soc Gen	International	120	
		Standard Chartered	International	45	
		Sumitomo	International	120	
UniCredit	International	84.64			
Nam Na 3 Hydropower Plant Power	BOO 73/27 2012	BNP Paribas	International	21.875	Huan Hai Construction Company (100% Vietnam)
		Other Commercial Bank	International	21.875	
		Other Commercial Bank	International	21.875	
		Other Commercial Bank	International	21.875	
PPAWPA Agreement					
Song Bac HPP Power	BOT 78/22 2011	Sumitomo	International	50	Sonc Bac Hydroelectric (100% Vietnam)
PPAWPA Agreement					
VTEC Bac Me HPP Power	BOT Not Available 2011	Industrial & Commercial Banks of China (ICBC)	International	Not Available	Vietnam Trading Engineering Construction JSC (100% Vietnam)
Sales to wholesale market Purchase agreement or transmission fees with public entity					
Chu Linh and Coc San Hydropower Plants Energy	BOT 70/30 2010	Vietnam Development Bank	Local	Not Available	Asiatic Group Holdings (Singapore)
Purchase agreement or transmission fees with public entity					
Coc San Hydropower Project Power	BOO 46/54 2014	Other Commercial Bank Saigon Hanoi Commercial Joint Stock Bank	Local	23	Asiatic Group (25%) 3 others (each 25%)
PPAWPA Agreement or transmission fees with public entity					
Dasiat Hydropower Plant Power	BOT 70/30 2005	Industrial Commercial Bank of Vietnam (Incombank) Vietcombank Vietnam Agribank	Local Local Local	Not Available Not Available Not Available	Southern Hydropower JSC (100% Vietnam)
PPAWPA Agreement or transmission fees with public entity					
Dong Nai 2 Hydropower Plant Power	BOT 54/46 2009	Bank for Investment and Development of Vietnam (BIDV) Vietnam Development Bank (VDB) Vietnam-Russia Joint Venture Bank (VRB)	Local Local Local	Not Available Not Available Not Available	Trung Nam Group (Vietnam)
Purchase agreement or transmission fees with public entity					
Nam Chien 2 Hydropower Plant Power	BOT 70/30 2007	Bank for Investment and Military Commercial Bank (MCB)	Local Local	Not Available Not Available	North-Western Power Investment and Development JSC (100% Vietnam)
PPAWPA Agreement or transmission fees with public entity					
Suoi Lum 1 Hydropower Plant Power	BOT 73/27 2009	Vietnam Agribank Vietnam Development Bank (VDB)	Local Local	Not Available Not Available	Nam Lum Hydroelectric JSC (Vietnam)
Purchase agreement or transmission fees with public entity					
Ta Co Hydropower Plant Power	BOT 70/30 2010	Vietnam Development Bank	Not Available	Not Available	Bac Minh Development Investment JSC (Vietnam)
Purchase agreement or transmission fees with public entity					

Source: The World Bank PPI Database

1.2 VGF System in Viet Name and the Related Issues

1.2.1 Function and Importance of VGF

(1) Public Financial Support System of PPP

PPP, as the term indicates, is a form of provision of public services through cooperation of public institutions and private companies. In order to enjoy full advantage of PPP, the government is expected to secure a sound investment climate so that private sector can make investment in infrastructure with solid business confidence. Also, the government is expected to provide direct and indirect support to the private sector as necessary.

Government's financial support for PPP projects generally takes either form of the following methods: PDF (Project Development Facility to support F/S and bidding transactions, long-term lending, guarantee and VGF (or subsidy). The following table shows the existence of systems related with the four types of the government's financial support, in countries such as India, the Philippines, and Indonesia where there are plenty track records of PPP projects.

Table 1-6 Government's Financial Support for PPP Projects

Type	Function	India	Philippine	Indonesia	Viet Nam
PDF	Provide support F/S and Transaction Advisory	○ (PDF)	○ (PDMF)	○ (PDF)	○ (PDF)
Long Term Lending (for infrastructure)	Provide better conditions of financing (long-term, low-interest rate)	◎ For Infra (IIFCL)	○ (DBP)	◎ For Infra (PT SMI)	○ (VDB)
Guarantee	Provide guarantee for obligation of public sector	○ (MOF)	○ (DOF)	◎ (MOF & IIGF)	○ (MOF)
VGF/Subsidy	Provide direct financial support to private sector (commonly Subsidy)	○	○	○	○

Source: JICA Study Team

It can be seen that all countries have some sort of government financial support system including VGF

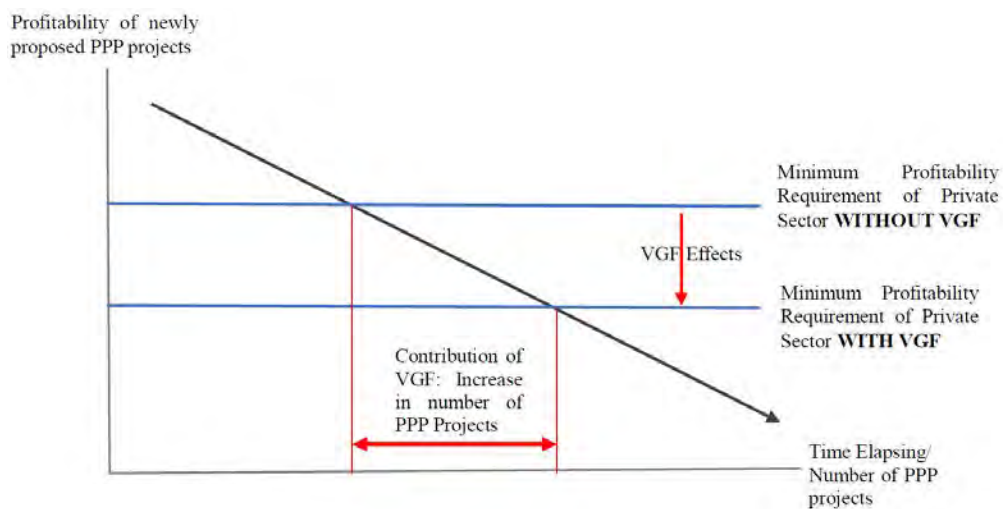
(2) Function and Importance of VGF

So far, PPP projects in Viet Nam have been carried out in the form of unsolicited proposal, for

which government’s funding is not applied³. This kind of model is possible for projects with high profitability, for example ones with FIRR of over 20%. However, this model will not be sustainable because profitability of newly proposed projects tends to go down as the number of projects increase and further investment will be undermined due to this profitability issue. Also, the fiscal condition of the Vietnamese Government has been getting tighter. Recognizing this tendency and potential issue, the government of Viet Nam began to consider improvement of the legal system and existing mechanism to further enhance private investment in infrastructure and eventually achieving national targets.

With that background, VGF (Viability Gap Funding) is considered a strong tool to further boost infrastructure investment by private sector. As mentioned above, private sector proposes projects with high profitability but it is expected that the profitability of unsolicited project will diminish marginally. In fact, such tendencies are observed in “PPP-advanced” countries such as India and the Philippines. If any effective action is not taken, it is anticipated that project proposals from private sector will decrease and infrastructure investment in Viet Nam will slow down.

The essential function of VGF system is to improve profitability of PPP projects with low profitability, and to secure financial viability of the project from the view points of investors and lenders. VGF is usually applied to PPP projects of “End-User Pay” where the project company directly receives toll, tariff, and fee from the beneficiaries. Such function of VGF is shown in the figure below.



Source: JICA Study Team

Figure 1-2 Investment Promotion Effect of VGF

As can be seen from the figure, VGF has an effect to improve the profitability and viability of a PPP project and it enables projects with low profitability to attract investors. This will enhance private investment in infrastructure and at least theoretically benefit both private and public

³ There are cases that the Government allows private companies to utilize lands owned by public bodies.

sectors through realization of a “win-win” situation.

Lastly, it should be noted that VGF per se will not function to mitigate demand risk and revenue risk of the project, because VGF amount is fixed and the risks of demand fluctuation and tariff change still rest with the private sector. For example in a toll road project, a project company has to bear the risk of demand uncertainty and fluctuation, even if they receive a fixed amount of VGF from the public sector.

1.2.2 Current VGF System

As mentioned in Section 1.1.1 of this chapter, there is no such word as VGF in the legal documents in Viet Nam. However, Clause No. 2, Article 11 of Decree No.15 effectually stipulates VGF and the JICA Study Team regards this as the basis of the current VGF system in Viet Nam. Concretely, the clause refers to 3 kinds of the government’s financial support (which is called State Investment Capital in the decree) for PPP projects as can be seen below, where item a) equals to VGF.

Table 1-7 Types of “State Investment Capital” in the Decree No. 15

Coverage of “State Investment Capital”		Concept in this Survey
a)	To provide capital support to the construction of facilities with regard to projects having business activities and collecting user fees, but the revenues are not sufficient for recovering investment capital and gaining profits	VGF
b)	To make payment to the investor(s) providing services under BTL contract, BLT contract and other similar contracts	Availability Payment
c)	To support the construction of ancillary facilities, to organize compensation, land clearance and resettlement.	—

Source: The Decree No.15

VGF-related articles are summarized in the table below:

Table 1-8 VGF-Related Articles in the Decree No. 15

Article	Title
11	Use of State investment capital for participation in the project implementation
12	Determination of the value of State investment capital for participation in the project implementation
13	Making the plan for using the State investment capital for participation in the project implementation
14	Disbursement of State investment capital for the participation in the project implementation
17	Appraisal and approval of project proposals
22	Appraisal and approval of the project proposal of the investor(s)
27	Authority for approving feasibility study report

Source: The Decree No.15

It should be noted that Decree No. 15 does not stipulate anything particular in relation with VGF system operation, such as application procedure by investors and ASAs, format, evaluation criteria.

According to the interview with MPI and ASAs (MOT, MOC, MOH, Hanoi City, Ho Chi Minh City, Da Nang City) it was confirmed that there has been no track record of applying VGF under Decree No. 15 as of June 2017. The reason is described in detail in the following section but generally speaking, there has been no investors who claimed VGF in the past PPP projects and that can be a direct and primary reason for underutilization of the current VGF System. However, essentially, it was pointed out by several ASAs that the VGF application procedure looks complicated and unclear and many ASAs afraid it will require years to get VGF approval and implement PPP projects, which not acceptable to ASAs as well as private investors. Also, from the viewpoints of provincial PCs, VGF system is not necessarily attractive because it can only be provided on-lending basis, where provincial PCs provide VGF to investors as grants and yet they will have to return principal and interest to the central government under their responsibility.

It should also be noted that there is no ceiling of VGF provision under Decree No. 15. Countries such as India and Indonesia set the maximum percentage of VGF against initial investment or construction cost of PPP facilities. In Viet Nam also, Decree No. 108 which prevailed before establishment of Decree No. 15 had stipulated the maximum percentage of VGF, which is 49% of initial investment cost. Also, Prime Minister Decision No.71/2010/QĐ-TTg, which also prevailed before, had stipulated the maximum percentage of VGF, which is 30% of initial investment cost. However, such limit has been abolished in Decree No. 15. According to MPI it is intentionally abolished to provide stronger incentive to private sector further attract private investment in infrastructure.

Based on the observation above, features of the current VGF system in Viet Nam can be summarized as follows:

1. VGF system does exist in Viet Nam.
2. There is no concrete guideline and manual for application for VGF.
3. There has been no track record of PPP project with VGF as of June 2017.
4. The direct reason for that is three has been no private investor who claimed VGF so far, but the real issues seem to be insufficiency of the regulatory system including complexity and uncleaness of VGF application procedure.
5. There is not upper limit of percentage of VGF against initial investment cost.

1.2.3 Issues of the current VGF System

VGF system exists in Viet Nam, however, the system has been underutilized so far. The direct reason is that there have been few private companies who are interested in the system, but more importantly the system is not attractive enough for investors and ASAs, and it is not functioning well as originally intended. Through this study, the Study Team has identified the following four issues with regard to the current VGF system in Viet Nam.

(1) Complex Procedure of Public Investment Law

According to Public Investment Law (Law No.49/2014/QH13) , any project which receives government payment including VGF is regarded as “Public Investment Project” and has to follow lengthy procedures prescribed in the law⁴. On the other hands, most PPP projects in Viet Nam have been carried out in the form of unsolicited proposal without VGF, which is not subject to the law. In other words, if investor tries to apply for VGF, their project will be regarded as “Public Investment Project” and have to go through very lengthy process of MTPIP revision and PPP project approval process stipulated in Decree No. 15. Both investors and ASAs does not consume huge time in this process and therefore, they rather wish to go without VGF because it will be fastest way to materialize projects.

(2) No clear synchronization of PPP/VGF system and MTPIP

Decree No. 15 prescribes that “Public Investment Project” under the Public Investment Law need to be listed in MTPIP. Decree No.77 set regulations related with operation of MTPIP but it does not mention to VGF of PPP projects. Therefore, relevant ministries such as MPI, MOF, sector ministries, as well as provincial ASA do not have clear understanding of how to treat VGF in MTPIP. The amount of VGF for identified PPP projects is mentioned in the current MTPIP. However, in case ASAs wish to add new PPP projects, they should be listed in MTPIP and revision of MTPIP is required⁵. The procedure is stipulated Public Investment Law and Article 44 and 49 of Decree No. 77; however, there is no indication of timing of the revision. Therefore, ASAs are not certain whether the process fits with their project schedule.

(3) Lack of VGF Application and Approval Procedure

There is no guideline or manual for application and approval of VGF. There is no format of application or assessment criteria of such application either. Therefore, investors and ASAs do not know how to apply for that. Also, the general ministries such as MPI and MOF do not know either how to deal with such application if there should be any. The JICA Study Team confirmed that several ASAs, especially ministries such as MOT, are keen to utilize VGF system; however, they are encountered with the issue of no existence of concrete procedures which impede them from taking actions to try to obtain VGF.

(4) Application of on-lending to Provincial Peoples’ Committees

Under the existing regulations, VGF to provincial people’s committees has to take a form of

⁴ The law Article 4, Clause 13 stipulates that any projects for which public funding is used is regarded as public investment project and has to comply with the approval and procurement procedures as stipulated in the law.

⁵ According to Article 75 of Public Investment Law, (i) approval of the National Assembly is required when the total amount of MTPIP changes, (ii) approval of Standing Committee of the National Assembly is required when budget allocation among ASAs change without change of the total amount of MPTPIP, and (iii) approval of the Prime Ministry is required without any changes of budget allocation among ASAs as well as the total amount.

“on-lending”. To say more concretely, according to a newly approved Decree No. 52, VGF can be provided to provincial people’s committee on the basis of 70% lending and 30% grant. Apparently, people’s committee has to “borrow” money from the central government in order to make VGF payment to private investors and this condition discourages many of people’s committees. In fact, it depends on each people’s committee if they feel the above conditions are attractive or not; however, it is reasonable to assume that it is not attractive enough for people’s committee to apply for VGF on-lending bases given the situation where many of people’s committees are under strict borrowing ceiling control and most of the PPP project so far have undertaken the form of unsolicited proposal for which people’s committees expenditure does not happen.

CHAPTER 2 PROPOSAL ON VGF MECHANISM

2.1 Introduction

2.1.1 Purpose and Methodology

The purpose of this chapter is to propose the entire mechanism of the new VGF mechanism, which is expected to serve as an improved model of the current state funding mechanism.

The following methodologies have been adopted in order to develop the proposal:

- Review of the existing legal documents related with PPP/VGF in Viet Nam
- Survey of the existing studies on PPP/VGF in Viet Nam including JICA reports
- Survey of PPP/VGF practices of other countries such as India, Philippines and Indonesia
- Discussion with the general ministries, namely MPI and MOF
- Interview and discussion with key ASAs such as sector ministries and provincial people's committees
- Interview and discussion with private sector, including both Vietnamese and Japanese companies

Apparently, this proposal is prepared based on observations made in Chapter 3 of this report. This proposal takes into account of the current legal and regulatory frameworks, as well as practical operations of relevant public organizations and the related issues in working fields.

2.1.2 Basic Principles of the Proposed VGF Mechanism

In consideration of the issues of the current state funding system as addressed in Chapter 1, the following seven principles are applied in preparation of the proposal of the new VGF mechanism:

- (1) Provide real incentive to investors

The existing state funding system is underutilized because it does not provide real merits and incentives to potential investors. The new VGF mechanism has to provide real incentive to private sector to apply for VGF.

- (2) Give minimum impact over government debt

As mentioned later, the new VGF mechanism is built based on the assumption that Japan's ODA loan will be utilized as one of sources of VGF. Although it will inevitably give influence on the balance sheet of the government, the VGF mechanism is deliberately designed to minimize the impact over the government debt.

- (3) Require no amendment of the existing LAWS

In order to take a full advantage of the new VGF mechanism, amendments of some laws are necessary (see 1.2.3). However it will require certain time including approval of National Assembly. Therefore, a VGF mechanism which can effectively work under the existing legal framework is studied and proposed even though it is not a full-fledged and final mechanism.

(4) Streamlined procedures with MTPIP and annual budget planning

One of the reasons why the current state funding mechanism is underutilized is that the VGF procedure is not concretely synchronized with those of MTPIP, Annual PIP and annual budgeting. The procedure of the new VGF mechanism should be concretely streamlined with procedures of such a higher framework.

(5) Supported with VGF application manuals and formats

As mentioned in Chapter 3, there is no guideline and manual of VGF application by ASAs. It makes is difficult for ASAs to apply for VGF. The new VGF mechanism should be equipped with such procedural documents for ASA, including formats of VGF application.

(6) Ensure timeliness and flexibility

It is important to ensure the timeliness of the procedure because private investment in infrastructure in general is deemed to take longer time if it follows public procurement rules, which often discourages private sector to apply for VGF. It is also important to ensure flexibility to accommodate various uncertainties regarding planning, procurement, and implementation of individual PPP projects.

(7) Improve Transparency

It is expected that new VGF mechanism improve transparency of procurement and contract award process of PPP projects, through involvement of general ministries such as MPI as well as JICA.

2.2 Proposal on New VGF Mechanism

2.2.1 Outline of the Proposal

The proposal consists of the following sub-components:

- Setting up framework (Section 2.2.2)
- VGF Mechanism (Section 2.2.3)
- Application and Application Procedures (Section 2.2.4)
- Roles and Responsibilities of the relevant organization (Section 2.2.5)

The following sections describe the details of the subcomponents.

2.2.2 Setting up Framework

The new VGF framework will consists of the following “building blocks”:

(1) VGF Target Program shall be created as one of target programs in MTPIP.

Target Program is allowed in MTPIP to address themes which are important to the Government of Viet Nam but not earmarked for individual projects. Those are applied for example to industrial development, vocational training, environmental protection, and disaster recovery. Target Program⁶

⁶Article 4 of Public Investment Law stipulates that “target program is a public investment

Creation of VGF Target Program will avoid above-mentioned unclearness. Also, by designating it as “Target Program”, timeliness and flexibility will be secured because it will not require approval of the Prime Minister by project basis and the candidate PPP/VGF (See 2.2.6) can be flexibly reviewed and changed in timely manner.

Regarding materialization of this particular proposal, it was confirmed through the meetings with MPI and MOF that:

- Creation of the VGF Target Program itself does not require any legal amendment.
- Inclusion of such program in MTPIP requires approvals of Prime Minister and National Assembly as a normal procedure.
- Revision of Decree No.15 and development of relevant circulars would be required to accommodate this particular proposal.

(2) MPI shall be designated as the Target Program Owner.

VGF Target Program must be managed in well organized and efficient way and it is recommended that MPI will be the Target Program Owner because it has been assuming the responsibility to promote PPP in Viet Nam, and is equipped with the highest expertise, knowledge and information with PPP/VGF among other ministries including MOF. Also, VGF Management Unit (PMU) shall be established in MPI, which will be in charge of VGF program management operation.

Regarding materialization of this particular proposal, it was confirmed through the meetings with MPI and MOF that:

- Assignment of MPI as the program owner itself does not require any legal amendment but it does requires approvals of Prime Minister and National Assembly as a normal procedure.
- Establishment of PMU is possible based on a decision within MPI.
- Revision of Decree No.15 and development of relevant circulars would be required to accommodate this particular proposal.

(3) Independent VGF Budget Line shall be created under MTPIP

In order to secure solid management of VGF Target Program, independent budget line for the program shall be created. It will make easier for MPI/PMU to grasp all candidate PPP/VGF projects under MTPIP, assess the rationale and feasibility of those projects and make decision on application of VGF by ASAs.

Regarding materialization of this particular proposal, it was confirmed through the meetings with MPI and MOF that:

- Creation of such a budget line itself does not require any legal amendment.

program aiming to achieve one or several objectives in each sector or a number of territorial regions in a specific period”. The details of the target program under the current MTPIP is stipulated by “Resolution No. 73/NQ-CP of the government on approving the investment intention of target program for the period 2016 – 2020

- Allocation of budget to the program under MTPIP requires approvals of Prime Minister and National Assembly as a normal procedure.
- Revision of Decree No.15 and development of relevant circulars would be required to accommodate this particular proposal.

(4) MPI shall be given certain authorities to manage the program

In order to manage VGF Target Program most efficiently and speedily, it is recommended that certain authorizations shall be given to MPI as the program owner. By doing this, ASAs will be able to implement project without getting approval from the Prime Minister. However, amendment of Public Investment Law is required which may take years. Therefore, the Study Team proposes two approaches: VGF procedure which is possible under the existing law and VGF procedure which will be possible after amendment of the existing laws.

2.2.3 VGF Mechanism

The VGF Mechanism assumes four groups of stakeholders as follows:

- VGF Fund Source (JICA and/or State Budget)
- General Ministries of the Government of Viet Nam (MPI and MOF)
- ASAs (Sector ministries and provincial people’s committees)
- Investors

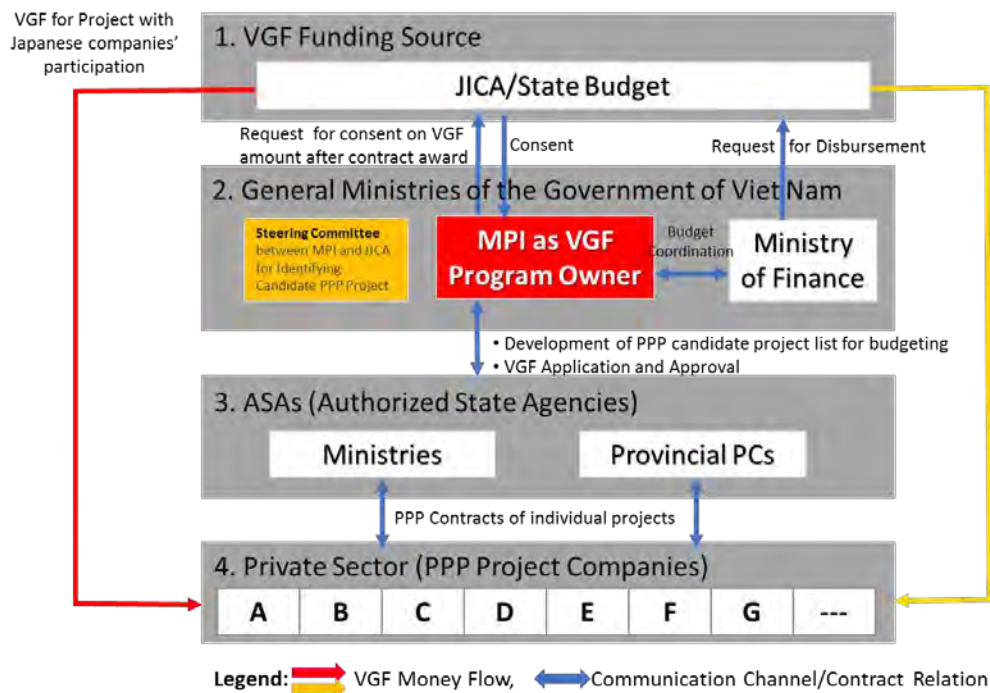
The mechanism covers two stages of a PPP projects: namely, VGF budgeting processes and VGF disbursement process. Basic steps of those processes are shown in the following table:

Table 2-1 Stages and Basic Steps of VGF Mechanism

	Stage 1 VGF budgeting before bidding	Stage 2 VGF Amount Finalizations after bidding	Stage 3 VGF Budgeting During Construction Period	Stage 4 VDF Disbursement During Construction Period
VGF Amount	Tentative	Fixed	Fixed	Fixed
Basic Steps	1.1. Application by ASA	2.1. Reporting from ASA	3.1. Application by Investor	4.1. Request by Investor
	1.2. Approval by MPI	2.2. Confirmation by MPI	3.2. Request from ASA to MPI	3.2. Request from ASA to MPI
	1.3. Budget Allocation	2.3. Fixing VGF Amount	3.3. Confirmation by MPI	3.3. Confirmation by MPI
	-	-	3.4. Approval by National Assembly	3.4. Payment Instruction by MOF

Source: JICA Study Team

The overall picture of the proposed VGF Mechanism is presented in the following figure:



Source: JICA Study Team

Figure 2-1 Overall Picture of the proposed VGF Mechanism

As mentioned above, the mechanism consists of four key groups or layers: namely (1) VGF Funding Source, (2) General Ministries, (3) ASAs and (4) Private Sector. The VGF money flow is shown by red and yellow arrows and communication channel and contract relations are shown by blue arrow. The function and conditions of each group or layer is described below respectively.

(1) VGF Funding Source

- Funding source of the VGF is either JICA (Yen Loan) and/or State Funding.
- JICA’s fund are available only for projects with Japanese company’s participation⁷.
- VGF shall be directly paid (disbursed) to investors to ensure speed and timeliness.

(2) General Ministries

- MPI plays the role as the VGF Target Program Owner.
- VGF Program Management Unit will be established and take charge of the program management operation.
- MPI will take necessary coordination with MOF and other organizations.
- MPI will serve as a gateway to ASA in application and budgeting of VGF.
- MPI will develop and maintain candidate PPP/VGF project list which will serve as the basis of budget allocation under MTPIP and Annual PIP.

⁷ Detailed conditions of Yen Loan application shall be discussed between the two governments.

- (3) ASAs
- ASAs assume the role as “implementer” of individual PPP projects.
 - ASAs will be the signer of PPP contracts with private investors.
 - ASAs have to two kinds of relations with MPI: namely, with regard to candidate PPP/VGF project list, and application of VGF for individual projects.
- (4) Private Sector (PPP Project Companies)
- Private sector will sign PPP contract with ASAs on individual PPP projects.
 - It is entitled with the right to claim VGF only during construction period in principle.
 - Private sector can receive VGF money directly from JICA/MOF(GOV State Funding).

The roles and responsibilities of the government organizations are summarized in the table below*

Table 2-2 Stages and Basic Steps of VGF Mechanism

Organizations		Roles and Responsibilities
A	MPI (*VGF Program Management Unit)	<p>GENERAL MANAGEMENT</p> <p>A-1: Collect information of candidate PPP-VGF projects from ASAs A-2: Develop and maintain the list of candidate PPP-VGF project A-3: Apply to change MTPIP include candidate PPP-VGF project list A-4: Request budget for “VGF Program” under MTPIP</p> <p>INDIVIDUAL PROJECTS</p> <p>A-5: Manage VGF program for individual PPP projects for budget allocation. A-6: Assist ASA to get approvals by Prime Minister (where necessary) A-7: Receive, assess and approve VGF application from ASAs A-8: Approval of PPP list and results of PQ A-9: Issue request for consent on VGF amount to JICA after contract awards</p>
B	MOF	<p>B-1: Endorse candidate PPP projects requiring VGF under MTPIP and its amount with MPI B-2: Receive request for payment of VGF from MPI. B-3: Issue request for disbursement to JICA.</p>
C	ASAs (Ministries and PCs)	<p>D1: Internally approve PPP projects with VGF D2: Provide list and information of candidate PPP project to MPI D3: Obtain approval of MPI to provide VGF to individual PPP projects D4: Conduct bidding of individual PPP projects and report the results to MPI D5: Issue request for payment of VGF</p>

Source: JICA Study Team

2.2.4 JICA’s Intervention

Since JICA’s Yen Loan is assumed to be the primary funds source of VGF, and this is going to an innovative VGF scheme without any precedent, it is proposed that JICA shall make necessary interventions in the following respects.

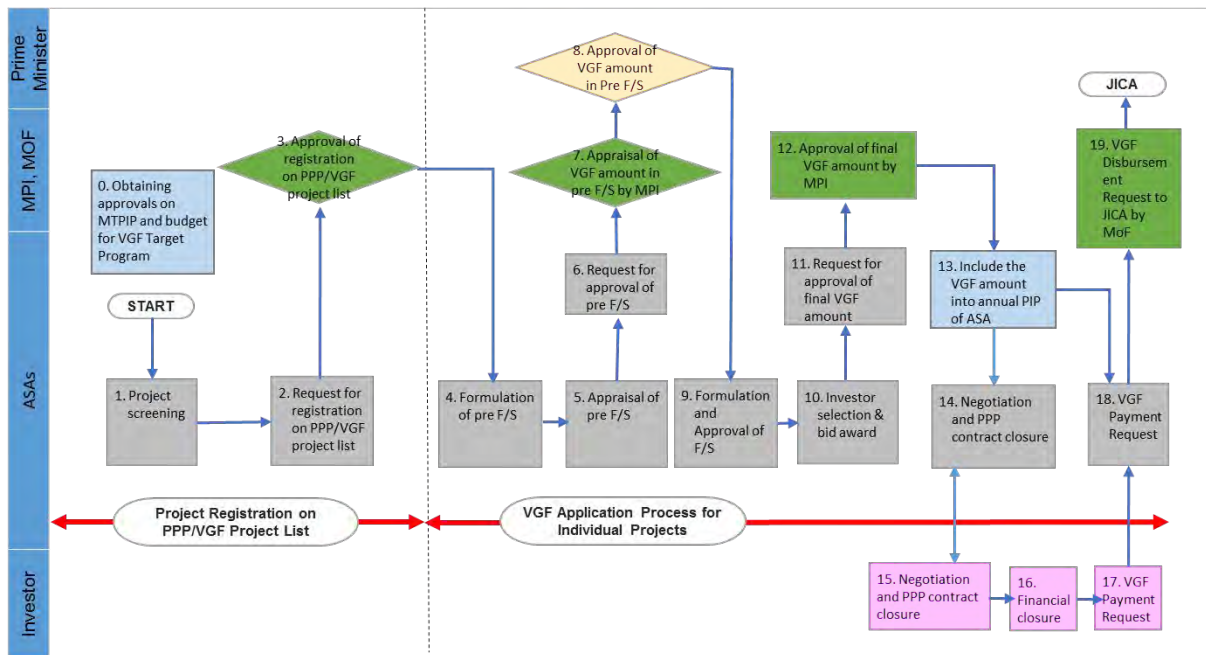
- (1) A steering committee shall be organized between MPI and JICA to select suitable PPP projects.
- (2) JICA's consent shall be required on the following items:
 - a) Consent on candidate PPP/VGF project list
 - Initial eligible PPP projects (list) requiring VGF (at appraisal)
 - Addition of new project (s) to, and deletion of the existing project (s) from the list of eligible projects
 - b) Consent on individual PPP/VGF projects
 - Results of Pre-Qualification evaluation of the PPP project (s) in the list
 - Consent to the PPP project contract after finance closing for using the proceeds of the VGF Yen Loan

It should be noted that these conditions are tentative and subject to discussion between the two governments.

2.2.5 VGF Application and Approval Procedures

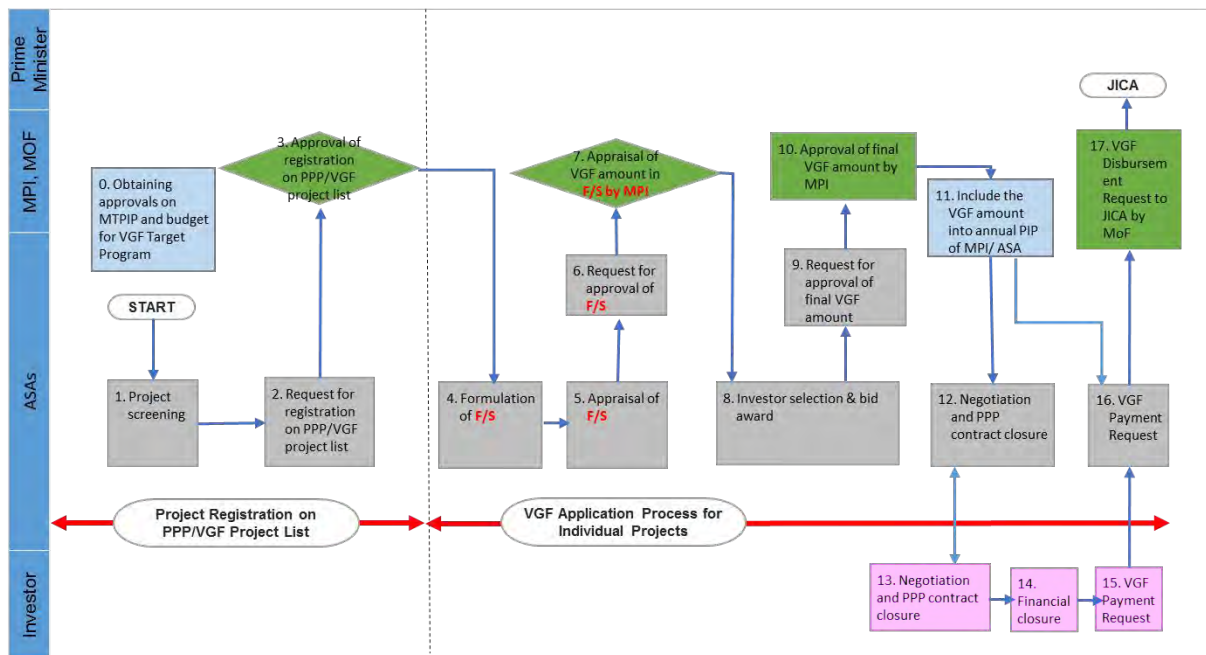
The procedure of application and approval of VGF for individual projects is shown in the following charts. There are two processes in the chart: (i) PPP/VGF project selection process and (ii) VGF application and approval process. As explained in section 2.2.2, there are two patterns of these processes depending on the authority and discretion provided to MPI. The first pattern is to strictly follow the regulations of the current Public Investment Law. And the second pattern is the proposal by the Study Team which will allow faster processing which will require revision of concerned laws including Public Investment Law. The main difference of these processes are summarized as follows:

- The first pattern requires an approval while the second pattern does not.
- The first pattern requires pre F/S and F/S while the second pattern only requires F/S.



Source: JICA Study Team

Figure 2-2 VGF Application and Approval Procedure (Under the existing laws)



Source: JICA Study Team

Figure 2-3 VGF Application and Approval Procedure (After amendment of the existing laws)

2.2.6 Candidate PPP/VGF Project List and Selection Criteria

The candidate PPP/VGF, which is to be developed by MPI, plays critical role in the proposed VGF mechanism. The list will serve as supporting documents for the following purposes:

- Inclusion of PPP/VGF projects in MTPIP
- Allocation of annual budgeting for PPP/VGF projects

- Obtaining JICA's approval for Yen Loan

The list shall be updated periodically (for example, twice a year). Development and maintenance of the list may receive support of international experts and/or consultants to ensure a certain accuracy and reliability.

Table 2-3 Image of candidate PPP/VGF project list

Project	ASA	Estimated Project Cost	Estimated VGF (%)	VGF Disbursement Schedule (Tentative)					
				2017	2018	2019	2020	2021	---
A	V	100	50%	XXX	XXX	XXX	0	0	
B	W	200	40%	0	XXX	XXX	XXX	0	
C	X	300	30%	0	XXX	XXX	XXX	XXX	
D	Y	400	20%	0	0	XXX	XXX	XXX	
E	Z	500	10%	0	0	0	XXX	XXX	
---	---	---	---	---	---	---	---	---	
TOTAL	-	ZZZ	-	ZZZ	ZZZ	ZZZ	ZZZ	ZZZ	

Source: JICA Study Team

Candidate PPP/VGF project list should be selected in consideration of the following 4 criteria:

- Fitness to the government policy (e.g. MTPIP, Sector Master Plan)
- Eligible Sector (as stipulated in Decree No.15)
- Minimum Project Investment Amount (e.g. 20 Billion VND as stipulated in Decree No. 15)
- Maturity of project preparation (e.g. Prospects for land acquisition, existence of project studies)
- Interest of private sector, including Japanese companies, which is to be confirmed through preliminary market sounding

2.2.7 Necessary Decree and Circulars

In order to explore the full potential and advantage of the proposed VGF mechanism, the Study Team considers the creation and/amendment of the following decrees and circular will be required.

1. Amend Decree No.15 as shown in Appendix 2.1.
2. Create MPI circulars concerning management of VGF program including the following:
 - For ASAs: Concerning VGF application procedures and formats.
 - For MPI: Concerning assessment and selection criteria for candidate PPP projects
3. Create MOF circular concerning entire procedure of VGF system, including arrangement for MTPIP, annual budget allocation, and VGF application approvals for individual projects.
4. Consider to amend Decree No. 136 on public investment: Article 10 and 17.⁸

⁸ The decree sest grouping of projects (i.e. National importance project, Group A, Group B and Group C). It is not clear whether it is classified by total project investment cost or the amount of government expenditure required for the project. According to MPI, it is interpreted that

A10: Processes and procedures for grant of the decision on the policy for investment in Group-A projects

A17: Rules, processes and procedures for the decision on the policy for investment in projects in the form of public-private partnership

5. Develop guideline for application of VGF by Investors

2.3 Issues in Setting up the Proposed VGF Mechanism

The proposed VGF Mechanism can be realized even under existing law. Section 1.2.3 of this report addressed the issues of the current VGF system. The following table shows how it is possible that this proposal can solve or not solve those issues.

Table 2-4 Issues of the Current VGF System and Possible Solution by the Proposed VGF Mechanism

Current Issues	Proposal	Solution by the Proposal
Complex procedure of Public Investment Law	<ul style="list-style-type: none"> • Revision of Decree No. 15 • Provision of relevant authorities to MPI 	The proposed VGM system will work better but some constraints (e.g. it still requires PM approval) remain.
In sufficient synchronization between PPP projects and MTPIP	<ul style="list-style-type: none"> • Creation of VGF Target Program • Creation of VGF Budget Line • Provision of relevant authorities MPI • Development of candidate PPP / VGF Project List 	Proposed mechanism will clear basic issues. However, discussion is needed as to issues such as MTPIP revision procedure, VGF budgeting, and detailed procedure of application and approval of VGF.
Lack of VGF Application and Approval Procedure	<ul style="list-style-type: none"> • Development of VGF-related circulars showing detailed procedures 	There are 3 options and discussion at National Assembly and the Government shall be made.
Application of On-Lending Condition to Provincial People's Committees	<ul style="list-style-type: none"> • None 	It requires amendment of the Decree No. 52 and the proposal cannot solve this issue ⁹ .

Source: JICA Study Team

In order to take full advantages of the proposed VGF Mechanisms further, the following issues need to be addressed.

(1) Clarification of source of budgeting

The current state budget law stipulates that the source of budget need to be clarified in allocating budget in annual budgeting procedure. According to MPI, the project funding source should be determined prior to bidding, based on Article 16 of Public Investment Law. The proposed VGF

the classification is made based on the former criteria; however, it may involve a lengthy process depending on the type of project. Therefore, the Study Team suggests to make a clear regulation that it will be classified based on the amount of government expenditure.

⁹ Decree No. 52 stipulates detailed conditions of on-lending system.

Mechanism assumes the budget source of VGF is either Yen Loan or state budget, and it is not clear whether this kind of “conditional” budgeting method is allowed or not. If it is not allowed, the mechanism shall accommodate approach such as “bidding which is limited to the bidders with Japanese companies’ participation” which was indicated in the meeting with MPI.

(2) Definition of “Public Investment Project”

According to the Public Investment Law, all projects which use public funds are designated as “Public Investment Project” and have to follow the rule of procurement procedure under the law, which may involve lengthy procedures, including updating MTPIP. In order to further speed up the VGF process, review of the stipulation shall be made. For example, the process will be much faster if the law and lengthy procedure will not be applied to projects for which only VGF (and no other public fund) is provided.

(3) Establishment of PPP Law

The current Decree No.15 was newly established in 2015 and there are many inconsistencies and “missing links” with existing laws and regulations. Also, when there are any conflicts or unclear issues, laws will prevail. In order to resolve these confusions, it is desirable to legalize PPP Law as an improvement of Decree No. 15 in mid-term perspective. After strengthening the legal basis, it is suggested that necessary decrees and circulars shall be created.

(4) On-Lending Condition

According to the State Budget Law and the related decrees such as Decree No. 52, VGF to the people’s committee can only be provided in the form of on-lending basis if the funding source is ODA¹⁰. However, this is not very attractive for many of the people’s committee because they will have to return the funds with interest to the central government. According to the interviews to several people’s committee they are not very much encouraged to apply for VGF under this condition, because it will require complicated procedure with the central government and perhaps take more time. In order to give stronger incentive for provincial people’s committee to take advantage of the VGF system and reduce their fiscal burden, it is desirable that VGF shall be given in the form of 100% grant, rather than on-lending. Of course, the JICA Study Team recognizes it will require amendment of laws and decrees but such action is worth considering in the medium and long term perspective.

(5) Budget allocation of VGF in annual PIP and annual budgeting

The JICA Study Team confirmed with MPI that VGF Target Program can be created under MTPIP and

¹⁰ The budget is allocated as program budget to provincial people’s committee first. Then people’s committee allocates those budgets to individual projects.

budget can be allocated to VGF Target Program budget line under MTPIP. However, according to MPI, annual budget should be allocated to the budget line of ASA, who is the executor of the project¹¹. The JICA Study Team considers, the proposed VGF Mechanism will work even under the current legal system by transferring a part of budget of VGF Target Program, which is allocated to MPI under MTPIP, to a budget line of ASAs in annual PIP and budgeting. However, the Team considers flexibility will improve if an annual budget can be directly allocated to the budget line of MPI. In order to realize this arrangement, amendment of relevant laws and regulations, such as State Budget Law will be required.

¹¹ According to MPI, there is no such regulation which prohibits MPI to have its own project budget. However, based on practice in Viet Nam, it is not possible to do so unless it is explicitly allowed in a law.

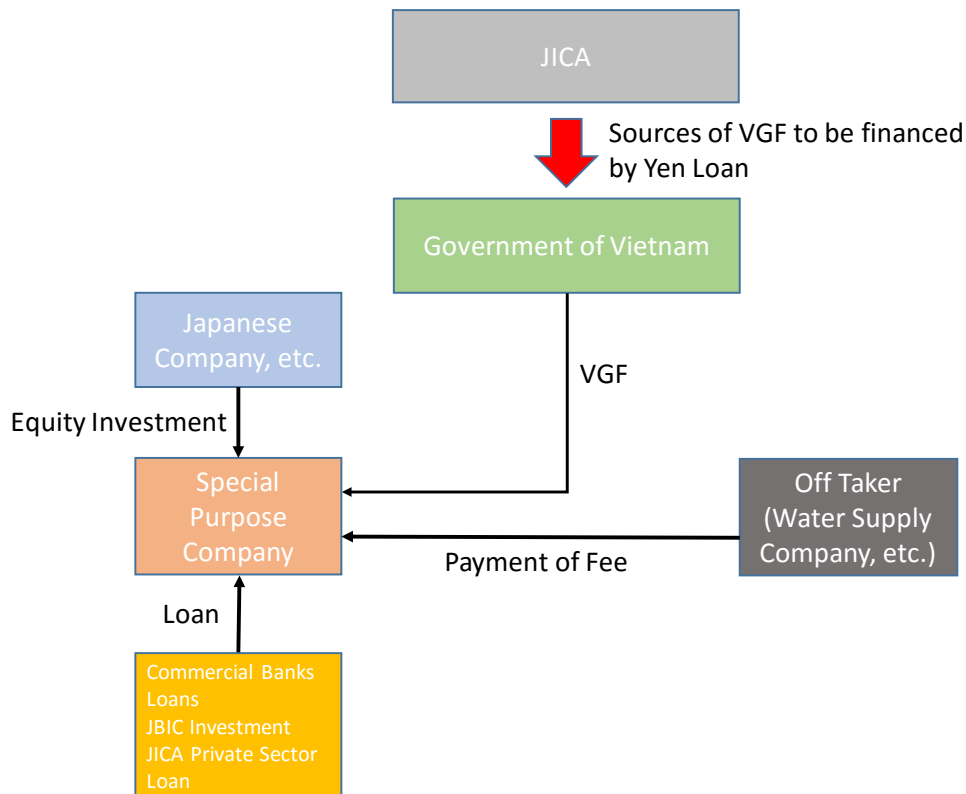
CHAPTER 3 VGF YEN LOAN

3.1 Background of introducing VGF Yen Loan

VGF Yen Loan is one of the new yen loan schemes introduced on December 9th 2014 to support infrastructure development in the developing countries. Its introduction was coupled with the other schemes, namely Equity Back Finance Yen Loan and Standby Yen Loan for Credit Enhancement; all of which was aimed to support infrastructure development through PPP. Behind this introduction, there was a strong commitment of the Government of Japan (GOJ) to provide as much support as possible for the huge financial needs for infrastructure development in Asia. The concrete form of such commitment was the initiative titled “Partnership for Quality Infrastructure”, announced in May 2015. One of the four pillars of that initiative is “expansion and acceleration of assistance through the full mobilization of Japan’s economic Cooperation Tools”, including promotion of “the mobilization of private funding for infrastructure projects through the utilization of new types of ODA Loans that support developing countries to provide capital and guarantee for PPP infrastructure projects¹²”.

VGF Yen Loan is to back-finance VGF to be given to the PPP projects in the developing countries. Its mechanism is shown in Figure 3.1. The loan will be extended to the government of the developing countries, just as the same as the other Yen Loan. However, its usage is limited to the back-financing of VGF to the PPP projects, in which a Japanese/Vietnamese joint venture (or a group of Japanese companies, hereinafter the mention of “a Japanese/Vietnamese joint venture” includes also a group of Japanese companies) is awarded as the investor of Special Purpose Company (SPC). Its objective is to promote PPP projects by assuring its profitability through VGF. Therefore, when the government of the development country decides to use VGF to assure the financial viability of a PPP infrastructure project, the proceeds of the VGF Yen Loan will be able to be used for back-financing of that VGF amount, if the project is awarded to a Japanese/Vietnamese joint venture. By fulfilling the gap between the expected project costs and the actual revenues by VGF, the profitability of the project ameliorates, thereby facilitates a Japanese/Vietnamese joint venture to invest more in infrastructure in the developing countries.

¹² <http://www.mofa.go.jp/files/000081298.pdf>



Source: https://www.jica.go.jp/activities/schemes/finance_co/about/ppp.html

Figure 3-1 Scheme for VGF Yen Loan

3.2 Appropriate type of Yen Loan scheme to be applied for VGF Yen Loan

It is assumed that the current VGF Yen Loan scheme allows, in principle, to use its proceeds of the loan when a Japanese/Vietnamese joint venture invests in a PPP project. Conversely, it can be understood that the procedure for Yen Loan will not start until the investment of a Japanese/Vietnamese joint venture is envisaged. On the other hand, given the perception and record of a Japanese/Vietnamese joint venture invested in the existing PPP projects in Vietnam, it is necessary (1) to secure budget for VGF through VGF Yen Loan and (2) to establish an institutional mechanism with clear descriptions of procedures.

Under the current legislation, Article 11 of Decree 15 introduces the notion of VGF, therefore the mechanism of VGF itself does exist in Vietnam. However, there is no PPP project so far materialized by using VGF, because it is difficult to quickly formulate a PPP project due to time consuming procedure and the Vietnamese government officials' diversified understanding of PPP. As the budgeting procedure for VGF is not explicitly explained, even if an investor intends to invest in a PPP project, it has to follow the budgeting procedure stipulated by the Law on Public Investment, which requires long period starting from the inclusion of a PPP project into the Medium Term Public Investment Plan (MTPIP). In addition, the understanding of the concept of PPP projects differs among the government officials because of the lack of sufficient knowledge of PPP. As a result, any project involving private sector is considered as PPP and the public authorities tends to adopt the direct

appointment of local enterprises, by calling it PPP. Despite the government's intention to promote PPP, such environment is recognized as risky for investment and does weaken the foreign investor's investment appetite. It is therefore expected that the implementation of PPP projects will be accelerated by acquiring budgets for multiple PPP projects with introduction of the flexible and rapid "VGF target program" discussed in the previous chapter.

In Vietnam, the need for infrastructure development by using PPP is widely recognized because of the situation of budget constraints. According to IMF, the fiscal deficit was estimated at 5.9% of GDP in 2015 and the public debt was 62% of GDP¹³. The Government of Vietnam (GoV) is adopting a legal measure for limiting the public debt to maximum 65% and requiring annual fiscal deficit to 4% between 2016 and 2020. In this context, VGF is recognized as a tool to promote PPP projects; however, the current budget constraints situation does not permit to allocate budget for VGF with priority. In conducting this study, the officials of MPI and other government agencies showed their intention to make use of VGF Yen Loan as the financial resources for VGF Target Program, in order to acquire budget for promoting PPP projects.

In addition, in case a VGF Yen Loan is extended for an individual PPP project under current VGF Yen Loan scheme, timing is an impediment for budgeting on the Vietnamese side.

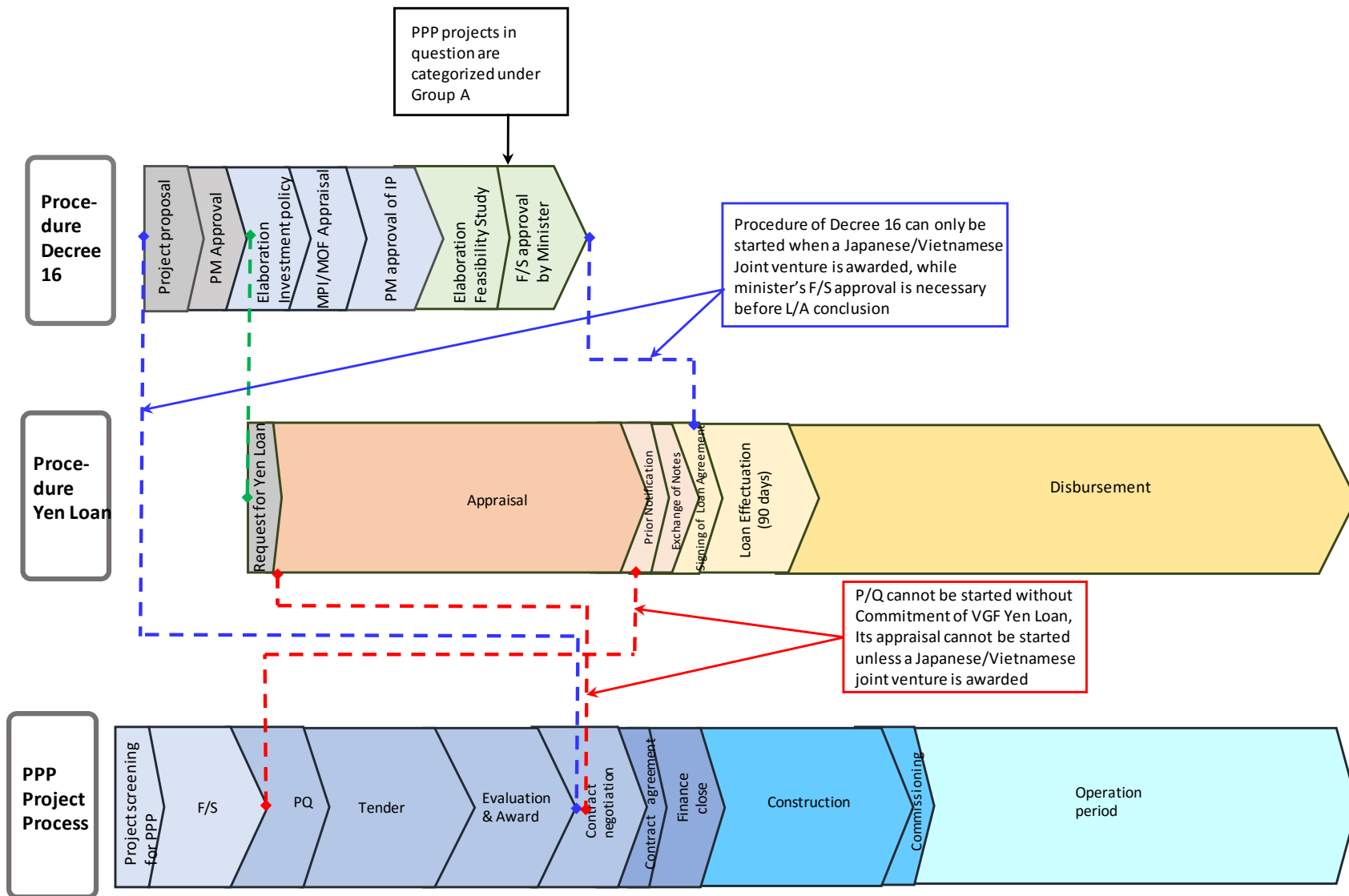
3.2.1 Case for providing single VGF Yen Loan for a single PPP project

The discussion below assumes that VGF is used for construction, which is the assumption of announced VGF Yen Loan scheme.

When VGF is used for initial investment costs, its timing of injection depends on individual contract, while in case of India where specific timing of VGF provision is known¹⁴, it is paid to the investor soon after the investor's equity is invested and in parallel with disbursement of loan; therefore the example of India can be a reference for the timing of disbursement of VGF Yen Loan. That timing is consequently considered not to be at the beginning of construction period. To be able to disburse the proceeds of Yen Loan in timely manner, the VGF Yen Loan must be effectuated before the completion of capital injection by sponsor(s) in accordance with the conditions of contract.

¹³ IMF Article 4 consultation, staff report, 2016 for both fiscal deficit and public debt figures

¹⁴ The case in India referred here is not financed by Yen Loan.



Source: JICA Study Team

Figure 3-2 Procedures for VGF Yen Loan and PPP contract

Decree No. 16/2016/ND-CP is the legal document which stipulates the procedure for obtaining ODA loan from the foreign donors. The 3 bars in Figure 3-2¹⁵ show, under the assumption that a single VGF Yen Loan is to be provided a single PPP project, the procedures for ODA Loan borrowing described in the Decree 16, that for Yen Loan and the flow for a PPP project from the top to bottom. When comparing those three procedures, assurance of financing sources required by the Law on Public Investment becomes a bottleneck for “financing a PPP project with a single VGF Yen Loan”¹⁶, due to two reasons described below.

The very initial stage of ODA loan borrowing stipulated in Decree 16 (i.e. the selection of project proposal and its approval by the Prime Minister) can be done at the same time when the project screening with initial concept is taken in the flow of PPP project. It can also be done in parallel with the preparation of Feasibility Study (F/S) of a PPP project.

On the other hand, the PPP project in question is designed in such a way to benefit from VGF Yen Loan whose proceeds of the loan is provided only when a Japanese/Vietnamese joint venture is awarded. This condition requires us to examine the following two cases.

Firstly, Decree 16 needs to specify the donor providing financial support for the project whose project proposal is to be submitted. If at that moment, the explanation (i.e. limiting the financing of VGF through VGF Yen Loan only for the case where a Japanese/Vietnamese joint venture is awarded) is accepted as justification for acquiring financing source in the project proposal required under Decree 16^{17,18} and is approved, it not only allows this project proposal to advance to further steps but also the procedure for Yen Loan can be started. The dotted green line in Figure 3-2 liaising the Prime Minister’s approval of project proposal under the procedure for Decree 16 and the request for Yen Loan in the Yen Loan procedure suggests this timing.

However, since the PPP project in question is designed to benefit from VGF Yen Loan, practically speaking, its processing of PPP project cannot be moved to the prequalification (P/Q) stage immediately after the completion of F/S, as P/Q is already a part of bidding procedure. In the P/Q document, already, it is necessary to clearly mention that financing of VGF for the project is sourced in Yen Loan and ASA would not announce bid without the assurance of obtaining a loan. However, in the Yen Loan procedure, shown as the middle bar of Figure 3-2 suggests, the earliest point of getting

¹⁵ For the procedure under Decree 16, it is assumed that PPP projects belong to Group A to C, based on the proposal for modifying Articles 10 and 17 of Decree 136/2015/ND-CP described in the previous chapter.

¹⁶ This is the current scheme of VGF Yen Loan.

¹⁷ Paragraph 4 of Article 6 stipulates the conditions for accepting tied loans. It includes the description “other specific cases as decided by Prime Minister”. There is no stipulation on the condition for accepting tied loans in the Law on Public Investment (No. 49/2014/QH13).

¹⁸ A case of adding a tied condition in exchange for providing loan to finance PPP project is under examination by GoV.

an assurance of obtaining a loan is the prior notification by the Government of Japan (GoJ). On the other hand, the appraisal works for VGF Yen Loan can only be started when a Japanese/Vietnamese joint venture is first ranked at the end of bid evaluation. Although each block in Figure 3-2 representing an individual step of processing flow does not suggest exact time span necessary to clear the individual step, it is obvious from the two dotted red lines in Figure 3-2, that those two are mutual trade-offs; the advancement from F/S to P/Q of PPP project preparation requires assurance of financing source for VGF, which is given at the time of Prior Notification by GoJ, while the appraisal resulting in the commitment of Yen Loan can only be started when a Japanese/Vietnamese joint venture is first ranked in bid evaluation; thus the both cannot be materialized at the same time.

Secondly, if the above-mentioned explanation of the limiting VGF financing only for a Japanese/Vietnamese joint venture is not accepted as justification for acquiring financing sources, then the elaboration of project proposal for VGF Yen Loan can only be started when it becomes evident after bid evaluation that a Japanese/Vietnamese joint venture is the first ranked. In this case, the entire procedure of Decree 16 up to approval of F/S by the Minister in charge can only be started when the bid evaluation is completed. The two light blue dotted lines in Figure 3-2, combining the beginning of elaboration of project proposal for the procedure for Decree 16 and the end of evaluation and award for PPP project process suggests the need for synchronizing starting and ending points for the both procedures. Although the appraisal for VGF Yen Loan itself can be finished faster, as it must already become evident that a Japanese/Vietnamese joint venture is first ranked and the investor's proposal is available, the approval of project proposal and subsequent procedure of Decree 16 (i.e. the consultation process of "investment policy"¹⁹ with the related ministries and its approval by the Prime Minister) generally do take time. As the period necessary for the procedure under Decree 16 takes time, the Yen Loan conclusion will be delayed. During that time, the assumptions for the PPP project may change. In addition, the disbursement from VGF Yen Loan may not be disbursed, due to delay in extending a Yen Loan, when the private investor of the PPP project in question needs the payment of VGF. If that is foreseen before the bidding procedure, the private investor will not be interested in such bidding.

Judging from this analysis, extending a VGF Yen Loan to a single PPP project is judged almost impossible. As the current VGF Yen Loan scheme limits its provision to a single PPP project, it is necessary to modify it. The following is an alternative proposal for the current scheme of VGF Yen Loan.

3.2.2 Sector program loan

The objective of VGF is to provide an assurance of financial viability, for private investor who may have doubt on the financial return on the project, thereby facilitating their investment. This requires an

¹⁹ The term used in the unofficial translation of Decree 16/2016/ND-CP.

assurance of timely provision of VGF; in case of VGF for initial investment costs, VGF must be provided during the construction period. In order to make sure that VGF can be provided during that period, by the time a private investor requests the payment of VGF in accordance with its contract, all the preceding procedures (i.e. the procedure for Decree 16 and that for Yen Loan described in Figure 3-2) must be completed. The only way to do this is to complete the procedure for Yen Loan before the processing of individual PPP project. The approach of sector loan is appropriate for this purpose. Adopting a sector loan type is also beneficial for promoting PPP projects, as the use of VGF Yen Loan which is already extended, can be assumed even from the initial proposal stage of an individual PPP project.

A sector Yen Loan is extended to finances a sector program, under which there exists a bundle of subprojects. Therefore, its procedure under Decree 16 is applied only for the sector program, not to the subprojects under the program. It allows VGF Yen Loan to disburse its proceeds of the loan when the payment of VGF is requested by a private investor without repeating the procedure of Decree 16 for individual PPP project.

On the other hand, this approach raises two issues. The first suggests the PPP projects which are to benefit from the VGF Yen Loan may not be the same as those identified beforehand.

As the individual PPP project benefiting from the proceeds of Yen Loan is served on first come first served basis, it is not certain, until the request for using the proceeds of the VGF Yen Loan is made, which PPP project precisely is to be financed by VGF Yen Loan. To narrow down that difference, it is desirable to select only the projects which have high feasibility and which the participation of a Japanese/Vietnamese joint venture is highly likely, then to estimate their VGF requirement which becomes an estimation of disbursement amount. For that purpose, it is proposed to establish a joint steering committee between JICA and MPI. The steering committee should also introduce and implement predetermined criteria to judge whether the loan proceeds should be made available to a specific PPP projects which are not included in the initial program.

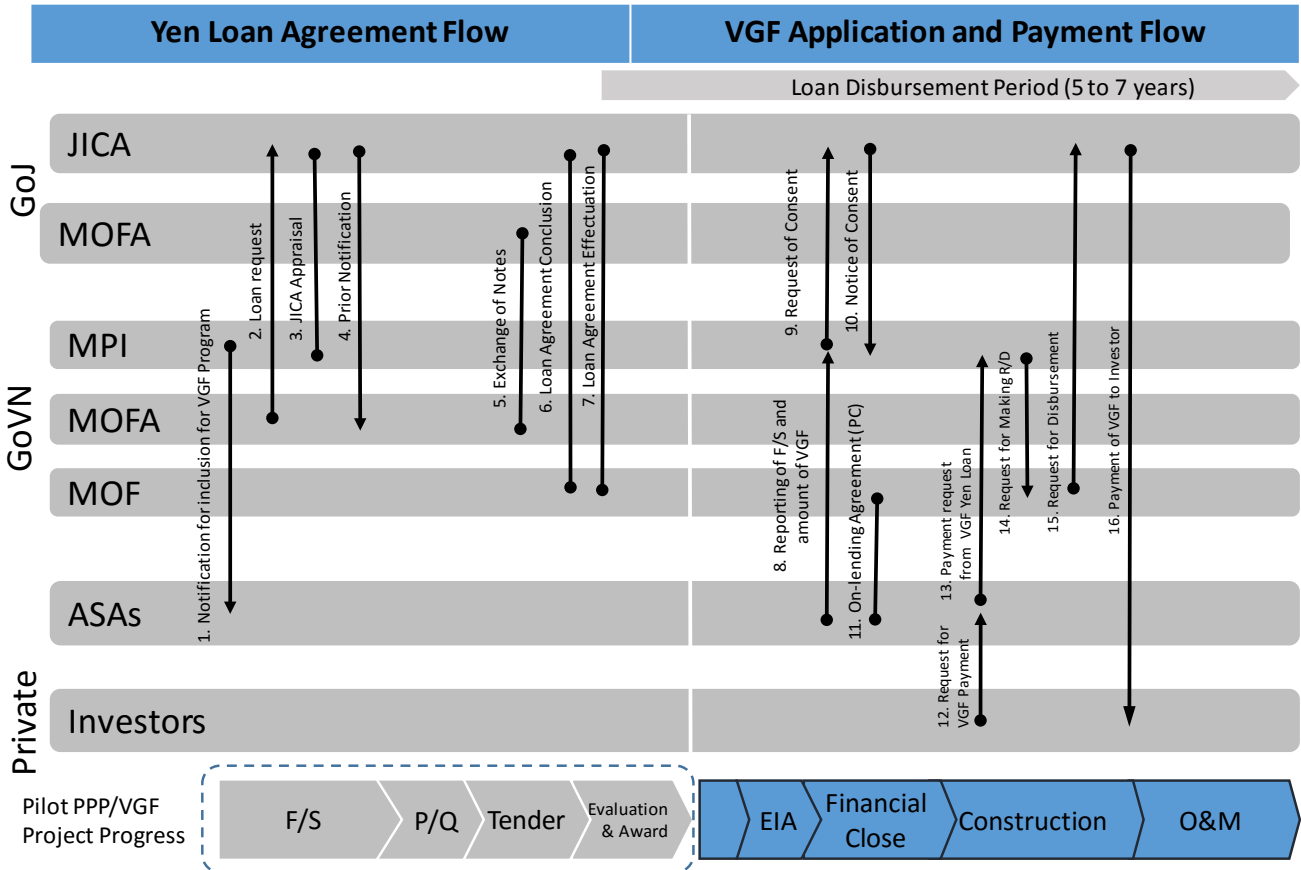
In the second case, consequently, it is possible that the total amount of VGF Yen Loan to be disbursed may not correspond to the estimated amount of VGF; therefore, it is necessary for MPI, as an owner of VGF Target Program, to administer the loan proceeds.

So far, the discussion made is to be applied for VGF for construction only. As section 6.2.3 in Chapter 6 explains, certain types of PPP project are suitable for Availability Payment. If VGF is provided in the Availability Payment, the duration of payment of Availability Payment covers the operating period of project cycle, i.e. 20 to 25 years. As the normal disbursement period of a Yen Loan is limited to 5 to 7 years, it is obvious that the entire period for Availability Payment cannot be financed by a single VGF Yen Loan. Since it is not certain whether VGF Yen Loans are repetitiously extended for financing

VGF for Availability Payment, the risk for private investor becomes higher. Therefore, it is not desirable to adopt this option.

3.3 Procedure of VGF Yen Loan

In this section, the necessary procedure is examined on assumption that a VGF Yen Loan is to be provided for VGF for construction of multiple PPP projects under sector loan type scheme.



Source: JICA Study Team

Figure 3-3 Stakeholders and Flow of Yen Loan Procedure (case for disbursement in Transfer Procedure)

Figure 3.3 shows overall procedure involving all the stakeholders concerned in the process. As proposed in the previous section, it is assumed that a central management unit called “VGF target program” Management Unit, which will be in charge of administrating the newly created program, is to be established in MPI. As the “VGF target program” is owned by MPI, MPI is the implementing agency of the project while the PPP unit of Public Procurement Agency is the unit in charge. The PPP unit will request and manage the budget for the program.

3.3.1 Appraisal

The appraisal works by JICA focuses on the confirmation of likelihood of each PPP project listed in

“VGF target program” to be awarded to a Japanese/Vietnamese joint venture, in addition to the development effect and financial viability of the proposed PPP project requiring VGF. The accumulation of each VGF amount of such “candidate” projects constitutes the amount of Yen Loan. Once the candidate PPP projects among “VGF target program” and their amount of VGF is confirmed and agreed between GoV and JICA appraisal mission, the subsequent procedure up to the loan agreement conclusion and loan effectuation is the same as the other Yen Loan.

3.3.2 Environmental and social considerations

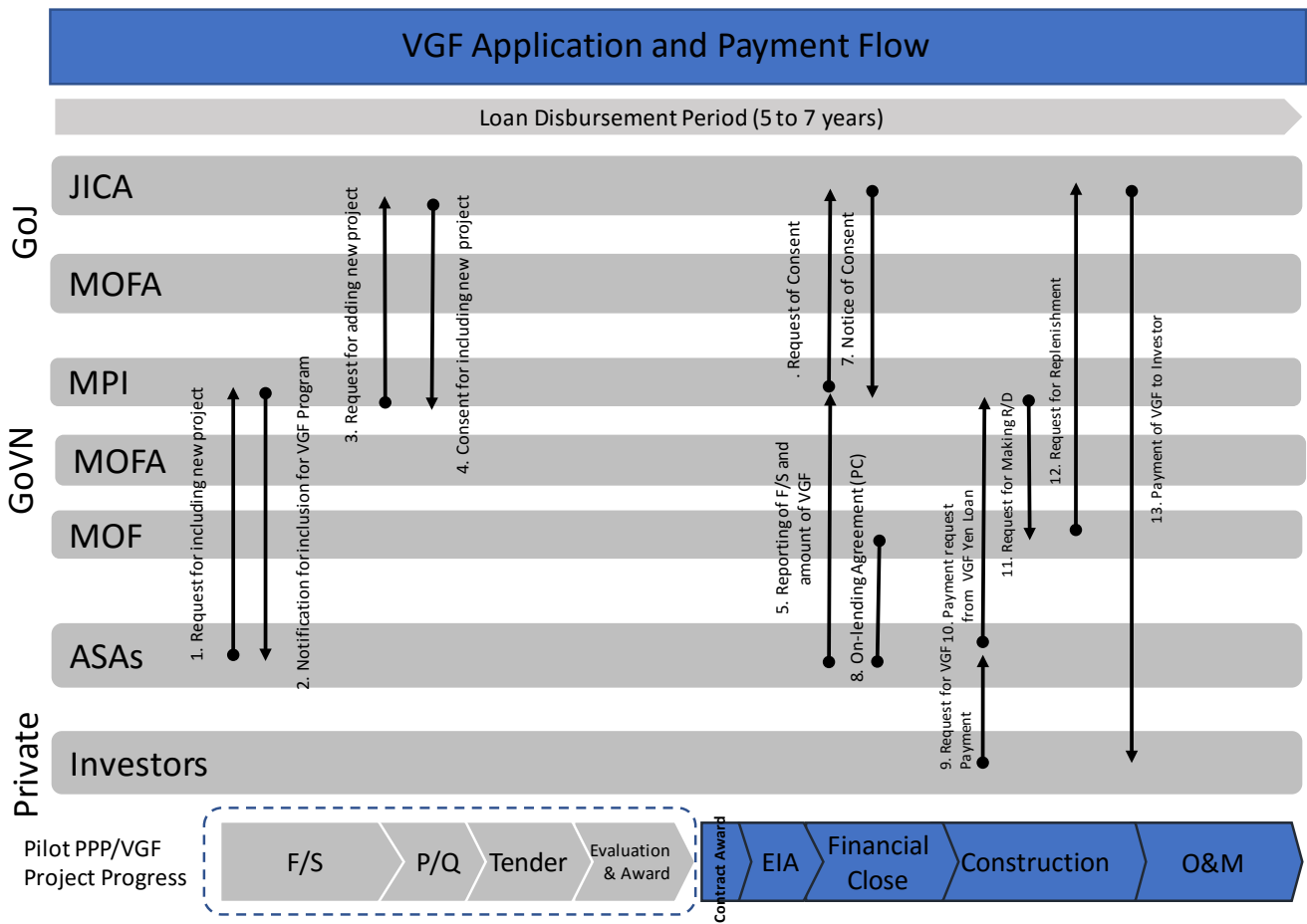
JICA's Guidelines for Environmental and Social Considerations (“JICA’s Environmental guidelines”) is also applicable for VGF Yen Loan. In case of Yen Loan, a project is screened before appraisal based on that guideline and is classified and treated according to the categorization of those guidelines. In case of PPP project, it is assumed in general that the environmental and social impact is important; consequently, depending upon the project, it will likely be categorized as “A” in JICA’s Environmental guidelines’ terms. For that reason, it is required to conduct stakeholder consultations with residents to be affected by the project and to reflect its results in the environmental and social consideration study. In addition, the recipient country government must submit Environmental Impact Assessment report and, in case a large scale involuntary resettlement is required, it needs to submit Resettlement Action Plan to JICA and JICA needs to publish it on the website subsequently. The disclosure of Environmental Impact Assessment needs to be done 120 days before the conclusion of the loan agreement.

Decree 15 requires to elaborate a resettlement plan and to evaluate environmental effect in F/S of a PPP project. Those are examined when a F/S is evaluated by the Ministers (in case of Group A and B projects). Despite the fact that Decree 15 also requires to include compensation, land acquisition and resettlement as well as assurance of environmental protection in a PPP contract (Article 32), there is no reference in Decree 15 to the related laws and decrees²⁰ regarding timing, methods and approval procedure for implementing resettlement plan and environmental impact assessment, except the stipulation that local authority needs to conduct land clearance and a need for collaboration between the state agency and provincial level People’s Committee (Article 45). Further and detailed examination is necessary to assure the coherence between the requirements under JICA’s Environmental guidelines and the evaluation of environmental effect of a PPP project based on the procedure in Vietnam, taking into consideration the category to which the JICA’s Environmental guidelines is to be applied to PPP projects object of VGF Yen Loan as well as the timing of completion of evaluation on environmental effect and of resettlement action plan.

²⁰ This includes Law on Environmental Protection (Law no.55/2014/QH13), Decree 18/2015/ND-CP and Circular No.27/2015/BTNMT and others.

3.3.3 Addition of PPP project

As explained in the previous section, it is possible that the initially appraised PPP projects may not receive the proceeds of VGF Yen Loan. Unless exactly the same candidate PPP projects with the same VGF amount in the initial list benefit from the proceeds of the Yen Loan, the total amount of VGF Yen Loan may never be used. In addition, given the uncertainty and different paces of project processing, the disbursement from VGF Yen Loan is made for those projects requesting the payment of VGF first; such projects may not be among the eligible projects which were discussed between JICA and MPI at the beginning. Under this condition, it is possible that the proceeds of VGF Yen Loan may not be fully utilized. In order to make maximum use of such unused balance of the loan, it is proposed to introduce a mechanism which allows to substitute the part of the initially appraised PPP project(s) to another new project(s). Figure 3-4 shows those procedures.



Source: JICA Study Team

Figure 3-4 Case for including a new PPP project to VGF target program

In this case, ASAs request “VGF target program” Management Unit to add a new PPP project. “VGF target program” Management Unit approves it, after consultation with MOF and notify its inclusion to “VGF target program” to ASAs. JICA, once received such request for addition and modification, examines the project and if judged complying the eligible criteria used at the time of appraisal, it will agree to the inclusion of that new project for using VGF Yen Loan. It will then notify the consent on

such substitution to MPI.

3.3.4 Arrangements for disbursement for VGF

Standard disbursement procedures for a Yen Loan include Commitment Procedure, Reimbursement Procedure, Transfer Procedure, Special Account Procedure and Advance Procedure. Applicability of each procedure is examined, given the nature of the payment of VGF.

Commitment Procedure, which uses Letter of Credits, is appropriate for the payment under the supply or construction contract. In case of VGF Yen Loan, such supply or construction contract is not applicable to the procedure described in the previous section. This procedure is not appropriate for VGF Yen Loan.

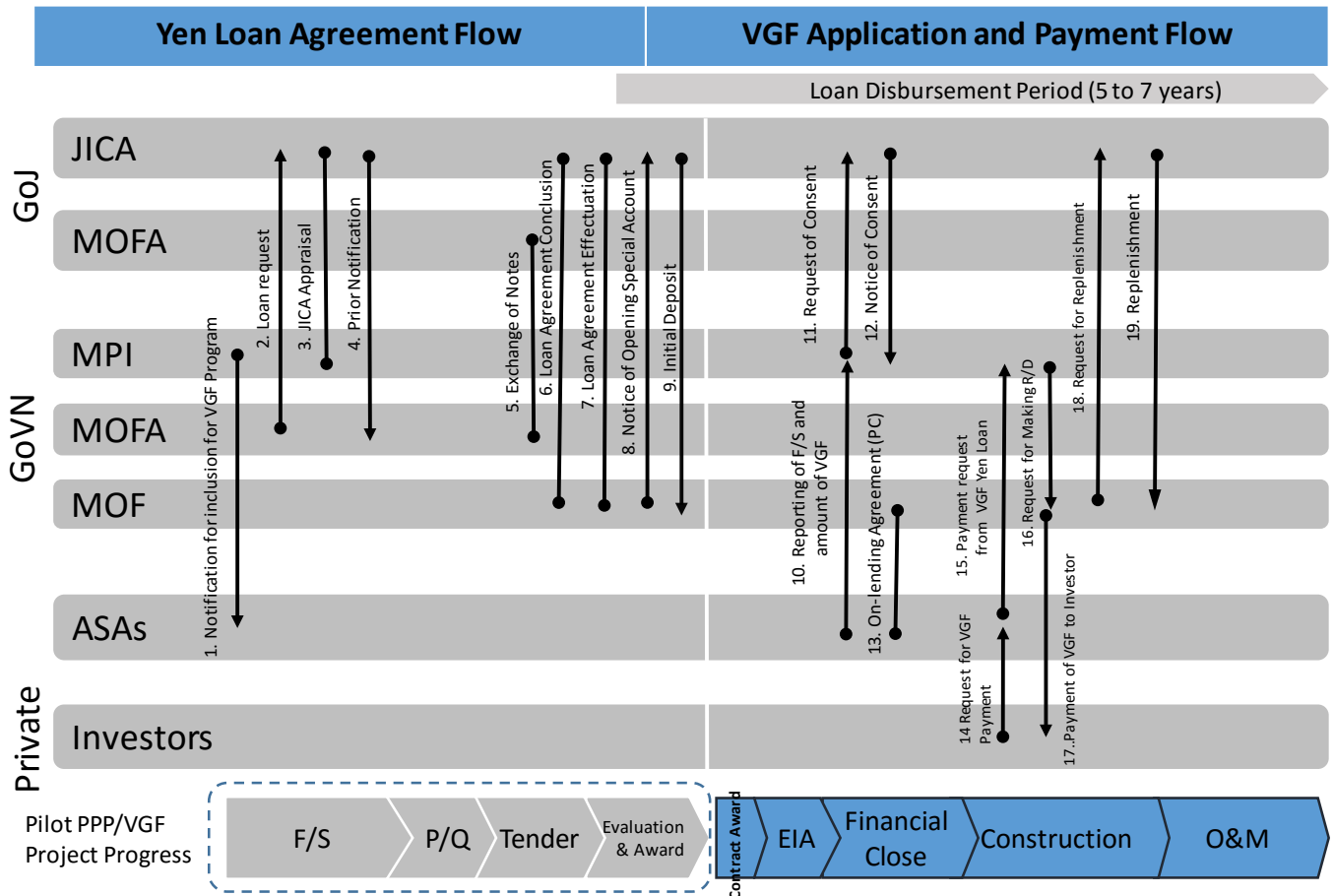
Reimbursement Procedure needs, as its name suggests, borrower's payment to SPC prior to the request for disbursement to JICA. This suggests for ASAs the need of cash funding arrangement for such payment with budgeting. While budgeting is needed in those five types of disbursement procedures mentioned above, the other disbursement procedures does not need arrangement of the borrower's own payment. In addition, it is not certain whether ASAs can get the reimbursement from MOF for their payment. Judging from this, it is unlikely that ASAs choose Reimbursement Procedure for VGF payment under PPP projects, given the magnitude of VGF amount.

Advance Procedure, which makes certain funds available through advance payment in the borrower's account, requires advance reporting of borrower's financing needs for the coming 6 months. It is considered that this disbursement procedure is more appropriate for satisfying regularly repeated financing needs, such as monthly payment. Since the disbursement for VGF for construction is expected to be lumpy, as it is requested only when the claim for payment arrives and such circumstances may not be arrived regularly, as the processing of individual PPP project is at random. Therefore, Advance Procedure is not an appropriate procedure.

Transfer Procedure allows direct payment from Yen Loan to a beneficiary. While the request for disbursement must be made from the borrower, which means, in case of VGF Yen Loan, "VGF target program" Management Unit must request MOF to elaborate a request for disbursement, the disbursement from JICA is made directly to the investor. No.16 in Figure 3-3 and No.14 in Figure 3-4 show this procedure. In addition, since a request for disbursement is made in accordance with the specific payment closure of PPP project contract which is already acknowledged and agreed by JICA, its supporting document can be simplified; i.e. a letter of request for disbursement, copy of signed part of contract, and specific clause stipulating the payment of VGF. It is considered that Transfer Procedure is an appropriate disbursement method for VGF Yen Loan.

Special Account Procedure allows for the borrower to retain certain amount of the proceeds of Yen Loan in the account to be established. Since the disbursement to beneficiary can be made directly from that account, and the borrower makes requests for disbursement only when the remaining balance of the account becomes insufficient to make further payment. Figure 3-5 shows the procedure for Special

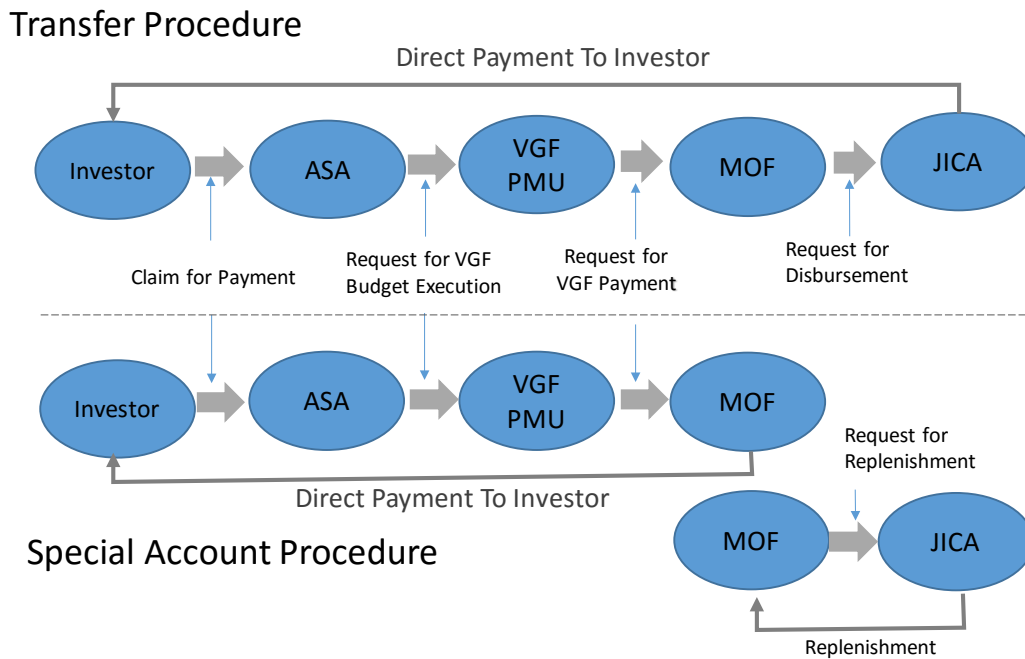
Account Procedure. In case of VGF Yen Loan, the payment to beneficiary is faster than Transfer Procedure, as MOF can directly pay to the investor from the special account. Therefore, it is considered that Special Account Procedure is also an appropriate disbursement method for VGF Yen Loan.



Source: JICA Study Team

Figure 3-5 Stakeholders and Flow of Yen Loan Procedure (case for disbursement in Special Account Procedure)

The comparison between Transfer and Special Account Procedures are made in Figure 3-6 and Table 3.1. As it can be seen from the Figure 3-6, both procedures are almost the same in the process between the time when a claim for payment is submitted to ASAs and the request for budget execution is made by MPI's VGF target program management unit to MOF. On the other hand, the major differences are: i) it takes 15 days more for investors to receive funds in case of Transfer Procedure, as the request for disbursement must be submitted to JICA and JICA disburses the proceeds of the loan, and ii) in case of Special Account Procedure, interest payment accrues soon after the initial deposit, which is soon after the establishment of special account by the borrower.



Source: JICA Study Team

Figure 3-6 Two types of Disbursement Procedure

Table 3-1 Comparison of Transfer and Special Account Procedures

	Transfer Procedure	Special Account Procedure
Payment to Investor	Direct payment from JICA	Direct payment from Special Account to be set up in MOF
Timing of disbursement of the proceeds of Yen Loan	When payment of VGF is requested from investor	Soon after the opening of Special Account
Timing of interest incurred from Yen Loan	At the time of disbursement based on the request	Soon after the initial deposit is made

Source: JICA Study Team

3.3.5 Post evaluation

As the proceeds of the Yen Loan are to be appropriated in the VGF of plural PPP Projects, it is necessary to evaluate the effect of VGF injection in the individual PPP project. The accumulation of evaluation of the individual PPP project will reveal the effectiveness of “VGF target program” financed by VGF Yen Loan.

3.3.6 Monitoring

It is proposed that a steering committee proposed in the previous section is expected to administer Yen Loan financed portion of “VGF target program”. A regular meeting of such committee will monitor the current situation of the use of VGF target program, identify and deal with bottlenecks encountered in its implementation. The borrower of VGF Yen Loan is also expected to submit a quarterly progress report, based on the stipulation of a loan agreement, describing the progress of PPP projects benefiting from the VGF Yen Loan.

3.4 Issues for introducing VGF Yen Loan

Drawing from the argument made above, the critical issues for VGF Yen Loans are the following four issues: (1) providing a single VGF Yen Loan for a single PPP project is not realizable, thus a sector loan model should be introduced; (2) the limitation on the use of proceed of the loan restricted to the award made to a Japanese/Vietnamese joint venture; (3) appraisal based on the JICA's Environmental guidelines, (4) the timing of extending VGF Yen Loan to Vietnam. In addition, it became evident during this study that capacity building of PPP unit of Public Procurement Agency (PPA), MPI, is necessary to implement "VGF Target Program".

The first issue was discussed at length in sub-paragraph 3.2. In order to operationalize VGF Yen Loan, it is imperative to introduce sector loan type loan instead of the current scheme.

The second issue relates to the financing resources for all the PPP projects requiring VGF. For the PPP projects included in the initial list, further examination is needed to identify how to describe, in the tender document, the assumption that the proceeds of Yen Loan is used for those PPP projects in which a Japanese/Vietnamese joint venture have an interest. In case such description cannot be chosen, there is an option to use the government budget in case a Japanese/Vietnamese joint venture did not get a contract. However, this raises a practical issue of budgeting. Consequently, adoption of consent to the result of P/Q should be examined in this case.

The third issue is the evaluation of environmental effect. Decree 15 refers to include evaluation of environmental effect and resettlement related issues in the F/S of a PPP project, but it does not refer to the related legislation on them. Especially, no reference is made for approval of evaluation of environmental effect and resettlement for PPP projects; thus the procedure is not explained. Consequently, how they are submitted, when they are approved and when the works for PPP project can be started are not clear. Therefore, it is necessary to make them explicit by making reference to the related legislation. In addition, the appropriate and practical timing of JICA's appraisal on those issues must be examined based on the procedure on the Vietnamese side

The forth issue is more about the Vietnamese side; as a new foreign assisted program, "VGF target program" is not included in the current 2016-2020 Five Year Development Plan. As such, it is necessary to include it into that plan. This necessitates the approval of the Standing Committee of National Assembly. Given the fact that it is already in the middle of this five year plan period, and although the increase of budget for newly approved ODA loan supported projects is examined, it is not sure whether a new addition can easily be done. Since the study team adopted a two step approach (i.e. to start the "VGF target program" within the current environment with constraints and further develop the scheme in the second stage where modification of current institutional setting is proposed), it is judged appropriate to start immediately the first stage in order to prepare eventual modification of related laws and regulations in the next 5 Year Development Plan period.

For the capacity building, reinforcement of the PPP unit of PPA is inevitable, as the scope of works of managing "VGF Target Program" includes multiple tasks including inclusion of the program into

MTPIP, budgeting of the program and budget management, screening of projects submitted by ASAs, management of Steering Committee with JICA and the contact with JICA on VGF Yen Loan administration. Those administrative works of VGF Target Program is an add-on task to the existing unit; therefore, once “VGF Target Program” is decided to implement, it is desired to hire the staff from outside as the current unit staff have no spare capacity. The process of building a team can also be started with the recruitment of an advisor who supports the process up to formation of a unit. The PMU can be started with a team of consultant composed of small number of expatriates to be financed by the donor, while parallel staffing of MPI officials in that unit allows transfer the knowledge and know-how of managing “VGF Target Program”. The possible combination of professional expatriate staff members shall be composed of team leader and PPP sector specialists. The number of sectors sector specialists can be increased gradually in accordance with the increase of PPP projects with VGF. In the long term, the “VGF Target Program” Management Unit could be developed to function as the central unit for managing PPP projects, just like the PPP unit in the other countries.

CHAPTER 4 CHALLENGES FOR FORMATION OF VGF MECHANISM AND ACTION PLAN

This chapter discusses to a concrete action plan to realize the VGF mechanism proposed by the study team in a short-term and issues to be addressed on long-term basis.

4.1 Concrete Action Plan for Forming VGF Mechanism Utilizing ODA Loan

As Vietnamese government is now prioritizing the infrastructure construction by PPP and focuses on the establishment of the PPP Law, MPI has committed to make its effort to realize the VGF mechanism proposed by the JICA study team. Specifically, MPI expressed its strong wishes to apply the same VGF mechanism to the ongoing 5-year Medium-Term Public Investment Plan (MTPIP, 2016-20) as VGF target program. In this connection, the study team suggests that the following actions should be taken in order to realize it by 2020, last year of MTPIP (See figure 2.7 for detail).

- ① Revision of related Decrees (especially Cabinet Decree No. 15) by 1st quarter of 2017 to 2018
- ② Establishment of the VGF Program Management Unit until 2nd quarter of 2018
- ③ Completion of F / S of pilot project during the third quarter of 2018
- ④ Revision of MTPIP up to 4th quarter of 2018 (publication of VGF Target Program)
- ⑤ Conclusion of L / A with JICA in the fourth quarter of 2018
- ⑥ Implement bidding for pilot project, conclude contract, and achieve F / C in 2019
- ⑦ Disbursement of ODA loan for VGF in 2020

For reference, Figure 4.1 below shows these milestones on the time axis. According to the figure, at the end of 2018 E / N and L / A could be agreed among Vietnamese and Japanese concerned parties.

Action Items	2017		2018				2019				2020	
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
1 Amendment/approval of decrees	██████████											
2 Development of relevant circulars	██████████											
3 Establishment of VGF Program Management U.	██████████											
4 Development of PPP project list with VGF	██████████										
5 Amendment of MTPIP including VGF estimation			██████████									
6 Yen Loan Procedure (Pledging, E/N and L/A)			P E/N L/A									
7 Pilot project selection and F/S		██████████									
8 Pilot Project RFP preparation			██████████									
9 Pilot project bidding							██████████					
10 VGF application and disbursement											APL	DIS.

Source: JICA Study Team

Figure 4-1 Schedule for Setting-up of VGF Mechanism and Application of VGF using ODA

4.2 Long Term Issues

Further to previous section 4.1 which proposes the minimum action plan to adopt VGF program in a short time in Vietnam where PPP environment has not yet been matured, this section summarizes the issues to be addressed in order to develop the PPP system including the VGF program in the long term.

(1) Development of legal system

In the legal system of Vietnam, the main regulation concerning PPP remains as one of Decrees and there is no effect on the upper Law. Moreover, the articles of the Decree are not described clearly enough to use them and implementation of PPP projects are not considered in the upper Laws (such as the PPP project needs to be formulated based on the Public Procurement Law, etc.), therefore following measures are recommended to take action.

- Upgrade PPP related Decrees to Law.

In this context, the first decree to be upgraded is Decree 15, which covers all relevant aspects on the PPP concept (see 2.3 for detail). Japan, Korea and neighbor developing countries have already enacted PPP law and its legal status has been established as at high level.

Upon request of MPI, the study team proposed a revised edition of Decree 15, however needless to say it would be quite essential to undertake fundamental review from a broader perspective when the upgrade of the Decree 15 to the PPP law is decided to be undertaken.

- Amend the existing Law which is an obstacle to PPP project implementation.

What is recommended is the amendment of the Public Investment Law mentioned in 2.3.2. The main objective is to exclude projects to which VGF is offered from application for the Law.

- Clarification of legal provisions

As requested by MPI and also as described above, the mission revised the provisions of Decree 15 itself. Likewise similar work is necessary for other Law, Decree, Decision, and Circular as well.

(2) Improvement of implementation system

As for the implementation system to achieve an effective project selection and smooth budget allocation, it is recommended that the following three issues to be achieved.

- VGF Program Owner installed in MPI or MOF shall be an independent organization and shall be given an authority and discretion.
- Having a budget independent Budget Line. We will try new insertion as VGF Target Program even in MTPIP currently in progress.
- Even for annual distribution of budget to each ASA, make it a specific Budget Line

(3) Introduction of PPP system other than VGF

In general, the government is supposed to support PPP with the following four functions. In fact, these functions are actually promoting PPP projects in complementing each other.

- PDF (Project Development Facility)
- Public long-term financial system
- Guarantee
- VGF

Among them, what has been available now in Vietnam are various government supports described in Decree 15 and PDF which has been recently introduced with ADB's assistance. And now VGF program is going to be newly introduced.

In this connection, for the future it would be more practically constructive to introduce the long-term financing system and guarantee system, in addition to the improvement of existing PDF and the adoption of proposed VGF.

(4) Strengthen cooperation with donors

Vietnam is now in the stage of "need investment more than aid" and investment from overseas is strongly required not only in industry but also in the infrastructure field. Therefore, it is essential to

ask donors for assistance to promote investment. Since the VGF mechanism proposed by this study team will contribute to the promotion of foreign investment, it is expected that other donors would participate in this VGF program. Regarding the conditions of the assistance from the donors, the government would better ask the donor to avoid imposing unfavorable conditions which a private investor dislikes. It is also desirable for the donor side to decide its aid policies and conditions reflecting the host country's economic situation.

(5) Strengthening implementation capacities of government entities

The VGF program is an unprecedented system for government entities in Vietnam; therefore strengthening their implementing capacity is considered to be extremely important. Particularly MPI, which is the center of implementation, may have to strengthen its capacity in the method of project selection and of project examination (cash flow analysis etc.), and the ASAs, specifically the Line Ministries (MOT, MOH, MOC, etc.), may have to learn the procedural aspect of VGF (bidding procedures, methods of preparing bidding documents, etc.). In this way, provision of technical assistance in these field to the concerned ministries would be quite important for smooth implementation of this proposed VGF program.

**PART 2: SUBSIDY SYSTEM AND VGF
AMOUNT OF 5 INFRASTRUCTURE
SECTORS IN JAPAN AND VIETNAM**

CHAPTER 5 SUBSIDY SYSTEM AND PFI PROJECTS IN JAPAN

5.1 Infrastructure and Public Subsidy in Japan

5.1.1 Construction of Infrastructure and Subsidy in Japan

Prior to the publication of the Act on promotion of Private Finance Initiative in 1999, the principal understanding among the government officials on the construction of infrastructure was to conduct it with national government budget. The national government provided its financial support to those projects to be implemented by the local governments, and such budgetary contribution was called subsidy.

It can be considered that the development of modern infrastructure which supports current Japanese economy had started during the Meiji modernization period while it can be considered the law on “Prioritized Infrastructure Development Planning”²¹ still reflects such way of thinking adopted at that moment in the current context. The Law on Prioritized Infrastructure Development Planning stipulates, in its first article, that healthy development of national economy as well as the stabilization of citizen’s daily life requires infrastructure development plan and its Article 3 says implementing such plan is a fundamental principle. It also says that the ministers in charge should develop such plan (Article 4) and the national government must take necessary measures to implement it (Article 8). The ministers in charge of the plan are Prime Minister, the Ministers for Agriculture, Forestry and Fishery (MAFF) and for Land Infrastructure and Transport (MILT)(Article 9). Those stipulations clearly show the idea of national government’s role, that is to establish a plan and implement infrastructure development.

In addition, it is assumed that the national budget will be used as the sources of financing of such infrastructure development. The support with national budget is mandated by law, as seen in the Water Law²². Article 2 of the Water Law stipulates the obligation of national government’s role to establish policies for water supply facility development and of its efforts to provide technical and financial support to the local governments as well as water supply operators for them to implement such policy. Article 44 of the same law also stipulates national government can partially provide supports the cost of projects engaged by the local government, while Article 45 says the national government must provide or promote the financing of the project cost related to new construction, capacity expansion, improvement and recovery from the damages caused by natural disaster to be conducted by the local governments. Looking at it from the local government’s side, the second sub-article of Article 10 of the Local Government Budget Law²³ acknowledges the national government’s obligation to either entirely or partially bear administrative costs for those projects to be implemented based on laws. Such financing is targeted to new construction and improvement of road infrastructure as well as large scale urban development. From those stipulations, we can clearly confirm that national government’s

²¹ Law No. 20 of March 21, 2003

²² Law No. 177 of June 15, 1957

²³ Law No. 109 of July 7, 1948

budgetary contribution for infrastructure development in both sector law and local government budget law.

As those legislations reveal, we found a consistent attitude of national government deciding those projects to be implemented for pursuing its policy and bearing its costs at the same time. That budgetary contribution is considered as subsidy. Some people point out that the subsidy is not legally and explicitly defined²⁴, while the Law on Rationalization of Budget for Subsidy²⁵ refers subsidy as the fund provided by the national government to those public institutions other than the national government. Such fund includes, according to the Article 2 of that law, the provision of fund without repayment which are defined by national government ordinance. Through the stipulation of this law, subsidy can be defined as the fund provided by the national government to the public institution other than national government to implement specific projects without the obligation of repayment.

As explained in detail hereafter, the object of subsidy is various from sector to sector. However, generally, it is given to the construction cost or procurement of facilities in the early part of project implementation²⁶. The percentage of subsidy, in general, varies by sector from 33% to 50% of construction cost in case of support for capital expenditure. For example, in case of water supply and hospital, the subjects as well as percentage of subsidy are defined specifically per work items, such as works for seismic retrofit and infant medical treatment facilities, while in case of wastewater, the definition of work item is more broadly defined, such as 50% of the construction of sewage network construction.

From the above, the focus of subsidy in Japan is given to public institutions other than the national government and to enforce achievement of policy objective which is to implement infrastructure construction, such as seismic retrofit and taking measures for environment. Thus, the profitability of a project is not considered when subsidy is provided. This is a big difference from VGF which is to supplement the profitability of infrastructure service provision.

The specific description of subsidy by sector discussed below.

5.1.2 Outline of National Subsidies in 5 Infrastructure Sectors

(1) Toll Road

a) Outline and History of Toll Road System in Japan

Prior to analysing the subsidy policy for road construction, the outline and history of road administration and toll road system in Japan is summarized. There are several relevant laws for road construction. The Road Law, which was established in 1952, is the law for public investment road projects. The Road Law stipulates roads should not be toll type in principle, but if they are, then only

²⁴ <https://ja.wikipedia.org/wiki/%E8%A3%9C%E5%8A%A9%E9%87%91>

²⁵ Law No. 179 of August 27, 1955

²⁶ Subsidies are also provided for operation and maintenance in hospital.

prefectures and municipalities can collect tolls for recovery of their investment for project. This means private enterprises are not allowed to be a toll road administrator. In addition, the Law Concerning Special Measures for Highway Construction was enacted in the same year to introduce a toll road system into the public roads defined by the Road Law, allowing the national government and prefectures to borrow funds by assuming its repayment with toll revenue. In 1956, Japan Highway Public Corporation was established as a special corporation which can carry out public road construction. In the same year, full-fledged revision of the Law Concerning Special Measures for Highway Construction, the law still in force nowadays, was enacted.

In 1970, Act on Local Road Public Corporation (LRPC) was enacted to aim for accelerating the construction of sub-national arterial roads. In 1972, Pool System for expressway construction was introduced by revision of the Law Concerning Special Measures for Highway Construction for enhancing road network, the mechanism which allows the collection of consistent toll revenue to enable the smooth repayment of its borrowing. In 2004, four road-related public corporations were privatized and reorganized as expressway companies which have the status of road administrators of expressways and major general toll roads.

b) Types and Administrator of Toll Road

Figure 5-1 shows demarcation of toll road administrators for each toll road type in accordance with the Road Law. Furthermore, there are some other road types referred to road-related laws other than the Road Law such as the Road Transport Law. However, those roads constructed under these latter laws are not considered as public investment projects as defined under the Road Law.

As shown in Figure 5-1, there are many types of toll road administrators such as Expressway Companies privatized from four former road-related public corporations: Urban Expressway Public Corporations, LRPC, and Local Public Entities. Currently, Local Public Entities have no toll-roads since all of their roads were turned in to toll-free roads due to complete repayment of their debt.

In addition, toll road are divided into two categories: 1) network-type under the management of the expressway companies, and 2) bypass-type under the management of LRPC. Expressway companies apply cross subsidies (“Pooling” System) for network expansion. On the other hand, LRPC manage toll-roads by a self-account system for each road section.

Since this study needs to analyse a cash flow, it is decided to select a LRPC’s toll road applying the self-account system.

Road Administrator	Toll Road Type	Road Length
NEXCO-East NEXCO-Central NEXCO-West (NEXCO: Nippon Expressway Company)	National Expressway	8,201 km
	General Toll Road (National Road, Prefectural Road, Designated City Road)	1,087 km
Metropolitan Expressway Co. Ltd. Hanshin Expressway Co. Ltd. Urban Expressway Public Corporation (Nagoya, Fukuoka, Kita-Kyushu, Hiroshima)	Urban Expressway (Prefectural Road, Designated City Road)	782 km
Honshu-Shikoku Bridge Expressway Co. Ltd.	Honshu-Shikoku Bridge Expressway	172 km
Local Road Public Corporation	General Toll Road (National Road, Prefectural Road, Municipal Road)	937 km
Local Public Agency	General Toll Road (Prefectural Road, Municipal Road)	0 km
	Toll Bridges, Toll Ferry Facilities (National Road, Prefectural Road, Municipal Road)	0 km

Note: Bold is former Road-related Four Public Corporation
 (Source: JICA Study Team arranged Road Statistic Report, MLIT 2016)

Figure 5-1 Road Administrator and Toll Road Type

c) Financial Resource of Road Construction

Prior to explaining about the financial resources of toll road construction, financing for general road construction in Japan is described. For public road construction, there are two distinctive financial resources other than general revenue: 1) Fiscal Investment and 2) Road-purpose Revenue.

The Fiscal Loan Fund Act was enacted in 1951 and it institutionalized the mechanism of using those financial resources acquired through bonds (government bond) in order to finance large scale or long term projects. This act expedited construction of toll roads together with the Law Concerning Special Measures for Highway Construction, also enacted in the same year.

In addition, the Act on Temporary Measures concerning Financial Resource for Road Construction was enacted in 1954, and gasoline tax was designated as specific resources for road construction. Since then, this act was revised while other taxes (e.g. automobile weight tax) have been added for the resources targeted to road construction until all of them were decided to be merged into general revenue in 2009. This act provided enormous contribution for road construction in Japan.

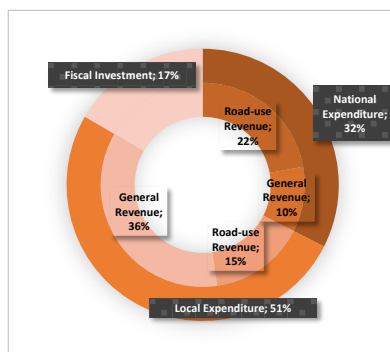
Figure 5-2 and Table 5-1 show the proportion of the resources for road construction in 1998, when the maximum expenditure for road construction in post-war history was recorded. Fiscal Investment and specific resources for road construction accounted for 17% and 37% respectively. In 2014, total expenditure of road construction was 6.147 trillion JPY, which was 40% of that record making year.

Table 5-1 Financial Resources for Road Construction

(Unit: million JPY)

Financial Resource	Amount	
Road-use Revenue	5,764,900	(37%)
General Revenue	7,075,800	(46%)
Fiscal Investment	2,565,800	(17%)
Total	15,406,500	(100%)

Source: JICA Study Team based on MLIT document



Source: JICA Study Team

Figure 5-2 Composition of Financial Source for Road Construction

d) Financial Resources and Subsidy for Toll Road Construction

Most of the roads under management of LRPC have been constructed by “hybrid road construction financing mechanism” which is the combination of public investment and toll road project as shown in Figure 5-3 Toll revenue is collected to recover only one part of total cost. This system has been applied for accelerating road construction by public investment under financial constraints.

Cost	Financial Resource	
Operation and Maintenance	Toll Road Project	paid from toll
Construction	Public Works	
Land Acquisition		

Source: JICA Study Team based on the document of MLIT

Figure 5-3 Hybrid Road Construction Financing Mechanism

More precisely, the cost of “toll road project” part is calculated based on the “toll period (30 or 40 years: depending on type of road and project²⁷)”, “traffic demand forecast”, and “tariff calculated

²⁷ Toll period of Reginal High Standard Road (for cars only) is 40 years and other toll road is 30 years.

based on the estimated users' benefit²⁸. Public works cost will then be computed as the balance between the total project cost and the cost of "toll road project" part. Toll road shall be made toll-free after completion of repayment of the borrowing for the road project by toll. In summary, this amount of public investment, including land acquisition, within the overall project cost could be considered as a subsidy to toll road projects. LRPC requests MLIT for approval of toll road project including toll fee to be applied. Toll fee is fixed and not to be changed during the entire period of pre-determined project life.

e) Toll Road Construction under the Law Concerning Special Measures for Highway Construction

Many prefectures and designated cities established LRPCs after the enactment of the Law of LRPC in 1970. Afterwards, 12 corporations were dissolved because of completion of repayment of their debt and roads were turned into toll-free. As of 2016, there are 38 corporation managing 937 km toll road with 114 toll sections in total. Table 5-2 shows major toll roads under management of LRPCs around Tokyo metropolitan area.

Table 5-2 Major Toll Road around Metropolitan Area

LRPC Name	A. Kanagawa Pref.		B. Saitama Pref.		C. Tochigi Pref. LRPC			D. Chiba Pref. LRPC			
Road Name	Honcho-Yamanaka	Miura Jukan	Sayama Kanjo	Minano Yorii	Nichien Ryuo	Kinugawa	Utsunomiya Kanuma	Chiba Sotobo	Toso	Togane Kujukuri	Choshi Renraku
Road Class	PR	PR	PR	NR	PR	NR	NR	PR	PR	PR	NR
Length	2.6 km	4.7km	1.8km	6.9km	2.8km	1.7km	1.6km	14.3km	11.4km	10.0 km	5.9km
No. of Lanes	2-lane	2-lane	2-lane	2-lane	2-lane	2-lane	2-lane	4-lane	2-lane	2-lane	2-lane
Road Type	Sightseeing			●	●					●	
	Bypass	●	●	●	●	●	●	●		●	●
	Relieve Congestion		●	●	●	●	●	●		●	●
	Region Development		●			●	●		●	●	●
Open to Traffic	1992	2000	1987	2001	2002	1992	1996	1980	1988	1998	2006
Ini. Project Cost	JPY 15.4bn.	JPY 41.0bn.	N/A	JPY 50.0bn.	JPY 5.07bn.	JPY 5.57bn.	JPY 5.39bn.	JPY 23.4bn.	JPY 6.5bn.	JPY 30.2bn.	JPY 33.0bn.
Toll Road Project Cost	JPY 15.4bn.	JPY 22.0bn.	JPY 5.6bn.	JPY 18.8bn.	JPY 5.07bn.	JPY 5.57bn.	JPY 5.39bn.	JPY 23.4bn.	JPY 2.7bn.	JPY 7.0bn.	JPY 0.60bn.
Public Works	0円	JPY 19.0bn.	N/A	JPY 31.2bn.	JPY 0	JPY 0	JPY 0	JPY 0	JPY 3.8bn.	JPY 23.2bn.	JPY 2.70bn.
Land Acquisition	JPY0.40bn.	N/A	N/A	N/A	JPY0.013bn.	JPY0.223bn.	JPY0.935bn.	JPY7.40bn.	N/A	N/A	N/A

Note) 1. Total of Construction Cost and Land Acquisition Cost. O&M Cost is not included.

Source: JICA Study Team

(2) Water Supply²⁹

a) Water utilities in Japan

Waterworks Act stipulates that, in principle, municipalities (cities, towns and villages) are responsible for the ownership and management of water utilities in Japan. Other organizations, such as prefectural governments and private water supply service providers, can own and manage water utilities only if the respective municipalities authorize such transfer of responsibility. While transfer of the responsibility to prefectural governments is very common among municipal water supply businesses, only nine water supply businesses are run by private providers for limited service areas.

²⁸ Users' benefit is calculated based on basic unit for Vehicle Operation Cost and Travel Time Cost in accordance with LRPC's guideline. Tariff is decided considering balance among vehicle type within users' benefit.

²⁹ Description of this section is based on "Overview of Local Public Enterprises in Fiscal Year 2015" (MIAC, March 2017), otherwise specified.

Waterworks Act regulates water supply businesses, bulk water supply businesses, and individual private water connection facilities. Water supply businesses whose population served is less than 5,000 are categorized as small water supply businesses. According to Ministry of Internal Affairs and Communications (MIAC), there are 2,081 water supply businesses managed by local authorities as of FY2015 (See Table 5-3), whose water supply capacity amounts to 89.4 million m³/day in total. Water supply service coverage is 97.2% nationwide in FY2015; and average amount of revenue water per person per day is estimated at 297 lpcd . Revenue water ratio accounts for as high as 90.0% on average³⁰ including the small water businesses all over the country.

Table 5-3 Water Supply Businesses as of FY2015

Ownership/ Management	Prefecture	Designated City	City	Town/ Village	Consortium	Total
Water Supply Businesses	26	20	687	515	96	1,344
Water Supply for End Users	4	19	686	515	49	1,273
Bulk Water Supply	22	1	1	0	47	71
Small Water Supply Businesses	1	4	244	486	2	737
Public Enterprise Law Applied	1	0	9	16	0	26
Public Enterprise Law Not Applied	0	4	235	470	2	711
Total	27	24	931	1,001	98	2,081

Source: Local Public Enterprises FY2015, MIAC (2017)

b) Government subsidy in historical context

The first modernized water utilities in Japan were developed in the city of Yokohama in 1887. In 1888 the central government decided on the creation of subsidizing policy for the water supply system development in major cities along with the creation of law and ordinances in 1889 on the governance of water supply sector based on the principle of public interests rather than for-profit business approach. Japanese government enacted the Waterworks Act in 1957, which is the principal law of the sector today.

Historically speaking, the majority of capital expenditure of water utilities was funded through internal source and debt finance through enterprise bonds. Japanese economic development during 1960s-70s enabling the rapid expansion and improvement of water supply services all over the country. As of FY2014, the service coverage accounts for 97.8% of total population.

Water supply businesses in general are also under the governance of Local Public Enterprises Act. All water supply businesses must be financially self-sustainable except for the small water supply businesses to which application of the Act is optional. As seen in Table 5-3, among 2,081 water supply businesses, the Local Public Enterprise Act applies to 1,370 (66%) businesses.

During the World War II, the water supply facilities nationwide were damaged tremendously. The service coverage was as low as 26% in 1946. Today's government subsidy system for water supply

³⁰ Non-revenue water accounts for 10% on average; primary causes of which are i) water leakage and amount undetected by water meters (unmeasured water). In case of Yokohama City Waterworks Bureau, for instance, its non-revenue water rate was 8.0% in FY2013, of which the water leakage and undetected amount account for 5.0% and 1.3% respectively. Other non-revenue water (1.7%) consists of water loss during waterworks projects, etc.

development was formed in 1952 when the government subsidy for small water supply businesses development was commenced to enhance service coverage expansion in rural areas. It was followed by the creation of government subsidy for water resource development for water supply businesses.

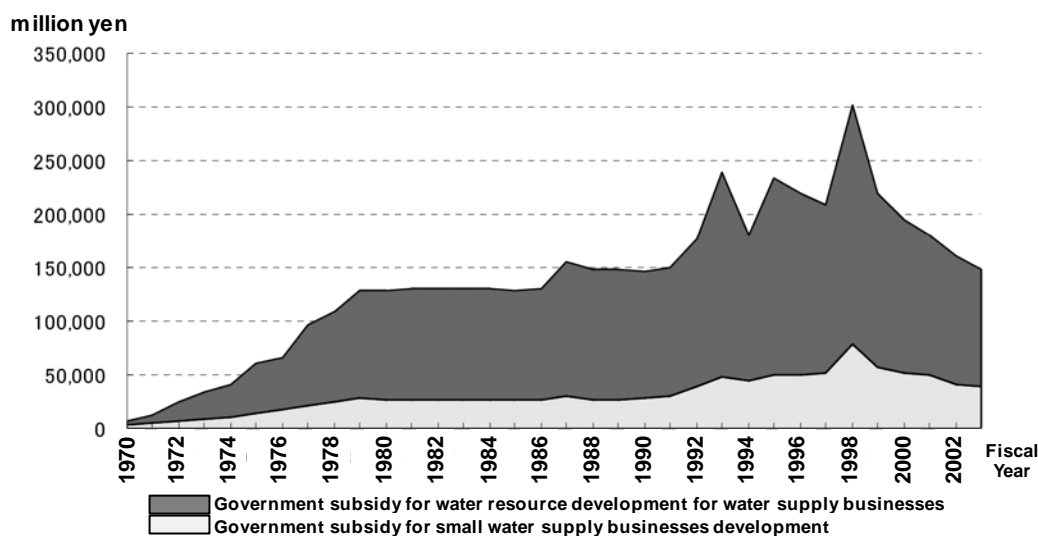
Table 5-4 summarizes the government subsidy provided as of April 2014. It is noted that the government subsidy for water supply businesses is provided for development of specific facilities that comply with the current policies that the central government promotes (e.g. regional water supply to serve several municipalities, advanced treatment facilities, disaster preparedness, etc.) and not necessarily designed to complete the project's financial viability, or filling in the viability gap of individual capital investment. In case of construction of a water treatment plant, for instance, the government subsidy (1/3 of the facility construction cost) is applicable to the project component with advanced treatment facility, but it might not have significant effects on the total construction cost for the whole project including distribution network. On the other hand, the government subsidy for small water supply businesses serving less than 5,000 population has broader range of applicable facilities and it virtually serves as significant enhancement of the financial viability of small water supply businesses.

Table 5-4 Government Subsidies for Water Supply Businesses

Category	As of April 2014	
	Subsidy Ratio	Description
I. Government subsidy for water resource development for water supply businesses		
1. Water resource development for water supply	1/3 ~ 1/2	(i) Large-scale dam construction to meet future water demand, (ii) Intake and conduit facilities over 7km, (iii) Rehabilitation of deteriorated dam, etc.
2. Specific regional water supply facilities	1/3	Water supply facility development based on a regional water supply development plan
3. General regional water supply facilities	1/4	Water supply facility development to serve more than two municipalities
4. Water supply facilities in areas under regional water supply plans	1/3	Facilities that are served by specific regional water supply facilities
5. Advanced water treatment facilities	1/4 ~ 1/3	Advanced water treatment facilities to improve supplied water quality, etc.
6. Automonitor system for water source and water supply system	1/4	(i) Automonitor system, (ii) Measurement facilities and equipment
7. Enhancement of lifeline functions (disaster preparedness enhancement)	1/4 ~ 1/3 ~ 1/2	Water supply facilities in areas designated as hazard areas (earthquakes, draught, etc.) to prevent damage and enhance preparedness in emergency
II. Government subsidy for small water supply businesses		
1. Elimination of unserved areas	1/4 ~ 1/3 ~ 4/10 ~ 1/2	Water supply facilities development based on unserved area alleviation programs
2. Merger and integration of small water supply businesses	1/4 ~ 1/3 ~ 4/10 ~ 1/2	Water supply facilities development for merger and integration of several small water supply businesses
3. Modernization of basic livelihood	1/4 ~ 1/3 ~ 4/10 ~ 1/2	(i) Upgrading of water supply facilities to meet necessity for adequate water pressure and supply; (ii) upgrading and rehabilitation of deteriorated water supply facilities
4. Water supply development in closed coal mine areas	1/3	Water supply facilities development by municipalities in closed coal mine areas

Source: MHLW documents dated April 2014 arranged by JICA Study Team

Historical change of government subsidy amount and the latest trend are shown in Figure 5-4 and Table 5-5 respectively. Capital investment in the water utilities utilizing the government subsidy recorded peaks over 200 billion yen from 1992 to 1998. However, most recently the government subsidy amount has dropped significantly to the range around 50 – 70 billion yen annually.



Source: Transition of Government Subsidy for Water Supply, MHLW (2013)

Figure 5-4 Government Subsidy since FY1970

Table 5-5 Government Subsidy since FY2012

Fiscal Year	(Unit: billion yen)								
	2009	2010	2011	2012	2013	2014	2015	2016	2017 (Proposed)
Initial Budget	95.8	73.7	41.6	51.8	34.4	25.5	30.5	33.5	35.5
Public	-	-	-	-	-	-	25.5	20.5	18.6
Non-public	-	-	-	-	-	-	5.0	13.0	16.9
Supplementary Budget	7.6	2.5	-	-	30.0	45.7	25.0	28.5	40.0
Public	-	-	-	-	-	-	3.5	3.5	24.0
Non-public	-	-	-	-	-	-	21.5	25.0	16.0
Total	103.4	76.2	41.6	51.8	64.4	71.2	55.5	62.0	75.5

Source: Public-Private Partnership in Water Supply Projects, MHLW (2017) arranged by JICA Study Team

c) Financial Status of Water Supply Businesses

1,931 water supply businesses (92.9% of total) recorded surplus in FY2015. The number increased by 149 businesses from 1,782 businesses (85.2% of total) in FY2014. Average water supply businesses have very marginal profitability as indicated by comparison of revenue and production cost per revenue water (See Table 5-6). In FY 2015 the unit water revenue exceeds by only 4.9% of the unit water production cost.

Table 5-6 Average Revenue and Cost per Revenue Water

Fiscal Year	2011	2012	2013	2014	2015	%
	yen/m ³	yen/m ³	yen/m ³	yen/m ³	yen/m ³	
Unit water revenue	171.15	171.62	171.86	171.79	171.92	104.9%
% change from previous FY	-0.5%	0.3%	0.1%	0.0%	0.1%	-
Unit water production cost	173.84	173.29	173.32	164.35	163.85	100.0%
% change from previous FY	2.3%	-0.3%	0.0%	-5.2%	-0.3%	-
Capital cost	65.26	64.96	65.40	56.33	56.27	34.3%
Personnel cost	25.08	24.00	22.75	21.70	21.32	13.0%
Water purchase	29.80	29.91	29.63	29.75	29.59	18.1%
Others	53.70	54.42	55.54	56.58	56.67	34.6%

Note: Average of water supply businesses for end users (Public Enterprise Act applied).

“Water purchase” is the cost of purchase of water received from water supply utilities other than the business’s own facilities.

Source: Overview of Local Public Enterprises in Fiscal Year 2015, MIAC (2017) arranged by JICA Study Team

The majority (67.5%) of funding for capital expenditure among water supply businesses is internally sourced. Among external funding (32.5%), debt finance through the enterprise bonds has the highest share (18.2% of all funding). Apart from the funds diverted from the other municipal accounts, the subsidy from central and prefectural governments accounts for only 3.4% of all funding.

Table 5-7 Capital Expenditure and Funding Sources (FY2015)

Capital Expenditure	1,739,601	100.0%	Funding Sources	1,735,716	100.0%
1. Construction and improvement	1,108,094	63.7%	1. Internal Fund	1,171,293	67.5%
2. Redemption of Enterprise Bond	565,028	32.5%	2. External Fund	564,423	32.5%
3. Others	66,479	3.8%	i. Enterprise Bond	315,378	18.2%
			ii. Equity investment from other accounts	55,551	3.2%
			iii. Cost sharing from other accounts	8,112	0.5%
			iv. Loan from other accounts	10,249	0.6%
			v. Subsidy from other accounts	13,364	0.8%
			vi. Subsidy from central and prefectural govt.	59,545	3.4%
			<i>Central govt.</i>	57,446	3.3%
			<i>Prefectural govt.</i>	2,099	0.1%
			vii. Funding carried forward to next fiscal year	4,322	0.2%
			viii. Others	97,902	5.6%

Source: Overview of Local Public Enterprises in Fiscal Year 2015, MIAC (2017) arranged by JICA Study Team

(3) Wastewater

a) Category of Wastewater Services in Japan

The wastewater services in Japan are composed of the following three categories; those under the Sewage Law administered by MLIT, and the other similar facilities such as “Sewerage Facility of Agriculture Village” under the jurisdiction of MAFF and onsite treatment facility under the Ministry of Environment (MOE). The outline of each category is shown in the Table 5-8. In this section, the public wastewater services managed by local governments are dealt with.

Table 5-8 Category of Wastewater Services

	Main Category	Detail Category	Description
Wastewater Services	(1) Categories in Sewerage Law	Public wastewater (1,952) {Public wastewater in narrow sense (1,188), Special wastewater (11), special environment prevention wastewater (753)}	Managed by Local Governments (cities, provinces)
		Regional Sewerage (46)	Services covering the multiple local governments
		Urban sewerage network	Sewerage network of significant size
	(2) Sewerage Facility of Agriculture Village (1,642)	Agriculture village, fishery village, forestry village, simple sewerage facility, etc.	
	(3) Onsite treatment facility, Community Plant, etc.		

Notice: Numbers in () means a number of service providers

Source: Yearbook of Local Public Enterprises, 2014

b) Fund Source and Subsidy System

The wastewater coverage in Japan became 77.8% in 2016. The services in the urban areas are well provided and are expanding in rural areas. In recent years, the prevention of supply disruption after natural disasters such as earthquake and inundation in urban city are considered as important issues to be resolved.

Regarding to the cost sharing of wastewater services among beneficiaries, i.e. national and local governments, this issue of cost sharing has been discussed continuously by Sewerage Finance Research Committee since 1963. The principle “public sector deals with storm water and private beneficiary pays for wastewater” was already presented in its first committee in 1963, and this principle has been maintained until now. Based on this principle, the cost for excluding the storm water is shouldered by national or local governments and the cost for removing wastewater is mainly financed by the sewerage tariff collected from users. The outline of financing sources for initial construction and Operation & Maintenance (O&M) cost is shown below.

(i) Initial Construction Cost

Regarding the initial construction cost, based on the circular 24.2 of Sewerage Law, from 50% to 55% of the cost is paid by the national subsidy, and the rest is financed by either beneficiary’s payment or local government bond. The amount of national subsidy increased to promote the higher sewerage coverage rate, but it has been gradually decreased after 1985 until the present rate of 50% or 55% of the cost to reduce the balance of local government bond.

Table 5-9 National Subsidy Ratio of Public Wastewater Services

Classification		Ratio of National Subsidy	Cost shared by local government
Sewer pipes	Main pipes, supplement pump stations	50%	50%
Wastewater treatment plants	Land procurement, pump stations	55%	45%
	Treatment facilities	50%	50%
	Wall, barrier, etc.	0%	100%

Note: The rates for public wastewater service category regulated under MLIT are stipulated

Source: Guideline of Wastewater Services (2016 version)

The share of the cost covered by the payment from beneficiary is recommended at 5% of total cost, which corresponds to the cost of connecting household discharge to wastewater pipe network, by the notice of the Ministry of Internal Affairs and Communications (MIAC) in August, 2014, and the rest is financed by local government bond. During the repayment period of the local government bond, the certain percentage of the repayment is subsidized by the national government as a local distribution tax. The percentage of such subsidization of the issued bond varies depending on the method for treating storm water (i.e. separate sewer system, combined system).

Table 5-10 Funding Source of Local Government Bond

Fund Category	Eligible Portion of Repayment (A)	Non-Eligible Portion of Repayment (1-B)	Rate of Repayment (A x 0.7)
Combined System	60% (storm water)	40% (wastewater)	42% of total cost
Separate Sewer System	30 ~ 70% ³¹ (storm water 10% + correction)	70 ~ 30%	21 ~ 49% of total cost

Source: Guideline of Wastewater Services (2016 version)

(ii) O&M Cost

In addition to the above-mentioned cost sharing principle, the cost of treating wastewater is covered by the tariff revenue, and that of storm water is covered by the public fund (local government account). In case of the combined system is adopted, the allocation of O&M cost between the storm water and wastewater are calculated based on actual expenditures of each local government.

c) Estimation of the Subsidy ratio in the Wastewater Service Sector

The current rules of provisioning national subsidy in the sector are as explained in the former part. The overall amount of the granted national subsidy and the payment from the beneficiaries as well as local government is estimated from the available information which is based on the Yearbook of Local Public Enterprises (2014 version) issued by MIAC. The financial conditions of the wastewater service providers are more transparent for those providers adopted the Local Public Enterprise Act (LPEA) which requires to adopt the company accounting system. Therefore, the estimation of subsidy ratio was made for those service providers. At present, 22% of all providers, 265 out of 1,187 adopted the Act. However, in terms of the revenue amount, the share of the adopted providers accounts 67% of

³¹ Wastewater services are categorized into 8 levels based on the population density and the higher subsidy is granted to less populated area.

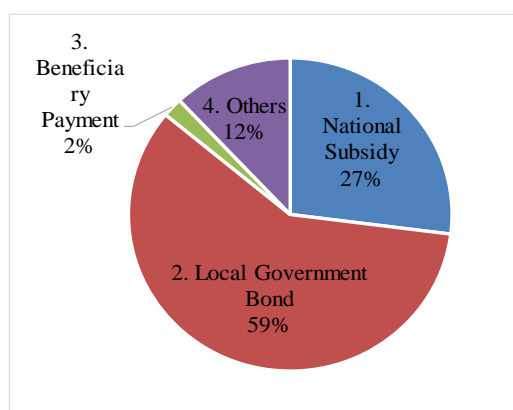
total revenue, as this Act has been adopted from the providers for the large cities. Therefore, it is believed that the evaluation of the LPEA adopted providers could assimilate the overall picture the wastewater services in Japan.

Referring to the Yearbook of Local Public Enterprises, the share of fund sources of total investment cost, which totals 50 trillion JPY, is shown in Table 5-11. 27% of the past investment has benefited from national subsidy, 59% by local government bond, and the remaining 14% is financed by the beneficiary payment and others. As previously mentioned, the repayment of the local government bond is partially subsidized by national subsidy (30 %– 40%), hence the actual rate of subsidy on the investment cost exceeds over 50%.

Table 5-11 Funding Source of Investment of LPEA Adopted Wastewater Service Providers

	Source	Cost (billion JPY)	Share
1. National Subsidy	State	13,643	27%
2. Local Government Bond	State, Local Government	29,785	59%
3. Beneficiary Payment	Users	893	2%
4. Others	-	6,191	12%
Total		50,512	100%

Source: Yearbook of Local Public Enterprises, 2014



Source: Yearbook of Local Public Enterprises, 2014

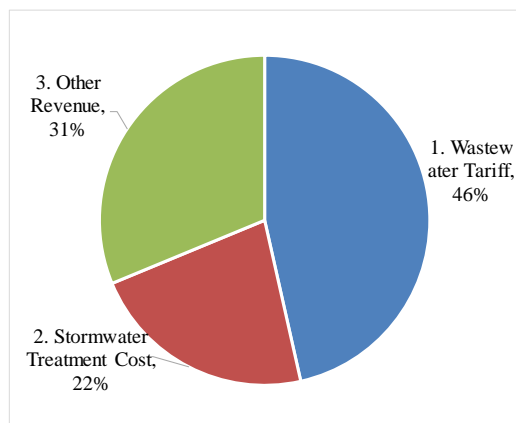
Figure 5-5 Funding Source of Investment of LPEA Adopted Wastewater Service Providers

The share of annual revenue items of the public wastewater services, which totals 2.1 trillion JPY in 2014, is shown below. The table reveals these costs related to the services, including O&M and depreciation costs, as well as the revenue.

Table 5-12 Annual Revenue Breakdown of LPEA Adopted Wastewater Service Providers

Revenue Item	Source	Revenue (million JPY)	Share
1. Wastewater Tariff	Users	967,397	46%
2. Storm water Treatment Cost	Local Government	463,336	22%
3. Other Revenue	National, Local Government	650,258	31%
- Subsidy from External Account	Local Government	196,675	9%
- Depreciation of the Granted Subsidy	State, Local Government	399,492	19%
Total		2,080,991	100%

Source: Yearbook of Local Public Enterprises, 2014



Source: Yearbook of Local Public Enterprises, 2014

Figure 5-6 Annual Revenue Breakdown of LPEA Adopted Wastewater Service Providers

Out of total revenue of LEPA wastewater service providers at 2.1 trillion JPY, the collected wastewater tariff is 46%, while the storm water treatment cost which is paid by local government is 22%. The other revenue provided from national and local governments become the remaining 31%. In conclusion, under the latest service operation, the collected tariff covers less than 50% of total cost, and the rest is covered by the national and local governments as regulated by the Sewerage Law.

d) Guideline of the Wastewater Tariff Setting

Under the regulation of the Sewerage Law, the cost which was not covered by the national subsidy should be financed by the revenue from wastewater tariff. Wastewater tariff is in general composed of two parts: a basic tariff which is fixed and the other in which tariff increases in accordance with consumption. Referring to Yearbook of Local Public Enterprises, 1,286 cities (90%) collect basic fixed charge, and 1,043 (81%) take increasing block tariff system, out of 1,426 cities.

(4) Solid Waste

a) Solid Waste Services in Japan

Local governments are responsible about planning and execution of municipal waste treatment originated in their administrative boundaries. However, construction and installation of waste management facilities require local governments to expense a large amount of money in a specific period, and many local governments cannot finance its costs with their own financing resources. Thus, the central government provides them with financial supports. There are two primary ways of the central government's financial support for the development of waste management facilities by local governments: (a) subsidy, and (b) distribution of central government tax revenues to local governments.

b) Subsidies

It was in 1963 when the central government started subsidizing local governments for development of waste management facilities. Since then, the state subsidy system has evolved through expansion and revision in response to the needs at the time. In 2005, the subsidy system had the latest overhaul and was renamed as a “Recycling-oriented Society Promotion Subsidy Scheme.” As of 2017, this is the scheme granting subsidy. The subsidy menu that local government can utilize for developing waste management facilities includes three items: (i) Subsidy for Promotion of Recycling-oriented Society, (ii) Subsidy for Project to Reduce Carbon Dioxide Emission, and (iii) Subsidy for Development of Waste Disposal Facilities, all of which are under the jurisdiction of the MOE. In a PFI project approved under the Act on Promotion of Private Finance Initiative, a private business entity which implements the PFI operation can benefit from the same subsidy and tax exemption or preferential treatment that the local government could receive under a traditional public procurement, based on the equal-footing principle. The three subsidies in the waste sector are outlined later.

(i) Subsidy for Promoting Recycling-oriented Society

This is a grant which constitutes the main part of the subsidy scheme for promoting recycling-oriented society. The budget amount for FY2016 (including the previous year’s supplementary budget, those budgeted amounts at the other ministries, and special account for the Eastern Japan Great Earthquake reconstruction) was 82.5 billion yen, which by far exceeded the budget amount of the other two subsidies (28.3 billion yen in total). Municipalities that wish to receive this subsidy are required to prepare “Recycling-oriented society promotion area plan,” an extensive and holistic development plan to develop waste disposal and recycling by promoting the 3Rs (reduce, reuse, recycle) of waste. Subsidies will be granted for development of facilities described in this plan. The target area that can be included in this plan must have the population of 50,000 or more. Alternatively, the planning area can be 400 sq. km or more (except for special areas and remote islands). If a single municipality cannot satisfy the requirements of population or area, several neighbouring municipalities can jointly prepare the plan. The following types of facilities are included as waste management facilities eligible for this subsidy.

- Material recycling promotion facility
- Energy recovery type waste disposal facility
- Energy recovery promotion facility (garbage power generation facility, heat recovery facility, bio-gasification facility)
- High efficiency garbage power generation facility
- High efficiency raw fuel recovery facility
- Organic waste recycling promotion facility (recycling facility of sewage and garbage)
- Final landfill site
- Final landfill site regeneration
- Major improvement of waste disposal facilities
- Driftage and wreckage disposal facility
- Community plant
- Septic tank installation and maintenance
- Promotion of septic tank by municipalities
- Major reconstruction of waste disposal facilities
- Landfill facilities for flammable waste

- Incineration facility
- Planning support for facility development
- Support for formulating a life-span extension plan for waste disposal facility

The grant ratio is, in principle, one-third³² of eligible component costs in a project. However, technologically advanced facilities such as high efficiency waste generation facilities can receive up to one-half.

(ii) Subsidy for Project to Reduce Carbon Dioxide Emission

This subsidy was created for purpose of reducing the emission of energy-origin carbon dioxide at the waste disposal facility as a countermeasure against global warming. The budget amount for FY2016 was 19.7 billion yen. The grant rate is generally one-third, but for technologically advanced facilities, it increases up to one-half. Eligible projects for this subsidy are as follows.

- Energy recovery type waste disposal facility
- Installment of technically advanced equipment at waste disposal facilities
- Support for planning of facility development
- Support for formulating a life-span extension plan for waste disposal facility

(iii) Subsidy for Development of Waste Disposal Facilities

This subsidy was created for purpose of strengthening the capacity of local waste disposal system during peacetime, in order to enable for proper, smooth and prompt treatment of disaster waste when a large-scale disaster occurs. The budget amount for FY2016 was 8.6 billion yen. The grant ratio is one-third in principle, and for technologically advanced projects, it goes up to one-half. Eligible projects of this subsidy receipt are almost same as those of “Subsidy for Promotion of Recycling-oriented Society”, except that sewage treatment related items are not included.

c) Distribution of central government tax revenues to local governments

As a financing source of waste disposal facility construction, local governments are allowed by the central government to issue a municipal waste management bond, which is one type of municipal bond with specific financing purpose. When issuance of municipal bonds is permitted with special policy objectives like construction of waste management facility, a portion of the principal repayment and interest payment can be subsidized by the distribution of central government tax revenues to local governments. This tax distribution system is for the central government to back up the local government’s financing capacity. The central government redistributes part of its tax revenues to local governments in a way that all local governments can have a certain level of financing capacity. Currently most of local governments are benefiting from this tax distribution system, meaning that they are practically subsidized by the central government.

In order to estimate the practical subsidy ratio by the central government for a waste management facility developed by a local government, four rates need to be clarified or assumed: (i) subsidy

³² Subsidy rates of one-third and one-half are presumably determined on the customary and empirical basis.

eligibility ratio, (ii) granted subsidy ratio, (iii) municipal bond issuance ratio, and (iv) tax distribution coverage ratio. The subsidy eligibility rate is the ratio of components eligible for the subsidy out of the total project in monetary terms. In case of a waste management project, often this ratio is 80% to 90%³³. The granted subsidy ratio is the rate of the subsidy-eligible part of a project which can benefit from the actual payment of subsidy. None of those earlier mentioned three types of subsidies are granted in full. Current rates are one-third to one-half. The application ratio for municipal bond is the proportion of financing acquired by municipal bond vis-à-vis the proportion of the cost not eligible for subsidy. There are two types of subsidy application to non-eligible portion. One is the part that is subsidy-eligible but evaluated as not subsidy-payable. The other is the part that is not subsidy-eligible, therefore not subsidy-payable. For the former, the municipal bond issuance ratio is decided to be 90%, meaning that the 90% of the non-subsidy-eligible portion can be financed by municipal bond. For the latter, the municipal bond issuance ratio is 75%. The tax distribution coverage rate is the rate that the central government will subsidize for principal repayment and interest payment of municipal bonds issued by local governments for waste management projects. If a local government, such as municipality, is classified as non-recipient of tax distribution, that local government cannot receive the subsidy naturally. For most of the recipient municipalities, the tax distribution coverage rate is generally 50%. Based on the aforementioned practices and assumptions, we attempted to estimate a subsidy ratio for a waste management project which employed technologically advanced waste-to-energy facility under government procurement or PFI scheme. Figures 5-7 and 5-8 visualize the applicable subsidy structure and subsidy percentages. From the viewpoints of the project owner, after ignoring the time discount factor to simplify the issue, a 69% of the initial construction cost is considered to be paid by subsidy. Among the project owner's own financing, 7% is a portion that has to be financed during the initial period while remaining 24% shall be financed at a later period.

① Total project cost					
② Subsidy-eligible component (① x subsidy eligibility rate 90%)			③ Non subsidy-eligible component (①-②)		
④ Subsidy receipt at initial year (② x Subsidy granting ratio 50%)	⑤ Possible municipal bond finance (②-④)		⑥ Possible municipal bond finance (= ③)		
	⑥ Bond issuance (⑤ x Bond issuance rate 90%)	⑦ General account spending at initial year (⑤-⑥)	⑧ Bond issuance (⑥ x Bond issuance rate 75%)		⑩ General account spending at initial year (⑥-⑧)
	⑩ Subsidy receipt at later years (⑥ x Local tax allocation 50%)		⑪ General account spending at later years (⑥-⑩)	⑨ Subsidy receipt at later years (⑧ x Local tax allocation 50%)	

Source: JICA Study Team

Figure 5-7 Relationship between Total Project Cost and Subsidy

100 (Total project cost)						
90			10			
45 (Subsidy)	45		10			
	40.5		4.5	7.5		2.5
	20.3 (Subsidy)	20.3		3.8 (Subsidy)	3.8	

Subsidy Rate = 69%

Source: JICA Study Team

Figure 5-8 Calculation of Subsidy ratio

³³ This is an estimated result of checking several recent project data which includes “Municipal Waste Treatment Facility Plan of Noshiro and Yamamoto Wide Area Association (2017)”

Subsidies from the central government and the local tax distribution are frequently used for the construction of waste management facilities, while the operation and maintenance of waste management is often carried out by the general account budget as administrative services of local governments. Waste disposal fee are not usually collected from the residents. Only a small part of the waste management costs is recovered through charges to business and industrial waste disposal as well as revenue from pay garbage bag, etc.

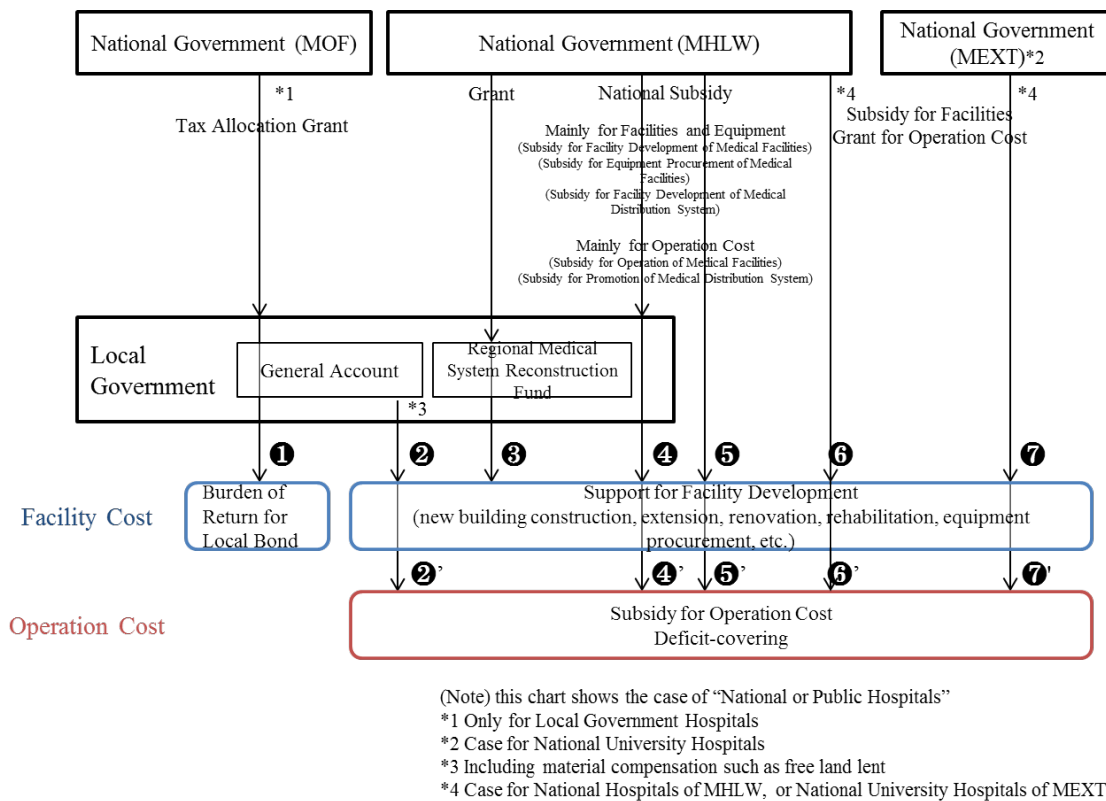
(5) Hospital

a) Outline of Subsidy System

The history of subsidy for hospital sector in Japan started from “Medical Service Law” legislated in 1948 after the World War II. In order to promote construction of the damaged hospitals all over Japan, rules for granting subsidy to the public hospitals were established in the law. A target facility of subsidy has been expanded to other public medical institutions³⁴, private hospitals, etc. and currently target projects for subsidies are diversified.

The hospital sector has multiple flows of subsidy. The Figure 5-9 below shows main flows at the time of this survey. The figure shows the case of public hospitals (national hospitals, prefectural hospitals, municipal hospitals and national university hospitals, etc.), as this survey targets PPP/PFI projects.

³⁴ Other public medical institutions other than local government are “designated institutions by Minister of Health, Labour and Welfare”, such as national health insurance organizations, Japan Red Cross, Social Welfare Organization Saiseikai Imperial Gift Foundation, Inc. etc.



Source: JICA Study Team

Figure 5-9 Overview of Subsidy System for Hospital Sector in Japan (case of public hospitals)

b) Type and Outline of Subsidies

Subsidies to hospitals in Japan can be generally divided into “subsidies on capital expenditure for facilities development” and “subsidy on operational costs”. Each subsidy has different rate and targets as summarized in Table 5-13 below.

Purposes of each subsidy are decided by policy needs and they are changing based on the historical context of its introduction. After the World War II, construction of public medical institutions including public hospitals was promoted to overcome the shortage of beds. However, the number of beds became oversupply in 1980’s, and consequently medical policy was changed to aim at planned construction of medical facilities by following “Regional Medical Plan” which is to be developed first.

After 1990’s, medical facilities were encouraged to have different functions to respond to, such as, diversification of medical needs, necessity of improvement in medical quality and soundness of hospital management.

The subsidy system in Japan has been evolving based on these historical backgrounds, as well as the guidance under the adopted policy. For example, in the current national subsidy system (subsidy ④, ⑤ in the Table 5-13), a subsidy is granted for projects listed in the Table 5-13, which shows that challenges, such as, enhancing medicine in remote areas, advanced medicine and disaster prevention measures are well-supported.

Table 5-13 Type and Outline of Current Subsidies

Type	Resource of Subsidy	Handled by	Target		Target Item of Subsidy	Subsidy ratio	No. of Figure
			Facility	Operation			
Transfer from General Account	Tax distribution Grant	Local Government	✓		Cost of facility construction and procurement of equipment (only for Local Government Hospitals)	1/2 (or 2/3 in case of merger/networking project of public hospitals) of repayment (including interest) of local bond issued for facility development and equipment procurement	①
	Local Government Own Budget	Local Government	✓		Cost of facility construction and procurement of equipment with specific purposes such as restoration of damages caused by natural disaster	Variable depending on project and target	②
	Local Government Own Budget	Local Government		✓	Operational cost with specific purposes such as restoration of damages from natural disaster, or reducing deficit	Variable depending on project and target	②
Regional Medical System Reconstruction Fund	Fund (Grant from National Government)	Fund in Local Government	✓		Cost of facility construction and procurements of equipment for enhancing regional medical system or restoration of damages caused by natural disaster (construction and procurement costs)	Variable depending on project and target	③
National Subsidy	National and Local Government Budget (Shared by Local and National Government)	Local Government	✓		Cost of facility construction and procurements of equipment based on national policies for enhancing medicine in remote areas, emergency medicine, medical training enhancement, etc. (construction cost and procurement cost)	1/2 or 1/3 of estimated standardized cost of each project or program	④
		Local Government		✓	Operational cost based on national policies for enhancing medicine in remote areas, emergency medicine, medical training enhancement, etc. (labor cost, expenses, etc.)	1/2 or 1/3 of estimated standardized costs of each project or program	④
	National Government	MHLW	✓		Cost of facility construction and procurement of equipment based on national policies for enhancing medicine in remote areas, emergency medicine, medical training enhancement, etc. (construction and procurement costs)	1/2 or 1/3 of estimated standardized costs of each project or program	⑤
		MHLW		✓	Operational cost based on national policies for enhancing medicine in remote area, emergency medicine, medical training enhancement, etc. (labor cost, expenses, etc.)	1/2 or 1/3 of estimated standardized cost of each project or program	⑤
	MHLW Budget	MHLW	✓		Cost of facility construction and procurement of equipment for national hospitals	Variable depending on project and target	⑥
				✓	Operational cost for national hospitals	Variable depending on project and target	⑥
	MEXT Budget	MEXT (for National Universities)	✓		Cost of facility construction and procurement of equipment for national university hospitals	Maximum 10% of total project cost	⑦
			✓	Operational cost covering for national university hospitals	Variable depending on project and target	⑦	

Source: Prepared by Study Team referring to the implementation guidelines for each subsidy or grant.

Table 5-14 Example of Target Projects Supported by Subsidies

✓ Project for Emergency Medicine	✓ Project for Developing Facilities for Promoting Clinical Trial
✓ Project for Medicine of disaster affected areas	✓ Project for Removing Asbestos
✓ Project for enhancing Medicine in Remote Area	✓ Project for Developing Facilities for Medical Equipment Maintenance
✓ Project for Perinatal Medicine	✓ Project for Act against Global Warming
✓ Project for Developing Training Facility for Residency Doctors	✓ Project for Developing Endoscopy Training Facility
✓ Project for Developing Hospital Facility for Clinical Training	✓ Project for Supporting Tele-medicine
✓ Project for Developing Autopsy Imaging System	✓ Project for Developing Supporting System for Clinical Training in Hospital
✓ Project for Equipping Sprinkler for Clinics with Beds	✓ Project for Supporting Accreditation of Specialist Doctors
✓ Project for Emergency Action against Tsunami by Earthquake	✓ Project for Supporting Stable Employment of Nurse
✓ Project for Hospital Infection	✓ Project for Developing Facilities for Environment Management Room etc.
✓ Project for Modernizing Medical Facility	
✓ Project for Developing Kidney Transplantation Facility	
✓ Project for Installing Special Purpose Ward	
✓ Project for Developing Liver Transplantation Facility	

Source: Prepared by Study Team referring to the implementation guidelines for each subsidy or grant

c) Estimation of Subsidy ratio

Each hospital applies to, for each year's capital expenditure needs, corresponding subsidies listed in the table above according to its main business, feature, specialities and regional characteristics while it also mobilizes its own resources or borrowing (bond issue). Since some public hospitals also receive subsidy or grant for operational cost from responsible local governments based on their performance, therefore, the subsidy ratios for hospital sector is not uniform.

Therefore, for the estimation of the subsidy ratio, this survey chooses national and other public hospitals which PPP/PFI can be applied to, and focused on those public hospitals (816 hospitals in fiscal year 2014, approximately 10% of all hospitals in Japan) whose statistics data are easily accessible through "Yearbook of Local Public Enterprises" edited yearly by MIAC.

By reviewing the profit and loss account and capital account of whole hospital business in the Yearbook of Local Public Enterprises, average subsidy ratio can be estimated by comparing total amount of national subsidy (④ and ⑤) and the transfers from the other accounts (①, ② and ③) against total revenue or capital expenditure. The result of estimation shows that approximately 13.3% of operational cost and approximately 31.6% of costs for facility construction and procurement of equipment were granted to hospital business as a subsidy in a broad sense.

Table 5-15 History of Gross Income of Public Hospitals and Subsidy ratio

		(Million JPY, %)					
Fiscal Year		2010	2011	2012	2013	2014	Average
Gross Income		3,978,917	3,951,468	3,942,866	3,955,440	4,046,820	3,975,102
Operating Income		3,955,763	3,920,256	3,917,808	3,919,761	3,936,102	3,929,938
National Subsidy		18,947	20,006	19,695	19,777	17,383	19,162
Transferred from Other Account		528,049	519,050	506,831	495,855	490,358	508,029
Total of Subsidies		546,996	539,056	526,526	515,632	507,741	527,190
Subsidy Rate		13.75%	13.64%	13.35%	13.04%	12.55%	13.27%

Source: Prepared by Study Team referring to Table 3 of page 183 of “Yearbook of Local Public Enterprises 62nd Edition”, Ministry of Internal Affairs and Communications

Table 5-16 History of Resources of Capital Expenditure of Public Hospitals and Subsidy ratio

		(Million JPY, %)						
Fiscal Year		2003	2010	2011	2012	2013	2014	Average
Resource of Capital Expenditure		640,338	657,619	717,286	754,287	779,795	791,880	740,173
Other Resource		478,285	478,004	512,524	548,427	552,105	561,568	530,526
National Subsidy		17,515	25,033	43,396	46,659	56,043	33,286	40,883
Transferred from Other Account		180,944	198,088	194,185	178,662	198,009	192,899	192,369
Total of Subsidies		198,459	223,121	237,581	225,321	254,052	226,185	233,252
Subsidy Rate		30.99%	33.93%	33.12%	29.87%	32.58%	28.56%	31.61%

Source: Prepared by Study Team referring to Table 10 of page 191 of “Yearbook of Local Public Enterprises 62nd Edition”, Ministry of Internal Affairs and Communications

5.2 PFI in Japan

5.2.1 Background and Characteristics of PFI projects in Japan

The argument on introducing PFI in Japan started in 1997. Behind that argument, there was a policy issue of how to reduce public investment, within the context of budgetary reform initiated by Prime Minister Hashimoto at that time. It can be said that the introduction of PFI was one of the emergency economic measures to ease the budgetary burden of the Japanese government³⁵.

European countries, represented by the United Kingdom, introduced PFI/PPP with the same background, i.e. public investment reduction. However, they put an emphasis on the idea of improving the quality of provision of public services more economically and efficiently through market, or value for money, as principle, and conducted institutional reform to make the participation of private sector possible, in view of promoting their activities. They have therefore introduced PFI/PPP which allows the provision of services by private companies.

On the other hand, in Japan, the owners of facilities were limited to the public sector by sector laws, based on the philosophy that the public institution must own the public facilities and to provide the services of public interest. That position, i.e. the public institution must invest in the activities of public nature, did not change even after the introduction of PFI and the institutional reform which the European countries conducted was not completely done. PFI was introduced as the measure for public

³⁵ The Act on Promotion of Private Finance Initiative was adopted in 1999.

expenditure reduction of central ministries and sub-sovereign governments. Consequently, PFI was understood just as a measure to allow the execution of public investment by private companies and to defer its payment. The majority of PFI projects were BTO projects, focusing on the construction of facilities and payment against its operation³⁶.

The Local Autonomy Act was partially revised thus deregulated in 2003 and a system called designated administrator system was established. The system allowed a private company to manage public facilities. However, the Act on Public Facility Management still limited the designation of public facility management to private sector; priority was given to the sector laws even under that deregulation regime, if the sector law existed. Consequently, the merit of introducing private companies as providers of public services were limited.

There is a fundamental difference in the way of thinking between Japan and the European countries; the former maintained public dominance in both facility ownership and management while the latter abandoned that traditional framework and allowed private ownership. In order for the private sector to provide public services in place of public sector entities, it is first necessary to establish an institutional mechanism which allows such services to be provided. This suggests a need for fundamental change of traditional way of thinking centred around public investment. Since PFI was introduced without such institutional reform, it resulted in “a Japan specific PFI” deriving from the Japanese public investment scheme.

As seen from the analysis by sector in section 5.2.2, PFI is considered as one of the variety of the existing public investment, thus accepts subsidies just like the other public investment projects. This fact certainly shows that the modus operandi of PFI projects is introduced in accordance with the public investment mechanism. Consequently, the effect of improving efficiency of service provision by private operator is limited only to the residual part from the investment cost covered by subsidies. It can be said that this is different from the original PFI concept.

For example, in the toll road sub-sector in which a lot of candidate PPP project is considered to be found easily, Road Law defines the road services providers as either the Nippon Expressway companies privatized from the Japan Highway Public Corporation, or sub-national governments or public road companies established by sub-national governments; here, it is clear that private operator is not assumed as road services provider. As such, the legal framework does not allow a PFI project from the starting point³⁷. In case of toll road projects to be constructed by public road companies under the sub-national governments³⁸, land acquisition and construction are financed by the subsidy and collected toll is expected to recover a part of construction cost and entire O&M cost for during the

³⁶ In 2011, the Act on Promotion of Private Finance Initiative was fundamentally revised, leading the way to introduce concession projects which allows private service providers to collect fees from beneficiaries based on the right to operate public facilities.

³⁷ The first road service provision by a private company started in August 2016 when the concession contract was concluded between Aichi Prefecture and Aichi Road Concession Company Ltd

³⁸ Each Nippon Expressway companies construct highways as toll roads, but they adopt what is called “pooling method” which provides funds for new investment from the revenue from the existing routes in service and they do not calculate the benefit by road sections.

pre-determined period. If the project is to be built under PFI scheme, a private company plans, invests and operates and maintains it, while it recovers the capital expenditure and O&M costs from toll fees, but the current scheme is not built on that assumption. Under this scheme, it is difficult to integrate the proper concept of VGF, which is to finance the gap between the revenue based on the fee enabling to bring the benefit as financially independent operation and that based on the actual one.

The latter part of this report shows the current situation of PFI projects in each sector and the result of calculation of subsidy ratio provided by government, taking into consideration of subsidies in life cycle costs of the investment as well as revenue. In doing so, three cases are assumed: first for public investment, second, PFI projects and third, a hypothetical case, as appropriate, where the PFI scheme is applied to the public investment projects for calculation purpose.

5.2.2 Past PPP Projects Implemented in Japan

(1) Toll Road

In terms of PFI/PPP in road sector, PFI scheme has been applied in quite restricted work items, such as repairing road facilities, snow removal, tree trimming and so on, because the entry of private enterprises is not permitted to provide road services by the Road Law and the Law Concerning Special Measures for Highway Construction. There is only one exception project called Aichi Toll Road Concession, inaugurated in October 2016. Since a special preferential measure was adopted to manage eight toll roads which had been previously operated by Aichi Road Public Corporation, this precedent will not induce further PCI projects.

(2) Water Supply

a) Water utilities under private management

As described earlier, private water supply service providers may own and manage water utilities under the authorization of respective municipalities in the subject areas. As of 2016, there are nine water utilities serving more than 5,000 inhabitants each, owned and managed by private service providers, most of which are property developers in resort areas.

b) PFI in the water supply sector

MHLW classifies PFI projects in the water supply sector into the following six categories, in order of the degree of public (municipal/prefectural) involvement (from high to low involvement).

(i) Individual contract-out

- Contract-out of individual tasks such as facilities design, water quality tests, facilities maintenance, meter reading, customer service, etc.
- Individual contract-out is implemented in almost all water utilities; among which 854 individual contract-out cases are classified as the regular contract-out i.e. outsourcing of

- single specific services (e.g. design of a facility).
- The remaining individual contract-out cases (307 cases) are classified as comprehensive contract-out, where a package of multiple services are outsourced in an integrated manner (e.g. operation and maintenance of several water treatment plants).
- (ii) Third-party management contracts
- Management contracts (usually for three to five years) for comprehensive O&M of water treatment plants, including legal responsibility stipulated in the Waterworks Act.
 - Started in April 2002 following the amendment to the Waterworks Act in 2001. As of FY2015, 187 water supply projects contract were implemented through the third-party management, of which 172 cases are run by private operators and 15 cases by existing municipal/prefectural water utilities.
- (iii) Design Build Operate (DBO)
- Design Build Operate (DBO) is a method by which a private operator is contracted to design, build, operate and maintain a package of water facilities in a comprehensive manner.
 - As of FY2015, four projects such as a construction and operation of water treatment plants have been implemented in Japan (See Table 5-17).

Table 5-17 DBO Cases in Water Supply Sector

Municipality (Contracting Agency)	Water Treatment Plant (WTP)	Project	Contract type	Approval (FY)
Shiwa Town, Iwate Prefecture	Shiwa Town WTP	- Rehabilitation of WTP (500m ³ /day) - Rehabilitation of WTP (4,000m ³ /day) with membrane filtration facility	DBO DBO	2005 2011
Matsuyama City, Ehime Prefecture	Kakitsubata WTP and Takai-Kanda WTP	- Rehabilitation of two WTPs (Total 73,000m ³ /day)	DBO	2005
Ohmuta City, Fukuoka Prefecture and Arao City, Kumamoto Prefecture	Ohmuta-Arao Joint WTP	- Construction of new WTP (26,000m ³ /day) with membrane filtration facility	DBO	2009
Sasebo City, Nagasaki Prefecture	North Sasebo WTP	- Rehabilitation of WTP (50,600m ³ /day) with membrane filtration facility	DBO	2010

Source: Japan Waterworks Association website

- (iv) Private Finance Initiative (PFI)
- Under PFI, a private contractor is responsible to design, construct, operate and maintain a water supply facility such as a water treatment plant by utilizing the private sector financing and technology.
 - Act on Promotion of PFI (PFI Act) is the governing law.
 - PFI has been applied to 12 cases to implement water supply projects as of FY2015, all of which are categorized as the service purchase contracts, where the municipality purchases the water supply services with the predetermined operation fees. In this case, the private operator does not take the demand and commercial risks, regardless of water tariff revenue from end users (See Table 5-18).

(v) Concession contracts

A private operator has the right to operate all water supply facilities owned by a municipality under a concession contract based on the PFI Act.

- The private operator will be responsible to manage and invest in the whole water supply service operation utilizing the private sector financing, technology and know-how.
- There is no concession contract case materialized in the water supply sector as of 2016.

(vi) Privatization

- The whole water utilities assets and management are transferred from the municipality to the private sector and the private sector as owner-operator is responsible to the entire water supply services in the municipality.
- In accordance with the Water Supply Act, a private operator can own and operate the water utility under authorization by the municipality.
- There is no case in which a private operator covers all water utility assets and operation in an entire municipality as of 2016. As mentioned earlier, nine private water service providers own and operate water utilities in limited areas in respective municipalities.

Table 5-18 PFI Cases in Water Supply Sector as of FY2015

Prefecture/ City Water Utilities	Water Treatment Plant	Service	Method/ Contract Type	Contract Date (Operation Period)	Estimated Cost (Contract Price)
Tokyo Metropolitan Government (Waterworks Bureau)	Kanamachi	Electricity generation Steam provision	PFI (BOO) Service Purchase	Oct 1999 (20 years from 2000)	(25,300 mn yen)
Tokyo Metropolitan Government (Waterworks Bureau)	Asaka/ Misono	Electricity generation Steam provision Sodium hypochlorite provision	PFI (BOO) Service Purchase	Oct 2001 (20 years from 2004)	(53,940 mn yen)
Kanagawa Prefecture (Public Enterprise Bureau)	Samugawa	Reuse of dehydrated cake	PFI (BTO)	Dec 2003 (20 years from 2006)	17,220 mn yen (14,970 mn yen)
Saitama Prefecture (Public Enterprise Bureau)	Ohkubo	Soil reuse Electricity generation	PFI (BTO) Service Purchase	Dec 2004 (20 years from 2008)	36,300 mn yen (24,200 mn yen)
Chiba Prefecture (Waterworks Bureau)	Chiba-Noguku no sato	Soil reuse	PFI (BTO) Service Purchase	Mar 2005 (20 years from 2007)	13,300 mn yen (8,940 mn yen)
Aichi Prefecture (Public Enterprise Bureau)	Chita, etc. (Four WTPs)	Reuse of dehydrated cake	PFI (BTO) Service Purchase	Feb 2006 (20 years from 2006)	9,700 mn yen (5,340 mn yen)
Yokohama City (Waterworks Bureau)	Kawai (Redevelopment)	Development and O&M of membrane filtration system	PFI (BTO) Service Purchase	Feb 2009 (20 years from 2014)	26,530 mn yen (26,530 mn yen)
Chiba Prefecture (Waterworks Bureau)	Hokuso	Rehabilitation and O&M of water discharge system	PFI (BTO) Service Purchase	Mar 2010 (20 years from 2011)	7,600 mn yen (7,600 mn yen)
Aichi Prefecture (Public Enterprise Bureau)	Toyota, etc. (Six WTPs)	O&M of Dehydration system Construction of cake yard	PFI (BTO) Service Purchase	Mar 2011 (20 years from Apr 2011)	13,900 mn yen (13,800 mn yen)
Yubari City	Asahi cho and Shimizuzawa	Development and O&M of new WTP, off-site facilities and meter reading, etc.	PFI (BTO) Service Purchase	Mar 2012 (20 years from 2012)	4,860 mn yen (4,790 mn yen)
Okazaki City (Waterworks Bureau)	Otogawa	Development and maintenance of new WTP O&M of discharge system Maintenance of off-site facilities	PFI (BTM) Service Purchase	Jan 2013 (15 years from 2018)	20,240 mn yen (10,980 mn yen)
Aichi Prefecture (Public Enterprise Bureau)	Inuyama and West Owari	Development and O&M of water discharge facilities	PFI (BTO) Service Purchase	N/A (20 years from 2015)	N/A (890 mn yen)

Source: MHLW “PFI/PPP in the water supply sector” (2014) and “Public-Private Partnership in Water Supply Projects” (2017)

(3) Wastewater

The past PPP projects are categorized into three types of PPP schemes: “Comprehensive Private Entrustment”, “DBO or PFI” and “Concession contract”. Referring to the official paper of MLIT, the existing PPP in the sector is dominated by 400 cases of “Comprehensive Private Entrustment” which enables outsourcing the O&M works of specific facilities for multiple years. Major target is maintenance works of the wastewater treatment plants. Few O&M of pipe network is implemented.

“DBO or PFI” which implements both construction and O&M of the facilities is adopted for several sludge treatment plants to make use of sludge. All 24 cases materialized so far was limited to sludge treatment facility including gas power generation and solid fuel. The construction of wastewater treatment facility has not been implemented through this scheme yet.

“Concession Contract”, introduced by the amendment of the Act on the promotion of Private Finance Infrastructure in 2015, was resulted in only 1 case so far in Hamamatsu city. The private operator is planned to start tariff collection, O&M of facilities, part of reparation from 2018.

Table 5-19 Realized PPP Projects and Target Facilities in Wastewater Sector

Scheme	Work Contents	Facilities	Contract Period	Past Record
Comprehensive Private Entrustment	O&M	Wastewater Treatment Plant, Pipe Network	3 to 5 years	Wastewater Treatment Plant: Around 380 cases Pipe network: 18 cases
DBO or PFI	Construction and O&M	Sludge Treatment Plant (excluding wastewater treatment plant)	10 years	PFI: 11 cases DBO: 23 cases
Concession Contract	O&M and Reparation		20 years (10 – 30 years)	1 (Hamamatsu)

Source: Promotion of PPP/PFI in Wastewater Sector (MLIT, Feb 2017)

In the past, the privatization and concession schemes have been adopted in the UK and France. In those countries, the private companies were allowed to invest in the facility and PPP contracts were long-term and include capital investment. As the services for wastewater, which needs high investment cost while tariff rate is low, has been provided by the public sector in Japan, and PPP has not been promoted compared with other sectors.

(4) Solid Waste

Since the enactment of the PFI Law in 1999, a total of 680 PFI projects have been implemented as of April 2007, of which 38 are waste management facilities. In fact, DBO based waste management facility projects outnumber PFI based projects such as BTO and BOT. Especially waste incineration facilities (energy recovery promotion facilities) are often implemented under DBO. PPP/PFI projects however, are still less popular when compared with conventional public investment projects in terms of the number of projects implemented during the same period.

The waste management process can be roughly divided into three stages: (i) collection/transport, (ii) intermediate treatment (e.g. incineration, recycling), and (iii) final disposal (e.g. landfill). In the waste management PFI, it is rare for one project to cover those three stages entirely. Often one project deals with one stage only.

The stage which is relatively easy to formulate as a PFI project is waste incineration at the intermediate stage. The incinerator’s operating life is relatively short, spanning 15 to 20 years in general. Thus, demands for new installation and renewals are perennial. In addition, as incinerators need technologically advanced functions and larger sizes in response to evolving environmental standards, the manufactures and PFI operators can expect sizable business opportunities.

(5) Hospital

In Japan, 17 hospital PFI projects have been proposed, 16 out of the 17 projects have been initiated, and 14 out of the 16 projects have been under operation so far. Most of the projects are operated by local governments, and only one project is operated by a national university.

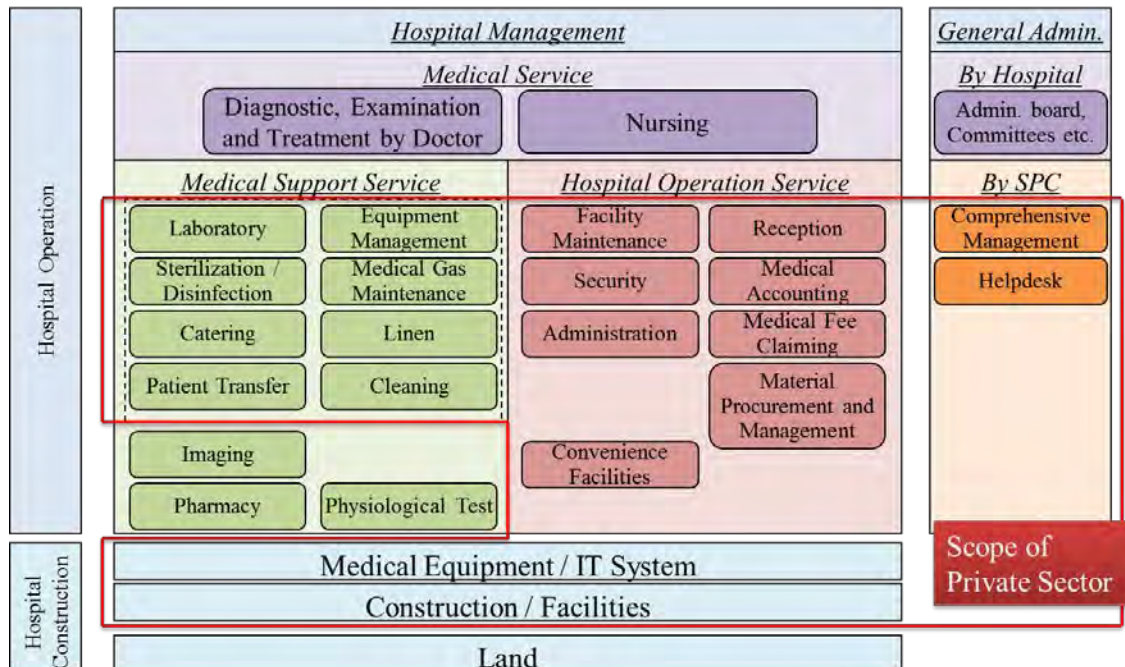
Table 5-20 List of Hospital PFI Projects in Japan

Name of Hospital	Offering and Selection Scheme	Projects Scheme	Project type	Announcement of Enforcement Policy
Kochi Health Science Center * Terminated on March 2010	Public offering-type proposal	BTO	Service purchase	Feb. 2001
Omihachiman City Hospital * Terminated on March 2009	Public offering-type proposal	BOT	Public-private cooperation	May 2001
Yao Municipal Hospital	Public offering-type proposal	BOT	Service purchase	Sep. 2002
Shimane Psychiatric Medical Center	Comprehensive evaluation and Open bidding	BTO	Service purchase	Mar. 2004
Tokyo Metropolitan Tama Medical Center and Children's Medical Center	Comprehensive evaluation and Open bidding	BTO	Service purchase	Oct. 2004
Tokyo Metropolitan Cancer and Infectious Diseases Center	Comprehensive evaluation and Open bidding	RO	Service purchase	Dec. 2005
Ehime Prefectural Central Hospital	Comprehensive evaluation and Open bidding	BTO,RO	Service purchase	May 2006
Kobe City General Hospital	Comprehensive evaluation and Open bidding	BTO	Service purchase	Aug. 2006
Osaka Psychiatric Medical Center	Comprehensive evaluation and Open bidding	BTO	Service purchase	Oct. 2006
Tokyo Metropolitan Psychiatric Medical Center	Comprehensive evaluation and Open bidding	BTO, RO	Service purchase	Dec. 2006
University of Tsukuba Hospital	Comprehensive evaluation and Open bidding	BTO, RO	Service purchase	Feb. 2007
Kanagawa Cancer Center	Comprehensive evaluation and Open bidding	BTO	Service purchase	Aug. 2008
Kyoto City Hospital	Comprehensive evaluation and Open bidding	DBO	Service purchase	Aug. 2008
Fukuoka City New Hospital	Comprehensive evaluation and Open bidding	BTO	Service purchase	Mar. 2009
Nagasaki City New Hospital	Comprehensive evaluation and Open bidding	BTO,RO	Service purchase	Aug. 2009
Osaka Medical Center for Cancer and Cardiovascular Diseases	Comprehensive evaluation and Open bidding	BTO	Service purchase	Nov. 2011
University of Tsukuba Hospital new ward * PFI scheme was cancelled	Comprehensive evaluation and Open bidding	BTO	Service purchase	Aug. 2014

Source: Extracted from Japan PFI/PPP Association (NPO) Website

As Figure 5-10 shows, a hospital project is complicated as it provides not only with medical services but also with a lot of related services. The scope of service of private sector is defined differently in each PFI hospital project, and the demarcation between private and public sides is determined by many aspects. For example, those aspects, including availability of service providers, financial effect

by outsourcing, effect to medical service etc. are considered when the scope of PFI project is decided. Generally in Japan, considering each condition, the scope of works for private sector is selected from the services items presented in “Scope of Private Sector” in Figure 5-10



Source: JICA Study Team

Figure 5-10 Services in a Hospital Project and the Potential Area of Private Services provision in Hospital PPP Projects in Japan

Regarding the hospital sector in Japan, not only the medical services (such as consultation, diagnosis, treatment, nursing services etc.) but also services which can be regarded as medical practices (such as imaging, physiological test, pharmacy etc.) are not allowed to outsource to private sector.

Furthermore, comprehensive management service which includes helpdesk service is also commonly provided by SPC in order to minimize the interface risk among services and to implement smooth operation of the hospital PFI projects.

- Subsidy for Hospital PFI Projects

In the history of Japanese hospital PFI projects, there are no specific subsidies aiming to promote PFI. All hospitals using PFI scheme apply and use each subsidy explained in the previous paragraph just like the other national and public hospitals.

5.2.3 Case Study of 5 Infrastructure Sectors and Estimate of National Subsidy Rate

(1) Toll Road

This section is erased as it contains confidential information.

(2) Water Supply

This section is erased as it contains confidential information.

(3) Wastewater

In Viet Nam, the demand of constructing new Wastewater Treatment Plant (WWTP) is high, and the priority PPP projects are mainly the construction and subsequent O&M works of WWTP. As it has explained in the previous section, there are examples of PPP projects implemented are comprehensive private entrustment, PFI and concession contract, while the PPP project consists of construction of WWTP only has not been implemented in Japan.

For this reason, subsidy ratio and contract price were estimated assuming the project, which was in reality implemented on public investment basis, was implemented on 20-year BOT contract basis. The example taken is “Minami Gamo WWTP” in Sendai city, it was relatively new project with construction and rehabilitation components. The national subsidy is assumed to be granted on 50% of the initial construction cost, and on 70% of repayment amount of local government bond. The O&M works was estimated by the actual average O&M cost of Sendai city (41.5 JPY/m³). The O&M cost is assumed to diminish by 20% by private operation. If the sales price is set at more than 48 JPY/m³ in contract, the private company could cover the initial cost (50% of initial cost) and O&M cost, and assure 10% of Equity-IRR. Therefore 48 JPY/m³ is an estimated as the sales price.

Table 5-21 General Assumptions of the Case Study

Project Period	Construction: 3 years, O&M: 20 years
PFI Scheme	BOT, Availability Payment Scheme
Treatment Amount	377,880 m ³ /day
Main Works of Private	Initial Construction: Design and Build Operation: O&M works
Discount Rate	4.0%
Contract Sales Rate	48 JPY /m ³

Source: JICA Study Team

Table 5-22 Net Present Value of Case Study

Category	Cost (million JPY)	Share
Capital Investment	55,521	48%
- Subsidy Amount	42,408	36%
OPEX	60,893	52%
- Treatment Cost	58,929	51%
- Financial Expenses (Interest)	1,965	2%

Note: Discount Rate of 4.0% is applied.

Source: JICA Study Team

(4) Solid Waste

In our selecting a waste management PFI project for VGF analysis, the following criteria were used.

- Project scheme such as DBO, BTO, BOT that fall into the definition of PPP/PFI, not publicly invested and managed.
- An intermediate treatment facility project mainly consisting of incinerators, which can be assumed as a likely-to-be-developed PPP project in both Vietnam and Japan.
- The stoker type incinerator is preferable as it is easy to introduce in Vietnam and has many successful track records in Japan. More advanced and high priced type such as gasification and ash melting furnace should be avoided.
- The capacity of the incinerator is more than 200 tons per day, taking into consideration of easiness of designing PPP project in terms of size and bankability.
- Incineration facility equipped with a power generator assuming part of the generated electricity is sold to the outside.
- A recent project as it is more likely to reflect the latest subsidy system in the changing waste management sector. The operation should be started within the last ten years or the facility is currently still under construction.

As a result of using the above selection criteria, we decided to analyse a new incineration plant project in the “M” City⁴¹ (Table 5-23). This is a project where the construction of a new incineration plant (waste incineration facility and recycling centre) has been conducted under DBO scheme in place of aging old plant. This facility employs a waste heat boiler and a steam powered generator to generate electrical power. Main ash coming out of the incineration facility is totally converted to other usable resources such as cement raw material, calcinations product, and molten slag, with the aim of reducing waste volume to be land filled. The outline of this project is as follows. Such project could be formulated as a PPP project in Vietnam as well, considering its scale and technology.

Table 5-23 Outline of the PPP Project in M city

Project Name	Construction and operation project of “M” City Incineration Plant (Utilizing DBO scheme)
Project Owner	“M” City
Project period	February 2016 to March 2020 for design and construction
Operation period	April 2020 to March 2040
Facility outline	Waste incineration facility with Stoker incinerator (330 ton/day = 110 ton/day × 3 furnaces), recycling center with crushing equipment (24 ton/day), sorting facility (31 ton/day), storage facility
Project cost	42,668 million yen (excluding tax)

Source: JICA Study Team

Although the detailed cost data of this project is not disclosed, summary data is available on the websites of “M” City and the incinerator manufacturer. We also received some reference information from the manufacturer. Other cost data of a similar typed projects and a report on incinerator O&M cost are taken from this information, we estimated the cash flow of the “M” City incineration plant

⁴¹ For the reason of confidentiality requested, we are unable to disclose the name of the city.

project, assuming that the 2.6% project IRR is achievable including subsidy. This 2.6% benchmark rate is indicated in a PPP/PFI introduction guideline prepared by Japan's Cabinet Office in January 2017. Being a DBO project, the original cash flow of this project appears completely different from a typical PPP project under BOT or BTO scheme. As the project IRR cannot be computed from the original cash flow, we modified the cash flow by incorporating positions of both the project owner from public side and the SPC from private side. It should be noted that the facility is constructed with the life cycle of 30 years, while the O&M period is 20 years. Thus, the facility will have a salvage value equivalent to the 10 remaining years at the end of the project period. As a result of this analysis, the following findings are obtained:

- The project has net present values of 19.7 billion yen as Capex, 15.9 billion yen as Opex, 35.6 billion yen as LCC (Capex + Opex), and 25.8 billion yen as Subsidy.
- Subsidy ratios are computed at 63% for Capex, 84% for Opex, and 72% for LCC.
- Subsidy injected for the project is divided into five types, each of which has the following net present value and the ratio to the total Subsidy.
 - ① National Subsidy 8.7 billion yen for facility construction cost (34%)
 - ② Allocation of central government tax revenue 3.7 billion yen for principal repayment of municipal bond (14%)
 - ③ Allocation of central government tax revenue 0.4 billion yen for interest payment of municipal bond (1%)
 - ④ Transfer from municipal general account, amounting 9.8 billion yen for financing deficit (38%)
 - ⑤ Additional subsidy of 3.2 billion yen to achieve the 2.6% project IRR (13%)
- Project revenues will include waste collection charge of 1.1 billion yen, tipping fee of 1.1 billion yen, and electricity sales of 3.4 billion yen of 20-O&M year cumulative at net present value.
- Judging from the above, for the “M” City waste incinerator project to achieve the socially acceptable IRR, considerable amounts of subsidy will be needed composed of national subsidy for Capex (①,②,③ above), municipal budget allocation for Opex (④), and further subsidy to boost the project IRR (⑤).
- In VGF analysis of a Vietnamese project, the cash flow items shown in the Japanese project case are most likely usable. Clarification and confirmation of local costs will still be needed taking account of the project size. Regarding the VGF items, feasible and realistic assumption should be established after confirming Vietnamese context, the central government's subsidy policy to local governments and public subsidy policy to PPP projects.

(5) Hospital

Since the market of outsourcing services in hospital sector is well developed in Japan, many private companies process their own know-how and a competitive market is well-developed. Therefore, most hospital PFI projects have wide range of scope of services by private sector. However that market is not well-developed in Viet Nam and it is not realistic for SPC to assume wide scope of business of SPC. Therefore, in this survey, the case was analysed with limited scope among the variety of services provided in PFI in Japan, as shown in Table 5-20.

From the analysis of cash flow of the case study, LCC based subsidy amounts in PFI projects are presented in Table 5-24

Table 5-24 Project Cash Flow and Subsidy Amount by Case Analysis

Precondition	
Outline of Hospital	Number of Bed: 513 Total Floor Area: Approx. 40,000m ² Planned Number of Patients: Inpatient 160,000/year Outpatient: 200,000/year Feature: Emergency Medicine, Advanced/Acute Medicine, Perinatal Care, etc.
Business term	4 years for construction, 2 years for transition, 15 years for operation
PFI scheme	BTO, RO
Main business scope of public side	Initial investment: Design, Construction, Rehabilitation Operation: Maintenance of Facility, Security, Cleaning, Parking Management, Operation of Convenience facilities
Discount rate	4%
Others	As the project is reconstruction of existing hospital, management cost and profit are included during construction as well
Successful bit rate	69.0%

Breakdown of PFI-LCC (present value)	(million JPY)	
Costs	182,460	100%
Capital Expenditure	27,837	15.3%
(Expenses for construction and improvement)	14,748	8.1%
(Expenses for SPC)	9,318	5.1%
Operation Cost	154,623	84.7%
(Availability Payment to SPC)	3,128	1.7%
(Financial cost)	3,023	1.7%
Income	176,568	100%
Medical Income	144,962	82.1%
(Transfers from other accounts)	2,308	1.3%
Non-medical Income	10,287	5.8%
(National subsidy)	245	0.1%
(Prefectural subsidy)	238	0.1%
(Transfers from other accounts)	47	0.0%
(Burden charge of other accounts)*	8,521	4.8%
Capital Income	21,319	12.1%
(National Subsidy)*	624	0.4%
(Equity)*	7,716	4.4%
Subsidy Amount (Total amount)	19,700	11.2%
(Subsidy for investment) total of *	16,861	9.5%
(Subsidy for operation)	2,838	1.6%

Source: Prepared by Study Team from Cash Flow of the Reference Case

CHAPTER 6 PRELIMINARY CALCULATION OF VGF AMOUNT IN 5 SECTORS IN VIETNAM

6.1 Selection of Candidate PPP Projects

One of purposes of this study was to calculate the necessary VGF amount of candidate projects in 5 target sectors, namely toll road, water supply, wastewater, solid waste and hospital sector, in Vietnam.

For that purpose, the JICA study team implemented the following works;

- ① Confirm the number and outline of future candidate PPP projects in each sector.
- ② Select one model project which has typical characteristic of the sector, and implement cash flow analysis to calculate the necessary VGF ratio (VGF amount / total initial investment cost).
- ③ In order to estimate the future VGF amount, multiply the “total investment cost of candidate PPP projects” calculated in ① and “VGF ratio” calculated in ②.

According to Decree 15, the PPP projects which have a right to receive the VGF should be included in the “medium-term public investment plan (MTPIP)” of the country. The list is prepared by MPI based on the project information sent from ASAs for requesting budget allocation. MPI submitted the list to the PM in September, 2016. The projects are categorized per sector in the following table. (whole project list is attached in Appendix 6.1) The JICA study team requested MPI to provide the PPP project list which satisfies the said condition, and MPI provided “Priority PPP Projects List” composed of 69 individual projects. The list is prepared by MPI based on the project information sent from ASAs for requesting budget allocation. MPI submitted the list to the PM in September, 2016. The projects are categorized per sector in the following table. (whole project list is attached in Appendix 6.1)

Table 6-1 Outline of MPI Priority PPP Projects List (September, 2016)

Sector	Number of Project (A)	Total Project Cost (billion VND) (B)	Share	Average Project Cost (B/A) (billion VND)
1. Transportation	42	287,623	86%	6,848
Toll Road, Bridge	34	248,313	74%	7,303
Port	4	21,725	6%	5,431
Airport	3	9,185	3%	3,062
Urban Train	1	8,400	3%	8,400
2. Water Supply	6	5,844	2%	974
3. Wastewater	5	4,931	1%	986
4. Solid Waste	3	12,502	4%	4,167
5. Hospital	2	2,579	1%	1,290
6. Others	11	21,176	6%	1,925
	69	334,655	100%	4,853

Source: MPI Priority PPP Projects List (September, 2016)

The necessary funds for all 69 projects totals 334 trillion VND in which the projects of toll road and bridge sector accounts for 74%. The number of sectors is also quite large as there are 34 projects. The total necessary fund of other target sectors, water supply, wastewater, solid waste and hospital, is 26 trillion VND (7.8% of total necessary funds), and the number of projects is 16.

The original data of each project is prepared by each ASA for the purpose of registering the projects in the public investment plan. The application sheet of the project submitted from ASA to MPI describes the project outline, total project cost, possible adopted PPP scheme and also expected VGF amount. The JICA Study Team made contact with the responsible ASAs of the projects, and reviewed the available information of the project. Also, it is found out that F/S has not been implemented for almost all projects. Therefore, the cost estimate is not reliable and selected PPP scheme is roughly determined without precise analysis.

According to MPI, there are 5 criteria of selecting these priority projects over many existing proposals as listed below. The criteria from 1) to 4) include project size and its economic impact, conformity with the national and local future plans, financial feasibility and maturity of the project; this seems similar to the cases adopted in other countries. The criteria 5), the fair allocation of fund resources, seems unique but it would be applicable under the Vietnamese budgeting system.

- 1) Project is large enough and has a wide spread and significant economic impact in regions and country
- 2) Project on the prioritized investment list under planning and development plan of ministries, agencies and local authorities
- 3) The project is highly feasible when it comes to investment in the form of PPP (meeting the conditions stipulated in Article 15 of Decree 15/2015 / ND-CP, especially priority is given to commercial projects which are attractive to domestic and foreign investors)
- 4) The project is well researched and prepared for investment. Priority is given to projects having project proposal
- 5) The project is in scope, capable of balancing resources (investment preparation capital and investment capital of the State).

In addition to the Priority PPP Projects list provided from MPI, the JICA Study Team visited several ASAs and collected the information of the candidate PPP projects which ASAs are currently planning for themselves. The visited line ministries are MOT, MOH, and MOC and other PPCs (Hanoi, HCM, Danang). As a result, the team received information of 8 hospital projects from MOH, 1 water supply project from MOC, 108 projects list⁴² (including normal public investment projects) from HCM PC, and 1 port sector project from Danang PC are provided by the series of interviews. Hanoi PC did not provide the project list, because they wanted to open the list on 24th June, 2017 when the seminar for investor of several projects will be hold.

The JICA Study Team reviewed the project information, and undertook cash flow analysis on selected 1 or 2 projects in each sector, which have reasonable project size with relatively high reliable data of cost estimate and revenue projection. In toll road sector and hospital sector, appropriate projects could

⁴² Project list of “List of PPP Projects calling for Investment” provided by HCM PC.

not be found for the analysis. Therefore, past projects of World Bank and JICA with reliable F/S output are selected as the model project for the purpose of calculating VGF amount.

Selected model projects in 5 sectors for cash flow analysis are shown in the below table. The detail of the project is explained separately in Section 6.4. The necessary VGF amount is calculated in Section 6.3.2.

Table 6-2 Model Projects for Cash Flow Analysis

Sector	Name of Project	Data Source
Toll Road	Day Giay –Phan Thiet Expressway	Public investment and World Bank loan project are assume to be a PPP project for VGF calculation
Water Supply	1) Bulk Water Supply: Can Tho Water Supply Project (45,000 m3/day) 2) Water Supply System: Vung Anh Economic Zone Water Supply Project (1,100 m3/day)	1)Past JICA PPP F/S 2) MPI Priority PPP Project List
Wastewater	Bac Lieu City WWTP (45,000m3/day)	MPI Priority PPP Project List
Solid Waste	Hanoi Soc Son WtE Project (1,170 ton/day)	MPI Priority PPP Project List, JICA Technical Assistant Project
Hospital	Project for Construction of Advanced Japanese Perinatal Medical Center (Hanoi, 300 beds) *2	METI F/S result originally prepared for OFA loan project is assumed to be a PPP project for VGF calculation

Source: JICA Study Team

6.2 Governmental Support on PPP Projects

6.2.1 Governmental Support on PPP Projects

PPP projects are the public infrastructure services to be provided in collaboration with the public organizations and the private entities. In Vietnam, some public infrastructure projects, such as electric power development, toll road and water supply, have been undertaken purely by private sector for the projects which was deemed to be financially feasible without any kind of governmental support.

On the other hand, nowadays PPP method is tried to apply for the projects which are economically or socially feasible, but not financially feasible. The government provides some financial supports on the less profitable projects to ensure the financial feasibility. The private entities are incentivized to formulate their project in PPP method with such governmental supports. In general, there are the following governmental supports.

- ① Provide FS budget on PPP projects (PDF)
- ② Public long-term loan
- ③ Provide VGF on Initial Construction Cost
- ④ Guarantee on minimum revenue, political risk, exchange rate loss, etc.
- ⑤ In-kind support such as constructing supplement facilities out of the project
- ⑥ Support during O&M phase (subsidy on revenue amount, etc.)
- ⑦ Other TAX reduction/exemption (VAT, CIT, etc.)

6.2.2 Current PPP framework in surrounding countries

In the table below, government support to promote PPP project in the surrounding countries are shown. Countries of promoting PPP system, such as India, Philippines and Indonesia, from ① to ④ of above governmental support systems, PDF, long term lending, guarantees and VGF, are already institutionalized. However, there is no active support system in Vietnam except PDF which has been recently introduced by ADB and the VGF system which is under consideration by this study.

Table 6-3 Current Governmental Supports in Surrounding Countries

Type	Function	India	Philippine	Indonesia	Viet Nam
PDF	Provide support F/S and Transaction Advisory	○ (PDF)	○ (PDMF)	○ (PDF)	○ (PDF)
Long Term Lending (for infrastructure)	Provide better conditions of financing (long-term, low-interest rate)	◎ For Infra (IIFCL)	○ (DBP)	◎ For Infra (PT SMI)	○ (VDB)
Guarantee	Provide guarantee for obligation of public sector	○ (MOF)	○ (DOF)	◎ (MOF & IIGF)	○ (MOF)
VGF/Subsidy	Provide direct financial support to private sector (commonly Subsidy)	○	○	○	○

Note: Same table of Table 1-6 is used.

Source: JICA Study Team

The VGF, which is the target of this study, is defined as the financial direct subsidy granted into the initial construction cost which reduces the burden of the SPC and improves the financial feasibility of the PPP project. In contrast, the other governmental supports such as guarantees and TAX reduction, etc. are implemented during an O&M period. The total volume of financial supports of these kinds is unclear when the project starts as it depends on the conditions of project. Compared with these supports, the impact of the VGF on the feasibility of the project is more direct and significant.

6.2.3 Outline of Availability Payment

The revenue of PPP project in target sectors are of two kinds: “①Revenue is collected by the user tariff (End-user pay scheme)”, and “②Revenue is collected by Availability Payment (AP Scheme)”.

In PPP project, the level of tariff and AP, which is usually determined by the government, will greatly affect the necessary VGF amount per each project. In this connection, the definition of the AP is summarized below.

- Availability Payment (AP)⁴³ is a fee paid by a Public Entity to a Private Enterprise for availability (Construction, Operation and Maintenance) of infrastructure services that comply with the quality and/or criteria as stipulated in a Public-Private Partnership (PPP) Agreement.
*Decree No. 15 Article 11 b) allows ASAs to adopt Availability Payment Scheme in Viet Nam.
- Availability Payment Scheme (APS) is applied for development of new infrastructure/public facility and provision of services through them.
- It is widely known as an effective way to: (1) improve the quality of public services and (2) mitigate fiscal burden of a Public Entity through reduction of Life Cycle Cost (LCC) of a project.
- The keys to success are: (1) appropriate role/risk sharing between a Public Entity and a Private Enterprise, and (2) provision of a good incentive to a Private Enterprise which will ignite various ideas and INNOVATIONS.

Under the typical PPP project applying the AP scheme, the specific public service facilities are constructed during the first several years, and the facilities are operated and managed during the consequent contract period. The agreed remuneration is paid during O&M period in exchange of the availability of facilities or services.

Compared with the general “①End-user Pay Scheme”, conditions of the PPP contract is almost the same in terms of standards of constructed facilities, service standards, contract period, period of revenue creation, etc. However, two schemes are different in terms of revenue risk. In case of “①End-user Pay Scheme”, the revenue risk is high as the total revenue varies depending on the traffic amount, water treatment amount and tariff level. In contrast, the stable revenue is expected under the “②AP Scheme” as much as the service standard is ensured by the effective management.

The level of user tariff and adopted PPP schemes in 5 target sectors are summarized in Table 6-4. As the user fee is relatively high in toll road sector, “①End-user Pay Scheme” was adopted. Whereas, “②AP Scheme” is adopted in 3 sectors, wastewater, solid waste and hospital sectors as the tariff level is significantly low in Vietnam. In water supply sector, both two schemes are utilized. The “②AP Scheme” is usually adopted for bulk water supply project, and the “①End-user Pay Scheme” is adopted for other project where the tariff is directly collected by SPC from users.

⁴³ Application of AP scheme is allowed in Vietnam in accordance with the Decree 15, 11 b).

Table 6-4 Adopted Revenue Scheme in Each Sector

	Fee/Tariff Revenue	Demand Risk	Popular Scheme
Toll Road	Middle-High	High	①End-User Pay
Water Supply	Middle	Low	①End-User Pay (BOT) ②Availability Payment (Water Offtake) (BWS)
Wastewater	Low	Low	②Availability Payment
Solid Waste Management	Low	Low	②Availability Payment
Hospital	Low	Middle	②Availability Payment

Source: JICA Study Team

To calculate the necessary VGF amount, the gap of projected tariff revenue and total cost is considered as the VGF amount under “①End-user Pay Scheme”. Under the “②AP Scheme”, AP revenue should be assumed to estimate the VGF instead of projecting the tariff revenue and the gap of cost and revenue is also calculated.

From the view of a private investor, they do not differentiate the revenue of VGF and AP as they are both coming from the public side (timing of revenue collection is not considered). Whereas from the view of ASA, as the VGF is a subsidy granted (or partially on-lent) from the state government, they are incentivized to maximize the VGF amount and minimize their financial cost paying as AP.

In section 6.4, tentative AP level was determined by the JICA Study Team for VGF calculation purpose. However, under the actual project formation, the AP level setting is related to the budget allocation of state government and local government and it becomes a sensitive matter. Therefore, the issue of setting appropriate AP level should be discussed carefully, and agreed among stakeholders before the start of the project.

6.3 Calculation of VGF Amount in 5 Sectors

In order to estimate the necessary VGF amount in the near future, the cash flow analyses of the model projects are conducted in 5 infrastructure sectors. In this section, general assumptions to be used in the cash flow analysis is described. Secondly, by using the result of the cash flow analysis, the necessary VGF amount is going to be calculated. The detail explanation of the each model project is precisely illustrated in Section 6.4.

6.3.1 General Assumptions of Cash Flow Analysis

One sample project in each sector, which has the reasonable project size and adequate project scheme, was selected as model project from the candidate PPP projects list, and cash flow analysis was conducted.

General assumptions used in the cash flow analysis were as follows:

(General Assumptions)

- (1) The project period is composed of the construction period (2-4 years) and operation period (20 years). Longer project period of 30 years in total is assumed exceptionally for toll road sectors as longer period contract has been commonly adopted in the past PPP projects in Vietnam.
- (2) All the cost items are adjusted to the price of 2017. The inflation rate is projected at 4.0% considering the actual inflation rate of the last 3 years, which has been reflected on initial construction cost and O&M cost during the contract period.
- (3) BOT scheme is adopted for the analysis.

(Financing Assumptions)

- (4) The VGF is defined as the subsidy granted from ASA to SPC on the initial construction cost (not for O&M cost). The VGF is to be disbursed at annual basis in accordance with the allocated budget for construction during construction period (first 2-4 years).
- (5) The land acquisition cost is excluded from the project cost.
- (6) The remaining cost of the project is procured as 30% of equity and 70% of debt. The debt portion is assumed to be procured from the domestic bank (option1) or JICA PSIF (option2). The interest rate of former loan from domestic bank is assumed at 10.0% and the JICA PSIF, which is provided in USD currency under SWAP scheme, is assumed at 5.0%. The equal payment is adopted under which the annual repayment amount of principal and interest become the same amount during repayment period. The repayment period is assumed at 20 years, including the grace period for the construction period (2-4 years).

Under the current economic conditions in Vietnam, borrowing loans from domestic banks with the repayment period of longer than 10 years is quite difficult. Therefore, refinancing would be taken place after the first loan agreement of 10 years in case the loan is borrowed from domestic banks (option1). The financial cost and condition change relieved from the refinance is not considered as its difficulty on estimation and to simplify the calculation.

In case of receiving finance from JICA PSIF (option2), JICA would ask Vietnamese government to guarantee the its exchange of revenue earned in Vietnamese Dong to hard currency and to reduce the exchange rate risk by swap arrangement and other ways. In this section however, these are not taken into consideration as assumption for cash flow analysis.

- (7) To retain the appropriate financial return of investors, target Equity-IRR is set at 20% considering the past cases of PPP project in other countries. Also to simplify the calculation, the internal reserve is not considered, and the whole earning is disbursed as the dividends.
- (8) Based on Decree No.124/2008/NC-DP, the exemption and/or reduction of corporate income

TAX is admitted for the private company managing the PPP projects. (detail is shown in Table 6-5).

Table 6-5 General Assumptions of the Cash Flow Analysis

Items	Assumptions	Source
Project Period	22 - 30 years	General condition applied in Vietnam
Scheme	BOT scheme	General condition applied in Vietnam
Price	Price level in 2017	-
Inflation Rate	4.0% / year	Average of past 3 years
Depreciation Period	20 - 30 years (same as operation period)	General condition applied in Vietnam
Equity : Debt Ratio	30%:70% of Initial Construction Cost	Based on the Interviews
Interest Rate of Debt	Option1:10% (in VND, domestic bank) Option2: 5% (in USD, JICA PSIF) *1	Based on the Interviews
Repayment Period of Debt	Option1: 20 years (domestic, refinance needed) *2 Option2: 20 years (PSIF)	Based on the Interviews
Grace Period of Debt	2-4 years (construction period)	Based on the Interviews
Repayment Method	Principal and Interest Equal Payment	General condition used in the past PPP projects
Target Equity IRR	20%	Based on interviews and the conditions in other countries
WACC (Weighted Average Rate of Return)	Option1: 13.0% Option2: 9.5%	Automatic calculation from above conditions of equity-debt ratio, interest rate and Equity-IRR
Corporate Income TAX	0% (1-4y), 5% (5-9y), 10% (10-15y), 25% (16y-) of current year earnings	Based on Decree No.124/2008/NC-DP

*1 Guarantee of currency exchange or compensation of exchange loss is needed to implement the PSIF

*2 refinancing is needed as it is difficult to borrow loans from domestic banks with maturity of more than 10 years.

Source: JICA Study Team

6.3.2 Summary of Preliminary Calculation of VGF Amount in 5 Sectors

The necessary VGF amount is estimated by JICA Study Team based on the cash flow analysis. Firstly, the cash flow analysis of the 6 PPP projects in 5 sectors (2 projects in water supply sector) are conducted to estimate the VGF ratio (VGF amount/initial construction cost) of the PPP project. As a result, the calculated VGF ratio was lower than 50% in toll road and water supply sectors, but the other sectors of wastewater, solid waste and hospital needed more than 50%.

Secondly, VGF amount was calculated multiplying the estimated VGF ratio to the total initial cost of the selected PPP projects (56 projects in total) which is made from MPI Priority PPP Projects list and interview to ASAs. Result is that the necessary VGF amount of toll road sectors calculated at 66.793 trillion VND which dominates the total VGF amount (77% of total amount). Similarly, the necessary VGF amount is calculated as 2.575 trillion VND for 6 projects in water supply sector, 3.464 trillion VND for 4 projects in wastewater sector, 6.464 trillion VND for 3 projects in solid waste sector, and 7.625 trillion VND for 9 projects in hospital sector. In total, 86.921 trillion VND for 56 projects is

needed in target 5 sectors, which corresponds to approximately 434.6 billion JPY (1JPY = 200 VND). This result clearly shows the strong demand on VGF system in Vietnam.

It should be noted that the VGF ratio varies if a parameter used for the calculation is changed such as revenue projection, cost estimate, demand forecast, and cost of capital. Also the number of candidate projects and total construction cost varies if the selection criteria of the PPP projects, which is presumably managed by PPP office under MPI, are changed. Therefore, it is highly recommended that the VGF amount is adjusted periodically to reflect any change in project scheme and selection of priority projects.

Table 6-6 Estimated VGF Amount of Selected Projects

Sector	Name of Selected Project for Calculation of VGF Rate	VGF Rate (% VGF amount / Initial Construction Cost)	Number of Projects selected for Sector wise VGF Amount Estimation	Total Construction Cost (billion VND)	Estimated VGF Amount (billion VND)
1 Toll Road	Day Giay –Phan Thiet Expressway, Entire Section (98.7km)	26.9%*2	34 projects	248,301	66,793
2 Water Supply	1) Water Supply System: Vung Anh Economic Zone Water Supply Project (1,100 m3/day) 2) Bulk Water Supply: Can Tho Water Supply Project (45,000 m3/day)	1) 48.0% 2) 35.7%	1) 4 projects 2) 2 projects	1) 3,975 2) 1,869 Total 5,844	1) 1,908 2) 667 Total 2,575
3 Waste water	Bac Lieu City WWTP (45,000m3/day)	78.2%	4 projects	4,430	3,464
4 Solid Waste	Hanoi Soc Son WtE Project (1,170 ton/day)	51.7%	3 projects	12,502	6,464
5 Hospital	Project for Construction of Advanced Japanese Perinatal Medical Center (Hanoi, 300 beds) *3	59.9%	9 projects *4	12,729	7,625
Total*5					86,921

*1 This table shows VGF rate of typical projects in the 5 sectors and VGF amount for selected similar projects in the 5 sectors.

*2 The VGF ratio including land acquisition fee is used for the calculation as the project cost of MPI priority PPP project list normally includes land acquisition fee.

*3 The project is currently implemented by ODA loan scheme, and is adopted only for VGF calculation purpose (not included in the selected 9 projects).

*4 1 project is selected from the MPI/PPP project list. 8 projects are recommended by HCM city.

*5 The estimated VGF amount includes VAT, assuming the SPC pays the VAT of the initial construction cost.

Source : JICA Study Team

6.4 Detailed description by sector (Road/Water/Wastewater/Solid Waste/Hospital)

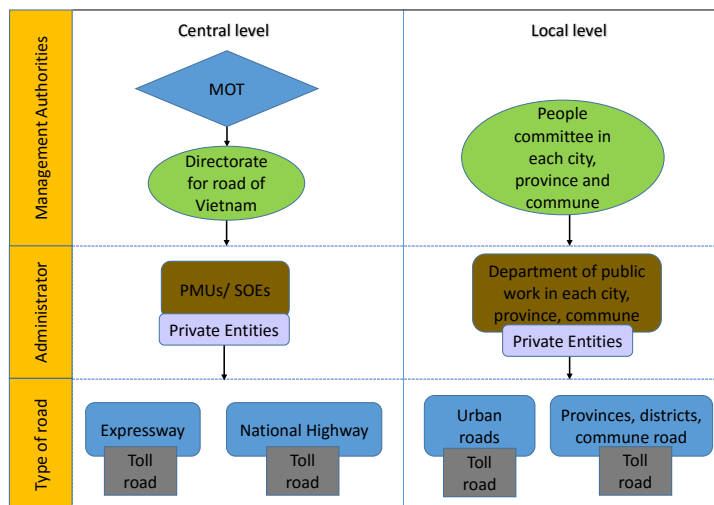
6.4.1 Toll Road

(1) Sector Overview

a) General

In Vietnam, road network consists of expressways, national highways, provincial roads, urban roads, and other roads. In accordance with Decree 159/2013/TT-BTC issued by MOF, any roads are able to be toll roads. So far, toll roads are some sections of expressways such as North-South Expressway (NSE) and some regional expressways, BOT sections of national highways, and BOT section of urban roads in HCMC.

As administrative structure in road sector, management of roads are divided into two levels: central government or local government. Expressways and national highways are under authority of the central government; however, its jurisdiction is shared among Project Management Units (PMUs), state owned enterprises (SOEs), and private entities entitled as BOT operator(s). On the other hand, urban roads and other local roads are under authority of the local government and its jurisdiction is shared among DOP of each city/province/commune and BOT operator(s). Figure 6-1 shows administrative structure in road sector.



Source: JICA Study Team

Figure 6-1 Administrative Structure in Road Sector

Expressways have been developed based on the approved master plan. The current master plan is approved by the Decision of Prime Minister No. 326/QĐ-TTg dated 1st March 2016, titled “Approval on master plan for development of Vietnam expressway network up to 2020 and orientation toward 2030”. Particularly, NSE is positioned as the most important trunk road; it provides huge transportation capacity throughout 20 provinces with higher standards for speed and safety, and connecting socio – economic centers between Hanoi and Ho Chi Minh City (HCMC). Figure 6-2, Figure 6-3 and Table 6-7 show expressway networks, their section length as well as the current situation of development of NSE respectively.

Table 6-7 Expressways in Master Plan

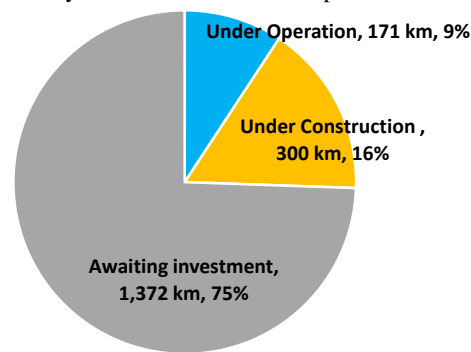
No.	Route/Section	Length (km)
1	North-South Expressway (Eastern route)	1,814
2	North-South Expressway (Western route)	1,269
3	North Expressway	1,368
4	Central and Highlands Expressway	264
5	South Expressway	983
6	Ring Road System in Hanoi	426
7	Ring Road System in HCMC	287
Total		6,411

Source: JICA Study Team based on DRVN report



Source: JICA Study Team based on DRVN report

Figure 6-2 Expressway Network in 2016



Source: JICA Study Team

Figure 6-3 Current Situation of NSE in 2016

In Vietnam, the entire length of national highways connect Hanoi capital with provincial administrative centers, seaports, airports, and international border gates and play an important role for the socio-economic development of the region. So far 127 national highways are available in Vietnam with 17.530 km length.

The urban road network is inter-urban transport infrastructure under authority of local government. So far, only HCMC is a local authority that allows private entities to operate the urban road under BOT scheme.

b) BT scheme as PPP

BT (Built and Transfer) scheme is classified as PPP in Vietnam. In this model, investors are normally have the right to develop property(ies) from the Government instead of revenue from toll, as operation is not included in this scheme. However, there is a case where another administrator, not the investor which established a BT contract, collects toll from users in the same section which the investor built. Therefore, this scheme is different from PPP projects requiring VGF support.

c) Subsidy Policy of the Sector

In the toll road sector, there is no other subsidy policy specified than the article 11 of Decree No. 15/2015/ND-CP. However, it is normally stipulated in the BOT contract between private investors and

MOT that when the actual traffic volume is lower than forecast, MOT compensates that difference in traffic volume by modifying BOT contract period. In addition, when the Government carries out construction works of a part of the sections under BOT contract, such intervention is considered as government support.

(2) Related Regulations and Guidelines

Beside the general laws and decrees related to PPP projects, the following are the specific regulations and guidelines regarding toll roads:

- Decree No. 24/2006/ND-CP, 6th March 2006, Amending and supplementing a number of articles of Decree No. 57/2002/ND-CP, 3rd June 2002, Implementation of the ordinance on charge and fees.
- Circular No.: 159/2013/TT-BTC: issued on 14 November 2013, Regulations on collection, payment, management and use of road use toll for payback of road construction investment capital.

Table 6-8 shows that regulated toll rate per toll plaza depends on vehicle type. The toll rate in the table shown is per ticket at each toll gate based on the minimum distance of adjacent toll gates as 70 km regulated in the same Circular. If the distance of toll gates less than 70 km, MOT or local government should obtain a consent from MOF. The toll is to be decided based on the request from BOT operator to MOT or local government for approval of MOF.

Table 6-8 Toll Rate on each Vehicle Types on Toll Road

No.	Vehicle Type	Toll Rate (VND/Toll Gate/one direction)
1	Vehicle under 12 seats, design load under 2 tons, all types of public transport vans	15,000 ~ 52,000
2	Vehicle from 12 seats to 30 seats and design load from 2 tons to 4 tons	20,000 ~ 70,000
3	Vehicle over 31 seats, design load from 4 tons to under 10 tons	25,000 ~ 87,000
4	Vehicle with design load from 10 tons to under 18 tons, container 20 ft	40,000 ~ 140,000
5	Vehicle with design load over 18 tons and container 40 ft	80,000 ~ 200,000

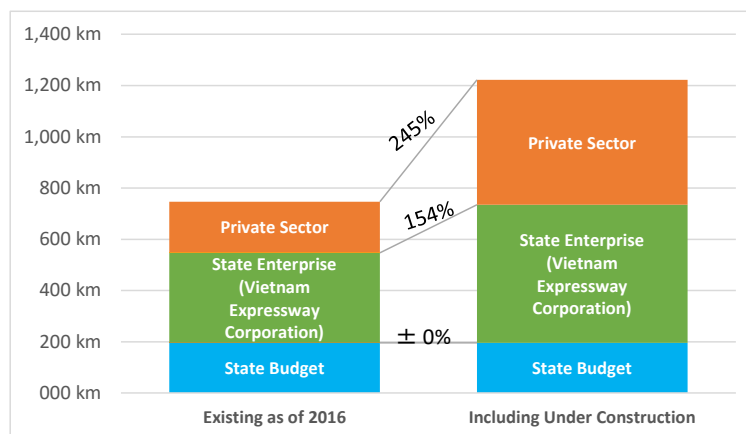
Source: Decree 159/2013/TT-BTC

- Decision No. 326/QD-TTg dated 1st March 2016 issued by the Prime Minister on approval of Vietnam expressway network development plan to 2020 and vision 2030;

(3) Past PPP Projects and List of Candidate PPP Projects

a) General

Investment from private sector has been strongly expected in Vietnam to meet the demand of road network development since the state budget is faced with national debt constraints. The Government of Vietnam, therefore, has taken significant steps to encourage domestic and international private investors to invest in the road sector through PPP (BOT, BT, etc.) scheme. Consequently, there are many road projects developed by BOT and BT schemes by local investors. Within the network of national highways, many BOT projects have already been implemented, from small to relatively large scale, and they are mainly for rehabilitation or improvement (widening) of existing roads. Investors of this kind of project are local construction companies and were authorized to collect toll to pay off their expenses for works. As for NSE, the proportion of private investment is increasing sharply is shown in Figure 6-4. On the other hand, so far, no foreign investor has invested in expressway project in Vietnam.



Source: JICA Study Team based on DRVN report

Figure 6-4 Investment Budget for Expressway Construction

The model project selected for VGF calculation in toll road sector, “Dau Giay – Phan Thiet Expressway (DPEP)” is one of the section of NSE located southern Vietnam. In 2013, DPEP was planned as the first PPP expressway, in which the MOT would partially contribute to its construction as a public investment while investors are expected to invest in the construction of remaining section and to operate and collect toll for the both sections. BITECO⁴⁴ was selected as the first investor with its contribution to 60% of the required equity which accounts for 21% of the total project cost of PPP section. However, over several “road shows” to introduce the feasibility of the project in potential investors’ homeland such as India, Korea, and Singapore, no second investor after BITECO manifested interest because of inadequate government supports and etc. Therefore, the implementation of DPEP under the proposed scheme is suspended so far. According to MOT, to move the project forward, it is necessary for the Government to provide: 1) guaranty for minimum revenue, 2) guaranty

⁴⁴ BITECO is a Vietnamese conglomerate with interests in the real estate, mining, manufacturing and infrastructure sectors.

for currency exchange and exchange rate, and 3) third party guaranty for covering liability of the Government.

b) PPP Projects in the Past and Future

Tables 6-9, 6-10, 6-11 show lists of expressway projects which used or are expected to use private investment in Vietnam, classified in the following manner: 1) opened to traffic, 2) under construction, and 3) NSE listed in Mid-Term Public Investment Plan (MTPIP) provided by MPI, respectively.

Table 6-9 Expressway opened to traffic using Private Investment

No	Section	Opened to Traffic	Length (km)	Type	Investor
1	Da Lat – Lien Khuong	07/2007	19	BOT	7/5 company
2	Phap Van – Cau Gie	09/2015	29	BOT	CIENCO 1, Minh Phát Company, Phuong Thanh Company
3	Ha Noi – Hai Phong	12/2015	105	BOT	VIDIFI
4	Ha Noi – Bac Giang	01/2016	46	BOT	Ocean Group, Vinaconex, 319 company, Van Phu Invest company
TOTAL			199		

Source: JICA Study Team

Table 6-10 Expressway under construction using Private Investment

No	Section	Start of Construction	Length (km)	Type	Investor
1	La Son – Tuy Loan	22/12/2013	77	BT	Construction Corporation No.1 (CC1), CIENCO8, Truong Son
2	Hoa Lac- Hoa Binh	17/05/2014	32	BOT	CC36, HANCO, Truong Loc
3	Thai Nguyen – Cho Moi	07/09/2014	40	BOT	CIENCO4, Truong Loc
4	Trung Luong – My Thuan	07/02/2015	51	BOT	Tuan Loc, Thang Loi, BMT, Yen Khanh, Hoang An, CII
5	Bac Giang – Lang Son* ¹	05/07/2015	63	BOT	UDIC, SCIC, Phuong Thanh, 468 & CC1 and My Da* ¹
TOTAL			263		

Note: *1 This BOT project was halted due capital shortage of the investor. On 31st May 2017, signing for credit contract between the bank (Vietin Bank) and BOT Company was held with new investor: Deo Ca Investment JSC, to resume the project. <http://en.vietnamplus.vn/work-resumes-on-bac-gianglang-son-expressway/112637.vnp>

Source: JICA Study Team

Table 6-11 Sections of NSE listed in MTPIP

No	Section	No	Section
1	Cao Bo (Nam Dinh)-Mai Son (Ninh Binh)	11	Cam Lo – La Son
2	Ninh Binh – NH45 (Thanh Hoa)	12	La Son – Tuy Loan (Da Nang)
3	Nghi Son – NH45 (Thanh Hoa)	13	Quang Ngai – Hoa Nhon (Binh Dinh)
4	Nghi Son (Thanh Hoa) to Dien Chau	14	Hoang Nhon – Quy Nhon (Binh Dinh)
5	Dien Chau – Bai Vot	15	Quy Nhon – Tuy Hoa
6	Bai Vot – Ham Nghi intersection	16	Tuy Hoa – Nha Trang
7	Ham Nghi intersection – Vung Ang	17	Nha Trang – Thap Cham (Ninh Thuan)
8	Vung Ang – Bung (Quang Binh)	18	Thap Cham – Bac Binh (Binh Thuan)
9	Bung – Van Ninh (Quang Binh)	19	Bac Binh – Phan Thiet
10	Van Ninh – Cam Lo (Quang Tri)	20	Dau Giay – Phan Thiet

Source: JICA Study Team

Besides NSE, 14 provincial roads are listed in MTPIP as shown in Table 6-12.

Table 6-12 Provincial Road listed in MTPIP

No	Section
1	Bac Giang Province: Constructing Dong Son bridge and access road (BT contract)
2	Phu Tho Province: Nguyen Tat Thanh road to Festival Center (Southern Hung temple area)
3	Hai Duong Province: Belt road II, Hai Duong city (phase I) Northern routine. L= 30km
4	Hung Yen Province: North - South main road in Hung Yen (from Nh.5 overpass to Road No.19 near railway)
5	Quang Tri Province: NH. 1A bypassing Dong Ha city in the East
6	Thua Thien Hue Province: extending To Huu road to Phu Bai airport
7	Binh Duong Province: constructing a road from T-intersection to Thach Phuong port (nearly PR. 747A) Tan Uyen city - Binh Duong
8	Ba Ria - Vung Tau Province: Phuoc An bridge, Tan Thanh district, Ba Rai - Vung Tau
9	Tay Ninh Province: Road 782-784, the part from T-intersection of Xuyen A bypass, Trang Bang district from Tan Binh, Tay Ninh city
10	Ca Mau Province: Construct Nguyen Dinh Chieu bridge
11	Can Tho Province: Provincial road 922 (construct and upgrade the part from Chau Van Liem ward to Thoi Lai town, Can Tho city in phase 1)
12	Kien Giang Province: Provincial road 963 (from Hau Giang border to NH.80, L= 40km)
13	Long An Province: A belt road of Tan An city Dự án đường vành đai thành phố Tân An
14	Tien Giang Province: Provincial Road 877C (connecting the western industrial zone to the eastern industrial zone)

Source: JICA Study Team

Currently, only HCMC is the only local government that operates toll road by BOT scheme. So far, there are 7 toll stations located on the ring road and radial road. Table 6-13 shows the list of toll stations and investors in HCMC.

Table 6-13 Toll Stations, Toll Roads and Investors in HCMC

Stt	Toll station	Toll road	Investor
1	Tan Ky – Tan Quy	Tan Ky – Tan Quy	IDICO
2	Nguyen Thi Tu	Nguyen Thi Tu	IDICO
3	An Suong – An Lac	NH-1A	IDICO
4	Nguyen Van Linh	Nguyen Van Linh	Phu My Hung development Corporation
5	Phu My bridge	Ring road No.2	PMC invest Corporation
6	Xa lo Ha Noi	Xa Lo Ha Noi road	CII
7	Binh Trieu 2	NH13	CII

(4) Cash Flow Analysis of the Sample Project

a) Selection of the Sample Project

As a result of a series of meetings with PPP department of MOT, DPEP was selected as the sample project for cash flow analysis among the following four projects due to availability of data:

1. Ninh Binh – Vinh Expressway
2. Dau Giay – Phan Thiet Expressway
3. Dau Giay – Lien Khuong Expressway

4. Bien Hoa – Vung Tau Expressway



Source: JICA Study Team

Figure 6-5 Location of Four Candidate Projects for Analysis

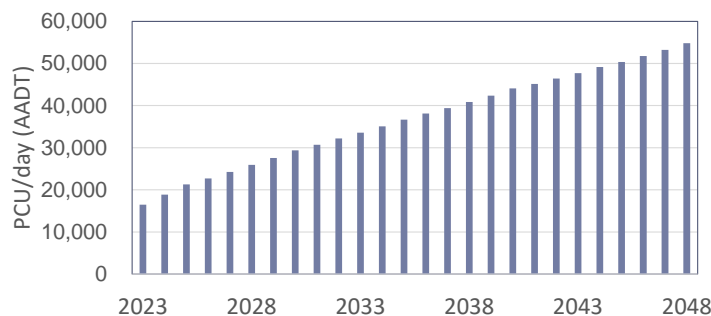
As explained earlier, DPEP is a part of NSE and was expected to be the first PPP expressway project in Vietnam. Feasibility study on this expressway was carried out two times (in 2012 and 2016). In the F/S, the project road was divided into two sections by type of constructions as follows: 1) Section 1 by state budget, and 2) Section 2 by private sector’s budget with operation and toll collection for both sections 1 and 2. In this study, it is considered that private sector will construct, operate, and toll for entire section with VGF. Table 6-14 shows general information of DPEP.

Table 6-14 General Information of DPEP

Section	Dau Giay – Phan Thiet
Length	98.7 km
Design Speed	120 km/h
No. of Lanes	4 lanes (as initial phase)
No. of Bridges	15 no., L=340m in total
No. of Interchanges	9 no.
No. of Tunnels	1 no., L= 420m

Source: JICA Study Team

Traffic forecast of DPEP refers to the F/S in 2016, rise at an annual average rate of 9%, as shown in Figure 6-6.

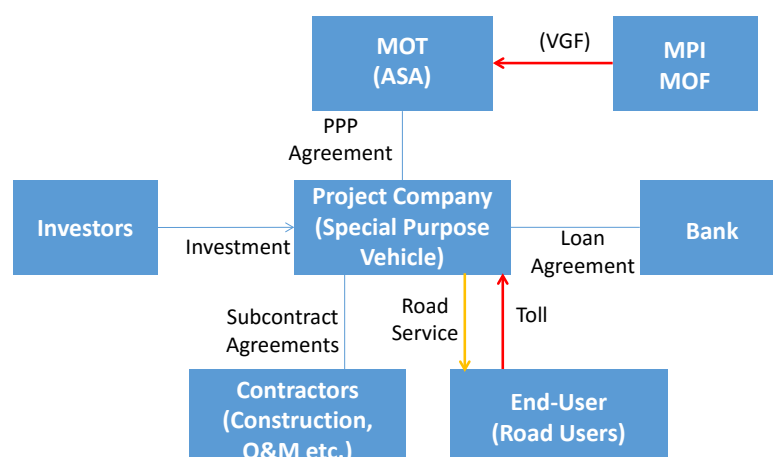


Source: JICA Study Team based on F/S in 2016

Figure 6-6 Traffic Forecast of DPEP

b) Project Scheme

Figure 6-7 illustrates project scheme to be applied to DPEP including VGF provision.



Source: JICA Study Team

Figure 6-7 Project Scheme of DPEP

c) Assumption

Cash flow analysis of DPEP is carried out based on the preconditions mentioned in section 6.3.1 and the specific assumptions are shown in Table 6-15

Table 6-15 Assumptions of Analysis

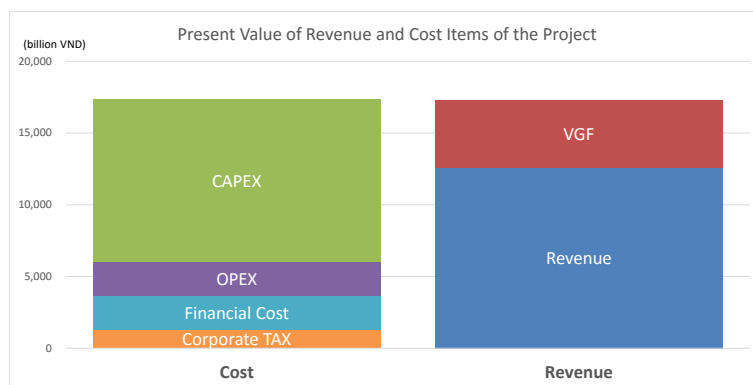
Financial Source	Domestic (OP1)
Project	Dau Giay – Phan Thiet Expressway (DPEP)
Length	98.3 km
Construction Start	2019
Project Period	Construction 4 years, Operation 26 years
Scheme	BOT
Repayment Period	20 years
Depreciation Period	26 years
Toll	USD 7.5c/PCU*km (2016), raise 4% p.a.
Traffic Volume (PCU/day (AADT))	Referred to Traffic Forecast Study in F/S (2016) 16,470 (2023) / 54,826 (2048)
CAPEX ^{*1}	Referred to F/S in 2016, (excluded VAT and site clearance)
OPEX	Referred to F/S in 2016 Operator Cost: 3% of revenue Fixed General Maintenance Costs: USD 4.5 mil./year Administrative and General Expenses: USD 5.5 mil./year Major Maintenance: USD 45.35 mil. (in 14 th and 15 th year each)

Note: Validation of the amount of CAPEX was based on unit cost per km of other NSE projects.

Source: JICA Study Team

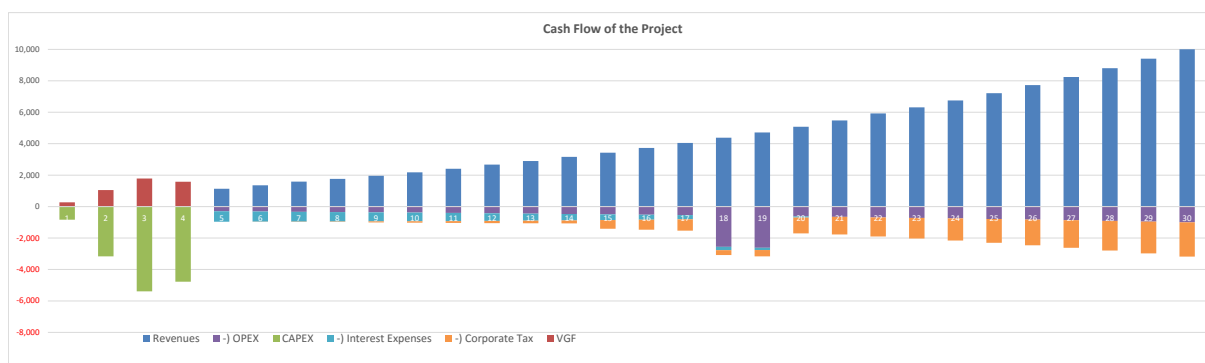
d) Result of the Analysis

Figures 6-8 and 6-9 illustrate the computed present value of revenue and cost items of DPEP and its cash flow respectively.



Source: JICA Study Team

Figure 6-8 Present Value of Revenue and Cost Items of DPEP



Source: JICA Study Team

Figure 6-9 Cash Flow of DPEP

As a result of cash flow analysis, VGF amount of DPEP is calculated as 33.1 % of the total CAPEX as shown in Table 6-16.

Table 6-16 Calculated VGF Amount

CAPEX	VND 14,164 billion.
VGF Amount	VND 4,688 billion
VGF Percentage to CAPEX	33.1%

Source: JICA Study Team

As mentioned in the section 6.3 above, another option (OP2) was also analysed by assuming to apply 5% of interest rate from PSIF loan (USD). In this option, VGF amount is calculated at 17.5% of the total CAPEX.

In addition, sensitivity analysis with +/- 10% change of annual revenue during entire project life was calculated for reference and shown in Table 6-17.

Table 6-17 Sensitivity Analysis of Revenue

Change In		Interest Rate	
		5%	10%
Revenue	+10%	8.0%	25.0%
	+/- 0%	17.50% (OP2)	33.1% (OP1)
	-10%	27.5%	41.3%

Source: JICA Study Team

(5) Estimated VGF Amount

In order to estimate projected VGF amount in the sector, the PPP road projects listed in MTPIP (20 roads of NSE and 14 provincial roads) were selected. It was estimated by multiplying their investment cost indicated in MTPIP by 26.9%: calculated VAT and site clearance of 18.6%⁴⁵ to total investment cost multiplying 33.1% of CAPEX. Table 6-18 shows selected projects and their estimated VGF amounts. Total estimated VGF amount of the Sector is VND 66.8 trillion.

Table 6-18 Total Projected VGF Amount in the Sector

No.	Project Name	Scheme	Investment Cost	VGF Amount
			(million VND)	(million VND)
NSE				
1	Cao Bo (Nam Dinh) - Mai Son (Ninh Binh)	-	3,800,000	1,022,200
2	Ninh Binh - NH.45 (Thanh Hoa)	BOT	15,481,900	4,164,631
3	NH.45 - Nghi Son (Thanh Hoa)	BOT	8,186,800	2,202,249
4	Nghi Son (Thanh Hoa) to Dien Chau	BOT	10,467,800	2,815,838
5	Dien Chau - Bai Vot	BOT	15,512,700	4,172,916
6	Bai Vot -Ham Nghi intersection	BOT	6,692,200	1,800,202
7	Ham Nghi intersection - Vung Ang	BOT	8,091,500	2,176,614
8	Vung Ang (Ha Tinh) – Bung (Quang Binh)	BOT	8,961,700	2,410,697
9	Bung – Van Ninh (Quang Binh)	BOT	6,502,400	1,749,146
10	Van Ninh - Cam Lo (Quang Tri)	BOT	8,361,900	2,249,351
11	Cam Lo (Quang Tri) to La Son	BOT	13,334,800	3,587,061
12	La Son - Tuy Loan (Da Nang)	BT	2,400,000	645,600
13	Quang Ngai - Hoai Nhon (Binh Dinh)	BOT	15,895,000	4,275,755
14	Hoang Nhon (Binh Dinh) - Quy Nhon (Binh Dinh)	BOT	13,069,500	3,515,696
15	Quy Nhon - Tuy Hoa	BOT	17,074,600	4,593,067
16	Tuy Hoa - Nha Trang	BOT	20,116,300	5,411,285
17	Nha Trang - Tháp Cham (Ninh Thuan)	BOT	13,968,800	3,757,607
18	Thap Cham (Ninh Thuan) - Bac Binh (Binh Thuan)	BOT	11,713,400	3,150,905
19	Bac Binh (Binh Thuan) - Phan Thiet	BOT	12,846,400	3,455,682
20	Dau Giay - Phan Thiet	BOT	17,348,000	4,666,612
Provincial Road				
21	Bac Giang Province: Constructing Dong Son bridge and access road (BT contract)	BT	1,169,561	314,612
22	Phu Tho Province: Nguyen Tat Thanh road to Festival Center (Southern Hung temple area)	BOT	496,301	133,505
23	Hai Duong Province: Belt road II, Hai Duong city (phase I) Northern routine. L= 30km	BOT	1,320,000	355,080
24	Hung Yen Province: North - South main road in Hung Yen (from Nh.5 overpass to Road No.19 near railway)	BOT	1,225,000	329,525
25	Quang Tri Province: NH. 1A bypassing Dong Ha city in the East	BOT	768,000	206,592
26	Thua Thien Hue Province: extending To Huu road to Phu Bai airport	BOT	787,073	211,723
27	Binh Duong Province: constructing a road from T-intersection to Thach Phuong port (nearly PR. 747A) Tan Uyen city - Binh Duong	BOT	992,146	266,887
28	Ba Ria - Vung Tau Province: Phuoc An bridge, Tan Thanh district, Ba Rai - Vung Tau	BOT	3,543,000	953,067

⁴⁵ It is percentage of VAT and site clearance costs to the total project cost in F/S (2016) of DPEP

No.	Project Name	Scheme	Investment Cost	VGF Amount
			(million VND)	(million VND)
29	Tay Ninh Province: Road 782-784, the part from T-intersection of Xuyen A bypass, Trang Bang district from Tan Binh, Tay Ninh city	BOT	979,724	263,546
30	Ca Mau Province: Construct Nguyen Dinh Chieu bridge	BOT	420,000	112,980
31	Can Tho Province: Provincial road 922 (construct and upgrade the part from Chau Van Liem ward to Thoi Lai town, Can Tho city in phase 1)	BT	1,493,000	401,617
32	Kien Giang Province: Provincial road 963 (from Hau Giang border to NH.80, L= 40km)	BOT	1,500,000	403,500
33	Long An Province: A belt road of Tan An city Dự án đường vành đai thành phố Tân An	BT	2,293,000	616,817
34	Tien Giang Province: Provincial Road 877C (connecting the western industrial zone to the eastern industrial zone)	BOT	1,500,000	403,500
	Total		248,312,505	66,796,064

Source: JICA Study Team

(6) Interests of Concerned Parties

In this study, required VGF amount is estimated by the road projects listed in MTPIP. On the other hand, VGF Yen loan scheme requires investment from Japanese investor. In order to realize the VFG Yen loan road project, coordinating between prioritized project in Vietnam and interest of Japanese investor is quite important.

Among the NSE projects listed in MTPIP, average investment cost of each project is more than VND 10 trillion. In addition, all listed NSE road projects are located in rural areas far from major cities such as Hanoi, HCMC, and Danang and are unlikely to expect large traffic volume. Accordingly and from a viewpoint that no foreign investor has invested to the road project in Vietnam so far, it is not expected for a Japanese investor to invest in a huge project located in a rural area.

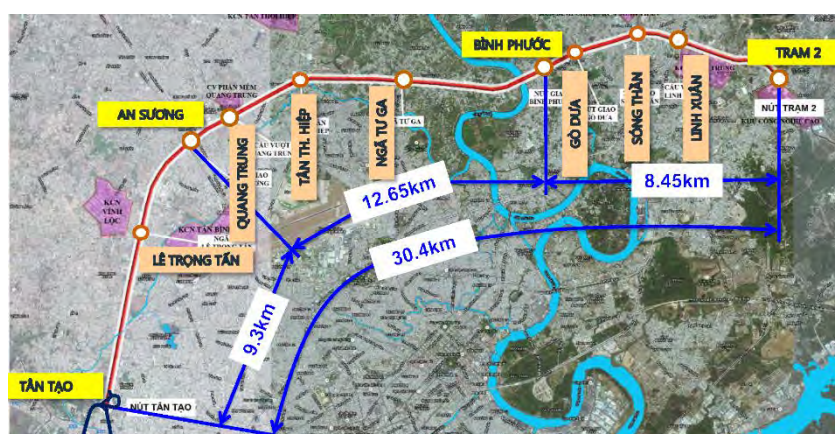
In addition to the projects nominated in the list established by MPI, JICA Study Team tried to find a candidate project that have potential to be PPP Projects with VGF support.

The HCMC viaduct highway No. 5 project is waiting for investment followed by a nominated first investor, CLCIPM (Cuu Long Corporation for Investment, Development and Project Management of Infrastructure). Table 6-19 shows the summary of the project. This project is to build viaduct along the median of existing ring road No.2 (national highway No.1A). Site clearance is therefore not necessary except at on/off ramps. Traffic volume is as large as 99,367pcu/day (in 2015).

Table 6-19 Summary of HCMC Viaduct Highway No.5

No.	Item	Contents	No.	Item	Contents
1	Road Class	Urban Trunk Road	6	Traffic Volume	99,367pcu/day (2015)
2	Design Speed	80km/h	7	Initial Project Cost	USD 784.14 million
3	Beginning Point	Tram 2, Thu Duc Dist. (at Hanoi Highway)		Section 1	USD 233.83 million
4	End Point	Tan Tao , Tan Binh Dist. (Tan Tao-Cho Dem Road)		Section 2	USD 320.52 million
5	Road Length	30.4km	Section 3	USD 229.79 million	
	Section 1	8.45km			
	Section 2	12.65km			
	Section 3	9.30km			

Source: JICA Study Team



Source: CLCIPM

Figure 6-10 Route Map of HCMC Viaduct Highway No.5

6.4.2 Water Supply

(1) Sector Overview

a) Service coverage

The report by Ministry of Construction (MOC) in 2016⁴⁶ indicated that 83.5% of urban residents in Vietnam have access to clean water by centralized water supply systems. The target of the Vietnamese government is that 100% of urban residents can access clean water by 2025. While the rate of urban residents who can access to clean water is quite high, the accessibility to clean water is still limited in rural areas. According to the report of Ministry of Agriculture and Rural Development (MARD)⁴⁷, only 42% of rural residents can access clean water that meets requirements of the regulation of Ministry of Health (MOH)⁴⁸. The government targets that by 2020, 60% of all rural inhabitants will be

⁴⁶ MOC report "Review of the MOC's performance in 2016 and deployment of tasks set for 2017" dated 6th Jan 2017.

⁴⁷ MARD report 3051/BC-BNN-TCTL "Results-Based Rural Water Supply and Sanitation under the National Target Program Project in 2015" dated 15th April 2016.

⁴⁸ MOH regulation QCVN 02/2009/BYT "National technical regulation on domestic water quality" dated 17th

able to access to clean water sources; and 100% will be supplied with hygienic water sources but with lower quality than the MOH requirements.

b) Institutional Setup⁴⁹

Institutional setup and roles and functions of related organizations in the urban and rural water supply sectors are summarized in Table 6-20.

Urban Water Supply

MOC's roles as the line ministry responsible to the sector is limited to policy making and regulatory functions. Currently MOC has not established or implemented national programs to support development of urban water supply facilities all over the country. Normally, development of urban water supply facilities is responsibility of the Provincial People's Committees (PPCs) represented by Department of Construction (DOC)⁵⁰. State-owned, Joint Stock or Private Water Supply Companies (WSCs) are responsible to the daily management and operation of water facilities. Mostly state-owned, WSCs are enterprises with legally independent status and many are combined water and drainage companies. While State WSCs are officially independent, in practice they are subject to the authority of the PPCs, which control not only tariff levels but also investment decisions and senior staff appointments. A national policy initiative that has affected a range of public service providers including water utilities is referred to as "equitization", meaning that the conversion of a state-owned company into a public limited company or corporation. This policy was first introduced to State WSCs in 2002 and is still ongoing. As a result, 23 Joint Stock WSCs have been formed with PPC's majority shareholding and private investment as of December 2014. Private WSCs are often formed as special purpose companies (SPCs) with private investment to construct and operate WTPs on a PPP or supply bulk water to State WSCs that manages distribution networks.

Generally, it is required to follow the process of Law on Public Investment to implement a water supply project. First, an ASA is required to submit a project proposal to PPC, then PPC will require Department of Planning and Investment (DPI) to assess the proposal before the final decision is made. If it is a project with large budget, it will be submitted to Ministry of Planning and Investment (MPI) upon the PPC decision.

Normally, a large-scale urban water supply project such as WTP construction is proposed by DOC. Sometimes DPI or a relevant authority under PPC proposes a water supply project that serves an industrial zone or a new urban development area and acts as the ASA for the project. In addition, WSCs can also propose small-scale water supply projects with their own funding. When implementing interprovincial water supply projects that involve several provinces, MOC directly takes responsibility.

June 2009.

⁴⁹ Description of this section is based on "Law on Public Investment" dated June 2014

⁵⁰ Depending on the PPC, a different department than DOC is responsible to the urban water supply such as Department of Transport (DOT) in Ho Chi Minh PC.

Often in large provinces such as Ho Chi Minh and Hanoi, responsibility of actual implementation of projects is delegated to PMUs under control of DOC. After construction, water supply facilities are normally managed and operated by WSCs. In case of a PPP or private project, a SPC is formed by private sponsors as a WSC to construct, manage and operate the water facilities with private investment and financing; sometimes even a State WSC or a PPC-controlled state-owned enterprise of other sorts (e.g. a local construction company with PPC shareholding) invests in the SPC as well.

Rural Water Supply

In contrast, rural water supply projects are regularly proposed by Department of Agriculture and Rural Development (DARD) of each province. Besides, on the national level, National Centre for Rural Water Supply and Environmental Sanitation (NCERWASS) frequently proposes large-scale water supply projects especially those related to the national programs mentioned in the section below. After construction, water supply facilities are managed and operated by Centre for Rural Water Supply and Environmental Sanitation (CERWASS), Communes, Communities or Private Water Supply companies depending on the facilities and locations.

Table 6-20 Organizations Related to Water Supply Sector

Role	Urban Water Supply	Rural Water Supply
Line ministry/ National regulatory agency	<p>Ministry of Construction (MOC) – Technical Infrastructure Agency</p> <ul style="list-style-type: none"> – Functions <ul style="list-style-type: none"> • Perform the function to advise and assist the Minister on State management and law enforcement in the field of urban infrastructure including urban water supply. • Implement infrastructure programs and projects managed or implemented under MOC’s responsibility. – Main duties related to water supply sector <ul style="list-style-type: none"> • Establish orientations, strategies, programs, national targets on water supply in urban areas. • Establish the regulations, technical norms, national standards, and the economic-technical norm of water supply. • Establish and assessing the water supply planning. Guidance and inspection of the implementation of approved plans. • Guide the application of modeling technology, model management systems of water supply. • Coordinate with the relevant units to method of determining water consumption rates. 	<p>Ministry of Agriculture and Rural Development (MARD) – Directorate of Water Resources, and National Centre for Rural Water Supply and Environmental Sanitation (NCERWASS)</p> <ul style="list-style-type: none"> – Functions of Directorate of Water Resources <ul style="list-style-type: none"> • Governance and law enforcement of irrigation, dikes, disaster prevention and the rural clean water within the country. • Implement the public service activities of irrigation, dikes, disaster prevention and the rural clean water under the provisions of the law – Main duties of Directorate of Water Resources related to water supply sector <ul style="list-style-type: none"> • Guide and examine the planning, construction, management, use and protection of rural water supply works. • Socialization of rural water supply. – Functions of NCERWASS <ul style="list-style-type: none"> • Test the rural water quality and environment. • Consultancy and services for rural water supply and sanitation • Research, apply and transfer water supply technologies – Main duties of NCERWASS related to water supply sector <ul style="list-style-type: none"> • Establish rural water supply strategies and programs. • Establish the regulations, technical norms, national standards for rural water supply • Manage and implement rural water supply projects.
Provincial government	<p>Provincial People’s Committee (PC) – Department of Construction (DOC) (or equivalent department of PC)</p> <ul style="list-style-type: none"> – 63 provinces in total – Functions <ul style="list-style-type: none"> • Assist the PC in implementing central government intervention in the fields of construction, architecture and construction planning, activities related to capital investment, and urban infrastructure. • Operate the duties under the PC’s control regarding organization, personnel and work, and also under the 	<p>Provincial People’s Committee (PC) – Department of Agriculture and Rural Development (DARD)</p> <ul style="list-style-type: none"> – 63 provinces in total – Functions <ul style="list-style-type: none"> • Advising and assisting the PC in implementing central government intervention on agriculture, irrigation and rural development. • Operate the duties under the PC’s control regarding organization, personnel and work, and also under the policy of MARD.

Role	Urban Water Supply	Rural Water Supply
	<p>policy of MOC.</p> <ul style="list-style-type: none"> - Main duties <ul style="list-style-type: none"> • Lead and cooperate with relevant authorities to manage, exploit, and supply technical infrastructure services. • Organize implementation of investment plans, programs and projects; • Guide, inspect and organize implementation of regulations and standards of technical infrastructures. • Give guidance to preparation and management of technical infrastructure service costs. • Carry out tasks in relation to management of investment and construction of infrastructure projects in the province. 	<ul style="list-style-type: none"> - Main duties related to water supply sector <ul style="list-style-type: none"> • Guide and inspect implementation of the rural water supply and sanitation strategy in the province. • Implement approved rural water supply projects.
Ownership/ Management of water supply facilities	<p>State Water Supply Companies (WSC)</p> <ul style="list-style-type: none"> - 51 state-owned companies nationwide - Functions <ul style="list-style-type: none"> • Produce and distribute clean water for domestic, manufacturing and commercial purposes. • Managing water treatment plants and water supply networks <hr/> <p>Joint Stock Water Supply Companies (J.S WSC)</p> <ul style="list-style-type: none"> - 23 Joint Stock Companies nationwide - Jointly owned by State and private - Functions <ul style="list-style-type: none"> • Produce and distribute clean water for domestic, manufacturing and commercial purposes. • Managing water treatment plants and water supply networks <hr/> <p>Private Water Supply Companies (PWSC)</p> <ul style="list-style-type: none"> - 5 companies - Functions <ul style="list-style-type: none"> • Produce in clean water for domestic, manufacturing and commercial purposes. • Manage water treatment plants. • 3 of PWSC operates and manage small scale water supply networks. 	<p>Centre for Rural Water Supply and Environmental Sanitation (CERWASS)</p> <ul style="list-style-type: none"> - 30 CERWSS nationwide <p>Commune</p> <ul style="list-style-type: none"> - Number of commune-based water utilities: No data <p>Community</p> <ul style="list-style-type: none"> - 31 communities <p>Private Water Supply Provider</p> <ul style="list-style-type: none"> - Number of providers: No data <p>Functions of CERWASS, communes, community and private water supply provider are similar.</p> <ul style="list-style-type: none"> • Produce and distributing clean water for domestic purposes in rural areas. • Managing rural water treatment plants and water supply networks.

Source: JICA Study Team based on various sources⁵¹

c) National policies and programs

The government has established the Rural Water Supply and Sanitation Strategy to 2020 in August 2000 with the main target that all rural residents can approach hygienic water sources by 2020. Related to this strategy, the government directly spent up to 7.2 trillion VND (320 million US dollars) during the period from 2012 to 2015 for rural water supply projects. Furthermore, private and public enterprises investing in rural water supply project also get subsidies from local governments by Circular 37/2014/TTLT-BNNPTNT-BTC-BKHĐT (See section (1) 4) below for details).

In contrast, for urban areas, the government has set only the orientation for the development of national urban water supply systems with the target that all urban residents can access clean water by 2025 (Decision 2502/QĐ-TTg issued in 2009 and revised in 2013); but there are no national strategies or programs established to support the development of water supply systems to achieve that target.

⁵¹ (1) MARD report 3051/BC-BNN-TCTL “Results-Based Rural Water Supply and Sanitation under the National Target Program Project in 2015” dated 15th April 2016.
(2) World Bank report “Review of Urban Water and Wastewater Utility Reform and Regulation” dated June 2014

d) Government subsidy for water supply projects

Urban Water Supply

To assist water supply services in urban areas, the government has established a limited number of policies to financially support water supply projects. Water supply projects in urban areas may receive government support mentioned in Decree 117/2007/NĐ-CP and Decree 124/2011/NĐ-CP, i.e. cost for land clearance, concessional credit, lowered interest rates on commercial credit and low land lease fees. However, since there are no clear guidelines or regulations such as Circulars under those Decrees, those supports are applied in ad hoc way among provinces with considerable differences. Moreover, there are no subsidies to directly support the initial investment of the private developers in PPP projects. Sometimes in case of development of a whole water supply system from intake, WTP through distribution facilities, a PPC takes part in to procure goods and services for the construction of WTP as in-kind state contribution to the PPP project.

Rural water supply

Water supply projects in rural areas are receiving more support from the government compared to those of urban areas. Besides the support mentioned above for the urban water supply projects, government subsidies are provided for rural water supply projects as stipulated in the Decision 131/2009/QĐ-TTg and Circular 37/2014/TTLT-BNNPTNT-BTC-BKHĐT. Therefore, it is easier for private enterprises to approach government subsidies in these projects.

The distinct support for rural water supply projects include exemption of land lease fees, reduction of income taxes, and subsidies for capital investment and lowered consumer water tariffs. Normally, land lease fees are exempted for rural water supply projects during their life cycle. Also, financial aid from state budget is provided for capital investment. The government subsidy rates applied to rural water supply projects vary by type of rural area as shown in Table 6-21. In addition, water supply enterprises can tap other funding sources such as concessional credit, external grant aid and equity investment from sponsors.

Table 6-21 Subsidy rates for water supply projects from state budget

Subsidy rate on the total estimate cost	Location of projects
Up to 90%	Very poor communes, ethnic minority and mountain regions, isolated islands and border communes
Up to 75%	Other rural areas
Up to 60%	Delta and coastal areas
Up to 45%	Towns

Source: Joint circular of guideline for implementing the Decision no. 131/2009/QĐ-TTg dated 02/11/2009 regarding a number of investment preference and promotion policies and the management and exploitation of rural clean water supply works. No. 37/2014/TTLT-BNNPTNT-BTC-BKHĐT dated 31/10/2014

(2) Related Regulations and Guidelines

a) Regulations of water supply sector

The Government has established a series of regulations and guidelines for water sector since 1998 when the first Law on Water Resources was issued. There are over 300 regulations and guidelines issued by central and local governments to form water policies. Table 6-22 summarizes the current water sector policies and the related regulations and guidelines.

Table 6-22 Current Water Sector Policies and Related Regulations

Category	No.	Date	Title
Law	17/2012/QH13	June 21, 2012	On water resources
Decree	201/2013/NĐ-CP	November 27, 2013	Detail regulating implementation of some articles of Law on water resources
Decree	59/2011/NĐ-CP	July 18, 2011	Equitization of state-owned enterprises
Decree	117/2007/NĐ-CP	July 11, 2007	Clean water production, supply and consumption
Decree	149/2004/NĐ-CP	July 27, 2004	The issuance of permits for water resource exploration, exploitation and use, or for discharge of waste water into water resource
Decision	2502/QĐ-TTg	December 22, 2016	Ratifying the updated orientation until 2025 for the development of national urban and industrial park water supply systems and Vision 2050 of water supply development
Decision	81/2006/QĐ-TTg	April 14, 2006	The National Strategy on Water Resources to 2020
Decision	104/2000/QĐ-TTg	August 25, 2000	The National Rural Clean Water Supply and Sanitation Strategy to 2020
Circular (MOF)	54/2013/TT-BTC	May 04, 2013	Providing for management, use and exploitation of the concentrated rural clean water supply works
Circular (MOC)	08/2012/TT-BXD	November 21, 2012	Building the implementation of safe water supply
Circular (MOF, MOC, and MARD)	75/2012/TTLT-BTC-BXD-BN NPTNT	May 15, 2012	Guiding principles and method of determination and competence to decide water consumption price in the urban areas, industrial zones and rural areas
Regulation (MOC)	QCVN 07-1:2016/BXD	February 01, 2016	National Technical Regulation - Technical infrastructure works - Water supply”
Regulation (MOH)	QCVN 02/2009/BYT	June 17, 2009	National technical regulation on domestic water quality
Regulation (MOC)	TCXDVN 33-2006	March 17, 2006	Water Supply, Distribution system and Facilities design standard

Source: JICA Study Team based on various sources

b) Water tariff

Principles, determination method and authority on consumer water tariff in urban and rural areas are established by the Circular 75/2012/TTLT-BTC-BXD-BNNPTNT by MOF, MOC and MARD. Each province, according to the Circular, is authorized to determine the water tariff in its jurisdiction following the tariff setting method determined by this Circular and other regulations.

Normally water tariff setting process has two-levels as follows.

Firstly, at the national level, MOF determines the applicable water tariff level in terms of price ranges that every province has to follow. The current applicable water tariff ranges are specified by grade of urban areas in the Circular 88/2012/TT-BTC (See Table 6-23). These price ranges are revised once in

several years through MOF’s assessment on economic and household conditions of urban areas of the country on a spontaneous basis and not on a regular routine basis. The last Circular 88/2012/TT-BTC was issued in May 2012.

Table 6-23 Water tariff range determined by MOF

Grade ⁵²	Minimum price (VND/m ³)	Maximum price (VND/m ³)
Special and Grade 1 urban areas	3,500	18,000
Grade 2 to 5 urban areas	3,000	15,000
Rural areas	2,000	11,000

Source: MOF Circular “Promulgating the price bracket of clean water”, No. 88/2012/TT-BTC dated May 2012

Secondly, at provincial level, actual applicable water tariffs in an individual province are determined by each PPC. In general, WSCs calculate necessary water tariffs based on the Circular 75/2012/TTLT-BTC-BXD-BNNPTNT and submit to DOF of the respective PPC. These water tariffs are calculated to cover WSC’s costs as shown in the formula below.

$$Z_{tb} = \frac{C_t}{SL_{tp}}$$

Where:

Z_{tb} - Average water tariff per cubic meter (VND/m³)

C_t – Total production and business costs per year (VND) including direct material cost, direct labour cost, general production cost, enterprise management cost and sale cost; in which, capital expenditure is included in general production cost.

SL_{tp} – Total quantity of water sales (m³/year)

When receiving WSC proposals, DOF works with DOC and DARD to evaluate the proposed water tariff before it is approved by the PPC. The approved water tariff is applied for most of water supply utilities in the province. A new water supply project can suggest a new water tariff, but it has to be below the effective tariff level approved by the PPC, unless it has another agreement with the PPC before investment.

The provincial water tariff will be reviewed annually based on changes in total water supply cost. If it has any changes, the WSC prepares and submits the new water tariff proposal to DOF. The proposal is reviewed by DOF, DOC and DARD for approval. There is no determined frequency of water tariff revision in most provinces. In practice, it is observed that water tariffs are changed every three to five years.

Although all provinces apply the same water tariff calculation method, water tariffs vary greatly by provinces because of the differences in water production and business costs among provinces as well as each PPC’s tariff decision. Table 6-24 shows the water tariff structure in selected provinces. Water tariffs are based on the customer category and apply block tariff system. There is cross-subsidizing from non-domestic tariff categories with larger consumption.

⁵² Urban areas are graded based on 6 criteria including functions, population, population density, non-agricultural labor, infrastructure facilities, and architecture and landscape. Detail of these criteria are showed in the Decree “The grading of urban centers”, No. 42/2009/ND-CP, dated May 2009.

Table 6-24 Water tariff in selected provinces

Unit: VND/m³

Province (Last Tariff Revision)	Da Nang (2014)	Can Tho (2013)	Vinh Long (2017)	Ha Tinh (2012)	HCM* (2017)	Hanoi (2015)	Dien Bien (2017)
Households							
≤10 m ³	3,810	4,560	7,505	5,035	6,100	5,973	8,400
10 m ³ to 20 m ³	4,571	5,700	7,505	6,365	11,500	7,052	10,500
20 m ³ to 30m ³	4,571	6,365	7,505	8,265	11,500	8,669	12,500
< 30 m ³	5,714	7,315	7,505	9,215	12,900	15,929	26,000
Government agencies	6,476	6,650	8,075	8,740	11,600	9,955	12,600
Public services	6,476	6,650	8,075	8,740	11,600	9,955	12,600
Manufacturing businesses	8,476	7,410	8,550	10,450	10,800	11,615	15,700
Commercial businesses	12,857	9,310	9,310	14,250	19,700	22,068	31,000

Note: Water tariff rates for households in Ho Chi Minh City are converted from the original ones determined by consumption volume per person.

Source: JICA Study Team based on information collected from respective provinces

While government regulations call for cost recovery and the commercialization of water supply service provision, water tariffs remain too low in most provinces to enable financially sustainable service provision in spite of high collection rates and of evidence that consumers are willing to pay more for good water supply services.⁵³ Instead, consumer tariffs are kept at low level by PPCs and cannot generate the necessary reserves for capital investment for rehabilitation and expansion of water supply facilities. According to the World Bank study (2014), while US\$1.04 billion is estimated as required annual investment in urban water supply facilities, actual anticipated investment amounts to only less than US\$200 million annually from both external and domestic sources.

(3) Past PPP Projects and List of Candidate PPP Projects

a) Past PPP projects

Several PPP projects have been implemented in the water supply sector despite underdeveloped supporting mechanism for the private sector participation as reviewed in Section (1) above (Table 6-25). In terms of the project implementation structure, one of the project types identified is a “Water Supply System” project, in which the private operators finance, construct and operate a whole water supply system and collect water tariff from end-users directly. The other PPP projects implemented so far are “Bulk Water Supply” projects, in which the private investors finance, construct and operate a WTP through the SPC. It is noted that most of the projects are implemented through domestic investment by Vietnamese firms, in which a few projects take the form of Joint Stock Company with investment from the State WSC.

⁵³ World Bank (2014) “Water Supply and Sanitation in Vietnam: Turning Finance into Services for the Future”

Table 6-25 Past PPP projects in Water Supply Sector

No	Project	Province	Contract type	Project type	Capacity (m ³ /day)	Construction period	Total investment amount (million USD)	Investors	Status
1	Binh An WTP project	Ho Chi Minh	BOT	(B) Bulk Water Supply	100,000	1992-1999	37.5	A group of 3 companies from Malaysia	Operation
2	Thu Duc WTP project	Ho Chi Minh	BOO	(B) Bulk Water Supply	300,000	1997-2009	94	CII, Manila Water, etc.	Operation
3	Song Da WTP project	Hanoi	BOO	(B) Bulk Water Supply	300,000	2004-2009	80	Vinaconex	Operation
4	Kenh Dong WTP project	Ho Chi Minh	N/A	(B) Bulk Water Supply	200,000	2008-2012	55.5	WACO, CII and HIFU	Operation
5	Cu Chi WTP project	Ho Chi Minh	N/A	(B) Bulk Water Supply	-	2015-2019	194	Saigon Water	Under construction
6	Dong Tam WTP project	Tien Giang	BOO	(B) Bulk Water Supply	90,000	2009-2012	62.2	CII and Tien Giang PC	Operation
7	Red River WTP project	Hanoi	N/A	(B) Bulk Water Supply	300,000	2016-2020	165	Hawaco, Thanh Long and HIICOM	Under construction
8	Duong River WTP project	Hanoi	N/A	(B) Bulk Water Supply	300,000	2017-2018	225	VOI and Hawaco	Under construction
9	Minh Duc Pilot Water Supply Project	Hai Phong	DBL	(A) Water Supply System	9,000	2007-2010	2	Duong Kinh	Operation

Source: JICA Study Team based on various sources

b) Candidate PPP Project List

During the present survey, MPI has provided to the JICA Study Team its national priority PPP projects prepared in June 2016; of which six projects are identified as water supply sector projects (See Table 6-26). MPI has also provided another list of candidate PPP projects extracted from the government's Mid-term Investment Plan (2016-2020) consisting of 342 projects in total, of which nine projects are identified as water supply sector projects⁵⁴; however, since it is learned through further investigation that one of the nine MTIP projects is already completed and in operational stage, the remaining eight projects are listed in Table 6-26. Since the former projects (i.e. the national priority PPP projects) are supposed to be selected from the latter projects (i.e. those extracted from the Mid-term Investment Plan (2016-2020)), only one project from MARD is included in the both lists (See Table 6-26).

⁵⁴ One of the nine water supply projects from the Mid-term Investment Plan has been completed (Bac Ninh City Water Treatment Plant Project) at the time of the present study. Therefore, it is excluded from Table 6-26

Table 6-26 List of Candidate PPP Projects (Water Supply)

Unit: Million VND																	
No.	Project List		Sub-sector	Authorized State Agency (ASA)	Project title	Location	Project type	Contract type	WTP Capacity (m ³ /day)	Total investment	Indicative Viability Gap Funding (VGF) Requirement	State Funding	Project Development Facility (PDF)	Project outline	Project period	Status	Available documents
	List title	No. on the list															
1	NPPP** MTIP**	1-1 178	Rural water supply	Nam Dinh Prov. PC (DARD)	Water Supply System for 10 communes in Yen, Nam Dinh	Y Yen district, Nam Dinh province	(A) Water Supply System	BOT	9,600	251,000	121,000	201,041	2,000	- Building a water supply treatment plant with capacity of 9,600 m ³ /day for 10 communes in Y Yen district, Nam Dinh Province	2016 - 2021	Proposal	Brief proposal with basic information
2	NPPP	XIV-1	Urban water supply	Vinh Phuc Investment Promotion Agency	Duc Bac Water Supply Treatment Plant Project	Song Lo district, Vinh Phuc province	(B) Bulk Water Supply	BOT	150,000	1,389,000	0	0	50,000	- Building a water supply treatment plant with capacity of 150,000 m ³ /day for urban area of Vinh Phuc province - Building a transmission pipeline with 40 km in length and dimension pipes from D600 to D1500	Up to 2020	Proposal	Brief proposal with basic information
3	NPPP	XV-1	Urban water supply	Binh Dinh Prov. PC (DPI)	Water Supply Project for Residential and Industrial Areas	Nhon Hoi Economic Zone, Quy Nhon city, Binh Dinh province	(A) Water Supply System	BOT	100,000	3,000,000	900,000	N/A	5,000	- Building a water supply treatment plant with capacity of 100,000 m ³ /day for industrial and residential areas in Non Hoi economic zone, Binh Dinh province - Building a water supply network	2016 - 2020	Proposal	Brief proposal with basic information
4	NPPP	XVI-1	Urban water supply	Binh Thuan Prov. PC (DPI)	Water Supply System for Industrial and Urban Areas of Son My, Ham Tan	Ham Tan district, Binh Thuan province	(A) Water Supply System	Undefined	90,000	500,000	0	500,000	12,500	- Building a water supply treatment plant with capacity of 90,000 m ³ /day for industrial and residential areas in Son My, Binh Thuan province - Building a water supply network with dimension pipes from D150 to D1200	2016 - 2020	Planning	Decision of Binh Thuan PPC with basic information
5	NPPP	XVIII-1	Urban water supply	Ha Tinh Economic Zone Authority	Vung Ang Economic Zone Water Supply Project	Ky Anh district, Ha Tinh province	(A) Water Supply System	BOT	11,000	224,142	67,243	82,784	21,402	- Building a water supply treatment plant with capacity of 11,000 m ³ /day for Vung Ang economic zone of Ha Tinh province - Building a transmission pipeline and a distribution network with dimension pipes from D110 to D800	2017 - 2018	Proposal	Detailed proposal with a full report including financial analysis
6	NPPP	XX-1	Urban water supply	Nghie An Prov. PC (DPI)	Nghia Dan Water Supply Treatment Plant Construction	Nghia Dan district, Nghe An province	(B) Bulk Water Supply	BOT	30,000	480,000	0	0	40,000	- Building a water supply treatment plant with capacity of 30,000 m ³ /day for Nghia Dan district, Nghe An province	2017 - 2019	Proposal	Decision of Nghe An PPC with basic information
(A) Water Supply System Projects									3,975,142	1,088,243	783,825	40,902					
(B) Bulk Water Supply Projects									1,869,000	0	0	90,000					
Total National Priority Projects									5,844,142	1,088,243	783,825	130,902					
7	MTIP	151	Urban water supply	Bac Ninh Prov. PC (DOC)	Tu Son Town Water Supply Network Expansion	Tu Son town, Bac Ninh province	(C) Distribution Network	BT	N/A	191,820	0	0	0	- Building a new distribution network to provide clean water for 128,000 residents in Tu Son town	N/A	N/A	N/A
8	MTIP	280	Urban water supply	Saigon Water Corporation (SAWACO)	Water Loss Reduction Project in Areas 4, 5, 6	Ho Chi Minh City	(C) Distribution Network	PPP	N/A	750,862	N/A	0	0	- Establish District Metering Areas (DMA) - Establish centers of controlling leak and Non-revenue water - Detecting and amending tanks of DMAs to reduce the tangible loss - Replacing and renovating old pipes	2016-2020	Pending	Decision of HCMC PPC with basic information
9	MTIP	282	Urban water supply	Ho Chi Minh City PC (DOT)	Integrated Exploitation of Water Source of Dau Tieng - Phuoc Hoa Reservoir (Phase 1)	Ho Chi Minh City	(D) Raw Water Transmission	PPP	N/A	2,506,058	N/A	501,212	N/A	- Building raw water transmission pipelines from Dau Tieng - Phuoc Hoa reservoir to Ho Chi Minh city	2016-2020	N/A	N/A
10	MTIP	328	Urban water supply	Binh Phuoc Water Supply and Sewerage Co., Ltd	Binh Phuoc Water Supply Project	Hon Quan and Chon Thanh districts, Binh Phuoc province	(A) Water Supply System	PPP	30,000	1,000,000	N/A	50,000	7,065	- Building a water supply treatment plant with capacity of 30,000 m ³ /day - Building water supply networks for Chon Thanh - Tan Khai township, Binh Long town and industrial parks in Chon Thanh district.	2016-2020	Proposal	Decision of Binh Phuoc PPC with basic information
11	MTIP	331	Urban water supply	Tay Ninh Prov. PC (DPI)	Tan Bien Town Water supply System	Tan Bien district, Tay Ninh province	(C) Distribution Network	BTO	N/A	65,000	N/A	0	N/A	- Building a water supply network to provide clean water for 14,000 residents in Tan Bien town, Tan Bien district, Tay Ninh province.	N/A	Listed on MTIP	Decision of Tay Ninh PPC with basic information
12	MTIP	332	Urban water supply	Tay Ninh Prov. PC (DPI)	Duong Minh Chau Town Water Supply System	Duong Minh Chau district, Tay Ninh province	(C) Distribution Network	BTO	N/A	35,000	N/A	0	N/A	- Building a water supply network to provide clean water for 8,000 residents in Duong Minh Chau town, Duong Minh Chau district, Tay Ninh province.	N/A	Listed on MTIP	Decision of Tay Ninh PPC with basic information
13	MTIP	333	Urban water supply	Tay Ninh Prov. PC (DPI)	Tan Chau Town Water Supply System	Tan Chau district, Tay Ninh Province	(C) Distribution Network	BTO	N/A	30,000	N/A	0	N/A	- Building a water distribution network to provide clean water for 7,200 residents in Tan Chau town, Tan Chau district, Tay Ninh province.	N/A	Listed on MTIP	Decision of Tay Ninh PPC with basic information
(A) Water Supply System Projects									1,000,000	0	50,000	7,065					
(B) Bulk Water Supply Projects									0	0	0	0					
(C) Distribution Network Projects									1,072,682	0	0	0					
(D) Raw Water Transmission Projects									2,506,058	0	501,212	0					
Total Mid-term Investment Plan Projects									4,578,740	0	551,212	7,065					
Grand Total									10,422,882	1,088,243	1,335,037	137,967					

* NPPP: The National special priority PPP projects list by MPI dated June 2016

** MTIP: The expected 5 years (2016-2020) Mid-term Investment Plan of projects in form of PPP by MPI

Source: JICA Study Team based on various sources

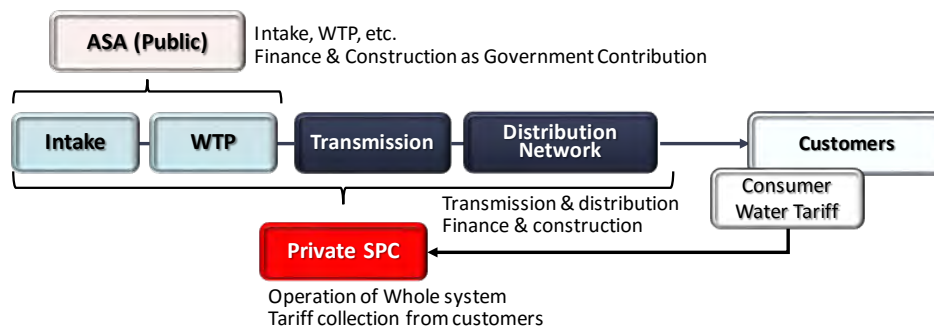
c) PPP Project Types

There are four PPP project types with different project structures identified in the water supply sector.

(i) Water Supply System

In the Water Supply System project, the private operator is responsible to operation of the whole water supply system including distribution to customers besides financing and construction of a significant part of water supply facilities (Figure 6-11). The private SPC collects water tariff from customers directly as main revenue source. Government agency (ASA) typically finances and constructs a part of the water supply system such as WTP as an in-kind government support (which accounts for over 30% of total investment) to offset the viability gap due to the low consumer tariff level determined by the provincial PC.

This project type is typical for the new development areas where there is no existing water supply system such as new urban areas, economic zones, industrial zones, etc.

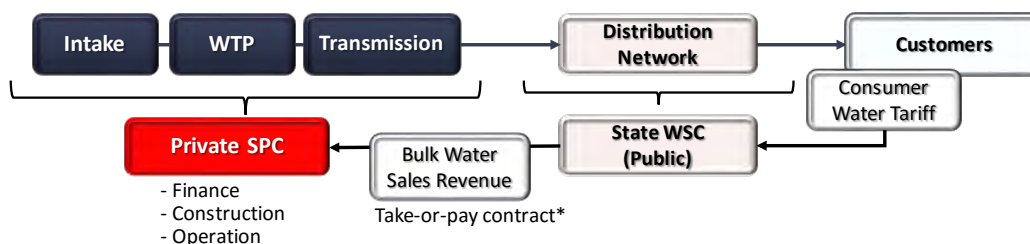


Source: JICA Study Team

Figure 6-11 Water Supply System

(ii) Bulk Water Supply

In the Bulk Water Supply project, the private investor is responsible for the construction and operation of water treatment plant (WTP), etc. and sells bulk water to the public sector WSC for distribution (See Figure 6-12). WSC's payment for the bulk water purchase is typically set on a Take-or-Pay basis with minimum purchase obligation.



Source: JICA Study Team

Figure 6-12 Bulk Water Supply

The following two project types are also envisaged to meet distinctive necessity in recent water supply development identified in the Mid-term Investment Plan.

(iii) Distribution Network

This project type is identified in the Mid-term Investment Plan project list (five projects) and aims at construction and operation of distribution network expansion and rehabilitation by utilizing existing WTP capacity. For example, a brief description of “Water Loss Reduction Project in Areas 4, 5 and 6” is as follows.

In Ho Chi Minh City, distribution networks of the state WSC (Saigon Water Corporation, or SAWACO) have recently been equitized and become eight separate affiliate distribution companies over the period of 2005 to 2014. SAWACO holds over 50% share of these distribution companies along with private investment. While SAWACO’s water production capacity is projected on sufficient level in near future, more investment is needed for the distribution companies’ network expansion and water loss reduction.

In this potential project, investors will invest in a distribution company to implement replacement of deteriorated pipelines, expansion of network, etc. It will raise operational efficiency of WTPs to full capacity (the operational efficiency is now 77% among WTPs of SAWACO’s system) by reducing Non-revenue Water (SAWACO’s NRW rate is now 28.8%) to meet increasing water supply demand in the service area. Now that less than 50% share of SAWACO is expecting Initial Public Offering (IPO) to be listed on the stock exchange, PPP project with VGF support might be possible after SAWACO’s IPO in the near future. Potential PPP project schemes envisaged for this project type are as follows:

- The distribution company of SAWACO and a private company concludes the performance-based contract on the investment in network expansion and NRW reduction in particular areas. The private company invests in the distribution network in accordance with the contract and receives a prescribed share of the increased revenue derived from the improved network on a performance basis.
- A private investor invests in the distribution company SAWACO and acquires stakes through capital increase of the company. With additional debt finance, the distribution company invests in network expansion and NRW reduction.

(iv) Raw Water Transmission

This project type is identified in the Mid-term Investment Plan project list as No.10 “Integrated Exploitation of Water Source of Dau Tieng - Phuoc Hoa Reservoir (Phase 1)”. The project aims at construction and operation of large intake and transmission facilities to serve water treatment demand in Ho Chi Minh City. If implemented as a PPP project, the Availability Payment type contract may be applicable.

(4) Cash Flow Analysis of the Sample Project

a) Selection of Sample Projects

Required VGF amount will be estimated based on the investment amount indicated in the MPI list of national priority PPP projects while the percentage of VGF to initial investment amount has been estimated through cash flow projection of sample projects. Sample projects suitable to the aforementioned two major project type ((A) Water Supply System and (B) Bulk Water Supply) are selected from the list based on the data availability. It is not possible to conduct cash flow analysis for the project types (C) Distribution Network and (D) Raw Water Transmission due to lack of detailed information and data.

(i) Water Supply System: “Vung Ang Economic Zone Water Supply Project”

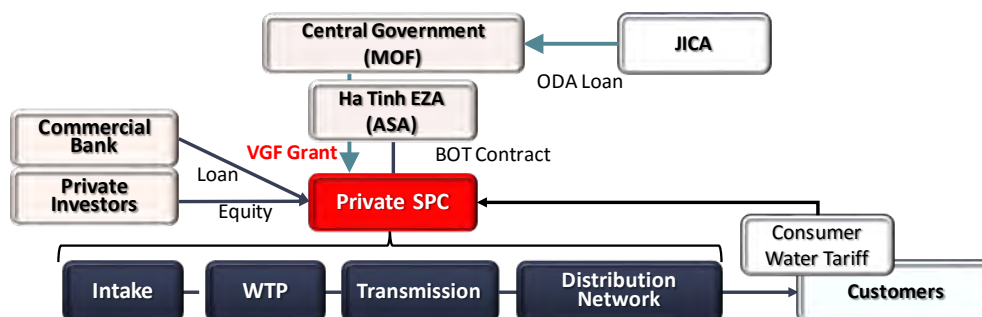
Salient features of the project are summarized in Table 6-27. This project was originally planned by Ha Tinh Economic Zone Authority (EZA) as a public investment project; however, when listed in the MPI PPP list in 2016, it was modified to have (i) government in-kind contribution for WTP construction (36.5% of initial investment), (ii) private investment in the distribution network and (iii) the private operation of the whole system including tariff collection from the customers.

Table 6-27 Vung Ang Economic Zone Water Supply Project

Project Type	(i) Water Supply System
Implementing Agency / Authorized State Agency (ASA)	Ha Tinh Economic Zone Authority (EZA)
Location	Ky Anh District, Ha Tinh Province
Nominal WTP Capacity	11,000 m ³ per day
Contract Type	BOT
Project Outline	Construction and operation of the greenfield water supply system (intake-WTP-transmission-distribution) for the newly developed Economic Zone

Source: JICA Study Team based on information of Ha Tinh Economic Zone Authority

In the present analysis, the project is further modified to accommodate finance, construction and operation of the whole project scope by a private enterprise. In order to reduce the viability gap, VGF support for the private’s initial investment is anticipated (See Figure 6-13).



Source: JICA Study Team

Figure 6-13 Vung Ang Economic Zone Water Supply Project (Water Supply System)

In this way, instead of financing and construction of WTP by a government agency, VGF may decrease the viability gap of the project by directly subsidizing a part of initial investment cost borne by the private investors. Expected merits of the introduction of VGF to this scheme are as follows:

- It ensures integrated design, construction and operation of the whole system by a private entity.
- It avoids a separate public procurement process for the WTP construction.
- It avoids the government agency’s budget preparation for WTP construction.
- It promotes a private entity’s cost reduction by setting VGF requirement as a bid parameter.

(ii) Bulk Water Supply: “Can Tho Water Supply Project” JICA-PPP F/S Project (2013)

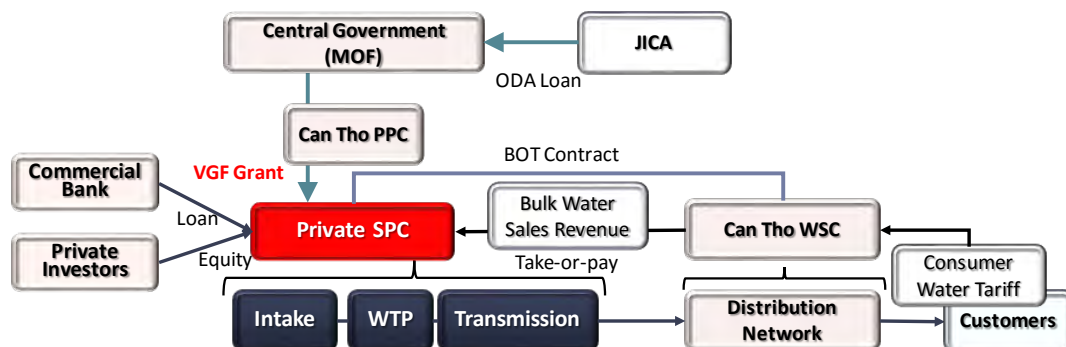
There are no projects listed as “Bulk Water Supply” with detailed information and data enough to conduct cash flow analysis for this project type. Therefore, the present study uses data of the captioned feasibility study for the analysis.

Table 6-28 Can Tho Water Supply Project

Project Type	(ii) Bulk Water Supply
Implementing Agency / Authorized State Agency (ASA)	Can Tho Provincial PC (DPI)
Location	Can Tho Province
Nominal WTP Capacity	45,000 m ³ per day
Contract Type	BOT
Project Outline	Construction and operation of intake, WTP and transmission facilities

Source: JICA Study Team based on JICA PPP-F/S Report (2013)

Figure 6-14 shows the project scheme with VGF support.



Source: JICA Study Team

Figure 6-14 Can Tho Water Supply Project (Bulk Water Supply)

It is noted that past Bulk Water Supply type projects in Vietnam have been implemented without any government subsidy. Salient merits expected by the introduction of VGF to this project type are as follows:

- It reduces the bulk water tariff level to match the consumer water tariff.
- It ensures sound financial status of the State WSC by avoiding the high bulk water tariff.

- It promotes the private’s cost reduction by using VGF as a bid parameter.

b) (i) Water Supply System: “Vung Ang Economic Zone Water Supply Project”

Assumptions

In addition to the general assumptions applied across the five sectors, the basic assumptions applied in the present analysis are summarized in Table 6-29. Required VGF will be calculated as a percentage of initial investment amount necessary to acquire 20% Equity IRR in the Base Case scenario.

Table 6-29 Basic Assumptions (Vung Ang Economic Zone Water Supply Project)

Item	Assumption	Source
Construction period	2 years (2019 – 2020)	JICA Study Team assumption based on Ha Tinh EZA proposal
Operation period	25 years (2021 – 2045)	
Conversion rate of 2015 cost estimates to 2017 prices	1.0269	Average inflation of consumer prices in 2015 and 2016 based on IMF World Economic Outlook Database (Apr 2017)
Physical contingencies for construction cost	10%	Ha Tinh EZA proposal
Capital expenditure disbursement schedule	First year: 40% Second year: 60%	JICA Study Team assumption based on Ha Tinh EZA proposal
Loan conditions	Interest rate Commercial bank loan (Base Case): 10.0% p.a. JICA PSIF loan: 5.0% p.a. Grace period: 2 years Repayment period: 20 years (Refinancing during the repayment period is assumed for the commercial bank loan case)	JICA Study Team assumption
Depreciation	25 years (straight line method) for all capital expenditure	JICA Study assumption
Nominal capacity of WTP	11,000 m ³ per day	Ha Tinh EZA proposal
Effective revenue water rate for revenue calculation	80% of nominal WTP capacity which represents plant efficiency and revenue water	Ha Tinh EZA proposal based on Circular 75/2012/TTLT-BTC-BXD-BNNPTNT (20% loss rate to the WTP nominal capacity is assumed to include production and transmission loss and non-revenue water.)
Water tariff increase	Water tariff is increased by cumulative inflation rate in every 3 years (by 12.49% every 3 years in case of inflation rate of 4% p.a.)	JICA Study Team based on the Ha Tinh EZA proposal

Source: JICA Study Team based on various sources

Cost Estimation

Table 6-30 summarizes the capital expenditure (initial investment amount) to be borne by the private SPC. The original CAPEX estimates in 2015 price is converted to 2017 price by: i) the price conversion rate of 1.0269 and ii) assuming all the CAPEX will be financed and constructed by the private SPC except for the land clearance, and iii) the land clearance and resettlement assistance will remain as the Ha Tinh EZA’s responsibility and be excluded from the private SPC’s CAPEX. Originally, the Ha Tinh EZA was supposed to bear 36.5% of the total CAPEX, but with the VGF support scheme, all the CAPEX (VND 241.196 billion) will be borne by the private SPC.

The estimated WTP construction cost is compared with the that of other past contracts (See Figure 6-15). As a result, the unit WTP cost of the project is approximately on the same level as that of other past contracts in Vietnam; therefore, no adjustment is made in the estimated construction cost. Other components of the project scope such as distribution network was not adjusted due to lack of comparable information from past contracts.

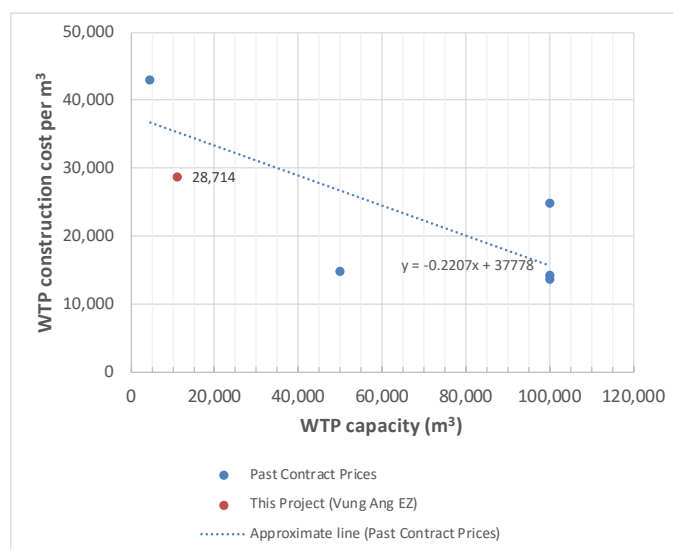
Table 6-30 Capital Expenditure (Vung Ang Economic Zone Water Supply Project)

Unit: million VND

No.	Item	Estimated Cost		Responsible Party ²
		(Original Proposal in 2015) ¹	(Converted to 2017 Prices)	
1	Preparation	12,287	12,618	EZA
2	Design and Supervision	9,665	9,925	
	Design & Supervision	7,378	7,576	Private
	Project management	2,287	2,349	Private
3	Construction Cost	186,426	191,441	
	Land clearance and Resettlement assistance ⁴	1,540	-	EZA
	Water treatment facilities	41,085	42,190	EZA
	Electromechanical works for WTP	18,152	18,640	EZA
	Equipment for WTP	3,153	3,238	EZA
	Transmission pipeline facilities	2,779	2,854	Private
	Mechanical work of transmission pipelines	13,708	14,077	Private
	Distribution network facilities	49,964	51,308	Private
	Mechanical work of distribution network	56,045	57,553	Private
4	Insurance	5,147	5,285	EZA and Private
	Total Base Cost	213,525	219,269	
5	Physical Contingencies (10%) ³	21,353	21,927	EZA and Private
	Total Cost (excl. price contingency)	234,878	241,196	
	Ha Tinh Economic Zone Authority (EZA)	85,780	88,088	36.5%
	Private	149,097	153,108	63.5%

- 1/ All costs except "Preparation" are based on the proposal of Ha Tinh Economic Zone Authority (EZA). "Preparation" cost is based on the MPI document.
 2/ "Responsible party" is based on the MPI document.
 3/ Assumption by JICA Study Team. The original proposal states "10% of design, supervision and constructoin costs" and presents a miscalculated value of VND 22,917 million.
 4/ Land clearance and Re-settlement assistance is assumed to be implemented by EZA with state budget and excluded from the SPC's capital cost estimation.

Source: JICA Study Team based on Ha Tinh EZA proposal



Source: JICA Study Team based on various sources

Figure 6-15 Comparison of WTP Cost of Past Contracts in Vietnam and the Project

The project's operational expenditure (OPEX) estimates are also converted to the 2017 price as per Table 6-31.

Table 6-31 Annual Operational Expenditure (Vung Ang Economic Zone Water Supply Project)

Unit: million VND			
No.	Item	Estimated Cost	
		(Original Proposal in 2015) ^{1/}	(Converted to 2017 Prices)
1	Repair & maintenance	931	956
2	Chemicals	647	664
3	Water quality test	120	123
4	Electricity	2,742	2,816
5	Operation contracting-out	1,870	1,920
6	Management	316	325
Total O&M Cost		6,626	6,804

Source: JICA Study Team based on Ha Tinh EZA proposal

Revenue Projection

The private SPC will directly collect the water tariff from end-users. Consumer tariff is based on the decision of Ha Tinh Province PC (See Table 6-32). Water tariff increase and revenue water amount will follow the assumptions mentioned in the previous section.

Table 6-32 Consumer Water Tariff (Vung Ang Economic Zone Water Supply Project)

Unit: VND/m ³			
No.	Customer Category	Consumption Share	Water Tariff (2017) ^{1/}
1	Households	45%	
	Monthly billed water ≤ 10 m ³	30%	5,200
	Monthly billed water 10 m ³ to 20 m ³	10%	6,600
	Monthly billed water < 30 m ³	5%	8,200
2	Government agencies	5%	9,200
3	Public services	10%	8,200
4	Manufacturing and commercial businesses	40%	11,000
Average water tariff^{2/}		100%	8,310

1/ Water tariffs are assumptions made in the proposal based on Decision 2277/QĐ-UBND dated August 2012 by Ha Tinh PC.

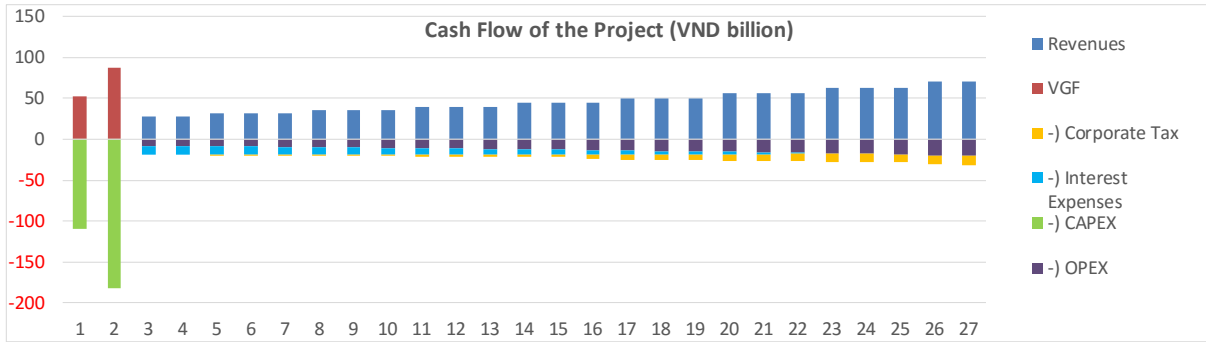
2/ Weighted average based on the consumption shares of customer categories.

The original proposal has a miscalculated average value of VND 8,320/m³.

Source: Ha Tinh PPC decision

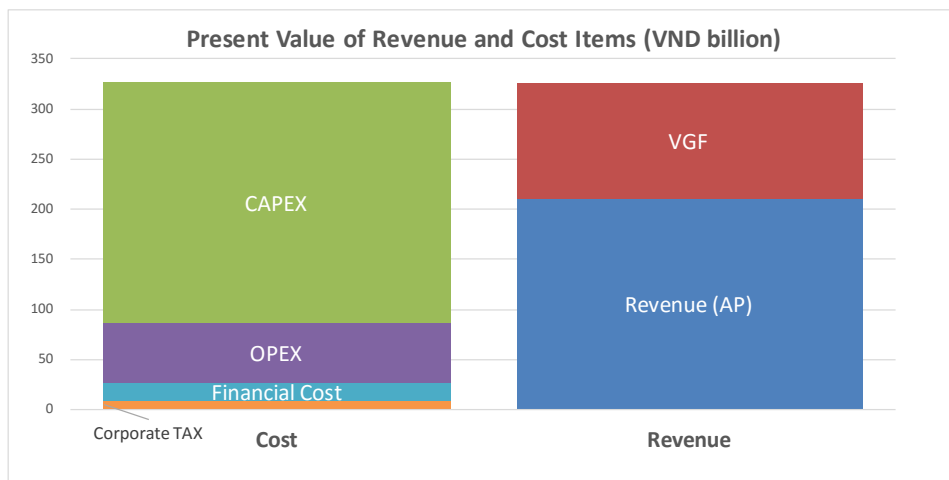
Results of the Analysis

The cash flow projection was prepared based on the aforementioned assumptions and estimation (Figure 6-16 and Figure 6-17). The required VGF to acquire the 20% equity. Equity IRR is calculated as 48.0% of the initial investment cost, or VND 139.77 billion. The project IRR is calculated as 14.6%.



Source: JICA Study Team

Figure 6-16 Cash Flow Projection (Vung Ang Economic Zone Water Supply Project)



Source: JICA Study Team

Figure 6-17 Present Value of Revenue and Cost Items (Vung Ang Economic Zone Water Supply Project)

Sensitivity Analysis

In case that the PSIF loan (5.0% p.a.) is applied to funding of the private SPC instead of the commercial bank loan (10.0% p.a.), the required VGF is reduced from 48.0% (Base Case) to 35.4%, or VND 98.91 billion.

Further, sensitivity analysis on loan interest rates and end-user water tariffs has been carried out (See Table 6-33). As seen in the table below, water tariff increase has significant effect on reducing the required VGF support. In case with 30% water tariff increase and no VGF support, the Equity IRR of the private SPC is estimated as 18.0%, which is still a viable level.

Table 6-33 Sensitivity Analysis (Vung Ang Economic Zone Water Supply Project)

Required VGF % (Equity IRR = 20%)		Loan Interest Rate		
		5.0% p.a. (PSIF Loan)	7.5% p.a.	10.0% p.a. (Base Case)
Average Water Tariff (2017 price)	Base Case (VND 8,310/m ³)	35.4% (PSIF Loan)	42.0%	48.0% (Base Case)
	+ 15% up (VND 10,388/m ³)	21.7%	29.9%	37.1%
	+ 30% up (VND 12,465/m ³)	8.1% (PSIF Loan & 30% Tariff increase) (0% VGF = Equity IRR 18.0%)	17.8%	26.4%

Source: JICA Study Team

Provincial PPCs often faces difficulties when they increase water tariffs, especially those for low-income households. However, 30% tariff increase may be achieved by adopting a steeper block tariff system as shown in Table 6-34 for example.

Table 6-34 Example of Tariff Increase (Vung Ang Economic Zone Water Supply Project)

No.	Customer Category	Consumption Share (Vung Ang EZ Project)	Current Tariff (VND/m ³)	Increased Tariff	Increase %
1	Households	45%			
	Monthly billed water ≤ 10 m ³	30%	5,200	5,200	0%
	Monthly billed water 10 m ³ to 20 m ³	10%	6,600	7,920	20%
	Monthly billed water < 30 m ³	5%	8,200	11,379	39%
2	Government agencies	5%	9,200	12,767	39%
3	Public services	10%	8,200	11,379	39%
4	Manufacturing and commercial businesses	40%	11,000	15,265	39%
	Average water tariff (weighted average)	100%	8,310	10,803	30%

Source: JICA Study Team

c) (ii) Bulk Water Supply: “Can Tho Water Supply Project”

This section is erased as it contains confidential information.

(5) Estimated VGF Amount

Required VGF amount in the water supply sector is estimated from the VGF rates estimated in the cash flow analysis and MPI’s priority PPP project list (See Table 6-36). It is estimated that the required VGF amount is VND 2,575 billion in total (See Table 6-35).

Table 6-35 Estimation of Required VGF Amount in Water Supply Sector

Project Type	Required VGF Estimation		
	Initial Investment Cost (VND million)	Estimated VGF Rate	Estimated Required VGF (VND million)
(A) Water Supply System	3,975,142 (4 projects)	48.0%	1,908,068
(B) Bulk Water Supply	1,869,000 (2 projects)	35.7%	667,233
Total	5,844,142 (6 projects)	-	2,575,301

Source: JICA Study Team

Table 6-36 MPI National Priority PPP Projects

Unit: Million VND

No.	Project List		Sub-sector	Authorized State Agency (ASA)	Project title	Location	Project type	Contract type	WTP Capacity (m ³ /day)	Total investment	Indicative Viability Gap Funding (VGf) Requirement	State Funding	Project Development Facility (PDF)	Project outline	Project period	Status	Available documents			
	List title	No. on the list																		
1	NPPP** MTIP**	I-1 178	Rural water supply	Nam Dinh Prov. PC (DARD)	Water Supply System for 10 communes in Y Yen, Nam Dinh	Y Yen district, Nam Dinh province	(A) Water Supply System	BOT	9,600	251,000	121,000	201,041	2,000	- Building a water supply treatment plant with capacity of 9,600 m ³ /day for 10 communes in Y Yen district, Nam Dinh Province	2016 - 2021	Proposal	Brief proposal with basic information			
2	NPPP	XIV-1	Urban water supply	Vinh Phuc Investment Promotion Agency	Duc Bac Water Supply Treatment Plant Project	Song Lo district, Vinh Phuc province	(B) Bulk Water Supply	BOT	150,000	1,389,000	0	0	50,000	- Building a water supply treatment plant with capacity of 150,000 m ³ /day for urban area of Vinh Phuc province - Building a transmission pipeline with 40 km in length and dimension pipes from D600 to D1500	Up to 2020	Proposal	Brief proposal with basic information			
3	NPPP	XV-1	Urban water supply	Binh Dinh Prov. PC (DPI)	Water Supply Project for Residential and Industrial Areas	Nhon Hoi Economic Zone, Quy Nhon city, Binh Dinh province	(A) Water Supply System	BOT	100,000	3,000,000	900,000	N/A	5,000	- Building a water supply treatment plant with capacity of 100,000 m ³ /day for industrial and residential areas in Nhon Hoi economic zone, Binh Dinh province - Building a water supply network	2016 - 2020	Proposal	Brief proposal with basic information			
4	NPPP	XVI-1	Urban water supply	Binh Thuan Prov. PC (DPI)	Water Supply System for Industrial and Urban Areas of Son My, Ham Tan	Ham Tan district, Binh Thuan province	(A) Water Supply System	Undefined	90,000	500,000	0	500,000	12,500	- Building a water supply treatment plant with capacity of 90,000 m ³ /day for industrial and residential areas in Son My, Binh Thuan province - Building a water supply network with dimension pipes from D150 to D1200	2016 - 2020	Planning	Decision of Binh Thuan PPC with basic information			
5	NPPP	XVIII-1	Urban water supply	Ha Tinh Economic Zone Authority	Vung Ang Economic Zone Water Supply Project	Ky Anh district, Ha Tinh province	(A) Water Supply System	BOT	11,000	224,142	67,243	82,784	21,402	- Building a water supply treatment plant with capacity of 11,000 m ³ /day for Vung Ang economic zone of Ha Tinh province - Building a transmission pipeline and a distribution network with dimension pipes from D110 to D800	2017 - 2018	Proposal	Detailed proposal with a full report including financial analysis			
6	NPPP	XX-1	Urban water supply	Nghe An Prov. PC (DPI)	Nghia Dan Water Supply Treatment Plant Construction	Nghia Dan district, Nghe An province	(B) Bulk Water Supply	BOT	30,000	480,000	0	0	40,000	- Building a water supply treatment plant with capacity of 30,000 m ³ /day for Nghia Dan district, Nghe An province	2017 - 2019	Proposal	Decision of Nghe An PPC with basic information			
(A) Water Supply System Projects									3,975,142	1,088,243	783,825	40,902								
(B) Bulk Water Supply Projects									1,869,000	0	0	90,000								
Total National Priority Projects									5,844,142	1,088,243	783,825	130,902								

Source: JICA Study Team based on MPI's National Priority PPP Project List and various information

(6) Interests of Concerned Parties

The following are salient findings obtained during the present study on promotion of PPP projects in the water supply sector utilizing the VGF support scheme:

a) Application of VGF to Water Supply Project Types

(i) Water Supply System

Considering there is an inevitable gap between the project cost of the whole project scope (intake-WTP-transmission-distribution network) and the water tariff revenue determined by the PPC decision, there is a lot of potential needs for VGF support for this project type. There are significant advantages of the VGF scheme which allows integrated design, construction and operation by the private operator over all the project scope, rather than the current separate implementation of project components through public investment (WTP, etc.) and private investment (distribution network, etc.) without the VGF support.

Water Supply System projects with VGF support are suitable to new urban areas such as industrial zones and economic zones being developed across the country. Further market research in those areas is needed to identify potential projects that may attract foreign investors.

(ii) Bulk Water Supply

Considering several Bulk Water Supply projects have actually been implemented without any government subsidy like VGF, it is relatively difficult to find potential projects suitable for the VGF support scheme that attract foreign investors who typically want to import their own electromechanical products while securing their necessary profits and risk coverage, which leads to heavy initial investment cost and high expected bulk water tariff that is not competitive among other existing bulk water projects by domestic investors. The foreign investment projects with VGF in this project type may be suitable if there are special needs for advanced treatment technology, reliable quality management, etc.

b) Concerned Parties

SAWACO (Ho Chi Minh City)

As described in Section (3) above, Ho Chi Minh City's water supply faces low WTP operation efficiency (now its plant efficiency is 77%) and high non-revenue water (now its NRW rate is 28.8%). SAWACO recently focused on investment in the distribution network expansion and water loss reduction of its distribution companies. There may be potential investment opportunity for foreign investors in these works through a performance-based contract. There is a precedent example that Manila Water Company invested USD 15 million in SAWACO's distribution network in 2008.

DOT, DOC, etc. of Provincial PCs

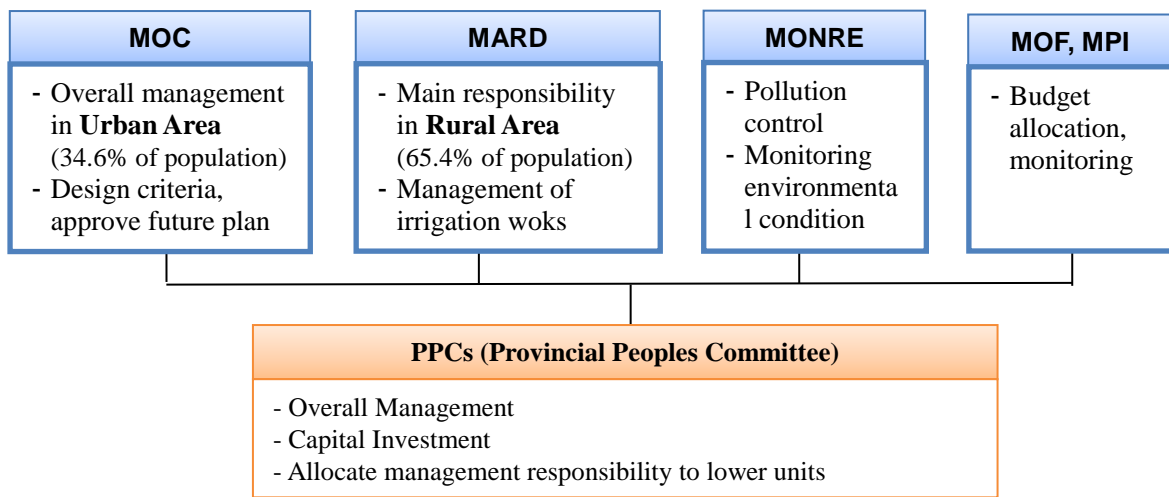
The lengthy procedure required by Decree No.15 is one of the biggest concerns expressed by most ASAs responsible to water supply development like Ho Chi Minh City PC (DOT) and Hanoi PC (DOC) as well as PMU (Ho Chi Minh’s Urban Civil Works Invest Management Authority – UCCI). For the projects with higher priority, they typically opt for the conventional public investment because of its assured budgeting and procurement process. They have also expressed that, since the Bulk Water Supply project type has already been implemented by BOO/BOT contracts without any government support, there will be little possibility for the PCs to consider application of VGF scheme to this project type.

6.4.3 Wastewater

(1) Sector Overview

a) Institutional Setup in Wastewater Sector

Wastewater services are provided by the PPCs. The MOC takes roles of making several criteria and approve future plan in urban area, and rural area is under supervision of MARD including irrigation services. The pollution control and monitoring overall natural resources are managed by MONRE. The allocation of capital investment cost and O&M cost by PPCs are monitored and regulated by MPI and MOF.



Source: Drainage and sewerage, Decree 80/2014/ND-CP dated August 6th, 2014, summarized by JICA Study Team

Figure 6-18 Wastewater Institutions concerned

For construction of the facilities, PPCs mainly design, plan and supervise the works by cooperating with related departments of DOC, DARD and DONRE.

b) Future Development Plan in Wastewater Sector

According to Decision No 589/QD-TTg of 2016, the Prime Minister approved the plan called “revised orientations for water drainage in urban centers and industrial zones until 2025 and vision to 2050”.

The targets until 2025 are as follows:

- 50% of wastewater from urban cities class II (and above) and 20% of wastewater from urban cities class V (and above) will be collected and treated properly before discharged to the environment.
- Urban drainage systems will be expanded to reach the coverage rate of 80%.
- 100% of urban areas will have no flooding in rainy season.

The above decision also described the objectives until 2050. By 2050, all urban dwellers will have drainage and sewerage system. The urban areas will have no flooding and all wastewater will be collected and treated properly before discharged to the environment.

To achieve the mentioned targets, the Government itemized the strategy of the wastewater sector as follows:

- Review, revise and amend policy and organizational structure of drainage and wastewater sector.
- Review, revise and improve drainage and wastewater treatment plans; review or prepare the investment plan.
- Develop drainage and wastewater treatment system.
- Promote drainage projects in form of PPP.
- Promote drainage project in traditional handicraft villages.
- Establish suitable roadmap for drainage tariff.
- Promote socialization⁵⁵ in management and operation of drainage system.
- Promote study on scientific and technological development for drainage and wastewater treatment.
- Develop human capacity of drainage and wastewater treatment.
- Decentralize organization and management of drainage and wastewater treatment from central to local level.
- Promote education and communication on the community.
- Promote international cooperation.

Promotion of PPP, socialization and international cooperation, and tariff increase to fair level has been clearly mentioned in national sector policy.

c) Current Condition of Drainage and Sewerage in Urban Areas

Due to rapid and ongoing urbanization, amount of wastewater from urban areas has greatly increased and the treatment requirement has emerged as a critical issue. According to the report of MOC⁵⁶, the total wastewater treatment capacity is about 890,000 m³/day. The treatment rate is about 12% - 13% of total population. Number of urban centers which have wastewater treatment plants is still low (about 37 wastewater treatment plants). Most of urban areas have applied combined sewer system while some of them have separated sewer system just for new development areas.

The sewerage treatment coverage rate has increased recently, but there are many issues to be solved. In some cities, urban sewer systems have not been developed in systematic way. Many sewers were old

⁵⁵ Socialization is the Vietnamese terminology to utilize private financial resource and knowledge into the public services or public enterprises.

⁵⁶ Drainage and sewerage in Vietnam, orientation and development policy, 2016

and degraded which results in decrease of drainage capacity. Household waste water is pre-treated through septic tanks, but discharged directly into the environment. Many culverts have insufficient drainage sections and become inundated after the heavy rain in many cities.

d) Current Condition of Drainage and Sewerage in Rural Areas

Referring to the national target program on “rural water supply and environmental sanitation” until 2015, the actual situation in rural areas are as follows:

- Rural households having hygienic toilet: 65%.
- Schools having hygienic toilet: 93%
- Medical station having hygienic toilet: 96%.

Due to the shortage of investment capital, most of rural areas prioritize their investments in water supply systems and sanitation facilities. Installation of waste water collection and treatment system is subordinated.

e) Wastewater from Industrial zone

Development of Industrial Zones (IZs) has been a key strategy of industrial development in Vietnam. The MPI is designated as the lead ministry for the development of large scale IZs to attract external and internal investment. As of July 2016, establishment of 316 IZs were approved. Of these, 218 IZs covering around 59,500 hectares have started operations. According to the project appraisal document of the WB No.69888-VN dated 25/9/2012, because of the intense competition among IZs, there is strong pressure to minimize the cost for infrastructure services of IZs, leading to lower the environmental standards. This results in lower design standard and ineffective operation of the plants to reduce the treatment costs.

According to the Decision No 589/QD-TTg in 2016, 100% of wastewater from industrial zones must be collected and treated properly before discharged to urban sewerage system or the environment. However, IZs often discharged untreated wastewater directly to open water.

f) Subsidy Policy in Vietnam

The tariff revenue collected from users is low, and can cover only the limited portion of O&M cost. The remaining cost is basically shouldered by PPCs, funded through both investment and recurrent budgets. It will be a great challenge to prepare and adjust drainage tariff plan suitable for each local government to ensure the sustainable development of drainage systems.

The subsidy of central government has been provided to the wastewater projects through two ways. In urban area, many projects which needs the large investment was implemented by utilizing foreign ODA loan. The loan was repaid back by MOF (partially paid by the PPC under on-lending scheme), and PPC needs to only shoulder the O&M costs of the constructed facilities.

In rural area, there are some purpose specific program called “target programs” which is partly subsidized from central government. The programs are in long-term and granted nationwide for improve a livelihood of local people.

Under the program called “Rural water supply and environmental sanitation (2011-2015)”, 36,760 billion VND was spent in the entire territory of Vietnam. Central government and international banks contributes 10% and 18% of total cost, which was directly spent on the construction of facilities. During 2016 to 2020, the target program of “New Rural Development” includes wastewater sector components. The composition of funding source of program is estimated as 30% from national subsidy (24% of subsidy, 6% of ODA loan), 45% from commercial loan, 15% from private capital (enterprises, corporative, etc.) and 10% from community.

According to the Decision No 1600 / QĐ-TTg dated 16/8/2016, in general, there are some specific targets for New Rural Development Program as follow:

- Enhance the livelihood by improving transportation, electricity, water supply, schools and communal health care centers.
- Improve the quality of life of rural residents. Create more production models associated with stable employment for people. Increase income at least 1.8 times compared with 2015.

In particular, under the program, several targets related to wastewater sector as follows:

- 70% of communes will meet the environmental criteria No.17⁵⁷ stipulated in the Decree;
- 75% of rural households will have hygienic toilet;
- 100% of schools and communal medical stations will hygienic toilet which is well managed and operated.

The breakdown of the program is not clear, and the allocated budget for wastewater sector could not be separated.

(2) Related Regulations and Guidelines

There are two main legal regulations related to the tariff setting for wastewater. The one is Circular issued by MOC in 2015 regulating “wastewater tariff” discharged to the sewerage treatment system, and the other is the Government Decree in 2016 regulating “environmental protection fee” for wastewater discharged to the environment. Under the current regulation, PCs could charge its wastewater tariff by using either “wastewater tariff” or “environmental protection fee”.

- Circular of MOC in 2015

In April 2015, MOC issued Circular No. 02/2015/TT-BXD. This Circular provides guidance on the valuation of wastewater tariff for all types of systems in urban area, industrial and economic zones, etc. Wastewater tariff is recommended to at least cover the average wastewater treatment cost and marginal profit (determined by each local government), adjusted with coefficient based on the pollution level

⁵⁷ Target of public services where the environmental aspects are considered for water supply, drainage, industrial wastewater, and solid waste management services are stipulated depending on provinces.

(determined by COD value). It means the tariff level is set to cover at least the O&M cost. If the tariff revenue is not enough to pay for the O&M cost, the deficit is paid by the budget of local governments.

- Government Decree in 2016

On November 16th 2016, the Government issued Decree No. 154/2016/ND-CP on environmental protection fee for wastewater. This Decree provides separate guidelines for charging domestic and industrial wastewater. Domestic wastewater fee is 10% of water charge. Industrial wastewater fee is determined by amount of discharged wastewater and pollution index levels.

Generally, the implementation of the wastewater services costs at the same level of water supply service. Therefore, the tariff level proposed by this decree (10% of water tariff) for household is quite low, and the setting method contradicts the before mentioned MOC Circular rule.

- Wastewater Charge Level

Before Circular No. 02/2015/TT-BXD, some local authorities issued decisions to collect the “environmental protection fee” which corresponds to 10% of water charge (Ha Noi, Ho Chi Minh city) or “wastewater tariff” based on O&M cost (Bac Ninh city). After Circular No. 02/2015/TT-BXD and Decree No. 154/2016/ND-CP, the wastewater charge rates of several provinces have been re-calculated to achieve the appropriate tariff level. The current drainage tariff level of household users is ranging from 429 to 2,600 VND per m³ as shown in the Table below.

The affordability to pay of the users is estimated around 1.5% to 2.0% of total income by several donor agencies. According to the statistics office of Vietnam, the average annual income per person is 48.6 million VND in 2016. Under the assumption that the daily water consumption is 200 litres per person, and the affordability to pay of users are 1.5% of their income, the maximum wastewater tariff is calculated at 9,986 VND/m³. There is a wide gap between the affordable level of users and the current tariff level.

To operate and sustain the wastewater services, the study team recommend to follow the methodology of the MOC Circular in 2015, under which the tariff level is expected to cover the O&M cost of the services, taking account of the affordability to pay of uses.

Table 6-37 Examples of Wastewater Tariff in Viet Nam

No	Province	User	Tariff / Fee (VND/m3)	Note
1	Ha Noi	All user	10% of selling price of fresh water	Environmental protection fee
2	HCM city	All user	10% of selling price of fresh water	Environmental protection fee
3	Hai Phong	All user	20% of selling price of fresh water	Wastewater Tariff
4	Da Nang	Household	580 - 849	Wastewater Tariff
		State agency	956	
		Production unit outside of industrial zone	2,324	
		Trade & Service Unit	3,503	
5	Bac Ninh	Household	1,500	Wastewater Tariff
		State agency	1,500	
		Production unit	3,000	
		Trade & Service Unit	2,300	
6	Soc Trang	Household	2,600	Wastewater Tariff
		State agency	2,600	
		Production unit	5,200	
		Trade & Service Unit	3,900	
7	Quy Nhon	Household	1,650	Wastewater Tariff
		State agency	3,750	
		Production unit	5,500	
		Trade & Service Unit	6,600	
8	An Giang	Household	429 - 876	Wastewater Tariff
		State agency	638	
		Production unit	800	
		Trade & Service Unit	1,048	
9	Hoa Binh	Household	960	Wastewater Tariff
		State agency	1,200	
		Production unit	1,440	
		Trade & Service Unit	1,680	
10	Bac Lieu	All user	10% of selling price of fresh water. (average water supply charge is 7,500 VBND/m3)	Environmental protection fee

Source: JICA Study Team

(3) Past PPP Projects and List of Candidate PPP Projects in the Sector

The record of PPP project is not officially published in Vietnam. In the PPI (Private Participation in Infrastructure) data provided by World Bank⁵⁸, there is no wastewater sector project listed in Vietnam. According to “Current Conditions of Wastewater Services in Vietnam (JICA expert, Mr. Wako, 2017)”, there are several PPP projects implemented in Vietnam by BT or BOT schemes as shown in Table 6-38.

⁵⁸ PPI database, World Bank (<https://ppi.worldbank.org/>)

Table 6-38 Past PPP projects in wastewater sector

Name of project	Province	Capacity (m3/day)	Scheme	Investor	Note
1. Yen So WWTP	Hanoi	200,000	BT	Gamuda Land Vietnam* ¹ , Gamuda Berhad* ²	start operation in 2013
2. Ho Tay WWTP	Hanoi	22,800	BTO	Phu Dien* ³ , SFC* ⁴	-
3. Tu Son WWTP	Bac Ninh	33,000	BT	Phu Dien, SFC	-
4. Tham Luong – Ben Cat WWTP	HCM	300,000	BT	Phu Dien, SFC	-
5. Suoi Nhum WWTP	HCM	65,000	BT	Phu Dien, SFC	approved in 2008

*¹ Gamuda Land Vietnam, subsidiary of Gamuda Berhad, property company

*² Gamuda Berhad, Malaysian construction and engineering company

*³ Phu Dien Construction Investment and Trading JSC, Vietnamese construction company

*⁴ SFC Vietnam Investment Development for Environment Corp., worldwide (India, Austria, etc.) engineering company

Note: There would be other PPP projects implemented in Vietnam.

Source: Current Conditions of Wastewater Services in Vietnam, JICA expert Mr. Wako, 2017

As it became clear from the table above, almost all past PPP projects are implemented by BT scheme. The construction of new WWTP is a main purpose of the project. The contracts are dominated by few investors originated from Vietnam, Malaysia and others. Furthermore, the operation works of WWTPs are commonly outsourced to public organizations or private companies through open bid or direct appointment.

(4) Candidate PPP projects in wastewater sector

MPI has published a list of priority PPP projects between 2016 and 2020. There are 5 wastewater projects for investment. The outline of listed project is summarized below based on the information collected from each ASA.

Table 6-39 Priority PPP projects in wastewater sector

No	Project Name	ASA	Component	CAPEX (mil VND)		OPEX (mil VND/year)	
				WWTP	Pipeline	WWTP	Pipeline
1	Waste water treatment project in Hoa Khanh industrial zone	Da Nang PC	- WWTP (Chemical + Biological, 5,000 m3/day, expansion) - Pipeline (7.5km)	39,367	77,688	3,936	777
2	Investment on constructing waste water treatment and drainage system in De Tham, Cao Bang city	Cao Bang PC	- WWTP (AAO-MBBR, 8,000 m3/day, new) - Pipeline (45km)	935,000		935	
3	Waste water collection and treatment for Quang Ngai city	Quang Ngai PC	- WWTP (not indicated, 16,500 m3/day, new) - Pipeline (4.5km)	600,000		n.a.	
4	Waste water treatment system for Nghi Son economics zone	Thanh Hoa PC	- WWTP (Activated Sludge, 69,500 m3/day, new) - Pipeline (75km)	1,792,994		n.a.	
5	Investment on waste water treatment company for Bac Lieu city	Bac Lieu PC	- WWTP (SBR, 45,000 m3/day, new) - Pipeline (15km)	554,973		1,866	

AAO-MBBR: Anaerobic – Anoxic – Oxidic - Moving Bed Biofilm Reactor

SBR: Sequence Batch Reactor

Source: MPI Priority PPP Project List, integrated by JICA Study Team

The reliability of cost estimate seems low especially for O&M cost, as it is lower than actual data collected by the Hanoi and other PCs in the past. Further F/S is necessary to proceed to formulate a project through PPP scheme.

(5) Cash Flow Analysis of the Sample Project

a) Selection of Sample Project

In order to analyze necessary VGF amount, JICA Study Team selected “Investment on waste water treatment company for Bac Lieu city” as a sample project (hereinafter the Project). The project size of Bac Lieu project is at an average size of the projects in priority PPP projects list, which is 45,000 m3/day of WWTP and 15km of installed pipeline length.

b) Project Scheme

The typical BOT (Build-Own-Transfer) scheme of WWTP is adopted for the analysis. Under this scheme, a private entity constructs, owns and operates the WWTP during a contract period to recover the initial construction cost. The contract period is 23 years in total including 3 years of construction period and 20 years of O&M period. The VGF is granted to the SPC to compensate the part of initial construction cost. The remaining cost which has not been covered by the VGF is financed through equity and loan divided by 30% and 70% respectively.

Under the current condition, the wastewater tariff level is set far below the full cost recovery level, and the revenue amount is lower than the O&M cost. Therefore, the PPP scheme which the SPC rely only on tariff directly collected from the users cannot become financially feasible. Also the SPC does not take a risk related to tariff setting. For those reasons, the private entity expects to receive the revenue as Availability Payment (AP),

which is paid from the Bac Lieu PC to SPC at stable rate during the O&M period.
 General assumptions of the calculation are explained in the previous Section 6.3.1.

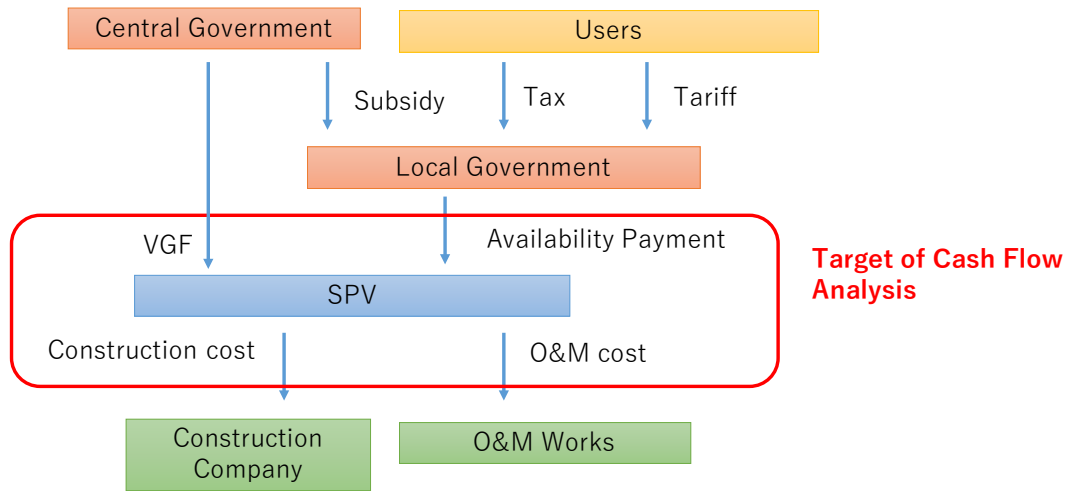
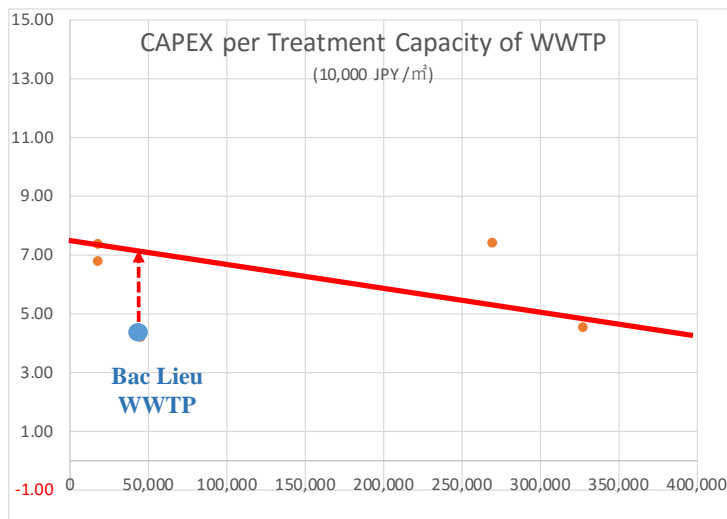


Figure 6-19 Outline of Cash Flow of the Project

c) Cost Estimation

The collected cost estimate data provided from the Bac Lieu PC was reviewed by the study team. Firstly, the effect of inflation for 5 years which is 17.3% increase, is added on the initial construction cost to reflect the inflation after 2012 when the cost was estimated. The unit cost of the WWTP is compared with those of past ODA loan projects in Vietnam (see Figure 6-20), and the cost estimate of WWTP was increased by 1.707 times. The cost of pipe network is retained at the original level as detail information of pipe diameter and pipe type are not available.



Source: JICA Study Team

Figure 6-20 Comparison of Unit Costs of WWTP among Sample Project and Past ODA Projects

The construction period is assumed for 3 years, and disbursement is scheduled as shown in the Table

6-40.

Table 6-40 Disbursement Schedule of the Initial Construction Cost

Year	Unit	1	2	3
Initial Cost	billion VND	238	475	238
WWTP	billion VND	181	361	181
Pipe Network	billion VND	57	114	57
<i>% of initial CAPEX</i>		<i>25%</i>	<i>50%</i>	<i>25%</i>

Source: Feasibility Study of Bac Lieu PC, adjusted by JICA Study Team

The O&M cost of the WWTP is estimated at 3,000 VND/m³ taking into consideration of those of Hanoi and other cities provided by the experts. Major rehabilitation cost is not added as assuming the mentioned O&M includes the cost for replacement of equipment.

d) Revenue Projection

The users pay wastewater tariff to Bac Lieu PC, which is 10% of water supply charge.

The revenue of the SPC is only the Availability Payment provided by the Bac Lieu PC. The AP rate is assumed to be determined at the signing of contract between Bac Lieu PC and contractor, and the inflation rate is reflected on the original AP rate. Inflation is assumed at 4.0% per year for the calculation.

e) Result of the Analysis

Under the current PPP framework in Vietnam, there is no limit on the maximum rate of VGF.

Therefore, it is legally allowed that the percentage of VGF is beyond total CAPEX, even becomes 100%.

For base case analysis, the Availability Payment price is presumed at 5,000 VND/m³, taking account of the past outsourcing price of WWTPs in Hanoi (4,000 - 6,000 VND/m³ for similar scale WWTPs such as Bay Mauo and Bac Thang Long) and affordability to pay of the users which is 9,986 VND/m³ at maximum.

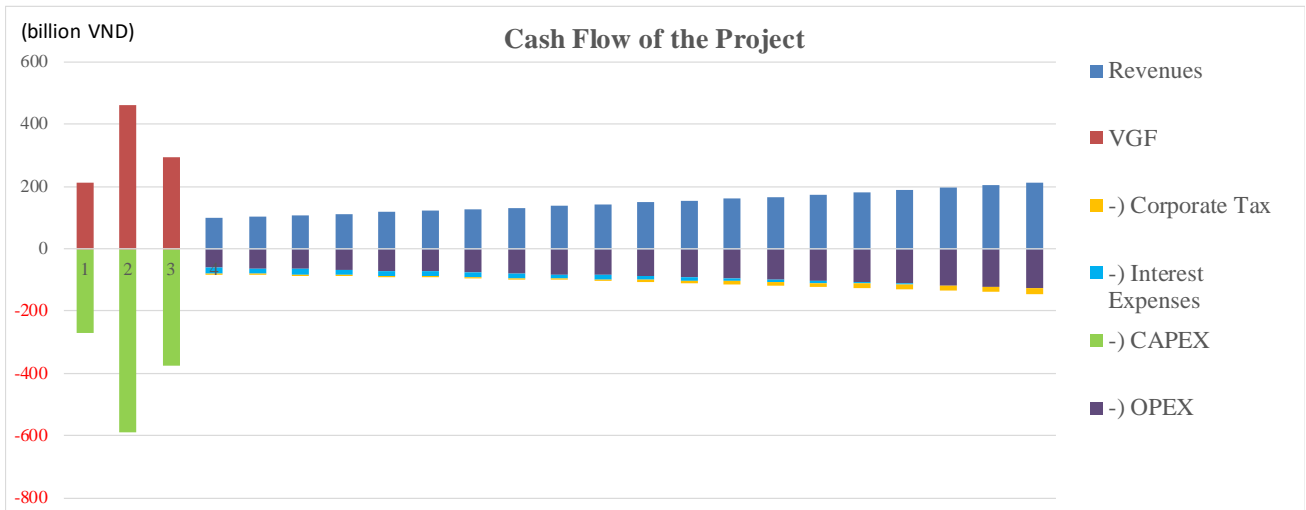
As multiplying the treatment amount, 45,000 m³/day, on the projected AP price, the annual revenue amount is 82.1 billion VND at 2017 price. Under such assumption, to achieve the appropriate financial feasibility of the Project (Equity IRR: 20%), the necessary VGF out of initial construction cost is calculated at 78.2%.

The trend of revenue and expenditure during a project period is shown in the Figure 6-21.

Table 6-41 Result of Financial Analysis

NPV of total CAPEX	VND 958 billion.
NPV of VGF	VND 750 billion.
VGF ratio	78.2%
AP rate	5,000 VND/m3
Equity IRR	20.0%
Project IRR	14.4%

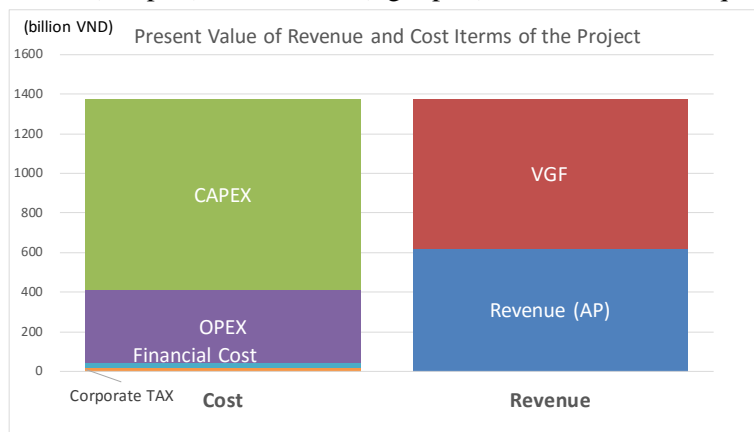
Source: JICA Study Team



Source: JICA Study Team

Figure 6-21 Cash Flow of the Project (VGF:78.2%)

The NPV of the total cost and revenue of the Project during the contract period is compared in the Figure 6-22. The revenue and cost are discounted by the Weighted Average Rate of Return (WACC). Under the above condition, VGF amount corresponds to 78.2% of CAPEX with the AP rate retained at 5,000 VND/m3, the cost (left part) and revenue (right part) amounts become equivalent.



Source: JICA Study Team

Figure 6-22 Net Present Value of Revenue and Cost Items of the Project (VGF: 78.2%)

Sensitivity Analysis

In case, the lender of the loan is assumed to be the JICA PSIF loan (Option2), instead of borrowing

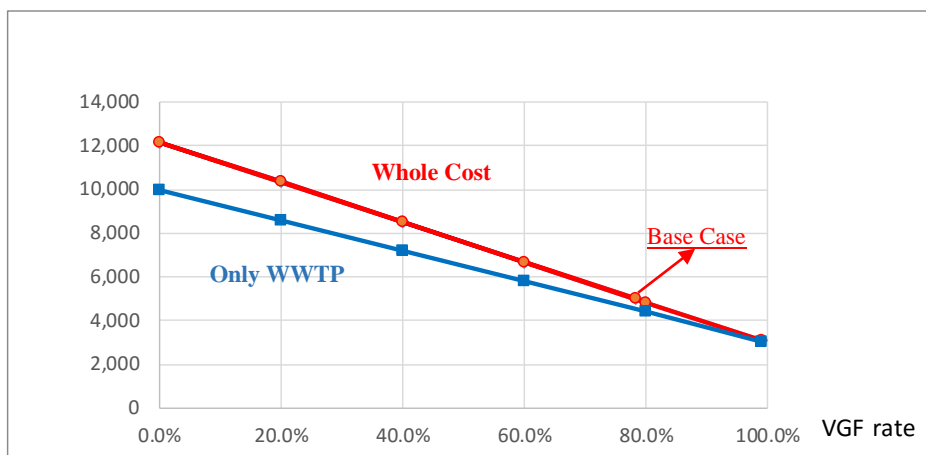
from domestic banks (Option1), the necessary VGF ratio becomes 73.0% (Option2) from 78.2% (Option1).

To know the impact of VGF ratio and AP rate, several VGF amount cases from 0% to 99% are calculated. The analyses are conducted for both cases of including whole cost of WWTP and pipe network, and only the cost of WWTP. Necessary AP rate under each VGF ratio becomes as shown in Table 6-42 and Figure 6-23. As it is clearly seen, the granted VGF amount and revenue of AP offset each other.

Table 6-42 Result of Financial Analysis

VGF ratio	78.2% (base)	0%	20%	40%	60%	80%	99%
NPV of total CAPEX (billion VND)	950 (whole project)						
AP rate (VND/m3)	5,000	12,173	10,338	8,504	6,669	4,835	3,092
NPV of total CAPEX (billion VND)	722 (only WWTP cost)						
AP rate (VND/m3)	-	9,961	8,579	7,183	5,789	4,397	3,070
Equity IRR	20.0%						

Source: JICA Study Team



Source: JICA Study Team

Figure 6-23 Impact of VGF ratio on AP rate

Based on the above calculation, the necessary VGF amount out of total initial construction cost in the wastewater sector is assumed at 78.2%.

Generally, the appropriate percentage of VGF for a wastewater sector project is difficult to determine as there is no global rules or methodology. To determine that percentage, the satisfaction level and willingness to pay of users for public service should be considered, and the burden sharing between central and local government are also an issue to be discussed.

(6) Estimated VGF Amount in the Sector

As mentioned above, the VGF rate is assumed at 78.2% of initial construction cost.

There are 5 projects in a list of priority PPP projects between 2016 to 2020. 1 project in Danang

City (no.1) is excluded from the candidate projects list as the Danang PC informed that the project will be implemented by their own budget.

Multiplying the total investment cost of remaining 4 projects and 78.2% as VGF rate, the necessary VGF amount is estimated at 3.464 trillion VND.

Table 6-43 Priority PPP Project List and Estimated Necessary VGF Amount

No	Project Name	ASA	Total Investment Cost (million VND)	VGF Ratio	Estimated VGF Amount (million VND)
1	Waste water treatment project in Hoa Khanh industrial zone	Da Nang PC	500,000	to be implemented by public budget	0
2	Investment on constructing waste water treatment and drainage system in De Tham, Cao Bang city	Cao Bang PC	998,000	78.2%	780,400
3	waste water collection and treatment for Quang Ngai city	Quang Ngai PC	600,000	78.2%	469,200
4	waste water treatment system for Nghi Son economics zone	Thanh Hoa PC	2,200,000	78.2%	1,720,400
5	investment on waste water treatment company for Bac Lieu city	Bac Lieu PC	632,778	78.2%	494,800
Total			4,930,778		3,464,800

Source: JICA Study Team

(7) Interest of Concerned Parties

During a study, the JICA Study Team visited MPI, MOC and ASAs, to know their views on the PPP projects and VGF mechanism.

The biggest issue we found was that the public officers are persisting on the traditional method for construction of WWTP, financed by either their own budget or ODA loan borrowed from international donors. They believe the administrative process of PPP project is much too complicated and time consuming. Also, they believe that PPP does not fit to the wastewater sector where the tariff level is set quite low thus the provision of service itself is not financially viable.

In Hanoi and HCM, there were several WWTP construction projects implemented by PPP scheme. However, in all cases, BT scheme was adopted, in which the contracts were awarded without open tendering process and the right of development in surrounding area was granted from ASA to SPC as compensation instead of paying AP or construction fee. Under the current regulation, BT scheme is admitted as one of the PPP schemes in Vietnam. However, it is not clear if the VFM is induced by the project as information is not available.

Under the current economic conditions in Vietnam where the urbanization and development are accelerating, the further investment on the wastewater facilities are inevitable to protect the environment and avoid inundation. The following should be conducted to change the perception of officers.

- The importance of increasing tariff to the appropriate level, in compliance with the MOC circular, should be well noticed and tariff increase should be realized in near future. The tariff increase ensures the sustainability of the services and feasibility of PPP projects in the wastewater sector.
- PPP could be a useful tool even in the sector of lower tariff revenue. The VFM (Value for Money), which reduces the Life Cycle Cost of the project, is induced by the effective management of private sector and transparent competitive tendering process. The merit of PPP, especially the VGF, should be well studied and recognized among stakeholders.

6.4.4 Solid Waste

(1) Sector Overview

a) Responsible organizations

Public agencies which are given major authorities regarding waste management are summarized in Table 6-44.

Table 6-44 Governmental Agencies Responsible for Waste Management

National Level Organization	
Ministry of Natural Resources and Environment (MONRE)	- licensing, license extension and retrieval of municipal waste treatment facilities - Management of industrial waste (both hazardous and non-hazardous)
Ministry of Construction (MOC)	- Management of investment for construction of solid waste treatment facilities - Deciding economic and technical norms on collection, transportation and treatment of MSW and capital investment rate of waste treatment projects
Ministry of Industry and Trade (MOIT)	- Monitoring of inventory of industrial waste at generation sources
Ministry of Science and Technology	- Verification and authorization of new waste treatment technologies which are applied for the first time in Vietnam
Provincial Level Organization	
People's Committee (PC)	- Implementation of state management regulations on environmental protection in respective localities - Approval of waste management master plan - Provision of guidance and consultancy for proper waste management facilities in terms of design, construction, and monitoring - Investment in and subsidization for solid waste management facilities - Determining tariff rate for municipal waste collection and treatment
Department of Construction (DOC)	- Development of waste management master plan - Construction supervision of waste management facilities
Department of Natural resource and Environment (DONRE)	- Monitoring environmental quality, managing and implementing waste management policies and regulations issued by MONRE and PC - Appraising EIAs for waste treatment projects - Coordination with DOC and URENCO in considering and choosing candidate landfill sites and its reporting to PC
Department of Planning and Architecture (Hanoi and Ho Chi Minh city only)	- Development of waste management master plan, together with DOC
Urban Environment Company (URENCO)	- Waste collection, transportation and treatment in provinces and cities

Source: JICA Study Team

b) Waste management situation

The statistical data by MONRE, total volume of municipal solid waste generated in Vietnam was about 23 million tons in 2014, or about 63,000 tons/day. Out of this, domestic waste from urban⁵⁹ areas was about 32,000 tons/day and from rural⁶⁰ areas was about 31,000 tons/day. Especially, municipal solid waste generated in Hanoi was about 6,420 tons/day and Ho Chi Minh city is 6,739 tons/day. Waste generation per capita in big or tourism cities tends to be higher than smaller cities. For example, Ha Long city, Hanoi, and Ho Chi Minh have municipal solid waste per capita of 1.38, 0.98, and 0.9 kg/person/day respectively. The average waste collection rate in urban areas in the period from 2013 to 2014 was about 85%. The same rate in suburban area was about 60%, and the one in rural areas was even low, at around 40 to 55%. In remote⁶¹ areas, the rate was only about 10%. There are more than 50 domestic incinerators and 458 landfills nationwide.

c) Subsidy for waste management sector

Investment for municipal waste management facilities is the responsibility of local governments. Therefore financing such capital investment is done by local governments, using their revenues and on-lent funds from the central government. The private sector is allowed to invest in the municipal waste management if the local government approves its investment plan. Basically there is no subsidy in the form of grant, from the central government to the local governments, or from the central government to the private sector that invests in waste management facilities.

Instead of subsidy, there are incentives and assistances for capital investment made by the private sector. The Decree 19/2015/ND-CP stipulates incentives applicable for investment in efficient waste treatment facilities. Such incentives include: (i) assistance in compensation of land acquisition or land rental, (ii) provision of loan with preferential interest rate, and (iii) preferential income and trade tax rates.

In terms of the source of the subsidy from the central government, the government revenues do not suffice to cover all the needs. To fill the gap, the Government of Vietnam receives ODA (official development aid) from international donors.

Regarding O&M of waste management, the central government's policy in cost recovery is that users shall pay the full cost of service. But in reality, the revenue from the waste treatment fees are not sufficient to cover the O&M costs. For example, in a typical URENCO, about a half of revenue comes from direct collection of solid waste management service fees from various sources of waste

⁵⁹ Urban area includes Level 1 cities (Hanoi, Ho Chi Minh, Danang, and Hai Phong), and Level 2 cities (equal to a district. Generally there is one or two level 2 cities per province), and towns. Suburban area is defined as the area surrounding internal urban areas.

⁶⁰ Rural area is a territory which is not in city or town, and managed by the grassroots administrative level such as the commune People's Committee.

⁶¹ Remote area is a territory in mountains and island where 2/3 of land is mountain, slope, or forest land. Such areas have slow socio-economic development, meaning that roads or infrastructures have not yet fully developed. The population density is low and the residents are mainly ethnic minorities.

generation of service areas such as households, business/commercial entities, industrial establishments, and medical facilities, and so forth⁶². The remaining half of the revenue is provided by the local government. Such budgetary allocation is viewed as a subsidy.

(2) Related Regulations and Guidelines

Major laws and regulations which constitute the legislative framework of waste management in Vietnam are summarized in Table 6-45. The fundamental law which governs environmental issues including waste management is Law on Environment Protection 2014 (Law 55/2014/QH13). This law covers general regulations and duties on management of all types of waste such as municipal waste, hazardous waste and non-hazardous solid waste. Responsible authorities are also stipulated. Decree 38/2015/ND-CP guides and explains comprehensively the Law on Environment Protection 2014.

The most important regulations in waste management PPP projects are those related to determination of tipping fee and electricity selling price such as the following:

Decree 38/2015/ND-CP regulates the financial source of each step of waste management like collection, transportation and treatment. Tipping fee determination process and responsible parties are regulated by this decree.

Decision 322/2012/QD-BXD stipulates the capital cost standard and tipping fee for municipal solid waste management according to different technology types and capacities. For example, municipal solid waste tipping fees at six cities (name undisclosed), in case of incineration, incineration + composting, or incineration + landfill, are about US\$11 per ton on average, about US\$21 at the maximum, and about US\$6 at the minimum.⁶³

MOC Circular 07/2017/TT-BXD explains the concrete steps for determination of tipping fee for municipal waste treatment.

Decision No.31/2014/Qd-TTg sets the electricity prices sold to national grid or EVN (Vietnam Electricity). According to this Decision, the price of power generated at waste-to-energy plants has been nationwide fixed at 2,114 VND/kWh and unchanged since 2014.

⁶² “This is based on financial situations of Da Nang URENCO from 2008 to 2013 described in “the Preparatory Survey on Wastewater Management and Solid Waste Management for Da Nang City, Final Report Summary (2014)”.

⁶³ “This is based on the results of questionnaire survey on solid waste management at 19 cities described in “the Project Formulation Survey for Rehabilitation of Municipal Solid Waste Landfills (2014)”.

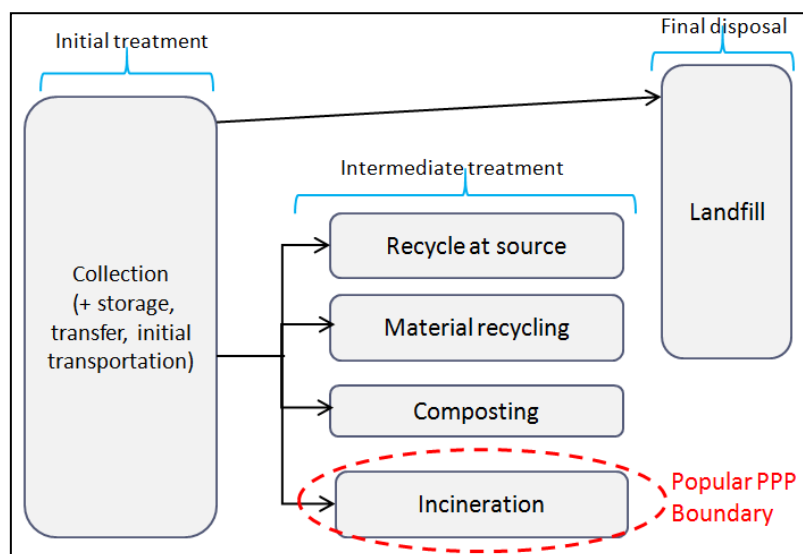
Table 6-45 Relevant Laws and Regulations

Name of law and regulation	Code	Issue date
Law on Environmental Protection 2014	55/2014/QH13	1/01/2015
Decree on waste management	38/2015/ND-CP	24/04/2015
Decision on investment rate in construction and tipping fee of municipal solid waste treatment	322/2012/QĐ-BXD	06/04/2012
Min. of Construction circular on tipping fee determination	07/2017/TT-BXD	15/05/2017
Detailing the Law on Environmental Protection	19/2015/ND-CP	14/02/2015
Prime Minister Decision on electricity price	31/2014/QĐ-TTg	5/05/2014
Environmental protection master plan, strategy environment assessment, environment impact assessment, and environmental protection plan	18/2015/ND-CP	14/02/2015
Government on the sanction of administrative violations in the domain of environmental protection	179/2013/ND-CP	14/11/2013
Solid waste management	59/2007/ND-CP	9/04/2007
Hazardous waste management	36/2015/TT-BTNMT	30/06/2015
Environmental protection in the importing of scrap for use as raw production materials	41/2015/TT-BTNMT	9/09/2015
Regulations on the recall and treatment of discarded products	16/2015/QĐ-TTg,	22/05/2015
Medical waste management	58/2015/TTLT-BYT-BTNMT	31/12/2015
Environmental remediation and restoration in mineral mining activities	38/2015/TT-BTNMT	30/06/2015
Provision of the environmental protection of economic zones, industrial parks, export processing zones and high-tech parks	35/2015/TT-BTNMT	30/06/2015
Regulation of environmental protection projects	26/2015/TT-BTNMT	28/05/2015
Strategic environmental assessment and environmental impact assessment	27/2015/TT-BTNMT	29/05/2015

Source: JICA Study Team

(3) Past PPP Projects and List of Candidate PPP Projects

In Vietnam, waste management has been operated by either public or private sector. When the private sector operates waste management, usually the public sector represented by DOC or DONRE approves the private operation. Generally waste management PPP projects can be formulated by focusing on one of the treatment processes shown in Figure 6-24. Intermediate treatment, especially incineration, is preferred as a likely PPP boundary as it tends to have a large project amount which leads to high possibility of project formulation and bankability. As for the incineration method, the stoker type is preferable as it is easy to introduce. Another technology such as gasification and ash melting furnace would hardly be feasible due to high initial investment cost with low revenue in general.



Source: JICA Study Team

Figure 6-24 PPP Boundary Alternative in the Waste Management Sector

Although a number of waste management facilities of small size were constructed by private sector firms, there have been no sizable PPP projects in the past. Future PPP candidate projects are summarized in Table 6-46. Additional information of each project follows after the table.

Table 6-46 Waste Management PPP Projects

No.	Project	Contract type	Investor	Total investment (Billion VND)	Facility Scope
1	Domestic and industrial waste treatment system for Ha Long city, Hoanh Bo district and Cam Pha city	BLT	INDEVCO	1,302	580 - 860 ton/day
2	Solid waste treatment for Danang city	BOT	Not decided	2,200	1,000 ton/day
3	High tech waste treatment system in Bac Son, Soc Son	BOT or BLT	Not decided	9,000	4,000 ton/day
4	Treatment and removal of Go Cat waste landfill and Dong Thanh landfill (HCM list, VND 1 trillion)	unknown	unknown	unknown	unknown
5	Soc Son Waste Treatment Complex (Hanoi, JICA T/A M/P, F/S) Nam Son	BOT	Not decided	3,217	1,170 ton/day

Source: MPI Priority PPP Projects list, summarized by JICA Study Team

Project 1: This project is included in the Priority PPP Project List. PC Quang Ninh is said to have designated INDEVCO as the private investor. The project is to construct and operate a waste treatment complex to treat waste from Ha Long, Cam Pha city, and Hoanh Bo District. The project has been renamed “solid waste treatment plant combined with high-quality fruits, vegetable product park in Vu Oai and Hoa Binh commune, Hoanh Bo district”. The project site will be 265.5 ha including solid waste treatment plant (900 ton/day capacity). The project cost is currently estimated at 869 billion

VND. EIA has been approved and the construction of the incineration component has been started. Waste will be incinerated in 6 furnaces. Waste-to-energy technology may not be applied.

Project 2: This project is shown in the Priority PPP Project List. It would be located on Khanh Son landfill site in the original plan. However, after PC of Danang conducted an additional study for that project, it chose Hoa Nhon commune (Hoa Vang District, DA Nang city) as a project site. The total project cost may increase to 3,500 billion VND with a facility scope of 1,000 ton/day. PC of Danang is negotiating with ADB (as a consultant) for PDF to proceed to open bid in 2018.

Project 3: This project is shown in the Priority PPP Project list. The project proposal was submitted to MPI in November 2016. But in February 2017, it turned out that another waste-to-energy project proposed by AIC Joint Stock Company at the same project site would have a bigger capacity.

Project 4: This project was shown in a PPP candidate project list provided by DPI of HCM. However, no further detailed information has been provided. Presumably this project is related with landfill project with no incineration component. As our VGF analysis targets for projects of intermediate treatment facility with power generation, this project was dropped from selection.

Project 5: This project is not shown in the Priority PPP Project List. However this is formulated as part of a JICA supported Technical Assistance project and thus its pre-F/S report is available. The project location is the same area as the project 3 and we confirmed that this project was considered as part of the project 3.

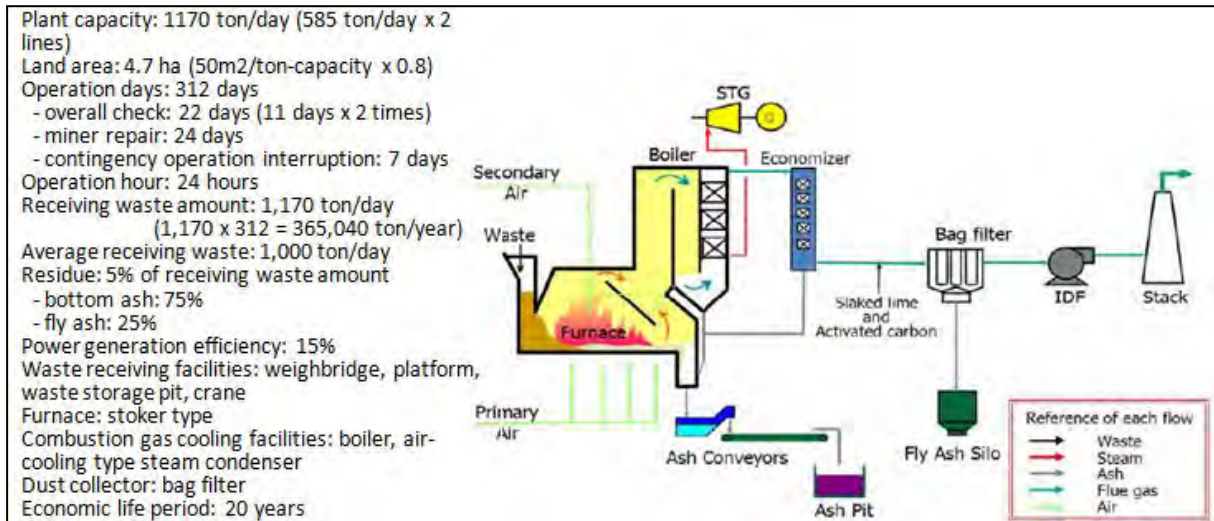
(4) Cash flow Analysis of the Model Project

a) Selection of the Sample Project

Situations of the candidate projects are summarized in Table 6-46 in the previous section. Among those projects, we selected the project 5, and modified it as a sample project for VGF analysis. The sample project is named “Hanoi Soc Son waste-to-energy project”. In this selection, we found that it was rather a quintessential example of intermediate treatment facility with power generation and that its F/S data was conveniently available.

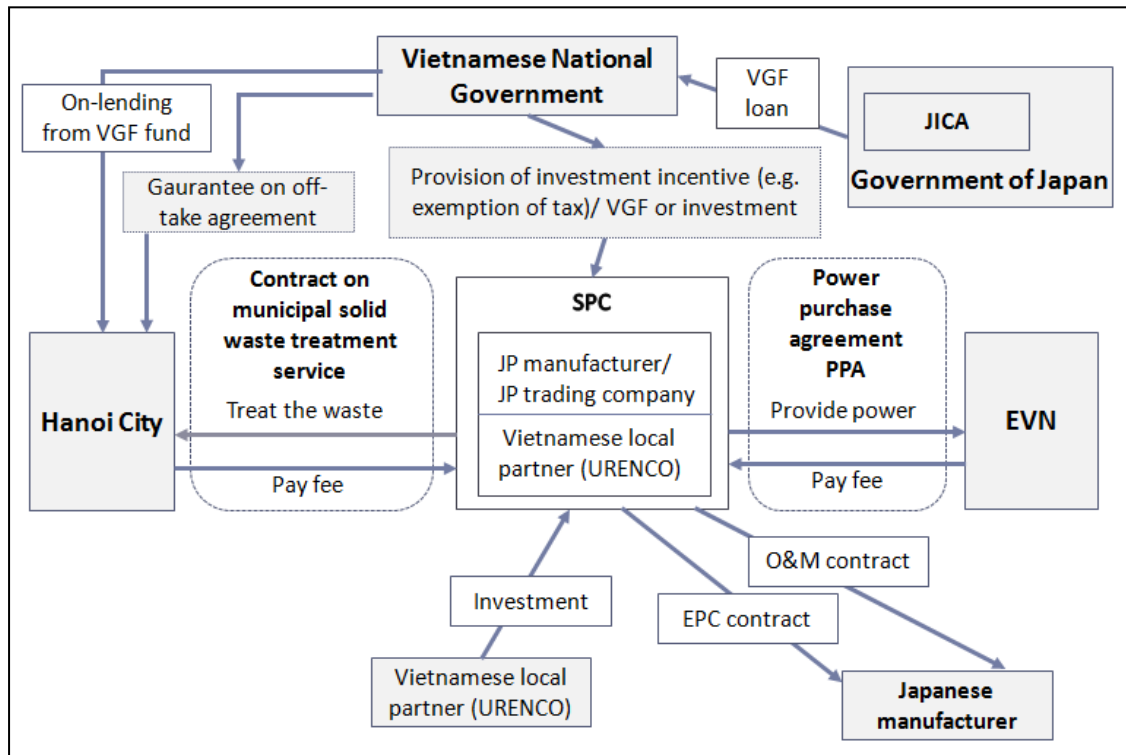
b) Project Scheme

The project specification and incineration process are shown in Figure 6-25. Expected SPC structure of the sample project is shown in Figure 6-26.



Source: JICA Study Team

Figure 6-25 Hanoi Soc Son Waste to Energy Project - Specification and Process



Source: JICA Study Team

Figure 6-26 Expected SPC Structure of the Sample Project

c) Result of the Analysis

The cash flow analysis of the selected project clarifies the required VGF rate that will be injected to the initial capital invest, in order to achieve the sector-common target of 20% Equity IRR.

Firstly we assumed a basic case where the selected project would be implemented with capital structure of 30% capital and 70% debt financing. The debt is disbursed after all the equity is paid in. The debt is assumed to be domestic VND loan (interest rate at 10% p.a. 20 year repayment period

including 3 year grace period). The project revenues in the cash flow are comprised of tipping fees and electricity sales. The availability payment modality is not assumed. The tipping fee is assumed to be US\$22 per ton.

As a result of the cash flow analysis, it is estimated that, in order for the selected project to realize the Equity IRR of 20%, a 51.7% of VGF need to be injected into the initial capital investment. This VGF amounts to 1.898 trillion VND against the initial capital investment of 3.670 trillion VND. Time-series behaviour of revenue and cost items and their breakdown are depicted in Figure 6-27.



Source: JICA Study Team

Figure 6-27 Result of Cash Flow Analysis of the Selected Project

Sensitivity analysis was conducted to examine changes in VGF subsidy rate when key parameters were changed. Alternative case 1 is the case where the debt cost of the initial capital investment is changed from 10% p.a. (domestic VND loan) of the base case scenario to 5% (PSIF US\$ loan). Other alternatives are also assumed where tipping fees are changed from the base case scenario. The results are summarized in Table 6-47. It is confirmed that the required VGF rate varies depending on changes of the parameters.

Table 6-47 Results of Sensitivity Analysis

Tipping fee	Debt cost 10% p.a. (Domestic VND loan)	Debt cost 5% p.a. (PSIF US\$ loan)
US\$20/ton	55.2% (Alternative 2)	44.9% (Alternative 3)
US\$22/ton	51.7% (Base case)	40.6% (Alternative 1)
US\$25/ton	46.4% (Alternative 4)	34.1% (Alternative 5)
US\$30/ton	37.6% (Alternative 6)	23.3% (Alternative 7)

Source: JICA Study Team

(5) Estimated VGF Amount

The 51.7% rate that was estimated as the necessary VGF subsidy rate for the selected project, was applied to all the waste management priority PPP projects shown in Table 6-48. Also, it is estimated that the total VGF amount required for those priority PPP projects to be materialized during the 2016-2020 period, would be 6.464 trillion VND.

Table 6-48 Waste Management Priority PPP Projects

No.	Project	Total investment (Billion VND)	Facility Scope	% VGF	VGF Requirement
1	Domestic and industrial waste treatment system for Ha Long city, Hoanh Bo district and Cam Pha city	1,302	580 - 860 ton/day	51.7%	673
2	Solid waste treatment for Danang city	2,200	1,000 ton/day	51.7%	1,137
3	High tech waste treatment system in Bac Son, Soc Son	9,000	4,000 ton/day	51.7%	4,653
	Total	12,502	5,580 - 5,860 ton/day	51.7%	6,464

(6) Interest of Concerned Parties

The study Team conducted a series of meetings and interviews with concerned parties including Japanese furnace manufacturers, ASA candidates in Vietnam, and Japanese consultants who are engaged in a waste management study in Vietnam. Summarized below are interests and opinions that were expressed notably by the concerned parties.

1. A sense of crisis that local landfills will be filled up in a few years is shared among the Vietnamese side. Therefore, there are urgent needs to implement waste management projects. The Vietnamese side welcomes the private sector participation and cooperation of overseas donors including Japan.

2. In case of industrial waste incinerator, the first unit was introduced in Hanoi and demonstrated its effect, which was followed by installation in other cities.

3. For an intermediate treatment operation by incineration to be sustainable, it is necessary to secure appropriate quality and quantity of waste to be treated. Especially in case of industrial waste treatment, marketing activities to waste generators are indispensable.

4. Although the power purchaser and the power selling prices are already determined, no transaction has been concluded in Vietnam, meaning that there is a risk of contract failure or procedure delay. To mitigate this risk, it will be useful to learn from the power sale contract which may be concluded in June 2017 as part of the pilot incinerator project in Hanoi.

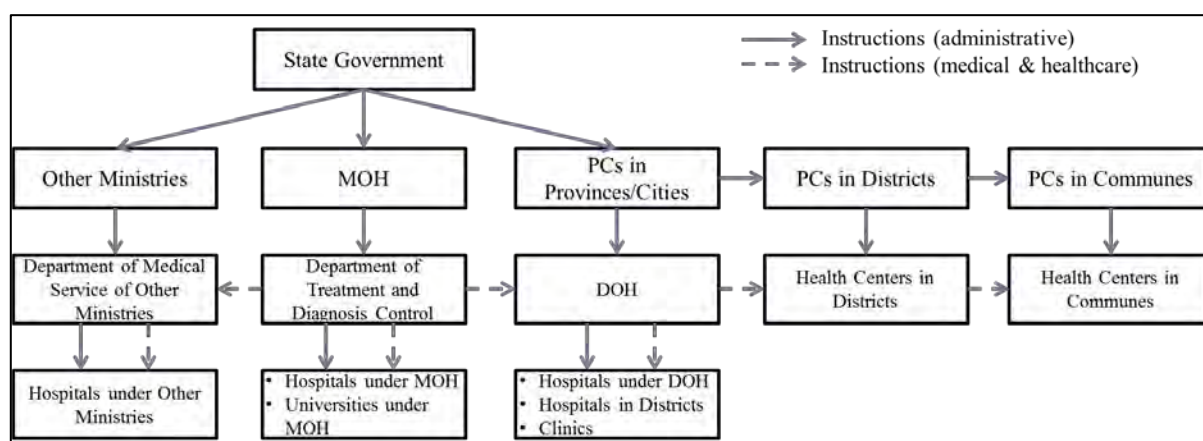
5. From the viewpoints of private investor forming the SPC, the tipping fee level between US\$22 to 25 per ton is at least necessary for a municipal waste treatment operation. On the other hand, local governments who pay the tipping fee, tend to claim that such price level is still high. If there were financial support measures such as VGF and subsidy, project implementation would be easier.

6.4.5 Hospital

(1) Sector Overview

In Vietnam, the healthcare delivery system is divided into 4 levels: namely, “national level”, “provincial level”, “district level” and “commune level”. The healthcare service is provided by hospitals and other medical service units such as health centres and clinics across the country; about 40 national hospitals directly managed by MOH, followed by about 1,000 regional level hospitals and about 10,000 medical service units. Public hospitals are controlled by the MOH and PCs as explained in the figure below. There are also several private hospitals and they supplement the healthcare service coverage⁶⁴.

⁶⁴ About 11 % of all hospitals in Vietnam are privately owned and 4.8% of inpatient beds are covered by the private hospitals



Source: Page 41, METI “Report of Healthcare Market Environment in Emerging Countries, Project for Promoting Outbound of Medical Technology and Service, 2015, Vietnam”, March 2016 (translated by JICA Study Team)

Figure 6-28 Administrative Structure of Public Healthcare Services

According to the MOH’s “Plan for people’s health protection, care and promotion 2016-2020” (MOH 5-Year Plan), there was a remarkable improvement of the healthcare system in the last 5 years (2011-2015). However, the Plan says there are still many difficulties and challenges in healthcare system. One of the challenges explained in MOH 5 Year Plan is the overcrowding of the hospitals and lack of sufficient capacity of hospital beds and facilities.

Generally, public hospitals are developed by the state budget or local government budget. ODAs from the donors are also used for facility development or equipment procurement. In addition, most of the public hospitals have a chronic deficit, which is filled by the government budget.

Meanwhile, Government of Vietnam established 20 National Target Programs for promoting countermeasures against the important issues in the country for 2011-2015. 5 Target Programs out of 20 are related to the healthcare sector: namely; “Population and Family Planning”, “Food Hygiene and Safety”, “Healthcare Service”, “HIV/AIDS Prevention and Control” and “Dengue Prevention Program”.

Currently these programs are renewed and approved by Decision 73/NQ-CP dated August 26, 2016 for the program period from 2016 to 2020. In the new Decision, the healthcare sector has the following budget for targeting important issues such as infectious disease control, early detection of cancer, improvement of maternal and child health and development of healthcare infrastructure. This Decision explains its targets and roles of MOH and other related ministries such as MPI or MOF; however, the detail budget allocation and budget implementation method are not explained in it.

Table 6-49 Budget for Target Programs

(billion VND)

	IV. Population	V. Development of Local Medical System
National Budget for Investment and Development	1,640	5,060
Carried Capital of National Budget	8,913	-
ODA	4,360	4,940
Local Budget	5,000	10,000
Capital Credit for Investment and Development	-	2,000
Other	500	500
Total	20,413	22,500

Source: Decision 73/NQ-CP dated August 26, 2016

(2) Related Regulations and Guidelines

As mentioned above, the healthcare sector in Vietnam needs more investments to the healthcare system including development of new facilities or installation of new equipment to responds to the medical demand. However, at the same time, the MOH 5 Year Plan reports that the limited budget hampers these investments.

In order to mobilize as many resources as possible from outside the state budget, MOH has implemented Resolution 93/NQ-CP dated December 15, 2014 and is enhancing “socialization” or “joint venture” scheme, which allow a private investment into the public hospitals.

In addition to the Resolution 93, MOH is planning to issue a new circular for “PPP” scheme in the healthcare sector based on Decree 15/2015/ND-CP dated February 14, 2015 which allows the 7 types of PPP project implementation scheme for medical infrastructure projects.

As for the income of the hospitals, currently Government of Vietnam is promoting its national insurance system based on the Law on Health insurance No. 25/2008/QH12 implemented from July 1, 2009 and its Amendments to the Law on Health Insurance No. 46/2014/QH13 implemented from January 1, 2015. Over 70% of citizens already participate in the insurance system⁶⁵. Fee for the medical services covered by the insurance is determined by MOH and MOF based on the category of the hospitals; however, hospitals can also determine their own price for the treatment not covered by the insurance based on the frame rate decided by MOH and MOF.

(3) Past PPP Projects and List of Candidate PPP Projects

Currently, MOH has been promoting “socialization” and “joint venture” scheme for inviting private investment to the public hospitals. Also, MOH explained that there is one medical university development project being conducted by Build-Transfer (BT) scheme. The table below explains the

⁶⁵ Insurance fee is defined by the category of insured person. For example, private company employees need to pay 4.5% of their monthly salary; 1.5% of which is covered by the employee and 3.0% is by the employer. Medical fee coverage is also different based on the category of insured person and its coverage range is from 100% to 80%.

detail methods of their experiences so far. Through the discussion with the officials of MOH, however, it was found that MOH recognized no PPP scheme per se in the hospital sector so far.

Table 6-50 Past Example of Private Sector’s Participation to Public Hospitals

Types	Detail Cooperation Method
Joint Venture	A public sector jointly forms an enterprise with private investor and that enterprise builds and operates a medical facility. The private investor contributes to the project by making contribution in financing, physical facility, capacity development, and quality control etc.
Socialization	A private investor installs medical equipment or establishes new facilities in a public medical facility and share the revenue gained from such investment.
Build-Transfer (BT) Scheme	A private investor constructs a new medical facility for public sector in one location. Then, the private sector exchanges this new facility for a piece of land owned by the public sector. The private investor can then utilize that land for recovering its investment for constructing medical facility by building a shopping centre or entertainment area, for example.

Source: JICA Study Team based on interviews to MOH representatives

On the other hand, MOH and other authorities have strong interest in PPP scheme, and are planning several PPP projects. According to the interviews with MPI, MOH and DOH in HCMC, more than 30 projects are listed as candidate projects for PPP. However, all projects listed below are under preparation of F/S or waiting for the permission to proceed with F/S, but no F/S is available yet.

Table 6-51 List of Candidate Hospital PPP Projects

Data Source	Projects
MPI	- Ha Noi, Heart Hospital - Phu Yen, Hospital of Pediatrics and Obstetrics
MOH	- Ho Chi Minh Institute of Malaria - Parasites – Insects - High Tech Center of Cho Ray Hospital, HCMC
HCMC DOH	- Hospital of District 2 - Hospital of District 3 - An Binh Hospital - General Educational Hospital for Pham Ngoc Thach Medical University - Functional Recovery Hospital for Treatment of Occupational Diseases (Group A1) etc.

Source: JICA Study Team based on the project lists from MPI, MOH and HCMC DOH

(4) Cash Flow Analysis of the Sample Project

a) Selection of the Sample Project

In order to analyse VGF for a PPP project in Vietnam, JICA Study Team selected “Project for Construction of Advanced Japanese Perinatal Medical Center⁶⁶” as a sample project for studying a

⁶⁶ This project was originally planned in 2014 by the study program supported by Ministry of Economy, Trade and Industry in Japan. The original F/S can be downloaded from the URL below (last access: June 2, 2016)
https://www.jetro.go.jp/jetro/activities/support/oda/model_study/emerging_country/h25_list.html

cash flow. This project was selected because its detailed planning and cash flow are already available although it was originally planned as a Yen-Loan project.

Table 6-52 Outline of the Sample Project

Name of Project	Project for Construction of Advanced Japanese Perinatal Medical Center
Location	Hanoi
Bed Capacity	300 beds
ASA	MOH
Initial Investment Cost (original at the F/S)	Approx. 2,100 billion VND (incl. construction cost 1,725 billion VND)

Source: JICA Study Team based on Feasibility Study Report

The CAPEX, OPEX and revenue of the project are estimated as follows. Since the F/S was conducted in 2014, the amount of each price is increased with considering the price escalation. The result of project cash flow analysis of the original project is also shown below.

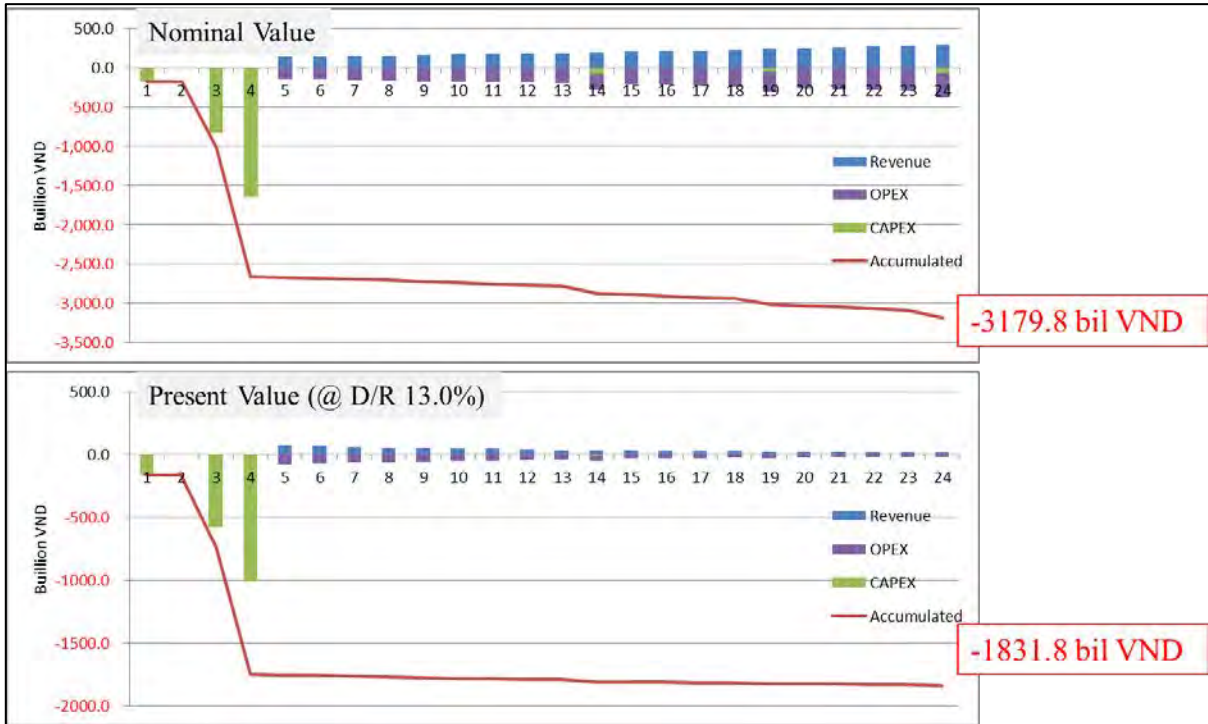
Table 6-53 Estimated CAPEX⁶⁷, OPEX and Revenue of the Original F/S

Price Escalation (year)	4%	(billion VND)				
CAPEX						
During Investment Period		1 st year	2 nd year	3 rd year	4 th year	
	Construction		0.0	0.0	813.3	1,626.9
	Consultant		179.4	0.0	15.8	15.8
	Finance Cost		5.5	0.2	0.6	1.7
	Total		184.9	0.2	829.8	1,644.4
Variable Capital Expense	Different expenditure in each year for maintenance cost (2.1 - 80.8)					
OPEX (year)						
	Staff Cost					133.7
	Item Cost					38.8
	Energy Cost					85.5
	Other Cost					2.5
						6.9
Revenue (year)						
						126.1

* Price escalation is considered for the initial investment, O&M cost and revenue

Source: JICA Study Team based on the Feasibility Study Report

⁶⁷ JICA Study Team reviewed the investment cost and reached a conclusion that the cost setting is reasonable compared to the past Yen-Loan project planned in Vietnam



Source: JICA Study Team based on the Feasibility Study Report

Figure 6-29 Result of Project Cash Flow Analysis of the Original F/S

b) Project Scheme

Since the feasibility study of this project was designed for a Yen-Loan project, several conditions are necessary to be added to adjust the project scheme as a PPP project.

Generally, a hospital PPP project is implemented in AP (Availability Payment) scheme, which consists of initial investment of a private sector followed by a periodic and fixed payment from a public to private sector during the operational period. One reason for applying AP scheme comes from the universal nature of public hospital services; its services need to be provided to the public in general, regardless of their social and economic background. Such nature requires the management of hospitals not to be profit oriented only (i.e. to target its services not only for money-making treatments but also every kind of treatment). Consequently, because of widespread variety of medical services, revenue from the hospital services does not cover the total costs needed for operating hospital. Thus, the public hospitals in general are subsidized by public sector and the hospital services cannot be provided by financially autonomous way, such as concession scheme which recovers investment and operation and maintenance costs with the revenue from its services provision. Therefore, the introduction of private sector investment in hospital sector focuses more on achieving the operational efficiency of the services provision compare to that provided by the public sector and public sector payment is conditioned to maintaining the provision of services at the predetermined level.

The table below shows the added conditions for such adjustment.

Table 6-54 Additional Conditions for Adjustment⁶⁸

(1) Pre-conditions

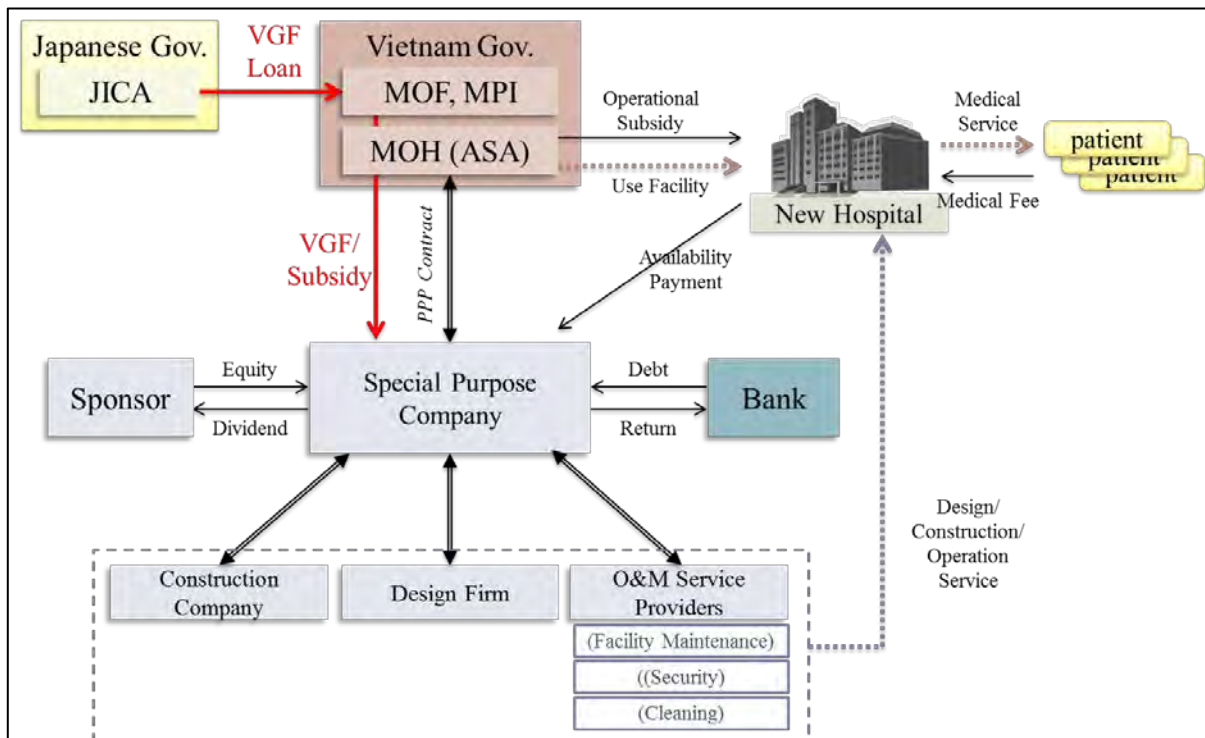
- The Project was originally planned as Yen-Loan project, so the project scheme is adjusted to fit a PPP project (BOT, AP scheme) model
- Estimated Cost Down (C/D) by Private's Participation is considered (10% for CAPEX and OPEX)
- Scope of Private sector is defined as follows
 - Financing
 - Design
 - Construction
 - Procurement of Equipment for initial use
 - Maintenance Support Service (only facility maintenance services)
= 10% of total OPEX of the Hospital's entire OPEX
- Project Period: Construction 2 years, Operation 20 years

(2) Cost Condition (billion VND)

Initial investment	1 st year	2 nd year	Total	OPEX by SPC	*10% C/D considered
Construction	813.3	1,626.9	2,440.2	Staff Cost	3.9 → 3.5
*10% C/D considered	732.0	1,464.2	2,196.2	Item Cost	8.6 → 7.7
				total	12.4 → 11.2 (per year)

Source: JICA Study Team

After the above-mentioned adjustment, the project scheme is changed as follows.



Source: JICA Study Team

Figure 6-30 Project Scheme of the Sample Project for VGF Study

⁶⁸ In the past Japanese PFI projects, VFM were set to be about 4% to 14%. As for a base case of this study, JICA Study Team estimates the cost down effect of private sector's participation as 10% from the examples of Japan

A hospital PPP project has a unique characteristic that the project is operated and managed by mutual cooperation between a public sector and a private sector. As shown in the figure above, the private sector (SPC) only provides the facility development and part of operation services in the hospital, and public sector provides medical service to the patients using the facility. Thus, medical fee paid from the patient is not a direct income of the private sector. Therefore, the payment to the private sector, that is AP, is separated from the revenue of the hospital, and the cash flow model for SPC is made without any relation to the hospital's business performance.

c) Result of the Analysis

JICA Study Team prepared the cash flow table taking into consideration of the general assumptions explained in the Section 6.3.1 above, and calculated the necessary amount of VGF and AP. The table below shows the results of the analysis when setting target Equity IRR of 20% and changing VGF ratio from 0% to 80% for the base case (option 1) of interest rate.

Table 6-55 Result of Cash Flow Analysis (Present Value (PV))

(billion VND)

VGF		AP Amount		Total Necessary Payment to SPC (VGF+AP, PV)
%	Amount (PV)	Yearly	Total (PV)	
10% Interest Rate (D/R 13.0%)				
0%	0.0	313.9	1,873.6	1,873.6
20%	304.3	253.3	1,512.3	1,816.6
40%	608.6	192.8	1,150.9	1,759.5
59.9%	911.8	132.5	790.9	1,702.7
60%	913.0	132.3	789.5	1,702.5
80%	1,217.3	71.7	428.1	1,645.4

Source: JICA Study Team

The table above shows the more VGF is increased, the less the payment to the private sector becomes. It also means that as far as the budget allows to provide it, the growing size of VGF reduces the cost and risk of the private sector's participation.

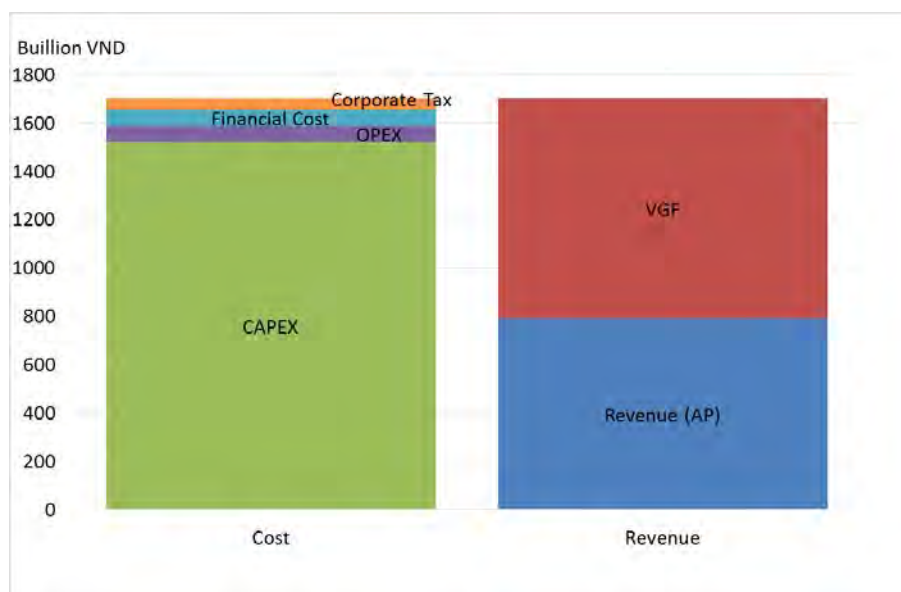
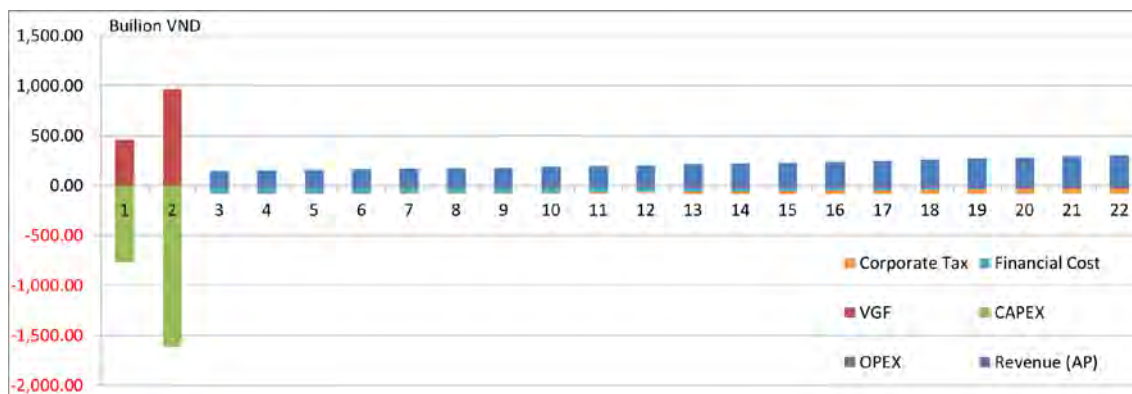
On the other hand, even though PPP scheme can bring many positive effects to project implementation, AP to SPC for realizing PPP is certainly an "additional" budgetary burden for MOH (ASA). It is because the hospital income itself is not sufficient as the sole sources for AP; and additional budgetary contribution, other than VGF, is inevitable.

For the estimation the rational ratio of VGF in these conditions, it is necessary to fix the amount of AP from any reasonable reason. Then, JICA Study Team focused on the budgetary burden of MOH (ASA).

In order to realize PPP at the same level of annual budgetary burden under the conventional way of establishing the hospital, it is suggested to set the percentage of VGF to be about 59.9% from the comparison below.

- Necessary subsidy/year when conducted by conventional way: $3179.8^{69}/24 = 132.5$ bil VND/year
- When AP = 132.5 bil VND/year, rational VGF % = 59.9%

The figures below show the result of the balance of costs and revenues for SPC when VGF is set to be 59.9%.



Source: JICA Study Team

Figure 6-31 Result of Cash Flow Analysis of the Case Study

In order to study the sensitivity of the analysis result, JICA Study Team analysed the cash flow with different assumptions. When the interest rate becomes 5% using Japanese PSIF loan (in USD) (Option 2), rational ratio of VGF becomes about 50.8% as shown in the table below. This is because lower interest rate can reduce the total financial cost in the project.

⁶⁹ See Figure 6-29

Table 6-56 Result of Cash Flow Analysis (When Interest Rate is 5%) (Present Value (PV)⁷⁰)

(billion VND)

VGF		AP Amount		Total Necessary Payment to SPC (VGF+AP, PV)
%	Amount (PV)	Yearly	Total (PV)	
5% Interest Rate (D/R 9.5%)				
0%	0.0	257.9	2,269.3	2,269.3
20%	328.2	208.6	1,835.1	2,163.3
40%	656.5	159.2	1,400.9	2,057.4
50.8%	834.2	132.5	1,165.8	2,000.0
60%	984.7	109.9	966.7	1,951.4
80%	1,312.9	60.5	532.6	1,845.5

Source: JICA Study Team

Other assumptions for the sensitivity analysis are cost down effect by private sector's participation and area of private sector's participation in O&M services of the hospital. In the base case, these are set to be 10% respectively. When these figures are changed at the fixed AP amount (132.5 billion VND/year), the result of the analysis is shown below.

Table 6-57 Result of Sensitivity Analysis

Upper: VGF %
Lower: VGF Amount (PV) billion VND

		Ratio of Private Sector Participation in O&M Service			
		10%	20%	30%	40%
Cost Down Effect	10%	59.9%	63.6%	67.3%	71.0%
		911.8	968.0	1024.2	1080.4
	20%	54.4%	58.1%	61.8%	65.5%
		736.5	786.4	836.4	886.4
	30%	47.4%	51.1%	54.8%	58.5%
		561.2	604.9	648.6	692.3

Source: JICA Study Team

Incomes for SPC are limited to VGF and AP. VGF and AP have a relationship that one can be increased when the other is decreased. Therefore, in order to estimate necessary VGF ratio, amount of AP must be fixed. From the results of the analysis above, the more VGF is injected into the initial investment, the less the total payment (VGF amount + AP total amount) becomes. In addition, when the SPC has more roles in O&M services, the necessary income for SPC becomes larger, and the ratio

⁷⁰ It needs careful attention about the effect of discounting. Due to the difference of the discount rate in option 1 (13%) and option 2 (9.5%), the amount in this table seems larger than that of the table above, but actually the nominal value is smaller.

of VGF automatically is increased at the fixed AP amount. However, cost down effect by the participation of a private sector form can save the total project cost and VGF amount at the same time.

(5) Estimated VGF Amount

The table below shows the potential projects selected from the various lists of priority projects from MPI, MOH and HCMC DOH with consideration of availability of data. These projects are selected according to the following criteria: 1) the project is a hospital building construction project⁷¹, 2) the project scheme is not a BT or O & M scheme, 3) investment cost is already estimated, and 4) the project is categorized as “A”⁷² for HCMC.

Table 6-58 List of Candidate Projects for Hospital PPP

No.	Project Title	Scheme	Project Size	Current Status	Planned Investment (billion VND)	Data Source
1	Phu Yen, Hospital of Pediatrics and Obstetrics	Not yet Decided	400 beds	Under study of the project implementation method	579	MPI
2	HCMC, Nguyen Tri Phuong hospital	BLT	300 beds	Preparing project plan	1,000	HCMC DOH
3	HCMC, Service No. 1 in C area of Children's Hospital No. 1	BOT	100 beds	Approved as PPP scheme and waiting for a F/S	800	HCMC DOH
4	HCMC, General Hospital of Hoc Mon area	PPP ⁷³	1,000 beds (Phase 1: 500 beds)"	Waiting for a guidance from City PC for PPP implementation	2,000	HCMC DOH
5	HCMC, General hospital of Cu Chi Area	PPP	1,000 beds	Waiting for a guidance from City PC for PPP implementation	2,000	HCMC DOH
6	HCMC, General hospital of Thu Duc Area	PPP	1,000 beds	Waiting for a guidance from City PC for PPP implementation	2,000	HCMC DOH
7	HCMC, Human resources training center - Hospital of the day of Pham Ngoc Thach Medical University	PPP	Outpatient Center	Waiting for a guidance from City PC for PPP implementation	750	HCMC DOH
8	HCMC, General Hospital in Pham Ngoc Thach medical University	PPP	500 beds	Awarded to a private company for PPP scheme	1,800	HCMC DOH
9	HCMC, General Hospital in Pham Ngoc Thach medical University (another project from 8)	PPP	500 beds	Awarded to a private company for PPP scheme	1,800	HCMC DOH

Source: JICA Study Team based on the Candidate Project Lists from MPI, MOH and HCMC DOH

By adding the project costs in the table above, the possible total investment amount will be about 12.7 trillion VND, and necessary VGF amount is estimated to be about 7.6 trillion VND if the percentage

⁷¹ Projects for such as “dormitory”, “clinics”, “university campus” are excluded.

⁷² The list of candidate PPP projects for HCMC explains its preliminary evaluation about the feasibility of the projects, and categorizes “A = Feasible” or “B = Not-Feasible” based on its criteria.

⁷³ “PPP” means that scheme is not decided yet

for VGF of 59.9% is applied, and about 6.45 trillion VND if the same is 50.8 %. However, feasibility studies of all those projects are yet to be completed, therefore, those amounts are subject to change.

(6) Interests of Concerned Parties

In the series of interviews with the counterparts in the hospital sector, the Study Team found that ASAs (MOH and DOH of HCMC) are interested in PPP scheme and have a willingness to promote PPP projects. As explained in the above, MOH is trying to promote original methods for introducing private investments to public hospitals, and is open to the other methods for attracting more private investments. ASAs are also interested in VGF program which has a possibility to enable more hospital development with increased opportunities for the private sector.

On the other hand, private investors from Japan tend to take a cautious approach to the hospital PPP projects in Vietnam. Generally, a hospital PPP project consists of very complicated elements and needs detail project planning, clear requirement from the Client and appropriate payment guarantee system for the proper risk allocation. Thus, it requires a comprehensive study. In order to make the hospital PPP projects a step forward and attractive ones for private investors, a F/S is required to check whether the proposed project design satisfies several key conditions. The table below shows the list of expected issues required to study in confirming the feasibility of hospital PPP projects.

Table 6-59 Expected Issues Required in Detail F/S

1. Legal & Regulation Analysis
(1) Review and analysis on related laws and regulation of the project (e.g. private sector participation in public hospital operation)
(2) Review on health care system
2. Technical Analysis
(1) Facility planning and cost estimation
(2) Business planning including optimal split or roles between public and private
3. Risk Analysis
(1) Risk identification
(2) Risk allocation and mitigation measures
4. Economic & Financial Analysis
(1) Economic analysis
(2) Financial analysis
5. Project Funding Scheme Analysis
(1) Examination of possible option
(2) Market sounding (to potential private participants)
(3) VFM analysis
(4) Evaluation of funding scheme options

Source: JICA Study Team

APPENDIX

Appendix 2.1 Proposed Amendment of Decree 15

Proposed Amendment of Decree No.15 in relation with a new VGF Mechanism
First Draft for Preliminary Discussion
June 6, 2017
JICA VGF Survey Team

THE GOVERNMENT

SOCIALIST REPUBLIC OF VIETNAM

Independence - Freedom - Happiness

No. 15/2015/ND-CP

Hanoi, 14 February 2015

Key Amendment Proposal

Article 3. Interpretation of terms

Article 11. Use of State Capital for PPP for participation in the project implementation

New Chapter for VGF: Management and Operation of VGF System

Article X1. The VGF Target Program and VGF Budget Line

Article X2. Authority of MPI as the VGF Target Program Owner

Article X3. Responsibilities of ASAs

Article X4. Responsibilities of the Ministry of Finance

Article X5. Candidate PPP/VGF Project List

Article X6. Approval and Budgeting Procedure of VGF

Article 64. Responsibilities of the Ministry of Planning and Investment

Chapter I GENERAL PROVISIONS

Article 1. Governing scope

This Decree sets forth the sectors, conditions, procedures for implementation of projects developed under public private partnership (hereafter referred to as PPP) investment form; the mechanism for management and utilization of State capital for PPP ~~State investment capital~~ for the participation in implementing projects; policies for investment incentives and guarantees; and responsibilities of the State in management of projects developed under PPP investment form.

Article 2. Applicable entities

This Decree applies to authorized state agencies (hereafter referred to as ASAs), investors, project enterprises, lenders and agencies, organizations, individuals relating to the implementation of projects developed under the PPP investment form.

Article 3. Interpretation of terms

In this Decree, the following terms are construed as follows:

1. PPP investment form (~~hereinafter referred to as PPP~~) means an investment form to be implemented based on a contract between an ASA and (an) investor(s) and the project enterprise to implement, manage, operate an infrastructure project and to provide public services.
2. Project contract means the contracts set out in Clause 3, 4, 5, 6, 7, 8 and 9 of this Article and other similar contracts as prescribed in Clause 3 of Article 32 of this Decree.
3. Build-Operate-Transfer contract (hereinafter referred to as BOT contract) means a contract signed between an ASA and (an) investor(s) to build an infrastructure facility; after the completion of the constructed facility, the investor(s) shall have the right to commercially operate such facility for a fixed term; at the end of such term, the investor(s) shall transfer the facility to the authorized state agency.
4. Build-Transfer-Operate contract (hereinafter referred to as BTO contract) means a contract signed between an ASA and (an) investor(s) to build an infrastructure facility; after the completion of the constructed facility, the investor(s) shall transfer [such facility] to the authorized state agency and shall have the right to commercially operate such facility for a fixed term.
5. Build-Transfer contract (hereinafter referred to as BT contract) means a contract signed between an ASA and (an) investor(s) to build an infrastructure facility; the investor(s) shall transfer the facility to the authorized state agency and shall be paid by the land fund for implementing the Other Project³ pursuant to the conditions as provided in Clause 3 of Article 14 and Clause 3 of Article 43 of this Decree
6. Build-Own-Operate contract (hereinafter referred to as BOO contract) means a contract signed between an ASA and (an) investor(s) to build an infrastructure facility; after the completion of the facility, the investor(s) shall own and have the right to commercially operate such facility for a fixed term.
7. Build-Transfer-Lease contract (hereinafter referred to as BTL contract) means a contract signed ~~between an ASA and (an) investor(s) to build an infrastructure facility; after the completion of the facility, the investor(s) shall transfer [such facility] to the authorized state agency and shall have the right to provide services on the basis of commercial operation, exploitation of such~~

infrastructure facility for a fixed term; the authorized state agency shall lease the services and make payments to the investor(s) in accordance with the conditions as provided in Clause 2 of Article 14 of this Decree.

8. Build-Lease-Transfer contract (hereinafter referred to as BLT contract) means a contract signed between an ASA and (an) investor(s) to build an infrastructure facility; after the completion of the facility, the investor(s) shall have right to provide services on the basis of commercial operation and exploitation of such facilities for a fixed term; the authorized state agency shall lease the services and make payments to the investor(s) in accordance with the conditions as provided in Clause 2 of Article 14 of this Decree; at the end of the term for providing services, the investor(s) shall transfer the facilities to the authorized state agency.
9. Operation and Maintenance Contract ~~Operate-Manage contract~~ (hereinafter referred to as O&M contract) means a contract signed between an ASA ~~authorized state agency~~ and (an) investor(s) to commercially operate part of a facility or the entire facility for a fixed term.
10. Other Project means a project implemented by (an) investor(s) to recover the capital [that the investor(s)] invested in an infrastructure facility.
11. Project proposal means document(s) to be developed by ASAs or investors, presenting the contents of the preliminary study on the necessity, the feasibility and effectiveness of a project.
12. Feasibility study report means the document to be developed by ASAs or investors presenting the contents of the study on the necessity, the feasibility and effectiveness of a project.
13. Total investment means the total capital expenditure for the construction of a project facility and the initial working capital for project operation and exploitation, including costs for land acquisition, resettlement, and compensation.
14. Equity means the capital contributed by the investor(s) to implement a project in accordance with the provisions of Article 10 of this Decree.
15. Investor(s) means organizations or individuals conducting investment activities in accordance with the provisions of the laws on investment and other relevant laws.
16. Project enterprise means an enterprise established by one or more of (an)-investor(s) to exclusively implement a project.
17. State enterprise means the enterprise having 100 per cent of the charter capital held by the State.
18. Lender means the organization, typically commercial bank, providing credit to an investor(s) or project enterprise to implement a project.
19. PPP project contract means a contract of a PPP project which is to be signed between an ASA and a project enterprise.
20. State capital for PPP means which is aimed to promote PPP and consists of VGF, Availability Payment and support for construction of ancillary facilities, to organize compensation, land clearance and resettlement. State capital for PPP is a form of State investment capital as stipulated in State Budget Law.
21. Viability Gap Funding (VGF) means one kind of the government support to be provided to project enterprise to make PPP project financially viable and to promote private investment in infrastructure.
22. Availability Payment means the government payment to investor(s) providing services under BTL contract, BLT contract and other similar contracts;

Article 4. Investment sectors and project classification

1. Projects for the construction, renovation, operation, conduct of business, management of infrastructure facilities and provision of equipment or public services, including:
 - a) Infrastructure facilities for traffic and transportation and relevant services;
 - b) Lighting systems; water supply systems; drainage systems; waste and wastewater collection and treatment systems; social housings, resettlement housings, cemeteries;
 - c) Power plants, power transmission lines;
 - d) Infrastructure facilities in healthcare, education, training, vocational training, culture, sport and other relevant services; office buildings of state agencies;
 - dd) Commercial, scientific and technological, hydro-meteorological infrastructure facilities, infrastructure facilities of economic zones and information technology parks; information technology applications;
 - e) Agricultural and rural infrastructure facilities, development services for connecting the production with the processing and sales of agricultural products;
 - g) Other sectors pursuant to Prime Minister's decision.
2. Projects as prescribed in Clause 1 of this Article shall be classified in accordance with the laws on public investment, including projects of national importance, group A, B and C projects.
3. Ministries and ministerial-equivalent bodies shall preside, coordinate with the Ministry of Planning and Investment to provide detailed guidelines on investment sectors within the management scope of the Ministries and branches.

Article 5. Costs for investment preparation and project implementation of Ministries, branches and provincial-level People's Committees

1. The costs for investment preparation and project implementation by Ministries, ministerial-equivalent bodies, Government bodies and People's Committees of provinces or cities under direct management of the Central Government (hereinafter collectively referred to as Ministries, branches and provincial-level People's Committees) shall include:
 - a) Costs for formulation, appraisal and approval of project proposal and a feasibility study report;
 - b) Costs for organizing the selection of the investor(s);
 - c) Operating costs of the project management unit of the [ASA](#), including costs for supervision of the project contract implementation and quality of the constructed facility;
 - d) Costs for project announcement;
 - dd) Operating costs of the unit being the focal point to manage PPP activities;
 - e) Costs for hiring consultants to support the implementation of a number of activities under the responsibilities of the [ASA](#) in accordance with the provisions of Clause 5 of Article 8 of this Decree;
 - g) Costs for workshops, conferences and negotiation of project contracts and other relevant contracts;
 - h) Other costs.
2. The costs as stated in Items a, b, and c of Clause 1 of this Article shall be allocated from the following capital sources:
 - a) State budget as being balanced in the annual expenditure plan for development investment of the Ministries, branches and provincial-level People's Committees;
 - b) Capital sources for supporting investment preparation pursuant to Article 6 of this Decree;
 - c) Revenues from the sale of request for proposals for selection of the investor(s);
 - ~~d) Reimbursement made by the investor(s) being selected for project implementation;~~
 - e) Other lawful capital sources.

3. The costs set out in Items d, dd e, g, h of Clause 1 of this Article shall be allocated from the state budget within the administrative expenditure plan of the Ministries, branches and provincial-level People's Committees.

Article 6. Capital sources for supporting investment preparation

1. The Ministry of Planning and Investment shall mobilize and manage official development assistance (ODA) sources, concessional loans of foreign donors and other capital sources pursuant to the decision of the Prime Minister in order to support project preparation activities.
2. The capital sources provided in Clause 1 of this Article shall be granted to Ministries, branches and provincial-level People's Committees in order to support project preparation costs as stipulated in Item a and Item b of Clause 1 of Article 5 of this Decree.
3. The investor selected to implement a project may reimburse the costs for supporting investment preparation and the costs for maintaining the capital sources for investment preparation in order to preserve the capital sources for investment preparation of other projects.
4. The Ministry of Planning and Investment shall preside and coordinate with the Ministry of Finance to provide guidance on the implementation of this Article.

Article 7. Steering Committee and focal unit for the management of PPP activities

1. The State steering committee on PPP shall be established and operate in accordance with decision of the Prime Minister.
2. Based on specific management requirements and conditions, Ministries, branches and provincial-level People's Committees shall assign a specialized unit under their direct management to be the focal point for the management of PPP activities of the Ministries, branches and localities (hereinafter collectively referred to as focal units). If necessary, the Ministries and branches shall make a proposal to the Prime Minister for deciding on the establishment of a specialized unit directly under their management to be the focal point for the management of PPP activities.

Article 8. Authorized state agencies signing and implementing project contracts

1. The ministries, branches and provincial-level People's Committees shall be the ASAs signing project contracts within their functions, duties, and authority; and shall performing the rights and obligations as agreed with the investor(s) in the project contracts.
2. Based on specific functions, duties, rights and specific management conditions, the Ministries and branches may authorize organizations under the Ministries and branches; the provincial-level People's Committees may authorize the specialized bodies [under the provincial-level People's Committees] or the People's Committees at district level to sign and implement project contracts of group B and group C projects.
3. The authorization pursuant to Clause 2 of this Article must be made in writing, specifying the scope of authorization and responsibilities of the authorized bodies in investment preparation, negotiation, signing and implementation of the project contract.
4. The ASAs and the agencies being authorized in accordance with Clause 2 of this Article, shall establish or assign a project management unit to implement the activities within their responsibilities; however, in all circumstances such agencies must be responsible for the obligations as agreed under the project contract.

5. If necessary, the ASAs shall select independent consulting organisations to assist the implementation of certain obligations as provided in Clause 4 of this Article.

Article 9. Procedures for project implementation

1. Except for group C projects as set out in Clause 2 of this Article, a project shall be implemented in accordance with the following procedures:
 - a) Formation, appraisal, approval and publication of the project in accordance with Chapter III of this Decree;
 - b) Formation, appraisal and approval of the feasibility study report in accordance with Chapter IV of this Decree;
 - c) Organization of investor selection; negotiation and signing of the investment agreement and project contract in accordance with Chapter V of this Decree;
 - d) Implementation of the procedures for the issuance of an investment registration certificate and establishment of the project enterprise as stipulated in Chapter VI of this Decree;
 - dd) Implementation of the project in accordance with Chapter VII of this Decree;
 - e) Finalization and transfer of the facility in accordance with Chapter VIII of this Decree.
2. Group C projects shall be implemented in accordance with the following procedures:
 - a) Formulation, appraisal, approval and publication of the project in accordance with Chapter III of this Decree;
 - b) Organization of investor selection; negotiation and signing of the project contract in accordance with Chapter V of this Decree;
 - c) Implementation of the project in accordance with Chapter VII of this Decree;
 - d) Finalization and transfer of the facility in accordance with Chapter VIII of this Decree.

Chapter II

CAPITAL RESOURCES FOR PROJECT IMPLEMENTATION

Article 10. Equity and mobilized capital of the Investors

1. The investor(s) shall be responsible for contributing equity and mobilizing other capital sources to implement the project as agreed in the project contract.
2. The investor's equity ratio must not be lower than 15% of the total investment capital. Regarding a project with the total investment capital of more than VND 1,500 billion, the equity ratio shall be determined on a progressive basis as follows:
 - a) For the capital portion of up to VND 1,500 billion, the equity ratio must not be lower than 15% of this portion;
 - b) For the capital portion of more than VND 1,500 billion, the equity ratio must not be lower than 10% of this portion.
3. The State capital for PPP~~State investment capital~~ for participation in the project implementation, as provided in Article 11 of this Decree, shall not be counted as part of the total investment capital when identifying the equity ratio.
4. The Other Project implemented by the investor(s), in order to recover capital invested in a BT project facility, must satisfy the requirements on owner's equity (if any) in compliance with the laws.

Article 11. Use of ~~State capital for PPP~~State investment capital for participation in the project implementation

1. The ~~State capital for PPP~~State investment capital for participation in the project implementation includes capital from the State budget, Government bonds, local government bonds, ODA sources and concessional loans from foreign donors.
2. The ~~State capital for PPP~~State investment capital for participation in the project implementation shall be used for conducting the following activities:
 - a) To provide VGF to a project enterprise as defined in Article 3.
~~To provide capital support to the construction of facilities with regard to projects having business activities and collecting user fees, but the revenues are not sufficient for recovering investment capital and gaining profits. The formation and management of the VGF target program shall be defined in Chapter 3 BIS;~~
 - b) To make Availability Payment to a project enterprise as defined in Article 3.
~~To make payment to the investor(s) providing services under BTL contract, BLT contract and other similar contract~~c) To support the construction of ancillary facilities, to organize compensation, land clearance and resettlement.
3. The mechanism, procedure and operation in Item b of Clause 2 of this Article are stipulated in Chapter [X].
4. The ~~State capital for PPP~~State investment capital as provided in Item a and Item b of Clause 2 of this Article shall only be used for participation in implementing the projects proposed by the Ministries, branches, provincial-level People's Committees or the projects being subject to ODA sources and concessional loans of foreign donors.

Article 12. Determination of the value of ~~State capital for PPP~~State investment capital for participation in the project implementation

1. The value of ~~State capital for PPP~~State investment capital shall be determined on the basis of the financial plan of the project, the approval in-principle on the use of ~~State capital for PPP~~State investment capital set out in Clause 2 of Article 17 of this Decree, and the capability of mobilizing and balancing public capital of the State for project implementation.
2. When approving the feasibility study report or the project proposal (with regard to group C projects), the competent person as stipulated in Article 27 of this Decree shall determine the value of ~~State capital for PPP~~State investment capital for participation in the project implementation.

Article 13. Preparation of public investment plan for using the ~~State capital for PPP~~State investment capital for participation in the project implementation

1. Ministries, branches and provincial-level People's Committees shall formulate and consolidate the plans on the ~~State investment capital~~State capital for PPP for the participation in the implementation of the projects, which have been announced in accordance with Article 18 of this Decree, into the medium term public investment plan of 5 years of the [relevant] sectors and localities.
2. In the medium term public investment plan, VGF budget should be dedicatedly allocated to the budget line of the VGF Target Program.
3. On the basis of the medium term public investment plan, the approved feasibility study report or project proposal (with regard to group C projects), the decision of final approval of VGF for PPP projects (if any)-, the Ministries, branches and provincial-level People's Committees

shall formulate and consolidate the plans on the State capital for PPP ~~State investment capital~~ for the participation in the project implementation into the annual public investment plans of their sector and localities.

3. The Ministry of Planning and Investment shall preside and coordinate with the Ministry of Finance to consolidate the plans on the use of ~~State investment capital~~ State capital for PPP for the participation in the project implementation into the national public investment plans.

Article 14. Disbursement of VGF ~~State investment capital for the participation in the project implementation~~

1. Disbursement of VGF ~~State investment capital for supporting the construction of project facilities~~:
 - a) ~~VGF State capital contributed for supporting the construction of project facilities~~, as stipulated in Item a of Clause 2 of Article 11 of this Decree, shall be disbursed after the completion of the volume and value of construction works⁶ as agreed in the project contract;
 - b) Based on the completed volume and value of construction works as examined and accepted by the investor, [or] project enterprise, the ~~authorized State agency~~ ASA shall disburse and make payments to the investor(s), [or] project enterprise in accordance with the proportion, value, schedule, and conditions as agreed in the project contract.
2. Disbursements of the Availability Payment ~~capital for making payments to the investor(s) implementing BTL contracts and BLT contracts~~:
 - a) The capital for making payments to the investor(s) providing services under BTL contracts, BLT contracts and other similar contracts, as stipulated in Item b of Clause 2 of Article 11 of this Decree, shall be disbursed from the time the services are provided as agreed in the project contract;
 - b) Payments, as set out in Item a of this Clause, shall be made periodically on the basis of the quantity and quality of the services as agreed in the project contract.
3. The use of a land fund to create the capital sources to make payments to the investor(s) implementing BT contracts must be approved by the competent agencies in accordance with the laws on land.
4. Disbursement of the capital for construction of ancillary facilities, organization of compensation, land clearance and resettlement:

Capital for construction of ancillary facilities, organization of compensation, land clearance and resettlement as provided in Item c of Clause 2 of Article 11 of this Decree shall be conducted in compliance with the regulations applicable to public investment projects.
5. The Ministry of Finance shall provide guidelines on the implementation of this Article.

New Chapter [X] for VGF
MANAGEMENT AND OPERATION OF VGF SYSTEM

Section 1

FORMULATINON OF VGF TARGET PROGRAM

Article X1. The VGF Target Program and the VGF Budget Line

1. The Ministry of Planning and Investment shall assume the role of the Program Owner of the VGF Target Proram in the Mid-term public invesment plan.
2. The VGF budget line shall be created in the Mid-term public investment plan for which budget for VGF shall be dedicatedly allocated.
3. The VGF budget estimation under the Mid-term public investment plan shall be made based on the candidate PPP/VGF project list which is to be prepared and maintained by the Ministry of Planing and Investment. The detailed procedure of development and maintenance of the candidate PPP/VGF project list shall be stipulated in a circular of the Ministry of Planning and Investment.
4. The Ministry of Planning and Investmetnt shall establish the VGF program management unit which will be in charge of the operations related with the VGF Target Program set-up and management.

Article X2. Authority of MPI as the VGF Target Program Owner

1. With regard to the VGF Target Program, the Ministry of Planning and Investment shall be given the following authorities, subject to the approval of the Naional Assembly:
 - a) Development and maintenance (updating) of the candidate PPP/VGF project list which comprises of candidate PPP projects requiring VGF planned by Ministries and provincial-level People’s Committees concerned;
 - b) Appraisal and approval of VGF application to be submitted from ASAs;
 - c) Apply budget of the VGF Target Program for ASA as the VGF Program Owner;
 - d) Support the National Assembly to approve annual budgeting with regard to VGF amount for individual PPP projects;
 - dd) Confirm the final VGF amount required after bidding of individual PPP projects;
 - e) Receive and confirm request for payment of VGF to be submitted by an ASA during project imlementation period.

Article X3. Responsibilities of ASAs

1. Ministries, and provincial-level People’s Committees shall coordinate with the Ministry of Planning and Investment and have their responsibilities, including:
 - a) Internally approve the PPP project which required VGF amount and the applicable VGF amount;
 - b) Provide list and information of candidate PPP VGF projects to VGF Target Program;
 - c) Obtain the approval to provide VGF to individual PPP projects;
 - d) Conduct bidding of individual PPP projects and report the results to the authorized organizations;
 - e) Issue the request payment of VGF;

Article X4. Responsibilities of the Ministry of Finance

The Ministry of Finance has the following responsibilities:

- a) Endorse candidate PPP projects requiring VGF and its amount with the Ministry of Planning and Investment;
- b) Receive request for payment of VGF from the Ministry of Planning and Investment;
- c) Issue the request for disbursement (where applicable).
- d) Detail procedure of MPI with regard to the VGF disbursement shall be stipulated in a separate circular.

Article X5. Candidate PPP/VGF Project List

1. The candidate PPP/VGF shall be prepared by the VGF Target Program Management Unit under the Ministry of Planning and Investment.
2. The candidate PPP/VGF shall be updated periodically, at least twice a year, by the VGF Target Program Management Unit.
3. The candidate project list shall be selected in consideration of the basic following criteria:
 - a) Fitness to the socio-economic development plan and regulations;
 - b) Eligible sectors;
 - c) Minimum project investment amount (e.g. 20 Billion VND as stipulated in the Clause 1, Article 15 of this Decree);
 - d) Readiness of PPP projects (such as prospects for land acquisition and status of project studies)
 - dd) Interest of Private sector;
2. The Ministry of Planning and Investment shall issue a circular to guide the detail procedure which shall include detailed procedure of candidate PPP/VGF project information collection and selection criteria for the candidate PPP/VGF project list.

Section 2

APPROVAL AND BUDGETING PROCEDURE OF VGF

Article X6. Candidate PPP/VGF Project List

1. The Ministry of Planning and Investment aggregate mid-term and annual investment demands in PPP projects, securing and balancing the national and foreign funding sources, and steering the promotion, attraction and management of ODA and concessional loans to fund the VGF Target Program;
2. The Ministry of Planning and Investment prepares the MTPIP and annual PIP of the VGF Target Program, takes accountability to the Government of about focused management of VGF in PPP projects.
3. Each [6 months] period, the Ministry of Planning and Investment shall update the candidate PPP – VGF projects list in MTPIP, and notify to relevant Ministries and Provincial PC, relevant foreign donors and other relevant agencies.

Article X7. Application and Approval Procedure of VGF

1. The Ministry of Planning and Investment aggregate mid-term and annual investment demands in PPP projects, securing and balancing the national and foreign funding sources; and steering the promotion, attraction and management of ODA and concessional loans; non- government funding sources to fund the VGF Target Program;

2. The Ministry of Planning and Investment prepares the MTPIP of the VGF Target Program;
3. Annually, based on the Prime Minister Decision on approval of VGF amount for specific PPP projects, and approval of final VGF amount to successfully selected investor, Ministries, or provincial-level People's Committees will prepare the amended MTPIP and annual PIP to include the VGF amount awarded to specific PPP projects.

Chapter III
FORMULATION AND PUBLICATION OF PROJECTS

Section 1
**PROJECTS PROPOSED BY MINISTRIES, BRANCHES AND PROVINCIAL-
LEVEL PEOPLE’S COMMITTEES**

Article 15. Requirements for selection of projects

1. Projects selected to be developed under the PPP investment form must meet the following requirements:
 - a) To conform to the master plans, plans for development of the sectors and regions and the socio-economic development plans of the localities;
 - b) To conform to the investment sectors set out in Article 4 of this Decree;
 - c) To be capable of attracting and receiving commercial capital sources, technologies and management experiences of the investor(s);
 - d) To be capable of steadily and continuously providing products and services which satisfy the quality standards and meet demands of the users;
 - dd) To have the total investment amount of 20 billion VND and above, except for projects developed under O&M contracts and the projects as provided in Item e of Clause 1 of Article 4 of this Decree.
2. Projects which are not within the master plans, plans for development of the sectors and regions and the socio-economic development plans of the localities must be considered for supplementation by the Ministries, branches, provincial-level People’s Committees within the scope of their authority or must be proposed to the competent authority for approval.
3. Projects, which fulfil the requirements, set out in Clause 1 of this Article, and are capable of recovering capital from the business activities shall be prioritized to be selected.

Article 16. Contents of project proposals

1. Ministries, branches and provincial-level People’s Committees shall organize the formulation of project proposals to be the basis for the selection of investment projects to be implemented under PPP form.
2. Project proposals shall comprise of the following main contents:
 - a) The necessity of investment; the advantages of implementing the project under PPP investment form compared to other investment forms; and the [proposed] type of project contracts;
 - b) The conformity of the project with the master plans, development plans and other requirements as provided in Clause 1 of Article 15 of this Decree;
 - c) Anticipation of the project objectives, scale, implementation location, demand for the use of land and natural resources;
 - d) Preliminary analysis on the technical requirements, standards, quality of the project facilities, products or services to be provided;
 - dd) Anticipated schedule and terms for project implementation; terms for construction, exploitation of [project] facilities; plans for organizing the management, commercial operation or provision of services;

- e) Anticipated overall plan for compensation, land clearance and resettlement;
 - g) Anticipated conditions for implementation of the Other Project (applicable to projects developed under BT contracts);
 - h) Preliminary analysis of the financial plan of the project, including the [following] contents: the total investment capital of the project, the structure of the capital sources and the [capital] mobilization plan; the ~~State capital for PPPState investment capital~~ for the participation in the project implementation (if any); expenditures; revenue sources, prices, fees of products or services; the term for recovering capital and gaining profits;
 - i) Preliminary anticipation of the risks in project implementation process and risk sharing between the authorized state agencies and the investor(s);
 - k) Proposal on forms of investment incentives and guarantees (if any);
 - l) Preliminary estimation on the socio-economic effectiveness of the project; impacts of the project on environment, society, security and national defence;
 - m) Other necessary contents.
3. Regarding projects, which include construction components, in addition to the contents set out in Clause 2 of this Article, the project proposal shall include preliminary design in accordance with the laws on construction.

Article 17. Appraisal and approval of project proposals

1. Ministries, branches and provincial-level People's Committees shall organize the appraisal and approval of project proposals for projects of group A, B and C. The process and procedures for formulation, appraisal and approval of the proposal for projects of national importance, must be implemented in accordance with the laws on public investment.
2. Regarding projects using the ~~State capital for PPPState investment capital~~, excluding VGF stipulated in Article 11.2.a, based on the capital amount and capital sources expected to be used, the Ministries, branches and provincial-level People's Committees shall, prior to approving the project proposal, report to the competent agencies in compliance with the laws on public investment for obtaining approval-in-principal for such use [of the ~~State capital for PPPState investment capital~~].
3. The dossier requesting the approval-in-principal for the use of ~~State capital for PPPState investment capital~~ for the participation in the project implementation shall include:
 - a) Document requesting the use of the ~~State capital for PPPState investment capital~~ for the participation in the project implementation;
 - b) Project proposal;
 - c) Appraisal opinion of the ASA on capital sources and capability of balancing the ~~State capital for PPPState investment capital~~ for the participation in the project implementation.
4. The time-limit for issuing approval-in-principal for the use of ~~State capital for PPPState investment capital~~ for the participation in the project implementation as set out in Clause 2 of this Article is maximum 30 days from the receipt of a complete dossier as provided in Clause 3 of this Article.

Article 18. Project publication

1. Within 07 working days from the approval of a project proposal, the [relevant] Ministry, branch [or] provincial-level People's Committee shall publish the project and project list on the national procurement website system in accordance with the laws on procurement.
2. The project publicized must contain the following main items:
 - a) Project name and type of the project contract;

- b) Objective, scale and location for implementation of the project and the Other Project (if any);
- c) Summary of the technical requirements, standards, quality of the project facilities, products or services to be provided;
- d) Estimation of the total investment capital and the State capital for PPP ~~State investment capital~~ for the participation in the project implementation (if any);
- dd) Anticipated schedule and terms for project implementation, including the timeline for the formulation of the feasibility study report, investor selection, the durations of the construction, completion and exploitation of the [project] facility;
- e) Updates on the project implementation schedule pursuant to Item dd of this Clause;
- g) Contact address of the ASA.

Article 19. Conversion of investment form for projects invested with public investment capital

1. Projects being invested with public investment capital may be considered for conversion of investment form in order to be developed under PPP investment form if [such projects] satisfy the requirements the set out in Clause 1 of Article 15 of this Decree.
2. The Ministry of Planning and Investment shall provide guidelines on procedures for conversion of investment form set out in Clause 1 of this Article.

Section 2

PROJECTS PROPOSED BY THE INVESTORS

Article 20. Conditions for proposing a project

1. Investors may propose projects for implementation, which are not the approved and publicized projects, [or] not included in the project list approved and publicized by Ministries, branches and provincial-level People's Committees as provided in Section 1 of this Chapter.
2. Projects proposed by the investor(s) must satisfy the following requirements:
 - a) The requirements set out in Clause 1 of Article 15 of this Decree;
 - b) The investor(s) being a State owned enterprise must form a consortium with another enterprise in order to propose a project.

Article 21. Requirements for the project proposal of the investor(s)

1. The investor(s) shall formulate a project proposal dossier and submit it to the [relevant] Ministries, branches [or] provincial-level People's Committees.
2. Contents of a project proposal:
 - a) Document proposing the implementation of a project;
 - b) Project proposal (including contents set out in Clause 2 and Clause 3 of Article 16 of this Decree);
 - c) Documents certifying the legal status, capacity, experience of the investor(s);
 - d) Experience in implementing similar projects (if any);

dd) Other documents (if necessary) to explain the project proposal.

Article 22. Appraisal and approval of the project proposal of the investor(s)

1. Project proposal of the investor(s) shall be appraised and approved as stipulated in Article 17 of this Decree within a time limit of 30 days upon the receipt of a complete [project proposal] dossier.
2. The Ministry of Planning and Investment shall provide guidelines for implementation of this Article.

Article 23. Publication of the investor's project proposal

1. In case the project proposal of the investor(s) is approved, the [relevant] Ministry, branch, [or] provincial-level People's Committee shall publish such project proposal and information of the investor who proposes the project in accordance with Article 18 of this Decree.
2. In case the project proposal having contents relating to intellectual property rights, trade or technology secrets, or agreements on capital mobilization for project implementation which are required to be kept confidential, the investor(s) and the [relevant] Ministry, branch, [or] provincial-level People's Committee may agree on the contents to be published.

Chapter IV

FORMULATION, APPRAISAL AND APPROVAL OF THE FEASIBILITY STUDY REPORTS

Article 24. Responsibilities for formulation of feasibility study reports

1. Ministries, branches and provincial-level People's Committees shall organize the formulation of the feasibility study report of projects which shall be the basis to formulate the request for proposals for the investor selection and project contract negotiation.
2. Regarding projects proposed by the investor(s) and approved pursuant to Article 22 of this Decree, the [relevant] Ministry, branch, [or] provincial-level People's Committee may assign the investor(s) to formulate the feasibility study report.
3. The assignment to the investor(s) for formulating the feasibility study report shall be made on the basis of a written agreement between the [relevant] Ministry, branch, [or] provincial-level People's Committee and the investor(s). Such written agreement must provide for the purposes, requirements, costs for formulation of the feasibility study report, and the costs for hiring independent consultants for the appraisal of the feasibility study report and the principle for handling the case where another investor is selected to implement the project.

Article 25. Contents of feasibility study reports

1. A feasibility study report must contain the following main contents:

- a) Detailed analysis of the necessity of investment and advantages of developing the project under the PPP investment form compared to other investment forms; types of project contracts;
 - b) Assessment on the conformity of the project with master plans, development plans and other requirements pursuant to Clause 1 of Article 15 of this Decree;
 - c) Project's objectives, scale, components (if any) and project implementation location; demand for the use of land and natural resources;
 - d) Explanation on technical aspects and technology to satisfy the requirements for quality of the project facility, products or services to be provided;
 - dd) Assessment on the current conditions of facilities, machinery and equipment, value of assets (in case of O&M contracts); conditions for implementation of the Other Project (in case of BT contracts);
 - e) Project implementation schedule and terms; duration of construction and exploitation of the facility; and plans for organization of management, commercial operation or provision of services;
 - g) Overall plan for compensation, land clearance and resettlement;
 - h) Financial plan of the project (comprising the contents provided in Item h of Clause 2 of Article 16 of this Decree);
 - i) Ability to mobilize capital for project implementation; assessment of market demand and affordability; survey on the interests of the investor(s), and lenders in the project;
 - k) Analysis of the risks and responsibilities of the parties in risk management during the project implementation process;
 - l) Suggestions for investment incentives and guarantees (if any);
 - m) Socio-economic effectiveness of the project and its impacts on environment, society, security and national defence and security.
2. Regarding project having construction components, in addition to the contents set out in Clause 1 of this Article, the feasibility study report shall include the basic design in accordance with the laws on construction.
 3. Formulation of a feasibility study report is not required for group C projects but the project proposal shall include the basic design and financial plan as the basis for selection of the investor(s) and negotiation of the project contract.
 4. Ministries and branches shall coordinate with the Ministry of Planning and Investment to provide detailed guidelines on contents of feasibility study report in compliance with the requirements on implementation and management of projects within their sectors.

Article 26. Appraisal of feasibility study report

1. [The following agencies have] the authority to appraise feasibility study report:
 - a) The State appraisal committee shall appraise projects of national importance;
 - b) Ministers, Heads of ministerial-equivalent bodies and Chairmen of provincial-level People's Committees shall assign a focal unit, which manages PPP activities, to organize the appraisal of projects of group A and group B.
2. The appraisal dossier of the feasibility study report [shall include]:
 - a) The report on project appraisal;
 - b) The feasibility study report;

c) Relevant documents and legal documents;

3. Contents to be appraised [shall include]:

- a) The necessity of implementing the project: the conformity of the project with master plans, development plans of sectors, regions and localities; the urgency and the advantages of developing the project under the PPP investment form compared to other investment forms;
- b) The evaluation on basic elements of the project: objectives and the conformity in terms of scale and location for implementation of the project; design, technical and technology requirements; plans for management and commercial operation or provision of services;
- c) The feasibility of the project: the financial plan of the project, ability to mobilize the resources for project implementation; demand on the use of land, land clearance, and natural resources; capability to provide goods [or] services, and solutions for organizing the implementation to satisfy the demand of users, and ensure users' ability to make payments; risks during the construction, exploitation and management processes of the project and measures to prevent and mitigate risks; interests of the investor(s) and lenders in the project;
- d) The effectiveness of the project: results and contributions of the project to the socio-economic development duties; and [its] impacts on the environment, society, national defence and security;
- dd) Other necessary contents.

4. Time limits for appraisal of a feasibility study report:

- a) Regarding projects of national importance: no more than 90 days;
- b) Regarding group A projects: no more than 40 days;
- c) Regarding group B projects: no more than 30 days.

5. The appraisal agency is allowed to hire consultant(s) to appraise part of or the entire contents set out in clause 3 of this Article.

Article 27. Authority for approving feasibility study report

- 1. The Prime Minister shall approve the feasibility study report of projects of national importance.
- 2. Ministers, Heads of the ministerial-equivalent bodies and Chairmen of the provincial-level People's Committees shall approve the feasibility study report of group A and group B projects, except for projects using ODA and concessional loans from foreign donors in the security, national defence and religion sectors.

Article 28. Amendment of feasibility study report

- 1. The feasibility study report may be considered for amendments in the following cases:
 - a) The project is affected by natural disasters or other force majeure; b) Other factors, which bring higher efficiency to the project, occur;
 - c) Changes in master plans directly affect the location, scale and objectives of the project;
 - d) The project fails to attract investors after having conducted market surveys and the organized the pre-qualification or tendering for investor selection;

- dd) Other cases under the decision of the Prime Minister.
2. The procedures for appraisal, approval and amendment of feasibility study report shall be conducted in accordance with Article 26 and Article 27 of this Decree.

Chapter V

SELECTION OF INVESTOR AND SIGNING OF INVESTMENT AGREEMENT AND PROJECT CONTRACT

Article 29. Investor selection

1. The selection of investor may be conducted in the form of open bidding or direct appointment.
2. The investor(s) shall be entitled to incentives during the tendering process for investor selection when [such investor(s)] have the feasibility study report or project proposal (applicable to group C projects) approved by the [relevant] Ministry, branch, [or] provincial-level People's Committee.
3. The conditions, procedures for selection of the investor(s) and incentives for the investor(s) during the tendering process for investor selection shall be conducted in accordance with the laws on public procurement.

Article 30. Signing of the Minutes of Understanding for PPP Project Contract~~investment agreement~~

1. The ASA shall organize the PPP project contract negotiation with the selected investor(s) (hereinafter referred to as the parties) in accordance with Article 29 of this Decree.
2. Upon the completion of PPP project contract negotiation, the ASA and the investor(s) shall sign an Minutes of Understanding ~~investment agreement~~ to confirm the following contents:
 - a) The draft of the PPP project contract;
 - b) Rights and obligations of each party in implementing the procedures, provided in Article 40 and Article 42 of this Decree, in order to obtain an investment registration certificate and establish the project enterprise;
 - c) Other contents as agreed between the parties.

Article 31. Signing of the PPP project contract

1. After the issuance of the investment registration certificate, as provided in Clause 3 of Article 40 of this Decree, the ASA and the investor(s) shall sign the PPP project contract.
2. Regarding group C projects, after the negotiation of the PPP project contract is completed, the ASA and the investor(s) shall sign the PPP project contract.
3. The rights and obligations of the project enterprise shall be agreed in one of the following ways:
 - a) The project enterprise signs the PPP project contract to join with the investor(s) as one party to the project contract;
 - b) The ASA, the investor(s) and the project enterprise shall sign a document allowing the project enterprise to take over and perform the rights and obligations of the investor(s), as provided in the investment registration certificate and the PPP project contract. This document shall form an integral part of the PPP project contract.

Article 32. Contents of the project contract

1. Based on the objectives, characteristics, and type of the project contract, the parties agree on part or the entire of the following main contents:
 - a) Objectives, scale, location of the project; term and schedule for implementation of the project; term for construction of the project facility;
 - b) Technical and technology requirements, and quality of the project facility, products or services to be provided;
 - c) Total investment capital and financial plan of the project;
 - d) ~~Amount, conditions~~Conditions, proportion and schedule of disbursement of State capital for PPP ~~State investment capital~~ for the participation in the project implementation (if any);
 - dd) Conditions for the use of land and relevant facilities; e) Compensation, land clearance and resettlement;
 - g) Construction, examination, supervision, management of quality, acceptance and finalization of the project;
 - h) Assessment, operation, maintenance, conducting business activities on and exploitation of the project facility; transfer of the project facility;
 - i) Assurance of safety and environmental protection;
 - k) Conditions and procedures for exercising step-in rights of the lenders and appointed entities;
 - l) Risks sharing between the ASA and the investor(s); force majeure events and principles for handling [these events];
 - m) Forms of investment incentives and guarantees (if any);
 - n) Laws governing the project contract and relevant contracts and dispute resolution mechanism;
 - o) Effectiveness and term of the project contract;
 - p) The principles, and conditions for amending, supplementing, terminating the project contract; transferring the rights and obligations under the project contract;
 - q) Other contents in accordance with agreements between the parties.
2. Documents enclosed with the project contract (if any) including annexes, materials and other documentations shall be an integral part of the project contract.
3. Based on the contract types set out in Clauses 3, 4, 5, 6, 7, 8 and 9 of Article 3 of this Decree, Ministries, branches and provincial-level People's Committees may propose other similar contract types which shall be submitted to the Prime Minister for consideration and decision.
4. Based on the provisions in Clause 1 of this Article, Ministries, and branches shall coordinate with the Ministry of Planning and Investment to provide detailed guidelines on the contents of the project contract in conformity with the requirements on implementation and management of projects within [their] sectors.

Article 33. Project step-in rights of lenders

1. Lenders shall have the right to take over, or to appoint another competent entity to take over, all or part of the rights and obligations of the investor(s) or project enterprise (hereinafter referred to as project step-in rights) in the event that the investor or the project enterprise fails to fulfil the obligations under the project contract or loan agreements.

2. The agreement on project step-in rights shall be made in writing between the lender(s) and the ASA or between the lender(s) and the parties signing the project contract. The lender(s) and the ASA shall determine when to sign the agreement on project step-in rights.
3. After exercising any project step-in rights, the lender(s) or their appointed entity shall fulfil the respective obligations of the investor(s) and the project enterprise as prescribed in the project contract and the agreement on project step-in rights.

Article 34. Assignment of rights and obligations under the project contract

1. The investor has the right to assign part or all of its rights and obligations under the project contract to the lender or another investor.
2. Any assignment of part or all of the rights and obligations under the project contract must not affect the objectives, scale, technical specifications, project implementation schedule and must comply with conditions for investment and conducting business in accordance with the laws on investment and other conditions as agreed in the project contract.
3. The agreement on assignment, prescribed in Clause 1 of this Article, shall be made in writing and signed between the parties to the project contract and the assignee. The lender(s) shall participate in negotiation of the assignment agreement as prescribed in the loan agreements.

Article 35. Amendment and supplementation to the project contract

The project contract may be amended or supplemented due to a change of scale, technical specifications of the project facility, total investment capital as agreed, or due to an event of force majeure, [or] an amendment of the feasibility study report as prescribed in Article 28 of this Decree and other circumstances as stipulated in the project contract.

Article 36. Term of project contract

1. The term of a project contract shall be as agreed by the parties in conformity with the sector, size, nature of the project and type of project contract.
2. The effectiveness of the project contract shall terminate upon the expiry of the agreed term or before the expiry of the term due to breach by one of the parties without effective remedial measures, due to a force majeure event; or in other circumstances as provided in the project contract.
3. The signing parties shall agree on the conditions of termination of the project contract and measures for handling the termination of the project contract.

Article 37. Applicability of foreign law

1. The signing parties may agree on the application of foreign law governing the following contracts:
 - a) Project contracts to which one party is foreign investor;
 - b) Contracts for which the Government guarantees the performance of obligations as set out in Article 57 of this Decree.
2. Agreement on the applicability of foreign law, as set out in Clause 1 of this Article, must not contradict the provisions of the laws of Vietnam on selection and application of foreign law.

Article 38. Security for performance of project contract

The [ASA](#) and the investor may agree on the form, value and effective term of security for performance of project contract in accordance with the laws on public procurement.

Chapter VI

PROCEDURES FOR INVESTMENT REGISTRATION AND ESTABLISHMENT OF PROJECT ENTERPRISE

Article 39. Authority for issuance, amendment and revocation of the investment registration certificate

1. The Ministry of Planning and Investment shall issue, amend and revoke the investment registration certificate for the following projects:
 - a) Projects of national importance;
 - b) Projects for which a Ministry, branch or an agency authorized by the Ministry or branch is the [ASA](#) to sign the project contract;
 - c) Projects to be implemented in at least two provinces or cities under Central Government.
2. The provincial-level People's Committees shall issue, amend and revoke the investment registration certificates to projects other than those stipulated in Clause 1 of this Article.
3. The procedures for obtaining an investment registration certificate are not required for group C projects.

Article 40. Application file, procedures for issuance, amendment and revocation of the investment registration certificate

1. The application file for issuance of an investment registration certificate shall comprise:
 - a) Written request for issuance of an investment registration certificate;
 - b) Investment agreement and draft of the project contract;
 - c) Feasibility study report and approval decision of the project;
 - d) Approval-in-principal on the use of [State capital for PPP](#)~~State investment capital~~ for the participation in implementing the project (if any);
 - dd) Joint venture contract and draft of the project enterprise charter (if any);
 - e) Decision on investor selection.
2. The investor shall submit 05 sets of application files, including at least 01 set of originals, to the agency as prescribed in Article 39 of this Decree.
3. The agency, as prescribed in Article 39 of this Decree, shall issue the investment registration certificate within 25 days upon receipt of the valid application file.
4. The Ministry of Planning and Investment shall provide detailed guidance on the application file, process and procedure for issuance, amendment and revocation of an investment registration certificate.

Article 41. Contents of the investment registration certificate

1. An investment registration certificate shall contain the following main contents:
 - a) Name and address of the investor;
 - b) Name of the project;
 - c) Objectives, scale, requirements, and conditions for implementation of the project (if any);
 - d) Project implementation location and area of land to be used;
 - dd) Total investment capital of the project; structure of the capital sources.
 - e) Project term and implementation schedule;
 - g) Value, proportion, schedule, and conditions for disbursement of State capital for PPP~~State investment capital~~ for the participation in the project implementation (if any);
 - h) Investment incentives (if any).
2. For BT projects, in addition to the contents relating to project for construction of infrastructure facility, as set out in Clause 1 of this Article, the investment registration certificate must also provide conditions for implementation of the Other Project.
3. For the Other Project, procedures for issuance of an investment registration certificate shall be conducted in accordance with the laws on investment.

Article 42. Establishment of the project enterprise

1. Following the issuance of an investment registration certificate, the investor shall establish an enterprise for project implementation in conformity with the objectives and scope of operation as agreed in the project contract. The application file, procedures for establishment of project enterprise shall be conducted in accordance with the laws on enterprise.
2. Regarding BT projects and group C projects, the investor may decide to establish a project enterprise in accordance with the provisions in Clause 1 of this Article or to directly implement the project, but is required to organize the management of and carry out independent accounting on the investment capital sources and activities of the project.

Chapter VII

PROJECT IMPLEMENTATION

Article 43. Conditions for project implementation

1. Project shall be implemented in accordance with the conditions as agreed in the project contract after the investment registration certificate is issued to the investor.
2. Group C projects shall be implemented after the project contract is signed.
3. The Other Project may be implemented simultaneously or after the completion of the infrastructure facility as agreed in the project contract.

Article 44. Selection of contractors to implement the project

The investor or the project enterprise shall issue regulations on selection of contractors for consultancy, provision of goods, construction and installation and other contractors

on the basis of ensuring the fairness, transparency and economic efficiency to be applied consistently during the implementation of the project.

Article 45. Preparation of construction site

1. The provincial-level People's Committee is responsible for organizing land clearance and completing procedures for land allocation or lease of land to implement the project in accordance with the laws on land, project contract and other relevant contracts.
2. The [ASA](#) shall coordinate with the provincial-level People's Committee to fulfil the responsibilities prescribed in Clause 1 of this Article.

Article 46. Preparation of construction design

1. Based on the feasibility study report and the provisions of the project contract, the investor or the project enterprise shall formulate the technical design to be sent to the [ASA](#) for supervision and inspection. Any change to the technical design, which affects the scale, technical standards and implementation schedule of the project must be approved in writing by the [ASA](#).
2. Appraisal of the construction design shall be conducted in accordance with the laws on construction.

Article 47. Supervision on the implementation of project contract

1. The investor [or] the project enterprise shall be responsible for quality of the project facility and services; shall supervise, manage on its own or employ an independent consulting organization to manage and supervise the construction, and the acceptance of each item and the entire of the [project] facility in accordance with the design and business plan as provided in the project contract.
2. The [ASA](#) shall supervise the compliance with the obligations of the investor and the project enterprise as specified in the project contract.
3. If necessary, the [ASA](#) may employ qualified organizations to support in performing the duties specified in Clause 2 of this Article.

Article 48. Supervision of the quality of facilities

1. While performing supervision of the quality of the facilities which are transferred to the State after the completion [of construction], in addition to the duties provided in Article 47 of this Decree, the [ASA](#) shall be responsible for:
 - a) Examining the supervision of the facility construction process in accordance with the requirements specified in the project contract;
 - b) Examining the compliance with processes, standards, regulations for managing and operating the facility as provided in the project contract;
 - c) Organising the assessment of the quality of components of the facility, items of the facility and the entire constructed facility when there are questions concerning the quality or at the request of a state management body;
 - d) Requesting the investor to require the contractor to adjust or suspend the construction when the performance quality does not satisfy the requirements.

2. Supervision of quality of BT project facility shall be conducted in accordance with the procedures applicable to public investment projects.
3. The Ministry of Construction shall provide guidelines on implementation of the provisions of this Article.

Article 49. Management and commercial operation of project facilities

1. The investor or the project enterprise shall manage and commercially operate the project facility or implement the Other Project in accordance with the conditions as agreed in the project contract.
2. When operating the project facility or delivering services, the project enterprise shall be responsible for:
 - a) Providing goods and services and performing other obligations in accordance with the requirements and conditions as agreed in the project contract;
 - b) Ensuring that the use of the facility is in compliance with the conditions provided in the project contract;
 - c) Providing equal treatment to all users of products or services provided by the project enterprise; [the project enterprise shall] not using the rights to commercially operate the facility to deny providing services to users;
 - d) Conducting periodical maintenance, repair and ensuring that the facility operates safely in accordance with the design or process as being undertaken under the project contract.

Article 50. Charges and fees for goods and services and other fees collectable

1. Charges, fees and other fees collectable, and conditions and procedures for adjustment [of the charges, fees and other fees collectable] shall be agreed in the project contract on the principle of ensuring the interests of the investor, project enterprise, end-users and the State and enabling the investor to recover investment capital and gain profits.
2. Agreements on, adjustments of charges, fees for goods and services and other fees collectable regulated by the State must comply with the laws on charges, fees and be in accordance with the conditions as provided under the project contract.
3. When adjusting the charges, fees for goods or services and other fees collectable as prescribed in Clause 1 and Clause 2 of this Article, the investor or the project enterprise shall notify the [ASA](#) and users of goods or services 30 days in advance.

Article 51. Support in collecting service fees

The investor and the project enterprise shall be given favourable conditions to collect properly and in full the service charges and fees and other fees; and shall be supported by the [ASA](#) for collecting service fees and other collectable fees.

Article 52. Investment supervision and evaluation, and financial publication

1. Supervision and evaluation of projects shall be conducted in compliance with the regulations on investment supervision and evaluation and agreement(s) in the project contract.
2. The investor and the project enterprise shall make public the financial statements and audit reports in compliance with the laws and agreement(s) in project contract.

Chapter VIII

FINALIZATION AND TRANSFER OF PROJECT FACILITIES

Article 53. Finalization of the project facilities

1. The investor shall, within 06 months upon completion of [construction of] the project facility, carry out the finalization of investment capital for the construction of the facility.
2. The [ASA](#) shall reach agreement with the investor on the selection of an experienced, competent and independent auditing organization to audit the value of the investment capital for the construction of the project facility.
3. The Ministry of Finance shall provide detailed guidelines on finalization of project facility value pursuant to provisions of this Article.

Article 54. Transfer of project facility

1. Regarding project contracts, which include provisions on the transfer of the project facilities, the [ASA](#) and the investor shall reach an agreement in the project contract on the conditions and procedures for transfer of the project facility.
2. Transfer of the project facility shall be conducted under the following procedures and conditions:
 - a) One year prior to the date of transfer or within the term as agreed in the project contract, the investor and the project enterprise must publicize the transfer of the project facility and the term and procedures for contract liquidation, and repayment of debts via newspaper;
 - b) The [ASA](#) shall organize evaluation of quality, value and status of the project facility as agreed in the project contract, make a list of assets to be transferred, determine damages (if any) and request the project enterprise to conduct reparation or maintenance of the facility;
 - c) The investor and the project enterprise must ensure that the assets to be transferred are not used to secure the performance of financial obligations or other obligations of the investor or the project enterprise, which have been arising before the transfer, unless the project contract provides otherwise;
 - d) The project enterprise shall be responsible for transferring technology, providing training and periodical maintenance and major overhaul to ensure the technical conditions for normal operation of the facility are in compliance with the requirements specified in the project contract; and
 - dd) After taking over the project facility, the [ASA](#) shall manage and operate the facility in accordance with its functions and powers.

Chapter IX

INVESTMENT INCENTIVES AND GUARANTEES

Article 55. Investment incentives

1. The investor and the project enterprise shall be entitled to incentives on corporate income tax in accordance with the laws on corporate income tax.

2. Goods imported to implement a project shall be entitled to the incentives in accordance with the laws on import and export duties.
3. The investor and the project enterprise shall be subject to exemption from or reduction of land use fees for the area of land allocated by the State or shall be subject to exemption from or reduction of land rent for the whole project implementation term in compliance with the laws on land.
4. The investor and the project enterprise shall be entitled to other incentives in accordance with the laws.

Article 56. Taxes applicable to contractors participating in project implementation

Foreign contractors and domestic contractors participating in implementation of a project shall fulfil tax duties and shall be entitled to tax incentives in accordance with the laws.

Article 57. Guarantees for obligations of the investor, project enterprise and other enterprises

Based on the nature and requirements of project implementation, the Prime Minister shall appoint an agency to act on behalf of the Government to provide a guarantee for provision of raw materials, sales of products, services and other contractual obligations to the investor, project enterprise or other enterprises participating in project implementation and a guarantee for obligations of State-owned enterprises selling fuel, raw materials, purchasing products and services of the investor or project enterprise.

Article 58. Mortgage assets or the rights to commercially operate the project facility

1. The investors and the project enterprises shall be permitted to mortgage assets, land-use rights and the rights to commercially operate the project facility to the lenders in accordance with the civil laws and the laws on land. The mortgage term shall not exceed the term of the project contract, unless otherwise agreed under the project contract.
2. The agreement to mortgage assets or the rights to commercially operate the project facility shall be made in writing and signed by the lenders and the parties signing the project contract.
3. Any mortgage of assets or rights to commercially operate the project facility must not affect the objectives, scale, technical specifications, project implementation schedule and other conditions as agreed in the project contract.

Article 59. Assurance of exercise of land use rights

The land use purpose of the project shall remain unchanged in the entire implementation term of the project contract, even in the case the lenders exercise their step-in rights as prescribed in Article 33 of this Decree.

Article 60. Assurance of foreign currency balance

1. The investors and project enterprises shall be permitted to buy foreign currency from the credit institutions permitted to conduct foreign exchange activities in order to satisfy the need for current transactions, capital transactions and other transactions or remittance

abroad of capital, profits, proceeds from liquidation of offshore investment in accordance with the laws on foreign exchange control.

2. Projects for which the National Assembly having the authority to make approval-in-principal for investment; infrastructure construction projects within the Government investment programs and other important projects as decided by the Prime Minister shall be considered for satisfying the need for foreign currency to conduct the transactions provided in Clause 1 of this Article.
3. The Prime Minister shall decide on and appoint an agency to be responsible for providing the foreign currency balance guarantee for the projects prescribed in Clause 2 of this Article, based on the direction on socio-economic development, policies on management of foreign currency, the ability to balance foreign currency from time to time, and [based on] the objective, nature of projects, and at the request of Ministries, branches [or] local authorities.

Article 61. Assurance of provision of public services

1. The investors and the project enterprises shall be permitted to use land, roads and other ancillary facilities to implement the project in compliance with the laws.
2. Where [certain] public services are scarce or where public facilities are limited to certain users, the investors, [or] project enterprises shall be given priority to be provided with [such] services or to be granted the right to use [such] public facilities to implement the project.
3. The [ASA](#) shall be responsible for assisting the investors [or] project enterprises in conducting necessary procedures in order to obtain the priority in using public services and facilities.

Article 62. Assurance of property rights

1. Lawful properties of the investors shall not be nationalized or expropriated by administrative measures.
2. In case of compulsory purchase or requisition of [investors'] properties by the State for the purposes of national defence, security or for the interests of the nation, in emergency situations, or for preventing and fighting against natural disasters, the investors shall be paid, compensated in accordance with the provision of the laws on investment, the laws on compulsory purchase, requisition of properties and other conditions as agreed in the project contract.

Article 63. Dispute settlement

1. Any dispute arising between the [ASA](#) and the investor or the project enterprise and any dispute arising between the project enterprise and other economic organizations participating in the implementation of a project must firstly be settled through negotiation and conciliation. In the event that the dispute cannot be settled through negotiation and conciliation, the parties may refer the dispute to an arbitration institution or courts of Vietnam in accordance with the laws of Vietnam, except for the cases prescribed in Clause 2 and Clause 3 of this Article.
2. Any dispute arising between the [ASA](#) and a foreign investor or the project enterprise established by a foreign investor, in accordance with Article 42 of this Decree, during implementation of the project contract and the guarantee agreements, prescribed in Article 57 of

this Decree, shall be settled by arbitration or by the courts of Vietnam or by an arbitral tribunal established on the basis of an agreement between the parties.

3. Any dispute arising between the project enterprise and foreign individual or foreign organization and dispute between the project enterprise and Vietnamese economic organization and dispute among investors shall be settled in accordance with the provisions of the Law on Investment.
4. Disputes to be settled by arbitration as agreed under the project contract and other relevant contracts are commercial disputes. Awards of foreign arbitrations shall be recognized and enforced in accordance with the laws on recognition and enforcement of foreign arbitral awards.

Chapter X

STATE RESPONSIBILITIES FOR MANAGEMENT OF PUBLIC – PRIVATE PARTNERSHIP INVESTMENT

Article 64. Responsibilities of the Ministry of Planning and Investment

1. To assist the Government to manage consistently investment activities under PPP form on national scale.
2. To preside over and coordinate with the relevant Ministries and branches to provide guidance on the management and use of capital sources for supporting investment preparation; procedures for the change of investment form of projects funded by public investment capital; the application file, procedures for approval of project proposal of the investors; the application file, procedures for issuance, amendment, revocation of investment registration certificate; the use of State capital for PPP~~State investment capital~~ for the participation in the project implementation; the transfer of rights and obligations under the project contract and other matters within the scope of its authority as provided in this Decree.
3. To appraise and submit to the Prime Minister for consideration and determination on other similar types of project contracts upon proposals of the Ministries, branches and provincial-level People's Committees.
4. To preside over and coordinate with the Ministry of Finance to synthesize plans for using the State capital for PPP~~State investment capital~~ for the participation in the project implementation; and manage the capital sources for supporting investment preparation.
5. To coordinate with the Ministry of Finance to provide guidance on disbursement of State capital for PPP~~State investment capital~~ for the participation in the project implementation.
6. To issue, amend and revoke the investment registration certificate for projects within its authority; to appraise the source of State capital for PPP~~State investment capital~~ for the participation in the project implementation within its authority; to participate in appraisal of issues within the scope of its function and authority at the requests of Ministries, branches and provincial-level People's Committees.
7. To preside and coordinate with the Ministries, branches and provincial-level People's Committees to appraise the proposals on the application of other forms of investment guarantees which are not provided in this Decree.
8. To preside over and coordinate with Ministries, branches and provincial-level People's Committees in supervision, examination, inspection, consolidation and assessment of the implementation of PPP projects on the national scale.

9. To develop and manage the information system and national database on PPP investment.
10. To organize training and capacity building for the implementation of projects developed under PPP form.
11. To formulate, maintain and manage the VGF Target Program as the VGF Target Program Owner.
12. To perform other duties and powers in compliance with the laws.

Article 65. Responsibilities of the Ministry of Finance

1. To provide guidance on the use of costs for preparation and implementation of projects of Ministries, branches and provincial-level People's Committees; mechanism for implementation of projects developed under BT contracts; financial plan of projects; finalization of project facility and other issues within the scope of authority as prescribed in this Decree.
2. To preside over and coordinate with the Ministry of Planning and Investment to provide guidance on disbursement of State capital for PPP~~State investment capital~~ for the participation in project implementation.
3. To coordinate with the Ministry of Planning and Investment to formulate the plan for using State capital for PPP~~State investment capital~~ for the participation in the project implementation and manage the capital sources for supporting investment preparation.
4. To provide opinions on investment incentives and guarantees for projects.
5. To provide opinions about the issues within the scope of its function and authority at the request of Ministries, branches, and provincial-level People's Committees.
6. To synthesize and assess data on public debts of projects and financial obligations of the Government.
7. To perform other duties and powers in compliance with the laws.

Article 66. Responsibilities of the Ministry of Justice

1. To provide opinions on project contracts, Government guarantee documents and other documents related to project contracts, which are signed by the state agencies.
2. To participate in negotiations on the matters related to the governing laws, dispute resolution, government guarantees and other legal issues of project contracts and other relevant contracts at the request of the Ministries, branches and provincial-level People's Committees.
3. To perform other duties and powers in compliance with the laws.

Article 67. Responsibilities of the State Bank of Vietnam

1. To provide opinions on the capability of balancing foreign currency for projects at the request of Ministries, branches and provincial-level People's Committees; to synthesize the demand for foreign currency of projects and manage the State foreign exchange reserves to ensure foreign currency balance for projects.
2. To participate in appraisal of issues within the scope of its function and authority, at the request of Ministries, branches and provincial-level People's Committees.
3. To perform other duties and powers in compliance with the laws.

Article 68. Responsibilities of the Ministry of Construction

1. To provide guidance on the implementation of the regulations on supervision and management of the quality of project facilities and the norms of operating costs of the project management units.
3. To participate in appraisal of projects with respect to issues within the scope of its function and authority, at the request of Ministries, branches and provincial-level People's Committees.
4. To perform other duties and powers in compliance with the laws.

Article 69. Responsibilities of Ministries and branches

1. To exercise state management on PPP investment within their scope of management.
2. To formulate and publish the projects within their scope of management.
3. To preside over, coordinate with the Ministry of Planning and Investment to provide guidelines for specific provisions as assigned to them in this Decree.
4. To provide opinions with respect to issues within the scope of their function and authority at the request of the Ministries, branches and provincial-level People's Committees.
5. To consolidate and assess the implementation status of projects within the scope of management of the sectors.
6. To submit to the Prime Minister for consideration and determination on implementation other forms of investment guarantees, which are not provided in this Decree.
7. To perform other duties and powers in compliance with the laws.

Article 70. Duties of provincial-level People's Committees

1. To exercise state management of PPP investment in their province as authorized by the Government.
2. To formulate and publish projects of the locality.
3. To appraise, issue, amend or revoke the investment registration certificate for projects within the authority [of the provincial-level People's Committee].
4. To provide opinions within the scope of their function and authority at the requests of Ministries, branches and provincial-level People's Committees.
5. To consolidate and evaluate the implementation status of projects under the scope of management of the locality.
6. To preside over and coordinate with the ASA to organize site clearance to implement projects.
7. To submit to the Prime Minister for consideration and determination on the implementation of other investment guarantees, which are not provided in the provisions of this Decree.
8. To perform other duties and rights in compliance with the laws.

Chapter XI

IMPLEMENTING PROVISIONS

Article 71. Effectiveness

1. This Decree shall be effective as of 10 April 2015.

2. The following Decrees and Decisions shall expire on the effective date of this Decree:
 - a) Decree No. 108/2009/ND-CP, dated 27 November 2009, of the Government on investment under the forms of BOT, BTO and BT contracts;
 - b) Decree No. 24/2011/ND-CP, dated 05 April 2011, of the Government amending a number of provisions of Decree No. 108/2009/ND-CP on investment under the form of BOT, BTO and BT contracts;
 - c) Decision No. 71/2010/QD-TTg, dated 09 November 2010, of the Prime Minister on promulgation of Regulation on pilot investment in PPP form.

Article 72. Transitional provisions

1. Project list published, prior to the effective date of this Decree must be reviewed and re-approved in accordance with this Decree, except for [the project list] having been approved by the Prime Minister.
2. Feasibility study report approved, prior to the effective date of this Decree, shall not be subject to re-approval in accordance with this Decree.
3. Project, for which a decision on investor selection has been approved, prior to the effective date of this Decree, shall not be subject to re-selection of investor in accordance with this Decree.
4. Project contract initialled, prior to the effective date of the Decree, shall not be subject to re-negotiation.
5. Project for which an investment certificate has been issued or [for which] the project contract has been formally signed, prior to the effective date of this Decree, shall be implemented in accordance with the provisions of the investment certificate and the project contract.
6. Project for which an undertaking or a written agreement or commitment of the Prime Minister, Ministries, branches and provincial-level People's Committees on the use of State capital for PPP~~State investment capital~~ for the participation in the project implementation, investment incentives, guarantees and other contents relating to project implementation has been obtained, prior to the effective date of this Decree, shall be implemented in accordance with such agreement or commitment.
7. Other cases shall be implemented pursuant to decisions of the Prime Minister upon requests of the Ministry of Planning and Investment.

Article 73. Organization for implementation

Ministers and heads of ministerial equivalent bodies, heads of Government bodies, Chairmen of People's Committees of provinces and cities under direct management of Central Government within their functions and powers shall be responsible for providing guidelines for and implementing this Decree./.

On behalf of the Government

PRIME MINISTER

(signed)

Nguyen Tan Dung

Appendix 6.1 List of MPI Priority PPP Projects

LIST OF NATIONAL SPECIAL PRIORITY PPP PROJECTS (period of time from 2016 to 2020)								
<i>(Attached Report No: /BC-BKHDT dated on September ,2016 of Ministry of Planning and Investment)</i>								
<i>Unit: Million VND</i>								
No.	Project	Sector	Contract type	Total investment	Viability Gap Funding (VGF)	Project Development Facility (PDF)	Note	% of VGF
Water Supply								
I	Ministry of Agriculture and Rural Development							
1	Project of water supply system in rural area, Yen Nam Dinh	Agriculture	BOT	251,000	121,000	2,000	Document No. 5206/BNN-KH	48%
XIV	Vinh Phuc							
2	Duc Bac water company (Lo River)	Water Supply	BOT	1,389,000	0	50,000	Document No. 1309/SKHDT-DNKHTHT	0%
XV	Binh Dinh							
3	Supply water for residential and industrial area	Water Supply	BOT	3,000,000	900,000	5,000	Document No. 524/SKHDT-TTXT	30%
XVI	Binh Thuan							
4	Water supply system for Do Son Technology and Urban complex, Ham Tam	Water Supply		500,000	0	12,500	Document No. 2250/UBND-DTQH	0%
XVIII	Ha Tinh							
5	Water supply with capacity of 11.000m3/day night for Vung Anh economics zone	Water Supply	BOT	224,142	67,243	21,402		30%
XX	Nghé An							
6	Construct water company in Nghia Dan district (BOT)	Transportation		480,000	0	40,000	Document No. 1127/SKHDT-TD	0%
Waste Water								
VI	Da Nang							
7	Waste water treatment project in Hoa Khanh industrial zone	Environment	BOT	500,000	175,000	5,460	Document 4613/UBND-QLDT (1318/SKHDT-KTDN)	35%
V	Cao Bang							
8	Investment on constructing waste water treatment and drainage system in De Tham, Cao Bang city	Environment	BT	998,000	0	59,880	Document No. 1589/UBND-TH	0%
XXIV	Quang Ngai							
9	waste water collection and treatment for Quang Ngai city	Environment		600,000	0	45,000	Document No. 3122/UBND-KTTH	0%
XVI	Thanh Hoa							
10	waste water treatment system for Nghi Son economics zone	Infrastructure	BOT	2,200,000	950,000	66,000		43%
XXXI	Bac Lieu							
11	investment on waste water treatment company for Bac Lieu city	Environment	BOT	632,778	0	30,000	Document No. 2271/UBND-D-QHKHTH	0%
Solid Waste								
IV	Quang Ninh							
12	Domestic and industrial waste treatment system for Ha Long city, Hoanh Bo district and Cam Pha city	Environment	BLT	1,302,000	500,000	50,000	Document No. 1801/KHDT-TDGSDT	38%
V	Hanoi							
13	High tech waste treatment system in Bac Son, Soc Son	Environment	BOT or BLT	9,000,000	0	10,000	Document No. 3678/UBND-KH&DT	0%
XVII	Da Nang							
14	Solid waste treatment for Danang city	Environment	BOT	2,200,000	660,000	2,500		30%
Hospital								
X	Hanoi							
15	Investment on constructing Medical - Hanoi Heart hospital complex	Health service	undecided	2,000,000	0	2,000		0%
XXII	Phu Yen							
16	Hospital of Pediatrics and Obstetrics	Health service		579,377	0	12,000	Document No. 2943/UBND-D-BTXD	0%
Transportation (highway, bridge)								
I	Ministry of Transportation							
17	Cao Bo (Nam Dinh) - Mai Son (Ninh Binh)	Transportation		3,800,000	3,800,000			100%
18	North - South highway, the part of Ninh Binh - NH.45 (Thanh Hoa)	Transportation	BOT	15,481,900	5,883,100	40,000	According to the project of investment on construction of North - South highway from Hanoi - Ho Chi Minh city by 2020	38%
19	North - South highway, the part of NH.45 - Nghi Son (Thanh Hoa)	Transportation	BOT	8,186,800	2,701,700			33%
20	North - South highway, a part from Nghi Son (Thanh Hoa) to Dien Chau	Transportation	BOT	10,467,800	4,605,900			44%
21	North - South highway, the part from Dien Chau - Bai Vot	Transportation	BOT	15,512,700	9,617,900	40,000		62%
22	North - South highway, the part from Bai Vot - Ham Nghi intersection	Transportation	BOT	6,692,200	3,305,900			49%
23	North - South highway, the part form Ham Nghi intersection - Vung Ang	Transportation	BOT	8,091,500	2,912,900	48,000		36%

No.	Project	Sector	Contract type	Total investment	Viability Gap Funding (VGF)	Project Development Facility (PDF)	Note	% of VGF
Transportation (highway, bridge)								
I	Ministry of Transportation							
24	North - South highway, the part from Vung Ang (Ha Tinh) – Bung (Quang Binh)	Transportation	BOT	8,961,700	3,584,700	20,000	According to the project of investment on construction of	40%
25	North - South highway, the part from Bung – Van Ninh (Quang Binh)	Transportation	BOT	6,502,400	1,950,700	15,000	According to the project of investment on construction of North - South highway from Hanoi - Ho Chi Minh city by 2020	30%
26	North - South highway, the part from Van Ninh - Cam Lo (Quang Tri)	Transportation	BOT	8,361,900	2,006,900	Information is updating		24%
27	North - South highway, the part from Cam Lo (Quang Tri) to La Son	Transportation	BOT	13,334,800	4,634,800	20,000		35%
28	La Son - Tuy Loan (Da Nang)	Transportation	BT	2,400,000	2,400,000	0		100%
29	North - South highway, the part from Quang Ngai - Hoai Nhon (Binh Dinh)	Transportation	BOT	15,895,000	6,199,000	Information is updating		39%
30	North - South highway from Hoang Nhon (Binh Dinh) - Quy Nhon (Binh Dinh)	Transportation	BOT	13,069,500	4,835,700	Information is updating		37%
31	North - South highway, the part from Quy Nhon - Tuy Hoa	Transportation	BOT	17,074,600	6,573,700	Information is updating		38%
32	North - South highway, the part from Tuy Hoa - Nha Trang	Transportation	BOT	20,116,300	7,644,200	Information is updating		38%
33	Nha Trang - Tháp Cham (Ninh Thuan)	Transportation	BOT	13,968,800	5,308,100	Information is updating		38%
34	Thap Cham (Ninh Thuan) - Bac Binh (Binh Thuan)	Transportation	BOT	11,713,400	3,982,600	Information is updating		34%
35	Bac Binh (Binh Thuan) - Phan Thiet	Transportation	BOT	12,846,400	4,534,800	Information is updating	35%	
36	Dau Giay - Phan Thiet	Transportation	BOT	17,348,000	7,060,600	0	41%	
IV	Bac Giang							
37	Constructing Dong Son bridge and access road (BT contract)	Transportation	BT	1,169,561	0	3,400		0%
IX	Phu Tho							
38	Nguyen Tat Thanh road to Festival Center (Southern Hung temple area)	Transportation	BOT	496,301	100,000	4,000	Document No. 2398/UBND-TH4	20%
XI	Hai Duong							
39	Belt road II, Hai Duong city (phase I) Northern routine. The length is 30km	Transportation	BOT	1,320,000	396,000	2,549	Document No. 655/SKHDT-TDDTTN	30%
XII	Hung Yen							
40	North - South main road in Hung Yen (from Nh.5 overpass to Road No.19 near railway)	Transportation	BOT	1,225,000	0	60,000	Document No. 139/BC-UBND	0%
XXV	Quang Tri							
41	NH. 1A bypassing Dong Ha city in the East	Transportation	BOT	768,000	422,000	5,575	Document No. 2222A/UBND-CN	55%
XXVII	Thua Thien Hue							
42	extending To Huu road to Phu Bai airport	Transportation	BOT	787,073	236,122	8,000	Document 3752/UBND-XDHT	30%
XXVIII	Binh Duong							
43	constructing a road from T-intersection to Thach Phuong port (nearly PR. 747A) Tan Uyen city - Binh Duong	Transportation	BOT	992,146	396,858	10,000	Document No. 708/SKHDT-TH	40%
XXIX	Ba Ria - Vung Tau							
44	Phuoc An bridge, Tan Thanh district, Ba Rai - Vung Tau	Transportation	BOT	3,543,000	50,000	50,000	Document No.4577/UBND-VP	1%
XXX	Tay Ninh							
45	Road 782-784, the part from T-intersection of Xuyen A bypass, Trang Bang district from Tan Binh, Tay Ninh city	Transportation	BOT	979,724	0	34,845	Document No.1625/UBND-KTN	0%
XXXII	Ca Mau							
46	Construct Nguyen Dinh Chieu bridge	Transportation	BOT	420,000	84,000	13,000	Document No.3981/UBND-KT	20%
XXXIII	Can Tho							
47	Provincial road 922 (construct and upgrade the part from Chau Van Liem ward to Thoi Lai town, Can Tho city in phase I)	Transportation	BT	1,493,000	0	25,000	Document No.2431/UBND-XDDT	0%
XXXIV	Kien Giang							
48	Provincial road 963 (from Hau Giang border to NH.80, the length is 40km)	Transportation	BOT	1,500,000	150,000	5,000	Document No.757/UBND-KTTH	10%
XXXV	Long An							
49	A belt road of Tan An city Dự án đường vành đai thành phố Tân An	Transportation	BT	2,293,000	0	5,000	Document No.1496/SKHDT-TD	0%
XXXVII	Tien Giang							
50	Provincial Road 877C (connecting the western industrial zone to the eastern industrial zone)	Transportation	BOT	1,500,000	300,000	30,000	Document No. 1040/SKH&D T-DTHT	20%

No.	Project	Sector	Contract type	Total investment	Viability Gap Funding (VGF)	Project Development Facility (PDF)	Note	% of VGF
Transportation (port)								
VII	Lang Son							
51	Container terminal infrastructure of Economics zone in Dong Dang border gate, Lang Son	Infrastructure	BOT	827,107	248,000	15,000		30%
XVII	Da Nang							
52	Construct Lien Chieu Port	Transportation	BOT	8,330,000	4,630,000	14,700		56%
XXI	Ninh Thuan							
53	Doc Ham port	Transportation	BOT	12,500,000	3,700,000	25,000	Document No. 2396/UBND-QHXD	30%
XXIII	Quang Nam							
54	Tam Quang fishing port and logistics service	Transportation		68,000	0	1,000	Document No.2821/UBND-KTTH	0%
Transportation (airport)								
VIII	Lao Cai							
55	Investment on constructing Lao Cai airport	Transportation	BOT	5,800,000	1,200,000	16,500		21%
XIX	Khanh Hoa							
56	road and intersection system connecting Nha Trang airport	Transportation	BT	2,062,000	0	5,620	Document No. 4279/UBND	0%
XXV	Quang Tri							
57	Airport in Quang Tri	Transportation	BOT	1,323,000	369,000	11,150		28%
Transportation (Urban Train)								
VII	Ho Chi Minh city							
58	Preparing project proposal on investment of monorail No. 3 construction	Infrastructure	BOT	8,400,000	1,000,000	60,000	Document No.3412/UBND-QLDA	12%
Others								
II	Ministry of Agriculture and Rural Development							
59	Dong Dien reservoir project	Agriculture	BOT	6,481,186	1,960,000	11,700	Document No.5206/BNN-KH	30%
60	Investment on contracting breeding and brackishwater-aquaculture infrastructure to ensure Food Hygiene and Safety for coastal areas of Kim Son district.	Agriculture	BOT	199,829	96,000	1,036		48%
III	Ministry of Information and Communications							
61	Constructing foreign extend validation management and exploitation system and supporting agencies who provide digital signature services with international standards	Information and Communications	BOT	100,000	30,000	3,000	Document No. 2157/BTTTT-KHTC	30%
II	Vietnam academy of Science and Technology							
62	Project of Vietnam Nature museum	Infrastructure	undecided	7,800,000	2,420,000	10,000	Document No. 1114/VHL-KHTC	31%
III	Ministry of Culture, sport and tourism							
63	Project of investment on constructing a Culture and Cinema center	Infrastructure	undecided	480,139	land contribution (more than 3.000m2)	7,500	Document No. 2395/BVDL-KHTC	
VI	Ha Giang							
64	College of Education, Phong Quang commune, Vi Xuyen	Education	undecided	421,963.0	0	12,630	Document No.1910/UBND-KT	0%
X	Hanoi							
65	Replace urban light system to Led lighting system to save electricity	Infrastructure	undecided	3,000,000	0			0%
XIII	Ninh Binh							
66	Dredge and upgrade Dam Cut lake, Gia Vien district, Ninh Binh	Transportation	BT	260,000	0	30,000	Document No. 56/BC-UBND	0%
XXVIII	Ha Tinh							
67	Thach Long trade and Logistics service center, Thach Ha district	Infrastructure	BOT	500,000	50,000	22,074		10%
XXXVI	Soc Trang							
68	Investment on Tran De industrial zone infrastructure.	Infrastructure	BOT	844,073	153,000	1,432	State budget for land clearance Document No. 825/UBND-TH	18%
XXXVIII	Tra Vinh							
69	Construct Co Chien industrial zone infrastructure	Infrastructure	BOT	1,089,257	326,777	3,548	Document 292/BC-SKHDT	30%