

9. PROJECT SCREENING AND SELECTION OF PRIORITY PPP PROJECTS

9.1 Objective and Procedure

The objective of this activity is to identify, evaluate, select and recommend about three (3) projects suitable for Japan's ODA financing.

Project screening and selection procedure is shown in **Figure 9.1-1**.

9.2 Project Listing and Screening

1) Project Identification and Listing

Candidate projects were identified from the following studies and plans;

- (a) Draft National Transport Plan (2010 – 2016), PEGR, AusAID (hereinafter referred to as "NTP")
- (b) Strengthening the Public-Private Partnership (PPP) Program in the National Road Sector through Capacity-Building of DPWH, NEDA, PEGR, AusAID (hereinafter referred to as "PEGR Study")
- (c) Comprehensive and Integrated Infrastructure Program, 2009, NEDA (hereinafter referred to as "CIIP")
- (d) Medium-Term Public Investment Program (2005 – 2010), DPWH (hereinafter referred to as "MTPIP")
- (e) The Study of Master Plan on High Standard Highway Network Development in the Republic of the Philippines – JICA assisted (hereinafter referred to as "HSH Master Plan")
- (f) Information from DPWH officials

A total of 58 projects which includes existing and on-going expressway projects were identified as shown in **Table 9.2-1**.

2) Pre-screening Criteria

PRE-SCREENING CRITERIA

- (0) Under Operation or On-going Project
- (1) Low Traffic (Less than 3,000 vehicles per day)
- (2) There are 3 or more projects in the same direction and it has almost same purpose in catering traffic in the same direction and considered to be quite expensive due to required long bridge/viaduct.
- (3) DPWH encountered ROW acquisition problem.
- (4) Project requires a long tunnel or an under-sea tunnel over 10 km and the construction cost is quite high.
- (5) Other reasons

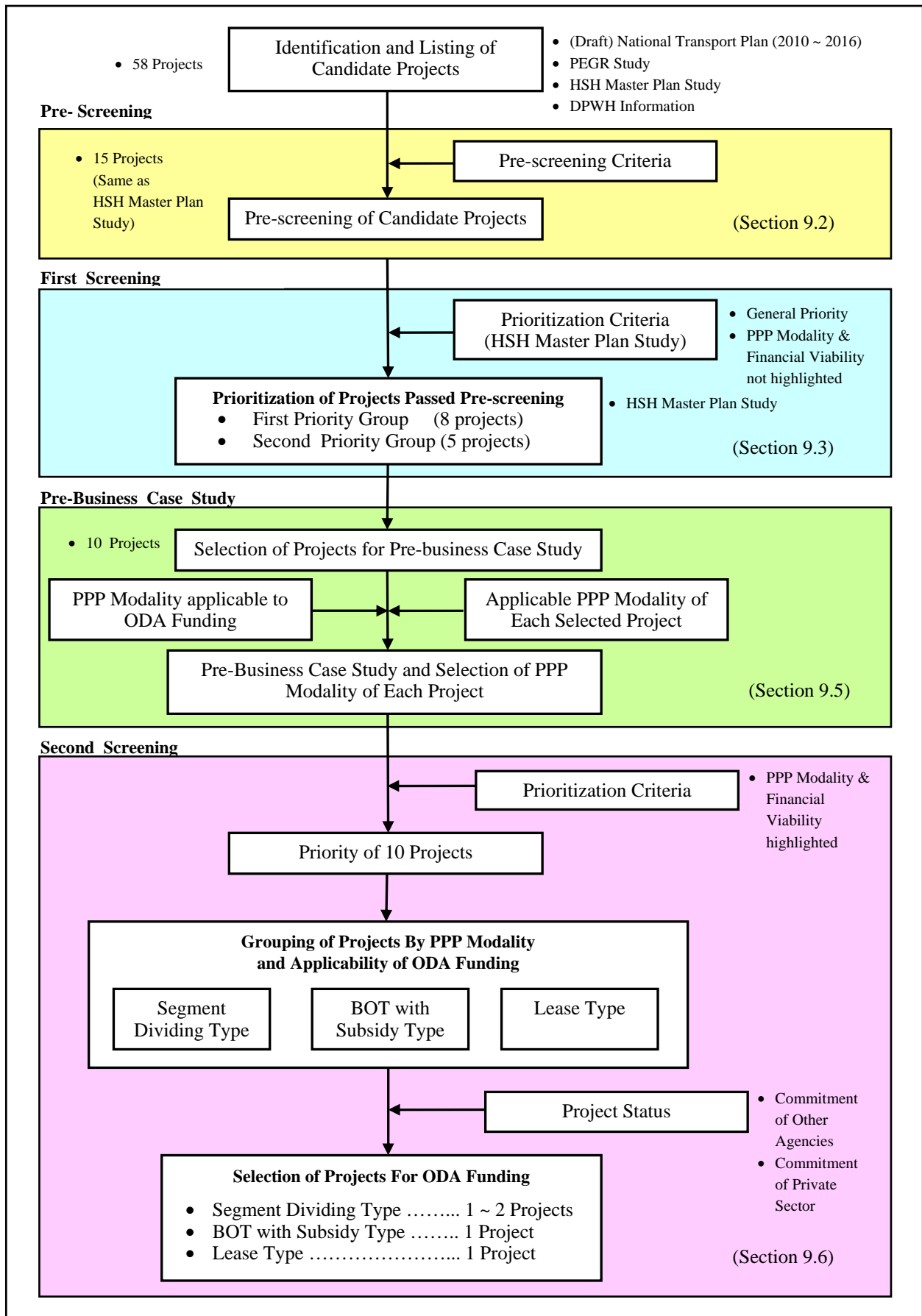


FIGURE 9.1-1 PROJECTS SCREENING AND SELECTION PROCEDURE

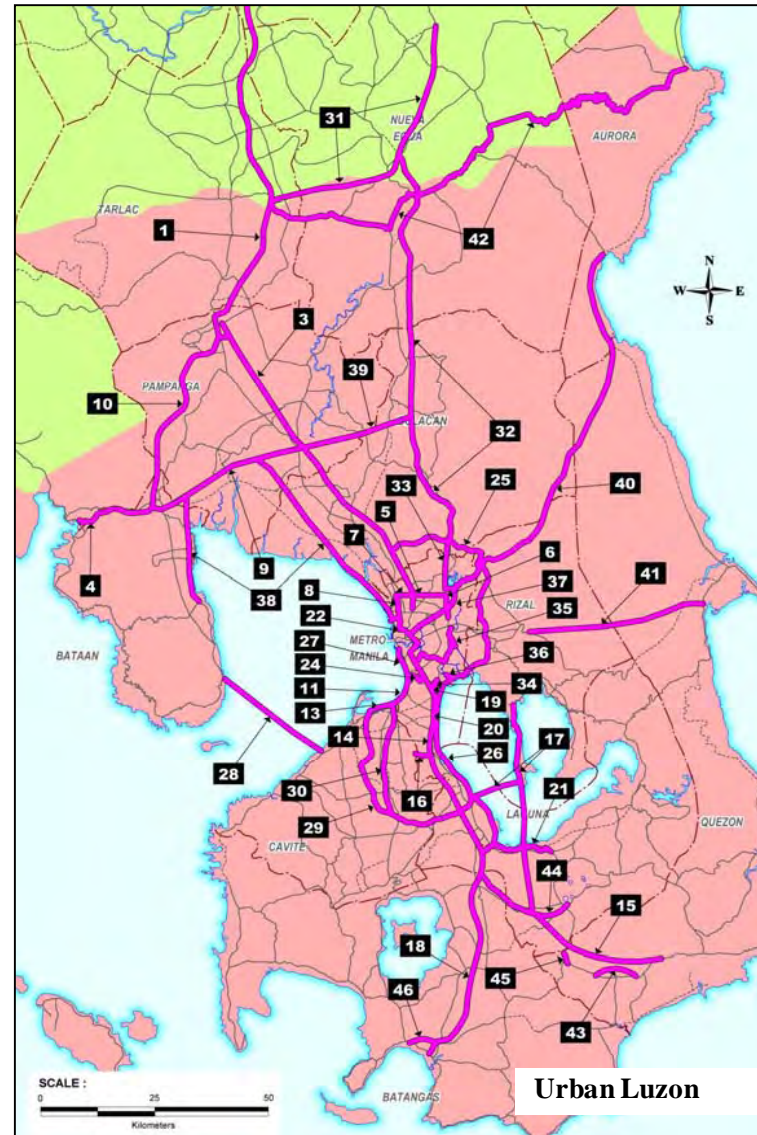


TABLE 9.2-1 IDENTIFIED CANDIDATE PROJECTS

No.	Project Name	NTP	PEGR	HSH
NORTH LUZON SUPER REGION				
1	Tarlac-Pangasinan-La Union Expressway(TPLeX)	*	*	*
2	San Fernando City Bypass Road(La Union)	*		
URBAN LUZON SUPER REGION				
3	North Luzon Expressway (NLEx) Phase 1 (Section 1,2 and 3)			*
4	North Luzon Expressway (NLEx) Phase 1 (Section 7)			*
5	North Luzon Expressway (NLEx) Phase 2 (Section 8.1)	*	*	*
6	North Luzon Expressway (NLEx) Phase 2 (Section 8.2)	*	*	*
7	North Luzon Expressway (NLEx) Phase 2 (Section 9)	*	*	*
8	North Luzon Expressway (NLEx) Phase 2 (Section 10)	*	*	*
9	North Luzon Expressway (NLEx) Phase 3 (Section 4,5 and 6)			*
10	Subic-Clark-Tarlac Expressway(SCTEx)			*
11	Manila Cavite Toll Expressway Phase 1			*
12	Manila Cavite Toll Expressway Phase 2			*
13	Manila Cavite Toll Expressway Phase 3		*	*
14	South Luzon Expressway (SLEx) Phase 1	*	*	*
15	South Luzon Expressway (SLEx) Phase 2 to Lucena	*	*	*
16	Daan Hari-SLEx Link	*		*
17	Laguna de Bay Crossing Road		*	*
18	Southern Tagalog Arterial Road(STAR)			*
19	Metro Manila Skyway Phase 1			*
20	Metro Manila Skyway Phase 2	*	*	*
21	Calamba-Los Banos Toll Expressway	*	*	*
22	NLEx-SLEx Link Expressway			*

SOURCE: JICA STUDY TEAM

No.	Project Name	NTP	PEGR	HSH
URBAN LUZON SUPER REGION				
23	NAIA Expressway Phase1			
24	NAIA Expressway Phase2		*	
25	C-6 Expressway		*	
26	C-6 Extension Expressway			
27	Manila Bay Expressway		*	
28	Manila Bay Crossing Road			
29	CALA Expressway	*	*	
30	North-South Expressway (CALA)	*	*	
31	Central Luzon Expressway (CLEx)	*1)		
32	NLEx-East		*2)	
33	La Mesa Parkway			
34	C-5/FII/Skyway Connector Road			
35	Pasig Marikina Expressway		*3)	
36	Global City Link			
37	R-7 Expressway			
38	Manila Bataan Coastal Road			
39	East West Connection Expressway			
40	Quezon City-Dingalan Road			
41	Marikina-Infanta Road			
42	Tarlac-Nueva Eciji-Aurora-Dingalan Port Road			
43	Candelaria Bypass Road(Quezon)	*		
44	Alaminos-San Pablo City Bypass Road along Mahalika Hig	*	*	
45	Tiaong Bypass	*		
46	Batangas-Bauan Ring Road	*	*	

No.	Project Name	NTP	PEGR	HSH
CENTRAL PHILIPPINES SUPER REGION				
47	Hillside Bypass in Metro Cebu			*
48	Widening of Mactan Bridge or new bridge in Metro Cebu			*
49	Cebu-Bohol Bridge		*	
50	Iloilo-Guimaras Bridge		*	
51	Palo East and Wst Bypass Road,Leyte	*	*	
52	Bacolod City-Granada Section, Negros Occidnetal	*		
53	Dumaguete City Diversion Road, Negros Oriental	*		
MINDANAO SUPER REGION				
54	Panguil Bay Bridge	*		
55	Samal Island Bridge		*	
56	Ozamis City Coastal Bypass Road, Misamis Occidental	*	*	
57	Davao City Coastal Road			*
58	Zamboanga City Bypass Road Zamboanga Del Sur	*	*	

Note 1) Cabanatuan Bypass and San Jose Bypass (part of CLEx)

2) NLEE-C6 to San Jose, Nueva Ecija(a part of NLEx East)

3) Pasig Expressway (part of Pasig Marikina Expressway)

NTP: Draft National Transport Plan,2010-2016 (14 Dec. 2009).

PEGR:Strengthening the Public-Private Partnership (PPP) Program in the National Road Sector through Capacity-Building of DPWH, NEDA.

HSH:The Study of Master Plan on High Stadard Highway (HSH) Network Development in the Republic of the Philippines.

3) Pre-screening Results

Pre-screening results are shown in **Table 9.2-2**, and summarized hereunder:

Criteria	No. of Projects Screened Out
Under criteria (0)	16 projects
Under criteria (1)	6 projects
Under criteria (2)	4 projects
Under criteria (3)	3 projects
Under criteria (4)	2 projects
Under criteria (5)	12 projects
Total	43 projects

43 projects were screened out, and 15 projects were left for further study.

Among 15 projects, following projects were integrated;

- C-6 Expressway (No. 25) and Global City Link (No. 36) were integrated into one project and called as C-6 Expressway, since Global City Link is a short branch of C-6 Expressway.
- NLEx East (No. 32) and La Mesa Parkway (No. 33) were integrated into one project and called as NLEx-East/La Mesa Parkway, since NLEx-East is an extension of La Mesa Parkway.

As a result, 13 projects were remained. These 13 projects are exactly the same as these projects recommended by “HSH Master Plan Study”.

TABLE 9.2-2 PRE-SCREENING RESULTS

No.	Project	Length	Status	Pre Screen Criteria					Remarks
				0	1	2	3	4	
NORTH LUZON SUPER REGION									
1	Tarlac-Pangasinan-La Union Expressway(TPLeX)	88.0	On-going	✓					
2	San Fernando City Bypass Road(La Union)	4.8	Proposed for PPP		✓				Less than 3000veh/day
URBAN LUZON SUPER REGION									
3	North Luzon Expressway (NLEx) Phase 1 (Section 1,2 and 3)	82.6	Operation	✓					
4	North Luzon Expressway (NLEx) Phase 1 (Section 7)	8.5	Operation	✓					
5	North Luzon Expressway (NLEx) Phase 2 (Section 8.1)	2.3	On-going	✓					
6	North Luzon Expressway (NLEx) Phase 2 (Section 8.2)	10.2	Committed	✓					
7	North Luzon Expressway (NLEx) Phase 2 (Section 9)	4.1	On-going	✓					D/D Completed
8	North Luzon Expressway (NLEx) Phase 2 (Section 10)	5.6	On-going	✓					Under D/D
9	North Luzon Expressway (NLEx) Phase 3 (Section 4,5 and 6)	58.5						✓	Beyond 2030(HSH Study)
10	Subic-Clark-Tarlac Expressway(SCTEx)	93.0	Operation	✓					
11	Manila Cavite Toll Expressway Phase 1	6.8	Operation	✓					
12	Manila Cavite Toll Expressway Phase 2	7.5	D/D Completed				✓		ROW problem
13	Manila Cavite Toll Expressway Phase 3	11.2	On-going	✓					
14	South Luzon Expressway (SLEx) Phase 1	28.5	Operation	✓					
15	South Luzon Expressway (SLEx) Phase 2 to Lucena	47.8							
16	Daan Hari-SLEx Link	4.0	On-going	✓					
17	Laguna de Bay Crossing Road	46.2				✓			Conflicts with SLEx,Skyway, CALA exp.,Laguna de Bay exp.
18	Southern Tagalog Arterial Road(STAR)	4.2	Operation	✓					
19	Metro Manila Skyway Phase 1		Operation	✓					
20	Metro Manila Skyway Phase 2	6.9	On-going	✓					
21	Calamba-Los Banos Toll Expressway	15.5							REGR Business Case Study
22	NLEx-SLEx Link Expressway	13.4							METI Study, Unsolicited proposal
23	NAIA Expressway Phase 1	4.0	On-going	✓					
24	NAIA Expressway Phase 2	4.9							METI Study
25	C-6 Expressway	64.8							Including NLEx-MRT7 Terminal Link
26	Laguna de Bay Expressway	43.6							
27	Manila Bay Expressway	8.0							
28	Manila Bay Crossing Road	30.0					✓		More than 10km crossing the sea.
29	CALA Expressway	41.8							
30	North-South Expressway (CALA)	27.3				✓			ROW Problem
31	Central Luzon Expressway (CLEx)	63.9							(San Jose Bypass)
32	NLEx-East	92.1							Integrated with Cabanatuan Bypass,2nd Pan Philippine Highway and La Mesa Parkway
33	La Mesa Parkway	10.9							
34	C-5/FII/Skyway Connector Road	3.0							
35	Pasig Marikina Expressway	15.7							
36	Global City Link	1.7							
37	R-7 Expressway	16.1							
38	Manila Bataan Coastal Road	70.3						✓	Beyond 2030(HSH Study)
39	East West Connection Expressway	26.6						✓	Beyond 2030(HSH Study)
40	Quezon City-Dingalan Road				✓				Less than 3000 vehicles/day
41	Marikina-Infanta Road				✓				Less than 3000 vehicles/day
42	Tarlac-Nueva Eciji-Aurora-Dingalan Port Road							✓	Improved as national road
43	Candelaria Bypass Road(Quezon)	8.5	Proposed for BOT			✓			
44	Alaminos-San Pablo City Bypass Road along Mahalika Highway		Proposed for BOT			✓			If SLEx-ext will be constructed, these bypass will not be necessary so much.
45	Tiaong Bypass	3.8	Proposed for BOT			✓			
46	Batangas-Bauan Ring Road		Proposed for BOT					✓	To be implemented using local fund
CENTRAL PHILIPPINES SUPER REGION									
47	Hillside Bypass in Metro Cebu							✓	Quite difficult to construct as toll exp. due to topographic condition
48	Widening of Mactan Bridge or new bridge in Metro Cebu							✓	Quit difficult to collect toll for Mactan Bridge in Cebu, because there was strong objection to toll at 2nd Mactan bridge.
49	Cebu-Bohol Bridge	35.0					✓		Low traffic demand & High Cost
50	Iloilo-Guimaras Bridge (Suspension Bridge)	3.0		✓					Low traffic demand & High Cost
51	Palo East and Wst Bypass Road,Leyte	1.5	Proposed for BOT					✓	Small scale
52	Bacolod City-Granada Section, Negros Occidnetal	11.0	Proposed for BOT					✓	Urban street
53	Dumaguete City Diversion Road, Negros Oriental	17.8	Proposed for BOT					✓	Access to abutting area required
MINDANAO SUPER REGION									
54	Panguil Bay Bridge	2.4	Proposed for BOT		✓				260m Bridge,2100m Approach
55	Samal Island Bridge				✓				Low traffic demand
56	Ozamis City Coastal Bypass Road, Misamis Occidental		Proposed for BOT					✓	TO be implemented using local fund
57	Davao City Coastal Road	10.0				✓			ROW Problem, Digos to Tagum Express Sys
58	Zamboanga City Bypass Road Zamboanga Del Sur	32.0	Proposed for BOT					✓	To be implemented using local fund
	Total			6	6	4	3	2	12

Legend:

Green box : Project Selected

Yellow box : Project Screened out

0. Under Operation or On-going Project

1. Low Traffic (Less than 3,000 vehicles per day)

2. There are 3or more projects in the same direction and it has almost same purpose in catering traffic in the same direction and considered to be quite expensive due to required long bridge/ viaduct.

3. DPWH encountered ROW acquisition problem

4. Project requires a long tunnel or an under-sea tunnel over 10km and the construction cost is quite high.

5. Other Reasons: see remarks

SOURCE: JICA STUDY TEAM

9.3 First Screening

1) Prioritization Criteria for First Screening

After pre-screening, following 13 projects were left for the first screening:

- NLEx-SLEx Link Expressway (N-L Exp.)
- NAIA Expressway (Phase II) (NAIA Exp.)
- C-6 Expressway with Global City Link (C-6 Exp.)
- C-6 Extension
- Manila Bay Expressway
- CALA Expressway (CALA)
- Central Luzon Expressway (CLEx)
- Calamba-Los Baños Expressway
- South Luzon Expressway Extension (SLEx Extension)
- North Luzon Expressway East (NLEx East)/La Mesa Parkway
- C-5/FTI/Skyway Connector Road
- Pasig-Marikina Expressway
- R-7 Expressway (R-7)

Above projects were prioritized under “HSH Master Plan” Study. The same Prioritization Criteria adopted by “HSH Master Plan” was also used for first screening under this study and shown in **Table 9.3-1**.

2) Prioritization Results for First Screening

Table 9.3-2 shows the prioritization results for the first screening.

3) Selection of Projects for Second Screening

Based on the prioritization of HSH Master Plan Study, **top 10 projects** were selected for the second screening as follows:

SELECTED PROJECTS FOR SECOND SCREENING

- NLEx-SLEx Link Expressway
- CALA Expressway
- C-5/FTI-Skyway Connector Road
- NAIA Expressway (Phase II)
- C-6 Expressway/Global City Link
- CLEx
- SLEx Extension (to Lucena City)
- Calamba-Los Baños Expressway
- R-7 Expressway
- NLEx East/La Mesa Parkway

Note: Although priority of C-6 Extension is not so high from the viewpoint of transport requirement, it will be the high priority project from the viewpoint of flood control of the area passed by the project.

TABLE 9.3-1 PRIORITIZATION CRITERIA FOR FIRST SCREENING

Item	Weight	Sub-Item	Sub-Weight
1. Functional Importance of a link in HSH Network and Improvement of Inter-modal Linkage	17	1.1 Functional Importance	15.0
		<ul style="list-style-type: none"> A link which forms a Backbone transport axis for national integration or for urban development. 	15.0
		<ul style="list-style-type: none"> A link which connects 2 or more HSHs to improve flexibility for road users in route selection. 	14.0
		<ul style="list-style-type: none"> A link which branches off from the backbone transport axis. 	10.0
		<ul style="list-style-type: none"> A link which functions individually. 	8.0
		1.2 Improvement of Intermodal Linkage	2.0
		<ul style="list-style-type: none"> A link which provides a direct access to an international port or air port or rail terminal. A link which provides an indirect access to an international port or air port or rail terminal. 	2.0 1.0
2. Urgency based on contribution to traffic decongestion	17	2.1 Number of traffic attracted to a link. (pcu/day)	7.0
		<ul style="list-style-type: none"> High over 60,000 Medium 20,000 – 60,000 Low Less than 20,000 	7.0 5.0 3.0
		2.2 Reduction of travel time (pcu-hour/ day).	10.0
		<ul style="list-style-type: none"> High over 4,000 Medium 1,000 – 4,000 Low Less than 1,000 	10.0 7.0 4.0
3. Project Readiness	15	3.1 Detailed design on-going or completed.	15.0
		3.2 Detailed Feasibility Study completed / ongoing / committed.	14.0
		3.3 Pre-Feasibility Study completed / ongoing	8.0
		3.4 Conceptual Stage	5.0
4. Contribution to National/Regional Socio-Economic Development	10	4.1 Contribution to National/Regional Economic Development	5.0
		<ul style="list-style-type: none"> High Medium Low 	5.0 4.0 3.0
		4.2 Contribution to Social Development: Contribution to Job Creation	5.0
		<ul style="list-style-type: none"> High over 0.5 Medium 0.2 – 0.5 Low Less than 0.2 	5.0 4.0 3.0
5. Initial Investment Fund Requirement	10	5.1 Construction Cost	6.0
		<ul style="list-style-type: none"> Low Less than 10 B. P. Medium 10 – 30 B. P. High Over 30 B. P. 	6.0 4.0 2.0
		5.2 ROW Acquisition and Resettlement Cost	4.0
		<ul style="list-style-type: none"> Low Less than 0.1 B. P. Medium 0.1 – 1.0 B. P. High Over 1.0 	4.0 2.5 1.0
6. Environmental and Social Impact	8	6.1 Natural Impact	3.0
		<ul style="list-style-type: none"> Does not passes through environmentally critical area Passes through environmentally critical area 	3.0 1.0
		6.2 Social Impact (No. of Structure Affected)	5.0
		<ul style="list-style-type: none"> Low Less than 400 Medium 400 – 800 High Over 800 	5.0 3.0 1.0
7. Impact of a project on viability of Existing Toll Expressway	3	7.1 Impact on Traffic Volume of Existing Expressway	3.0
		<ul style="list-style-type: none"> Increase Traffic Volume of Existing Toll Expressway (Positive) Almost No Impact Decrease Traffic Volume of Existing Toll Expressway (Negative) 	3.0 2.0 1.0
8. Economic and Financial Viability	20	8.1 Economic Viability (Is the Project economically justifiable?)	16.0
		<ul style="list-style-type: none"> High Over 25% Medium 15 – 25% Low Less than 15% 	16.0 14.0 5.0
		8.2 Financial Viability (Is the Chance of Private Sector Participation high?)	4.0
		<ul style="list-style-type: none"> High Over 10% Medium 5 – 10% Low Less than 5% 	4.0 2.5 1.0
Total	100		100

Source: HSH Master Plan Study

TABLE 9.3-2 PRIORITY OF PROJECT UNDER FIRST SCREENING

Item	Weight	Sub-Item	Sub-Weight	Project Number															
				1	2	3/14	4	5	6	7	8	9	10/11	12	13	15			
1. Functional Importance of a link in HSH Network and improvement of inter-modal linkage	17	1.1 Functional Importance	15.0	15.0	14.0	15.0	14.0	14.0	14.0	14.0	14.0	14.0	10.0	15.0	15.0	14.0	8.0	8.0	
				2.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
2. Urgency based on contribution to traffic decongestion	17	2.1 Number of traffic attracted to a link. (pcu/day)	7.0	7.0	5.0	7.0	5.0	7.0	7.0	7.0	5.0	5.0	5.0	5.0	5.0	5.0	7.0	7.0	
				10.0	7.0	7.0	7.0	10.0	7.0	4.0	7.0	7.0	4.0	7.0	7.0	7.0	7.0	7.0	7.0
3. Project Readiness	15	Project Readiness	15.0	14.0	8.0	14.0	4.0	4.0	4.0	4.0	4.0	14.0	8.0	8.0	8.0	15.0	4.0	4.0	
4. Contribution to National/Regional Socio-Economic Development	10	4.1 Contribution to National/Regional Economic Development	5.0	5.0	5.0	3.0	4.0	5.0	4.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0	3.0	4.0	4.0
		4.2 Contribution to Social Development: Contribution to Job Creation	5.0	4.0	3.0	5.0	4.0	3.0	4.0	4.0	5.0	3.0	4.0	4.0	4.0	4.0	5.0	3.0	4.0
5. Initial Investment Fund	10	5.1 Construction Cost	6.0	4.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0	4.0	6.0	4.0	4.0	2.0	6.0	2.0	4.0
		5.2 ROW Acquisition and Resettlement Cost	4.0	2.5	2.5	1.0	1.0	2.5	1.0	2.5	1.0	1.0	2.5	2.5	2.5	1.0	4.0	2.5	2.5
6. Environmental and Social Impact	8	6.1 Natural Impact	3.0	3.0	3.0	3.0	1.0	1.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
		6.2 Social Impact (No. of Structures Affected)	5.0	3.0	5.0	1.0	1.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	3.0	5.0
7. Impact of a project on viability of Existing Toll Expressway	3	7.1 Impact on Traffic Volume of Existing Expressway	3.0	3.0	3.0	1.0	1.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	1.0	2.0	2.0	2.0
8. Economic and Financial Viability	20	8.1 Economic Viability (Is the Project economically justifiable?)	16.0	14.0	14.0	14.0	16.0	5.0	16.0	5.0	16.0	14.0	14.0	14.0	14.0	16.0	5.0	14.0	14.0
		8.2 Financial Viability (Is the Chance of Private Sector Participation high?)	4.0	2.5	2.5	1.0	2.5	1.0	2.5	1.0	4.0	1.0	1.0	1.0	1.0	1.0	1.0	2.5	2.5
Total	100		100	89.0	78.0	78.0	64.5	63.5	88.0	78.0	71.5	76.5	66.0	87.0	55.0	71.0	9	13	9
				Ranking															

Source: HSH Master Plan Study

9.4 Outline of Selected Projects

Outline of selected 10 projects are described hereunder.

1) NLEx – SLEx Link Expressway

Project Description

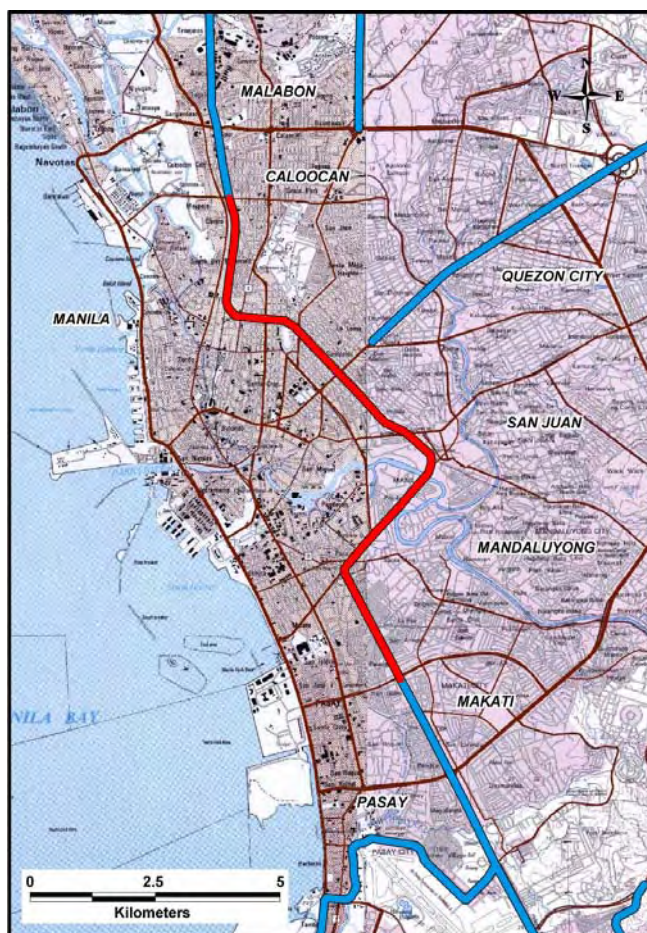
The project aims to close the gap and complete the north-south Luzon industrial beltway transport axis by connecting NLEx and SLEx. The project will contribute to decongest Metro Manila traffic, particularly EDSA and provide a 24-hour access to Manila ports by providing faster, safer and comfortable means of transport facility. It starts at Caloocan City and ends at Makati City. It is an elevated expressway over PNR right-of-way.

L = 13.4 km

No. of Lanes = 4-lane

Estimated Average Traffic Volume and Toll Revenue

Year	Estimated Traffic Volume (pcu/day)	Toll Revenue (Million Pesos/day)
2015	88,700	6.92
2020	103,800	8.98
2030	118,100	19.76



NLEx-SLEx LINK EXPRESSWAY

Initial Project Cost

Unit: Million Pesos at 2010 Prices

Segment	Construction Cost	Engineering Cost	Admin. Cost	ROW Cost	Total
Government Segment (8.6 km)	17,560	530	90	580	18,760
Private Segment (4.8 km)	11,560	350	60	420	12,390
Total (13.4 km)	29,120	870	150	1,000	31,140

O & M Cost

Unit: Million Pesos at 2010 Prices

Routine Maintenance Cost per Year	15
Operation Cost per Year	73
Periodic Maintenance Cost at every 10 years	291

Economic Evaluation

EIRR	29.1%
NPV	10,830 Million Pesos
B/C	2.02

2) NAIA Expressway - Phase II

Project Description

The project will link Skyway and Manila-Cavite Coastal Expressway. It will provide vital access to NAIA Terminals 1, 2, & 3. Economic zones in Cavite Province will benefit for easier and faster transportation of their products to NAIA as well as to Manila Port through this link and NLEX-SLEX Link Expressway.

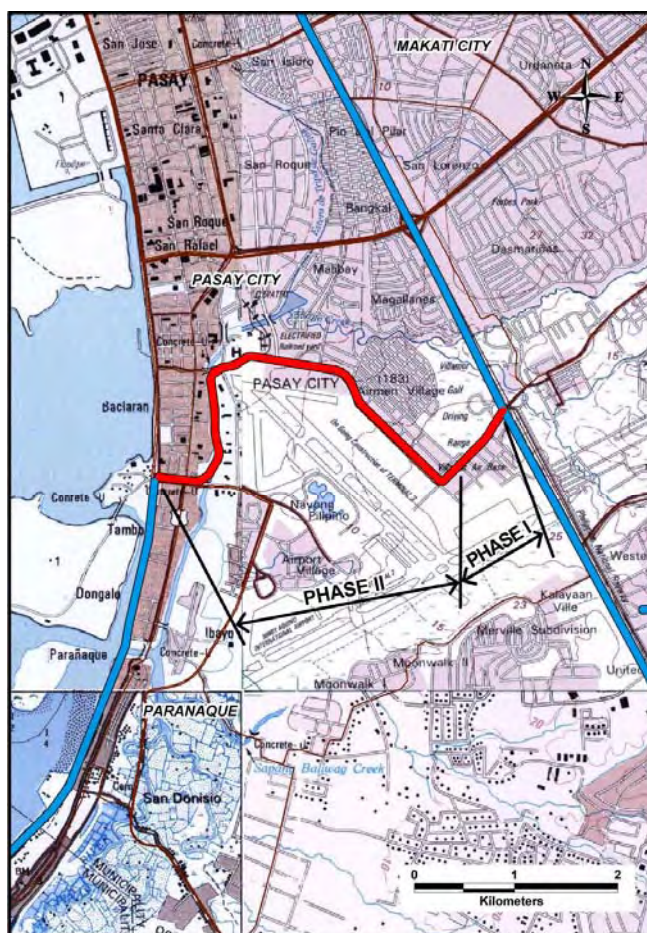
L = 4.9 km.

No. of Lanes = 4-lane

Note: Phase I completed.

Estimated Average Traffic Volume and Toll Revenue

Year	Estimated Traffic Volume (pcu/day)	Toll Revenue (Million Pesos/day)
2015	66,200	2.44
2020	78,700	3.67
2030	97,400	8.93



NAIA EXPRESSWAY - Phase II

Initial Project Cost

Unit: Million Pesos at 2010 Prices

Construction Cost	Engineering Cost	Admin. Cost	ROW Cost	Total
11,060	330	60	710	12,160

O & M Cost

Unit: Million Pesos at 2010 Prices

Routine Maintenance Cost per Year	6
Operation Cost per Year	28
Periodic Maintenance Cost at every 10 years	111

Economic Evaluation

EIRR	18%
NPV	817 Million Pesos
B/C	1.19

3) C-6 Expressway + Global City Link

Project Description

C-6 Expressway will function as a distributor of traffic coming from expressways in the north and south to appropriate location of Metro Manila. It will also contribute to sound urban development of Rizal and Bulacan Provinces. It starts from NLEX at Bocaue/Marilao boundary and traverses Sta. Maria, San Jose del Monte, Rodriguez, San Mateo, Antipolo, Taytay and Taguig and connected with Skyway at Bicutan. A Global City Link is a branch of C-6 Expressway and provide a vital access to mega commercial and business center of Global City.

- a) North Section: L = 16.5 km.
- b) East Section: L = 25.5 km.
- c) South East & Global City Link: L = 24.5 km.
- d) Total: L = 66.5 km.

No. of Lanes = 4-lane



C-6 EXPRESSWAY / GLOBAL CITY LINK

Estimated Average Traffic Volume and Toll Revenue

Year	Estimated Traffic Volume (pcu/day)		Toll Revenue (Million Pesos/day)	
	(d)	(c)	(d)	(c)
2015	66,200	74,200	10.27	4.27
2020	77,600	79,500	15.16	5.72
2030	88,900	84,600	28.50	9.98

Initial Project Cost

Unit: Million Pesos at 2010 Prices

	Construction Cost	Engineering Cost	Admin. Cost	ROW Cost	Total
(d)	44,080	3,550	1,290	5,350	54,270
(c)	21,300	1,740	640	2,630	26,310

O & M Cost

Unit: Million Pesos at 2010 Prices

	Section	
	(d)	(c)
Routine Maintenance Cost per Year	159	45
Operation Cost per Year	229	99
Periodic Maintenance Cost at every 10 years	1,489	350

Economic Evaluation

	Section	
	(d)	(c)
EIRR	32.7%	34.2%
NPV	28,747 M P	15,163 M P
B/C	2.43	2.58

4) CALA Expressway

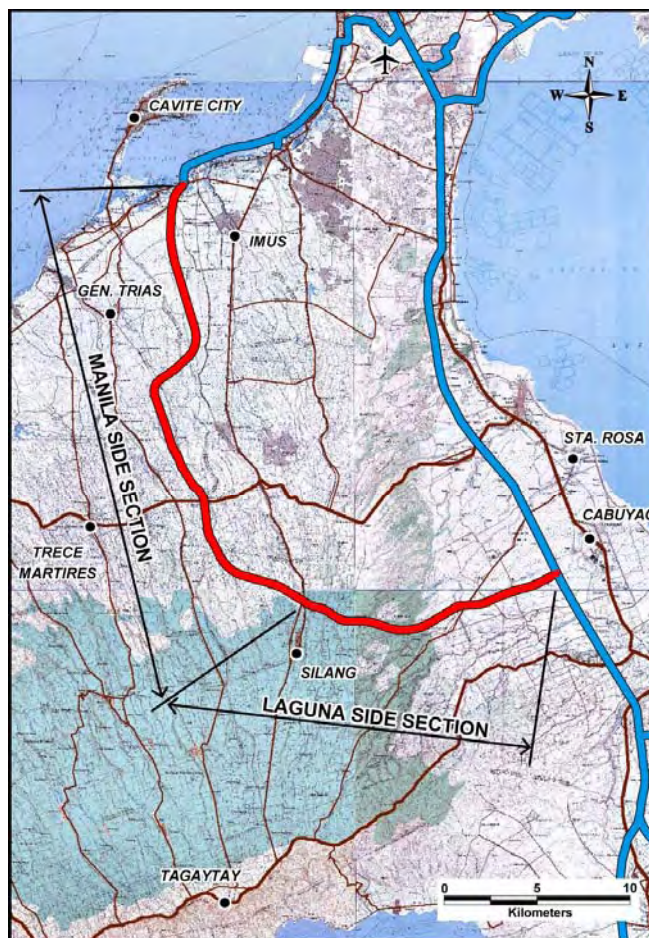
Project Description

The project will provide vital access between various economic zones in Cavite Province and NAIA, Metro Manila Ports, Batangas Port and contributes for economic development and decongest traffic of Cavite roads, particularly Aguinaldo Highway. This is the extension of on-going Manila-Cavite Coastal Expressway Extension and ends at Silang, Cavite Province. It is an at-grade expressway.

Manila Side Section: L = 27.5 km.
 Laguna Side Section: L = 14.3 km.
 Total: L = 41.8 km.
 No. of Lanes = 6-lane

Estimated Average Traffic Volume and Toll Revenue

Year	Estimated Traffic Volume (pcu/day)	Toll Revenue (Million Pesos/day)
2015	59,700	5.90
2020	79,400	9.97
2030	100,200	20.32



CALA EXPRESSWAY

Initial Project Cost

Unit: Million Pesos at 2010 Prices

Segment	Construction Cost	Engineering Cost	Admin. Cost	ROW Cost	Total
Manila Side Section	9,380	1,130	330	960	11,790
Laguna Side Section	6,430	770	230	450	7,880
Total	15,810	1,900	550	1,410	19,670

O & M Cost

Unit: Million Pesos at 2010 Prices

Routine Maintenance Cost per Year	98
Operation Cost per Year	111
Periodic Maintenance Cost at every 10 years	791

Economic Evaluation

EIRR	36.7%
NPV	13,704 Million Pesos
B/C	2.86

5) C-5/FTI/Skyway Connector Road

Project Description

The project will provide direct access to Food Terminal Inc (FTI) from both Skyway and C-5, thus FTI will be revitalized. At present, activities in FTI are depressed due to poor access. Once accessibility is provided, FTI can be developed as one of the advanced commercial and residential centers.

L = 3.0 km.

Total Length = 6.8 km (including ramps)

No. of Lanes = 2-lane to 4-lane

Estimated Average Traffic Volume and Toll Revenue

Year	Estimated Traffic Volume (pcu/day)	Toll Revenue (Million Pesos/day)
2015	39,900	0.81
2020	45,000	1.24
2030	47,400	2.31



C-5/FTI/SKYWAY CONNECTOR ROAD

Initial Project Cost

Unit: Million Pesos at 2010 Prices

Construction Cost	Engineering Cost	Admin. Cost	ROW Cost	Total
5,320	160	30	100	5,610

O & M Cost

Unit: Million Pesos at 2010 Prices

Routine Maintenance Cost per Year	5
Operation Cost per Year	13
Periodic Maintenance Cost at every 10 years	53

Economic Evaluation

EIRR	25.4%
NPV	1,387 Million Pesos
B/C	1.73

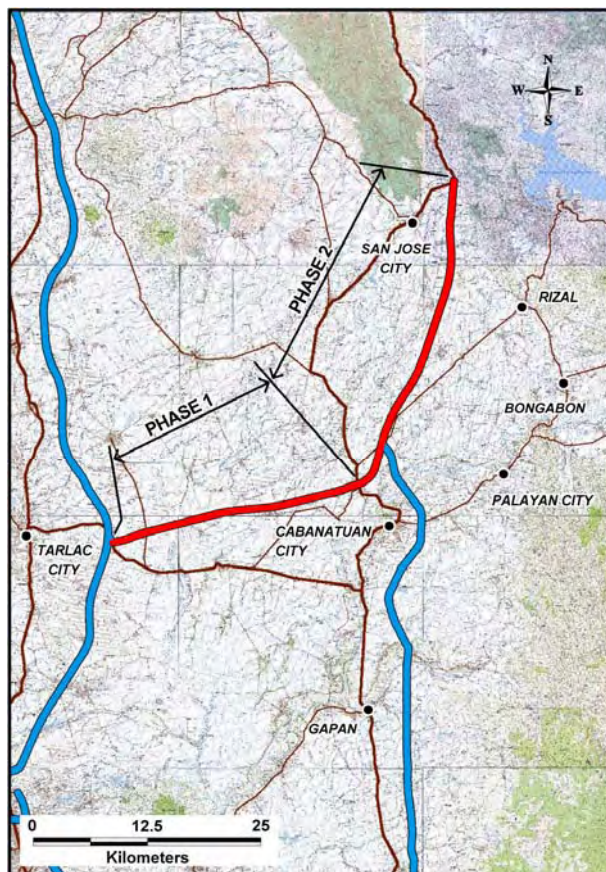
6) Central Luzon Expressway (CLEx)
Estimated Average Traffic Volume and Toll

Project Description

The project is to support development of regional urban centers and the Pacific Ocean Coastal areas in order to decrease overconcentration of socio-economic activities in Metro Manila. It will also decongest traffic at Daang Maharlika. In the long run, the project will distribute traffic on NLEx and NLEx-East when the latter is completed.

Phase I: Tarlac City to Cabanatuan City, L = 28.2 km.
 Phase II: Cabanatuan City to San Jose City, L = 35.7 km.
 Total: L = 63.9 km.

No. of Lanes = To be studied for 2-lane and 4-lane



CENTRAL LUZON EXPRESSWAY

Revenue

Year	Estimated Traffic Volume (pcu/day)			Toll Revenue (Million Pesos/day)		
	Phase I + II (2-lane)	Phase I (2-lane)	Phase I (4-lane)	Phase I + II (2-lane)	Phase I (2-lane)	Phase I (4-lane)
2015	14,100	19,300	21,230	2.18	1.34	1.47
2020	15,100	21,300	23,430	2.94	1.86	2.05
2030	16,900	24,800	27,280	5.37	3.54	3.89

Initial Project Cost

Unit: Million Pesos at 2010 Prices

	Construction Cost	Engineering Cost	Admin. Cost	ROW Cost	Total
Phase I + II (2-lane)	15,770	2,910	620	1,440	20,740
Phase I (2-lane)	7,050	850	380	650	8,930
Phase I (4-lane)	10,850	1,300	380	650	13,180

O & M Cost

Unit: Million Pesos at 2010 Prices

	Phase I + II	Phase I (2-lane)	Phase I (4-lane)
Routine Maintenance Cost per Year	126	56	67
Operation Cost per Year	79	35	42
Periodic Maintenance Cost at every 10 years	789	353	424

Economic Evaluation

	Phase I + II	Phase I (2-lane)	Phase I (4-lane)
EIRR	16.0%	18.1%	11.2%
NPV	405 M. Pesos	595 M. Pesos	-1,003 M. Pesos
B/C	1.06	1.19	0.79

7) SLEx Extension

Project Description

The project is an extension of the existing SLEx from Sto. Tomas, Batangas Province to Lucena City, Quezon Province as well as Region V. It will contribute to socio-economic development of areas traversed and Region V. It will also decongest traffic at Daang Maharlika.

L = 47.8km.

No. of Lanes = 2-lane

Estimated Average Traffic Volume and Toll Revenue

Year	Estimated Traffic Volume (pcu/day)	Toll Revenue (Million Pesos/day)
2015	20,200	2.39
2020	21,400	3.44
2030	23,900	7.12



SLEx EXTENSION

Initial Project Cost

Unit: Million Pesos at 2010 Prices

Construction Cost	Engineering Cost	Admin. Cost	ROW Cost	Total
9,070	1,680	280	380	11,410

O & M Cost

Unit: Million Pesos at 2010 Prices

Routine Maintenance Cost per Year	73
Operation Cost per Year	45
Periodic Maintenance Cost at every 10 years	454

Economic Evaluation

EIRR	29.7%
NPV	3,808 Million Pesos
B/C	1.98

8) Calamba – Los Baños Expressway

Project Description

The project vitally supports tourism development of Los Baños and its nearby tourism spots. It will also contribute to decongestion of traffic along national road. It will branches off from SLEx at Calamba and passes through Los Baños City and ends at Bay. It is proposed to be a combined structure of a flood control dike along Laguna de Bay and a Highway, thus two (2) purposes will be achieved.

L = 15.5 km.

No. of Lanes = 4-lane

Estimated Average Traffic Volume and Toll Revenue

Year	Estimated Traffic Volume (pcu/day)	Toll Revenue (Million Pesos/day)
2015	36,400	0.83
2020	40,200	1.38
2030	51,900	3.24



CALAMBA-LOS BANOS TOLL EXPRESSWAY

Initial Project Cost

Unit: Million Pesos at 2010 Prices

Construction Cost	Engineering Cost	Admin. Cost	ROW Cost	Total
5,050	400	150	850	6,450

O & M Cost

Unit: Million Pesos at 2010 Prices

Routine Maintenance Cost per Year	25
Operation Cost per Year	40
Periodic Maintenance Cost at every 10 years	252

Economic Evaluation

EIRR	20.4%
NPV	937 Million Pesos
B/C	1.38

9) R-7 Expressway

Project Description

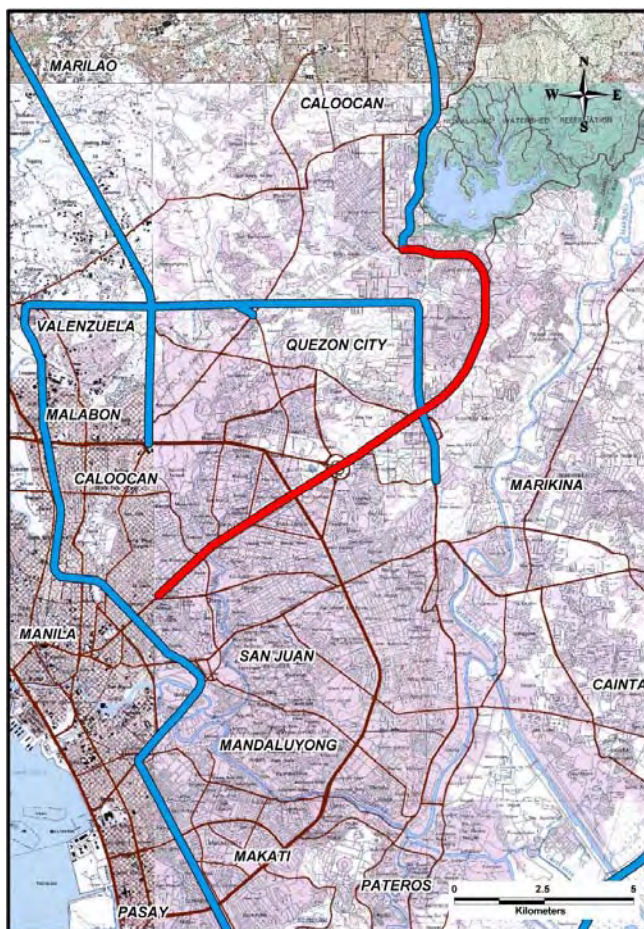
The project will be constructed over one of the most heavily congested corridors in Metro Manila, namely Quezon Avenue and Don Mariano Marcos Avenue. It will connect Quezon City and Manila City with high speed transport facility, thus decongest traffic of at-grade road. It will be partially elevated and partially underground expressway

L = 16.1 km.

No. of Lanes = 4-lane

Estimated Average Traffic Volume and Toll Revenue

Year	Estimated Traffic Volume (pcu/day)	Toll Revenue (Million Pesos/day)
2015	82,100	6.64
2020	84,200	8.10
2030	88,300	14.82



R-7 EXPRESSWAY

Initial Project Cost

Unit: Million Pesos at 2010 Prices

Construction Cost	Engineering Cost	Admin. Cost	ROW Cost	Total
23,980	720	120	1,000	25,820

O & M Cost

Unit: Million Pesos at 2010 Prices

Routine Maintenance Cost per Year	19
Operation Cost per Year	72
Periodic Maintenance Cost at every 10 years	240

Economic Evaluation

EIRR	25.5%
NPV	6,625 Million Pesos
B/C	1.75

10) NLEX East & La Mesa Parkway

Project Description

The project will form an important transport axis in the eastern area of Region III. It will serve for the growing areas of Bulacan and Nueva Ecija Provinces. The project starts at Don Mariano Marcos Avenue in Quezon City, traverses almost parallel to Daang Maharlika, serving for areas of San Miguel, Gapan and Cabanatuan City. It will decongest traffic at Daang Maharlika.

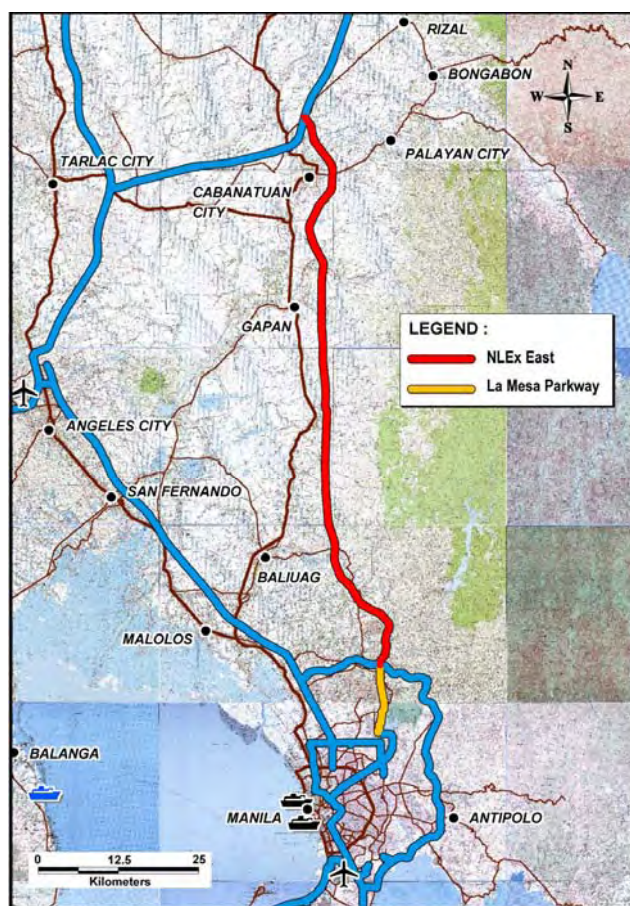
La Mesa Parkway: L = 10.9 km.

NLEX East: Total L = 92.1 km.

Phase I, L = 30.1 km.

No. of Lanes = 4-lane

La Mesa Parkway and Phase I of NLEX East (Total L = 41.0 km) was studied.



NLEX EAST and LA MESA PARKWAY

Estimated Average Traffic Volume and Toll Revenue

Year	Estimated Traffic Volume (pcu/day)	Toll Revenue (Million Pesos/day)
2015	17,100	1.59
2020	23,300	2.84
2030	31,900	6.37

Initial Project Cost

Unit: Million Pesos at 2010 Prices

Construction Cost	Engineering Cost	Admin. Cost	ROW Cost	Total
13,420	1,450	450	450	15,770

O & M Cost

Unit: Million Pesos at 2010 Prices

Routine Maintenance Cost per Year	88
Operation Cost per Year	107
Periodic Maintenance Cost at every 10 years	671

Economic Evaluation

EIRR	21.3%
NPV	2,273 Million Pesos
B/C	1.39

9.5 Pre-Business Case Study of 10 Projects

1) PPP Schemes studied for each Project

(a) Type of PPP schemes

In this study, 5 types of PPP scheme as shown in the table below are identified for the Pre-Business Case Study. **Tables 9.5-1 and 2** below clarify the roles of public and private sector.

TABLE 9.5-1 ROLE OF PUBIC AND PRIVATE SECTOR

Type of PPP Schemes		Public (GRP: Government of the Republic of the Philippines)	Private (SPC: Special Purpose Company)
Type1: Pure BOT		<ul style="list-style-type: none"> ROW acquisition & Project Administration only 	<ul style="list-style-type: none"> Detailed Design, financing, construction and O&M Revenue comes from toll tariff
Type2: BOT with subsidy by GOP		<ul style="list-style-type: none"> ROW acquisition & Project Administration Additionally, GRP grants SPC a subsidy up to 50% of construction cost to support the construction work done by SPC 	<ul style="list-style-type: none"> Detailed Design, financing, construction and O&M Revenue comes from toll tariff
Type3: Segment dividing	Type 3-1: With lease fee payment to Public	<ul style="list-style-type: none"> ROW acquisition & Project Administration Additionally, for GRP portion, Detailed Design, financing, construction GRP receives lease fee from SPC as compensation for GRP's financing. 	<ul style="list-style-type: none"> For SPC portion, Detailed Design, financing and construction O&M for all segment Revenue comes from toll tariff of all segment SPC pays lease fee to GRP
	Type 3-2: Without lease fee payment to Public	<ul style="list-style-type: none"> Basically, the same condition as type 31 but GRP doesn't require lease fee. 	<ul style="list-style-type: none"> Basically, the same condition as type 3-1 but SPC doesn't need the payment of lease fee.
Type4: Service Payment		<ul style="list-style-type: none"> ROW acquisition & Project Administration Additionally, GRP holds the toll tariff. GRP pays the service fee to SPC through the O&M period. 	<ul style="list-style-type: none"> Detailed Design, financing, construction and O&M Revenue comes from service fee paid by GRP
Type5: Lease		<ul style="list-style-type: none"> ROW acquisition & Project Administration Additionally, Detailed Design, financing, construction GRP receives lease fee from SPC as compensation for GRP's financing. 	<ul style="list-style-type: none"> O&M Revenue comes from toll tariff SPC pays lease fee to GRP

Source: JICA Study Team

TABLE 9.5-2 RESPONSIBILITY SHARING FOR EACH TYPE OF PPP SCHEME

Type of PPP Schemes		ROW acquisition & Project Administration	Finance for Construction	Con-struction	O&M	Holder of toll tariff revenue	Payment to GRP by SPC
Type1: Pure BOT		GRP	SPC	SPC	SPC	SPC	No
Type2: BOT with subsidy by GOP		GRP	SPC(with subsidy by GRP)	SPC	SPC	SPC	No
Type3: Segment dividing	Type 3-1: With lease fee payment to Public	GRP	GRP/SPC	GRP/SPC	SPC	SPC	Yes (Lease fee)
	Type 3-2: Without lease fee payment to Public	GRP	GRP/SPC	GRP/SPC	SPC	SPC	No
Type4: Service Payment		GRP	SPC	SPC	SPC	GRP	No
Type5: Lease		GRP	GRP	GRP	SPC	SPC	Yes (Lease fee)

Note: GRP – Government of the Republic of the Philippines; SPC – Special Purpose Company

(b) Applied PPP schemes for each project

Table 9.5-3 shows the cases of PPP modality evaluated in this study.

TABLE 9.5-3 SELECTION OF PPP MODALITY FOR PRE-BUSINESS CASE STUDY

Project	Project FIRR (%)	Selection of PPP Modality for Pre-Business Case Study				
		Type-1 Pure BOT Scheme	Type-2 BOT with Subsidy	Type-3 Segment Dividing Scheme	Type-4 Service Payment Scheme	Type-5 Lease Scheme
1. NLEX-SLEX Link Expressway	9.14	○	○	○	-	-
2. NAlA Expressway (Phase II)	9.97	○	○	X (too short)	○	○
3. C-6 Expressway & Global City Link	7.10	○	○	○	-	-
(1) all section						
(2) South-East Section & Global City Link	5.14	○	○	○	-	-
4. CALA Expressway	12.51	○	○	(○)	○	○
5. C-5/FTI/Skyway Connector Road	6.08	○	○	X (too short)	-	-
6. Central Luzon Expressway	(Negative)	○	○	○	○	○
(1) Phase I + II(2-lane)						
(2) Phase I(2-lane)	3.62	○	○	X (Segmentation difficult)	○	○
(3) Phase I(4-lane)	1.37	○	○	X (Segmentation difficult)	○	○
7. SLEX Extension	8.12	○	○	○	○	○
8. Calamba-Los Baños Expressway	5.34	○	○	X (Segmentation difficult)	○	○
9. 9.R-7 Expressway	8.76	○	○	-	○	○
10. NLEX-East (Phase I) with La Mesa Parkway	2.50	○	○	○	○	○

○ Pre-Business Case Study undertaken
 (○) Various shares for GRP and Private sector (40:60, 30:70, 50:50, 70:30) were carried out
 - Applicable but not studies
 X Not applicable, project length is too short

(c) Parameters for Financial Analysis

The basic parameters and their threshold value required for financial analysis are shown in **Table 9.5-4.**

TABLE 9.5-4 REQUISITE PARAMETERS FOR FINANCIAL ANALYSIS

Base year for financial analysis		• 2010
Implementation/Operation Period		
Beginning year of the implementation		• 2011
Beginning year of the operation		• 2018
From F/S to Project Approval		• 2 years
Land Acquisition Period		• 2 years
Construction Period		• 3 years
Operation Period		• 30 years
Cost Estimate		
Project Cost		
(i) Land Acquisition Cost		• GOP is fully responsible
(ii) Main Construction Work Cost		• Subsidy by GOP is up to 50% of Main Construction Works Cost in accordance with BOT Law in the country.
(iii) Detailed Design Cost		• SPC is fully responsible. • 1.2% up to 4.0% of Main Construction Work Cost
(iv) Supervision Cost		• SPC is fully responsible. • 1.8% up to 8.0% of Main Construction Work Cost
(v) Administration Cost		• GOP is fully responsible.
O & M Cost		
Operating Cost		• 5.0% increase at every two years
Routine Maintenance Cost		• Annual 2.0% increase
Periodic (every 10 yrs) Maintenance Cost		• 10.0% increase at every maintenance
Other Cost items		
Insurance		• 0.075% of depreciable assets
Price Contingency		• Annual 5.0% Price Escalation is applied to land acquisition cost, D/D cost, main construction cost, construction supervision cost and O&M Cost
Loan Management Fee		• 0.3% of Loan
Financing Structure		
Equity		• 30% of Project Cost excluded GOP's fund (In case of Lease scheme, it is supposed that the Equity is equal to the O&M cost for the initial 2 years. Actually, SPC doesn't finance the capital cost with Lease scheme, but it is supposed that SPC will secure the Equity to prepare the O&M work in advance.)
Debt		• 70% of Project Cost excluded GOP's fund
Loan Interest Rate	Commercial bank	• 10%
	Soft loan	• 1.4%
Rate of Return on Equity		• 20% annual return rate
Loan Tenure		
Grace Period	Commercial Bank	• None
	Soft loan	• 10 years
Loan Repayment Period	Commercial Bank	• 10 years
	Soft loan	• 30 years
Repayment Structure		• Even annuity basis (Annual loan amortization is done at constant amount)
Depreciation		
Depreciation Methodology		• Linear (asset life cycle period is 50 yrs)
Taxation		
Corporate Tax		• [Revenue - O&M cost - annual depreciation cost - insurance cost - interest payment] x tax rate (30%)
Property Tax (BOT case)		• None
Tax Exemption Period		• None

Source: JICA Study Team

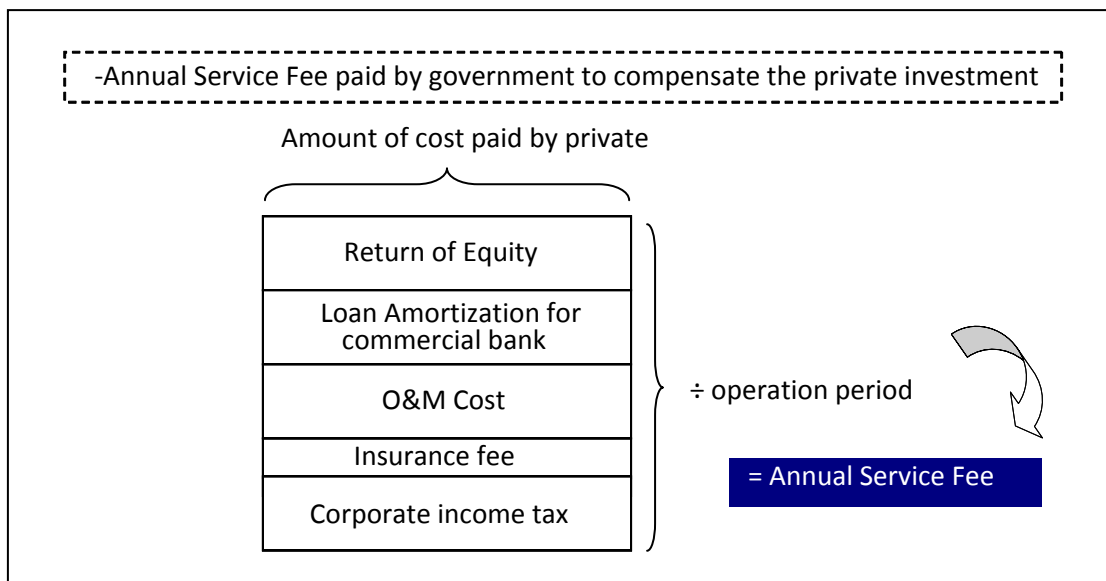
TABLE 9.5-5 FIGURE WORK SCHEDULE

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Implementation	F/S			D/D													
		Project Approval & Selection of Project Proponent															
			ROW														
					Construction												
					3 years												
Operation																	
									O&M								
									30 years								

Source: JICA Study Team

(d) Assumption of Service Fee

Although there are many ways to determine the service fee, it was estimated as shown in **Figure 9.5-1**.



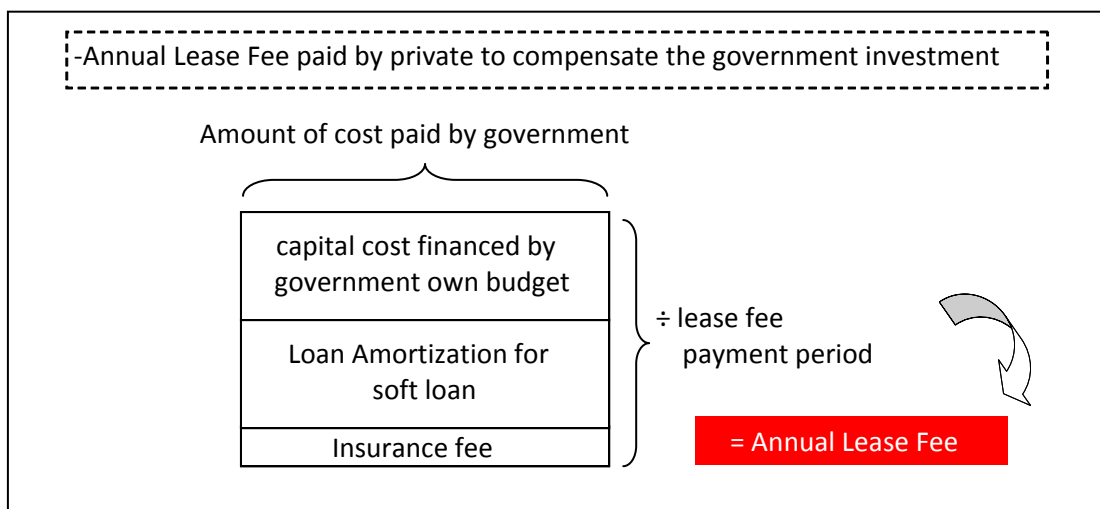
Source: JICA Study Team

FIGURE 9.5-1 CONCEPTUAL DIAGRAM FOR SERVICE FEE ESTIMATION

In this study, it was assumed that the constant service fee is paid by government annually during the operation period. The actual service fee should be decided through the bidding process of selecting the project proponent.

(e) Assumption of Lease Fee

Although there are many ways to determine the lease fee, it was estimated as shown in **Figure 9.5-2**.



Source: JICA Study Team

FIGURE 9.5-2 CONCEPTUAL DIAGRAM FOR LEASE FEE ESTIMATION

In this study, it was assumed that the constant lease fee is paid by the private annually from the beginning of the operation to the end of the lease fee payment period.

The actual annual lease fee and the lease fee payment period should be decided through the bidding process of selecting the project proponent.

(f) Indicator for financial viability

In this study, 3 kinds of Internal Rate of Return (IRR) as shown below were set for the examination of financial viability. IRR for SPC and Equity IRR are estimated for each PPP modality, but Project FIRR is not affected by the PPP modalities.

- Project FIRR:** It is calculated with toll tariff revenue against the whole project cost including ROW acquisition cost. It is the basic indicator for financial viability.
- IRR for SPC:** It means an internal rate of return for private sector. It is calculated with the revenue of private sector against the investment cost which is subtracted public sector financing from the whole project cost. IRR for SPC is required to be more than WACC (Weighted Average Capital Cost) in order to attract private sector to invest the project.
- Equity IRR:** It means an internal rate of return against equity investments for the project.

WACC is 11.5% in case of the condition below.

Condition for WACC Calculation in this Study

Equity	Loan
-share of equity is 30%	-share of loan is 70%
-cash yield is 15%	-interest rate is 10%

(g) Net Public Expenditure Reduction Estimation

Net Public Expenditure Reduction (NPER) is estimated for each of considered PPP modality. NPER is calculated in the form that Public Sector Comparator (PSC) minus PPP Life Cycle Cost (PPP-LCC). PSC is the present value of net cost (e.g., construction/O&M cost minus toll revenue) shouldered by the Government under the conventional public implementation scheme, while PPP-LCC is the present value of net cost shouldered by the Government under a planned PPP modality.

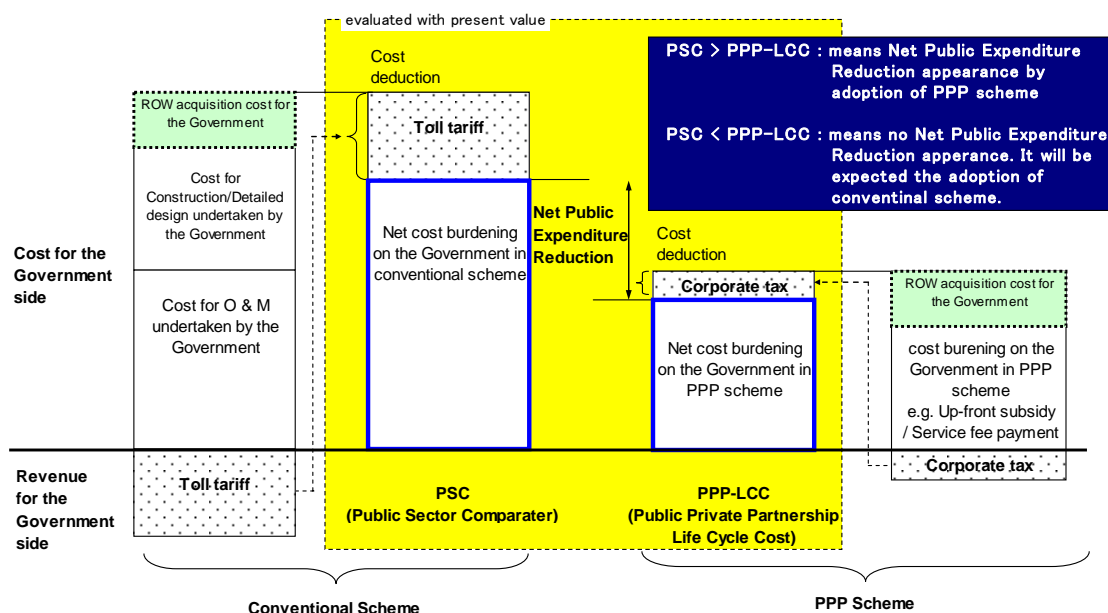
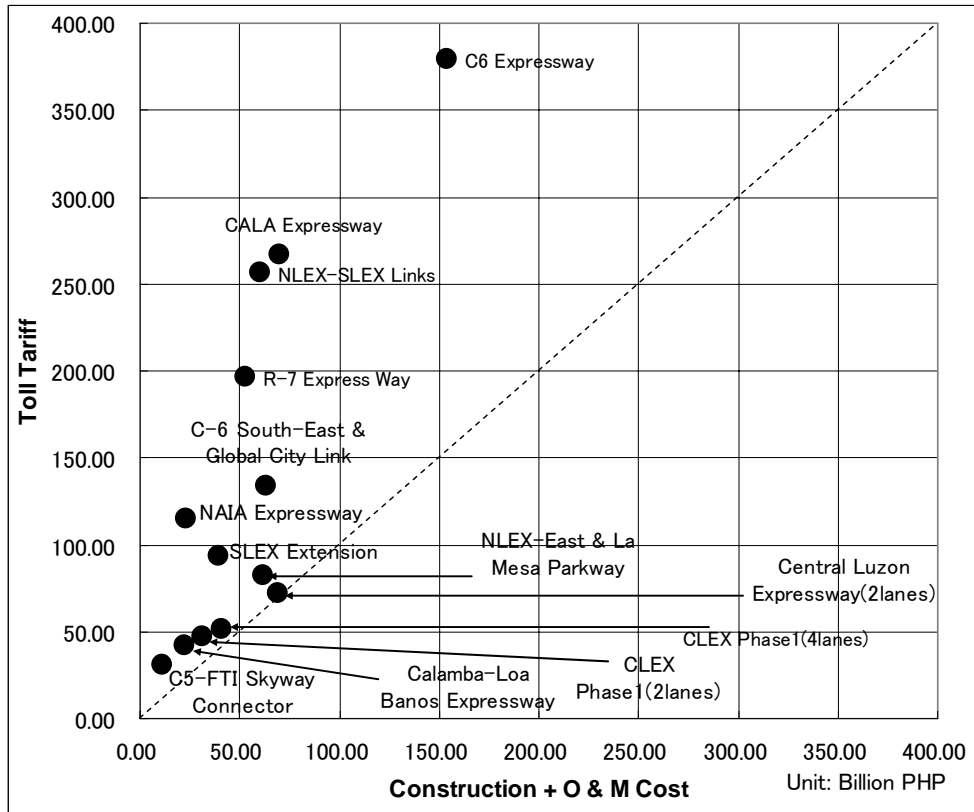


FIGURE 9.5-3 CONCEPTUAL DIAGRAM FOR NET PUBLIC EXPENDITURE REDUCTION EVALUATION

If PSC is higher than PPP-LCC, NPER is positive. It means that the public can reduce the net expenditure of public by adopting a planned PPP scheme. If PSC is lower than PPP-LCC, NPER is negative. It means that the public cannot save the public expenditure under a planned PPP Scheme, thus it is better to adopt the conventional scheme.

(h) Project cost and Toll tariff revenue

The project cost and toll tariff revenue for each project at current price is shown in **Figure 9.5-4**. The projects plotted nearby the diagonal line on the graph mean that it is not likely to be viable.



Source: JICA Study Team

FIGURE 9.5-4 PROJECT COST AND TOLL TARIFF REVENUE FOR EACH PROJECT

2) Results of Financial Analysis

(a) Financial viability of each project

The results of financial analysis of 10 projects are shown in **Table 9.5-6**. Viability criteria are;

- Financially viable if IRR for SPC is higher than WACC (11.5%)
- Investment viable if Equity IRR is higher than the rate of return on equity (15%)

Regarding Type 3-1 and Type 5, it makes a difference whether the government utilizes soft loan or not. Because the lease fee with soft loan becomes higher due to repayment of loan.

TABLE 9.5-6 RESULT OF THE EXAMINATION OF FINANCIAL VIABILITY FOR EACH PROJECT

	Project	Project IRR	PPP scheme								
			Type 1	Type 2	Type 3 Segment dividing			Type 4	Type 5 Lease		
			Pure BOT	BOT with subsidy	Type 3-1 With lease fee		Type 3-2 Without lease fee	Service Payment	Type 5 Lease		
					GOP's Budget	Soft Loan			GOP's Budget	Soft Loan	
1	NLEX-SLEX Link Expressway	9.14%	IRR for SPC	9.45%	15.53%	15.80%	15.11%	17.99%	-	-	-
			Equity IRR	8.51%	17.81%	18.03%	16.83%	22.20%	-	-	-
2	NAIA Expressway- 2	9.97%	IRR for SPC	10.54%	16.78%	-	-	-	10.05%	374.41%	271.52%
			Equity IRR	10.04%	19.85%	-	-	-	8.86%	374.41%	271.52%
3-1	C-6 Expressway + Global Link	7.10%	IRR for SPC	8.10%	13.58%	12.09%	11.55%	13.67%	-	-	-
			Equity IRR	6.60%	14.71%	12.29%	11.48%	14.81%	-	-	-
3-2	C-6 Expressway South East section & Global City Link	5.14%	IRR for SPC	6.04%	11.09%	12.12%	10.95%	15.48%	-	-	-
			Equity IRR	3.90%	10.79%	12.33%	10.63%	18.01%	-	-	-
4	CALA Expressway	12.51%	IRR for SPC	13.59%	20.11%	18.14%	17.83%	19.12%	11.67%	202.20%	177.18%
			Equity IRR	14.63%	26.71%	22.52%	21.88%	24.58%	11.66%	202.20%	177.18%
5	C-5/FTI/SKYWAY Connector Rd.	6.08%	IRR for SPC	6.24%	11.59%	-	-	-	-	-	-
			Equity IRR	4.24%	11.54%	-	-	-	-	-	-
6-1	CLEX Phase1+2(2lanes)	Negative	IRR for SPC	Negative	3.64%	Negative	Negative	3.33%	11.62%	Negative	Negative
			Equity IRR	Negative	0.30%	Negative	Negative	Negative	11.56%	Negative	Negative
6-2	CLEX Phase1(2lanes)	3.62%	IRR for SPC	4.36%	8.84%	-	-	-	11.62%	38.49%	22.37%
			Equity IRR	1.69%	7.52%	-	-	-	11.56%	38.49%	22.37%
6-3	CLEX Phase1(4lanes)	1.37%	IRR for SPC	1.80%	5.79%	-	-	-	11.17%	16.01%	4.69%
			Equity IRR	Negative	3.42%	-	-	-	10.73%	16.01%	4.69%
7	SLEX Extension (to Lucena)	8.12%	IRR for SPC	8.60%	13.82%	12.96%	12.42%	14.56%	11.62%	93.53%	70.73%
			Equity IRR	7.31%	15.08%	13.61%	12.77%	16.27%	11.56%	93.53%	70.73%
8	Calamba-Los Banos Toll Expressway	5.34%	IRR for SPC	6.46%	11.33%	-	-	-	11.77%	45.76%	31.24%
			Equity IRR	4.56%	11.17%	-	-	-	11.85%	45.76%	31.24%
9	R-7 Express Way	8.76%	IRR for SPC	9.15%	15.38%	-	-	-	10.14%	347.70%	263.57%
			Equity IRR	8.02%	17.75%	-	-	-	8.99%	347.70%	263.57%
10	NLEX-East & La Mesa Parkway	2.50%	IRR for SPC	2.82%	6.87%	6.73%	4.97%	11.69%	11.84%	17.39%	9.02%
			Equity IRR	Negative	4.95%	5.12%	3.10%	11.70%	12.00%	17.39%	9.02%

IRR for SPC over 11.5%(WACC) : Yellow

Equity IRR over 15% : Yellow

Source: JICA Study Team

GOP's Budget : financed by only government own budget

Soft Loan : financed by Soft Loan and government own budget

(b) Examples of the Detail Result of Financial Viability of each PPP Scheme

The examples of the result of financial viability of each PPP scheme are shown as follow.

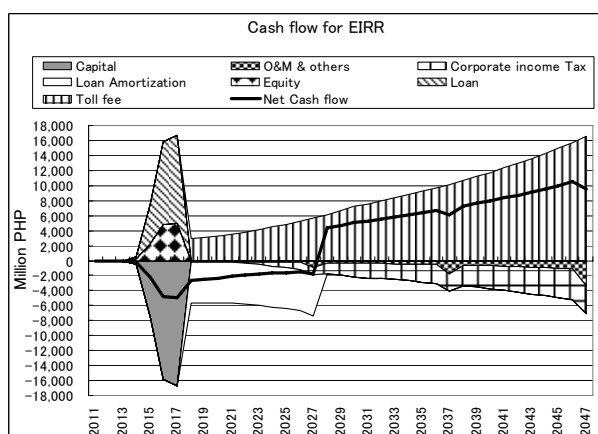
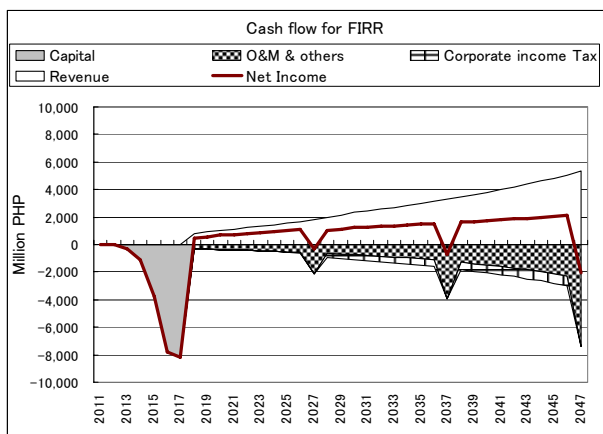
(i) Type 1 (Pure BOT): Cases of NLEX-SLEX Link and NLEX-East & La Mesa Parkway

In the case of NLEX-SLEX Link, both IRR for SPC and Equity IRR show relatively high scores due to the sufficient revenue, although the capital cost is high. Meanwhile, in the case of NLEX-East & La Mesa Parkway, both IRR for SPC and Equity IRR are low due to insufficient revenue.

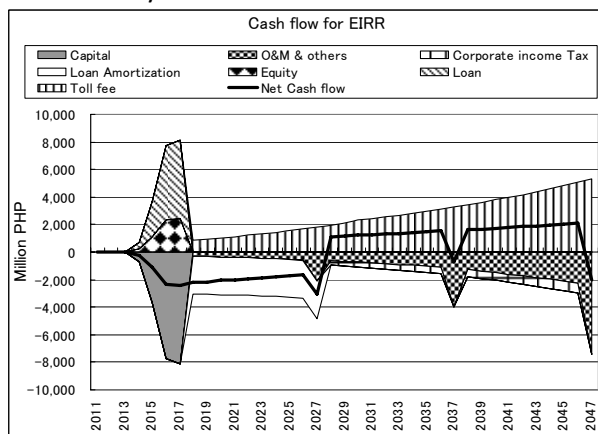
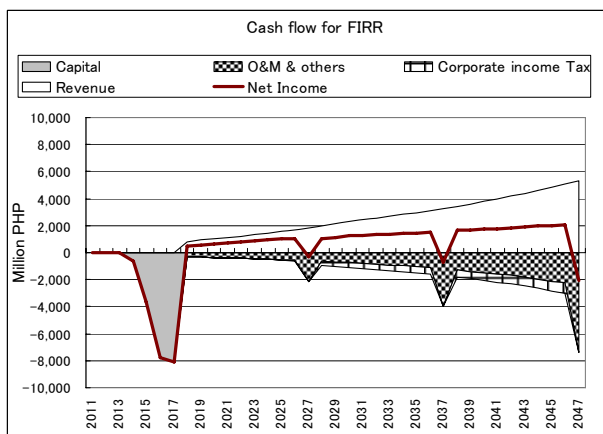
Result of IRR for SPC and Equity IRR in Case of Type 1

Project	Type	IRR for SPC	Equity IRR
NLEX-SLEX Link	Pure BOT	9.45%	8.51%
NLEX-East&La Mesa Parkway	Pure BOT	2.82%	Negative

**Cash Flow for “IRR for SPC” and “Equity IRR” in the Case of Pure BOT
NLEX-SLEX Link**



NLEX-East & La Mesa Parkway



(ii) Type 2 (BOT with subsidy): Case of NLEX-SLEX Link

In the case of NLEX-SLEX Link by BOT with subsidy, both IRR for SPC and Equity IRR are improved compared to the case of Pure BOT, because the expenditure of SPC for construction is reduced by the subsidy from the government.

Result of IRR for SPC and Equity IRR in Case of Type 2

Project	Type	IRR for SPC	Equity IRR
NLEX-SLEX Link	BOT with subsidy	15.53%	17.81%
NLEX-SLEX Link	Pure BOT	9.45%	8.51%

(iii) Type 3 (Segment dividing): Case of NLEX-SLEX Link

In case of Segment dividing, both IRR for SPC and Equity IRR are also improved compared to the case of Pure BOT, because the expenditure of SPC for construction is reduced by the government undertaking of the construction of the government segment. In case of Segment dividing with lease fee payment to the government, SPC has to pay the lease fee to the government to compensate for the construction of the government segment, therefore, IRR for SPC and the Equity IRR decrease compared to the case of Segment dividing without lease fee.

Result of IRR for SPC and Equity IRR in Case of Type 3

Project	Type		IRR for SPC	Equity IRR
NLEX-SLEX Link	Segment dividing	With lease fee	15.80%	18.03%
		GOP's Budget Soft Loan	15.11%	16.83%
NLEX-SLEX Link	Segment dividing	Without lease fee	17.99%	22.20%

(iv) Type 4 (Service Payment): Case of NLEX-East & La Mesa Parkway

In case of Service Payment, SPC can receive the service fee from the government constantly during the O&M period to compensate SPC's investment and O&M cost, thus, the IRR for SPC and Equity IRR are sustained up to the level to secure the financial viability regardless of the revenue from toll tariff.

Result of IRR for SPC and Equity IRR in Case of Type 4

Project	Type	IRR for SPC	Equity IRR
NLEX-East & La Mesa Parkway	Service Payment	11.84%	12.00%
NLEX-East & La Mesa Parkway	Pure BOT	2.82%	Negative

(v) Type 5 (Lease): Cases of CLEX Phase 1(2-lane)

In case of Lease, both IRR for SPC and Equity IRR are higher than Pure BOT due to the reduction of SPC's investment, although SPC has to pay the lease fee to the government for the compensation of the capital cost funded by the government.

Result of IRR for SPC and Equity IRR in Case of Type 5

Project	Type		IRR for SPC	Equity IRR
CLEX Phase 1 (2-lane)	lease	GOP's Budget	38.49%	38.49%
		Soft Loan	22.37%	22.37%
CLEX Phase 1 (2-lane)	Pure BOT		4.36%	1.69%

(c) NPER Evaluation

The results of evaluation for NPER are shown in **Table 9.5-7**. The red cell means NPER is negative, therefore, it is required to decrease net government expenditure including the reduction of subsidy from the government or the increase of lease fee paid by the private.

TABLE 9.5-7 RESULT OF NPER EVALUATION

(Unit: Billion Php)

		Net Public Expenditure Reduction								
		Pure BOT	BOT with Subsidy 50% of construction cost	Segment dividing				Service Payment	Lease	
				Lease fee payment					GOP's Budget	Soft Loan
				100%		0%				
1	NLEX-SLEX Link Expressway	7.5	-0.5	-0.6	8.7	-2.0	6.8			
2	NAIA Expressway-2	2.4	-0.6					2.0	-2.6	3.3
3-1	C-6 Expressway + Global Link	13.8	1.7	3.4	15.3	1.5	12.8			
3-2	C-6 Expressway South East section & Global City Link	8.1	2.2	1.1	9.1	-0.2	7.4			
4	CALA Expressway	1.2	-2.9	-1.9	1.8	-2.5	1.1	2.0	-6.4	2.8
5	C-5/FTI/SKYWAY Connector Rd.	1.9	0.4							
6-1	CLEX Phase1+2	8.4	3.9	4.7	8.8	3.9	7.8	2.0	0.1	9.4
6-2	CLEX Phase1	3.1	1.1					0.9	-0.5	3.6
6-3	CLEX Phase1(4lanes)	5.5	2.4					1.6	-0.2	6.2
7	SLEX Extension	2.8	0.3	0.5	3.2	0.1	2.6	1.2	-1.7	3.6
8	Calamba-Los Banos Toll Expressway	1.9	0.5					0.6	-0.5	2.3
9	R-7 Express Way	6.2	-0.3					4.2	-4.5	8.2
10	NLEX-East & La Mesa Parkway	6.6	2.8	1.7	7.2	0.7	5.9	1.6	-0.4	7.5

Note: Red means PSC < PFILCC (Net Public Expenditure Reduction is negative)

Base year: 2010; Discount rate: 15%

Source: JICA Study Team

(d) Sensitivity analysis

(i) Sensitivity Analysis on Construction cost and Revenue

The following three cases were tested and results are shown in **Table 9.5-8**.

**TABLE 9.5-8 SENSITIVITY ANALYSIS ON THE
CONSTRUCTION COST AND REVENUE**

Case 1	- Construction cost +10%
Case 2	- Revenue from toll tariff -10%
Case 3	- Construction cost +10% and Revenue from toll tariff -10%

Generally, the reduction of the revenue is more sensitive than the increase of the construction cost on the decrease of financial viability. Especially, in case of Lease scheme, the financial viability is drastically decreased because the small initial investment makes it more sensitive against the variation of the revenue and cost in operation period.

TABLE 9.5-8 RESULT OF SENSITIVITY ANALYSIS FOR THE CONSTRUCTION COST AND REVENUE

Bold and Italic with double underlined: IRR for SPC less than 11.5% or Equity IRR less than 15%

IRR decrease: 1.0 ~ 2.0% 2.0 ~ 3.0% Over 3.0%

Project Name	PPP scheme		IRR	Base Case	Sensitivity Analysis						
	Lease fee				Construction Cost +10%	Revenue -10%	Construction Cost +10% & Revenue -10%				
1 NLEX-SLEX Link Expressway	Type 3: Segment dividing	100%	GOP's budget	IRR for SPC	15.80%	14.70%	-1.10%	14.51%	-1.29%	13.43%	-2.37%
				Equity IRR	18.03%	16.22%	-1.81%	15.92%	-2.11%	<u>14.24%</u>	<u>-3.79%</u>
		0%	-	IRR for SPC	17.99%	16.93%	-1.06%	16.75%	-1.24%	15.75%	-2.24%
				Equity IRR	22.20%	20.23%	-1.97%	19.91%	-2.29%	18.15%	<u>-4.05%</u>
2 NAIA Expressway-2	Type 2: BOT with subsidy	-	-	IRR for SPC	16.78%	15.83%	-0.94%	15.68%	-1.10%	14.76%	-2.02%
				Equity IRR	19.85%	18.22%	-1.64%	17.95%	-1.90%	16.42%	<u>-3.44%</u>
3-1 C-6 Expressway + Global Link	Type 3: Segment dividing	100%	GOP's budget	IRR for SPC	12.09%	<u>11.12%</u>	-0.97%	<u>10.78%</u>	-1.31%	<u>9.84%</u>	-2.25%
				Equity IRR	<u>12.29%</u>	<u>10.85%</u>	-1.44%	<u>10.36%</u>	-1.93%	<u>9.04%</u>	<u>-3.24%</u>
		0%	-	IRR for SPC	13.67%	12.78%	-0.89%	12.48%	-1.19%	11.63%	-2.04%
				Equity IRR	<u>14.81%</u>	<u>13.38%</u>	-1.44%	<u>12.90%</u>	-1.91%	<u>11.60%</u>	<u>-3.21%</u>
3-2 C-6 Expressway South East section & Global City Link	Type 3: Segment dividing	100%	GOP's budget	IRR for SPC	12.12%	<u>10.98%</u>	-1.14%	<u>10.59%</u>	-1.53%	<u>9.48%</u>	-2.65%
				Equity IRR	<u>12.33%</u>	<u>10.66%</u>	-1.67%	<u>10.11%</u>	-2.22%	<u>8.59%</u>	<u>-3.74%</u>
		0%	-	IRR for SPC	15.48%	14.48%	-1.00%	14.16%	-1.32%	13.22%	-2.26%
				Equity IRR	18.01%	16.23%	-1.78%	15.68%	-2.32%	<u>14.12%</u>	<u>-3.89%</u>
4 CALA Expressway	Type 3: Segment dividing	100%	GOP's budget	IRR for SPC	18.14%	16.99%	-1.15%	16.68%	-1.46%	15.60%	-2.54%
				Equity IRR	22.52%	20.37%	-2.15%	19.82%	-2.70%	17.91%	<u>-4.60%</u>
		0%	-	IRR for SPC	19.12%	17.98%	-1.13%	17.68%	-1.44%	16.62%	-2.50%
				Equity IRR	24.58%	22.36%	-2.22%	21.79%	-2.78%	19.82%	<u>-4.75%</u>
5 C-5/FTI/SKYWAY Connector Rd.	Type 2: BOT with subsidy	-	-	IRR for SPC	11.59%	<u>10.78%</u>	-0.81%	<u>10.59%</u>	-1.00%	<u>9.81%</u>	-1.78%
				Equity IRR	<u>11.54%</u>	<u>10.34%</u>	-1.20%	<u>10.07%</u>	-1.47%	<u>8.96%</u>	<u>-2.58%</u>
6-1 CLEX Phase1+2	Type 3: Segment dividing	0%	-	IRR for SPC	<u>3.33%</u>	<u>2.69%</u>	-0.65%	<u>1.34%</u>	-1.99%	<u>0.71%</u>	-2.62%
				Equity IRR	<u>Negative</u>	-	-	-	-	-	-
6-2 CLEX Phase1	Type 5: Lease	-	-	IRR for SPC	38.49%	32.81%	<u>-5.68%</u>	27.05%	<u>-11.44%</u>	22.33%	<u>-16.16%</u>
				Equity IRR	38.49%	32.81%	<u>-5.68%</u>	27.05%	<u>-11.44%</u>	22.33%	<u>-16.16%</u>
6-3 CLEX Phase1(4lanes)	Type 5: Lease	-	-	IRR for SPC	16.01%	11.85%	<u>-4.17%</u>	<u>7.81%</u>	<u>-8.20%</u>	<u>3.88%</u>	<u>-12.13%</u>
				Equity IRR	16.01%	<u>11.85%</u>	<u>-4.17%</u>	<u>7.81%</u>	<u>-8.20%</u>	<u>3.88%</u>	<u>-12.13%</u>

Project Name	PPP scheme		IRR	Base Case	Sensitivity Analysis							
	Lease fee				Construction Cost +10%	Revenue -10%	Construction Cost +10% & Revenue -10%					
7	SLEX Extension (to Lucena)	Type 3: Segment dividing	100%	GOP's budget	IRR for SPC	12.96%	11.97%	-0.99%	11.55%	-1.41%	10.59%	-2.37%
					Equity IRR	13.61%	12.11%	-1.50%	11.49%	-2.12%	10.11%	-3.50%
			0%	-	IRR for SPC	14.56%	13.65%	-0.91%	13.27%	-1.29%	12.41%	-2.15%
					Equity IRR	16.27%	14.75%	-1.51%	14.15%	-2.12%	12.80%	-3.47%
8	Calamba-Los Banos Toll Expressway	Type 2: BOT with subsidy	-	-	IRR for SPC	11.33%	10.54%	-0.79%	10.06%	-1.27%	9.31%	-2.02%
					Equity IRR	11.17%	10.03%	-1.14%	9.35%	-1.82%	8.31%	-2.86%
9	R-7 Express Way	Type 2: BOT with subsidy	-	-	IRR for SPC	15.38%	14.43%	-0.95%	14.25%	-1.13%	13.36%	-2.02%
					Equity IRR	17.75%	16.10%	-1.66%	15.80%	-1.96%	14.31%	-3.45%
10	NLEX-East & La Mesa Parkway	Type 3: Segment dividing	0%	-	IRR for SPC	11.69%	10.86%	-0.84%	9.97%	-1.72%	9.19%	-2.50%
					Equity IRR	11.70%	10.45%	-1.25%	9.14%	-2.55%	8.03%	-3.67%

Source: JICA Study Team

(ii) Sensitivity on Subsidy for Type 2 (BOT with subsidy)

The Results of sensitivity analysis on government subsidy with Type 2 are shown in **Table 9.5-9** for the case of NAIA Expressway-2.

The Reduction of subsidy from government makes IRR lower, but NPER is improved. In the case of NAIA Expressway-2, the NPER becomes positive and the IRR for SPC is still viable when 30% of construction cost is provided as the government’s subsidy, although the Equity IRR is slightly lower than 15%.

TABLE 9.5-9 RESULTS OF SENSITIVITY ANALYSIS FOR UP-FRONT SUBSIDY VARIATION

Net Public Expenditure Reduction is negative: Red cell
IRR for SPC less than 11.5% and Equity IRR less than 15.0%: Bold and Italic with double underlined
IRR decrease: blue underlined -2 to -5%, red underlined over -5%
Unit for Net Public Expenditure Reduction: Billion PHP

Project Name		PPP Scheme		Base Case (subsidy 50%)	subsidy 40%		subsidy 30%	
2	NAIA Expressway-2	Type 2: BOT with subsidy	IRR for SPC	16.78%	15.00%	-1.78%	13.57%	<u><i>-3.21%</i></u>
			Equity IRR	19.85%	16.80%	<u><i>-3.05%</i></u>	<u><i>14.51%</i></u>	<u><i>-5.34%</i></u>
			Net Public Expenditure Reduction	-0.6	-0.0		0.6	

Source: JICA Study Team

(iii) Sensitivity on Lease Fee Payment Period for Type 3-1 (Segment Dividing with Lease Fee) and Type 5 (Lease)

The Results of sensitivity analysis on lease fee payment period for Type 3-1 and Type 5 are shown in **Table 9.5-10** for the case of CALA Expressway and CLEX Phase 1 with 2 lanes.

When a shorter payment period is assumed, the higher NPER is secured, although both IRRs decrease. This is because the government can receive higher annual lease fee in the initial operation period. In the case of the share of the construction by public and private sector is 2:8 for CALA Expressway, the 30 years payment makes the NPER negative, but in the 10 years payment, it becomes positive. In the case of CLEX Phase-1 with 2-lane, in the 15 years payment it becomes positive but IRR is no longer viable, when a lease fee payment period is set to be 15 years.

TABLE 9.5-10 RESULTS OF SENSITIVITY ANALYSIS FOR LEASE FEE PAYMENT PERIOD VARIATION

Net Public Expenditure Reduction is negative: Red cell
IRR for SPC more than 11.5% and Equity IRR more than 15.0%: Yellow cell
Unit for Net Public Expenditure Reduction: Billion PHP

Project	Type			lease fee payment period			
				5yrs	10yrs	15yrs	30yrs
CALA Expressway	Type 3-1 Segment Dividing with Lease fee	construction by public and private; 2:8	IRR for SPC	14.58%	14.89%	15.08%	15.38%
			Equity IRR	16.05%	16.66%	17.02%	17.58%
			Net Public Expenditure Reduction	0.3	0.1	-0.1	-0.3
CLEX Phase1 (2lane)	Type 5 Lease		IRR for SPC	-	6.67%	10.71%	38.49%
			Equity IRR	-	6.67%	10.71%	38.49%
			Net Public Expenditure Reduction	-	0.6	0.1	-0.5

Source: JICA Study Team

9.6 Second Screening and Selection of Projects for ODA Funding

1) Objectives of the Second Screening

OBJECTIVES OF SECOND SCREENING

OBJECTIVE

- To select and recommend about 3 PPP projects for possible ODA financing.

PRIORITIZATION FOCUS

- Thus, prioritization of projects under the second screening will focus on;
 - Projects which attract a private sector under a certain PPP modality, profitability of projects should be focused.
 - ODA can be applicable to PPP modality selected for a project.

Selection of an appropriate PPP modality for each project is discussed in Section 10.3. Applicability of Japan's ODA to each type of modality is discussed in 11.3.

2) Prioritization Criteria for Second Screening

Prioritization criteria for second screening was developed in view of objectives and prioritization focus described in (1) above, and established as shown in **Table 9.6-1**.

3) Results of Prioritization Under Second Screening

Table 9.6-2 shows the results of project priority under the second screening, and summarized in **Table 9.6-3**.

TABLE 9.6-1 PROJECT PRIORITIZATION CRITERIA FOR 2ND SCREENING

Category	Evaluation Item	Wt.	Evaluation Indicator	Evaluation Details
Necessity & Urgency of Project [40]	• Economic Viability	15	• EIRR (%)	EIRR Over 25% = 15 15~25% = 12 Less than 15% = 5
	• Functional Importance of the Highway	6	• Functional Classification	Backbone Road = 6.0 Distributor Road = 4.0 Branch of Backbone Road = 2.0 Independent Road = 1.0
	• Contribution to National/Regional Economic Development	2	• Major Existing and Potential industries along the corridor	Agro-fishery Industry = 1.0 Manufacturing Industry = 1.0 Business/Commercial Industry = 1.0 Tourism Industry = 1.0 (Two or more industries = add weights, Max = 2.0 points)
	• Contribution to National/Regional Social Development	3	• Contribution to poverty alleviation	Serving for the areas (including hinter-lands) currently depressed/underdeveloped. Poverty incidence over 30% = 3.0 Poverty incidence between 20-30% = 2.0 Poverty incidence less than 20% = 1.0
	• Urgency Based on Contribution to Traffic Decongestion	6	• Represented by Reduction of Travel Time in pcu-hour/day	Over 4,000 pcu-hour/day = 6.0 1,000 ~ 4,000 pcu-hour/day = 4.0 Less than 1,000 pcu-hour/day = 2.0
	• DPWH Priority/ Project Readiness	8	• Current Project Status	D/D On-going/Completed = 8.0 F/S Completed/On-going/Committed = 7.0 Pre-F/S Completed/On-going/Committed = 5.0 Conceptual Stage = 2.0
Profitability [30]	• SPC's Profitability	10	• IRR for SPC	Over 20% = 10.0 15% ~ 20% = 9.0 13% ~ 15% = 8.0 Less than 13% = 4.0
	• Equity Investor's Profitability	3	• Equity-IRR	Over 20% = 3.0 15% ~ 20% = 2.0 13% ~ 15% = 1.0 Less than 13% = 0
	• Relief of Government's Financial Burden	10	• Amount of Cost Saved by the Government	Over 50% = 10.0 40% ~ 50% = 8.0 30% ~ 40% = 6.0 Less than 30% = 4.0
	• Potential Project Cost Risk (cost increase by 10%)	3	• SPC-IRR	Over 20% = 3.0 15% ~ 20% = 2.0 13% ~ 15% = 1.0 Less than 13% = 0
	• Potential Revenue Risk (revenue decrease by 10%)	4	• SPC-IRR	Over 20% = 4.0 15% ~ 20% = 3.0 13% ~ 15% = 1.0 Less than 13% = 0
Implementability [30]	• ROW Acquisition Difficulty	10	• Land Area to be Acquired by Land Use	<u>Urban Land</u> Less than 5.0 ha = 10.0 5.0 ~ 10.0 ha = 7.0 10.0 ~ 20.0 ha = 4.0 Over 20 ha = 2.0 <u>Rural Land</u> Less than 50.0 ha = 10.0 50 ~ 100.0 ha = 7.0 100.0 ~ 200.0 ha = 4.0 Over 200.0 ha = 2.0
	• Social Impact	10	• No. of Structures Affected	Less than 200 = 10.0 200 ~ 400 = 7.0 400 ~ 800 = 4.0 Over 800 = 2.0
	• Natural Environment	5	• Pass near environmentally critical area	• Does not pass near environmentally critical area = 5.0 • Passes near environmentally critical area = 2.0
	• Construction Difficulty	5	• Location of Project Site, Working Space During Construction and Type of Work Required	Rural/ at-grade = 5.0 Urban/ at-grade = 2.0 Urban/ Elevated = 1.0
Total [100]		100		

Source: JICA Study Team

TABLE 9.6-2 EVALUATION OF PRIORITY : SECOND SCREENING

	Weight	1.NS-Link		2.NAIA Phase2		3.C-6 (SE section)		4.CALA Expressway		5.CLEX Phase-1		6.Calamba Los Banos		7.SLEX ext.		8.NLEX-East+ La Mesa Prkwy		9.FTI Connector		10.R-7 Exp				
		Indicator	Point	Indicator	Point	Indicator	Point	Indicator	Point	Indicator	Point	Indicator	Point	Indicator	Point	Indicator	Point	Indicator	Point	Indicator	Point			
Necessity & Urgent	1	EIRR(%)	15.0	29.1%	15.0	18.0%	12.0	34.2%	15.0	36.7%	15.0	18.1%	12.0	20.4%	12.0	29.7%	15.0	21.3%	12.0	25.4%	15.0	25.5%		
	2	Road Function Type	6.0	T-1	6.0	T-2	6.0	T-1	6.0	T-2	4.0	T-2	4.0	T-3	2.0	T-1	6.0	T-1	6.0	T-3	2.0	T-4	1.0	
	3	National/ Regional Economic Development	2.0		2.0		2.0		2.0		2.0		1.0		2.0		1.0		1.0		1.0		1.0	
	4	National/ Regional Social Development	3.0		1.0		1.0		1.0		1.0		3.0		1.0		3.0		2.0		1.0		1.0	
Profitability	5	Urgency Based on Contribution to Decongestion(PCU/hr/day)	6.0	4,969	6.0	2,549	4.0	4,681	6.0	1,549	4.0	564	2.0	940	2.0	806	2.0	617	2.0	4,060	6.0	3,923	4.0	
	6	DPWH Priority/Project Readiness	8.0	F/S	7.0	PreF/S	5.0	F/S	7.0	F/S	7.0	F/S	7.0	PreF/S	5.0	PreF/S	5.0	PreF/S	5.0	D/D	8.0	Concept	2.0	
	7	SPC IRR (%)	10.0	17.0%	9.0	16.8%	9.0	15.1%	9.0	19.1%	9.0	23.4%	10.0	11.7%	4.0	14.6%	8.0	11.7%	4.0	11.6%	4.0	14.8%	8.0	
	8	Equity IRR (%)	3.0	20.4%	3.0	19.8%	2.0	17.3%	2.0	24.6%	3.0	23.4%	3.0	23.4%	3.0	11.8%	0.0	16.3%	2.0	11.5%	0.0	16.8%	2.0	
Implementability	9	Amount of Reduction of Government Burden	10.0	40.3%	8.0	48.4%	8.0	32.9%	6.0	58.7%	10.0	12.4%	4.0	48.4%	8.0	53.6%	10.0	38.1%	6.0	51.1%	10.0	50.0%	10.0	
	10	Project Cost Risk,IRR(%)	3.0	16.0%	2.0	15.8%	2.0	14.1%	1.0	18.0%	2.0	18.5%	2.0	10.9%	0.0	13.7%	1.0	10.8%	0.0	10.8%	0.0	13.9%	1.0	
	11	Revenue Risk,IRR(%)	4.0	15.8%	3.0	15.7%	3.0	13.8%	1.0	17.7%	3.0	14.5%	1.0	10.5%	0.0	13.3%	1.0	9.9%	0.0	10.6%	0.0	13.7%	1.0	
	12	ROW Acquisition(ha)	10.0	1.5	10.0	1.2	10.0	162.0	2.0	255.0	2.0	162.0	4.0	64.0	7.0	240.0	2.0	308.2	2.0	0.5	10.0	0.8	10.0	
Total	13	Social Impact(no. structure)	10.0	410	4.0	200	7.0	430	4.0	240	7.0	100	10.0	130	10.0	200	7.0	640	4.0	40	10.0	30	10.0	
	14	Natural Impact	5.0	Not impact	5.0	Not impact	2.0	Lagna de Bay	2.0	Not impact	5.0	Not impact	5.0	Lagna de Bay	2.0	Not impact	5.0	Not impact	5.0	Not impact	5.0	Not impact	5.0	5.0
	15	Construction Difficulty	5.0	Urb_EI	1.0	Urb_EI	1.0	Urb_at	2.0	Rur_at	5.0	Rur_at	5.0	Rur_at	5.0	Rur_at	5.0	Rur_at	5.0	Urb_EI	1.0	Urb_EI	1.0	1.0
Total		100.0		82.0		75.0		65.0		79.0		73.0		60.0		73.0		54.0		73.0		73.0		
Ranking			1st		3rd		8th		2nd		4th		9th		4th		10th		4th		4th		7th	

Source: JICA Study Team

TABLE 9.6-3 PRIORITY OF PROJECT IN THE SECOND SCREENING

Priority Order	Points Obtained	Project Name	Type of PPP	Remarks
1	82.0	NLEx – SLEx Link Expressway	Type-3 + Type-5 for GRP Segment	<ul style="list-style-type: none"> • MNTC submitted an unsolicited proposal in April, 2010. • DPWH accepted subject to submission of some more information. • Under evaluation by DPWH.
2	79.0	CALA Expressway	Type-3 + Type-5 for GRP Segment	<ul style="list-style-type: none"> • World Bank provides technical assistance for F/S and tendering for Manila side segment. • F/S of southern segment was done by JICA in 2006.
3	75.0	NAIA Expressway (Phase-2)	Type-2	<ul style="list-style-type: none"> • Pre-F/S undertaken by EREA/METI, Japan in 2010.
4	73.0	CLEx Phase-1 (2-lane)	Type-5	<ul style="list-style-type: none"> • F/S completed in 2010 by DPWH utilizing Yen Loan.
4	73.0	SLEx Extension (to Lucena City)	Type-3 + Type-5 for GRP Segment	<ul style="list-style-type: none"> • SLTC announced to start Detailed Design.
4	73.0	C-5 / FTI / Skyway Connector Road	Type-2	<ul style="list-style-type: none"> • Detailed Design on-going by DPWH. • The Government is trying to sell property of Food Terminal Inc. (FTI).
7	72.0	R-7 Expressway	Type-2	<ul style="list-style-type: none"> • Needs more comprehensive study including introduction of BRT system and urban rail system.
8	65.0	C-6 Expressway, South-East Section	Type-3 + Type-5 for GRP Segment	<ul style="list-style-type: none"> • North section will be constructed by MRT-7 consortium. • KOICA will undertake F/S of the remaining section from January, 2011.
9	60.0	Calamba – Los Baños Expressway	Type-5	<ul style="list-style-type: none"> • PEGR undertook business case study in 2008. • Needs coordination with a plan to construct flood control dike. Expressway and dike can be a combined structure.
10	54.0	NLEx East + La Mesa Parkway	Type-3	<ul style="list-style-type: none"> • La Mesa Parkway <ul style="list-style-type: none"> - Unsolicited proposal submitted to MWSS by AUSPhil Tollways Corp. (ATC) in 2001. - Original proponent status given to ATC in 2007.

4) Selection of Projects for ODA Funding

There are two (2) kinds of selection methods as follows:

Case-1 : Select projects in accordance with the priority.

Case-2 : Select one priority project from each type of PPP modality.

(a) Case-1 : Select Projects in accordance with the Priority.

Top four (4) priority projects are listed in **Table 9.6-4** with their surrounding conditions.

TABLE 9.6-4 SELECTION OF PROJECTS UNDER CASE-1

Project Name	Score	Rank	Recommendation	Remarks
• NLEx-SLEx Link Expressway	82.0	1	△	<ul style="list-style-type: none"> • Should wait for DPWH evaluation of unsolicited proposal • If unsolicited proposal is approved, ODA fund cannot be used due to Philippine BOT Law
• CALA Expressway	79.0	2	Ⓢ (Recommended)	<ul style="list-style-type: none"> • Coordination with WB needed • Financing south section is possible
• NAIA Expressway (Phase-2)	75.0	3	Ⓢ (Recommended)	<ul style="list-style-type: none"> • ODA financing can be used for Government Support Fund
• CLEx, Phase I (2-lane)	73.0	4	Ⓢ (Recommended)	<ul style="list-style-type: none"> • ODA financing can be used for design/construction by GRP
• SLEx Extension (to Lucena City)	73.0	4	△	<ul style="list-style-type: none"> • Should wait SLTC's action for Detailed Design
• C-5/FTI/Skyway Connector Road	73.0	4	△	<ul style="list-style-type: none"> • Better wait for further situation development • If the Government can sell FTI property to the private sector, proposed alignment may not suit to the private sector's plan.

(b) Case-2 : Select One Priority Project From Each Type of PPP Modality

Priority of projects by each type of PPP modality and recommendation is as follows:

**TYPE-2: BOT WITH GOVERNMENT SUBSIDY/
GOVERNMENT SUPPORT FUND**

Project Name	Score	Rank	Recommendation	Remarks
• NAIA Expressway (Phase-2)	75.0	3	Ⓢ (Recommended)	• See Table 9.6-3
• C-5/FTI/Skyway Connector Road	73.0	4	△	• See Table 9.6-3
• R-7 Expressway	72.0	7	△	• See Table 9.6-3

TYPE-3: SEGMENT DIVIDING SCHEME

Project Name	Score	Rank	Recommendation	Remarks
• NLEx-SLEx Link Expressway	82.0	1	△	• See Table 9.6-3
• CALA Expressway	79.0	2	⊙ (Recommended)	• See Table 9.6-3
• SLEx Extension (to Lucena City)	73.0	4	△	• See Table 9.6-3
• C-6 Expressway (South-East Section)	65.0	8	△	• See Table 9.6-3
• NLEx East/La Mesa Parkway	54.0	10	△	• See Table 9.6-3

TYPE-5: LEASE SCHEME

Project Name	Score	Rank	Recommendation	Remarks
• CLEx Phase 1 (2-lane)	73.0	4	⊙ (Recommended)	• See Table 9.6-3
• Calamba-Los Baños Expressway	60.0	9	△	• See Table 9.6-3

Recommendations are summarized hereunder and both Case-1 and Case-2 show that the same projects are recommended.

RECOMMENDED PROJECTS FOR POSSIBLE ODA FUNDING

PPP Modality	Recommended Project
Type-2 : BOT with Government subsidy/ Government Support Fund	• NAIA Expressway (Phase II)
Type-3 : Segment Dividing Scheme	• CALA Expressway
Type-5 : Lease Scheme	• CLEx Phase-1 (2-lane)

10. PPP MODALITY AND ITS APPLICATION

10.1 PPP Modality

1) Definition of PPP

DEFINITION OF PPP

The term “Public-Private Partnership (PPP)” describes a range of possible relationship among public and private entities in the context of infrastructure and other services.

Source: The Public-Private Partnership Handbook (2008, ADB)

2) Objectives of PPP

OBJECTIVES OF PPP

1) Mobilization of Private Capital

- To deliver required public services to people as early as possible by mobilizing private capital, and to reduce the public sector’s financial burden.
- The end of the private sector in entering into a PPP is to seek compensation for its services through fees for service rendered, resulting in an appropriate return on capital.

2) Tool for Greater Efficiency

- The public sector has rather few incentives for efficiency structures into its organization and process and is rather poorly positioned to efficiently build and operate infrastructure.
- The private sector, however, enters into an investment with the clear goals of maximizing profits by increased efficiency in investment and operations with full utilization of the private sector’s know-how and skills.

3) Image of PPP Structure

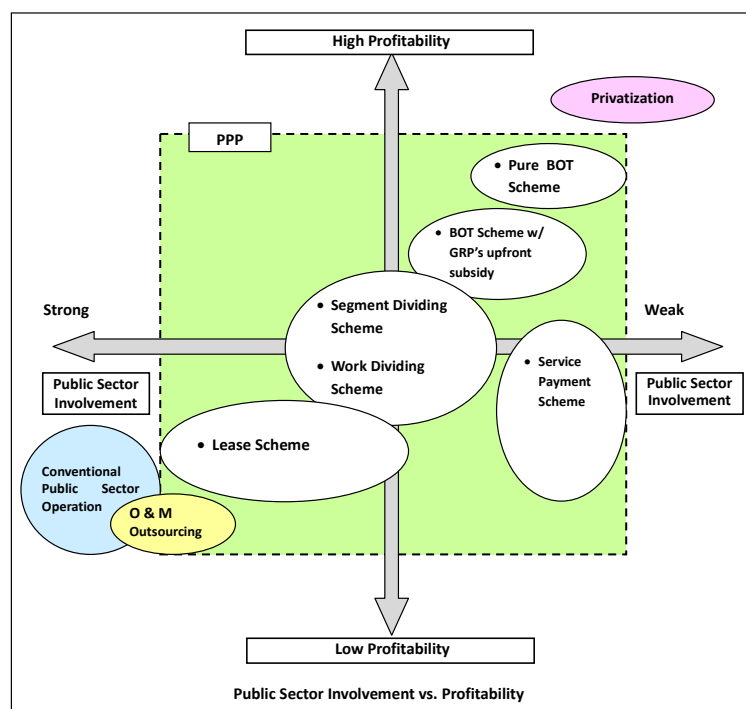


IMAGE OF PPP STRUCTURE

4) Basic Types of PPP Modality

There are many types of modality. In this report, various types of PPP modality were classified into five (5) basic types as shown in **Table 10.1-1**.

TABLE 10.1-1 BASIC TYPES OF PPP MODALITY

	Responsibility		Examples in the Philippines
	GRP	Private Sector	
Type-1: Pure BOT Type	<ul style="list-style-type: none"> • ROW Acquisition 	<ul style="list-style-type: none"> • Design, construction and O & M • Financing of above. • Investments will be recovered by toll revenue • Revenue Risk (Note-1) 	<ul style="list-style-type: none"> • Rehabilitation/ Widening of: <ul style="list-style-type: none"> - NLEx - SLEx - Manila-Cavite Expressway • Construction of : <ul style="list-style-type: none"> - Skyway I & II - Manila-Cavite Expressway Extension
Type-2: BOT Type with GRP Subsidy/ Financial Support	<ul style="list-style-type: none"> • ROW Acquisition • GRP provides up-front subsidy (max. is 50% of project cost), or government financial support (GFS) 	<ul style="list-style-type: none"> • Design, Construction and O & M. • Financing of above with GRP subsidy or GFS. • Investment will be recovered by toll revenue. • Revenue Risk (Note-1) 	<ul style="list-style-type: none"> • TPLEx
Type-3: Segment Dividing Type (Project is divided into GRP Segment and Private Segment)	<ul style="list-style-type: none"> • ROW Acquisition of both segments • Design and construction of GRP segment. • GRP segment will be leased to the private sector at the lease fee of 0-100% of GRP Expenditure. 	<ul style="list-style-type: none"> • Design and Construction of the Private Segment. • O & M of both segments. • Financing of above. • Investments will be recovered by toll revenue of both segments. • Private sector pays lease fee to GRP. • Revenue Risk (Note-1) 	<ul style="list-style-type: none"> • STAR
Type-4: Service Payment Type	<ul style="list-style-type: none"> • ROW Acquisition • During O & M period, GRP will pay to the private sector service fee for the private sector to recover its investments. • Toll revenue usually turned over to GRP. If toll revenue is not enough to pay service fee, GRP adds subsidy. • Revenue Risk 	<ul style="list-style-type: none"> • Design, Construction and O & M. • Financing of above. • Receive service fee annually to recover investments. 	<ul style="list-style-type: none"> • MRT-3 (O & M by GRP)
Type-5: Lease Type	<ul style="list-style-type: none"> • ROW Acquisition • Design and Construction 	<ul style="list-style-type: none"> • O & M • The private sector leases the facility from GRP. • Lease fee ranges from 0-100% of GRP expenditure. • Revenue Risk (Note-1) 	<ul style="list-style-type: none"> • Original NLEx and SLEx • SCTEx

Note-1: Revenue risk can be shared with GRP by adopting minimum revenue guarantee, etc.

Source: JICA Study Team

5) Variation of Basic Types of PPP Modality

Variations of basic types of PPP modality are shown in **Table 10.1-2**. Note that there are also combinations of basic types and variation of basic types.

TABLE 10.1-2 VARIATION OF BASIC TYPES OF PPP MODALITY

PPP Modality	Variation of Basic Types of PPP Modality															
Type-1: Pure BOT Type	<ul style="list-style-type: none"> • Build-Operate-and-Transfer (BOT) • Build-and-Transfer (BT) —————> Type-4 in this study • Build-Own-and-Operate (BOO) • Build-Lease-and Transfer (BLT) —————> Type-4 in this study • Build-Transfer-and Operate (BTO) —————> Type-4 in this study • Contract-Add-and-Operate (CAO) • Develop-Operate-and-Transfer (DOT) • Rehabilitate-Operate-and-Transfer (ROT) • Rehabilitate-Own-and-Operate (ROO) <p>Note: Build, Develop, Rehabilitate → by the Private Operate → by the Private Contract – Add → to the Private Lease → lease to the Public</p> <p>Source: RA 7718</p>															
Type-2: BOT Type with GRP Subsidy/Financial Support	<ul style="list-style-type: none"> • In case of Two Step Loan (TSL), if foreign exchange risk is shouldered by GRP, it will be subsidy. • Revenue Guarantee Scheme by GRP is classified as Type-4. If revenue is not enough to pay service fee, GRP has to use subsidy. 															
Type-3: Segment Dividing Type	<ul style="list-style-type: none"> • Similar one is Work Dividing Type. <p>Example</p> <p>Case-1: Elevated Expressway</p> <ul style="list-style-type: none"> • Construction of foundation and substructure by GRP • Construction of superstructure & others by Private Sector. <p>Case-2: Railway Project</p> <ul style="list-style-type: none"> • All civil work by GRP. • All others (rolling stocks, depot, etc.) by Private Sector. 															
Type-4: Service Payment Type	<ul style="list-style-type: none"> • Various majors such as Revenue Risk Guarantee (RRG) and Viability Gap Financing (VGF) can be also applied to Type-1, Type-2, and Type-3. These are classified under Type-4 in this study. <table border="1" data-bbox="517 1413 1385 1854"> <thead> <tr> <th>Type</th> <th>Outlines</th> <th>Examples</th> </tr> </thead> <tbody> <tr> <td>Fixed revenue guarantee</td> <td>The government guarantees the agreed fixed revenue as availability fee, provided that agreed service level is attained.</td> <td>A13 Road in England</td> </tr> <tr> <td>Banding</td> <td>Toll fee to be adjusted depending on actual traffics.</td> <td>DBFO Road in the UK (early phase)</td> </tr> <tr> <td>Cap and floor</td> <td>The public collects the amount above the agreed upper limit or compensates the amount below the agreed lower limit of toll revenue.</td> <td>Sydney Harbour Tunnel in Australia</td> </tr> <tr> <td>Variable term of contract period</td> <td>Closing the contract when the investor acquires the agreed benefit.</td> <td>Sky bridge in the UK</td> </tr> </tbody> </table> <p>Note: DBFO = Design, Build, Finance and Operate</p>	Type	Outlines	Examples	Fixed revenue guarantee	The government guarantees the agreed fixed revenue as availability fee, provided that agreed service level is attained.	A13 Road in England	Banding	Toll fee to be adjusted depending on actual traffics.	DBFO Road in the UK (early phase)	Cap and floor	The public collects the amount above the agreed upper limit or compensates the amount below the agreed lower limit of toll revenue.	Sydney Harbour Tunnel in Australia	Variable term of contract period	Closing the contract when the investor acquires the agreed benefit.	Sky bridge in the UK
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Variable term of contract period	Closing the contract when the investor acquires the agreed benefit.	Sky bridge in the UK														
Type-5: Lease Type	<ul style="list-style-type: none"> • Extreme case of this type is outsourcing of O & M work to the private sector. 															

10.2 Applicable Conditions of Basic Types of PPP Modality

1) Needs of PPP Approach

There are various tollway development projects ranging from highly profitable one to very low profitable one, if a project is planned to be implemented solely by the private sector. However, even very low profitable projects can be converted to a profitable project with the reasonable government financial supports. Therefore, various types of PPP modalities should be studied and the most appropriate type should be selected, even for the very low profitable projects.

In the Philippines, highly profitable tollway projects have already been implemented by BOT Scheme and those highly profitable projects are becoming less and less in number, thus the Public-Private Partnership is becoming more important than before.

This Study undertook numerous cases of financial analysis for projects with various ranges of profitability which are presented in Section 9.5 "Pre-business Case Study". Results of financial analysis were summarized in this section and applicability of basic types of PPP modality from the viewpoints of profitability was roughly established.

2) Terminology

Following terminologies are briefly explained hereunder;

Project FIRR: Investment return when all costs are financed by the private sector (no government financial support is considered).

IRR for SPC (Special Purpose Company): Investment return from the viewpoint of SPC (only costs financed by SPC are considered. Cost financed by the Government is excluded).

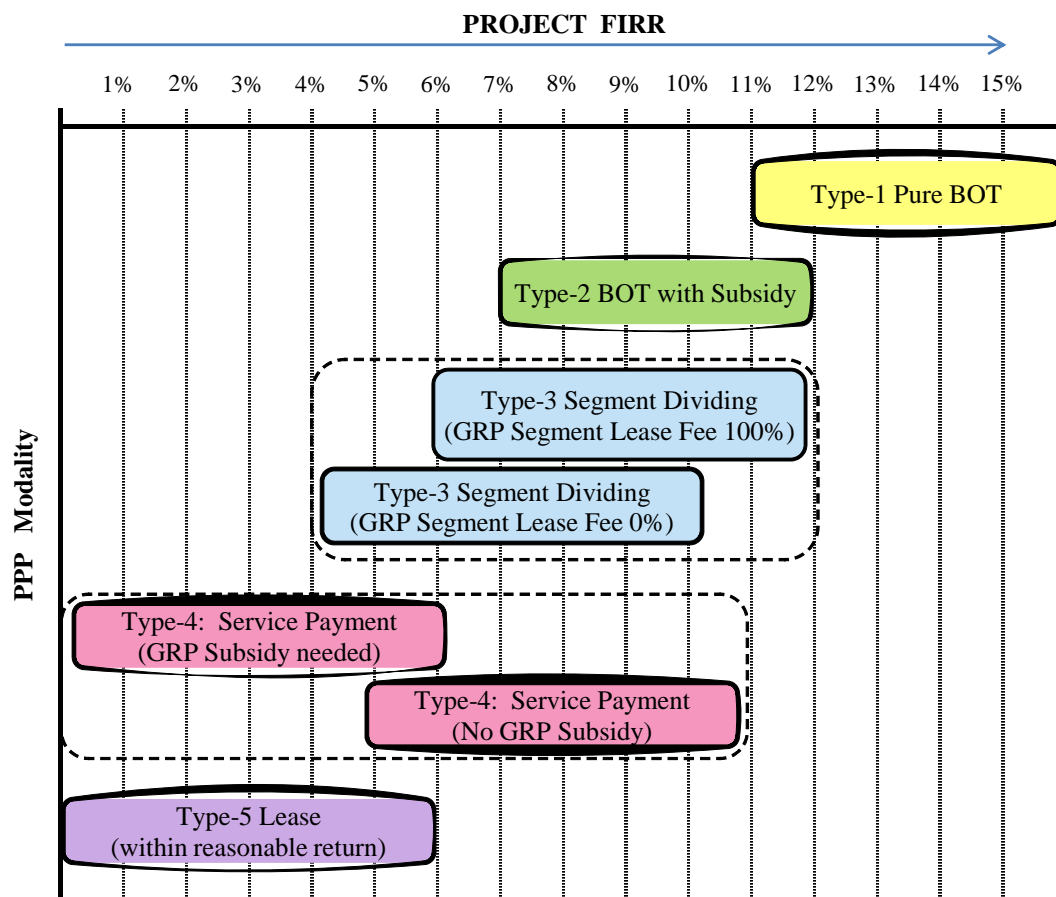
Equity IRR: Investment return from the viewpoint of equity investor. Equity investors usually require 15% to 20% dividend.

WACC: Weighted Average of Capital Cost. When Loan and Equity share is 70:30, and loan interest rate is 10% per annum and expected dividend to equity investment is 15%, WACC is 11.5%. (This Study adopted WACC as 11.5%).

NPER (Net Public Expenditure Reduction): This is an indicator to check if net public expenditure (expenditure minus income (toll revenue) under conventional type of implementation or everything is done by the Government) is higher than that under a PPP modality (or the Government's net expenditure under the conventional type of implementation can be saved by a PPP modality).

3) General Indication in studying Options of PPP Modality

Based on the results of Section 9.5, the general indication of applicability of PPP modality in relation to Project FIRR is summarized in **Figure 10.2-1**.



Source: JICA Study Team

FIGURE 10.2-1 GENERAL INDICATION OF APPLICABILITY OF PPP MODALITY

Type-1 Pure BOT : When a Project FIRR is over 11% (or close to WACC), this type should be studied.

Type-2 BOT with Subsidy : When a Project FIRR is about 7% to 12% , this type should be studied for various amount of subsidy.

Type-3 Segment Dividing (GRP Segment Lease Fee: 100%) : When a Project FIRR is about 6% to 12%, this type should be studied.

Type-3 Segment Dividing (GRP Segment Lease Fee: 0%) : When a Project FIRR is about 4% to 10%, this should be studied. If IRR for SPC and Equity IRR becomes quite high (say about 22%), various lease fee should be studied.

Type-4 Service Payment with GRP Subsidy : This type should be studied for low Project FIRR (0 to 6%), provided that GRP subsidy is within the reasonable range.

Type-4 Service Payment without GRP Subsidy : This type should be studied when Project FIRR is about 5 to 9%. IRR for SPC and Equity IRR should be within the reasonable range (say about 22%). When this type is applied to projects with Project IRR of about 11% or more, toll revenue becomes much higher than the service fee, which means the Government gets high profit. Thus, a project which can expect high revenue should not be applied to this and revenue risk

may be shouldered by the private sector, which means Type-1 or Type-2 should be considered.

Type-5 Lease : This type should be studied for low Project FIRR (0 to about 6%). When this type is applied to project IRR of over about 6%, IRR for SPC and Equity IRR becomes quite high (unreasonably high return to the private sector), thus, other types with higher participation of the private sector should be studied, or toll rates should be set low.

4) Applicable Conditions of Each Type of PPP Modality

Applicable conditions of each type of PPP modality is summarized in **Table 10.2-1**.

TABLE 10.2-1 APPLICABLE CONDITION OF EACH TYPE OF PPP MODALITY

PPP Type		Applicable Conditions
Type-1: Pure BOT Scheme		<ul style="list-style-type: none"> Applicable to project of which Project FIRR is over 11% or close to WACC.
Type-2: BOT Scheme with Up-front Subsidy		<ul style="list-style-type: none"> Applicable to a project of which Project FIRR is between about 7% and 12%. Various amount of up-front subsidy should be studied to check if NPER is positive. (Max. subsidy is limited to 50% of the project cost in accordance with BOT Law.)
Type-3: Segment Dividing Type	GRP Segment to be leased to SPC	<ul style="list-style-type: none"> Applicable to a project of which Project FIRR is between 6% and 12%. Various divisions of segment as well as lease fee of GRP segment should be studied. Needs to check if NPER is positive or not. Not applicable to a short project in length (say less than 5 km.) A project should be divided that a segment earlier completed than the other can function by itself.
	GRP Segment is leased to SPC free of charge	<ul style="list-style-type: none"> Applicable to a project of which Project FIRR is between 4% and 10%. If IRR for SPC and Equity IRR become quite high (say about 22% or more), GRP segment should be leased to SPC. Not applicable to a short project in length (say less than 5 km.) A project should be divided that a segment earlier completed than the other can function by itself.
Type-4: Service Payment Type	With GRP Subsidy	<ul style="list-style-type: none"> Applicable to a project of which Project FIRR is between 0% and 6%. Needs to be check if GRP subsidy is within a reasonable range.
	Without GRP Subsidy	<ul style="list-style-type: none"> Applicable to a project of which Project FIRR is between 5% and 9%. IRR for SPC and Equity IRR should be within a reasonable range (say less than about 22%). When this type is applied to a project with Project FIRR of about 11% or more, toll revenue becomes much higher than the service fee, which means the Government gets high profit, thus such projects should be planned to adopt Type-1 or Type-2.
	Common to above	<ul style="list-style-type: none"> The Government must allocate budget for payment of service fee for the full duration of operation period (commonly 30 consecutive years), thus, sustainable and firm commitment of the Government for this type is required.
Type-5: Lease Type		<ul style="list-style-type: none"> Applicable to a project of which Project FIRR is between 0% to 6%. When this type is applied to a project of which Project FIRR is over about 6%, the private sector's financial return becomes unreasonably high, thus, other types with higher participation of the private sector should be studied, or toll rates should be set low.

10.3 Selection of Type Of PPP Modality for 10 Projects

1) Criteria for Selection of PPP Modality of Each Project

SELECTION CRITERIA OF PPP MODALITY

- 1) IRR for SPC is higher than WACC (11.5%).
- 2) Equity IRR is higher than 15%.
- 3) Net Public Expenditure Reduction (NPER) shall be positive.
- 4) When above three conditions are satisfied, PPP modality with higher NPER is selected.

As shown in Figure 10.2-1, a project with Project FIRR of 4% to 12%, PPP schemes of Type-2, 3 and 4 are applicable, therefore, the Government should select a PPP scheme with due consideration of characteristics of PPP schemes, budget allocation easiness for short and long term, and implementation easiness. Under this Study, a factor of applicability of ODA to a PPP Scheme was considered.

2) PPP Modality Selected for Each Project

Based on the above selection criteria of PPP modality and results of financial analysis, PPP modality for each project was selected and summarized in **Table 10.3-1**.

TABLE 10.3-1 SELECTED PPP MODALITY OF EACH PROJECT

Name of Project	Selected PPP Modality
1. NLEx – SLEx Link Expressway	Type-3 (Segment Dividing) + Type-5 (Lease) for GRP Segment GRP Segment : Private Segment = 60 : 40 GRP Segment Lease Fee = 100% GRP Segment utilizes Soft Loan.
2. NAIA Expressway: Phase II	Type-2 (BOT with subsidy) Subsidy = 35% ~ 40% of construction cost
3. C-6 Expressway/Global City Link: South East Section	Type-3 (Segment Dividing) GRP Segment : Private Segment = 64 : 36 GRP Segment Lease Fee = 0% GRP Segment utilizes Soft Loan.
4. CALA Expressway	Type-3 (Segment Dividing) + Type-5 (Lease) for GRP Segment GRP Segment : Private Segment = 40 : 60 GRP Segment Lease Fee = 100% GRP Segment utilizes Soft Loan.
5. C-5/FTI/Skyway Connector Road	Type-2 (BOT with Subsidy) Subsidy = 50% ~ 60% of construction cost
6. CLEx: Phase-I (2-lane)	Type-5 (Lease) GRP utilizes Soft Loan.
7. SLEx Extension (to Lucena City), (2-lane)	Type-3 (Segment Dividing) GRP Segment : Private Segment = 50 : 50 GRP Segment Lease Fee = 0%
8. Calamba – Los Baños Expressway	Type-5 (Lease) GRP utilizes Soft Loan.
9. R-7 Experessway	Type-2 (BOT with Subsidy) Subsidy = 40% of construction cost.
10. NLEx East + La Mesa Parkway	Type-3 (Segment Dividing) GRP Segment : Private Segment = 70 :30 GRP Segment Lease Fee = 0%

Project Name: NLEx-SLEx Link Expressway

	PPP Modality					
	Pure BOT	BOT with Subsidy (50% of Construction Cost)	Segment Dividing (60 : 40)		Service Payment	Lease
			GRP Segment's Lease Fee 100%	GRP Segment's Lease Fee 0%		
Project FIRR	9.14	9.14	9.14	9.14	9.14	9.14
IRR for SPC	9.45	15.53	15.80 (15.11)	17.99	-	-
Equity IRR	8.51	17.81	18.03 (16.83)	22.20	-	-
NPER (Million PHP)	7,459	-453	-555 (8,742)	-1,996 (6,836)	-	-
Remarks	<ul style="list-style-type: none"> Amount of subsidy needs to be reduced. This is also recommendable scheme, however, utilization of a soft loan for subsidy is rather difficult. Recommended, on the condition that GRP Segment to be reduced or GRP utilizes a soft loan 					

Note: Figure in () shows when GRP utilizes a soft loan from multi, bi-lateral sources.

 : IRR for SPC is less than 11.5%
 : Equity IRR less than 15%
 : NPER is negative.

Project Name: NAIA Expressway Phase II

	PPP Modality					
	Pure BOT	BOT with Subsidy (40% of Construction Cost)	Segment Dividing		Service Payment	Lease
			GRP Segment's Lease Fee 100%	GRP Segment's Lease Fee 0%		
Project FIRR	9.97	9.97	9.97	9.97	9.97	9.97
IRR for SPC	10.54	15.00	-	-	10.05	374.41 (271.52) (Note-1)
Equity IRR	10.04	16.80	-	-	8.86	374.41 (271.52) (Note-1)
NPER (Million PHP)	2,397	-10	-	-	1,977	(3,291) (Note-1) (Note-2)
Remarks		<ul style="list-style-type: none"> Recommended Amount of subsidy needs to be reduced to 35%. 	<ul style="list-style-type: none"> Not applicable due to short distance. 	<ul style="list-style-type: none"> Not applicable due to short distance. 	<ul style="list-style-type: none"> The service fee needs to be increased. 	<ul style="list-style-type: none"> (Note-1): Toll Rate needs to be reduced. (Note-2): GRP utilizes ODA soft loan, of which repayment will be made from lease fee.

Note: Figure in () shows when GRP utilizes a soft loan from multi, bi-lateral sources.

- : IRR for SPC is less than 11.5%
- : Equity IRR less than 15%
- : NPER is negative.

Project Name: C-6 Expressway + Global Link

	PPP Modality					
	Pure BOT	BOT with Subsidy (50% of Construction Cost)	Segment Dividing (48 : 52)		Service Payment	Lease
			GRP Segment's Lease Fee 100%	GRP Segment's Lease Fee 0%		
Project FIRR	7.10	7.10	7.10	7.10	7.10	7.10
IRR for SPC	8.10	13.58	12.09 (11.55)	13.67	-	-
Equity IRR	6.60	14.71	12.29 (11.48)	14.81	-	-
NPER (Million PHP)	13,771	1,709	3,405 (15,329)	1,539 (12,821)	-	-
Remarks			• Needs to increase GRP segment	• Needs to increase GRP segment		

Note: Since North Section of the Project is to be built by MRT-7 Consortium, thus this case is only for reference.

Project Name: C-6 Expressway South East Section & Global City Link

	PPP Modality					
	Pure BOT	BOT with Subsidy (50% of Construction Cost)	Segment Dividing (64 : 36)		Service Payment	Lease
			GRP Segment's Lease Fee 100%	GRP Segment's Lease Fee 0%		
Project FIRR	5.14	5.14	5.14	5.14	5.14	5.14
IRR for SPC	6.04	11.09	12.12 (10.95)	15.48 (15.48)	-	-
Equity IRR	3.90	10.79	12.33 (10.63)	18.01 (18.01)	-	-
NPER (Million PHP)	8,100	2,152	1,052	9,069	-	-
Remarks				-190 (7,385)		
				• Recommended, on the condition that GRP Segment to be reduced or GRP utilizes a soft loan		

Note: Figure in () shows when GRP utilizes a soft loan from multi, bi-lateral sources.

■ : IRR for SPC is less than 11.5%
 ■ : Equity IRR less than 15%
 ■ : NPER is negative.

Project Name: CALA Expressway

	PPP Modality						
	Pure BOT	BOT with Subsidy (30% of Construction Cost)	Segment Dividing (40 : 60)		(20 : 80)		Lease
			GRP Segment's Lease Fee 100%	GRP Segment's Lease Fee 0%	GRP Segment's Lease Fee 100%	GRP Segment's Lease Fee 100%	
Project FIRR	12.51	12.51	12.51	12.51	12.51	12.51	12.51
IRR for SPC	13.59	16.78	18.14 (17.83)	19.12 (19.12)	14.89	11.67	202.20 (177.18) (Note-1)
Equity IRR	14.63	20.15	22.52 (21.88)	24.58 (24.58)	16.66	11.66	202.20 (177.18) (Note-1)
NPER (Million PHP)	1,220	-1,266	-1,882 (1,843)	-2,545 (1,085)	58 (Note-1)	2,009	(2,751) (Note-1)
Remarks		<ul style="list-style-type: none"> Needs to decrease subsidy to less than 30%. This is also recommendable scheme, however, utilization of a soft loan for subsidy is rather difficult. 	<ul style="list-style-type: none"> Recommended, on the condition that GRP Segment to be reduced or GRP utilizes a soft loan 		<ul style="list-style-type: none"> (Note-1): Lease fee to be paid back to GRP in 10 years 	<ul style="list-style-type: none"> The service fee needs to be increased. 	<ul style="list-style-type: none"> (Note-1): Same as NAIA (Note-2): Same as NAIA

Note: Figure in () shows when GRP utilizes a soft loan from multi, bi-lateral sources.

 : IRR for SPC is less than 11.5%
 : Equity IRR less than 15%
 : NPER is negative.

Project Name: C-5/FTI/SKYWAY Connector Road

	PPP Modality				
	Pure BOT	BOT with Subsidy (50% of Construction Cost)	Segment Dividing		Lease
			GRP Segment's Lease Fee 100%	GRP Segment's Lease Fee 0%	
Project FIRR	6.08	6.08	6.08	6.08	6.08
IRR for SPC	6.24	11.59	-	-	-
Equity IRR	4.24	11.54	-	-	-
NPER (Million PHP)	1,926	440	-	-	-
Remarks	<ul style="list-style-type: none"> ● Recommended ● Amount of subsidy needs to be increased. 				

■ : IRR for SPC is less than 11.5%

■ : Equity IRR less than 15%

■ : NPER is negative.

Project Name: CLEx Phase 1 + 2 (2-lane)

	PPP Modality					
	Pure BOT	BOT with Subsidy (50% of Construction Cost)	Segment Dividing (45 : 55)		Service Payment	Lease
			GRP Segment's Lease Fee 100%	GRP Segment's Lease Fee 0%		
Project FIRR	Negative	Negative	Negative	Negative	Negative	Negative
IRR for SPC	Negative	3.64	Negative	3.33	11.62	Negative (Note-1)
Equity IRR	Negative	0.30	Negative	Negative	11.56	Negative (Note-1)
NPER (Million PHP)	8,370	3,879	4,686 (8,836)	3,871 (7,751)	2,037	140 (9,412)
Remarks					<ul style="list-style-type: none"> The service fee needs to be increased. 	(Note-1) <ul style="list-style-type: none"> O & M cost is higher than revenue.

Note: This project is still prematured from viewpoints of financial viability.

Project Name: CLEx Phase 1 (2-lane)

	PPP Modality					
	Pure BOT	BOT with Subsidy (50% of Construction Cost)	Segment Dividing		Service Payment	Lease
			GRP Segment's Lease Fee 100%	GRP Segment's Lease Fee 0%		
Project FIRR	3.62	3.62	3.62	3.62	3.62	3.62
IRR for SPC	4.36	8.84	-	-	11.62	38.49 (22.37)
Equity IRR	1.69	7.52	-	-	11.56	38.49 (22.37)
NPER (Million PHP)	3,120	1,132	-	-	910	-474 (3,616)
Remarks			<ul style="list-style-type: none"> Project is difficult to divide. 	<ul style="list-style-type: none"> Project is difficult to divide. 	<ul style="list-style-type: none"> The service fee needs to be increased. 	<ul style="list-style-type: none"> Recommended, provided that lease fee to be recovered in a shorter period or GRP utilizes a soft loan

Note: Figure in () shows when GRP utilizes a soft loan from multi, bi-lateral sources.

 : IRR for SPC is less than 11.5%
 : Equity IRR less than 15%
 : NPER is negative.

Project Name: CLEx Phase 1 (4 Lanes)

	PPP Modality					
	Pure BOT	BOT with Subsidy (50% of Construction Cost)	Segment Dividing		Service Payment	Lease
			GRP Segment's Lease Fee 100%	GRP Segment's Lease Fee 0%		
Project FIRR	1.37	1.37	1.37	1.37	1.37	1.37
IRR for SPC	1.80	5.79	-	-	11.17	16.01 (4.69)
Equity IRR	Negative	3.42	-	-	10.73	16.01 (4.69)
NPER (Million PHP)	5,483	2,398	-	-	1,603	-160 (6,200)
Remarks			<ul style="list-style-type: none"> Project is difficult to divide. 	<ul style="list-style-type: none"> Project is difficult to divide. 	<ul style="list-style-type: none"> The service fee needs to be increased. 	

Note: This project is still premature.

Project Name: SLEx Extension (to Lucena)

	PPP Modality					
	Pure BOT	BOT with Subsidy (50% of Construction Cost)	Segment Dividing (50 : 50)		Service Payment	Lease
			GRP Segment's Lease Fee 100%	GRP Segment's Lease Fee 0%		
Project FIRR	8.12	8.12	8.12	8.12	8.12	8.12
IRR for SPC	8.60	13.82	12.96 (12.42)	14.56	11.62	93.53 (70.73)
Equity IRR	7.31	15.08	13.61 (12.77)	16.27	11.56	93.53 (70.73)
NPER (Million PHP)	2,805	322	512 (3,153)	104 (2,605)	1,174	-1,680 (3,579)
Remarks		<ul style="list-style-type: none"> This is also recommendable scheme, however, utilization of a soft loan for subsidy is rather difficult. 		<ul style="list-style-type: none"> Recommended 	<ul style="list-style-type: none"> The service fee needs to be increased. 	<ul style="list-style-type: none"> Toll rate needs to be reduced.

Note: Figure in () shows when GRP utilizes a soft loan from multi, bi-lateral sources.

 : IRR for SPC is less than 11.5%
 : Equity IRR less than 15%
 : NPER is negative.

Project Name: Calamba - Los Baños Toll Expressway

	PPP Modality						Lease
	Pure BOT	BOT with Subsidy (50% of Construction Cost)	Segment Dividing		Service Payment		
			GRP Segment's Lease Fee 100%	GRP Segment's Lease Fee 0%			
Project FIRR	5.34	5.34	5.34	5.34	5.34	5.34	5.34
IRR for SPC	6.46	11.33	-	-	11.77	45.76	(31.24)
Equity IRR	4.56	11.17	-	-	11.85	45.76	(31.24)
NPER (Million PHP)	1,927	512	-	-	596	-536	(2,282)
Remarks		<ul style="list-style-type: none"> Needs to reduce cost by lowering facility level. 	<ul style="list-style-type: none"> Project is difficult to divide. 	<ul style="list-style-type: none"> Project is difficult to divide. 	<ul style="list-style-type: none"> The service fee needs to be increased. 	<ul style="list-style-type: none"> Recommended, on the condition that lease fee to be recovered in a shorter period or GRP utilizes a soft loan. Needs to reduce toll rate. 	

Project Name: R-7 Expressway

	PPP Modality						Lease
	Pure BOT	BOT with Subsidy (40% of Construction Cost)	Segment Dividing		Service Payment		
			GRP Segment's Lease Fee 100%	GRP Segment's Lease Fee 0%			
Project FIRR	8.76	8.76	8.76	8.76	8.76	8.76	8.76
IRR for SPC	9.15	13.58	-	-	10.14	347.70	(263.57)
Equity IRR	8.02	14.67	-	-	8.99	347.70	(263.57)
NPER (Million PHP)	6,181	996	-	-	4,200	-4,536	(8,158)
Remarks		<ul style="list-style-type: none"> Recommended Facility level such as number of on-/off-ramps to be lowered to reduce construction cost. 	<ul style="list-style-type: none"> Project is difficult to divide. 	<ul style="list-style-type: none"> Project is difficult to divide. 	<ul style="list-style-type: none"> The service fee needs to be increased. 	<ul style="list-style-type: none"> Toll rate needs to be reduced. 	

Note: Figure in () shows when GRP utilizes a soft loan from multi, bi-lateral sources.

 : IRR for SPC is less than 11.5%
 : Equity IRR less than 15%
 : NPER is negative.

Project Name: NLEX-East & La Mesa Parkway

	PPP Modality					
	Pure BOT	BOT with Subsidy (50% of Construction Cost)	Segment Dividing (70 : 30)		Service Payment	Lease
			GRP Segment's Lease Fee 100%	GRP Segment's Lease Fee 0%		
Project FIRR	2.50	2.50	2.50	2.50	2.50	2.50
IRR for SPC	2.82	6.87	6.73 (4.97)	11.69	11.84	17.39 (9.02)
Equity IRR	Negative	4.95	5.12 (3.10)	11.70	12.00	17.39 (9.02)
NPER (Million PHP)	6,576	2,769	1,664 (7,202)	667 (5,859)	1,601	-351 (7,466)
Remarks				<ul style="list-style-type: none"> • Recommended • GRP segment needs to be increased, or facility level needs to be lowered to decrease construction cost. 	<ul style="list-style-type: none"> • The service fee needs to be increased. 	

Note: Figure in () shows when GRP utilizes a soft loan from multi, bi-lateral sources.

 : IRR for SPC is less than 11.5%
 : Equity IRR less than 15%
 : NPER is negative.

10.4 Risks, Risk Management and Risk Allocation

A risk is a fundamental feature of any public-private-partnership and it substantially influences the overall project cost. A risk comes from the uncertainty of the assumptions on which estimates of project future revenue and costs have been based. A risk can be characterized by its two main components, i.e. the probability of its occurrence and its magnitude.

Risk management contains mainly three steps such as: 1) Risk identification, 2) Risk assessment and 3) Risk allocation.

1) Risk identification

The first step of the risk management is to identify risks. When identifying risks, such specific conditions must be properly addressed as the socio-economic feature of the target country, condition of the target sector and specific aspect of the project. Risk identification should be performed with representatives of the involved parties within a PPP project. External experts with experiences in the target country, sector and project can be invited. The identification exercise can be done with checklists in workshops or brainstorming sessions. The basic types of the risks to be identified are as follows:

- **Background Risks:** the risks which do not link to the project but rather to the target country
- **Project Cost Risks:** the risks which exceed initial cost estimates for the construction or operation and maintenance of the project
- **Commercial Risks:** the risks which come out depending on the traffic and toll rates applied

(a) Background Risks

These risks include risks caused by decisions made by the public authorities directly concerning the project, and risks affecting the project resulting from random factors and uncertainties which is not necessarily influenced by any public authorities. The main background risks can be categorized as shown in **Table 10.4-1**.

TABLE 10.4-1 CATEGORIES OF THE BACKGROUND RISKS

Risk Categories	Types of the Risks
Political, Legal, Institutional and Regulatory Risk	Change of law
	Resort to legal action by the third parties
	Conflict between the central government and local authorities
	Breach of the contract due to change of political situation
	Cancelation of approval
Social Risk	Change of social acceptance
Economic Risk	Occurrence of macro economic crisis
	Financial crisis
	Currency devaluation
	Energy supply crisis
Force Majeure	Acts of God risks e.g. earthquake, flood, fire etc.
	Trade embargo
	Armed conflict/War
	Occurrence of riot

Source: JICA Study Team

(b) Project Cost Risks

These risks are associated not only with construction but also operation and maintenance. Compared to other sectors, these risks are particularly high in toll road projects due to the significant investment cost required and long operation period. In addition, highways are tailor-made infrastructure and individual by nature. Project cost risks can be categorized as shown in **Table 10.4-2**.

TABLE 10.4-2 CATEGORIES OF THE PROJECT COST RISKS

Risk Categories	Types of the Risks
Project Preparation Risk	Delay or failure of the project preparation
Land Acquisition Risk	Delay or failure of land acquisition
	Increase of land acquisition cost
	Obstruction of the moving inhabitants
Environmental Risk	Contamination of natural resources
Design Risk	Excessive design
	Design error
	Technology risks
Construction and Repair Risk	Cost overrun
	Delay of completion of the construction
	Poor quality of the construction
	Conflicts among sub-contractors
Financial Risk	Increase of the material price
	Increase of interest rates
	Increase of O&M cost

Source: JICA Study Team

(c) Commercial Risks

Commercial risks may be the greatest risks faced by SPC when their project revenue directly originates from the road users. Traffic volume and tariff are the source of risks. Traffic volume can be influenced by many factors. For instance, traffic volume depends on overall economic circumstances. This means that macro economic recession pulls down the number of users of the toll road and it results in absolute reduction of the toll revenue. In addition, road network affects the usage of the specific road section. Road network generally spreads the road users over a wide area. Road users can have more option of choosing alternative roads. This results in diversification of number of users and reduction of toll revenue in the specific road section.

As for tariff, the tariff level is subject to political risks, namely that of the pressure of public opinion and of the public authorities modifying the legal and fiscal framework. In general, raise of the tariff level is difficult due to the opposition of the public opinion supported by the government. Categoris of commercial risks are shown in **Table 10.4-3**.

TABLE 10.4-3 CATEGORIES OF THE COMMERCIAL RISKS

Risk Categories	Types of the Risks
Traffic Demand Risk	Lower demand level than expected
Toll Risk	Lower level of the toll acceptance than expected
	Unpaid toll by road users
	Un-approval of toll adjustment
Road Network Risk	Decreasing traffic volume due to change of road network

Source: JICA Study Team

2) Risk assessment

Traditionally, provision for risk in public-funded projects has been provided through the use of contingencies, in which an amount is added to the public budget for construction to allow for unforeseen circumstances or unexpected additional works, which is often 10%. However, PPP projects require a much more sophisticated risk assessment to support the process for risk allocation. The risk assessment items to be investigated can be listed as follows:

(a) Estimation of risk intensity

Risk intensity means its magnitude or impact. Risk intensity can be influenced by the effect and timing. The effect can be described in such a way that risk occurrence causes one year delay in construction and it brings about serious financial damage. As for timing, it means that different risks may affect the project at different timings in the life of the project.

(b) Probability of risk occurrence

Estimating probabilities is not an exact science but some assumptions have to be made. Assumptions must be reasonable and fully documented. There are some risks whose probability is low however, the risks cannot be dismissed as negligible because the impact will be huge if it once occurs.

(c) Breakdown into sub-risks

Risks must be assessed with respect to their component sub-risks. For instance, the risk of a decrease in traffic volume may be linked to a number of economic parameters which can be assessed more accurately. Construction risk will be composed of the combined risk of a number of contributing factors such as a) unexpected high cost of raw materials, b) un-assumed high level of labor cost and c) delay in construction results in increased construction cost.

3) Risk allocation

Risks can either be accepted, transferred, avoided or insured. In order to create a PPP based project schemes, proper risk allocation among players concerned must be accepted. Players include several private entities as SPC, a lender, an insurance company, an investor, a sub-contractor, while several public entities such as contracting agencies and guarantee public sector. Private players are willing to take some of the project risks if the nature of the risks relates to their expertise so that they are capable of properly assessing the consequences.

Clear and appropriate risk allocation in PPP contract is the most important factor for successful PPP Project. It is important to understand that unclear risk allocation in the PPP contract might bring future dispute between Public and Private sector. Also, inappropriate risk allocation can rather increase overall project cost. The basic principle of risk allocation is "A risk should be borne by those who can best manage it."

Another important principle is "Risks which both Private and Public Sectors cannot bear should be allocated to the Public Sector." Basic idea of risk allocation between public sector and private sector are shown in **Table 10.4-4**.

TABLE 10.4-4 BASIC IDEA OF RISK ALLOCATION

Risk Categories		Risk Allocation	
		Public Entity	Private Entity
Background Risks			
	Political, Legal, Institutional and Regulatory Risk	●	
	Social Risk	●	
	Economic Risk	●	
	Force Majeure	●	
Project Cost Risks			
	Project Preparation Risk	●	
	Land Acquisition Risk	●	
	Environmental Risk	●	●
	Design Risk		●
	Construction and Repair Risk		●
	Financial Risk		●
Commercial Risks			
	Traffic Demand Risk	●	●
	Toll Risk	●	●
	Road Network Risk	●	

Source: JICA Study Team

4) Risk Management

Risk management and mitigation measures are shown in Table 10.4-5.

TABLE 10.4-5 RISK MANAGEMENT AND MITIGATION MEASURES

Risk Category		Type of Risk	Risk Management / Risk Measures	Risk Allocation	
				Public	Private
A. Background	Political, legal, institutional and regulatory risk	1. Change in laws, policies and strategies	<ul style="list-style-type: none"> The Government should compensate any losses of the private sector In medium term, PPP fund to guarantee political and regulatory risk should be created 	●	
		2. Delayed approval of contract	<ul style="list-style-type: none"> Concerned agencies should expedite the approval process Additional government financial support should be provided, if necessary. 	●	
		3. Delayed LGUs' endorsement of the project	<ul style="list-style-type: none"> During a feasibility study stage, full discussion should be made with LGUs 	●	
		4. Political pressure on approval of toll rates and toll rate adjustment	<ul style="list-style-type: none"> The Government should compensate, or Concession period should be adjusted. 	●	
		5. Imposition of new tax including local government taxes	<ul style="list-style-type: none"> New taxes should be exempted or shouldered by the government. 	●	
	Social Risk	1. Objection of the public against the project	<ul style="list-style-type: none"> During a feasibility stage, consultation meetings with local people should 	●	

			be held. ROW Acquisition Plan and Resettlement Action Plan should be prepared and implemented.		
		2. Objection of the public against toll rates and toll rate adjustment	<ul style="list-style-type: none"> Both the government and the private sector should disclose information and make campaign how toll rates adjustments are determined. 	●	●
	Macro Economic Risk	1. Decrease of traffic and toll revenue due to macro economic crisis	<ul style="list-style-type: none"> Minimum toll revenue guarantee or similar should be introduced, or Additional government financial support should be provided. 	●	
		2. Delayed financial closure due to freezed financial market	<ul style="list-style-type: none"> Additional government financial support should be studied. 	●	
		3. Change in foreign exchange rate	<ul style="list-style-type: none"> The private sector should seek local currency loans as much as possible. The government should also study additional government financial support. 	●	●
		4. Higher inflation than assumed	<ul style="list-style-type: none"> Additional government financial support, or toll rate adjustment, or extension of concession period. 	●	
	Force Majeure	1. Occurrence of natural disasters	<ul style="list-style-type: none"> Partially covered by all risks insurance. The government should compensate damages. 	●	
		2. Armed conflict/war/riot	<ul style="list-style-type: none"> The Government should compensate losses of the private sector. 	●	
B. Project Cost Risk	Project Preparation Risk	1. Insufficient business case / feasibility study	<ul style="list-style-type: none"> Enough time and funds should be spent for the study. Qualified consultants should be selected. 	●	
		2. Delay in securing of ECC	<ul style="list-style-type: none"> ECC should be secured during the feasibility study. 	●	
		3. Delay in LGUs' endorsement for the project	<ul style="list-style-type: none"> During the feasibility stage, LGUs should be involved. 	●	
		4. Delay in approval of the project by NEDA Board	<ul style="list-style-type: none"> Enough information should be provided to NEDA ahead of the schedule. 	●	

			<ul style="list-style-type: none"> NEDA ICC and NEDA Board should evaluate the project on schedule. 		
	Tendering Risk	1. Lengthy / delayed tendering process	<ul style="list-style-type: none"> Full scale feasibility study should be undertaken and enough information should be disclosed. Request of reconsideration from bidders should not be entertained. 	●	
		2. Unclear scope of works and engineering standards	<ul style="list-style-type: none"> Additional government financial support should be considered. Full scale feasibility study should be undertaken to determine scope of works and engineering standards. 	●	
		3. Unclear criteria of evaluation of tender	<ul style="list-style-type: none"> Before advertisements, evaluation criteria of tender documents should be established and announced to the bidders. 	●	
	Land Acquisition Risk	1. Delayed financial closure due to delayed ROW acquisition	<ul style="list-style-type: none"> One or some of the following measures should be adopted: <ul style="list-style-type: none"> - Adjustment of toll rates - Additional government financial support - Extension of concession period 	●	
		2. Delayed start of construction due to delayed ROW acquisition	<ul style="list-style-type: none"> Same as above 	●	
		3. Construction cost increase due to inflation during prolonged ROW acquisition period	<ul style="list-style-type: none"> Same as above 	●	
		4. O&M cost increase due to inflation during prolonged ROW acquisition period	<ul style="list-style-type: none"> Same as above 	●	
		5. Opposition against the project by the public due to insufficient compensation and measures to decrease social impacts	<ul style="list-style-type: none"> Consultation meetings from the time of feasibility study should be held and legal requirements should be explained to the people concerned. ROW Acquisition Plan and Resettlement Action Plan should be explained and agreed during the 	●	

			feasibility study stage.		
Environmental Risk	1. Adverse impacts on natural environment (ecology, erosion, etc.)	<ul style="list-style-type: none"> Recommended measures for identified adverse impacts should be implemented. 			●
	2. Adverse social impacts	<ul style="list-style-type: none"> Recommended measures in Resettlement Action Plan should be implemented 	●		
Design Risk	1. Over or under design	<ul style="list-style-type: none"> Exercise Value Engineering by the third party 			●
	2. Design error	<ul style="list-style-type: none"> Design checking by the third party. Insure the design (Professional Liability Insurance) 			●
	3. Changes in scope of works (additional interchanges, flyovers, under passes, on and off ramps, etc.)	<ul style="list-style-type: none"> Scope of works should be discussed with the all concerned parties including LGUs and finalized during a feasibility study stage. The government should shoulder the cost of design and civil works. 	●		
	4. Inadequate survey data (topographic and geo-technical data) provided during tendering	<ul style="list-style-type: none"> Sufficient surveys should be undertaken during a feasibility study. The private sector should assess all available data and provision for uncertainty of data should be properly made by the bidders. 	●		●
Construction Risk	1. Cost overrun	<ul style="list-style-type: none"> Employment of qualified contractor 			●
	2. Delay in construction	<ul style="list-style-type: none"> Employment of qualified contractor 			●
	3. Poor quality of work	<ul style="list-style-type: none"> Employment of qualified management consultants Employment of qualified contractor 			●
	4. Conflicts with sub-contractor	<ul style="list-style-type: none"> Selection of reliable sub-contractor 			●
	5. Delay in material procurement (borrow material, sand and gravel materials, etc.)	<ul style="list-style-type: none"> Discussion with LGUs and material concessionaries should be made in advance. Alternative material sources should be tapped. 			●
Operation and Maintenance	1. Increase in operation cost	<ul style="list-style-type: none"> Toll collection system to decrease toll collection 			●

	Risk		<p>cost should be studied.</p> <ul style="list-style-type: none"> • Automatic toll collection system should be tapped. 		
		2. Increase in maintenance cost	<ul style="list-style-type: none"> • Timely implementation of maintenance works. • Undertake life-cycle-cost analysis for the pavement 		●
		3. Delayed issuance of toll operation certificate	<ul style="list-style-type: none"> • Additional government financial support or extension of concession period. 	●	
C. Commercial Risk	Traffic Demand and Toll Revenue Risk	1. Lower traffic demand and toll revenue than estimated	<ul style="list-style-type: none"> • Reliable traffic analysis during the feasibility study. • Bidders should make their own traffic demand forecast. • Scheme such as minimum revenue guarantee should be introduced. • Extension of toll concession period should be introduced. 	●	●
		2. Delayed approval of toll rates and toll rate adjustment	<ul style="list-style-type: none"> • The government should compensate losses of the private sector, or agree on extension of toll concession period. 	●	
	Road Network Risk	1. Decreasing traffic volume due to change of road network	<ul style="list-style-type: none"> • Planned improvement of national roads along the same corridor as an expressway should be informed during the tendering. • When some road improvement projects which compete with an expressway are implemented and not informed during the tendering, the government should compensate by extending concession period. 	●	

10.5 PPP Project Financing

1) ADB's Financing Facilities for Private Sector

(a) Equity Investments

ADB may offer financing through equity investments, including direct equity investments and indirect equity investments using fund. In providing assistance to private sector, ADB also may provide equity investments such as ordinary equity, preferred stock and convertibles, but also mezzanine financing as well as subordinated loans. ADB will never take an equity stake larger than 25 % of total share capital or above \$75 million, it will not be the largest single investor in an enterprise, and it will not assume responsibilities for managing an enterprise.

(b) Loans

ADB will never be the largest single investor in an enterprise, yet can support additional debt in the form of parallel financing with other financial institutions as necessary.

Basically, the cap of ADB's loans should be either, 25% of total project cost or \$250 million, whichever is lower. ADB offers its public and private borrowers a London Interbank Offered Rate (LIBOR)-Based Loans (LBL) with a floating or fixed rate based on 6-month LIBOR and an effective contractual spread. For private loans, the spread will depend on the credit and project risks of the loan.

In addition to loans with fixed-rate and floating rate, ADB can also provide options including interest rate cap and interest rate collar.

Generally, ADB offers traditional hard currency loans, but also can provide local currency loans for selected countries including Philippines.

TABLE 10.5-1 INDICATIVE TERMS AND CONDITIONS

Currencies:	US Dollar, Euro, Japanese Yen
Interest Rate:	Floating or Fixed
Benchmark:	LIBOR
Spread:	Market based
Commitment Fee :	0.50 - 0.75%
Front-end Fee:	1.0 - 1.5%
Maturity:	Up to 15 years

Source: http://www.adb.org/PrivateSector/Finance/loan_terms.asp

**TABLE 10.5-2 INDICATIVE LENDING RATES FOR ADB LOANS
UNDER THE LIBOR-BASED LOAN FACILITY**

(as 08 September 2010)

	Floating Rate	Fixed Swap Rate				
	6 month LIBOR/Euribor	3 year	5 year	7 year	10 year	15 year
USD	0.48875	0.990	1.620	2.130	2.600	3.020
JPY	0.43500	0.500	0.630	0.840	1.210	1.660
EURIBOR	1.13300	1.460	1.850	2.190	2.540	2.840

EURIBOR: Euro Interbank Offered Rate

Source: http://www.adb.org/Documents/Brochures/Libor/indicative_rates.pdf

(c) Guarantees

ADB's guarantee instruments cover those risks that the private sector cannot easily absorb or manage on its own. Mitigating these risks can make a crucial difference in mobilizing debt funding for private sector projects.

ADB offers two guarantee products of Partial Credit Guarantee and Political Risk Guarantee, both of which are designed to mitigate the risk exposure of commercial lenders.

(d) B Loan (Complementary Financing Scheme)

ADB's B loan is available for private sector projects in which ADB is a direct participant. B loans are funded by commercial lenders with ADB acting as "lender of record". Although B loans do not provide co-financiers with recourse to ADB for debt service, such loans do enjoy the same privileges and immunities given to ADB direct loans.

(e) Case Study

NLEX rehabilitation and Expansion

The North Luzon Expressway (NLEX) Project is a concession for the rehabilitation, expansion, operation, and maintenance of the existing 84 km NLEX that connects Metro Manila to Central Luzon.

The concession agreement was signed in June 1998, and then it commenced operation in Feb 2005.

TABLE 10.5-2 NLEX EXPANSION PROJECT OUTLINE

Project outline	<ul style="list-style-type: none"> Rehabilitation, expansion, operation, and maintenance of the existing 84 km NLEX 	
concession period	<ul style="list-style-type: none"> 32 years (1998 to 2030). It includes rehabilitation and expansion works. Operation commenced in 2005) 	
Public grantor	<ul style="list-style-type: none"> Toll Regulatory Board 	
Project company	<ul style="list-style-type: none"> Manila North Tollways Corporation (MNTC) MNTC is a joint venture of following sponsors. MNTC signed the O&M contract with Tollways Management Corporation (TMC). 	
	Sponsors	
	Metro Pacific Investments Corporation (MPIC)	Infrastructure investor in Philippine
	Philippine National Construction Corporation (PNCC)	Original operator and franchisee of NLEX and SLEX
	Egis S.A. of France	Worldwide toll road operator
	Leighton Asia Ltd. of Australia	Australian construction company
Concession agreement	MNTC's Obligations	<p>MNTC will put up the money (invest and borrow) on its own without government financial guarantee. It will build the tollway and take full construction risk. It will operate, maintain and manage the tollway for 30 years (or until 31 December 2030) in accordance with government standards with no funding support from the Government. To recover the investment, it will collect tolls thru the authorized toll rates and the approved adjustment formula.</p>
	Government obligations	<p>The Project roads are owned by the Grantor subject to the rights and privileges of MNTC. Gov. provides right of way (ROW) at government cost.</p>

Source: ADB "Case Study: North Luzon Expressway Project" 2008



Source: ADB “Case Study: North Luzon Expressway Project” 2008

FIGURE 10.5-1 LOCATION MAP OF THE PROJECT

FINANCING STRUCTURE FOR NLEX REHABILITATION AND EXPANSION PROJECT

Breakdown	Amount (US Million)
Equity	116.9
Sub debt	14.9
Loan	252.2
TOTAL	384

At first, loans were quoted in USD, yet some loans are now switched to local currency in part (quoted in peso) so as to reduce burden of exchange risk for MNTC.

According to 2009 annual report of Metro Pacific Investments Corporation, the interest rate of direct facility structured with fixed interest rate will be 8.03%-8.24% in 2009 (8.03%-8.25% in 2008). As for syndicate facility structured with fixed rate and floating rate, it is reported to be 4.0%-9.75% in 2009 (5.94%-9.75% in 2008). According to this report, following swaps are applied to MNTC in order to mitigate interest rate risk as well as exchange risk. Actual interest rate after application of interest swap will be approximately 10%.

2) International Finance Corporation of World Bank Group (IFC)

(a) Pricing & Financing Ceilings

To ensure the participation of investors and lenders from the private sector, IFC limits the total amount of own-account debt and equity financing it will provide for any single project. For new projects the maximum is 25 percent of the total estimated project costs, or, on an exceptional basis, up to 35 percent in small projects.

IFC seeks profitable returns; prices its finance and services in line with the market; and fully shares risks with its partners.

(Source: IFC website)

(b) Loans for IFC's Own Account: A-loans

IFC offers fixed and variable rate loans for its own account to private sector projects in developing countries.

Most A-loans are issued in leading currencies, but local currency loans can also be provided. The loans typically have maturities of 7 to 12 years at origination. Grace periods and repayment schedules are determined on a case-by-case basis in accordance with the borrower's cash flow needs.

It invests exclusively in for-profit projects and charges market rates for its products and services. Generally, A-loans range from \$1 million to \$100 million.

(Source: IFC website)

(c) Case Study

Here are the examples of financing with Bangkok Mass Transit System (BTS) in Thailand and rehabilitation project of SLEX in Philippines. There is no detailed information regarding these financing, yet loans of IFC is limited to approximately 3% of total project cost with Bangkok Mass Transit System. As for the rehabilitation project of SLEX, proposed loans of IFC is approximately 20% of total project cost and its maturity is prospected to be 10 years.

TABLE 10.5-3 BANGKOK MASS TRANSIT SYSTEM (BTS)

Country	Thailand
Length	23.5km (23 stations)
Financial closure	06/1995
Status	Operational
Project company	Bangkok Transit System Corp (BTSC) Sponsored by - Tanayong Group (real estate developer in Thailand) - Italian-Thai Corporation (civil contractor in Thailand); - Siemens - Credit Suisse First Boston (CSFB)
Scheme of PPP	Hybrid of BOT and BTO Base structure (e.g. bridge) was constructed under BTO. Procurement of cars etc was executed under BOT scheme.
Contract Period	30 years (up to 2025)
Investment commitments in physical assets	1,700 US\$ millions;
Multilateral support	IFC invested in 1997 To Equity; 9.8 US\$ millions To Loan; 59.8 US\$ millions
Allocation of major risks	100 percent of Treatment of demand / revenue risks allocated to BTSC.

**TABLE 10.5-4 REHABILITATION, EXPANSION, OPERATION AND MAINTENANCE
OF SOUTH LUZON EXPRESSWAY (SLEX)**

country	Philippine
length	36.1km
Financial closure	02/2006
Status	Construction
Project company	South Luzon Tollway Corporation (SLTC) - SLTC is owned 20% by the Philippine National Construction Corporation (PNCC) and 80% by MTD Manila Expressways, Inc. (MTDME). - MTDME is 100% owned by MTD Equity Sdn Bhd, a fully-owned subsidiary of MTD Capital Bhd, Malaysia's second largest toll road operator and one of the five largest construction groups in Malaysia.
Scheme of PPP	BOT
Contract Period	30 years (until 2036)
Investment commitments in physical assets	The total project cost is estimated at \$214.6 million.
Multilateral support	The proposed IFC investment consists of a 10-year A loan of totaling 2.5 billion Philippine pesos (about \$50 million equivalent) for IFC's own account.

3) Domestic Bank's Loan (in the case of Development Bank of the Philippines)

(a) Types of Projects Financed

Operations financed by Development Bank of the Philippines (DBP) include industrial infrastructure, official operations, public utilities, agro-industrial, environmental infrastructure and logistics.

(b) Lending Rates

The rate of interest and other charges for loans and other credit accommodations are generally market-based.

LENDING RATE (EFFECTIVITY DATE: AS OF AUGUST 3, 2009)

Account Tagging	Lending Rate
Prime	6.05%
Non Prime*	8.05%

*Non-Prime - plus 1% Annual Service Fee payable on interest Payment dates.

(c) Loan Features

As for amount of loans, private sector finance is limited to 80% of total project cost. Repayment period, in case of construction work, is up to 15-year including 3-year grace period.

(d) Case Study: Southern Tagalog Arterial Road (STAR)

As for private sector's section (Lipa through Batangas) in STAR project, Development Bank of the Philippines (DBP) and others are offering the financing. The conditions of DBP loans is shown below.

OUTLINE OF CONDITIONS OF DBP LOANS WITH STAR PROJECT

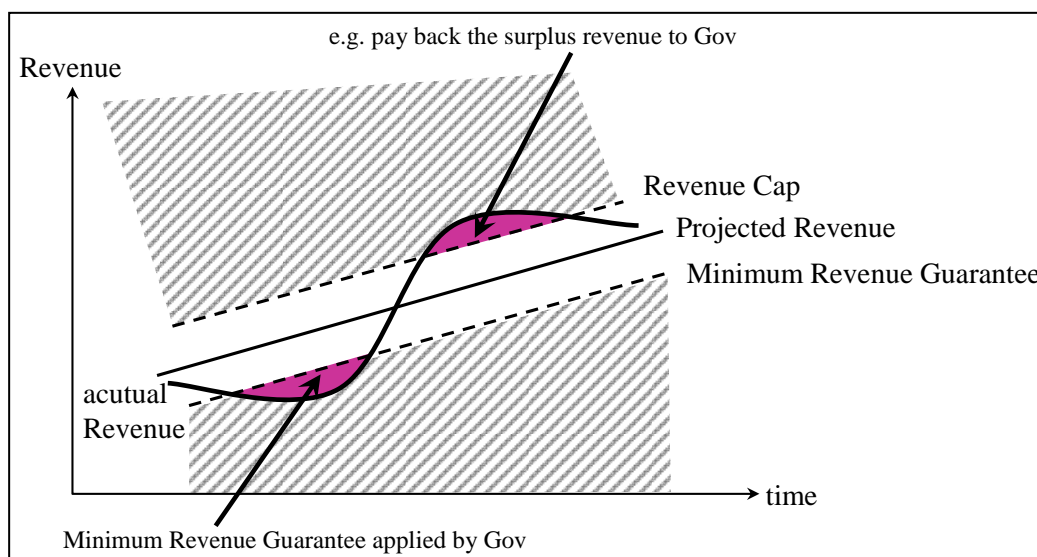
Interest rate	9% for first 3 years, followed by PDST-F +3.5%
Repayment period	10-year, repayment grace period of 2-year
Security	Total assets and cash flow of STA

Note: PDST-F: Abbreviation of Philippine Dealing System Treasury Fixing and it is a type of interest rate benchmark.

4) Case study concerning on other PPP projects of transport sector

(a) BTO project with Revenue Guarantee in Korea: e.g. Daegu-Busan Expressway

In Korea, support measures were introduced such as subsidy from the government and minimum revenue guarantee (MRG) upon enactment of The New Act on Private participation in Infrastructure: PPI act in December 1998. In the case of Daegu-Busan Expressway, when the actual revenue is higher than 10% of estimated revenue agreed with the government, some contractual measures is carried out such as shifting the surplus revenue as substitution for government financial assistance, lowering of toll rate or shortening of the operation duration as well as reimbursement to the government. On the other hand, when the actual revenue is lower than 10% of the estimated revenue, government should pay the shortfall from the guaranteed minimum revenue to the project company. In case of Daegu-Busan expressway project, the effective duration of revenue guarantee is more 20-years from the start of operation. The said duration is approximately equivalent to the repayment period.



Source: Created based on Macquarie materials

**FIGURE 10.5-2 CONCEPT OF MECHANISM OF
MINIMUM REVENUE GUARANTEE IN KOREA**

After introduction of the MRG scheme, a criticism against the increased state liabilities got intensified, thus the guaranteed minimum revenue had been lowered and a penalty scheme was introduced for the proponents who had submitted an inappropriate traffic demand forecast.

In October 2009, the MRG scheme was replaced by New Risk-Sharing Scheme where the government will guarantee the profitability almost equivalent to the interest rate or government bond. The New Risk-Sharing Scheme is only targeting solicited projects and government will shoulder the investment risk subject to the government financial burdens.. To ensure the profitability of a project to almost equivalent to the interest rate of government bond, government would provide the necessary amount of subsidy in case the actual revenue

is insufficient. On the other hand, in case the operating revenues surpass the estimation, the government would be reimbursed

(b) Service Payment Scheme: DBFO project in UK

Under the DBFO projects mainly seen in UK, the project proponents will not gain the revenue through toll tariff paid by the roads users but will gain through service payment scheme that the government will pay as service fee to the project proponents.

There are various modes of service payments which includes Shadow Toll Method, Availability Method and the Road Safety Performance Based Payment and etc. Under the Shadow Toll Method, the amount of service fee payment would depend on the toll level stated in the contract and actual value calculated by the number of vehicles multiplied by distance.

Under the Availability Method, the service fee payment would depend on the road availability including closure of traffic lanes.

Under the Road Safety Performance Based Payment, when the actual number of accidents were below the number of accidents set beforehand, the service fee payment may increase; and when the number of the accident were above the number of accidents set, the amount of payment would decrease.

For the cases in UK, the most common method of payment mechanism is based on combination of the payment schemes mentioned above. In the initial DBFO operations in UK, the primary payment scheme was the Shadow Toll Method although it shifted to Availability Method in recent years.

(c) Structure dividing: Bangkok Metro Blue Line

The Bangkok Metro Blue Line project in Thailand introduced the “Structure Dividing” scheme, where in construction works such as tunnels were financed by yen-loans, and the rolling stocks, electric systems and O&M were financed by private sector. BMCL, the project proponents, should pay the amount stated in concession agreement to MRTA, the owner of the facilities. Payment structure is divided into two, (i) the toll tariff income and (ii) the operating income gained from the sales of kiosk and advertisements. Payment amount is consisted of fixed part and variable parts which may vary depending on income amount. Payment condition may also vary depending on operation duration, and the payment amount would be lower at the initial stage of the operation.

11. APPLICABILITY OF JAPAN'S ODA TO PPP PROJECTS

11.1 Japan's ODA Facilities

1) General Conditions

- **Borrower** : Must be a Government Agency(ies) or Government-owned or Controlled Corporation/Bank (GOCC or GOCB). Japan's ODA cannot be directly utilized by a private sector.
- **Guarantor** : The Government of the Republic of the Philippines (GRP)
- **Executing Agency** : Government Agency or GOCC/GOCB
- **Currency** : Japanese Yen (Exchange rate risk by GRP)

2) Types of Facilities

There are four (4) types of facilities excluding grant aid and technical assistance as follows;

- Project Loan
- Two-Step Loan (TSL)
- Program Loan
- Sector Loan

(a) Project Loan

Conditions are as follows;

- i) High priority project in the sector.
- ii) Approved by ICC
- iii) ECC Secured
- iv) Agency/GOCC has financial capability to prepare counterpart fund for the Project.
- v) Application of the loan
 - Taxes shall be excluded.
 - ROW acquisition cost shall be excluded.
 - Max. 80% of the Project Cost.
 - Contractor shall be selected through International Competitive Bidding (ICB).
- vi) Terms and Conditions

Category	Type of Terms	Standard/ Option	Interest Rate (%)	Repayment Period (Year)	Grace Period (Year)	Conditions for Procurement
Middle- Income Countries	General Terms	Standard	1.4	25	7	Untied
		Option 1	0.95	20	6	
		Option 2	0.8	15	5	
	Preferential Terms	Standard	0.65	40	10	Untied
		Option 1	0.55	30	10	
		Option 2	0.5	20	6	
		Option 3	0.4	15	5	
	STEP	Standard	0.2	40	10	Tied
		Option	0.1	30	10	

Source: JICA

- vii) Loan Disbursement Period
 - 5~10 years

(b) Two (2) – Step Loan (in case of “Logistics Infrastructure Development Project”)

- i) Borrower : Development Bank of the Philippines (DBP)
- ii) Guarantor : The Government of the Republic of the Philippines (GRP)
- iii) Executing Agency : DBP
- iv) Target End User
 - Private companies (more than 70% of the capital is financed by the Philippines)
 - LGUs
 - GOCC
 - Cooperative associations
- v) Lending Methods
 - Direct loans (financing by DBP to end users)
 - Indirect loans (financing by DBP through Private Financial Institutions (PFIs) or Micro Finance Institutions (MFIs))
- vi) Project Implementation Schedule
 - When the financing by JICA to DBP is completed.
 - November 2009 to November 2016 (85 months or 7.08 years)
- vii) Re-financing Special Account
 - Surplus funds arising out of a gap between the repayment period of sub-loan and repayment period of the Yen loan will be utilized and a revolving fund will be established to make a new loan under the same condition.

(c) Program Loan (in case of Development Policy Support Program (II))

- i) Borrower : Government of the Republic of the Philippines
- ii) Executing Agency : Department of Finance
- iii) Applicable Items :
 - Maintaining macroeconomic and fiscal stability.
 - Enhancing governance and anti-corruption strategies in public expenditure management.
 - Strengthening the investment climate and infrastructure development.
 - Formulate an action plan for reviewing investment procedures.
 - Prepare standard documents for PPP projects.
 - Increasing social inclusion.

(d) Sector Loan

- Similar to Project Loan
- Multi-projects in a sector (or a sub-sector) will be package and implemented in accordance with priority.
- Applicable usually to a group of small to medium scale sub-projects.

11.2 Applicability of Japan’s ODA to Each Type of PPP Modality

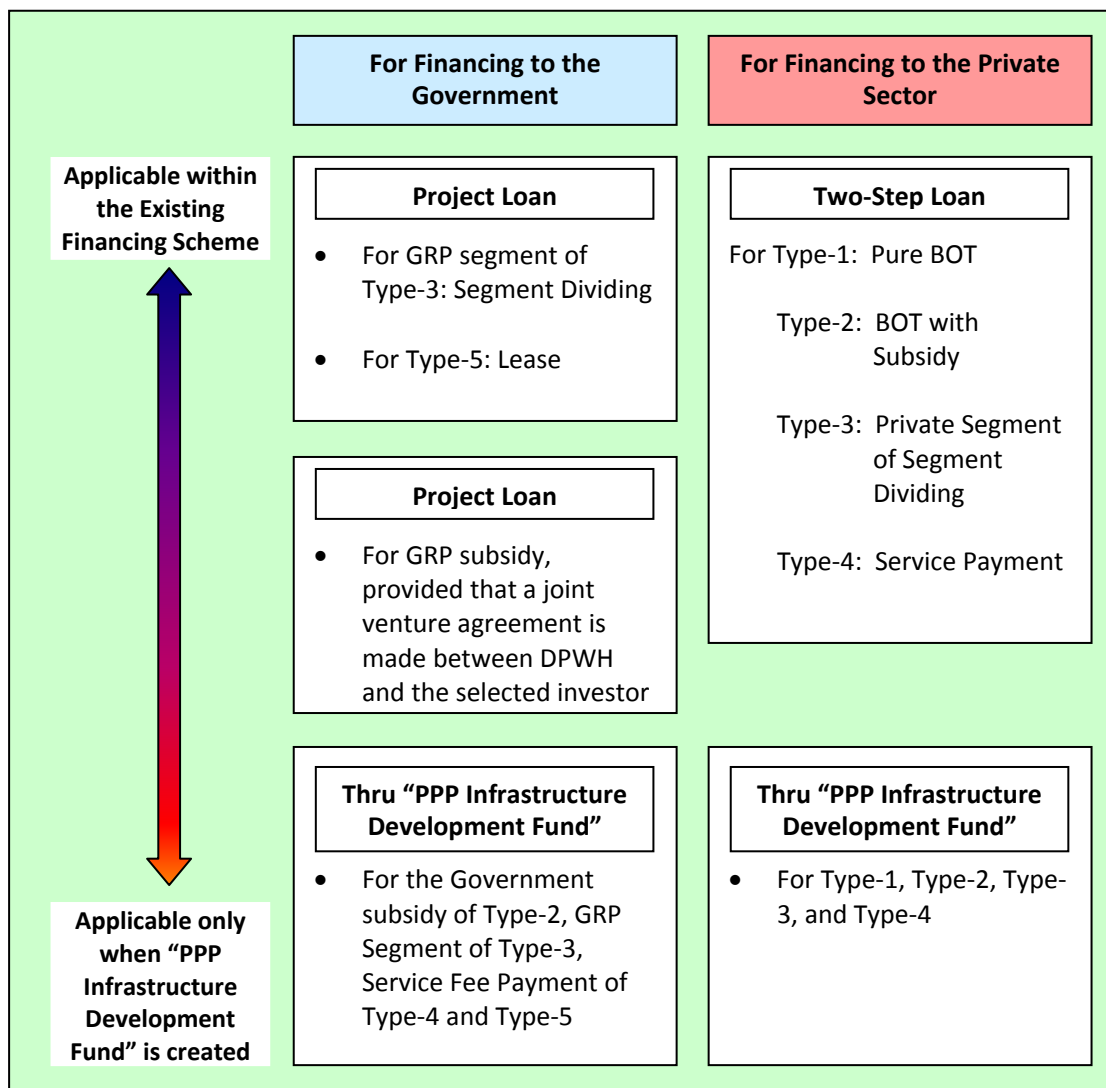
Applicability of Japan’s ODA to each type of PPP modality is shown in **Table 11.2-1** and graphically shown in **Figure 11.2-1** .

**TABLE 11.2-1 APPLICABILITY OF JAPAN'S ODA TO EACH TYPE
OF PPP MODALITY**

PPP Modality	Financing to GRP	Financing to Private Sector
Type-1: Pure BOT Type	<ul style="list-style-type: none"> GRP is only responsible for ROW acquisition, for which ODA is not applicable. 	<ul style="list-style-type: none"> Two-Step Loan through GOCB.
Type-2: BOT Type with Subsidy	<ul style="list-style-type: none"> Can ODA be used for the GRP subsidy? <u>Option-1</u>: The private investor is selected through international competitive bidding (ICB). DPWH and selected investor enter into Joint Venture Agreement in accordance with EO 423, series 2005. ODA is provided to DPWH and used for GRP subsidy. <u>Option-2</u>: DPWH or other appropriate agency such as DOF will establish "PPP Infra Development Fund" composed of local fund, ODA loan, and fund from international lending institutions. The Government provides subsidy from the Fund to the private investor selected through ICB. 	<ul style="list-style-type: none"> Two-Step Loan through GOCB.
Type-3: Segment Dividing Type	<ul style="list-style-type: none"> Project loan from Japan's ODA can be used for the design and construction of GRP segment. 	<ul style="list-style-type: none"> Two-Step Loan through GOCB.
Type-4: Service Payment Type	<ul style="list-style-type: none"> Can ODA be used for this type? <ul style="list-style-type: none"> Disbursement period of GRP is long for about 30 years (or O & M period). Amount must be approved by GAA annually. Whereas, disbursement period of ODA is usually 5-10 years. Possible way of ODA application might be similar to "PPP Infra Development Fund". 	<ul style="list-style-type: none"> Two-Step Loan through GOCB.
Type-5: Lease Type	<ul style="list-style-type: none"> Project loan from Japan's ODA can be used for the design and construction of the project. 	

Note: For projects under unsolicited proposal, ODA cannot be used, since GRP prohibits GRP's subsidy, guarantee or equity.

Source: JICA Study Team



Source: JICA Study Team

FIGURE 11.2-1 APPLICABILITY OF JAPAN'S ODA TO PPP PROJECTS

11.3 Study on Creation of PPP Fund

1) Needs of PPP Projects

As far as information collected by the Study Team is concerned, there are huge needs of PPP projects even for the transport sector alone as shown in **Table 11.3-1**.

TABLE 11.3-1 TRANSPORT SECTOR INFRASTRUCTURE DEVELOPMENT NEEDS

Sub-sector	No. of Projects	Estimated Cost (Billion Php)
Tollway Development	13	258.9
Urban Rail Development	7	249.5
Port development	3	5.5
Airport Development	3	6.4
Total	25	520.3

Source: Compiled by the Study Team based on the information from DPWH and DOTC

These projects need to be implemented to provide necessary transport services to the people as early as possible and for economic and social development of the country. Huge required fund should be properly shared between the public sector and the private sector for the early completion of these projects.

Once PPP funds are created, the public sector can avail of ready and sustainable fund without annually arranging national budget. On the other hand, the private sector can avail of lower interest rate loan with longer repayment period, so that the private sector can challenge less profitable projects. In view of above, it is worthwhile to study creation of PPP fund, for promotion of PPP projects.

2) Type of PPP Fund

Type of PPP fund can be classified as shown in **Table 11.3-2**.

TABLE 11.3-2 TYPE OF PPP FUND

		Sector to be Financed	
		Financing to the Government	Financing to the Private Sector
Project Stage	Project Development (Business Case and Feasibility Study)	Project Development Fund (PDF)	<ul style="list-style-type: none"> • Difficult • Unsolicited proposal is discouraged
	Implementation (Design/ Construction/ O&M)	PPP Infrastructure Development Fund	<ul style="list-style-type: none"> • Gov't-owned Project Financing Company

3) PPP Project Financing

Possible sources for PPP project financing are outlined below;

PPP Project Financing		
	Financing the Government	Financing the Private Sector
<p>PROJECT DEVELOPMENT</p> <p>(Business Case Study, Feasibility Study, Tender Assistance)</p>	<ul style="list-style-type: none"> ▪ Technical Assistance from Multi-, Bi-Lateral Sources ▪ Project Development Fund (PDF) at BOT Center <p>[Reference] India Infrastructure Project Development Fund (IIPDF), India</p>	
<p>IMPLEMENTATION</p> <p>(Design, Construction, O & M)</p>	<ul style="list-style-type: none"> ▪ Project Loan (Multi-, Bi-Lateral Sources) ▪ Needs to study the creation of PPP fund (PPP Infrastructure Fund). 	<ul style="list-style-type: none"> ▪ Two-Step Loan by JICA ▪ Private Sector Financing by ADB and IFC ▪ Creation of Government-owned PPP Project Financing Company (Proposed) Option-1: Fund to be created at National Development Company (NDC) Option-2: Create New PPP Financing Company <p>[References]</p> <ul style="list-style-type: none"> ▪ Agriculture Competitiveness Enhancement Fund, Philippines ▪ Case of India ▪ Case of Indonesia

Note: Black – existing Red – not existing yet

4) Project Development Fund (PDF)

PDF was created at BOT Center in 2000 and is going to be revitalized at PPP Center (BOT Center was renamed to PPP Center in 2010).

Some Issues of Existing PDF

- Amount of seed fund was not so big, still BOT Center could not utilize all. Maybe Agencies' Plan for PPP projects pre-matured (lack of identified projects) and lack of BOT Center's efforts to advocate usage of fund.
- Consultancy cost per project was very small ranging from US\$51,000 ~ 150,000. It is difficult to prepare a complete feasibility study at these costs.
- Failed to recover revolving fund. Agencies were not sure if project is implemented under PPP modality.
- Lacked proper study on PPP modalities, thus failed in bidding, and revolving fund was not always refunded from the Agency.

Some Suggestions

- The System should be developed so that revolving fund is surely created.
- BOT Center should prepare project selection criteria for PDF utilization.
- Standard Terms of Reference (TOR) for Business Case/Feasibility Study should be established. Complete study should be undertaken, so that Agency can proceed to the Tendering Stage soon after the completion of the study.
- BOT Center should undertake campaign of PDF to advocate Agencies for its use.

5) Financing the Government

There is no PPP fund at present which finances the Government expenditure. It will be worthwhile for the Government to study PPP fund which the Government will be availed of.

6) Financing the Private Sector

Key bottleneck on the part of the private sector has been securing an appropriate loan with longer repayment period with lower interest rate. This issue sometimes caused delayed financial closure. On the part of lending entities, assessment of risks of the projects, particularly revenue risks took long time due to insufficient data/information. In order to vitally support the private investors for PPP infrastructure projects, creation of fund maybe needed.

There are at least two (2) options. One is to put up additional PPP fund at National Development Company (NDC) which is the government-owned company for financing the private sector. Another option is to create new government-owned company specialized for PPP project finance to the private sector. The Government should study these options.

7) PPP Fund in Other Countries

The Government should examine other countries' PPP funds and study applicability of them to the Philippine environment. Examples of India and Indonesia are shown hereunder.

INDIA

Name of the Fund	Year of Establishment	Funding Sources	Major Functions
ILFS Infrastructure Leasing & Financing Services	1987	<ul style="list-style-type: none"> Central Bank of India Unit Trust of India Housing Development Finance Corp. IFC ORIX 	Provision of long-term loan for infrastructure development undertaken by private sector companies.
IDFC Infrastructure Development Finance Company, Ltd.	1997	<ul style="list-style-type: none"> Ministry of Finance, India Indian commercial banks IFC ADB Government of Singapore Investment Corporation Commonwealth Development Corporation 	Provision of long-term loan and guarantee for commercial risks
VGF Viability Gap Funding	2005	<ul style="list-style-type: none"> Ministry of Finance, India 	Provision of capital grant, of which amount is up to 20% of all project costs
IIFC India Infrastructure Finance Company, Ltd.	2006	<ul style="list-style-type: none"> Ministry of Finance, India Indian commercial banks The World Bank ADB 	Provision of long-term loan for infrastructure development undertaken by private sector companies.
IIPDF India Infrastructure Development Fund	2007		To finance the cost of project development e.g. F/S costs undertaken by concerned authorities

INDONESIA

Name Company	Year of Establishment	Funding Sources	Major Functions
PT SMI	1987	<ul style="list-style-type: none"> Ministry of Finance, Indonesia 	Provision of long-term loan and guarantee for commercial risks
PT IIF	2010	<ul style="list-style-type: none"> Ministry of Finance via PT SMI ADB IFC DEG (German private investment company) 	Provision of long-term loan and guarantee for commercial risks
PT PII	2009	<ul style="list-style-type: none"> Ministry of Finance, Indonesia The World Bank Tamasek Foundation Cooperation (SCE) 	Management of IIGF for alleviation of political risks

12. ROADMAP FOR PROMOTION OF PPP PROJECTS

12.1 Roadmap for Promotion of PPP Projects

Based on the identified issues and bottlenecks and recommended measures to remove or mitigate them, a roadmap for promotion of PPP projects was developed as shown in **Table 12.1-1**.

TABLE 12.1-1 ROADMAP FOR PROMOTION OF PPP PROJECTS

Category	Items	Time Frame						
		Year 2010	Year 2011	Year 2012	Year 2013	Year 2014	Year 2015	Year 2016
1. Legal Framework	1.1 Amendment of IRR of R.A. 7718 (BOT Law).		■					
	1.2 Amendment of Guidelines and Procedure of E.O. 423, series of 2005.		■					
	1.3 Amendment of E.O. 144, series 2002, BOT Center. (Already done)	■						
	1.4 Amendment of R.A. 7718 and create New PPP Law.		■					
2. Institutional Framework	2.1 BOT Center to be renamed to PPP Center and transferred from DTI to NEDA (in relation to 1.3 above) (Already done)	■						
	2.2 DPWH Planning Service (PS) to be strengthened by integrating PMO-FS and ESSO.	■						
	2.3 DPWH PMO-BOT to be strengthened and upgraded to PPP Service.	■						
	2.4 DPWH PMO-IROW to be integrated in Legal Service.	■						
3. Capacity Development Framework	3.1 Core staff of DPWH, NEDA, DOTC, and TRB to be trained for Planning and Implementation of PPP Projects.		■					
	3.2 DPWH Regular Training Course for Planning and Implementation of PPP projects to be established.			■				
	3.3 Implementation of DPWH Training Course (to be held annually).			■				
	3.4 NEDA to undertake Seminars on the updated ICC Project Evaluation Procedures and Guidelines for PPP projects.		■					
4. PPP Fund Creation	4.1 Project Development Fund (PDF) of PPP Center to be revitalized.		■					
	4.2 PPP Project Implementation Fund to finance the Government's financial support to be studied.		■					
	4.3 Government-owned special company to finance the Private Sector to be studied.		■					
5. Development of various Standards and Manuals	5.1 NEDA to update ICC Project Evaluation Procedures and Guidelines for PPP Projects.	■						
	5.2 Bureau of Design (BOD) of DPWH to prepare Design Standards for Toll Roads.	■						
	5.3 PS of DPWH to prepare Standard Pre-qualification and Tender Documents including Concession Agreement for various types of PPP Modality.			■				
	5.4 PS of DPWH to prepare tollway O & M Manual.			■				
	5.5 PS of DPWH to update Infrastructure Right-of-Way (IROW) Procedural Manual.			■				

12.2 Roadmap for Implementation of Selected 3 Projects

Three (3) projects were recommended as priority projects for possible ODA funding. Proposed implementation schedule of CALA Expressway, NAIA Expressway Phase II and CLEx Phase I is shown in **Table 12.2-1, 2 and 3**, respectively. Three (3) projects need to undertake the following preparatory or feasibility study prior to bidding:

1) CALA Expressway

- At present, there is no latest feasibility study.
- Feasibility study of Manila side section is undertaken by WB Technical Assistance from December 2010 to July 2011. Feasibility study of Laguna side section should be also undertaken almost simultaneously with Manila side section.
- Proper coordination with the Manila side FS team and the Laguna side FS team should be made, particularly on the following:
 - Selection of route alignment in due consideration of latest and future development of the corridor/locations of interchanges
 - Re-examination of traffic attracted to the Expressway
 - Re-examination of toll revenue estimate
 - PPP modality to be adopted for full section of the Expressway
 - Re-examination of financial viability
 - Preparation of tender documents based on the selected PPP modality
 - Preparation of ROW limit map
 - Preparation of necessary documents for securing ECC, LGUs endorsements, etc.

2) NAIA Expressway

- Feasibility study undertaken in 2010 needs to be reviewed on the following:
 - Route alignment in due consideration of NAIA Airport's air navigational clearance
 - Coordination with DOTC regarding structural configuration between LRT Line-1 South Extension and NAIA Expressway
 - Method how to connect with Phase I (a portion of Phase I may be required to be demolished)
 - Selection of location of on- and off-ramps
 - Re-examination of traffic attracted to the expressway and estimated toll revenue
 - Appropriate amount of the Government's subsidy or the Government's financial support
 - Re-examination of financial viability
 - Preparation of tender documents
 - Preparation of ROW limit map
 - Preparation of necessary documents for securing ECC, LGUs endorsements, etc.

3) CLEx, Phase I

- Feasibility study undertaken in 2010 needs to be reviewed on the following:
 - Re-examination of traffic attracted to the expressway
 - Facility to be initially 2-lane with an overtaking lane at strategic location or 4-lane
 - Interchange configuration at Cabanatuan City and possible change of an alignment
 - Need to add one more interchange between Tarlac City and Cabanatuan City
 - Re-examination of toll revenue estimate
 - Re-examination of financial viability under the lease type
 - Preparation of ROW limit map
 - Preparation of necessary documents for securing ECC, LGUs endorsements, etc.

TABLE 12.2-1 PROPOSED IMPLEMENTATION SCHEDULE: CALA EXPRESSWAY

Project	Segment	Activities	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
CALA Expressway [Proposed PPP Modality] Type-3: Segment Dividing Type	GRP Segment: Laguna Side Section (L = 14.3 km)	Feasibility Study	█									
	Private Segment: Manila Side Section (L = 27.5 km)	Project Proposal by DPWH to NEDA	█									
NEDA Board Approval		█										
Request to ODA Loan		█										
Appraisal of the Project by ODA Agency		█										
Pledge, E/N, L/A		█										
Selection of Consultant		█										
Detailed Design		█										
ROW Acquisition		█										
Selection of Contractor		█										
Construction		█										
Turnover of Facility to the Project Proponent		█										
O & M by Selected Project Proponent		█										
Feasibility Study (WB T.A.)		█										
Project Proposal by DPWH to NEDA		█										
NEDA Board Approval		█										
ROW Acquisition	█											
Preparation of PQ/Tender Documents including Draft TCA reflecting PPP Scheme: Segment Dividing Type	█											
Selection of Project Proponent	█											
Toll Concession Agreement (TCA)	█											
NEDA Board Approval of TCA	█											
Detailed Design	█											
Financial Closure	█											
Construction	█											
Toll Operation Certificate by TRB	█											
Operation and Maintenance	█											

Source: JICA Study Team

TABLE 12.2-2 PROPOSED IMPLEMENTATION SCHEDULE: NAIA EXPRESSWAY (PHASE-II)

Project	Segment	Activities	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
NAIA Expressway Phase II [Proposed PPP Modality] Type-2: BOT with Government Upfront Subsidy/ Government Financial Support	All Segment (= 4.9 km)	Preparatory Study		■									
		Project Proposal by DPWH to NEDA		■									
		NEDA Board Approval			■								
		Request to ODA Loan			■								
		Appraisal of the Project by ODA Agency			■								
		Pledge, E/N, L/A			■								
		ROW Acquisition			■	■							
		Finalization of PQ/Tender Documents including Draft Toll Concession Agreement			■	■							
		Selection of Project Proponent			■	■							
		Toll Concession Agreement (TCA)			■	■							
		NEDA Board Approval of TCA			■	■							
		Detailed Design					■	■					
		Financial Closure					■	■					
Construction								■	■				
Toll Operation Certificate by TRB									●				
Operation and Maintenance											■	■	

Source: JICA Study Team

TABLE 12.2-3 PROPOSED IMPLEMENTATION SCHEDULE: CLEX PHASE-1

Project	Segment	Activities	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
Central Luzon Expressway (CLEX) – Phase I [Proposed PPP Modality] Type-5: Lease Type	All Phase I Section (L= 28.2 km)	Preparatory Study		■									
		Project Proposal by DPWH to NEDA		■									
		NEDA Board Approval		■									
		Request to ODA Loan		■									
		Appraisal of the Project by ODA Agency		■									
		Pledge, E/N, L/A		■	■								
		Selection of Consultant		■	■								
		Detailed Design		■	■	■							
		ROW Acquisition		■	■	■	■						
		Selection of Contractor		■	■	■	■	■					
		Construction							■	■	■		
		Preparation of PQ/Tender Documents and Draft Toll Operation Agreement for O & M.							■	■	■		
		Selection of Project Proponent (O & M Company)							■	■	■		
		Toll Concession Agreement (TCA)								■	■		
		NEDA Board Approval of TCA									■		
Toll Operation Certificate by TRB										●			
Operation and Maintenance											■	■	

Source: JICA Study Team

13. PROPOSED TECHNICAL SUPPORT PROGRAM

13.1 Pilot Training

The Pilot training was undertaken with the following objectives:

OBJECTIVES OF THE PILOT TRAINING

Participants

A total of 33 persons participated in the Pilot Training.

PARTICIPANTS	
Agency	No. of Participants
DPWH	<u>21</u>
DOTC	<u>2</u>
NEDA	<u>2</u>
DOF	<u>3</u>
TRB	<u>2</u>
PPP Center	<u>2</u>
DA	<u>1</u>
Total	33

Note: Number of participants includes partial attendance.

Trainers

Aside from the Study Team members, trainers were invited from the private sector as follows;

- Engr. Teodoro T. Encarnacion, former Undersecretary of DPWH.
- Atty. Saviniano M. Perez, Jr.
- Members of Manila North Tollways Corp. (MNTC)

Program

The Pilot training Program is shown in **Table 13.1-1**.

TABLE 13.1-1 PILOT TRAINING PROGRAM

		Session I : (1:00 - 3:30 PM)	Session II : (3:45 - 6:15 PM)
10/19	T	Initial Capacity Assessment	PPP in General
20	W	PPP in the Philippines	Legal Framework/Institutional Framework
21	T	Project Identification	Business Case/Feasibility Study (General Procedure)
22	F	Traffic Demand Forecast Attracted to Tollways	Risk and Risk Allocation
23	S		
24	S		
25	M	(Barangay Election)	
26	T	Financial Analysis	Financial Analysis
27	W	Project Procurement	Project Implementation
28	T	Operation & Maintenance	Project Monitoring and Post-Evaluation of Impact
29	F	Assessment of Pilot Training - Open Forum - What to be trained more?	- Open Forum - What to be trained more?

Initial Capacity Development

In order to assess the present level of knowledge of participants on PPP, a questionnaire on initial capacity assessment which comprised of 18 items and 52 sub-items (refer to **Annex 11.1-1**) was distributed to the participants on the first day of the pilot training. Knowledge levels were classified as follows:

- | |
|--|
| <ol style="list-style-type: none"> 1. Know very well. 2. Know some. 3. Do not know. |
|--|

Knowledge levels of Categories 1 and 2 are shown in **Figure 13.1-1**. Knowledge level of 3 is presented in **Figure 13.1-2**.

It can be concluded as follows:

- Most participants have general ideas/principles of PPP projects, although knowledge level is not sufficient yet.
- Items or area/fields of knowledge of which capacity needs to be strengthened or over 40% of participants answered “Do not know” are as follows (in the order of least knowledge);
 - Q6 : Tollway Planning and Design
 - Q12 : Financial Evaluation
 - Q15 : Project Implementation
 - Q14 : Project Procurement

- Q8 : EIA and Resettlement Plan
- Q7 : Traffic Demand Forecast
- Q16 : Operation and Maintenance
- Q5 : Business Case/Feasibility Study

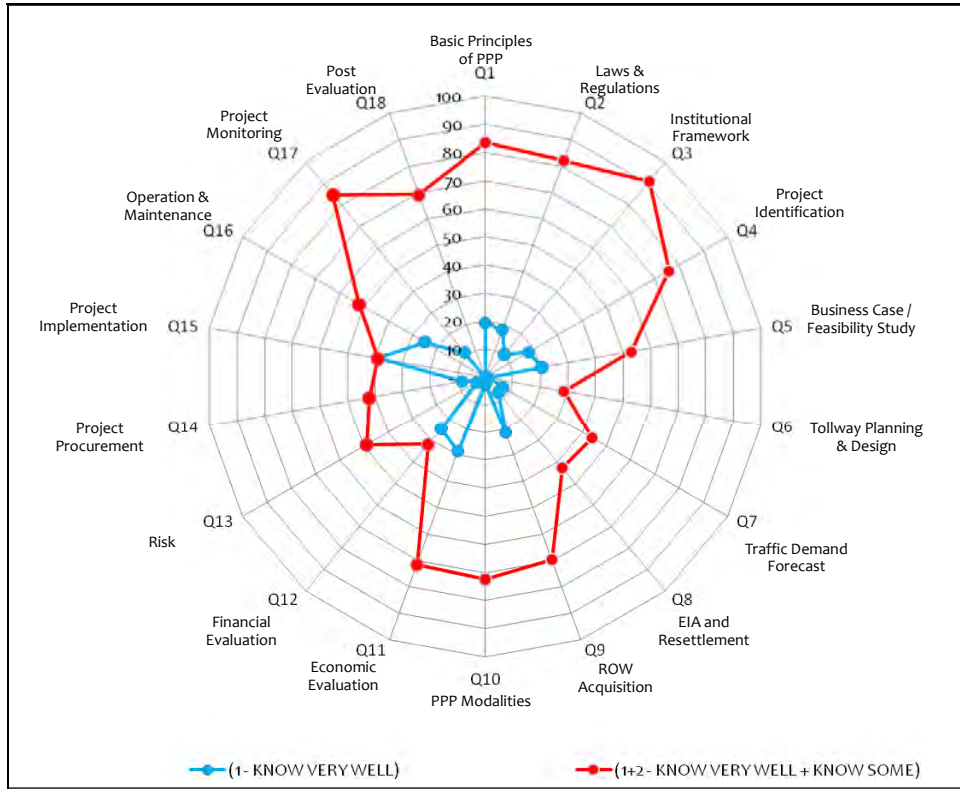


FIGURE 13.1-1 KNOWLEDGE LEVEL OF CATEGORIES 1 AND 2

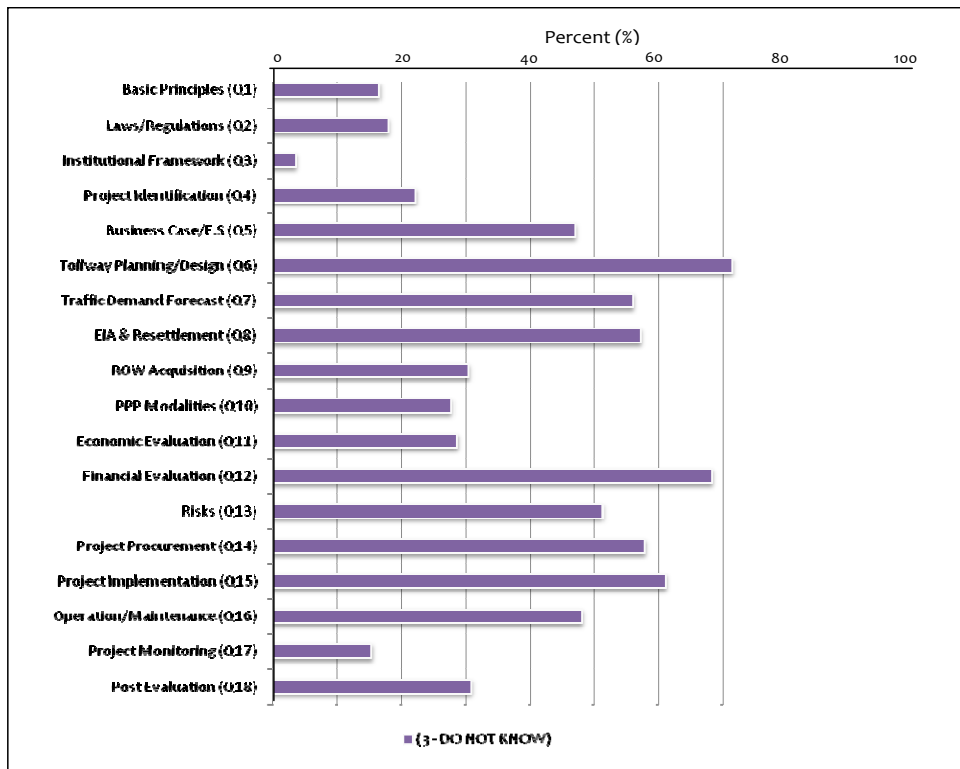


FIGURE 13.1-2 KNOWLEDGE LEVEL OF CATEGORY 3

Study Team's Observation

Study Team's observation was as follows;

1) Participants

- Participants were invited from various sectors and also from various expertises.
- Participants have various levels of knowledge of PPP projects. Some have already a deep knowledge, but mostly do not have.
- Presentations were focused on expressway PPP projects, therefore, participants from other sectors seem to have difficulty in understanding.

2) Trainors

- Trainors were Study Team members and Filipino experts from the private sector. Filipino experts were welcomed by participants, since they presented their actual experiences in the Philippines.

3) Contents of the Presentations

- Contents of the presentations were limited to general principles of PPP projects.
- Participants had obtained just an outline of PPP projects.

4) Training Schedule

- The Pilot training was undertaken in the afternoon of eight (8) consecutive weekdays, since many of the participants could not spend a one full day due to the pressing needs in their respective offices.

13.2 Proposed Technical Support Program

Three Sets of Technical Support

The Study Team believes that the following three (3) sets of technical supports are needed;

- | | | |
|--------------------------------------|---|---|
| Technical Support Program I | : | Management staff level training who will be trainors for the succeeding DPWH Regular Training Course. |
| Technical Support Program II | : | Specialist Training |
| Technical Support Program III | : | Preparation of standards, manuals and guidelines. |

1) Technical Support Program I : Management Staff Level Training

Target Staff

This program is intended to develop the capacity of management staff of PPP related offices, such as PMO-BOT, Planning Service, PMO-FS of DPWH. Management staff of other agencies may be invited such as NEDA, DOF, DOTC, TRB, and PPP Center.

Manner of Training

Manner of training should be focused on workshops regarding existing issues/problems, experiences of other countries and its applicability to the Philippines conditions, etc., thus active participation in the discussion will be achieved.

Topics to be covered

The topics should cover all the processes of a PPP project cycle.

Trainors

In addition to the JICA Team members, local experts/specialists of DPWH as well as of the private sector should be selected as trainors.

Time of Training

Management staff are all busy, thus time of training needs to be after office hours, say from 5:30 pm to 7:30 pm and three (3) times a week.

Proposed Training Program

Proposed training program is shown in **Table 13.2 -1**.

2) Technical Support Program II : Specialist Training

Target Staff

Persons of respective expertise/field, for example, transport planner/traffic engineer for the topic of "Traffic Demand Forecast".

Manner of Training

Hands-on practice should be basically adopted.

Topics to be covered

Topics should be specifically selected. General matters of PPP should not be highlighted.

Participants

Participants should be selected for each topic based on the participants' expertise, so there is no need for a participant to attend all the trainings.

Proposed Training Program

Proposed training program is presented in **Table 13.2-2**.

3) Technical Support Program III : Preparation of Standards, Manuals and Guidelines

The following should be prepared;

- **Tollway Design Standards**
 - At present, there are no authorized design standards for tollways in DPWH which should also be a part of Tender Document.
 - Two kinds of design standards, one for inter-urban and other is for intra-urban tollways should be prepared.
- **Standard Pre-qualification and Tender Documents**
 - There are only two examples of pre-qualification and tended documents in DPWH.
 - Standard pre-qualification and tender documents should be prepared for each type of PPP scheme.
- **Draft Concession Agreement**
 - This becomes a part of tender documents.
 - Once draft concession agreement for each type of PPP scheme is prepared and authorized by DPWH, TRB and NEDA, contract approval period will be greatly shortened.
- **Tollway Operation and Maintenance Manual**
 - Tollway O & M manual was prepared in 1990s which became obsolete and is no longer used by anybody.
 - Tollway O & M must be done in accordance with established O & M standards to assure appropriate transport services.
- **Infrastructure Right-of-way Acquisition Procedural Manual**
 - DPWH Infrastructure ROW Acquisition Procedural Manual was prepared in 2003. Since then, some rules have been amended.
 - Above manual should be updated and more DPWH staff should be trained.
- **Standard TOR for Business Case/Feasibility Study**
 - Soon after the completion of a feasibility study, the project is bidded to select a Project Proponent. Therefore, a feasibility study must be comprehensive.
 - Standard TOR should be prepared covering detailed scope of work and specifying an appropriate duration of the study.

TABLE 13.2-1 PROPOSED PROGRAM FOR PROGRAM I

Topic	Outline of Contents	Duration
1. Basic Principles of PPP	<ul style="list-style-type: none"> • Background and Objectives • PPP Modalities • Risk and Risk Allocation • Experiences of other countries 	1 day
2. PPP in the Philippines	<ul style="list-style-type: none"> • PPP projects in the Philippines • Issues and Bottlenecks 	1 day
3. Laws and Regulations	<ul style="list-style-type: none"> • Past and Present Legal Issues • Interpretations of Legal Issues • Direction of Amendments of Existing Laws/Regulations 	2 days
4. Institutional Framework	<ul style="list-style-type: none"> • Existing Framework • Issues and Problems • For Better Framework 	1 day
5. Project Identification	<ul style="list-style-type: none"> • Case Study 	2 days
6. Business Case/ Feasibility Study	<ul style="list-style-type: none"> • Evaluation of Previous Study 	5 days
7. Tollway Planning & Design	<ul style="list-style-type: none"> • Evaluation of previous planning and design 	3 days
8. Traffic Demand Forecast	<ul style="list-style-type: none"> • Procedure • Key Points of each procedure • How to judge forecast results 	3 days
9. EIA and Resettlement	<ul style="list-style-type: none"> • Evaluation of previous EIA and Resettlement Plan 	2 days
10. ROW Acquisition	<ul style="list-style-type: none"> • Example of ROW Acquisition • Problem encountered • Improvement measures 	2 days
11. PPP Modalities	<ul style="list-style-type: none"> • Examples of PPP modalities • Applicable conditions 	1 day
12. Economic Evaluation	<ul style="list-style-type: none"> • Evaluation of previous studies 	2 days
13. Financial Evaluation	<ul style="list-style-type: none"> • Basis of financial evaluation • Examples of financial evaluation • Financial models adopted by previous projects 	4 days
14. Risks	<ul style="list-style-type: none"> • Identification, management and allocation of risks • Risks encountered by existing projects • How to incorporate risks in Toll Concession Agreement 	3 days
15. Project Procurement	<ul style="list-style-type: none"> • Issues of previous procurements • Legal matters discussed in the past • Appropriate duration of each step of Procurement 	3 days
16. Project Implementation	<ul style="list-style-type: none"> • Experiences of existing concessionaires 	2 days
17. Operation and Maintenance	<ul style="list-style-type: none"> • Experiences of existing concessionaires 	2 days
18. Project Monitoring	<ul style="list-style-type: none"> • Items and method of monitoring 	1 day
19. Post Evaluation	<ul style="list-style-type: none"> • Items and method of post evaluation 	1 day
Total		Net 41 days

Source: JICA Study Team

TABLE 13.2-2 PROPOSED PROGRAM FOR PROGRAM II

Topic	Outline of Contents	Proposed Expertise	Duration
1. Project Identification	<ul style="list-style-type: none"> Case Study of Inter-city and Intra-city 	<ul style="list-style-type: none"> Regional/Urban Planner Highway Planner Transport Planner Economist 	<ul style="list-style-type: none"> 1 week
2. Business Case/ Feasibility Study	<ul style="list-style-type: none"> Evaluation of Previous Studies 	<ul style="list-style-type: none"> Highway Planner/Engineer Transport Planner/Traffic Engineer Economist Financial Analyst 	<ul style="list-style-type: none"> 1 week
3. Tollway Planning and Design	<ul style="list-style-type: none"> Review of Previous Plan/Design Case Study of Inter-city and Intra-city Expressway Interchange/On-, Off-Ramps Planning and Design O & M Components 	<ul style="list-style-type: none"> Highway Planner/Engineer Structural Engineer 	<ul style="list-style-type: none"> 2 weeks
4. Traffic Demand Forecast	<ul style="list-style-type: none"> Traffic Survey and Preparation of present OD Table Traffic Demand Forecast Models Traffic Assignment Various Parameters from traffic assignments Evaluation of Results Hands-on Practice of JICA-STRADA Software 	<ul style="list-style-type: none"> Transport Planner/Traffic Engineer 	<ul style="list-style-type: none"> 4 weeks
5. EIA and Resettlement	<ul style="list-style-type: none"> Evaluation of previous reports Existing EIA system and LAPRAP 	<ul style="list-style-type: none"> Environmentalist Highway Planner Sociologist 	<ul style="list-style-type: none"> 2 weeks
6. ROW Acquisition	<ul style="list-style-type: none"> ROW acquisition procedure Issues of ROW acquisition 	<ul style="list-style-type: none"> Highway Engineer Environmentalist Project Implementation staff 	<ul style="list-style-type: none"> 2 weeks
7. Economic & Financial Evaluation	<ul style="list-style-type: none"> Basic information needed Basic Procedure Hands-on Practice 	<ul style="list-style-type: none"> Economist Financial Analyst 	<ul style="list-style-type: none"> 3 weeks
8. Risks	<ul style="list-style-type: none"> Basic Risks Identification of Risks Risk Management Risk Allocation 	<ul style="list-style-type: none"> Highway Planner Document Specialist Legal Staff 	<ul style="list-style-type: none"> 2 weeks
9. Project Procurement	<ul style="list-style-type: none"> PQ documents Tender documents Toll Concession Agreements 	<ul style="list-style-type: none"> Highway Engineer Document Specialist 	<ul style="list-style-type: none"> 3 weeks
10. Project Implementation	<ul style="list-style-type: none"> Past Experiences Key Issues 	<ul style="list-style-type: none"> Highway Engineer Construction Engineer Quality Engineer 	<ul style="list-style-type: none"> 2 weeks
11. Operation and Maintenance	<ul style="list-style-type: none"> Current practice of concessionaires 	<ul style="list-style-type: none"> Maintenance Engineer Operation Specialist 	<ul style="list-style-type: none"> 2 weeks
12. Project Monitoring	<ul style="list-style-type: none"> Case Study 	<ul style="list-style-type: none"> Highway Planner Traffic Engineer Economist Financial Analyst 	<ul style="list-style-type: none"> 1 week
Total			25 weeks

14. RECOMMENDATIONS

14.1 Realization of Measures for Promotion of PPP Projects

Roadmap for promotion of PPP projects was presented in Section 12 of this report, which covers: 1) Legal Framework, 2) Institutional Framework, 3) Capacity Development Framework, 4) PPP Fund Creation and 5) Development of Various Standards and Manuals.

The current administration is active for promotion of PPP projects and eager to implement PPP projects as early as possible. Therefore, it is important to realize items shown in the roadmap. It is sincerely hoped that the recommended measures shown in the roadmap will be steadily implemented and realized.

14.2 Implementation of Recommended PPP Projects for Possible ODA Funding

Three (3) projects, namely 1) CALA Expressway, 2) NAIA Expressway Phase II and 3) Central Luzon Expressway Phase I, were selected and recommended for possible ODA funding. All three (3) projects need a preparatory study for funding, or a detailed feasibility study. DPWH should start discussions with JICA to confirm which project(s) is(are) intended by JICA for possible ODA funding at the earliest possible time. All three (3) projects are quite important for economic development of the country, therefore, these should be implemented as early as possible.

14.3 Formulation of Various Policies

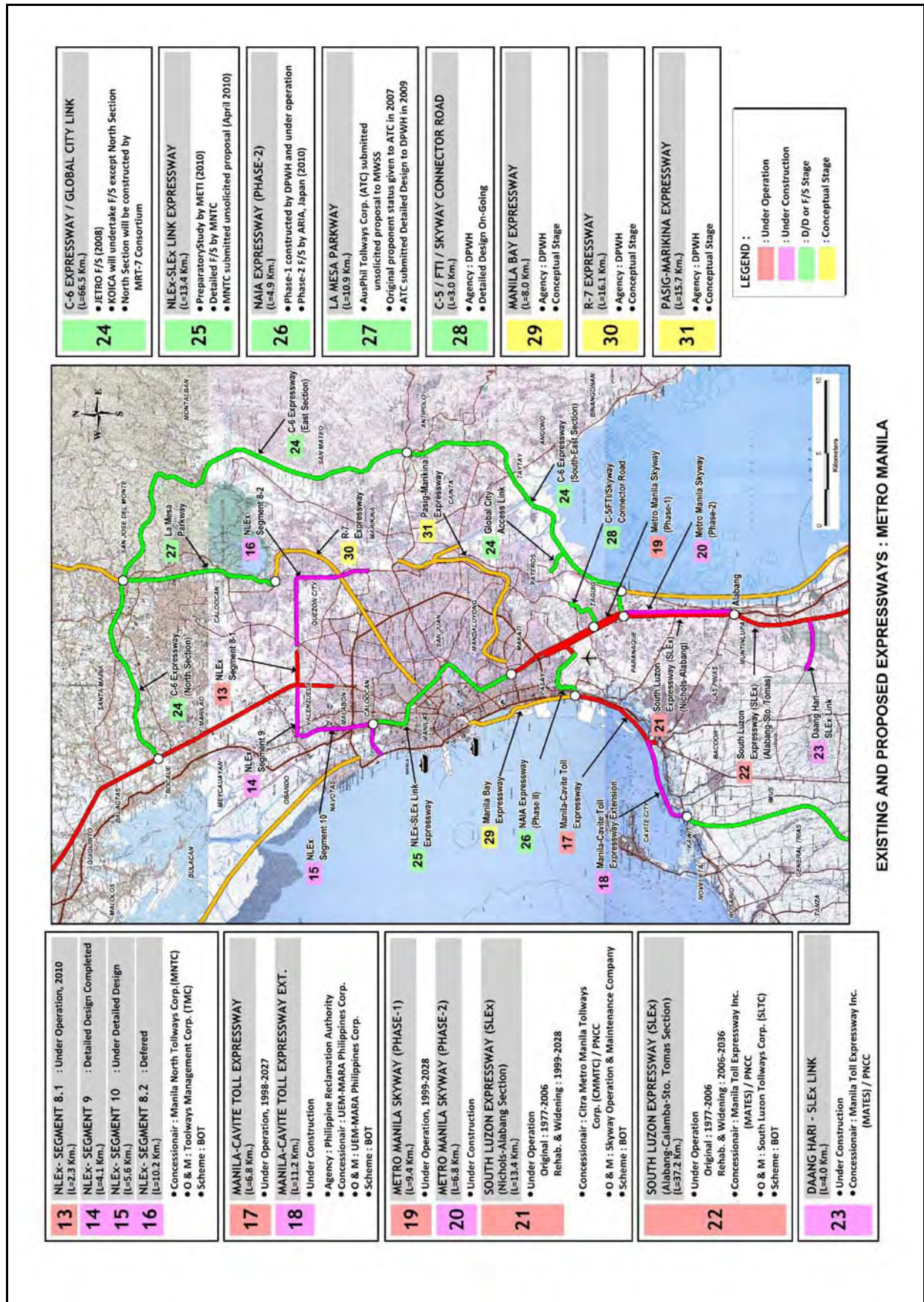
On PPP Project Implementation, policies related to Risk Allocation, Delivery of ROW, and Government Financial Support for Viability Gap Funding of Transport Projects should be established.

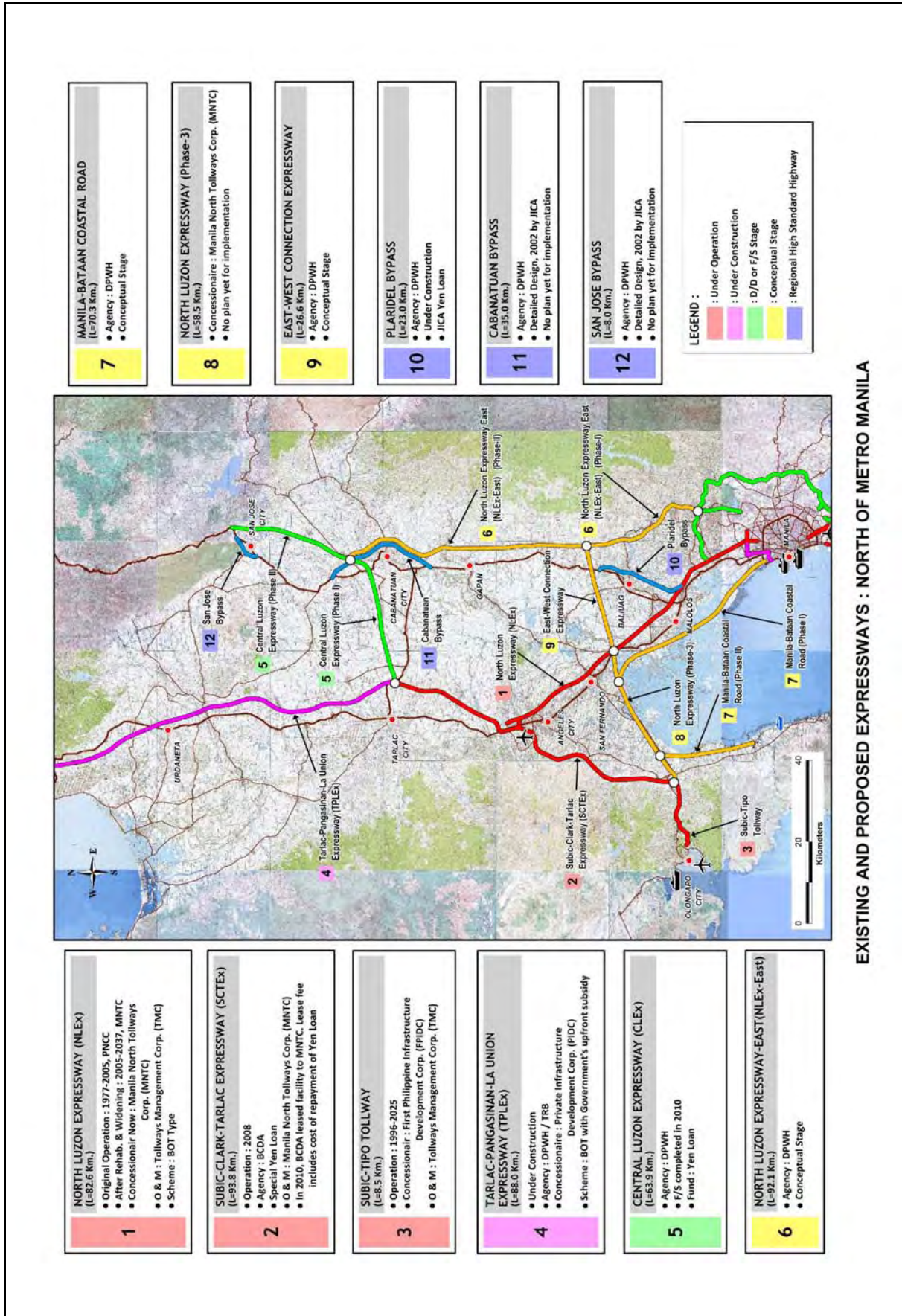
14.4 Tapping Private Sector's Resources

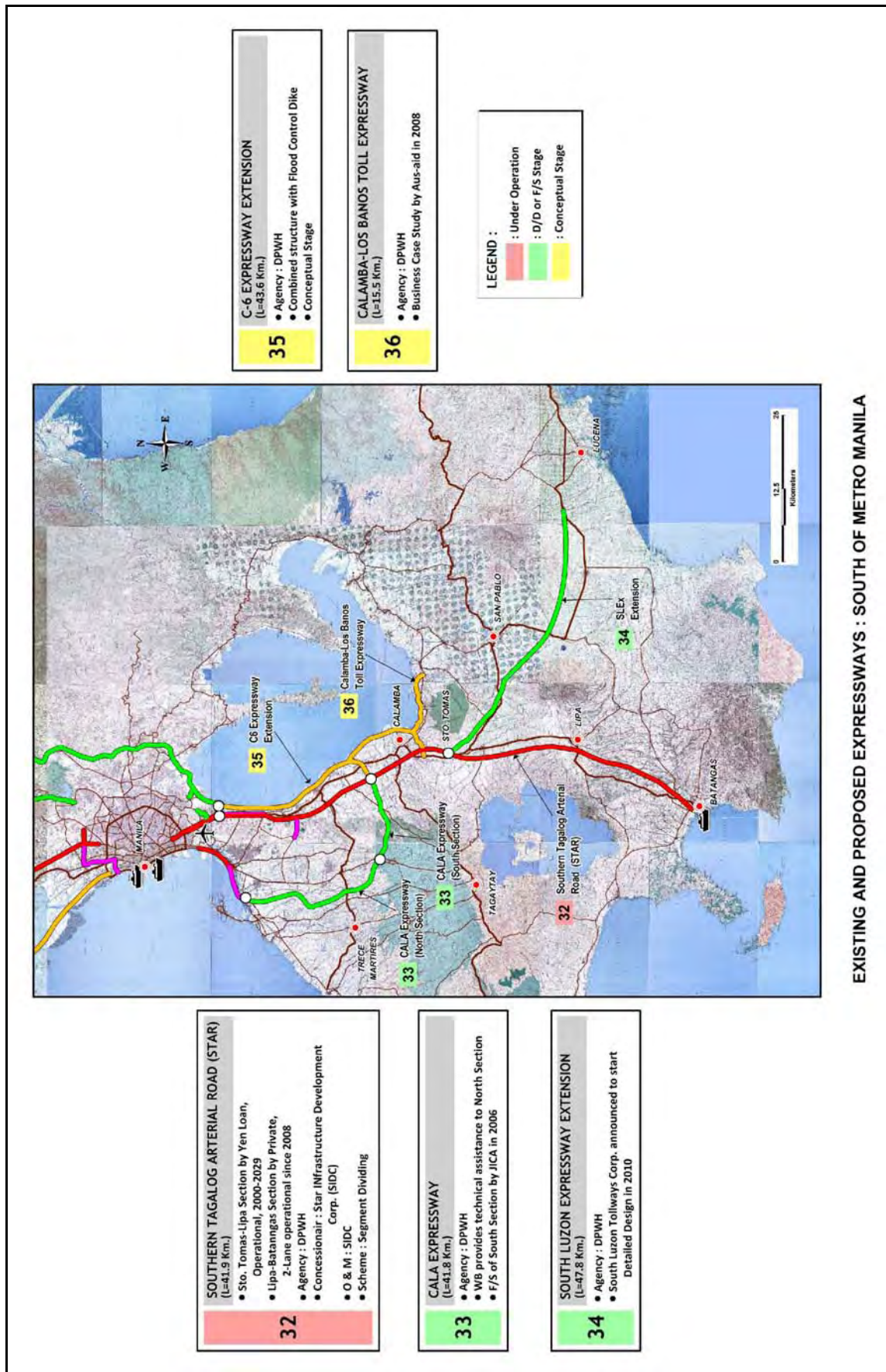
Private sector investments will continue to be tapped in the implementation of priority projects. To complement these, the Government's technical skills in Project/Program Planning and Development, particularly in structuring PPP projects, which includes Financial Modeling and Risk Analysis will be enhanced and strengthened through Technical Assistance.

Appendix to Executive Summary

- Maps of Existing and Proposed Expressways
- Organization of the Study







ORGANIZATION OF THE STUDY

JICA

Mr. Ryosuke Nakata	Deputy Director General, and Group Director for Urban and Regional Development, Economic Infrastructure Department, JICA
Mr. Shuntaro Kawahara	Senior Advisor to the Director General, Economic Infrastructure Department, JICA
Mr. Hiroyuki Ueda	Senior Advisor for Transportation Sector, Economic Infrastructure Department, JICA
Mr. Yukihiko Koizumi	Director, Transportation and ICT Division 1, Economic Infrastructure Department, JICA
Mr. Kenji Maekawa	Director, Urban and Regional Development Division 1, Economic Infrastructure Department, JICA
Mr. Hiroyuki Hayashi	Director, Urban and Regional Development Division 1, Economic Infrastructure Department, JICA
Mr. Taro Okawa	Assistant Director, Economic Infrastructure Department, JICA
Mr. Yasuhisa Tominaga	Planning and Coordination Division, Economic Infrastructure Department, JICA
Mr. Norio Matsuda	Resident Representative, JICA Philippine Office
Mr. Ken Inoue	Project Formulation Advisor, JICA Philippine Office
Mr. Floro O. Adviento	Program Manager, Economic Growth Section, JICA Philippine Office
Ms. Grace L. Mirandilla	Program Officer, Economic Growth Section, JICA Philippine Office

Steering Committee Members

Ms. Maria Catalina E. Cabral, PhD	(SC Chairperson) Assistant Secretary for Planning Service & PPP, DPWH
Mr. Ricardo N. Bamero, Jr.	(SC Vice-chairperson) OIC Project Director, PMO-FS, DPWH
Dir. Bienvenida Firmalino	(SC Member) PMO-BOT, DPWH
Dir. Melvin B. Navarro, MNSA	(SC Member) Planning Service, DPWH
Dir. Criste Navida, PhD	(SC Member) Project Manager IV, ESSO, DPWH
Dir. Patrick Gatan	(SC Member) Project Director, IROW, DPWH
Dir. Remios G. Belleza	(SC Member) PMO – TEAM, DPWH
Dir. Manuel Imperial	(SC Member) TRB, DOTC
Mr. Kenneth Tanate	(SC Member) Assistant Director, NEDA
Mr. Kenji Hasegawa	JICA Road Planning & Management Advisor
Mr. Kazumasa Atarashi	JICA Road Planning & Management Advisor

Technical Working Group

Dir. Bienvenida Firmalino	(Chairperson) Director, PMO-BOT, DPWH
Engr. Carmelino J.C. Tizon	(Member) PMO-FS, DPWH
Engr. Rebecca T. Garsuta	(Vice-chairperson) PMO-BOT, DPWH
Engr. Rey Alano	(Member) PMO-BOT, DPWH
Engr. Carolina Canuel	(Member) Planning Service, DPWH
Engr. Ignacia Ramos	(Member) ESSO, DPWH
Mr. Sonny Macasil	(Member) IROW, DPWH
Engr. Jonathan L. Arcullo	(Member) PMO-TEAM, DPWH
Engr. Carolyn A. Leyesa	(Member) PMO-TEAM, DPWH
Engr. Juliet Turingan	(Member) TRB, DOTC
Mr. Pablito M. Abellera	(Member) NEDA

Embassy of Japan

Mr. Hirosato YOSHINO	Second Secretary, Economic Division, Embassy of Japan
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Study Team

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Mr. Mikio OKANO	PPP (Financial Scheme) / Training Programming
Dr. Primitivo C. CAL	Deputy Team Leader/PPP (Law and Regulation)
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