JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

NATIONAL ECONOMIC DEVELOPMENT AUTHORITY (NEDA)

DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS (DPWH)

PREPARATORY SURVEY
FOR
PUBLIC-PRIVATE PARTNERSHIP (PPP)
INFRASTRUCTURE DEVELOPMENT PROJECTS
IN
THE REPUBLIC OF THE PHILIPPINES

FINAL REPORT

ANNEX

DECEMBER 2010

CTI ENGINEERING INTERNATIONAL CO., LTD.
MITSUBISHI RESEARCH INSTITUTE, INC.

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Proposed, Ongoing and Recently Completed

Rail Transport Projects

Proposed, Ongoing and Recently Completed Rail Transport Projects

NO.	PROJECT	BRIEF DESCRIPTION / COMPONENTS	STATUS (AS OF 28 FEBRUARY 2010)
1	**LINE 1 NORTH EXTENSION PROJECT** (Completing MRT/LRT Loop) *Cost:* Original - P6,322.85 M Revised - P7,601.64 M *Implementing Agency(ies)*: Department of Transportation and Communications (DOTC) / Light Rail Transit Authority (LRTA) *Implementation Arrangement:* PPP/Design Build Contract	The project involves the construction of a 5.71 km. elevated line from Monumento Station of Line 1 to North Avenue Station of Line 3. Package A1: Caloocan to Balintawak Viaduct, 2.737 km. Package A2: Balintawak to Trinoma Area Viaduct, 2.744 km. Package B: Construction of Stations & Station Modifications Package C: Electro-Mechanical Works EMS-1: Signalling EMS-2: Telecommunications EMS 3 - Automatic Fare Collection System EMS 4 – Trackworks *Additional Components:* ▪ Common Station at SM Annex - Approved by the NEDA ICC on 07 July 2009. ▪ Additional (Malvar) Station - On-going Feasibility Study.	88.63% Complete Package A1: 100.00% Package A2: 100.00% Package B: 90.04% Package C: 83.29% *Other Milestones:* ▪ Loop physically closed on 31 December 2009. ▪ Inaugural test run (from Monumento to Balintawak) held on 25 February 2010 with PGMA as the Guest of Honor.
2	**LRT LINE 1 SOUTH EXTENSION PROJECT** (Baclaran to Bacoor, Cavite) *Cost:* ROW Acquisition: 5.32 B Civil Works: 43.71 B *Implementing Agency(ies)*:	Phase 1: Baclaran – Ninoy Aquino Sta Phase 2: Ninoy Aquino–Niyog, Bacoor Sta	Phase 1: 91% complete (i.e. site grading, fencing, slope protection) Phase 2: 20% complete (i.e. roads, site grading, water & drainage system, ROW houses, miscellaneous) ▪ On 15 Dec 2009, DOTC endorsed China ODA as funding source for the construction/ implementation of the

NO.	PROJECT	BRIEF DESCRIPTION / COMPONENTS	STATUS (AS OF 28 FEBRUARY 2010)
	DOTC / LRTA *Implementation Arrangement:* SFECO China ODA Financing		project. ▪ On 21 January 2010, DOTC / LRTA submitted requirements to comply with NEDA requirements. ▪ On 26 January 2010 during the 44th NEDA Board Meeting, it was agreed that LRTA Board shall open the project for competitive bidding and include under the TOR the source of funds, the burden of the national government in the financial charge and the rate by which the passenger will be changed. ▪ LRTA created SBAC last 3 February 2010 to carryout the Line 1 South Extension Project for competitive bidding.
3	**LRT LINE 2 EAST EXTENSION PROJECT** *Cost:* Scenario A (2 stations): P9,426M Scenario B (1 station): P4,459 M *Implementing Agency(ies)*: DOTC /LRTA *Implementation Arrangement:* PPP or ODA	The project involves the construction of approximately 4 km eastern extension of MRT Line 2 from Santolan Station in Marikina City to Masinag in Antipolo City, Rizal along the centerline of Marcos Highway with the same design paremeters as the MRT Line.	▪ Updating of the Feasibility Study previously approved by the NEDA Technical Board. ▪ NEDA-ICC (09 June 2009) approved the inclusion of MRT 2 (Santolan to Rizal) in the MTPIP. It was noted that the project proponent of MRT 2 may be provided with 85% government guarantee. ▪ Marubeni Philippines Corporation officially expressed its intention to participate in the invitation of the Japanese METI to private companies to conduct ODA project formulation and has chosen the project for this undertaking. ▪ LRTA issued its official request to Marubeni Corporation on 12 May 2009. Marubeni, Katahira and Tonichi Engineering presented the updates on the concept study to LRTA and DOTC last 9 February 2010. ▪ Exploratory talks w/ LBP and DBP on possible financing of the project are also ongoing. Financing from other institutions offering concession terms like JBIC/JICA will, likewise, be explored in

NO.	PROJECT	BRIEF DESCRIPTION / COMPONENTS	STATUS (AS OF 28 FEBRUARY 2010)
			coordination w/ DOF.
4	**MRT 7 PROJECT** (North Avenue to San Jose Del Monte - 23 km.) *Cost:* P61,750 M *Implementing Agency(ies)*: DOTC and Universal LRT Corporation (ULC) *Implementation Arrangement:* PPP/Build-Gradual Transfer-Operate-and Maintain (BGTOM)	The project involves the financing, design, construction, testing, commissioning and O&M of an integrated transportation consisting of rail transit system (*from SM North Avenue to Tala San Jose Del Monte Bulacan, 23 km)* and 6-lane road connection to NLEX (22 km).	▪ BGTOM Concession Agreement was signed on 18 June 2008. ULC is given 18 months to complete financial closure with its creditor banks/suppliers. ▪ On 30 March 2009, DOTC endorsed for confirmation of the NEDA Board, the 18 June 2008 MRT 7 Concession Agreement. ▪ On July 7, 2009, during the 41st NEDA Board Meeting, NEDA Board confirmed the Concession Agreement between DOTC and Universal LRT Corporation subject to incorporation of observations and conditions raised by DOF. ▪ Supplemental Agreement addressing the above observations and conditions of DOF has been signed by DOTC and ULC. ▪ Target date of financial closure: April 2010, however, ULC financial Advisors is asking for requisite documents as part due diligence requested by financing institutions.
5	**MRT 3 CAPACITY EXPANSION PROJECT** *Cost:* P6,283 M *Implementing Agency(ies)*: DOTC and Metro Rail Transport Corporation (MRTC) *Implementation Arrangement:* PPP/Build-Operate-Transfer, or ODA	The project aims to expand the current fleet of 73 LRVs to achieve a 4-car train at 2.0 minute headway configuration. Option 1: Phase 1 (2008) - Procurement of 30 Refurbished LRVs through MRTC Phase 2 (2010) - procurement of 48 LRVs by DOTC Option 2: If MRT3 buyout pushes through DOTC will procure 73 units of brand new LRVs.	▪ MRTC has decided to exercise its right to supply the additional LRVs for the MRT 3 System; ▪ The MRTC procurement will be coordinated with DOTC and will be the subject of succeeding discussion between MRTC, DOTC and DOTC-MRT 3; ▪ MRTC to decide on the final scheme of procurement.
6	**LRT LINE 1 AIRPORT EXTENSION** *Cost:* Option 1 - P3,649.92 M	Construction of additional four (4) stations from Baclaran Station to Terminal 3 of NAIA, with a total 6.22 km stretch, in a 2-car shuttle service.	▪ Implementation of the project was deferred last 19 February 2008 during the joint NEDA ICC–Cab.Com and Procurement Transparency Group

NO.	PROJECT	BRIEF DESCRIPTION / COMPONENTS	STATUS (AS OF 28 FEBRUARY 2010)
	Option 2 - P5,052.24 M *Implementing Agency(ies)*: DOTC/LRTA *Implementation Arrangement:* PPP or ODA	It has a projected capacity of 2800 passengers per direction or 40,000 passengers per day.	Meeting ▪ Updating of the conceptual design / Pre-feasibility Study in coordination with MIAA is on-going. ▪ Funding to facilitate the conduct of a Feasibility Study is included under the proposed DOTC CIIP 2010-2013 Budget Programming, still for submission to NEDA.
7	**NORTHRAIL PROJECT** (Caloocan to Clark, Pampanga,76.07 km. double track) Phase 1 (Sec-1): US$602.42 M or (P 30,121.00 M) Phase 1 (Sec-2): US$699.17 M (P 34,958.50M) *Implementing Agency(ies)*: BCDA/Northrail *Implementation Arrangement:* Loan from China Export Import Bank	This consists of the following components: Phase 1 Sec 1: Caloocan – Malolos (31.93 Km) *Stations are located at Caloocan-Valenzuela -Meycauyan-Marilao -Bocaue-Guiguinto-Malolos* Phase 1 Sec 2: Malolos–Clark (44.14km)	Phase 1 Section ▪ Design-Build-Contract between Northrail and China National Machinery and Equipment Group or CNMEG (now known as SINOMACH) was signed on 30 Dec 2003 ▪ NTP was issued to SINOMACH on 19 February 2007 but last 28 February 2008, SINOMACH unilaterally suspended construction works allegedly due to additional ROW problems and the need to finalize design schemes and technical parameters of the project. ▪ NEDA Board approved changes in project scope, cost, specifications and price adjustment on 31 March 2009. ▪ On 29 September 2009, Section 1 Amended Contract was signed. ▪ On 12 January 2010 Supplemental Agreement between DOF and China Eximbank was approved by Bangko Central ng Pilipinas (BSP). ▪ Effectivity of China Exim Loan that expired on 12 September 2009 has been extended to 12 January 2012. Phase 1 Section 2 ▪ Funding is largely sourced from a loan from the China Exim Bank . The loan

NO.	PROJECT	BRIEF DESCRIPTION / COMPONENTS	STATUS (AS OF 28 FEBRUARY 2010)
			contract is yet to be activated. However, Pre-construction activities, site preparatory works and relocation of affected families along the alignment is ongoing. Construction may soon commence shortly thereafter. ▪ NHA is undertaking the relocation of informal settlers affected by Section 2 of the Northrail Project. A total of 12,227 HH was already relocated out of 14,715 HH.
8	**SOUTHRAIL PROJECT** *Cost:* Original: Phase IA - P10,930.0 M Phase IB - P16,686.6 M Phase II - P 12,775.5 M Revised: Phase IA – P 1,552.0M Phase IB - P 34,121.0M Phase II - P 16,769.0M *Implementing Agency(ies)*: *DOTC/PNR* *Implementation Arrangement:* Phase IA: China Loan Phase IB: ODA Phase II: ODA	Limited reconstruction of PNR Main Line South to enable the resumption of train service to Bicol. Phase IA (Calamba to Lucena) Replacement of rail from 37kg/m with 50kg/m, rehabilitation of 6 stations, rehab/reconstruction/replacement of bridges, installation of signaling and communication system, improvement of level crossings, purchase of 6 locomotives and 40 passenger coaches. Phase IB (Lucena to Legaspi) Construction of new railway extension line Phase II (Extension to Sorsogon) Construction of new railway extension line	Phase IA: ODA loan has been suspended. Restoration of train services to Bicol will be pursued. Restoration of train service: ▪ The design and reconstruction of Traversia Bridge and San Cristobal Bridge are 50.00% and 48.9800% completed, respectively. ▪ Filling up of Lutucan Bridge and south approach of Concepcion Bridge was completed. ▪ Design and Improvement of PNR Naga Station was completed. ▪ Renovation of Sipocot, Libmanan, Pamplona and Tagkawayan Stations are already completed. ▪ All other reconstruction works are on-going. Phase IB and Phase II: Feasibility Study (FS) for updating.
9	**NORTHRAIL-SOUTH RAIL LINKAGE** *Cost:* Phase I Civil Works- $21.071M Rollin Stock- 29.349M $ 50.420 M Phase II $80.23M *Implementing Agency(ies)*:	Phase 1 (Caloocan to Alabang - 34 kms.) ▪ Civil Works ▪ Rolling Stock Phase II (Alabang-Calamba - 27	Phase I Actual Accomp.: 91.917% Target Accomp.: 100.000% Slippage: - 8.083% ▪ On 11 January 2010, DOF was inform that the Government of Republic of Korea has approved the Economic Development Cooperation Fund loans

NO.	PROJECT	BRIEF DESCRIPTION / COMPONENTS	STATUS (AS OF 28 FEBRUARY 2010)
	PNR *Implementation Arrangement:* Loan from Export Import bank of Korea	kms.) Involves the rehabilitation and double tracking of the 27.5km track along Alabang to Calamba, six stations, road crossing facilities, signalling and communication systems, secondary depot and maintenance facility in Calamba, reconstruction of five bridges and procurement of 18 cars or six three-car train sets from originally 21 cars or seven three-car train sets.	(EDCF) amounting to US$15,334,00 for the Northrail Linkage Project Phase 1 Supplemental Loan. ▪ As of to date, PNR management awaits release of Supplemental Loan of US$ 15M from Korea Export-Import Bank (KEXIM) to carry out the bid / tender process for the procurement of new rails and other track materials. ▪ Tutuban to Bicutan section is operational. Operation up to Sucat is targeted within February 2010. ▪ Relocation - delays on the removal of informal settlers along Tayuman-Caloocan and Sucat-Alabang Phase II ▪ Implementation of project will commence after the substantial completion of Phase 1. ▪ Relocation Status - 6,876 (34.00%) households already relocated, balance of 13,653 (66.00%).
10	**MRT Line 8**	A 48 km rail line with several tunnel sections from Pililla (Rizal) to Santa Cruz (Laguna). Phase 1 (16.8 km) elevated double-track guideways from Santa Mesa (Manila) to Taytay (Rizal). Then from Taytay to Angono (Rizal). It will follow the general alignment of Shaw Boulevard and Ortigas Avenue consisting of 14 stations.	Conceptual Stage

Source: DOTC

Proposed, Ongoing and Recently Completed

Sea Transport Projects

PROPOSED, ONGOING AND RECENTLY COMPLETED SEA TRANSPORT PROJECTS

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
1	**PORT IRENE DEVELOPMENT PROJECT** Cagayan Freeport, Sta. Ana, Cagayan	Breakwater Construction and Port Upgrading/ Development.	397.26 78.03 3.300.00	CEZA Fund CEZA Fund PPP / BOT	▪ Construction of Breakwater ▪ Rehabilitation of the damaged breakwater ▪ Port Rehabilitation and Development	▪ Completed Oct. 2008. ▪ Completed Sep. 2008. ▪ APIT Engineering (procurement and construction contractor) and Subic Hermosa Cyber City Development Corporation (SHCCDC), is awaiting approval of guarantee from PhilEXIM as required by Banco Bilbao de Argentina of Spain.
2	**SALOMAGUE SEAPORT** (ILOCOS SUR SPECIAL ECONOMIC ZONE AND FREEPORT) Salomague, Ilocos Sur	Upgrading of existing port facilities and construction of new facilities for Special Economic Zone and Freeport	5,500.00	ODA By LGU Ilocos Sur Province	▪ Rehabilitation and expansion of Salomague Port to an international fish/agri-industrial port complex, construction of container/transshipment port, development of recreational facility, leisure hotel, resettlement area for affected households, and executive housing project	▪ The Provincial Government of Ilocos Sur will take over ROW and access road const'n. ▪ POW was submitted to DOTC and is now under review and evaluation and funding.
3	**DINGALAN PORT PROJECT** Dingalan, Brgy. Aplaya, Aurora	Port Development and Construction of Passenger Terminal Bldg. (PTB)	50.31 47.04		▪ Rock causeway (9m x 1740m), RC Pier (9m x 81m), RC platform (277.5m), Ro-Ro(11m x 9m), Mooring and fendering system) ▪ Const. of PTB, Reclamation works & site development. (3,786.25 sq.m.), Installation of security fence, gates & guardhouse	▪ Completed Nov. 2007. ▪ Completed Jan. 2008.

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
4	**SUBIC BAY PORT DEVELOPMENT PROJECT** Subic, Zambales	Port Development Project	5,217.90	JBIC Loan By SBMA	▪ The project involves the construction of a new container port (2 berths) in Cubi Point, rehabilitation of existing facilities at the NSD and Boton areas, procurement of gantry cranes and other handling equipment, construction of access road, and installation of new navigational equipment and utilities to promote the economic growth of the Subic- Clark area and to complement the Ports of Manila in the movement of cargo traffic within Luzon.	▪ Completed March 2008.
5	**MANILA NORTH HARBOR MODERNIZATION PROJECT** Port Area, City of Manila	Development, management, operation and maintenance of the Manila North Harbor (MNH)**.**	11,000M	PPP By PPA	▪ Implementation Period: 6 years; 25 years concession period. ▪ Privatization of MNH will be pursued using PPA Charter (PD 857 as amended).	▪ Terms of Reference (TOR) for the bidding, management, O&M of MNH approved by the PPA Board of Directors during its 27 April 2007 meeting.
6	**BATANGAS PORT DEV'T. PROJECT PHASE II** Batangas City	Port Development Project	5,596.28 126.00 279.49	PPA PPA PPA	▪ Package I - Civil and Marine Works ▪ Package II - Passenger Boarding Bridges ▪ Package III - Construction of Access Road & Flyover	▪ Completed Dec. 2007 ▪ Completed Sep. 2001 ▪ Completed Oct. 2007
7	**LUCENA PORT, QUEZON** Brgy Talao-Talao, Lucena City, Quezon	Construction of Passenger Terminal Building (PTB), Breakwater, and Concrete Paving of Back-up Area.	21.46 47.75 269.12	PPA Corporate PPA Corporate PPA Corporate	▪ Construction of Passenger Terminal Bldg. ▪ Paving of Back-up Area ▪ Construction of Breakwater	▪ Completed Dec. 2006. ▪ Completed Nov. 2007 ▪ Completed Nov. 2007
8	**BOAC (CAWIT) PORT, MARINDUQUE**	Construction of RC Pier, RC Wharf, and RORO Ramp.	35.73	PPA Corporate	▪ Construction of Pax Terminal Bldg.	▪ Completed Sep. 2007

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
9	**PANTAO PORT** Pantao, Libon, Albay	Port Development Proj. - Phase II	105.74	PPA	▪ With existing reclamed area (1,950sq.), RoRo Ramp (9m x 11m), Wharf (60m x 18m)	▪ Completed Dec. 2007
			20.00	PPA	▪ Construction of PTB	▪ Deferred per Presidential Directives issued on 06 February 2007. Also, the site where the proposed PTB will be placed was totally damaged by Typhoon Reming.
10	**SAN PASCUAL PORT** San Pascual, Burias Island, Masbate	Port expansion Project	46.97	PPA	▪ RO-RO Ramp (9m x 11m); Back-up Area (2,000 sq.m.)	▪ Completed Jan. 2009.
11	**CLAVERIA PORT** Claveria , Burias Island, Masbate	Port Development Project	136.04	PPA	▪ Construction of RO-RO ramp (9m x 11m), rock causeway (9m x 114m), back-up area (2,000 sqm) & PTB (464 sqm)	▪ Completed July 2009.
12	**ARoROY PORT** Aroroy, Masbate	Port Development Project	100.70	PPA	▪ Construction Of Ro-Ro Ramp (9m X 11m) And Back-Up Area (4,449 Sqm)	▪ Completed Aug 2008.
13	**CAWAYAN PORT** Brgy. Mahayahay, Cawayan, Masbate	Port Improvement Project	42.95	PPA	▪ Rock causeway and back-up area, RC platform (12x15m), RoRO ramp (9x11m) and breasting dolphin), mooring & fendering system, Port lighting system	▪ Completed March 2009.
14	**MARIPIPI PORT** Maripipi Island, Biliran	Port Expansion Project	53.77	PPA	▪ Construction of Roro Ramp (9m x 11m); Construction of PTB (447 sq.m.); Back-up Area (1,700 sq.m.)	▪ Completed Dec. 2008.
15	**NAVAL PORT** Biliran	Rehabilitation of RC Pier, Construction of Ro-Ro Ramp and PTB	52.80	PPA	▪ Ro-Ro Ramp (9m x 11m), PTB (447 sq. m.) total rehab. of deck	▪ Completed July 2008.
16	**SIBUNAG (SEBASTE) PORT, GUIMARAS** Brgy. Sebaste, Sibunag, Guimaras	Construction of RORO Ramp, Rock Causeway, Breasting Dolphin and Port Lighting System.	101.41	PPA	▪ Construction of RO-RO Ramp (9m x 11m), rock causeway (3,387sq.m.), breasting dolphin and port lighting system	▪ Completed July 2008.

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
17	**SANTANDER PORT, CEBU** Santander, Cebu	Port Development Project	20M	CPA	▪ Construction of Rock Causeway and Passenger Terminal Building, and Provision of RORO Ramp to link with the Port of Sibulan, Negros Oriental.	▪ Not yet started. ▪ The Cebu Port Commission has decided that CPA shall undertake two (2) projects in lieu of Santander, one in the Municipality of Oslob and in Samboan. ▪ The proposed site in Oslob is an existing private port which is undergoing expropriation proceedings. ▪ The proposed site in Samboan is an existing abandoned government port which will be rehabilitated by CPA.
18	**SIQUIJOR PORT** Siquijor	Port improvement / development works	55M	PPA	▪ RC Pier Extension, RORO Ramp, Back-up Area, Widening of Causeway) & Const'n of Passenger Terminal Bldg.	▪ Completed Nov. 2007
19	**DAANBANTAYAN PORT DEVELOPMENT PROJECT** Maya, Daanbantayan, Cebu	Port Development Project	15.00	(Implemented by LGU-Cebu Province)	▪ Construction of RoRo Ramp	▪ The project is 66.80% complete as of May 2008. All field operations were stopped pending the result of ROW negotiations for the access road.
20	**BOGO PORT DEVELOPMENT PROJECT.** Bogo, Cebu	Port Development Project	23.58	CPA	▪ Provision of RoRo Ramp	▪ Completed Feb. 2008.

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
21	**MAASIN PORT** Southern Leyte	Reconstruction, Widening and Extension of RC Pier	91.34	PPA	▪ Reconstruction, widening and extension of existing Roro Ramp (15m x 15m), PTB (10m x 40m), Back-up Area (10,500 sq.m.), RC Pier (102m x 18m)	▪ Completed Oct. 2006
22	**LIMASAWA PORT** Limasawa Island, Southern Leyte	Limasawa Port Development Project	13.37 4.66	PPA PPA	▪ Reclamation of Back-up Area (755sq m.) and construction of RORO ramp) ▪ Construction of PTB	▪ Completed Jan. 2008 ▪ Completed Jan. 2008
23	**UBAY PORT** Bohol	Port Development Project	48.04	PPA	▪ Reclamation / Widening of Causeway w/ construction of RoRo Ramp	▪ Completed Nov. 2007
24	**JAGNA PORT** Jagna, Bohol	Port Improvement Project	59.95	PPA	▪ With existing RoRo (10.5m x 11m), PTB (20m x 12m), Back-up area (3,217 sq.m.), RC Wharf Extension	▪ Completed April 2007
25	**BALBAGON PORT** Mambajao, Camiguin	Port Development Project	17.85 25.64 31.95	PPA PPA PPA	▪ Construction of PTB ▪ Extension of RoRo Ramp ▪ Reclamation of Back Up Area	▪ Completed July 2008. ▪ Completed April 2008. ▪ Completed Nov. 2007.
26	**GUINSILIBAN PORT** Camiguin	Port Development Project	10.00		▪ Extension of R.C. Pier	▪ Deferred. In compliance with the instruction of PGMA last Nov. 2008, funds for Guinsiliban Port was realigned to Benoni Port.
27	**DAVAO (SASA) PORT** Davao City	Port Development Project	24.13 428.91	PPA PPA	▪ Rehabilitation of 42.35m X 18m Quay ▪ (Civil works include the construction of RC Wharf (3,178 sq.m.); back-up area (13,180 sq.m.) mooring and fendering systems; drainage system; port lighting system; rockworks.	▪ Completed April 2007 ▪ Completed Dec. 2008.
28	**CAGAYAN DE ORO PORT** Cagayan de Oro City	Port Development Project	178.68 433.73	PPA PPA	▪ Upgrading/Rehabilitation of Existing Back-up Area at Berth 1 to 5 ▪ Construction of Back-up Area for the Newly Constructed Wharf (4,150 sq m)	▪ Completed July 2007 ▪ Completed Jan. 2009.

Source: DOTC

Proposed, Ongoing and Recently Completed

Airport Projects

PROPOSED, ON-GOING AND RECENTLY COMPLETED AIRPORT PROJECTS

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
1	**ITBAYAT AIRPORT,** Itbayat Island Batanes	Upgrading of the existing airport to include the following: resurfacing of runway, concrete paving of apron and taxiway, construction of perimeter fence and construction of terminal building and fire station.	10.00 75.0 120.00	DOTC / CY 2007 DOTC / CY 2008 DOTC / CY 2009	▪ Concrete paving of runway ▪ Concrete paving of runway and Extension of runway ▪ Concrete paving of existing runway and apron, construction of terminal building including water system	▪ Completed June 2008 ▪ Completed Feb. 2010 ▪ Actual accomplishment is 56.42% with Slippage of + 19.41%
2	**BASCO AIRPORT** Basco, Batanes	Construction of runway, apron, vehicle parking area and three storey air traffic control tower, as well as, rehab/improvement of ATO Admin building and fire station.	29.40 146.10 3.00 7.00 1.50 70.00 13.00 5.00 12.00 3.00	DOTC / CY 2007 DOTC / CY 2008 DOTC / CY 2008 CAAP / CY 2008 CAAP / CY 2008 CAAP / CY 2009 CAAP / CY 2009 CAAP / CY 2009 CAAP / CY 2009 CAAP / CY 2009	▪ Resurfacing of existing runway ▪ Asphalt Overlay of Runway & Apron, Const. of Drainage System & Perimeter Fence ▪ Improvement of Terminal Bldg. & Fire Station Bldg. ▪ ANF (Construction of new FSS & Powerhouse) ▪ Purchase/Installation of Aerodrome Beacon ▪ Resurfacing of existing runway, Improvement of terminal and fire station buildings and construction of elevated water tank ▪ Purchase/installation of VHF Tx/Rx, VHF Tranceiver, ATIS ▪ Purchase/installation of MET Instrument ▪ Purchase/installation of PAPI ▪ Construction of powerhouse (Additional Amount)	▪ Completed July 2008 ▪ Completed Feb. 2010 ▪ Completed Sep. 2009 ▪ On-going with 60 % accomplishment. ▪ Completed. Equipment already delivered. ▪ Actual accomplishment is 36.25% with Slippage of + 13.70% ▪ On-going with 15.00 % accomplishment. ▪ On-going with 15.00 % accomplishment. ▪ On-going with 15.00 % accomplishment. ▪ On-going with 36.00 % accomplishment.

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3	**NORTHERN CAGAYAN (LALLO) AIRPORT** Lal-lo, Cagayan Valley	Construction of new airport facilities consisting of runway, two (2) taxiways, apron, perimeter fence, air traffic control tower, ATO admin and terminal buildings, fire station, water supply system, as well as, acquisition of 493,720 sqm. ROW, procurement and installation of air navigational facilities.	298.00	DOTC	▪ Pre-Feasibility Study / Master Plan	▪ Revised Final Report was submitted on Jan. 2010 for evaluation of the DOTC/CAAP. Target submission of the official Final Report by end of March 2010.
4	**BAGABAG AIRPORT** Bagabag, Nueva Vizcaya	Construction of new airport facilities consisting of the existing facilities of Bagabag Airport, covering the concrete paving of horizontal facilities, construction of air traffic control tower and security perimeter fences, expansion & rehabilitation of terminal building and water supply system, as well as, acquisition of additional 7,100 sq. m. lot.	12.50 78.50 5.00	CAAP / CY 2007 DOTC / CY 2008 DOTC / CY 2008	▪ Construction of Flight Service Station ▪ Completion of concrete paving of runway, concrete paving of Apron & Taxiway, concrete paving of VPA and access road, construction of drainage system. ▪ Rehabilitation of Terminal Building	▪ Completed Dec. 2008 ▪ Completed Feb. 2010 ▪ Completed Oct. 2009
5	**UPGRADING OF SAN FERNANDO AIRPORT, (PORO POINT)** San Fernando, La Union	**Stage 1**: Runway extension, upgrading of runway, taxiway and apron pavement, improvement and expansion of passenger terminal building, relocation and construction of control tower, completion of perimeter fencing, acquisition of major foam tender firefighting equipment, installation of runway end identification lights, etc. **Stage 2**: Runway widening to 45 meters, construction of passenger terminal building, new apron etc.	471.41	BCDA / CY 2007	▪ Upgrading of San Fernando Airport, Construction of Field Office and Facilities, Control Tower Bldg., Power & Water Receiving Station and Renovation of Fire Station Bldg.	▪ Completed Feb. 2009. Inaugurated on 16 March 2009.

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
6	**ALAMINOS AIRPORT** Alaminos, Pangasinan	Alaminos Airport Development Project	7.50 150.00	DOTC / CY 2006 DOTC / CY 2009	▪ Pre-Feasibility Study / Master Plan ▪ Site acquisition ▪ Initial construction of airport	▪ Target submission of Final Report by end of March 2010. ▪ MOA w/ LGU approved on Sep. 2009. Funds transferred to LGU on Nov. 2009. Acquisition of lots on-going. ▪ NOA already received by the contractor.
7	**CASIGURAN AIRPORT DEVELOPMENT PROJECT** Casiguran Aurora	Involves rehabilitation of airstrip and upgrading of the airport into a feeder airport.	15.00 152.50 4.50 100.00	CAAP / CY 2006 CAAP / CY 2008 CAAP / CY 2008 CAAP / CY 2009	▪ Construction of Air Strip Phase 1 (Fencing, Clearing, Embankment and sub-base) ▪ Concreting of Runway, Apron, Taxiway, perimeter fence and runway markers ▪ Construction of Terminal Shed and Elevated Water Tank ▪ Casiguran Airport (Horizontal structures)	▪ Completed Oct. 2007. ▪ Actual accomplishment is 96.83% with Slippage of -3.17% ▪ For approval of revised plan and program of work to comply for bigger aircraft. ▪ Recommended to be implemented by CAAP due to failure of the 2nd bidding. ▪ Preparation of DE on-going..
8	**DIOSDADO MACAPAGAL INTERNATIONAL AIRPORT (DMIA) PROJECT** Angeles City, Pampanga	**(1) PASSENGER TERMINAL EXPANSION (PTE):** Renovation of the existing terminal building, development of the proposed terminal expansion, site development, terminal equipment & terminal phasing operation during construction.	151.80 529.23	CDC/CIAC ODA CDC/CIAC ODA	▪ Passenger Terminal 1 Rehabilitation and Expansion - Pre-departure and arrival area. - Interior and exterior façade and site development. ▪ DMIA Radar Approach Control.	▪ Completed March 2008. Inaugurated by PGMA last April 2008. ▪ Completed Feb. 2007 and inaugurated on 04 April 2007. The Radar system is fully operational.

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
			6,477.21	Joint Venture b/w CDC/CIAC and private investor at 70-30 debt to equity ratio.	▪ Passenger Terminal Building 2 Rehabilitation and Expansion	▪ Government having negotiation problem with Al -Mal Consortium (submitted an unsolicited proposal on May 2009 which was accepted by CIAC); ▪ CIAC considering other privatization options for the project.
		(2) IMPLEMENTATION OF MASTER PLAN PHASE 1: Development scope provides for new high capacity international and domestic passenger facilities, new express and general freight facilities, new heavy aircraft maintenance and other support facilities. It will enable DMIA to assume its designated role as the new international gateway to the Philippines.	56,500.00	(to be determined either GOP, Private Sector, Local ODA Loan, etc.) a more definitive financing scheme for the project would depend on the outcome/recommendation of the FS	Consisting of the following components: ▪ ***Phase 1A***: (Express freight, Fuel Farm, Heavy Maintenance, General Freight, Runway, Taxiways ▪ ***Phase 1B***: (PTB & Concourse, Passenger Aircraft Parking Positions, Airport Plaza and GTC, Fuel Farm, Taxiways, Fire Stations, Control Tower	▪ Invitation to Bid was published on 09-Oct-09 and open competitive bidding was held on 06-Nov-09. ▪ Notice of Award was issued to A G Araja Const'n & Dev't Corp. on 21-Nov-09. NTP was issued on 28-Nov-09. **Mobilization is on-going**.
9	**NAIA TERMINAL 3** Pasay City, Metro Manila	The project seeks to address the congestion at Terminal 1 and the Northwing of Terminal 2 which are the existing facilities of the NAIA used to serve international passengers. With the completion of the project, the NAIA would be able to provide a much bigger and more modern facility for the increasing volume of air travelers going in and out of the country.	P 792 M		▪ Completion, Reactivation, testing and commissioning on a turnkey basis of NAIA Terminal 3	▪ Completion Work Agreement (CWA) between MIAA and Takenaka yet to be approved by MIAA. Negotiation still on process ▪ Portions of the terminal building have been opened for operations.

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
10	**SOUTHERN LUZON INTERNATIONAL AIRPORT** Daraga, Albay	Construction/development of new airport with international standards based on the pre-F/S undertaken in 2003. A total of 170 hectares was proposed to be acquired for the project that includes access roads, runway approaches and clearways. The site is about 12 kms west of Legaspi City, in the municipality of Daraga. The proposed runway's southwest end is located close to the boundary of the municipalities of Daraga and Camalig. The northeast end is proximate to the national highway linking Daraga.	170.00	DOTC / CY 2007	▪ Construction of New Airport Site Acquisition & initial access road construction	▪ Funds for site acquisition transferred from DOTC to LGU Albay last July 2009; ▪ 143 out of the total 325 lots affected already acquired/paid.
			85.00	DOTC / CY 2007	▪ Advance Engineering Study & Detailed Engineering Design	▪ Completed Oct. 2009
			300.00	DOTC / CY 2008	▪ Initial construction of airstrip (Phase 1)	▪ Suspended while awaiting acquisition of all lots
			300.00	DOTC / CY 2009	▪ Continuation of construction of airstrip (Phase II)	▪ Started August 2009. Permit to Enter is still being secured by the STWC from the affected lot owners before construction proper commence.
11	**BULAN AIRPORT** Bulan, Sorsogon		15.00	CY 2005	▪ Site acquisition for Runway Extension	▪ The transfer of funds for site acquisition is still being worked out. The creation of CAAP has stalled the process since the previous sub-allotment to the former ATO have been invalid.
			55.00	CY 2007	▪ Upgrading of Runway	▪ Completed Aug. 2008.
			85.00	CY 2008	▪ Concrete paving of runway, Construction of apron & taxiway, Perimeter Fence and Drainage System	▪ Actual accomplishment is 97.00% with Slippage of +10.50%
			60.00	CY 2009	▪ Construction of apron & taxiway, Continuation of construction of perimeter fence, Extension of runway, Construction of terminal building including water system	▪ Actual accomplishment at 85.00% with Slippage of +17.00%

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
12	**SAN JOSE AIRPORT DEVELOPMENT PROJECT** San Jose, Carabao Island, Romblon		303.00	PPP / BOT	▪ Flagged. The project is for private sector participation. Recommended for BOT scheme (unsolicited proposal).	▪ No private sector interested yet to do this BOT project; thus delaying its implementation. Discussion with DOTC and DOT is ongoing regarding the concern.
13	**BUSUANGA AIRPORT (PALAWAN)** Coron, Busuanga Island, Palawan	**Phase 1:** Rehabilitation and improvement of existing facilities including concreting of apron and runway and construction of terminal. **Phase 2:** Expansion of airport such as widening of apron and runway. It will also involve the provision of air navigation facilities and equipment for the safety of operations and construction of complete perimeter fence to airstrip.	40.00 12.00 160.00 0.80 12.00	CAAP / CY 2006 CAAP / CY 2006 KOICA Grant CAAP / CY 2008 CAAP / CY 2009	▪ Construction of Runway Extension and Open Canal, Concreting of Apron, ▪ Feasibility Study & Master Planning ▪ Runway concreting, apron, fencing, strip grade correction, terminal bldg., fire truck, tractor mower, maintenance vehicle. ▪ Purchase/Installation of 1-30 KVA DEGS ▪ ANF (Purchase /installation of PAPI System	▪ Completed Nov. 2007 ▪ Completed Aug. 2008 ▪ Completed Oct. 2008 ▪ On going. ▪ On-going with 15% accomplishment.
14	**IMPROVEMENT OF PUERTO PRINCESA AIRPORT** Puerto Princesa City, Palawan	**Phase 1**: Rehabilitation and expansion of existing terminal **Phase 2**: Construction of new passenger terminal complex, a new access road to the passenger terminal complex off the national	30.00 15.00 100.00	CY 2006 CY 2007 DOE-Malampaya Shares	▪ Rehabilitation/expansion of existing Passenger Terminal Building ▪ Construction of Perimeter Fence & Expansion of Apron ▪ Completion of PTB rehabilitation/expansion including terminal equipment/facilities	▪ Completed Dec. 2008. Inaugurated by PGMA on 17 August 2009. ▪ Completed March 2008. ▪ Completed May 2009. Inaugurated by PGMA on 17 August 2009.

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
		highway, widening of the runway strips, installation of an ILS system to one runway, a runway overlay, widening of the runway shoulders and new security fencing.	4,361.00	DOE-Malampaya Shares	▪ Airport Development	▪ DOTC requested President's approval allowing portion of original cost (P3,390.96 M) be financed through t Korean-EDCF loan. Share of Palawan from the proceeds of the Malampaya funds to repay the said loan. ▪ GOP counterpart (P 969.07 M) can be financed through both Nat'l Gov't funds (P527 M under GAA, balance of P442.97 M through share of Palawan from Malampaya funds).
			2.50	CAAP / CY 2008	▪ Purchase/Installation of 16 Channels of VLS	▪ Completed Sep. 2009
			1.70	CAAP / CY 2008	▪ Upgrading of MET Instrument	▪ Completed April 2009.
			1.50	CAAP / CY 2008	▪ Expansion /Rehabilitation of power house	▪ Completed Sep. 2009.
			20.00	CAAP / CY 2008	▪ PAF Replication Works (5 storey condo. Inc. site dev't)	▪ Actual accomplishment is 72.73% with Slippage of +55.85%
			22.50	CAAP / CY 2009		
			106.00	CAAP / CY 2009	▪ Completion of Functional replication of PAF Structure and Utilities	▪ Notice of Award signed January 2010.
			508.00	CAAP / CY 2009	▪ Concrete paving of VPA in front of cargo building including drainage system, Asphalt overlay of runway, Expansion /improvement of fire station building and Site development of the new terminal complex.	▪ To be realigned as GOP counterpart fund for the Korean EDCF funding.
			5.00	CAAP / CY 2009	▪ Improvement of ATC Inter-Facility Data Communication	▪ On-going with 15% accomplishment.

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
			2.00	CAAP / CY 2009	▪ Purchase/Installation of 1-150 KVA DEGS	▪ POW for approval. (Originally planned to be realigned by DOTC).
			60.00	CAAP / CY 2009	▪ Rehabilitation of Airfield Lighting System	▪ POW for approval. (Originally planned to be realigned by DOTC).
			15.00	CAAP / CY 2009	▪ Provision of ATC Console	▪ POW for approval. (Originally planned to be realigned by DOTC).
			70.00	CAAP / CY 2009	▪ Purchase/Installation of DVOR	▪ POW approved. For transmittal to DOTC.(Originally planned to be realigned by DOTC).
			5.00	CAAP / CY 2009	▪ Palawan (RCAG)	▪ On-going with 15% accomplishment.
15	**BALABAC AIRPORT** Balabac, Palawan	Construction of new airport facilities (i.e. 30m x 1,800M runway, taxiway, apron, terminal building, access road including air navigational facilities.) It also involves site acquisition for the new airport.	7.50	CY 2006	▪ Feasibility Study & Master Planning	▪ Completed May 2009
			1,145.00	PPP / BOT	▪ Airport development	▪ Invitation to Apply for Pre-Qualification and to Bid for the implementation was advertised on January 2009. No private sector has yet signified interest.
16	**SAN VICENTE AIRPORT** San Vicente, Palawan	Phase 1	15.00	CAAP / CY 2006	▪ Site Acquisition	▪ LGU has already acquired 19.88 Has out of 36.57 Has required.
			85.00	Malampaya Funds	▪ Construction of Airstrip (1,200m x 36m)	▪ Completed June 2008
		Phase 2	100.00	Malampaya Funds	▪ Continuation of Construction of Airstrip (1,800m x 45m)	▪ Completed Mar. 2009.
		Phase 3	50.00	CAAP / CY 2007	▪ Construction of Apron and Taxiway	▪ Completed Oct. 2008.
		Phase 4	6.00	CAAP / CY 2006	▪ Preliminary Engineering Study/FS	▪ Completed July 2008.
			30.00	CAAP / CY 2009	▪ Continuation of construction apron and taxiway	▪ Completed Dec. 2009.

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
17	**CATICLAN AIRPORT DEVELOPMENT PROJECT** Malay, Aklan	The project involved the phased development and expansion of the existing airport more particularly, improvement of existing terminal building (TB), construction of runway extension and widening, development of new landslide facilities including the construction of new passenger TB, vehicular parking area and other ancillary facilities.	2,507.00	PPP/BOT By DOTC/CAAP CIADC	Phase 1A ▪ Improvement of existing TB ▪ Reducing slope of adjacent hill Upgrading of airport facilities Phase 1B ▪ Earth moving works ▪ Extension of runway ▪ Construction of new TB ▪ Installation of navigational aids Phase 2 ▪ Extension of runway	▪ Launching was held last 15-Jan-2010. Procurement of Independent Certification Engineers and preparation of plans for Phase 1A now being undertaken by CIADC ▪ Management and supervision of the project was transferred to CAAP in March 2010.
18	**KALIBO AIRPORT** Kalibo, Aklan	Installation of Instrument Landing System	55.00 50.00 30.00 294.00 4.00 60.00 333.00 10.00	CAAP / CY 2005 CAAP / CY 2007 CAAP / CY 2008 CAAP / CY 2008 CAAP / CY 2008 CAAP / CY 2008 CAAP / CY 2009 CAAP / CY 2009	▪ Site Development ▪ Site Acquisition ▪ Site Development including Runway & Taxiway Lights ▪ Construction of Passenger Terminal Building ▪ Completion of new Terminal Building ▪ Asphalt overlay of runway, expansion of apron, and construction of drainage sys. ▪ Improvement of Existing Terminal Building and Fire Station Building ▪ Purchase of CFR vehicle ▪ Extension of runway construction; Asphalting of turn-around pad and runway, Re-routing of national highway, Continuation of site development, ▪ Feasibility Study and Master Plan	▪ 96.67% completed. ▪ 82.0% completed. ▪ 100% completed /commissioned. ▪ Actual accomplishment at 95.00% with Slippage of + 2.78% Variation Order is in process. ▪ Completed Dec. 2009. ▪ Actual accomplishment at 98.70% with Slippage +0.55% ▪ Completed Oct. 2009. ▪ Delivery by Jan. 2010. ▪ BAC issued a resolution recommending the disqualification of the winning bidder. ▪ Notice of Award issued to Consultant

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
			5.00	CAAP / CY 2009	▪ Improvement of ATC Inter-Facility Data Communication	▪ On-going with 15% accomplishment.
			2.00	CAAP / CY 2009	▪ Rehabilitation of PAPI System	▪ On-going with 15% accomplishment.
19	**NEW ILOILO AIRPORT DEVELOPMENT PROJECT (NIADP)** Cabatuan & Sta. Barbara, Iloilo	Construction of a new 188-hectare airport in Sta. Barbara and Cabatuan, Iloilo including runway; runway strip; 2-taxiway; 3 km access road; provision of airport utilities; PTB, admin building, control tower and operation building, maintenance building, fire rescue station, central plant mechanical station, central plant electrical station and cargo terminal; and provision of air navigation system in accordance with ICAO standard (Category I landing).	8,758.72	CAAP / CY 2008; JBIC LOAN	▪ Construction of new airport of international standard	▪ Completed Mar. 2007. Inaugurated / opened for operation on June 2007.
			34.00	CAAP / CY 2008	▪ Construction of security fence along NIADP access road	▪ Needing clearance from DBM.
			124.00	CAAP / CY 2008	▪ Construction of secondary access road	▪ Actual accomplishment is 8.19% with Slippage of +0.05%.
			5.00	CAAP / CY 2008	▪ Improvement of ATC Inter-Facility Data Communications	▪ On-going with 15% accomplishment.

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
20	**PANGLAO AIRPORT DEVELOPMENT PROJECT, BOHOL** Panglao Island, Bohol	Involves the acquisition of about 170 hectares of land for airport property. It will also entail the construction of landside and airside facilities, and the installation and commissioning of various navigational aids. It aims to replace the existing Tagbilaran Airport in Bohol by constructing a new one in Panglao Island, which would accommodate larger aircraft that will cater to the increasing air traffic demand as a result of growth in tourism activity.	307.50	DOTC / CY 2009	▪ Construction of New Airport Total Cost: P7540.00 40% MIAA Corporate Funds; 60% provided by DOTC.	▪ For Const'n. Phase 1 (Site Dev't): Evaluation of lowest complying bid is on-going after bids were opened by MIAA-BAC on 11-Feb-2010. ▪ MIAA will be requesting the transfer of committed fund of P307.5M from DOTC for CY 2009 to MIAA, including the balance of P1,270 M committed to assure implementation of Phase 2 on 2nd quarter of 2010. ▪ BOT scheme had been considered as an alternative to satisfy funding requirements to complete essential facilities (e.g Passenger & Cargo Terminal).
			190.05	DOTC	▪ Site Acquisition (211.5 Has.)	▪ 168.6 out of 211.5 hectares have been acquired by the Provincial Government of Bohol (PGB); ▪ Approximately 16 hectares will be acquired. MOA for the barter or exchange of lots was already signed by PGB and DoT and was transmitted to CAAP for signature.
			8.87	MIAA	▪ Feasibility Study & Master Planning	▪ Completed Oct. 2007.

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
			290.00		▪ Detailed Engineering (DE) ▪ Design and Construction Management Supervision	▪ (DE) Completed Dec. 2009. ▪ Procurement of contractor for the 1st component (i.e. Clearing and grubbing, Earthworks, Airside Drainage) is on-going.
21	**KABANKALAN AIRPORT** Kabankalan, Negros Occidental	Construction of new feeder airport with 30m x 1,800m runway, taxiway, apron, terminal building, access road, fencing.	7.50	LGU / CY 2007	▪ Feasibility Study & Master Plan ▪ Site Acquisition (Implemented by LGU Kabankalan)	▪ Completed March 2009 ▪ 85 out of 97 hectares were already acquired by the LGU of Kabankalan City. 12 hectares to be expropriated.
22	**DEVELOPMENT OF BACOLOD AIRPORT (SILAY)** Silay City, Negros Occidental	Construction of a new 187-hectare airport at Silay City in Negros Occidental. The scope of the project includes construction of runway and passenger loading apron	5,692.98	DOTC/CAAP CY 2009	▪ Civil Works (const'n of runway, passenger loading apron, general aviation apron, taxiways, shoulders, car parks, roads and security fence; ▪ Building Works (const'n of passenger terminal building, control tower, fire station building, main power house & miscellaneous buildings) ▪ Airport Navigation System, Airport Utilities and Special Equipments.	▪ Completed in July 2007, inaugurated and opened for operation on 18 January 2008.
			5.00	DOTC/CAAP CY 2009	▪ Improvement of ATC Inter-Facility Data Communication	▪ On-going with 15% accomplishment.
23	**DUMAGUETE AIRPORT,** Dumaguete Negros Oriental	Upgrading and modernization of airport facilities such as runway and runway lighting facilities to enhance safety and accommodate large aircrafts such as Airbus 320.	2.00	CY 2006	▪ Rehabilitation of Passenger Terminal Building	▪ Completed Feb. 2008
			73.19	CY 2007	▪ Asphalt Overlay & Widening of Runway to 4.5 m both side	▪ Completed July 2008
			102.24		▪ Upgrading of Airfield Lighting System	▪ Completed Dec. 2008
			85.00	CY 2008	▪ Continuation of asphalt overlay of runway	▪ Completed Dec. 2008

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
			3.00	CY 2008	▪ Improvement of terminal Building and fire station building	▪ Completed July 2009
			1.20	CAAP / CY 2008	▪ Purchase/installation of lighting and surge power protection system	▪ Completed Sep. 2009
			23.00	CAAP / CY 2008	▪ Completion of Airfield Lighting System	▪ Completed April 2009
			10.00	CY 2009	▪ Continuation of asphalt overlay of runway	▪ Completed Nov. 2009
			14.00	CY 2009	▪ Completion of improvement of terminal building and Purchase/installation of Baggage conveyor	▪ Completed Nov. 2009
			7.00	CY 2009	▪ Conduct of Feasibility Study and Master Plan	▪ DOTC waiting for the release from DBM of the FS fund. TOR already prepared.
24	**REDEVELOPMENT OF TACLOBAN AIRPORT (TRUNKLINE)** Tacloban City Leyte	The project involves the redevelopment of the existing Tacloban Airport. The scope of the project includes upgrading/resurfacing of runway, shore protection, and SALS support structure. Building works includes passenger terminal building, main power house and air navigation system.	8.50	CAAP / CY 2006	▪ Feasibility Study & Master Planning	▪ Completed July 2009
			75.00	CAAP / CY 2007	▪ Asphalt Overlay of Runway & Construction of Shore Protection with Shoulder Grade Correction	▪ Completed Sep. 2009
			131.50	CY 2008	▪ Asphalt overlay of runway and completion of CHB fence	▪ Completed Oct. 2009
			130.00	CY 2008	▪ Site acquisition of new terminal complex	▪ To be confirmed upon completion of FS / Master Plan.
			10.00	CY 2008	▪ Rehabilitation of existing terminal building	▪ Completed Dec. 2009
			5.00	CY 2008	▪ Air Navigation Facility, Purchase/installation of VSAT for AIDC	▪ Completed
			2.50	CY 2008	▪ Purchase/installation of VLS	▪ Completed Sep. 2009

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
			420.00	CY 2008/2009	▪ Completion of asphalt overlay of runway, Construction of shore protection with shoulder grade correction.	▪ Actual accomplishment with 42.60% and Slippage of + 19.14%
			155.00	CY 2009	▪ Continuation of existing terminal building rehabilitation, Improvement of fire station building, Construction of elevated water tank, terminal building at new terminal complex.	▪ For realignment to Site Development.
			15.00	CY 2009	▪ Provision/Installation of ATC Console	▪ On-going with 15% accomplishment.
			5.00	CAAP / CY 2009	▪ Purchase/Installation of MET Instrument	▪ On-going with 15% accomplishment.
			120.00	CAAP / CY 2009	▪ Establishment of Night Landing Facility - Upgrading of ALS	▪ On-going with 15% accomplishment.
			70.00	CAAP / CY 2009	▪ Establishment of Night Landing Facility – ILS	▪ POW approved and transmitted to DOTC.
			20.00	CAAP / CY 2009	▪ Site Development and Acquisition	▪ POW approved and transmitted to DOTC.
25	**GUIUAN AIRPORT** Guiuan, Eastern Samar		10.00	CY 2006	▪ Const'n of Apron & Taxiway	▪ Completed Sep. 2007
			10.00	CY 2007	▪ Conc'tng of Apron & Taxiway	▪ Completed Jan. 2008
			5.00	CY 2007	▪ Rehabilitation of Passenger Terminal Building, Construction of Elevated Water Tank & Security Fence	▪ Completed Aug. 2008.
			110.00	CY 2008	▪ Asphalt overlay of runway, completion of apron & taxiway and construction of perimeter fence and installation of single-phase electrical line.	▪ Completed April 2009.
			40.50	CY 2008/2009	▪ Construction and Concrete paving of access road & VPA, Obstruction removal and Const'n of fire station building and expansion of apron.	▪ Completed Sep. 2009

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
26	**SIARGAO AIRPORT IMPROVEMENT PROJECT** Siargao, Surigao Del Norte	Upgrading and modernization of airport facilities such as runway, taxiway, apron, terminal and perimeter fence to enhance safety and increase aircraft utilization.	10.00	CY 2006	▪ Continuation of Apron Expansion, Taxiway & Perimeter Fence	▪ Completed May 2007
			2.50	CY 2006	▪ Construction of security fence	▪ Completed Feb. 2009
			10.68	CY 2007	▪ Construction of CHB Fence & Construction of VPA	▪ Completed May 2008
			12.50	CAAP / CY 2007	Establishment FSS Fac.: ▪ Construction of FSS Building & Rehabilitation of ▪ Power house; Purchase/installation of Communications Equipment; ▪ Purchase/installation of MET Instrument	▪ Completed Nov. 2009
			29.82	CY 2008	▪ Construction of perimeter fence, VPA and turn-around pad	▪ Completed Oct. 2009
			78.00	CY 2008	▪ Extension of Runway and Construction of Gabions -	▪ Suspended due to lot acquisition problem.
			2.00	CY 2008	▪ Lot Acquisition for runway extension	▪ On-going
			25.00	CY 2008/2009	▪ Construction of Passenger and Fire station building -	▪ Actual accomp. is 6.75% w/ Slippage of -6.21%
			17.00	CY 2009	▪ Widening of runway, Continuation of extension of runway and slope protection	▪ Suspended due to lot acquisition problem.
27	**BUTUAN AIRPORT** Bancasi, Butuan City Agusan del Sur	Upgrading and expansion of existing airport to Aerodrome Ref. Code 4C to accommodate B737/A320. The works include: a) runway overlay; b) full landside development; c) expansion and refurbishment of existing terminal building; d)	10.00	DOTC/CAAP CY 2007	▪ Extension of Runway	▪ Completed April 2008
			102.24	DOTC/CAAP CY 2007	▪ ANF (Upgrading of Airfield Lighting System)	▪ Completed Aug. 2008
			50.00	DOTC/CAAP CY 2006	▪ Runway Extension, Widening and Resealing of Joints	▪ Completed Sep. 2008
			5.00	DOTC/CAAP	▪ Supply and installation of Carousel conveyor	▪ Completed July 2008

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
		new navaids equipment; e) new airfield ground lighting, communication equipment; f) completion of Butuan Widening to 45 m.; and g) runway extension.	135.00	DOTC/CAAP CY 2008	▪ Asphalt overlay and extension of runway, and shoulder grade correction	▪ Completed Sep. 2009
			165.00	DOTC/CAAP CY 2008/2009	▪ Completion of asphalt overlay of runway, Slope protection for runway extension, Construction of pedestrian gate and Improvement of terminal building	▪ Completed Mar. 2010
			5.00	DOTC/CAAP CY 2009	▪ Purchase/Installation of MET Instrument	▪ On-going with 15% accomplishment.
			30.00	DOTC/CAAP CY 2009	▪ Upgrading of Airfield Lighting System	▪ On-going with 15% accomplishment.
			70.00	DOTC/CAAP	▪ Purchase/Installation of DVOR/DME	▪ POW approved and transmitted to DOTC.
			6.00	DOTC/CAAP CY 2009	▪ Replacement of Tower Communications Equipment	▪ POW approved and transmitted to DOTC.
			9.00	DOTC/CAAP CY 2009	▪ Site Development (Rehab of Control Tower building, provision of access road)	▪ POW approved and transmitted to DOTC.
			5.00	DOTC/CAAP CY 2009	▪ Sit Acquisition (for Night Landing Facility)	▪ POW approved and transmitted to DOTC.
28	**LAGUINDINGAN AIRPORT DEVELOPMENT PROJECT** Laguindingan, Misamis Oriental	Construction of new airport that includes: a) new runway, taxiway, apron and other airside facilities; b) New buildings such as passenger terminal building, cargo facilities; c) supply and installation of air navigation and support facilities and other airport equipment and vehicles.	4,991.00		▪ Construction of Airport (Main Civil Works)	▪ Actual accomplishment 58.24% with Slippage of + 0.13%
			188.77		▪ Construction of Access Road (Phase I)	▪ Completed June 2009
			50.00		▪ Construction of Access Road (Phase II)	▪ Completed Nov. 2009
			17.85		▪ Construction of Perimeter Fence (Phase I)	▪ Completed June 2009
			23.50	CY 2007	▪ Construction of Perimeter Fence (Phase II)	▪ Completed July 2009
			44.00		▪ Construction of Relocation Site Phase II - Site Development	▪ Completed Sep. 2008
			25.50		▪ Construct'n of Relocation Site Phase II - Construction of 109 Duplex Core Housing Units	▪ Completed Sep. 2008

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
			32.72		▪ Lot Acquisition, Access Road	▪ 100% acquired. Titling of acquired lots on-going.
			249.50		▪ Main Airport	▪ 75.14% of the total 387.68 hectares already acquired. For signing of the 2nd Donation.
29	**DIPOLOG AIRPORT** Dipolog City Zamboanga del Norte	Upgrading and expansion of existing airport to Aerodrome Ref. Code 4C to accommodate B737/A320. The works include: a) runway extension, 45 m.; b) runway overlay and rehabilitation; c) full landside development; d) expansion and refurbishment of existing terminal building; and e) new navigational aids equipment, new Airfield Ground Lighting, communication equipment and shore and river protection.	20.00	DOTC/CAAP CY 2005	▪ Shore Protection (145m)	▪ Completed Aug 2007.
			40.00	DOTC/CAAP CY 2006	▪ Asphalt Overlay of Rwy (109.00m x 45.00m) and widening of Rwy (814.00m x 7.50m) both side	▪ Completed June 2007.
			52.88	DOTC/CAAP CY 2006	▪ Continuation of Runway Widening (765.0m x 7.5.0m) both sides and Shore Protection (200.00lm)	▪ Completed June 2008.
			55.00	DOTC/CAAP CY 2007	▪ Continuation of Runway Widening, Shore Protection and Asphalt Overlay of Runway.	▪ Completed Dec. 2008.
			169.97	DOTC/CAAP CY 2008	▪ Extension of runway, construction of perimeter fence and continuation of shore protection	▪ Completed Nov. 2009.
			13.50	DOTC/CAAP CY 2008	▪ Construction of Terminal building	▪ Bidded-out on Oct. 2009. BAC Resolution on process.
			1.70	DOTC/CAAP CY 2008	▪ ANF (Purchase / installation of MET instrument	▪ Completed. Equipment delivered March 2009.
			90.00	DOTC/CAAP CY 2009	▪ Continuation of runway extension, Asphalt overlay of runway, Shore protection, Construction of Fire station building, Elevated water tank, Access road and box culvert	▪ Actual accomplishment of 93.91% with Slippage of + 8.95%
			35.00	DOTC/CAAP CY 2009	▪ ANF (Rehabilitation of airfield lighting system	▪ On-going with 15% accomplishment.

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
30	**OZAMIS AIRPORT** Ozamiz City, Misamis Occidental	Rehabilitation of terminal building, vehicle parking area, and expansion of apron	40.00	CAAP / CY 2006	▪ Construction of 90m River Bank Prot. & Completion of Concreting of Runway	▪ Completed Jan. 2008.
			3.00	CAAP / CY 2006	▪ Runway Markings and Obstruction Removal. (Implemented by ATO)	▪ Completed June 2008.
			5.00	CAAP / CY 2006	▪ Rehab/Expansion of Existing Term. Bldg.	▪ Completed Sep. 2008.
			30.00	CAAP / CY 2006	▪ Runway Extension, Apron Expansion & Const. of Taxiway	▪ Completed Oct. 2008.
			4.13	CAAP / CY 2008	▪ Continuation of Rehabilitation of existing terminal building	▪ Completed Feb. 2009.
			43.00	CAAP / CY 2008	▪ Widening/Extension of runway, Continuation of riverbank protection, construction of barbed wire fence, resealing of cracks & joints and relocation of weather instrument	▪ Completed Aug. 2009.
			50.50	CAAP / CY 2008	▪ Asphalt overlay of existing runway and runway widening	▪ Completed Nov. 2009.
			31.50	CAAP / CY 2008/2009	▪ Asphalt overlay of runway, Continuation of rehabilitation of existing terminal building, and Construction of CAAP Administration building	▪ Completed Feb. 2010.
			8.00	CAAP / CY 2009	▪ ANF (Purchase / installation of PAPI system	▪ On-going with 15% accomplishment.
31	**PAGADIAN AIRPORT** Pagadian City, Zamboanga del Sur		12.00	CAAP / CY 2007	▪ Asphalt Overlay of Runway	▪ Completed July 2007
			57.76	CAAP / CY 2006	▪ Concreting of Runway, Taxiway and Apron	▪ Completed Feb. 2009.
			30.00	CAAP / CY 2008	▪ Extension of Runway	▪ Completed.
			181.00	CAAP / CY 2008	▪ Continuation of concreting of existing runway and apron, extension of runway & construction of perimeter fence	▪ Completed Nov. 2009.
			11.50	CAAP / CY 2008	▪ Construction of Administration Building and Rehabilitation of Existing Terminal Building	▪ Actual Accomplishment 83.25%

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
			7.00	CAAP / CY 2008	▪ Construction of 3 storey FSS building	▪ Completed Sep. 2009.
			1.70	CAAP / CY 2008	▪ Purchase/Installation of MET Instrument	▪ Completed. Equipment Delivered March 2009.
			66.50	CAAP / CY 2009	▪ Concreting of runway with shoulder grade correction, Construction of perimeter fence Rehabilitation of terminal building	▪ Actual Accomplishment 91.25%
			8.00	CAAP / CY 2009	▪ ANF (Purchase / installation of PAPI System	▪ On-going with 15% accomplishment.
32	**ZAMBOANGA AIRPORT** Zamboanga City, Zamboanga del Sur	**Phase I:** Includes asphalt overlay of runway, shoulder grade correction, rehabilitation of terminal building and expansion of fire station building.	35.00	DOTC/CAAP CY 2005	▪ Asphalt Overlay of Runway	▪ Completed Nov. 2006
			3.00	DOTC/CAAP CY 2006	▪ Construction of Elevated Water Tank, Construction of Power House & Rehabilitation of Terminal Building	▪ Completed May 2007
		Phase II: Development of New Zamboanga Airport	13.00	DOTC/CAAP CY 2006	▪ Continuation of Asphalt Overlay of Runway	▪ Completed Dec. 2007
			64.00	DOTC/CAAP CY 2007	▪ Continuation of Asphalt Overlay of Runway	▪ Completed Dec. 2008.
			6.00	DOTC/CAAP CY 2006	▪ Rehabilitation of Comfort Room at the Terminal Building	▪ Completed Dec. 2008.
			6.00	DOTC/CAAP CY 2006	▪ Supply & Installation of Baggage Conveyor System at the Arrival Area	▪ Completed Oct. 2008.
			110.00	DOTC/CAAP CY 2008	▪ Continuation of Asphalt overlay of runway, improvement of drainage system & construction of CHB fence	▪ Actual accomplishment of 94.23% with Slippage of + 11.07%
			23.00	DOTC/CAAP CY 2008	▪ Rehabilitation of existing terminal building	▪ Actual accomplishment of 90.25% with Slippage of + 0.15%
			5.00	DOTC/CAAP CY 2008	▪ ANF (Purchase /installation of VSAT for ATC Inter-Facility Data Communications)	▪ On-going with 15% accomplishment.

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
			9.00	DOTC/CAAP CY 2006	▪ Feasibility Study	▪ On-going. Draft Final Report submitted by the Consultant on December 2009 and was forwarded to CAAP and DOTC-PMS on January 2010 for review and evaluation. Target submission of the Final Report by end of March 2010.
			15.00	DOTC/CAAP CY 2008	▪ Continuation of Rehabilitation of Terminal Building (Realigned from Advance Eng'g. and Environmental Impact Assessment Study)	▪ Contract on process. Realignment of funds approved.
			12.00	DOTC/CAAP CY 2008	▪ Rehabilitation of SALS	▪ Completed April 2009.
			90.00	DOTC/CAAP CY 2009	▪ Completion of asphalt overlay of runway & taxiway and runway markings	▪ Actual accomplishment of 56.82% with Slippage of + 16.59%
			15.00	DOTC/CAAP CY 2009	▪ Installation of ATC Console	▪ On-going with 15% accomplishment.
			5.00	DOTC/CAAP CY 2009	▪ Supply/Installation of MET Instrument	▪ On-going with 15% accomplishment.
			17.50	DOTC/CAAP CY 2009	▪ Construction of 8-storey Control Tower building	▪ POW approved. Publication on hold pending request of realignment.
33	**COTABATO AIRPORT** Cotabato, Maguindanao	Upgrading and expansion ofexisting airport to Aerodrome Ref. Code 4C to accommodate B737/A320. The works include:a) runway extension, 300 m.; b) runway overlay and rehabilitation; c) new terminal area that includes new building and facilities; d) new navaids equipment; e) new airfield	20.00	DOTC / CY 2005	▪ Asphalt Overlay of Rwy (397.00m x 18.00m) and Resealing of Runway (690.00m x 30.00m)	▪ Completed Oct. 2006
			25.00	DOTC / CY 2005	▪ Continuation of Asphalt Overlay of Runway (620.00m x 18.00m)	▪ Completed June 2007
			15.00	DOTC / CY 2006	▪ Continuation of Asphalt Overlay of Runway.	▪ Completed Dec. 2007
			25.00	DOTC / CY 2007	▪ Continuation of Asphalt Overlay of Runway.	▪ Completed March 2008

No.	PROJECT	DESCRIPTION	COST (P Million)	IMPLEMENTING AGENCY / YEAR	MILESTONES	STATUS OF IMPLEMENTATION (As of February 2010)
		ground lighting, communication equipment.	15.00	DOTC / CY 2006	▪ Continuation of Asphalt Overlay of Runway.	▪ Completed Aug. 2008
			5.00	DOTC / CY 2007	▪ Supply & Installation of O-shaped Carousel Conveyor	▪ Completed Oct. 2008
			134.00	DOTC / CY 2008	▪ Continuation of Asphalt overlay of runway, Widening of runway, Construction of CHB Fence and relocation of runway lights	▪ Completed March 2010
			15.00	DOTC / CY 2008	▪ Rehabilitation of existing Terminal Building	▪ Actual accomplishment is 65.15%
			68.00	DOTC / CY 2008	▪ ANF (Rehabilitation of Airfield Lighting System)	▪ Completed Jan. 2010
			5.00	DOTC / CY 2009	▪ Continuation of rehabilitation of existing terminal building	▪ Suspended pending partial completion of Phase 1.

Source: DOTC

ANNEX 3.5-1

ANNEX 3.5-1

- Malaysian Overview
- Thailand Overview

MALAYSIAN OVERVIEW

BACKGROUND

High economic growth since the 1970s resulted in a massive expansion of the national road transport network in Malaysia. The length of federal and state roads increased from 16,422 km in 1970 to 120,622 km in 2007 of which 70% were paved roads. It is estimated that the over 90% of all passengers and goods in the country are currently carried by road alone.

The total expressway mileage in operation is 1,890 km comprising mainly of interurban expressways which are all tolled. The map below shows the overall expressway network in Malaysia.

Overall Expressway Map of Malaysia
Source: Malaysian Highway Authority

History of Expressways in Malaysia

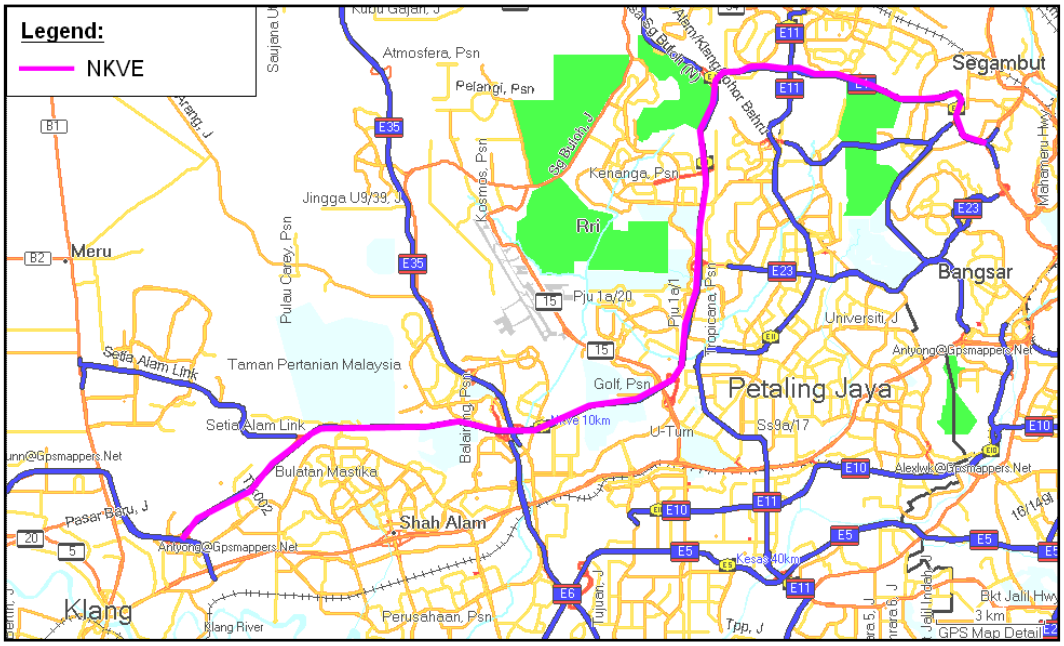
At the time of independence, Malaysia inherited a relatively well-connected set of trunk roads that spanned the peninsula and linked major towns. Rapid development and industrialisation after independence however increased the need for greater accessibility and capacity in the road network. Due to budgetary constraints in the highway network expansion program, the Government introduced privatisation as a national policy in 1982 as a new approach to national development. The private sector was entrusted with the role of the engine of growth in the country's development in line with the liberation of economic activities. Through this, Malaysia achieved a high degree of success in toll highway development that was largely undertaken and financed by the private sector. The financing of toll highways projects was undertaken solely by the private sector where the concessionaires were responsible for obtaining all financing, both debt and equity, necessary to construct, operate and maintain the highways.

Historically, the first road to be tolled in Malaysia was when an upgraded 25km stretch of Federal Route 1 between Tanjung Malim and Slim River began toll collection in 1966. However, the first expressway-standard road in Malaysia was only completed in 1977 when the original Federal Route 2 that linked Kuala Lumpur and Port Klang was upgraded into a limited-access motorway with grade-separated interchanges. The construction of the tolled North-South Expressway (NSE) proceeded quickly thereafter and the first phase was completed when the Kuala Lumpur - Seremban stretch opened for traffic in 1982. The construction of the Penang Bridge started in 1982 and was opened for use in 1985. The remaining parts of the NSE were gradually built in phases until its full completion from Johor Bahru to Bukit Kayu Hitam in 1994.

Increased congestion as a result of high population growth and vehicle ownership rates in and around Kuala Lumpur saw the opening of several more expressways in the Klang Valley region during the 1990's. The New Klang Valley Expressway which was completed in 1990 to relieve traffic on the Federal Highway 2 was among the first of intra-urban expressways to be built in the Klang Valley after Federal Route 2.

The following figures show the location of Federal Route 1 and 2 as well as NKVE.


Pulau Langkawi
Alor Setar
Kota Baharu
Gulf of Thailand
Sungai Petani
Georgetown
Kuala Terengganu
Taiping
Tasik Kenyir
ipoh
Malaysia
Kuantan
Medan
Pahang
Kuala Lumpur
Kep. Anambas
Pematang Siantar
Seremban
Danau Toba
Melaka
Batu Pahat
P. Rupat
Sultan Ismail
Legend:
Federal Route 1
Federal Route 2
P. Bengkalis
Singapore
100 km


Legend:
NKVE
Segambut
Atmosfera, Psn
Pelangi, Psn
Kenanga, Psn
Jingga U9/39, J
Rri
Meru
Bangsar
Pju 1a/20
Universiti, J
Taman Pertanian Malaysia
Petaling Jaya
Golf, Psn
Setia Alam Link
U-Turn
Ss9a/17
Bulatan Mastika
Shah Alam
Klang
Perusahaan, Psn
Klang River
Kesas 40km
Bkt Jalil Hwy
3 km
GPS Map Detail

Expressway Standards and Specifications

Expressways in Malaysia are typically dual carriageways with a minimum of 2 lanes per direction. Design speed is usually 120km/h for intercity routes with speed limits of 110km/h. Speed limits are generally lower in urban areas where speed limits range between 80-90km/h.

According to the guide on geometric designs of roads in Malaysia (Public Works Department, Malaysia), the maximum design speeds will depend on the location of highway and the type of access control where roads standard for highways and expressways are expressed as U5 & U6 (urban) and R5 & R6 (rural).

Both open and closed tolling systems are in operation in Malaysia (where a closed system refers to a road where a motorist obtains a ticket upon entering the toll road, then pays a toll upon exiting the expressway). The North South Expressway uses a closed-toll system.

In contrast, a toll road using an 'open system' consists of mainline toll plazas (or toll barriers) at set intervals where it is possible for motorists to get on an 'open toll road' after one toll barrier and exit before the next one, thus travelling on the toll road toll-free. Most toll expressways in the Klang Valley operate on this principle. Most of the open expressways are located in urban areas like the Klang Valley where space is constrained for plazas and often there are numerous access points to the highway which are hard to control. This is the reason why expressways in Malaysia mostly adopt the open system.

Role of Expressways in Malaysia

Because of the importance of infrastructure for economic development and for alleviating poverty, the Government of Malaysia continues to give high priority to transport infrastructure development. The opening of the North South Expressway reduced inter-city travel times by half while urban areas in the Klang Valley are highly accessible and interconnected by tolled expressways that often provide an alternative to congested arterials in the city.

The level of new expressways expected to be implemented has reduced from a peak in the 1990's however in the pipeline there are several proposed expressways including the East Coast Expressway (ECE) and West Coast Expressway (WCE). The ECE which links Kuantan to Kota Bharu is currently under construction while a southern extension from Kuantan to Johor Bahru is planned.

The WCE is proposed to run parallel to the existing NSE along the western coast of Penisular Malaysia linking towns and villages not directly served by the NSE currently. The WCE also intends to mitigate the increasing levels of traffic congestion experienced by NSE particularly during peak travel periods of festivals and national holidays.

Toll Road Delivery Model

To date, toll highways in Malaysia have generally been implemented under the same basic model – a Build-Operate-Transfer (BOT) in which the private sector carries responsibility for:

- Detailed Design
- Construction
- Maintenance and Operations (including toll collection)

In all cases concessionaires carry traffic and revenue risk – though in some early concessions risk guarantees were provided and later concessions provide for revenue sharing with Government.

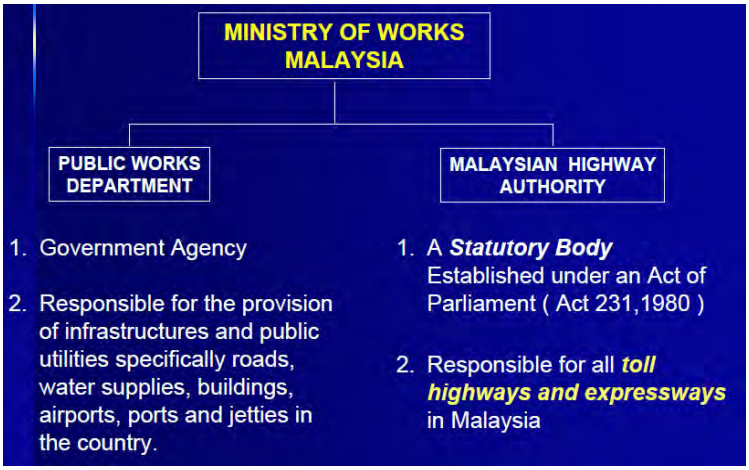
Government support typically comes in the form of taking land costs and loans available to the concessionaire.

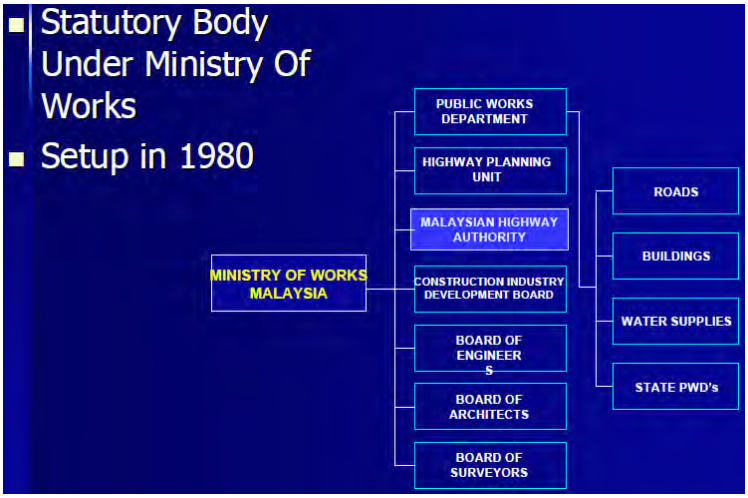
The delivery model is considered in further detail in the sections below.

Legal Foundation

Malaysia has created an institutional and legal framework supportive of toll road PPPs. The primary law for toll road PPPs is the Federal Roads (Private Management) Act of 1984 which permits private companies to collect and retain tolls on federal roads. This law is administered by the Prime Minister's Economic Planning Unit (EPU) and its Privatisation Committee.

There is no BOT Law providing for the legislative basis for the system and the above act provides much latitude to the EPU in its implementation. The Malaysian Highway Authority (MHA/LLM) was set up to be the monitoring and regulatory body of all toll roads in Malaysia.

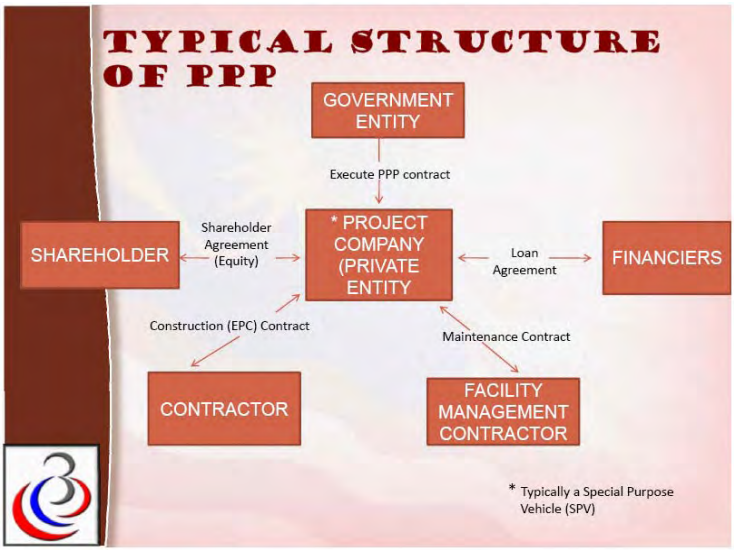




Source: Malaysian Highway Authority

Typical PPP/BOT Framework

The figure below shows the typical delivery model for toll road projects in Malaysia.



Source: Ministry of Finance, Malaysia

PPP Contract

A "PPP" contract or concession agreement is executed between government and the private sector. A typical form of contract between government and the concession company is subject to the provisions of the Federal Roads (Private Management) Act 1984**.** Under a BOT concession agreement the concession company is typically given the exclusive right and authority to:

- Design and construct the expressway/facility
- Supply and install tolling and other equipment at the expressways toll plazas and manage, operate and maintain the same;
- Demand, collect and retain toll for its own benefit from vehicles using the expressway during the concession period;
- Subject to all prevailing laws in respect thereof, design, construct, manage, operate and maintain the ancillary facilities during the concession period and to retain the ancillary income for its own benefit;
- Manage, operate and maintain the expressway; and
- Design, construct, manage, operate and maintain an administrative office

There has been discussion in Malaysia on the merits of introducing more sophisticated concession models relating to the mode of payment in particular - such as alternative PFI models which relate payments to "asset availability" or other service KPIs (Key Performance Indicators). KPI is a reference being used in some countries (notably UK) where concessionaires are rewarded based on performance rather than tolls revenue. Asset availability KPIs may refer to keeping lanes open for traffic in key periods (i.e. management of maintenance, operation of toll plazas, response to accidents). To date however the basic BOT form of contract remains in which collected toll and other ancillary revenues for the concessionaire income. Generally it is anticipated that such revenue will cover the

majority if not all of costs – however there are forms of government support available. This is discussed further under the concession agreement review below.

Typically the private sector project party is a Special Purpose Vehicle (SPV) set up specifically for the project.

Construction (EPC) Contract

Under the construction contract the SPV transfers obligations relating to the construction phase to a main Engineering, Procurement & Commissioning (EPC) contractor (usually linked to the SPV). There would typically be a number of further construction subcontractors falling under the main EPC contractor.

Maintenance Contract

Again under a facilities management contract construction contract the SPV transfers service obligations to a facilities management contractor which typically includes cleaning and other scheduled maintenance services. The contract may include service KPIs with potential penalties for failure to meet required performance levels.

Shareholder Agreement

Typically the SPV is a small project company set up for the specific concession. Generally one of the major Malaysian contractors (in particular Gamuda, UEM, IJM or MTD) is a major shareholder of the toll road SPV and is the source of the majority of project equity.

Loan Agreement

Project financing is generally sourced locally from one of the major national banks. Banks will typically carry out due diligence of the project before entering into loan deals. In the past the level of due diligence has probably not been consistent with the level of risk associated with the project – and in particular traffic risk has been inadequately appraised. Awareness of such risks is now more developed however – particularly after the experience of the majority of toll roads failing to meet traffic forecasts.

Almost all loan agreements are effectively guaranteed by the government as if the toll concessionaire defaults on loans from the private sector, the government will assume the liabilities. The project sponsors also need to satisfy the government in terms of background and track record, financial strength and commitment. The commitment could come in the form of:

- Undertaking to subscribe loan stocks issued by the project

- Undertaking to cover any shortfall to fulfil profit payments due within the delayed period

Currently, 24 toll road projects are in operation under such a PPP delivery framework. These are identified in the next table.

Typical PPP/BOT Award Process

The majority of concessions awarded have been through direct approach from the private sector proponent to government with the contract awarded on a direct negotiated basis. Although most projects are generally awarded via unsolicited approach, there is a move by the government towards open tendering for major contracts. To date however, Halcrow consultants are not aware of the "Swiss

Challenge" being practiced. However this form of approach is apparently being considered for a current major metro proposal in the Klang Valley according to recent media reports.

To date a number of LOI or concessions have been signed but projects have not been implemented due to funding issues. The raising of project financing has generally been the key issue behind project implementation.

The typical PPP/BOT award process may be similar to below:

- The project is developed to a pre-feasibility level by private groups, who present their proposal and request a letter of exclusivity from EPU to develop the project further. EPU reviews the project concept and if the project is approved, a letter of exclusivity is issued

- The project is then typically developed to full feasibility stage with an accompanying Privatisation Proposal which is submitted to EPU for formal review which also involves the other appropriate agencies including HPU and MHA. Once the concession is awarded, the winner will negotiate a contract with both technical and financial subcommittees of the EPU's Privatization Committee. After the agreement is signed, the MHA monitors construction, operations, and maintenance for the government.

There are very limited examples of open bidding for concessions. One example however is the Shah Alam Expressway project (1991) – since the concept was developed by JBIC and therefore subject to considerable preparation and development criteria.

There is a considerable discussion in Malaysia on the merits and needs for transparent tender processes to ensure value for money however to date the concessions continue to be awarded directly. As such there is no need for Government to actively campaign or develop publicity programmes to attract private sector investment. To date, all toll road concessions have been awarded to Malaysian companies and despite the large number of concessions (24 currently in operation) these can all be traced to the handful of major construction companies active in this sector.

The typical duration of a PPP/BOT project which depends on process and timing may be 3 months for submission of proposal and award of Letter of Intent (LOI) and 6 months for a feasibility/privatisation study and contract.

No.	Expressway (Lebuhraya)	Date CA (SA)	Concessionaire	Model	Gov Support
1	Penang Bridge	30 September 1993 (SA: 30.08.07)	Penang Bridge Sdn Bhd (PBSB)	*OT (Operate-Transfer)*	Available Loan
2	Shah Alam Expressway	19 November 1993 (SA: 14.04.95, 24.06.02)	KESAS Sdn Bhd (KESAS)	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan
3	Lebuhraya Damansara-Puchong (LDP)	23.04.96 (20.08.99)	Lingkaran Trans Kota Sdn Bhd (LITRAK)	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan
4	Ampang Elevated Highway	16.05.96	Projek Lintasan Kota Sdn Bhd (PLK)	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan
5	Lebuhraya SKIM Penyurian Trafik KL - Barat	23.10.97 (04.09.98, 30.07.99, 21.11.00, 27.12.01)	Sistem Penyuraian Trafik Kuala Lumpur Barat Sdn Bhd (SPRINT)	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan
6	Lebuhraya Cheras-Kajang	19.09.95 (03.12.99, 13.12.02)	Grand Saga Sdn Bhd (GRAND SAGA)	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan
7	Lebuhraya Sungai Besi	09.05.96 (SA: 30.09.99, 18.08.04)	Besraya (M) Sdn Bhd (BESRAYA)	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan
8	New Pantai Expressway (NPE)	26.03.96 (SA: 07.10.03, 29.04.04)	New Pantai Expressway Sdn Bhd	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan
9	Butterworth Outer Ring Road (BORR)	28.04.97	Lingkaran Luar Butterworth Sdn Bhd	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan
10	Shah Alam – Kuang or Guthrie Corridor (GUTHRIE)	18.07.2000	Guthrie Corridor Expressway Sdn Bhd (GUTHRIE) Lebuhraya ini telah diambil alih oleh Prolintas Expressway Sdn Bhd (PROLINTAS) pada 27.07.2007	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan
11	Lebuhraya Pintas Selat Klang Utara (NKSB)	28.12.84 (01.08.95)	Shapadu Properties Sdn Bhd (SHAPADU)	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan
12	Lebuhraya Pintas Selat Klang Utara Baru (NNKSB)	01.08.95 (07.05.99)	Shapadu Properties Sdn Bhd (SHAPADU)	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan
13	SMART Tunnel	02.06.04	Syarikat Mengurus Air Banjir & Terowong Sdn Bhd (SMART)	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan
14	Penswastan Jalan Dan Jejambat Sekitar Kuala Lumpur	13.02.92 (18.07.95)	Metramac Corporation Sdn Bhd (METRAMAC)	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan

15	Lebuhraya Kuala Lumpur - Kerak	28.07.94 (01.10.98, 12.12.03)	MTD Prime Sdn Bhd (MTD)	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan
16	Lebuhraya Pantai Timur (East Coast Expressway)	09.09.98	Projek Lebuhraya Timur Sdn Bhd	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan
17	Lebuhraya Penyurian Traffic Lingkaran Kajang (Kajang Ring Road	23.10.97 (01.08.01	Sistem Lingkaran Lebuhraya Kajang Sdn Bhd (SILK)	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan
18	Lebuhraya Utara Selatan (North South Expressway)	18.03.88 (08.07.99, 11.05.02, 22.04.05)	CA: United Engineers (M) Sdn Bhd (UEM) SA: Lebuhraya Utara Selatan Bhd (PLUS)	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan
19	Laluan Kedua Malaysia-Singapore, (Malaysia-Singapore Second Crossing)	27.07.93 (12.09.94, 30.05.00)	CA: United Engineers (M) Sdn Bhd (UEM) SA: Linkedua (M) Bhd (LINKEDUA)	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan
20	Lebuhraya Butterworth-Kulim	28.06.94 (04.07.07)	Konsortium Lebuhraya Butterworth-Kulim Sdn Bhd (KLBK)	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan
21	Lebuhraya Seremban-Port Dickson (SPDH)	09.08.93 (07.11.95)	CA: Melewar Consortium Sdn Bhd SA: Seremban-Port Dickson Highway Sdn Bhd	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan
22	Lebuhraya Utara-Selatan Hubungan Tengah (North South Expressway, Central Link, NSECL)	26.04.94 (09.01.97, 23.03.01, 10.01.03)	CA: United Engineers (M) Sdn Bhd (UEM) SA: Expressway Lingkaran Tengah Sdn Bhd (ELITE)	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan
23	Lebuhraya Duta- Ulu Kelang (DUKE)	12.08.04	Konsortium Lebuhraya Utara-Timur (KL) Sdn Bhd	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan
24	Dedicated Highway		Maju Holdings Sdn Bhd (MAJU)	*BOT (Build-Operate-Transfer)*	Land Costs Available Loan

Key Stakeholders

Public Sector

Several government agencies and ministries form the main public sector stakeholders in the development of public-private partnerships for the development of toll expressways in Malaysia. The key public sector stakeholders include:

1. Economic Planning Unit (EPU) – Prime Minister's Office
2. Highway Planning Unit (HPU) – Ministry of Works
3. Malaysian Highway Authority (MHA)) – Ministry of Works
4. State Governments/ Local Authorities

The key role of the EPU is to formulate national policies and strategies for socio-economic development plans in the medium to long term planning as well as the budgeting, monitoring and evaluation of the planning achievements. The EPU also functions as an economic advisory to the government while initiating and undertaking necessary economic research. EPU usually plays a key role in the project planning and approvals stage.

A new unit within EPU namely 3PU, was created on 22nd April 2009 under the management of the Director General. The unit was created due to a perceived increasing need for closer public-private relationship in developing the economy.

3PU consists of 7 divisions: Corporate Services, PFI, Privatisation, Energy, Corridor Development, Legal Advisory and Project, Monitoring and Communication. The unit is expected to act as a central agency for planning and processing privatisation and PPP programs in Malaysia and its main functions are:

a) Act as Secretariat to PFI/PPP Committee.

b) Negotiate the terms and conditions of privatisation and PPP arrangements.

c) Supervise PPP Facilitation Fund.

d) Act as a Secretariat for the Government's Projects to be implemented at the 5 Corridors of Development i.e. ECER, IM, SCORE, SDC, and NCER.

e) Monitor the implementation of projects under PPP, Facilitation Fund and Corridor Development in Malaysia.

The Highway Planning Unit is responsible for all the planning and coordination of matters relating to the development, research and policies of road transport in Malaysia. The HPU is also involved in detailed technical appraisal of traffic demand, capacity, environmental and social assessment of the existing and future national roads/ expressway network including traffic estimation for privatised projects.

Expressways in Malaysia (roads that fall under JKR standards R6 and U6) are administered by the Malaysian Highway Authority which functions as an implementing and coordinating government agency under the Ministry of Works. Its key roles include supervising and implementing the design, construction and maintenance of highways (and highway facilities) identified for implementation by the government.

State governments and local authorities are responsible for formulating state development strategies and coordinating the preparation of state development program and projects.

Private Sector

Despite the large number of concessions the toll expressway market in Malaysia is dominated by a relatively small number of major players. These are identified below with their key concessions:

(a) UEM Group Berhad
  (i) Plus Expressway Bhd.
    - North South Expressway
    - NKVE
    - Seremban - Port Dickson Highway
  (ii) Penang Bridge Sdn. Bhd.
    - Penang Bridge
  (iii) Linkedua (M) Sdn. Bhd..
    - Malaysia-Singapore Second Crossing Expressway
  (iv) Kulim Sdn Bhd
    - Butterworth-Kulim Expressway
  (v) Expressways concessions in Indonesia and India

(b) MTD Group Berhad
  (i) MTD Prime Sdn Bhd
    - Kuala Lumpur – Karak Highway
    - East Coast Expressway
  (ii) Expressways concessions in the Philippines, China and Indonesia

(c) GAMUDA Berhad
  (i) Sistem Penyuraian Trafik KL Barat Sdn. Bhd. (SPRINT)
    - SPRINT Highway
  (ii) Konsortium Expressway Shah Alam Selangor Sdn. Bhd.
    - Shah Alam Expressway
  (iii) Lingkaran Transkota Holdings Bhd. (LITRAK)
    - Damansara Puchong Expressway
  (iv) Syarikat Mengurus Air Banjir & Terowong Sdn. Bhd.
    - SMART Tunnel Expressway

(d) IJM Corporation Berhad
  (i) New Pantai Expressway Sdn. Bhd.
    - New Pantai Expressway
  (ii) Besraya (M) Sdn. Bhd.
    - Sungai Besi Highway
  (iii) Lebuhraya Kajang - Seremban Sdn. Bhd.
    - Kajang – Seremban Highway
  (iv) Expressways concessions in India and Argentina

Concession Agreement Review

The basic structure of the toll road concession agreement in Malaysia has not significantly changed over time. What has developed is the level of detail and sophistication of various clauses of the agreement as experience has been gained. The initial concession agreements were very simple. For instance the first concession agreement signed with Shapadu Properties in 1984 was only around 16 pages long including appendices. The more recent SMART concession (2004) was well over 100 pages long. Still, the Malaysian form of concession agreement remains relatively simple, certainly in comparison to the western (European) form of concession agreements.

The spirit of the Malaysian concession agreement and approach to BOT has always been heavily reliant on partnership and trust between the parties – a spirit close to that of the European PPP model, if less formalised. A lack of attention to detail and due diligence has led to questionable value for money on some projects in Malaysia, however, as a whole the programme has led to impressive delivery of a high quality expressway network which has certainly benefited the Malaysian economy and an extremely capable construction industry which is now active around the region.

The key elements are discussed below:

(a) Concession Period

There is variation in the concession period of the toll road concessions in Malaysia though the typical period is 30-33 years.

Examples of shorter concession periods include:

- Penang Bridge (24 years and 8 months): shorter concession since it was for an existing asset
- North South Expressway Central Link (24 years and 1 month): shorter duration believed to be to consistent to concession end date for associated North-South Expressway already awarded.

An example of a longer concession periods is the SMART Tunnel concession signed in 2004 which has a 40 years period mainly due to the high capital costs of this project (a tunnel into the city centre from the south which operates as a storm water relief tunnel as well as a tolled expressway).

Each concession agreement identifies potential scenarios in which the concession agreements may be extended – such as delays to construction caused by government action or changes or additions to the capital work requirements or delays in land being made available. A few concessions have been extended. Most notably, the concession for the North South Expressway has been extended for 20 years (to a total of 50 years) to 2038 mainly as a result of additional capital works requirements (road widening and new interchanges).

(b) Land Acquisition

Typically the main risks and costs associated with land have been allocated to the government. The government usually grants exclusive right and license for the concessionaire to enter and occupy all land required in relation to the concession and is made available to the concession period free of charge. In addition, the government is obliged to make available the land typically not later than 3 months prior to the scheduled date of commencement of the construction works.

In more recent concession agreements there has been some additional consideration of land costs – and the government is encouraging any new unsolicitated proposals. In the SMART tunnel concession agreement the land costs are financed through the private sector but then paid back by government.

Other factors relating to land development:

- no clauses relating to risk allocation in case of contaminated land or presence of material that requires expensive excavation
- concessionaires are compensated for late release of land

- Land Act allows for two-stage approach to land acquisition, Stage 1 to enable surveyors to enter land, Stage 2 to complete the acquisition of parcels

- Current clauses require concessionaire to carry out public consultation through survey consultants, but method of selection of respondents is unknown

- Land is guaranteed free of squatters' rights although in some cases the government has required concessionaire to construct low cost units for squatters on land provided through government concessions. Historically land acquisition has not been "easy" in Malaysia and has been the cause of some project delays – though perhaps not as major an issue as in some other countries.

(c) Design

The concessionaire is responsible for the design stage of the project and is obliged to produce a detailed design which meets an outline design or at least project specification prepared by the public sector. Typically the concession company will first submit a design brief to MHA for approval (expected within up to 4 weeks). The detailed design is then undertaken by a Malaysian qualified consulting engineering firm at the cost of the concessionaire. This detailed design is also subject to approval by MHA (typically within 6 weeks).

One concern of MHA in the past has been a lack of manpower to adequately perform this function. Detailed design is overseen by project engineers paid by the concessionaire, whilst MHA does not have the staff numbers to carry out checks and has in the past been concerned that as a result of design flaws they may be storing up trouble. These flaws could result in:

- Congestion
- Accidents
- Maintenance problems

Indeed, although the level of engineering is generally good in Malaysia there are many examples in Malaysia of seemingly poorly planned or designed expressways leading, perhaps to unnecessary problems as above.

(d) Construction Management and Monitoring

Generally, the concessionaire is obliged to appoint and pay for one or more Malaysian consulting engineering firm to supervise the construction works to ensure these works are being carried out in accordance with the approved design and relevant statutory requirements. Part of the scope of work between the concessionaire and the consulting engineers is to meet all requirements of MHA and payment is tied on progress milestone of the project which MHA approve.

The concessionaire is required to report monthly on progress to MHA and again through authority that is able to inspect works. Historically again the ability of the authority to perform this function has been limited due to resource issues. MHA has not generally appoint independent supervisors but this has not been done and is not provided for in the concessions.

(e) Operation and Maintenance

The concessionaire is generally obliged to carry out all routine and heavy maintenance. After the very first concessions, the concessionaire is generally obliged to produce a maintenance manual for approval of MHA which specifies the planned maintenance and required standards for road

condition and so on. Where the government believes performance standards are not being met a notice will be issued to the concessionaire who must respond within 4 weeks. Typically the concessionaire will have to raise a maintenance bond.

(f) Tolling

As discussed all of the concessions involve the concessionaire collecting tolls as the main source of revenue. In the first concession (Shapadu) there was only two tollable toll classes, basically cars and trucks. Buses were not tolled nor motorcycles.

Since then the tolling classes have been fairly consistent and consist of:

Class 0 – Motorcycles
Class 1 – Private Car and Light Goods Vehicles (two axles and 3-4 wheels excluding taxis and buses)
Class 2 – Medium Goods Vehicles (2-axles and 6-wheels but excluding bus)
Class 3 – Heavy Goods Vehicles (3+ axles)
Class 4 – Taxis
Class 5 – Buses

Generally each concession has a fixed, "gazetted" toll rate for the concession period. These toll rates are given in nominal values so in effect the concessionaire takes inflation risk for the value of the toll through the concessionaire. Toll rates and increment periods have varied by concession and government has attempted to standardise the rates – with several concessions having supplementary agreements due to renegotiated toll rates.

The North-South Expressway is generally viewed as the benchmark for toll rate setting though there is considerable variation between concessions. Current toll (2010) for Class 1 vehicles is RM0.1396/km which is relatively affordable by international standards.

The relative toll rate between classes does vary between concessions as does the actual toll rate. Currently on the North South Expressway Typically the ratio of toll rate between the classes (referred to as toll-pcu) is as follows:

Class 0 – (which is generally untolled, except on the bridges such as Penang Bridge and Linkedua)
Class 1 – 1.0
Class 2 – 1.5
Class 3 – 2.0
Class 4 – 0.5
Class 5 – 0.75

Toll rates on the North South Expressway are now contracted to increase by 10% every 3 years. In reality the government sets the toll rate in Malaysia. Frequently even the opening year toll has not been set at the concession rate. Often there is a "free" trial period for a new expressway where no toll is applied while the government reviews and sets a "fair toll". Potential toll increases are also highly political and generally the toll roads operate well below their concession rates and with fewer toll increments occurring than was initially contracted.

The concessionaire themselves however are protected through "toll compensation" clauses. Under the toll compensation clauses the concessionaires are basically compensated directly for the loss in revenue due to being unable to implement the contracted toll rate. The calculation for the toll compensation is broadly consistent between concessions. The ELITE concession for example states:

*Compensation Amount = Sum (TV * AT * (1 + G)) – TA*

Where:

Sum = summation for all vehicle classes
G is the traffic growth rate for the particular class of vehicle for the preceding concession year
TV is the traffic volume for that particular class of vehicle in the preceding concession year
AT is the agreed toll rate for that concession year
TA is the aggregate tolls collected by the concession company for that concession year.

In fact the toll compensation formula if anything benefits the concessionaire since it assumes the preceding years' growth will be achieved – in reality the toll increase would likely have a negative impact on traffic growth.

The payment of toll compensation to many of the concessions is again a highly political issue and has led to many questions regarding the value of money the public are receiving. There have even been calls for the takeover of the toll road concessions by government from some quarters.

Recent concessions (such as SMART) have attempted more formalised procedure for the review of toll rate increments through review of traffic performance against forecast. However to date the setting of toll rates remains a political decision and generally varies from the concession principle.

Recent concessions have included revenue sharing clauses. Revenue sharing was introduced for instance in the first PLUS supplementary concession agreement. The basis for the revenue sharing is simple. Where toll revenue is above the agreed base projection the excess revenue will be shared based on defined split. These splits do vary by concession. For instance, the government entitlement of excess revenue (revenue beyond the concession agreement threshold value) for the PLUS concession is as follows:

1999-2008: 20%
2009-2020: 25%
2021-2030: 30%

In reality however, revenue sharing has not generally been activated since most forecasts for Malaysian toll roads have not been achieved. One notable exception is the Penang Bridge concession which paid revenue sharing payments to government on an annual basis.

(g) Government Support

There are various mechanisms for government support on toll roads concessions in Malaysia.

- As discussed generally land costs are generally fully borne by government;

- In some concessions support loans have been made available – for instance the PLUS concession contained a support loan of RM1,650m and an additional support loan of RM212m was provided under the first supplemental concession agreement. The loan was provided at 8% interest.

- The PLUS concession also contained two further "supplementary" loans (also at 8%) which were to be available for the concessionaire under certain future scenarios as discussed in the PLUS case study:

    - Traffic Volume Supplement; and
    - External Risk Supplement

- The PLUS concession also included the handover of a number of existing roads for tolling by the concessionaire. Such support allowed for revenue to be collected from an early stage of the concession. Details of this are again included in the PLUS case study.

- Rights to land development have also been featured in concession negotiations. The Penang Outer Ring Road concession (which has not been delivered) included potential rights for land development to improve scheme viability

- Compensation in the event toll rates revision does not materialise or below the projected toll rates and sharing of excess toll revenue

- Support Traffic Volume (STV) – is minimum traffic growth guaranteed by the Government. If the actual traffic volume falls below STV, the concessionaire will be compensated; in return, the concessionaire will share an agreed percentage of the excess if the actual traffic volume exceeded an agreed growth rate (the first threshold toll income)

- Grace period - The normal repayment period is 25-30 years and it only starts after meeting the condition precedent like all land acquisition completed, all construction completed, all equipment installed etc

In addition the recently established Public-Private Partnership Unit 3PU body within the Prime Minister Department, the PFI FACILITATION FUND has been established which is introduced during the recent Economic Stimulus Package II. The fund is aimed at supporting "almost viable" projects. The identified potential modes of assistance from the fund to date include:

- Support through provision of Assets (e.g. mortgage of land for commercial development along corridor)

- Off-take agreement - An agreement between a producer of a resource and a buyer of a resource to purchase/sell portions of the producer's future production. An off-take agreement is normally negotiated prior to the construction of a facility such as traffic projection in order to secure a market for the future output of the facility. If lenders can see the company will have a purchaser of its production, it makes it easier to obtain financing to construct a facility

- Support in the development of infrastructure (e.g. provision of access roads to major ports and/or airports)

(h) Disputes

Despite the number of concessions in place the number of disputes has been minor. As envisaged, differences have generally been resolved through negotiation and compromise, the Ministry for Works being the first point of call in any disputes. Some "changes" have successfully been negotiated; for instance, a standard automatic tolling mechanism has been installed on all concession roads ("Touch 'N' Go") at the concessionaires' cost but in other cases e.g. enhancement of concession infrastructure with the likelihood of enhanced revenues to the concessionaire, MHA has been unable to enforce further development at the concessionaire's cost. In such cases generally Government has either paid directly for enhancements or awarded partial payment and extension of concession.

(i) Handover

There are clauses in the concession relating to handover which indicate that in general agreement shall be reached on the extent of defects and their repair. There is however no clause that specifies the residual life in any concession asset that shall exist at handover and the method by which this shall be determined.

To some extent handover requirements have a reduced priority because of the readiness of the government to extend the life of concessions. At present the earliest concessions have had significant extensions.

(j) Funding

Funding is arranged by the private sector project sponsor and typically has consisted of a debt: equity ratio of 4:1. All debt tends to be domestic. The banks, in practice, take limited risk since the government guarantees the loans through the concession agreements. Thus in reality it is the government that takes the majority of the risk and historically therefore there has been limited emphasis on due-diligence work before banks and project sponsors decide to invest.

This has changed in recent years however and with several concessions running into financial difficulties, and some failing, the pressure to carry out more robust due diligence has clearly increased (though not been further formalised).

Key Success Factor

By far the most significant project risk (and hence success factor) to date for Malaysian toll road concessions has been the level of traffic and revenue on the highway – opening year and then growth rate thereafter.

Most concessions are led by contractors who have good understanding of construction costs and risks. Operation and maintenance costs are also fairly predictable and can be to a degree controlled. Traffic and revenue is both highly uncertain and also almost entirely outside of the control of the concessionaire.

As such the main shortcoming of the Malaysian toll road model is that the key commercial success factor of the project is outside of the control of the concessionaire. Mechanisms have been explored by the Malaysian Highway Authority which would introduce penalty/bonus payments based on actual performance of the concessionaire against KPIs such as level of maintenance, lane availability or accident response however to date such mechanisms have not been fully implemented.

As such it remains that the success or failure of toll road concessions (certainly there is commercial success) has basically been determined by the performance of the toll road against its forecast revenue projections. In several early contracts insufficient due diligence was placed on these traffic and revenue forecasts.

Generally revenue forecasts have not been achieved (with a few notable exceptions). At a general level the two most prominent reasons for traffic and revenue falling short are identified as follows:

- Land Development. Probably the most common reason for traffic projections not being attained in Malaysia relates to the level of land development assumed. Typically, the project is assumed to "spur" significant development along a study corridor. Often both the scale of the development and the rate of development (and even more critically the occupation of the developments) have been greatly overestimated.

- Toll Road Attractiveness. Scheme proponents have often overestimated the attractiveness of the proposed project. Many of the toll roads in operation are within the Klang Valley urban conurbation where there is significant route choice and; users have proved to be less willing to pay assumed toll levels and anticipated diversion rates have not been achieved.

This has led to frequent "debt restructuring" exercises carried out by concessionaires including traffic and revenue reforecasting.

To date, however, only two concessions can be considered to have financially "failed" – Seremban-Port Dickson Expressway and Butterworth-Kulim Expressway. These are both considered in the succeeding section.

Case Study 1 – Penang Bridge
Project Name: Penang Bridge
Project Cost: RM1 billion
Type of PPP Scheme: OT (Operate-Transfer)
Concession Period: 25 years

(a) Background

The Penang Bridge is currently the only land transport linking the Penang Island to the mainland of the Peninsular. It is a tolled, 13.5 km long bridge (shore to shore distance being 8.5km). The bridge was opened in 1985, prior to which travellers relied on the ferry service which remains until today.

The bridge was built, tolled and operated by the government from 1985 to 1993 until a concession was awarded to a private enterprise, Mekar Idaman Sdn Bhd (novated to Penang Bridge Sdn Bhd) for a payment to government of RM550,000,000.

The 25-year concession involves the operation and maintenance and financing of this dual-2 25 years old bridge, no longer capable of accommodating the present volume of traffic of more than 120,000 vehicles per day. The bridge has undergone extra lane widening to dual-3 in 2009 at concession's expense and as a result the concession period was extended to December 2021, effectively an extension of 3 years and 7 months.

Concessionaire	:	Penang Bridge Sdn. Bhd.
Total Length	:	13.5 km
Construction Period	:	1982-1987
Official Opening Date	:	30 September 1987
No. of Toll Plazas	:	1
No. of Interchanges	:	2

(b) Type of Government Subsidy

- Land – Government grants to the concession company an exclusive licence to enter upon and to occupy the land comprised in the concession areas. The concession company is only required to payment and taxes in respect of its occupation of toll plazas and other buildings and structures erected by the concession company and located within the concession area. However these lands are not confer upon the concession company for any proprietary right, title or interest in or over any part of land within the concession area.

- Upfront subsidy for construction – the difference between Project Cost and Concession Consideration.

- Loan facility provision to the concession company of an amount of RM183 million for the purpose of carrying out the lane widening work.

- Compensation for toll hike impedance- should agreed toll increment as stipulated in concession agreement is not achieved due to the objection from the government (ie Actual Toll>Agreed Toll), the government shall compensate concession company for any reduction in toll received in accordance to the following formulae:

(i) (ATR-VTR) x ATV; and

(ii) (ATR-VTR) x FTV

Where,
ATR = Agreed Toll
VTR = Actual Toll
ATV = Actual volume of toll-paying traffic for each class of vehicle using the Bridge (vehicles)
FTV = Forecast volume of toll-paying traffic (vehicles)

(c) Sharing of Toll Revenue

Government is entitled to 50% of the amount by which Actual Gross Toll Revenue for any concession year exceeds the Threshold Toll Amount for that concession year. Threshold is the amount equal to 10% above the Specified (forecasted) Gross Toll Revenue. Traffic on Penang Bridge has consistently outperformed the original concession forecasts resulting in annual revenue sharing payments to Government.

Estimated project FIRR (F/S stage estimate)

PROJECTED CASHFLOW STATEMENT

1993 - 2018

in RM mil

DESCRIPTION	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
TOLL COLLECTION	56.16	59.46	62.39	65.11	71.84	75.70	79.84	84.10	88.65	99.37	104.60	110.22	116.00	120.46	124.06
OPERATING MAINTENANCE COST	8.59	9.13	9.68	10.26	10.74	11.41	12.11	12.86	13.66	14.33	15.22	16.17	39.64	19.96	20.90
DIVIDEND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TAXATION	0.00	0.00	0.00	0.00	7.33	9.64	10.76	11.96	13.19	14.50	18.02	19.54	21.17	2.17	18.63
CASH INFLOW(OUTFLOW) FROM OPERATIONS	47.6	50.3	52.7	54.9	53.8	54.7	57.0	59.3	61.8	70.5	71.4	74.5	55.2	98.3	84.5
BRIDGE COST CAPITAL EXPENDITURE	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	228.7	0.0	0.0
NET CASH INFLOW (OUTFLOW)	38.3	50.3	52.7	54.9	53.8	54.7	57.0	59.3	61.8	70.5	71.4	74.5	(173.50)	98.3	84.5
OPENING CASH BALANCE (Cash balance at the start of the year)	0.0	36.3	88.6	141.4	196.2	250.0	304.6	361.6	420.7	482.7	553.2	624.1	699.1	525.6	623.9
CLOSING CASH BALANCE	36.3	88.6	141.4	196.2	250.0	304.6	361.6	420.9	482.7	553.2	624.6	699.1	525.6	623.9	708.5

DESCRIPTION	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
TOLL COLLECTION OPERATING MAINTENANCE COST DIVIDEND TAXATION	128.75 22.12 0.00 31.11	133.72 23.42 0.00 32.52	138.73 55.31 0.00 33.80	144.06 26.26 0.00 24.39	156.54 27.49 0.00 36.42	162.42 29.11 0.00 40.36	166.51 30.75 0.00 41.86	172.64 117.22 0.00 42.71	179.16 34.49 0.00 14.59	192.77 36.09 0.00 45.83	199.90 38.22 0.00 50.04
CASH INFLOW(OUTFLOW) FROM OPERATIONS	75.5	77.8	49.6	93..40	92.6	93.0	93.9	12.7	130.1	110.9	111.6
BRIDGE COST CAPITAL EXPENDITURE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NET CASH INFLOW (OUTFLOW)	75.5	77.8	49.6	93.4	92.6	93.0	93.9	12.7	130.1	110.9	116.6
OPENING CASH BALANCE	708.5	784.0	861.8	911.4	1004.8	1097.4	1190.3	1284.2	1296.9	1427.0	1537.9
CLOSING CASH BALANCE	784.0	861.8	911.4	1004.8	1097.4	1190.3	1284.2	1296.9	1427.0	1537.9	1654.5

Actual Traffic Volume against Traffic Forecast for the first 6 years upon opening:

	Annual Traffic (million vehicles)		
Year	Forecast	Actual	Attainment (%)
1993	8.87	9.21	104%
1994	9.41	10.98	117%
1995	9.89	13.07	132%
1996	10.33	14.73	143%
1997	10.22	16.31	160%
1998	10.78	16.08	149%
1999	11.37	16.77	147%
2000	11.98	18.41	154%
2001	12.63	19.34	153%

Actual traffic volume is 50-55% surplus forecasted traffic.

(d) Key success factors (Concessionaire):

- The bridge had already been built by the government – the only real risk for the project was on traffic and revenue;
- The bridge had already been open for eight years – hence "opening" year revenue carried far less risk than a new-build project.
- The traffic and revenue forecasts relied upon within the financing model appeared to have been conservative. Actual traffic was ahead of forecast even in the first year. This gap grew year on year.
- Strong monitoring of operational performance and traffic management measures to try to ensure reasonable flow of traffic on the bridge;
- Annual traffic and revenue updates to ensure revenue risks are assessed and managed;
- Limited competition – only the Penang Ferry which has low capacity and longer journey time.

(e) Key success factors (Government):

Revenue sharing mechanism ensured that government received part of the "excess profits" resulting from the higher traffic levels than were assumed in the concession agreement and funding model.

Case Study 2: North South Expressway (PLUS)
Total project cost: RM6,482m
Construction cost: RM5,945 million
Land cost: RM537 million (Government)
Type of PPP Scheme: BOT (Build-Operate-Transfer)
Concession Period: Initially 30 years May 1988- May 2018. Currently extended to 50 years (to 2038)

(a) Background

In 1988 a concession agreement was signed between the Malaysian Government and United Engineers (Malaysia) Berhad. This was later novated (with the approval of the Malaysian Government) to Projek Lebuhraya Utara-Selatan (PLUS) covering a 30-year period.

The PLUS Expressway comprises:

(i) North-South Expressway (NSE) 772km;
(ii) New Klang Valley Expressway (NKVE) 35km;
(iii) Federal Highway Route 2 between Subang and Klang 16km;
(iv) Johor Causeway 1km; and

The project forms the spine of the country's road network and had a fundamental impact on the economy and fabric of Malaysia. It connects all of the major west coast conurbations from the border with Singapore to the south to Thailand in the north.

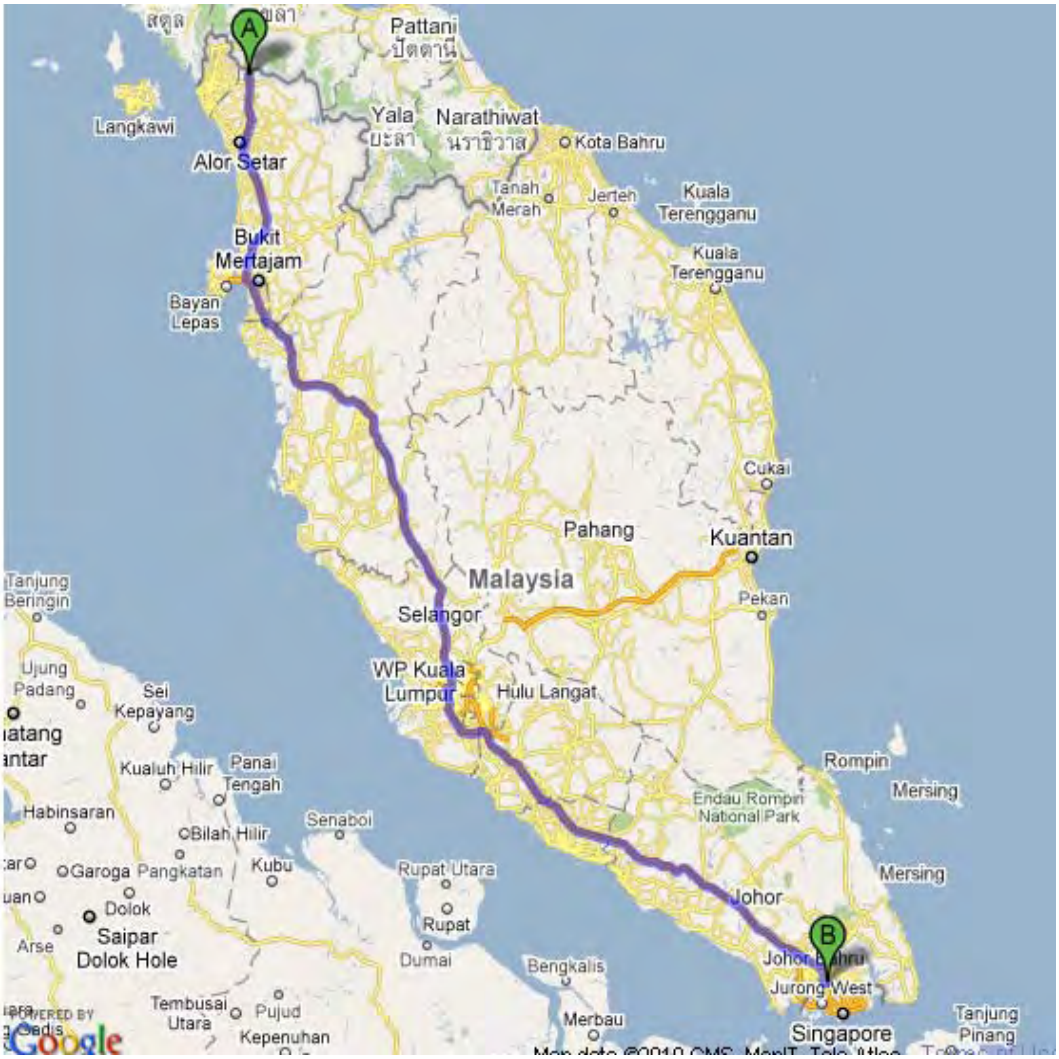
In addition to construction of 462km of the NSE and the NKVE several existing road sections were taken over by the concession company as part of the concession including:

(v) Bukit Kayu Hitam-Jitra, 24km;
(vi) Alor Setar-Gurun, 35.6km
(vii) Changkat Jering-Ipoh, 53.9km;
(viii) KL-Seremban, 51km;
(ix) Seremban-Ayer Keroh, 66km;

The concession also included improvement (road widening) works on Federal Route 2 in the Klang Valley (16km) with handover of the road (and two closed two plazas) to the concession on completion of the works.

Two other sections of the NSE: Jitra-Alor Setar and Ayer Keroh-Pagoh were under construction in parallel and were taken over by the concession company upon completion.

In 1999 the Government agreed to extend the concession period by twelve years to 31 May 2030. It was later extended to 2038 (a total of 50-years).



Concessionaire	:	Projek Lebuhraya Utara-Selatan Berhad (PLUS).
Total Length	:	772 KM (PLUS) / 848.47KM (MHA)
Construction Period	:	1982-1988 by the Malaysian Highway Authority / 1988 – 1994 by Projek Lebuhraya Utara-Selatan Berhad (15 months ahead of schedule)
Official Opening Date	:	8 September 1994
No. of Toll Plazas	:	62 (closed Toll plaza), 6 (open Toll plaza)
No. of Interchanges	:	75

(b) Type of Government Subsidy:

- Land – Paid by the government, all costs and expenses incurred in making available the land comprised in the concession area, including any compensation required to be paid for the acquisition of the removal or resetting of squatters or other occupants, were borne and paid for by the government.

- Support loan of RM1,650 million – Fully drawn down by September 2000. The rate of interest is 8.0-8.5% per annum. Loan repayment starts in year 2014 and final repayment date is 2023.

- Additional Support Loan – an additional support loan of RM212 million is provided under the Supplemental Concession Agreement and the First Tranche of RM60 million and the Second Tranche of RM79 million were drawn down in Nov 1999 and Feb 2000. Repayment of loan will end by year 2024 and period of repayment is 1 year;

- Toll Revenue Sharing – if the actual toll revenue exceeds the threshold toll revenue, with the percentage of Government's entitlement 1998-2008: (20%); 2009-2020 (25%); 2021-2030 (30%).

- Traffic Volume Guarantee – A guarantee in the form of a loan when actual traffic volume is lower than forecasted traffic volume for the first 17 concession years. This guarantee has not been activated to date, as traffic volume recorded has always surpassed the guaranteed level.

- External risk supplement – This guarantee is in the form of a loan if the concession company is unable to meet its obligation as a result of adverse exchange rate or interest rate movements during the first 17 concession years. This guarantee has not been practiced since all loans were raised locally.

PLUS has performed well against traffic projections over the first 13 years upon opening.

Year	TVSA Forecast (million pcu)			Actual Traffic Volume(million pcu)			Attainment (%)
	Closed Toll System	Open Toll System	Total 1	Closed Toll System	Open Toll System	Total 2	
1988	1,068.0	13.42	1,081.4	907.3	14.6	922.0	85%
1989	1,238.7	14.03	1,252.7	1,159.7	14.3	1,174.0	94%
1990	1,324.4	14.41	1,338.8	1,421.2	16.3	1,437.5	107%
1991	1,782.6	15.05	1,797.7	1,939.3	17.6	1,956.9	109%
1992	2,193.0	15.58	2,208.6	2,618.3	18.5	2,636.8	119%
1993	2,982.0	20.75	3,002.8	3,306.8	25.5	3,332.3	111%
1994	4,450.3	66.68	4,517.0	6,195.0	100.7	6,295.7	139%
1995	4,809.0	69.56	4,878.6	7,357.0	115.9	7,472.9	153%
1996	5,090.0	72.72	5,162.7	8,338.2	124.8	8,463.0	164%
1997	5,386.0	76.01	5,462.0	8,450.8	118.6	8,569.4	157%
1998	5,700.0	79.45	5,779.5	8,006.3	102.48	8,108.8	140%
1999	6,034.0	83.04	6,117.0	8,090.8	105.98	8,196.8	134%
2000	6,3900	86.79	6,476.8	9,012.7	112.88	9,125.58	141%
2001	6,274.0	90.30	6,814.3	2,290.7(*)	29.52 (*)	2,320.22 (*)	

Overall attainment of traffic volume is about 40% over forecasted traffic.

(c) Key success factors (Concessionaire):

- Handover of existing assets for tolling enabled early collection of revenue which together with other strong support from Government made the project viable.

- Realistic traffic and revenue projections.

- Good management of construction, operations and maintenance

(d) Key success factors (Government):

- Support of a new innovative financing structure enabled delivery of a major piece of infrastructure which would probably not have been achievable (certainly in a comparable timeframe) under previous procurement options. New innovative financing structure means handover of existing assets for tolling and support loan by the government.

- The project was the right project and was implemented at a good time – i.e. unlike some other projects the case for the project stacked up as more than a profit making venture for the private sector. The expressway has provided great benefit for the nation by significantly reducing travel times between the key urban centres on the western side of Peninsula Malaysia and its completion coincided with a period of strong economic growth for the country. Other countries in the region are still in need of their own NSE – almost 20 years later.

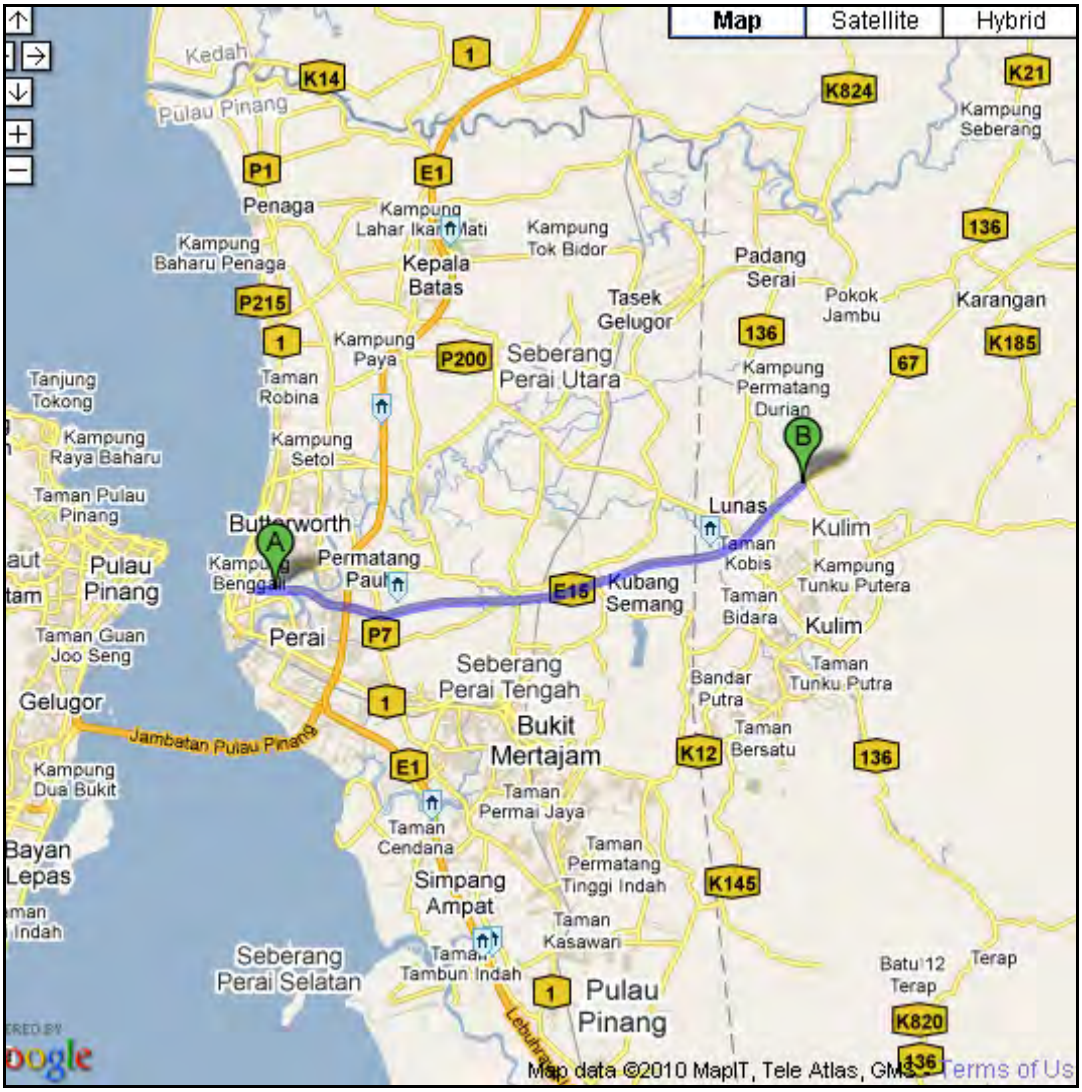
Case Study 3: Butterworth-Kulim Expressway
Project Name: Butterworth-Kulim Expressway (BKE)
Project Cost comprises of: Construction cost: RM255.85 million & Land cost: RM62.28 million (Government)
Type of PPP Scheme: BOT (Build-Operate-Transfer)
Concession Period: 32 years (June 1994-June 2026)

(a) Background

The BKE has been in operation since 1996. It is a 4-lane expressway standard dual-carriageway highway, 16.8km in length which comprises 5 interchanges and two (open) toll plazas. Its role is to connect Kulim, an industrial township to Butterworth (port). Presently there is a lower hierarchy and non-tolled state road running parallel to it.

The scheme was initiated by a private company (contractor) and subsequently the concession was awarded in June 1994 by the government. The funding was mostly through a commercial loan of RM236.6 million for a period of 10 years. However land was paid by the government.

In 2007, the concession company was running into financial problem and no longer be able to serve the loan. Consequently, under the government's instruction the concession changed hand to PLUS Expressway Berhad and followed by an agreed supplementary agreement in June 2007.



Concessionaire	:	Konsortium Lebuhraya Butterworth-Kulim Sdn Bhd (KLBK)
Total Length	:	17 kms
Construction Period	:	1994-1996
Official Opening Date	:	15 November 1996
No. of Toll Plazas	:	2
No. of Interchanges	:	5

(b) Type of Government of subsidy

- Land – Paid by Government, all costs and expenses incurred in making available the land comprised in the concession area, including any compensation required to be paid for the acquisition for the removal or resetting of squatters or other occupants, were borne and paid for by the government.

- Unrelated construction contract – Government awarded a construction contract to the concession company to construct a 6-lane dual carriageway outside the concession area at a cost of RM82 million.

- Compensation for toll hike impedance-should agreed toll increment as stipulated in concession agreement is not achieved due to the objection from the government (ie Actual Toll>Agreed Toll). The government shall compensate concession company for any reduction in toll received in accordance to the following formulae:

  Compensation amount = ∑[TV x AT x (1+G)] – TA
  Where,
  ∑= summation for all toll classes of vehicles
  G= is the traffic growth rate for the particular class of vehicle for the proceeding year;
  TV= is the traffic volume for the particular class of vehicle for the proceeding year;
  AT= Agreed toll for that year;
  TA= is the aggregate toll amounts collected by the concession company for that year.

- Compensation for other affected elements:

  (i) Access Road – Shall Government allow access road connection to the expressway, and it is proven to be in any way adversely affecting the flow of traffic on the expressway, and consequently the toll revenue of the concession company, the government shall as a condition of any order ensure that the concession company is adequately compensated;

  (ii) New Roads/alternative roads and upgrading on the existing alternative road – right is approved to re-examined obligations and rights granted under agreement.

  Actual Traffic Volume against Traffic Forecast for the first 6 years upon opening:

	Annual Traffic (million vehicles)		
Year	Forecast	Actual	Attainment (%)
1996	31.45*	1.28	4%
1997	33.53	12.21	36%
1998	35.27	13.36	38%
1999	37.09	12.6	34%
2000	39.02	15.24	39%
2001	40.77	16.05	39%

* Full year of 1996

  Actual achieved traffic volume is about 40% of forecasted traffic.

(c) Key failing factors

- Week institutional capacity and PPP strategy – original concession company was a construction company and the scheme was initiated by the concession company;

- Unrealistic revenue estimates – actual attainment of traffic is only about 40% of forecast traffic volume – the key factor in the shortfall is believed to be due to ambitious assumptions regarding land development and in particular the development of an industrial park in Kulim

Key Lessons

The positive key lessons from the experience in the Malaysian toll road sector include:

- Allowing a strong private sector to initiate and lead the development of projects has certainly led to an impressive scale of development, as well as a high level of capacity in the Malaysian toll road industry.

- A spirit of partnership between concessionaires and Government has allowed progress to be made – there have been no major disputes and the government is open to renegotiations when conditions adversely change.

- Malaysia has demonstrated that there are several combinations of schemes to ensure success of toll road projects. The government has provided monetary repayments when the government failed to follow a contract, soft loans, concession periods extensions as forms of compensation.

- Clearly delineated roles for EPU and MHA in running the bid and supervising PPPs implementation leads to swift realization of projects.

The following are reported weaknesses of the Malaysian PPP Toll Road:

- A need for a strong government role in PPP toll road projects. In particular the need for consistent and enforced planning; economic appraisal to assess scheme worthiness and careful review of viability and appropriate funding options.

- A need for strong due diligence in particular for traffic and revenue forecasting. Realism required in traffic forecasting.

- Questions have been raised regarding the value for money of certain projects. As such there is a need for transparent tendering and evaluation procedures to ensure value for money.

- A need to vigorous public information campaign to inform travellers what their tolls pay for. The public may show understanding if they view toll tariffs as improving their level of service. There are several instances where toll increases were deferred due to public criticism.

THAILAND OVERVIEW

OVERVIEW

Various initiatives have been promoted to encourage PPP type investment in the toll road sector in Thailand - but with limited success to date.

In the 1970s, a concept of toll road was introduced by the Department of Highways on a new ordinary highway constructed by World Bank loan on highway route no. 32. The toll was collected on highway route no. 32 until 1994 when the government established a policy to not permit tolling on ordinary highways.

Since then, planning for toll expressways has focused on Bangkok. In 1982, the Expressway and Rapid Transit Authority of Thailand (ETA) under the Ministry of Interior completed the first section of the Bangkok urban expressway system, with a first phase total length of 9 kilometres – which was approved for the collection of tolls. ETA completed the other two sections and the First-Stage Expressway (with a total length of 27 kilometres) was opened for traffic in 1987, funded by OECF.

The Sixth National Economic and Social Development Plan (1987 - 1991) set a direction of encouraging private sector participation in the sector and the two lead agencies began to invite private sector participation in their projects:

(a) Department of Highways (DOH) under Ministry of Transport and Communications; and

(b) ETA under Ministry of Interior

DOH signed a concession contract with Don Muang Tollway Co., Ltd. in 1989 while ETA signed the concession contract with the Bangkok Expressway Co., Ltd. in late 1988 for the Second Stage Expressway.

Both of these concessions have led to operating toll expressways however each has faced considerable issues and cannot be considered successful. A third concession was awarded (by State Railway Thailand/Ministry of Transport and Communications) in 1990 was the Hopewell concession. After 8 years without progress on the implementation however the concession was terminated. Each of these three concessions is considered further below.

No other toll road PPP projects have been implemented to date in Thailand.

The DOH again encouraged PPP type investment on proposed tollway projects in the mid-1990's. However the projects were usually on radial corridors emanating from about 15km from central Bangkok and extending up to 25-35 km further. The feasibility studies usually yielded modest financial performance (FIRR< 12% pa) and with no known exceptions these projects failed to attract private investment through a PPP type arrangement. A common feature of these candidate projects was the perceived high risk of obtaining financial viability because of the presence of 'free' parallel competing highways and associated upgrading works on these highways. In addition, toll setting would have been set by government and formulation of a standardised structure and an associated toll escalation mechanism was not set out.

In early 2000's the ADB spent considerable efforts in encouraging adoption of PPP and targeted the Ministry of Finance. A number of studies were undertaken to show the advantages of this approach. However to date limited further success has been achieved.

The failure to implement a PPP type initiative for proposed toll road projects in Thailand was that proposed projects were perceived as being of high risk and low financial performance. High risk was

mainly identified as competition from adjacent highways and the DOH was not prepared to provide guarantees that competing highways would not be upgraded or that new competing projects would not be constructed by the DOH. This situation revealed an insufficient high level governmental commitment to PPP and this perception was reinforced by a failure to set toll policies and structures. To a large extent this attitude still persists. The DOH continued to plan their own highway works programme independently of PPP initiatives for which appointed consultants studied in feasibility studies.

In the 1980's through a JICA funded study a tolled intercity motorway network was proposed and prioritised. The concept was based on a defined and consistent toll throughout the network and the recognition that the financial performance of individual motorway sections would exhibit wide variations. It was proposed that a centrally controlled motorway agency would ensure that the overall average financial performance would permit an orderly, progressive expansion of the network over time. The fact that this programme was never implemented suggests that while the project may have been overly ambitious it was nonetheless appreciated that considerable government funding would have been required.

What actually occurred is that for a number of years the DOH continued to identify and investigate through consultant appointments a number of projects. However it had been recognised from the earlier JICA funded study that intercity projects did no have the necessary traffic thresholds for financial viability and the main attention turned to radial links from Bangkok. It was considered that these projects offered better prospects for achieving financial performances sufficiently attractive for private sector participation. However these projects generally had two main difficulties. The first was the high cost of land acquisition and property compensation for which the government would have borne financial responsibility. The second was the perceived competition of existing adjacent highways. It is not known how many potential projects were studied over the years but it was several. It is not unfair to now observe that the government agencies had a simplistic view that they could avoid budget expenditure by getting the private sector to invest in projects. The government agencies failed to appreciate the high risk of these projects unless substantial investment was also made by government.

Another major impediment of these radial projects was that most commenced over 15km from central Bangkok because penetrating closer to central Bangkok was associated with even higher land acquisition and property compensation costs. At this distance traffic volumes declined appreciably and the numbers of trips with high trip lengths fell away.

As a means of overcoming the high land costs and property compensation costs a strategy to build above existing highways was seen as a means of penetrating closer to central Bangkok and avoiding high land costs for which the government bore full financial responsibility. However the original concept of tolled intercity motorways had now been transformed to urban expressways. However there was a complete disconnect, because the DOH was proposing projects in central Bangkok and there was already the Expressway and Rapid Transit Authority (ETA) that had built and was expanding its own system.

This conflict between authorities went on for a number of years. There was obviously no cooperation and this meant that the planning by each authority was independent and uncoordinated. It was not an environment in which PPP could possibly flourish and it did not.

It is therefore known that one tollway project where a PPP initiative was implemented and in spite of the foregoing risks described this project proceeded and is described below. The risk was taken because the DOH owned the right of way and the tollway was constructed above a radial highway that carried the highest daily traffic of all radials emanating from Bangkok. This highway, the Viphavadi Highway extended northwards and bifurcated into two major intercity highways serving the north and north-east of Thailand containing a combined population in excess of 25 million people. However the

history of that project is not one of a successful combination of the private and public sectors. This project, the Don Muang Tollway is discussed below.

PPP Framework

Clearly the toll road PPP market in Thailand is less developed and successful than that of Malaysia to date. In principle the Thai PPP model is similar to that of Malaysia with the private sector responsible for construction, operation and maintenance of the proposed highway in return for the right to collect tolls.

A 1993 Royal Act created the current framework for private sector participation in major infrastructure projects however there is no BOT Law in Thailand and the existing BOT process could not be regarded as fully transparent or as established as in Malaysia.

One particular feature of the Thailand scenario is the ineffective institutional framework.

The planning and decision-making process starts with the Office of the National Economic and Social Development Board (NESDB) which formulates the guidelines of the 5-Year National Economic and Social Development Plan (NESDP).

There are two main ministries responsible for transportation development in Thailand:

(a) Ministry of Transport and Communications (MOTC); and

(b) Ministry of Interior (MOI)

Under these two ministries there are two agencies active in the development of toll expressways:

(a) Department of Highways, DOH (under MOTC); and

(b) Expressway and Rapid Transit Authority of Thailand, ETA (under MOI),

In reality this situation has not worked well with the two agencies in effect competing with one another to in affect develop alternative expressway networks and not abiding to the NESDB plans.

Project Cases

Second-Stage Expressway System

The project concept for SES was developed by ETA, initially as a public sector project, however it was subsequently identified as a potential BOT opportunity, with Government support required.

An unsolicited bid was made by Bangkok Expressway Co Ltd (from BECL) was then made to ETA which resulted in award to this consortium.

Prior to scheme opening however a dispute arose, with ETA insisting that it should collect the tolls. The outcome was that foreign investors were replaced by Thai investors. Problems with land acquisition also delayed part of the project. Subsequently there have been further problems of toll increases not being awarded.

Don Muang Tollway

DOH signed a BOT-style concession contract with Don Muang Tollway Co., Ltd. in 1989. The scheme was completed and opened to traffic for tolling. However, revenue was only around 1/3 of the forecast amount and has remained well behind original forecasts since.

A number of factors can be identified for the projects poor revenue performance compared to forecast:

(a) Highly optimistic traffic and revenue forecasts at the concession agreement stage

(b) Under the agreement, Government was required to remove flyovers on the parallel road which competes with the tollroad, and the flyovers were instead to be re-constructed for orbital movements. However, these works were delayed for more than two years and the Transport and Communications Ministry would not allow toll increase (from 20 to 30 baht) until the flyovers were completed

(c) A number of toll increments identified in the concession agreement were not implemented

(d) Road improvement works on the existing parallel (toll-free) highway carried out by Government

(e) The impact of the Asian Economic Crisis

(f) The moving of international operations away from Don Muang Airport.

There were subsequent renegotiated concession agreements for the tollway and Government subsequently took a 40 percent stake in the concession company. From being a private project it has now become a quasigovernment one. The concession was the subject of an arbitration case between Government and the original (foreign) primary project sponsors.

Hopewell

A contract was awarded in 1990 by SRT/Ministry of Transport and Communications for an integrated structure with grade-separated SRT railway tracks, an MRT system and an expressway on the top level - extending a total of 60 kms to the north and east of Bangkok.

Funding for this ambitious project was to be from land development profits and the revenues from the tolled expressway. At the time the project directly competed with a number of parallel projects under implementation, and prevented many other projects, because it had access to all the land and air-rights above SRT.

The project was never implemented due to the compound impacts of:

(a) A crash in the property market

(b) The Asian Economic Crisis

(c) Having three expressways in a single corridor

After 8 years with laboured progress in implementation the government terminated the concession. The legacy of the project is being a partly-constructed elevated structure.

Key Lessons

Key lessons from the experience to date in the Thai toll road sector include:

- The importance of an effective institutional framework – the agencies in Bangkok often work in competition.

- The importance of transparent processes and reliable contracts – investors remain deterred due to a perceived lack of transparency and lack of confidence in the ability of Government to administer legally-binding contracts

- The importance of effective planning and adhering to that planning – too many competing projects and works in conflict with one another.

- The importance of strong technical due diligence – in particular to counter a strong tendency of project sponsors interested in construction projects to produce highly optimistic traffic and revenue forecasts to support their proposals.

ANNEX 5.2-1

ANNEX 5.2-1

IDENTIFICATION OF ISSUES AND BOTTLENECKS IN THE PROCESS OF PPP PROJECTS

A. Solicited Proposals Under the BOT Law

B. Joint Venture Approach

ANNEX 5.2-1

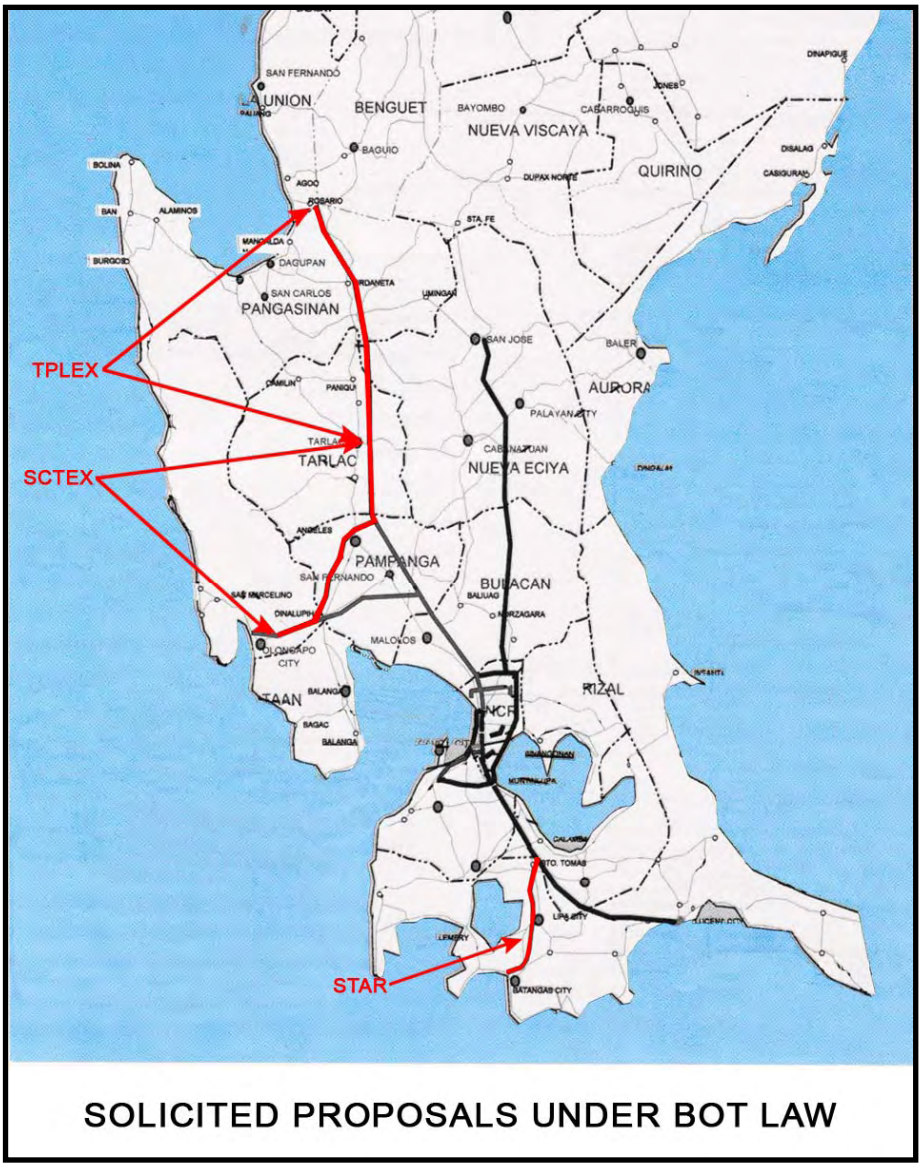
IDENTIFICATION OF ISSUES AND BOTTLENECKS
IN THE PROCESS OF PPP PROJECTS

A. Solicited Proposals Under the BOT Law

1. Project: SOUTHERN TAGALOG ARTERIAL ROAD (STAR)
   Public Agency: DPWH
   Private Entity: STAR Infrastructure Development Corporation (SIDC)

2. Project: TARLAC-PANGASINAN-LA UNION EXPRESSWAY (TPLEX)
   Public Agency: DPWH
   Private Entity: Private Infrastructure Development Corporation (PIDC)

3. Project: SUBIC-CLARK-TARLAC EXPRESSWAY (SCTEX)
   Public Agency: Bases Conversion Development Authority (BCDA)
   Private Entity: To be designated for O&M



SOLICITED PROPOSALS UNDER BOT LAW

A. SOLICITED PROPOSALS UNDER THE BOT LAW
STAGE 1: Basic Plan/Master Plan/Project Identification Stage

Proponent	Public	DPWH
	Private	PNCC NLTC SIDC BCDA
Current Practice	Public Side	• DPWH with the Philippine National Construction Corporation (PNCC) conducted the Luzon Expressway System Study (LESS), 1985-1990, to support the development in the Cavite-Laguna-Batangas-Rizal-Quezon (CALABARZON) area and other major economic centers in Luzon. LESS identified the following priority projects: 1. Sto. Tomas to Batangas City in Batangas (now STAR). 2. South Luzon Expressway (SLEX) Extension from Calamba in Laguna to Lucena in Quezon 3. North Luzon Expressway (NLEX) Extension from Mabalacat in Pampanga to Urdaneta in Pangasinan (now further extended to Rosario, La Union and known as TPLEX) 4. Metro Manila Expressway (MME) from SLE to NLE following the alignment of C5 and C6. • DPWH, with technical assistance from JICA, also prepared the master plan for expressways in Metro Manila under the Metro Manila Urban Expressway System Study (MMUES), covering the period 1990-2000. The plan identified the following priority projects: 1. Three Circumferential Expressways along the alignment of C-3, C-5 and C-6 2. Two expressways towards the north, viz., NLE and NLE East. 3. Two East Luzon Expressways (ELE) towards Antipolo and the northern towns along Laguna Lake 4. Three expressways in the south, viz., Manila-Cavite Expressway, South Luzon Expressway (SLEX), and CALA Expressway between Manila Bay and Laguna Lake; • STAR was particularly intended to provide high speed access to Batangas Port which was planned to be developed as a regional port to relieve the congested Manila Port. • TPLEX was identified as an arterial highway to ease traffic at the Manila North Road corridor, providing fast access to Baguio, the summer capital of the country and to develop north central Luzon • SCTEX was identified a major transport facility to develop and interconnect the former military bases and now the new economic zones of Subic and Clark as well as to link with the proposal industrial area Hacienda Luisita in Tarlac.
	Private Side	• The private sector and communities affected participated in the selection of different alternative alignments presented in the study.
Issues/ Bottlenecks	Public Side	• On STAR, in the original plan, there were no provisions for a good connection to the Batangas Port or for a grade separation structure at the intersection with the national highway leading to Bauan.. • On SCTEX, to mitigate possible damage due to lahar flow, the plan considered the alternatives of a viaduct or high embankments in many sections.
	Private Side	• On STAR and SCTEX, because of the fast industrialization, many business groups and communities requested new entries/exits. These would require additional capital and O&M costs and could make the spacing between entries/exits fall below expressway standards.
Legal Aspects	Legal Basis	• The conduct of the LESS, including the identification of priority expressway projects, was done by DPWH in accordance with its mandate under its charter (EO 124, series of 2007) to plan the road network of the country.
	Legal Issues	

STAGE 2: Business Case/Feasibility Study

Proponent	Public	DPWH NEDA
	Private	PNCC NLTC SIDC BCDA
Current Practice	Public Side	• DPWH usually conducts the FS for proposed projects intended for tendering under the BOT law. • On STAR, DPWH engaged a local consultant for the feasibility study (FS) of the entire SLEX/STAR from Calamba Laguna to Batangas City, with a distance about 48.0 km. The study involved a direct government approach without private sector participation in funding. • DPWH submitted a Project Implementation Plan (PIP) of STAR to NEDA which approved the implementation of a STAR Stage 1 from Sto. Tomas to Lipa thru regular government financing with ODA and (ii) Stage 2 from Lipa City to Batangas City under BOT approach. The PIP, which in effect was a business case report, showed that the project is highly viable for private sector implementation with tolls to recover capital and O&M costs, net of government/ODA investment for Stage 1. • On TPLEX, Pacific Consultant Int'l Consultants assisted DPWH in the conduct of the FS including public hearings with various affected cities and municipalities traversed by the project. The FS also included securing the ECC from DENR and NEDA's approval of the project for BOT implementation. DPWH prepared the PIP for this project based on the FS. The PIP showed that the project is feasible for PPP implementation with a GFS.
	Private Side	• The FS involves varying degrees of private sector participation. • On STAR, there was minimal private sector participation in the finalization of the selected alignment. • On TPLEX, the private sector and communities affected participated in the selection of different alternative alignments presented in the study.
Issues/ Bottlenecks	Public Side	• There is need for close consultation with all stakeholders – public and private - in undertaking the study of BOT projects to address their concerns in the project. • On TPLEX, many affected residents opposed the proposed Urdaneta flyover as part of the proposed widening of the Manila North Road (MNR); this was a major issue that helped push TPLEX. Also, the Study team tried to secure LGUs' (municipal, city, and provincial) approval of the selected TPLEX alignment, including the control and protection of the ROW in order to facilitate its acquisition during implementation. • SCTEX and TPLEX alignments have potentials to attract traffic from both MNR and Cagayan Valley Road (CVR).
	Private Side	• On TPLEX, people opposing the construction of the Urdaneta Flyover along the Manila North Road expressed full support for the Tarlac–Pangasinan Expressway project which was deemed a more effective long-term alternative to MNR. • Traffic forecast in the government FS for TPLEX appears to be optimistic as it assumed an alignment close and running parallel to MNR; forecast as re-evaluated by PIDC's consultant, following the alignment at Hacienda Luisita about 13 km from Tarlac City, is 20-25% less. • SIDC and PIDC agree that the government should be more pro-active in pushing toll expressway projects and, thus, identify priority projects, conduct FS and tender out the projects, instead of relying on unsolicited proposals. The FS of toll expressway projects should give more emphasis on the financial – including GFS - and legal aspects, aside from engineering and economic feasibility. Traffic forecasts should be realistic. Also, the FS should define the ROW alignment with approval from concerned LGU's for control and protection.
Legal Aspects	Legal Basis	• The conduct of FS/business case of expressway projects is part of the mandate of DPWH (EO 124, series of 2007) to plan the road network of the country.
	Legal Issues	• On STAR, to support rapid urbanization and industrialization of the CALABARZON area, DPWH had originally intended to implement the SLEX project including the section from Calamba to Sto. Tomas to provide seamless expressway travel. PNCC objected because that section is part of its franchise, although PNCC had no concrete plan for its implementation. DPWH, thus, excluded the Calamba-Sto. Tomas link, hoping that PNCC would soon build this vital link; construction by PNCC/SLTC of this link started only lately, and the missing link has been cited by SIDC as a major reason for low traffic on STAR and for the delayed financial closure. DPWH also had to obtain clearance from OECF to include the O&M of Stage 1 (which was funded by GOP/OECF) as a toll facility under Stage 2.

STAGE 3: Project Approval Stage

Proponent		
	Public	DPWH NEDA OECF
	Private	PNCC NLTC SIDC BCDA
Current Practice	Public Side	• The current practice involves the following undertakings of the public sector: ▪ DPWH conducts a detailed FS and submits a Project Implementation Plan Report (PIPR), discussing the public and private sector participation, to NEDA for review and approval. ▪ NEDA comments, makes suggestions and asks clarification on the PIPR ▪ NEDA approves/disapproves the project after all requirements have been complied with by DPWH. ▪ NEDA's approval of the project includes the public sector component for implementation using Official Development Assistance (ODA) and/or government funds. ▪ Upon NEDA's approval, DPWH advertises the private sector component of the project for competitive bidding for financing and implementation. • In addition, for STAR: ▪ Stage 1 was approved by NEDA, upon recommendation by DPWH, as a conventional non-toll expressway project for OECF loan/GOP financing. ▪ Stage 2 was approved by NEDA, upon recommendation by DPWH, as a BTO project under the BOT law.
	Private Side	• The current practice involves the following: ▪ The private proponent undertakes a diligent review and evaluation of the feasibility study to confirm the commercial viability of the project. ▪ The proponent conducts its own study on the proposed improvement plan, project costs, traffic estimates and projections, and risk exposures in the implementation and operation of the project, among others.
Issues/ Bottlenecks	Public Side	• The issues and bottlenecks affecting the public and private sectors included the following: ▪ NEDA's approval of STAR Stage 2 is for SIDC to construct initially two lanes to be widened to four lanes divided expressway when traffic volume reaches 27,000 vehicles per day (VPD) or five years after completion whichever comes first. ▪ Similar to STAR, TPLEX also provided for the construction of two lanes with no provision for the construction of the other two lanes in the future. ▪ STAR Stage 2 implementation tasked SIDC to finance Php 500 Million for ROW acquisition.
	Private Side	• On STAR, in addition to above issues and bottlenecks involving the private and public sectors, SIDC pointed out that the process to package and approve BOT projects is too lengthy. • On TPLEX, aside from the above issues and bottlenecks involving the private and public sectors, the private sector (thru PCA), proposed that, instead of implementing the project thru ODA/GOP funding, the project be implemented thru PPP using the BOT law, to reduce the government financing burden and tap private resources. This was approved in principle by NEDA and the President.
Legal Aspects	Legal Basis	• Stage 1 of STAR and Stage 1 of SCTEX were approved by NEDA as non-toll expressway projects under the laws and rules involving conventional GOP/ODA funding (e.g., (e.g., Foreign Borrowings Act and NEDA-ICC rules). STAR Stage 2, SCTEX Stage 2, and the entire TPLEX were approved by NEDA in accordance with the BOT law (RA 6957 as amended by RA 7718).
	Legal Issues	

STAGE 4: Tender (Investor Selection) Stage

Proponent	Public	DPWH NEDA OECF
	Private	PNCC NLTC SIDC BCDA
Current Practice	Public Side	• Stage 1 of STAR and Stage 1 of SCTEX were bid out as regular non-toll projects with government and ODA funding using the conventional procurement laws and rules. • Stage 2 of STAR, Stage 2 of SCTEX, and the entire TPLEX were tendered out using the BOT law. The current practice for BOT projects involves the following; ▪ Government advertises the project for BOT implementation. ▪ Government evaluates interested BOT Companies based on track records and financial capability. ▪ Government issues invitation to the short listed BOT Companies to submit bids for the implementation and operation and maintenance of the toll road. ▪ Government selects the BOT Company based on the parameter specified in the bid documents, i.e., o Lowest toll rate; or o Lowest government financial support (GFS) or subsidy (given a set toll rate)
	Private Side	• The current practice involves the following; ▪ The bidder undertakes preliminary engineering design supported by supplemental surveys and investigations, if necessary. ▪ The bidder examines and studies the reliability of the data and information in the bid documents such as construction costs, traffic, implementation schedule, etc. ▪ The bidder assesses risks related to project implementation with risk sharing and management.
Issues/ Bottlenecks	Public Side	• The government must ensure the following: ▪ The project is properly advertised worldwide. ▪ Bidding documents are complete. ▪ Clearances, issuances, and approvals are already secured from concerned agencies.
	Private Side	• The private sector is usually concerned about the following: ▪ Availability of all data, information, analysis, studies, undertaken by the government during project preparation. ▪ Timing and duration of the preparation of bid proposals. • On STAR, SIDC agrees on the BTO modality thru bidding under BOT law. Once the completed facility is transferred to the national government (NG), the proponent can no longer be harassed by LGUs. • On TPLEX, PIDC suggests that for future BOT/PPP projects all government approvals be secured before bidding – toll rate caps and adjustment formulae by TRB, ECC by DENR, development permits by LGUs, etc.
Legal Aspects	Legal Basis	• On STAR and SCTEX, bidding for Stage 1 was done using the prevailing procurement laws and rules (PD 1594 and RA 9184) for government-financed projects, but considering applicable OECF (ODA agency) guidelines for procurement. Bidding for STAR Stage 2 was done pursuant to the BOT law and its IRR, using the BTO scheme. Bidding for SCTEX Stage 2 was based on the BOT law, using the O&M modality. • TPLEX was tendered out as a BTO scheme in accordance with the BOT law.
	Legal Issues	

STAGE 5: Contracting Stage

Proponent	Public	DPWH NEDA OECF
	Private	PNCC NLTC SIDC BCDA
Current Practice	Public Side	• The process differed between the stages/components which are implemented under the regular government road program, and those which are undertaken thru BOT. • For Stage 1 of STAR and Stage 1 of SCTEX, contracting was between DPWH/BCDA and the winning contractors in accordance with the conventional process for regular road projects under PD 1594/RA 9184. • For Stage 2 of STAR and the entire TPLEX, contracting was done in accordance to the BOT law. The contract followed the draft TCA which was part of the bidding documents. There were two contracting parties on the government side: (i) DPWH for the construction phase including financing, design and ROW acquisition, and (ii) TRB for the operation phase including setting of toll rates and issuance of TOC. • For Stage 2 of SCTEX, BCDA will enter into contract with the operator selected after public bidding, in accordance with the provision s of the BOT law.
	Private Side	• TPLEX is required to select the consultant for detailed engineering through the DPWH standard and procedure. • TPLEX is required to engage an Independent Design Checker to work for DPWH and monitor the design works of TPLEX consultants.
Issues/ Bottlenecks	Public Side	• The review and processing of the contract is often time consuming. • On STAR Stage 2, TRB review of the TCA took more than 1 year. It had to closely scrutinize the toll adjustment formulae and other O&M aspects. This was despite the fact that TRB had been part of the DPWH Technical Working Group (TWG) and BAC and the toll adjustment formulae were part of the bidding documents. • On TPLEX, the approval of the Concession Agreement was delayed. DPWH conducted the bidding in December 2007, and awarded the contract in March 2008. TRB approval came about 6 months later after reviewing the toll rates, adjustment formulae, and other O&M provisions, although TRB had reviewed the bidding documents before the bidding and was part of the BAC and despite the provision in the bidding documents providing for automatic adoption of toll rates as bid and awarded.
	Private Side	• The contract processing and approval should be simplified and shortened.
Legal Aspects	Legal Basis	• On STAR Stage 1 and SCTEX Stage 2, contracting was based on the provisions of PD 1594 and RA 9184, but taking into account pertinent OECF guidelines. The contract provisions generally followed the FIDIC pro-forma agreement. • On STAR Stage 2, SCTEX Stage 2, and TPLEX, contracting was based on the BOT law, and the drafts of the agreement were part of the bidding documents.
	Legal Issues	

STAGE 6: Toll Operation Agreement Stage

Proponent	Public	DPWH TRB NEDA
	Private	PNCC NLTC SIDC BCDA
Current Practice	Public Side	• On STAR Stage 2 and TPLEX, the TOA is in effect incorporated as a component in the TCA which was part of the bidding documents. This component covers the O&M aspects, including the toll adjustment provision, and the parties are TRB and the BOT Company. The TOC is to be issued upon completion of construction. • On SCTEX Stage 2, a TOA will cover the O&M aspects, including the toll adjustment provision. The parties will be BCDA, the operator, and TRB.
	Private Side	• On STAR, SIDC conducted an inventory of the completed works under STAR, Stage 1 and identified facilities and structures that were damaged when it was opened to the public. • SIDC requested DPWH to correct the identified damages before operation.
Issues/ Bottlenecks	Public Side	• On STAR, the TOA provided that widening from 2 to 4 lanes would be undertaken when the traffic reaches 27,000 AADT or 5 years after opening, whichever comes first. It is necessary to revisit this provision as it appears urgent to do the widening of the 2-lane expressway now for safety reasons. This is to reduce the incidence of fatal accidents because many light vehicles take the risk of overtaking the numerous bunches of slow-moving trucks going uphill from Batangas Port towards Lipa/Manila, resulting in numerous cases of head-on collision. Another issue is that the review by TRB of the toll adjustment formulae and other O&M aspects took considerable time, even as the formulae had already been included in the bidding documents.
	Private Side	• On TPLEX, government should ensure automatic grant by TRB of the franchise (TOC) and the initial toll rates and adjustments as bid under the BOT law. PIDC agrees on delineation of government operational responsibilities for bid BOT/PPP projects: DPWH – will handle technical aspects, including O&M supervision. TRB – will automatically approve the bid toll rates and issue the TOC/franchise.
Legal Aspects	Legal Basis	• The provisions of the TOA/TCS were established in accordance with the BOT law.
	Legal Issues	• On TPLEX, the need for widening is an issue similar to that of STAR, considering that the present expressway design for only 2 lanes might compromise the safety of the users. Since the TCA does not include any provision for widening, the government might consider reopening the TCA to define the conditions and procedure under which widening should be undertaken.

STAGE 7: ROW Acquisition/Resettlement Stage

Proponent	Public	DPWH COURTS BCDA
	Private	PNCC NLTC SIDC
Current Practice	Public Side	• The government implementing agency (DPWH/BCDA) undertakes the funding and acquisition of the ROW, including resettlement of affected families. It would acquire ROW first thru negotiation and, if this fails, thru expropriation. DPWH will fund ROW. The value of ROW was based on the assessment of the Provincial Appraisal Committee before RA 8974 (new ROW law), and on the BIR zonal value and market prices under RA 8974. DPWH/BCDA would deliver to the contractor the cleared ROW, with Permits to Enter, according to an agreed schedule.
	Private Side	• On STAR, the Stage 2 contractor was required under the bidding documents to advance up to Php 500 million for the ROW, to be recovered thru the tolls.
Issues/ Bottlenecks	Public Side	• The main concerns are cumbersome documentation, resistance by some owners and settlers, disagreement on land valuation, prolonged negotiation and expropriation proceedings, and funding difficulties. • On STAR, ROW acquisition by DPWH was delayed due to opposition of owners/occupants to the take-over and/or to the low compensation offered, lengthy negotiations and expropriation, and government fund release. ROW for 1 year of continuous construction could not be provided on time. Additional government funding for ROW was needed since actual land values (more than Php 1 B) exceeded initial government estimates (Php 700 M). • On TPLEX, ROW acquisition has been delayed. Many owners disagreed with the initial offer of government based on BIR zonal valuation (e.g., Php12/sm) which is much lower than market prices (Php 70-80/ sq m). Per rules, government's 2nd offer was the lower of the values set by the Provincial Assessor and Land Bank. The Mayors are helping owners get even higher prices. If DPWH disagrees, it would resort to expropriation thru the courts, which is a lengthy process.
	Private Side	• The private sector is also beset by the ROW issues mentioned above for the public side. • On STAR, the Stage 2 contractor was able to advance only part of its required advance for ROW. SIDC agrees on the need for the FS to decide the ROW alignment, for the government to fix this alignment and freeze development therein, and based on this, for the government to start ROW acquisition which must be completed before bidding. • On TPLEX, banks required 100% completed ROW acquisition and completed design for each phase before initial loan drawdown. ROW acquisition is slow for the reasons mentioned above. If negotiation fails, DPWH will expropriate the properties, which is a long procedure. PIDC offered a revolving fund to fund advances to owners so they will issue the Permits to enter needed to start construction. PIDC suggests that, for this and similar projects, government should provide for more realistic BIR zonal valuation approximating market prices, and to guarantee prompt ROW delivery. It also finds the need to expedite court expropriation proceedings.
Legal Aspects	Legal Basis	• Acquisition of ROW is based on the State's power of eminent domain under the Constitution and laws, particularly the new ROW law (RA 8974). If negotiated acquisition fails, the government will resort to expropriation. Removal and resettlement of affected informal settlers is governed by RA7279.
	Legal Issues	• To avoid legal issues pertaining to ROW responsibilities, there is a need for clear provisions in the TCA which state the government shall have the sole responsibility for, and bear all costs incurred in relation to ROW activities. Apart from acquisition of the ROW, these should include the removal and resettlement of informal settlers and other occupants, and the removal, relocation and reinstatement of public utilities, such as electric, telephone, water supply, sewerage, drainage, cable TV, internet, and similar facilities. • On STAR, some land owners complained that their lots were priced much lower than those of nearby lots which had similar characteristics. This could indicate inconsistent application of the laws and rules governing valuation of properties.

STAGE 8: Fund Preparation Stage

Proponent	Public	DPWH SIDC BCDA OECF
	Private	PNCC NLTC NEDA DBM
Current Practice	Public Side	• The implementing agency – DPWH and BCDA - provides government funding for the ROW and any GFS in its infrastructure budget, with national appropriations authorized under the GAA. This covers both the GOP and ODA components.
	Private Side	• The BOT Company is required to raise project funds (net of government financing for ROW and GFS) from equity and debt, usually at a ratio of 20:80.
Issues/ Bottlenecks	Public Side	• Major problems often experienced are (i) cost overruns – i.e., actual capital costs exceed the government budget by significant amounts, and (ii) delays in fund release. • On STAR, cost overruns for ROW for Stage 2 were incurred which required additional budgeting. This was somewhat aggravated by the Asian financial crisis which constrained the budgets. Some delays in actual releases and disbursements especially for ROW were experienced. • On TPLEX, there is no problem with the provision of government funding for ROW within the DPWH budget ceiling. The problem is the slow disbursement of the released ROW funds because of delays in ROW acquisition. • On SCTEX, the lone bid as submitted (Php 28 B) substantially exceeded the Approved Budget for the Contract or ABC (Php 21 B)). This required (i) a review of the design using value engineering to cut down costs and (ii) additional budgeting. Cost overruns during construction also called for the provision of additional funds.
	Private Side	• Common problems include (i) difficulties and delays in attaining financial closure and (ii) unforeseen changes requiring additional funding – proposed additional facilities, LGU fees, etc. • On STAR, there was a long delay in the financial closure of Stage 2 (awarded in 1998), especially for loans. SIDC was not successful in exploring past sources – consortium of banks, NDC, Provincial government, IFC, MTD. Finally, DBP loan was approved in 2006. Reasons cited for the delay were: (i) Asian financial crisis in the 1990s, (ii) failure of the government to build the Calamba-Sto. Tomas link so that STAR traffic was much lower than expected, (iii) delay in ROW delivery, (iv) internal management restructuring, and (v) delay in ECC revalidation. In the future, to make an economically feasible expressway project financially viable, SIDC suggests that GFS be provided as subsidy covering up to 50% of total construction cost. GFS should be adequately provided on time. A government bank - say, DBP – may advance GFS to proponent, as loan to the NG to be repaid thru future GAA appropriations - say, over 10 years @ 10% pa. • On TPLEX, changes in designs and additional facilities requested by LGUs and unexpected LGU permits put added funding pressures on the BOT Company. PIDC points out that any variation introduced by government should be funded by the latter which should also fund and pay all LGU fees.
Legal Aspects	Legal Basis	• Government funding of ROW and GFS is based on the BOT law, reflected in the TCA, and included in the infrastructure program of the implementing agency within the set budget ceiling. Appropriations cover for national government funds are authorized in the GAA. Government funding includes both GOP funds and ODA proceeds. • Private sector funding in terms of equity and debt is to be prescribed in the TCA based on the BOT law.
	Legal Issues	

STAGE 9: Detailed Design Stage

Proponent	Public	DPWH BCDA OECF
	Private	PNCC NLTC NEDA TPLEX
Current Practice	Public Side	• The DED may either be prepared by the government or the private BOT Company. • For STAR and SCTEX, the government opted to prepare the DED and used it as the basis for bidding by the proponents. ▪ DPWH, using a local consultant, undertook the DED for the entire STAR which was the basis for the bidding. ▪ Likewise, for SCTEX, the government, thru BCDA, using an international consultant, carried out the DED. • For TPLEX, the government assigned the responsibility for DED to the private proponent as part of the BOT obligations. The process is as follows: ▪ The private proponent prepares the DED. ▪ An Independent Design Checker (IDC) is engaged by TPLEX for the government. ▪ The IDC sees to it that the design being undertaken by the BOT Company is in accordance with the approved project configuration, proposed level of improvements under the design standards and specifications of DPWH. ▪ The IDC submits a monthly progress reports to DPWH discussing, among others, progress of work, major accomplishments for the month, minutes of meetings between government and the BOT Company incorporating possible implications and recommendations.
	Private Side	• If the BOT Company is responsible for preparing the DED, the following is the usual process: ▪ The BOT Company engages a design consultant for the preparation of the detailed engineering design of the project. ▪ The Company Invites qualified consultants to work as IDC for the government. ▪ The selection process for the IDC, from invitation, short listing and evaluation of their proposals and contract agreement, is approved by the government. ▪ The design consultant of the BOT Company works closely with the IDC in all aspects of design work. ▪ The BOT Company, thru its design consultant, prepares Environmental Impact Assessment (EIS) of the final plan to secure environmental clearance certificate from EMB and traffic impacts, management and engineering measures at different stages of construction for review and approval of affected communities and, where applicable, MMDA.
Issues/ Bottlenecks	Public Side	• The project alignment has been fixed with the approval from the concerned LGUs, communities and big land owners and developers. • All government clearances, certification and approvals had to be secured. • Coordination had to be made with utility companies for the relocation of affected utilities.
	Private Side	• The following concerns of the private firm must be given attention in the DED: ▪ If the DED is prepared by the government, the BOT Company will review and redesign if necessary. ▪ The BOT Company as part of its BOT obligations is accountable for the integrity of the design. ▪ Change of project configuration such as road alignment, location and/or addition of interchanges, and additional structure to mitigate impacts on-going or planned projects in the area must be considered. • On STAR, the Stage 2 Concessionaire modified – after DPWH approval - some aspects of the DED prepared by DPWH to suit actual field conditions but within the overall DPWH design standards, e.g., bridge clearances. For future projects, SIDC said that the government may undertake preliminary engineering only, and set the standards and specifications for the DED to be done by the proponent. • On TPLEX, PIDC found during the DED the need for additional crossings. Some Mayors have requested the relocation of interchanges and the provision of additional ones. These changes are now being reviewed by PIDC and DPWH.
Legal Aspects	Legal Basis	• DPWH sets the design standards for expressways and reviews/approves the DED pursuant to its charter (EO 124, series of 2007).
	Legal Issues	• To avoid disputes and confusion, there is a need for clear provisions in the TCA which would state that (i) the review and approval by the government (DPWH) of the DED prepared by the BOT Company does not diminish the responsibility of the latter over the integrity of the design, nor does it transfer any part of such responsibility to the government, and (ii) any changes in the DED resulting from additional works ordered by the government which are not covered in the original scope of the project should be funded by the government.

STAGE 10: Construction Stage

Proponent		
	Public	DPWH BCDA OECF
	Private	PNCC NLTC SCTEX TPLEX
Current Practice	Public Side	• The current practice on the government side for BOT/PPP projects involves the following: ▪ An Independent Certification Engineer (ICE) works for the government for the supervision of the construction works being undertaken by the BOT Company. ▪ The ICE submits monthly progress reports to DPWH presenting, among others, significant work activities for the month, problems encountered and solutions adopted coordination and minutes of meetings held during the month, etc. ▪ The ICE conducts random test of the works of the BOT Contractor to check whether it adhere to the standard specifications of DPWH. ▪ The ICE submits to DPWH for resolution issues and problems that could not be resolved with the BOT Contractor, together with recommendations.
	Private Side	• The current practice for BOT/PPP projects involves the following responsibilities of the BOT Company: ▪ The BOT Company either undertakes the construction of the project or engages a principal contractor on a turn key basis. ▪ Construction work should be in accordance with the approved design and work specifications. ▪ The BOT Company/contractor shall adhere at all times to the requirements and conditions in the clearance and approval issued by other government agencies to minimize adverse effects to the environment, including traffic rerouting plan and traffic engineering and management during construction. • The BOT Company/contractor shall respect access requirements of existing establishments adjacent to the project.
Issues/ Bottlenecks	Public Side	• Construction is often hampered by delayed ROW acquisition which is due to inability to address the following requirements: ▪ Early completion of required documents to facilitate acquisition of affected land and improvements. ▪ Adoption of fair market price of land affected. ▪ Fund availability for payment of affected land and improvements. • The government appears lax in enforcing the construction milestones in the contract, and in declaring the BOT Company/contractor in default for failure/delay in project implementation.
	Private Side	• Among the construction concerns that the BOT Company/contractor must address are the following: ▪ Prompt action to eliminate or relieve traffic bottlenecks caused by construction activities. ▪ Limiting evening construction activities affecting peaceful evenings of communities around the project area. ▪ Attention to safety to public, to workers, to travelers and to establishments that might be affected at different project stages. ▪ Direct access requirements of existing establishments. • On STAR, Stage 2 construction was delayed mainly because of (i) difficulties in attaining financial closure, (ii) delayed government delivery of ROW. The Concessionaire undertook variations as requested by LGUs/communities, e.g., modified or new crossings. It now requests compensation from DPWH for the variation orders (VOs) thru increased toll rates or extended concession period. Widening of Lipa-Batangas from two to four lanes is required per the contract once the road reaches its capacity. SIDC wants to widen soonest to reduce safety risks due to overtaking, and to increase speeds, considering the long queues caused by slow-moving trucks. For this, SIDC asks that tariffs be adjusted earlier than scheduled. • On TPLEX, PIDC emphasized that variations introduced by government outside the contract scope of work should be funded by the government (e.g., additional crossings). Some LGUs are requiring SIDC to secure local construction/business permits which were not considered during the bidding. DPWH is requesting the LGUs to grant/waive these permits.
Legal Aspects	Legal Basis	• Construction was undertaken in accordance with the provisions of the TCA, including conformance to the approved DED and to DPWH construction standards and specifications.
	Legal Issues	• To preclude legal disputes, there is a need to provide and enforce clear provisions in the TCA to the effect that the BOT Company shall assume the risks of construction, except for variations initiated by DPWH in the following cases: (i) Where there are changes or variations in the minimum performance standards for design and construction of the scope of the project during construction. Any additional cost or ROW required shall be for the account of the DPWH. If these changes give rise to delays, the construction period shall be extended accordingly. (ii) Where there is a change in law such that the variation is necessary to ensure compliance.

STAGE 11: Operation/Maintenance Stage

Proponent	Public	DPWH TRB BCD A
	Private	PNCC NLTC SIDC SCTEX
Current Practice	Public Side	• TRB assesses and evaluates the completeness of the constructed facility for tollroad operation. • TRB undertakes the monitoring and supervision of O&M
	Private Side	• The Concessionaire undertakes the O&M for the entire expressway as part of its BOT responsibilities
Issues/ Bottlenecks	Public Side	• For STAR, Stage 1 was opened to public free of charges and tolls. • The public questioned the collections of tolls on the Stage implemented by DPWH. • Issues were raised on the toll rates charged to different types of vehicles. • A high rate of accident involving fatalities on STAR, Stage 2 due to bunching of vehicles caused by high percentage of heavy vehicles. • There is a need to construct climbing lanes for slow-moving vehicles at steep gradients to avoid bunching of vehicles.
	Private Side	• On STAR, O&M started after DPWH correction of some facilities such as substandard riding surface which required overlay, vegetation on shoulders, broken fences, etc. ▪ SIDC and PIDC emphasized the need for the government to guarantee (i) the automatic issuance of the TOC upon completion of construction, and (ii) the automatic adoption of initial toll rates and toll adjustments in accordance with the contract
Legal Aspects	Legal Basis	• O&M is governed by the provisions of the TCA and the O&M standards set by DPWH including those developed by BCEOM consultants. O&M is also based on the O&M Manual to be prepared by the Concessionaire and approved by DPWH.
	Legal Issues	• SIDC agrees with EO 686 (2007), whereby: DPWH – shall handle the technical aspects, including design, contracting for construction and O&M, and ROW acquisition, plus supervision of const. and maintenance; and TRB – shall set the toll rates, issue the TOC, and supervise toll operations.

STAGE 12: End of Contract and Facility Transfer Stage

Proponent	Public	DPWH SIDC BCDA
	Private	PNCC NLTC TRB
Current Practice	Public Side	• The contract will end 30 years after the completion of construction.
	Private Side	
Issues/ Bottlenecks	Public Side	
	Private Side	
Legal Aspects	Legal Basis	• The TCA provides for a concession period of 30 years starting from completion of construction, after which the facility shall be transferred to the government.
	Legal Issues	

ANNEX 5.2-1

IDENTIFICATION OF ISSUES AND BOTTLENECKS
IN THE PROCESS OF PPP PROJECTS

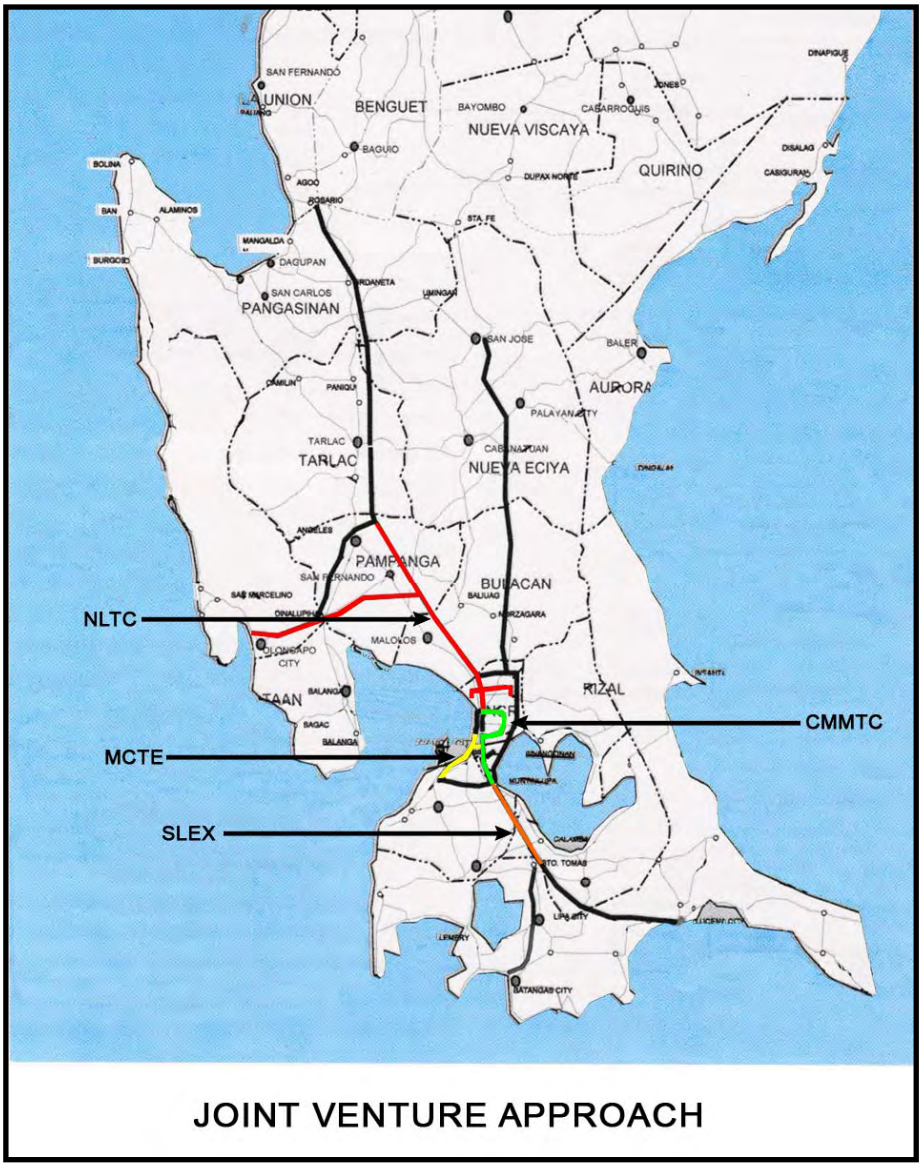
B. Joint Venture Approach

1. METRO MANILA SKYWAY
   Public Agency: DPWH and TRB
   Private Entity: Citra Metro Manila Tollways Corporation (CMMTC)

2. NORTH LUZON EXPRESSWAY (NLEX)
   Public Agency: PNCC and TRB
   Private Entity: North Luzon Tollways Corporation (NLTC)

3. SOUTH LUZON EXPRESSWAY (SLEX)
   Public Agency: DPWH
   Private Entity: South Luzon Tollways Corporation (SLTC)

4. MANILA-CAVITE TOLL EXPRESSWAY (MCTE)
   Public Agency: PEA, TRB, DPWH
   Private Entity: UEM MARA Philippines Corporation (UMPC)



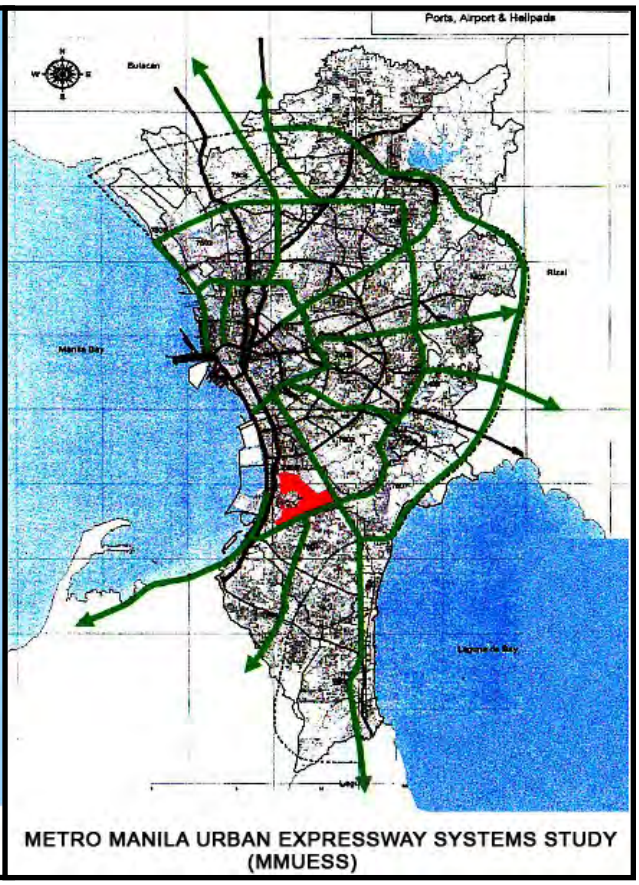
JOINT VENTURE APPROACH

B. JOINT VENTURE APPROACH

STAGE 1: Basic Plan/Master Plan/Project Identification Stage

Proponent	Public	DPWH PEA
	Private	PNCC NLTC CMMTC UMPC
Current Practice	Public Side	• DPWH with PNCC conducted the Luzon Expressway System Study (LESS), 1985-1990, to support the development of major economic centers in Luzon. Among the projects identified in the LESS were the following: 1. Sto. Tomas to Batangas City in Batangas (STAR). 2. South Luzon Expressway (SLEX) Extension from Calamba in Laguna to Lucena in Quezon 3. North Luzon Expressway (NLEX) Extension from Mabalacat in Pampanga to Urdaneta in Pangasinan (now further extended to Rosario, La Union and known as TPLEX) 4. Metro Manila Expressway (MME) from SLE to NLE following the alignment of C5 and C6. • DPWH, with technical assistance from JICA, also prepared the master plan for expressways in Metro Manila under the Metro Manila Urban Expressway System Study (MMUES), covering the period 1990-2000. The plan identified the following priority projects: 1. Three Circumferential Expressways along the alignment of C-3, C-5 and C-6 2. Two expressways towards the north, viz., NLE and NLE East. 3. Two East Luzon Expressways (ELE) towards Antipolo and the northern towns along Laguna Lake 4. Three expressways in the south, viz., Manila-Cavite Expressway, South Luzon Expressway (SLEX), and CALA Expressway between Manila Bay and Laguna Lake;
	Private Side	• A private firm usually identifies a prospective toll expressway project and submits an unsolicited proposal to the franchise holder (PNCC or PEA) to invest as a JV partner in a toll expressway project. • Thus, for NLEX, the Lopez group (Benpres) initiated a JV proposal with PNCC. • For SLEX, the Citra Group entered into a JV with PNCC • For MCTE, the Renong Group entered into a JV with PEA
Issues/ Bottlenecks	Public Side	• On the Skyway and NLEX, 3 alternative alignments for the connector between NLEX and SLEX have emerged: (i) using C-2 (Skyway proposal) , (ii) using the PNR line (NLTC proposal), and (iii) using Quirino-Lacson-Dimasalang Roads (identified in JICA-DPWH HSHN Study). • Moreover, on NLEX, the original C-5 link following Republic Avenue appears most feasible, but is marked by numerous clusters of informal settlers. An option identified to clear Republic Avenue, without causing major dislocation of the settlers, is to shift the clusters at least 50 meters outside the ROW. The government, thru DPWH snd MMDA, deviated from the original plan by improving Mindanao Avenue, Congressional Avenue, and Tandang Sora, as alternatives to Republic Avenue-Luzon Avenue. • On SLEX, the alignment and scheme of TR3 had to consider the request of a commercial/industrial park in the area for access to the expressway, and had to avoid conflict with the PNR line. • On MCTE, several alternative alignments for R-1 and the C-5 link were considered in the plan. • The FS and DED undertaken by DPWH on R-1 and C-5 were used by JV in the preparation of their project proposal.
	Private Side	
Legal Aspects	Legal Basis	• DPWH undertook the LESS and MMUESS, which identified the expressway projects, in accordance with the authority of the Department under its charter (EO 124) to develop the entire national road network.
	Legal Issues	

LUZON EXPRSSWAY SYSTEM STUDY (LESS)



METRO MANILA URBAN EXPRESSWAY SYSTEMS STUDY (MMUESS)

STAGE 2: Business Case/Feasibility Study

Proponent		
	Public	DPWH PEA
	Private	PNCC NLTC CMMTC UMPC
Current Practice	Public Side	• The implementing agency concerned either conducts the FS (which is seldom) or reviews an unsolicited FS/JV proposal from a private firm or JV. • On the Skyway, DPWH, thru USAID assistance, conducted an FS on the Metro Manila South Tollway, which included the Skyway project, in 1992. The FS showed that the project is feasible as a privately-financed toll facility. • On NLEX, TRB (with DPWH) reviewed the project FS submitted by PNCC-Benpres JV and approved the proposal in principle. • On SLEX, there was no detailed FS done by the government to serve as the basis for solicited proposals thru bidding. Most of the proposals were unsolicited offers for JV with PNCC. • On MCTE, DPWH, with a technical assistance from the Korean Government conducted the FS and DE on the R-1 Extension to Rosario Cavite, while the DE of C-5 expressway was undertaken by DPWH.
	Private Side	• In several cases, the private sector initiates the business case study/JV proposal and submits this to the government. • On the Skyway, Citra (Indonesian firm) conducted its own study on the project in 1993-94, which was the basis of the CMMTC proposal. • On NLEX, Benpres, jointly with PNCC, prepared an unsolicited project proposal (FS) in the early 1990s. • On MTCE, Renong, with PEA, prepared an unsolicited project proposal (FS) in 1994.
Issues/ Bottlenecks	Public Side	• Main issues usually involve inadequately defined scope of work, over-design, high costs, and high toll rates. • On the Skyway, the government was concerned about the high toll rate on the elevated structure. This was due to the apparent over-design to accommodate the optimistic traffic projection at the skyway. • On NLEX, the initial construction cost was found too high, which would drive up the toll rates. The scope of work appeared over-designed (excessive widening, interchange design, etc.). Initial rate of return (ROR) was deemed too high for expressway projects. All of these led to a review of the project scope to make it more economical. • On MCTE, PEA initiated the construction of R-1 from MIA Road to Bacoor Cavite. This was later evaluated by UMPC to be substandard which needed total construction.
	Private Side	• For future projects, the four JVs agree that the government, not the private proponent, should take the initiative in undertaking FS for identified priority expressway projects. • On NLEX, NLTC modified the design of interchanges reducing the area for ROW acquisition. To simplify toll operation, the urban sections (NLEX from Balintawak to Marilao, Bulacan and C-5 Expressway) would be on an open system while the remaining segments of the project would be on a close system. The widening of NLEX was based on the projected traffic i. e 8 lanes from Balintawak to Burol in Bulacan, 6 lanes from Burol to Sta. Rita and 4 lanes from Sta. Rita to Dau in Pampanga. • On MCTE, the cost incurred by PEA before the JV be part of the project cost. The JV assumed that the reclamation works for the R-1 extension to Kawit in Cavite would be undertaken by other entities and not be part of the project cost. Big land owners and developers requested changes in the alignment of C-5 Expressway to minimize effects to their development plans. • On SLEX, JV reduced the project scope of the Metro Manila Skyway (MMS) from Alabang to Bicutan. The Makati government and the business sector opposed the MMS extension to Buendia Avenue from SLEX to Ayala, Alabang.
Legal Aspects	Legal Basis	• The conduct of the FS by DPWH is authorized under the DPWH charter (EO 124) which makes the department responsible for the planning of the entire national road network.
	Legal Issues	

STAGE 3: Project Approval Stage

Proponent		
	Public	DPWH TRB PEA
	Private	PNCC NLTC CMMTC UMPC
Current Practice	Public Side	• In the current practice, DPWH and TRB review and evaluate the FS submitted by the JV Company including the following: ▪ Technical aspects: project configuration, minimum design parameters, proposed level of improvement, construction cost estimates, construction schedule. ▪ Economic and financial aspects: estimated and projected traffic volume over the concession period, expected traffic impact on the existing road network, economic analyses, financial model, estimated financial rate of return, calculated economic rate of return ▪ Contract negotiation and finalization ▪ Contract award • If the JV proposal meets all the requirements, TRB approves the project proposal submitted by the JV Company.
	Private Side	• A private investor enters into a Joint Venture Agreement (JVA) with a franchise holder to form the JV Company. • The JV Company conducts a detailed FS and submits a project proposal to DPWH. • The JV Company provides clarifications, details, analyses, references and bases of assumptions asked by DPWH and TRB. • The JV Company submits a financial model to be adopted for the review and approved by DPWH and TRB.
Issues/ Bottlenecks	Public Side	• Issues and bottlenecks met by the public and private sectors include the following: ▪ Improvements of existing toll roads are highly financially viable projects. ▪ Extension and/or addition of expressway links is usually incorporated by government in the project package. ▪ Construction cost estimates are based only from preliminary engineering design. ▪ Government approval came only after the contract agreement, such as (i) ECC from DENR-EMB and (ii) project endorsement from MMDA and RDC. ▪ Difficulty to question estimated and projected traffic use of the toll road without providing guarantees to the JV Company. ▪ Negotiated JV approach involves much longer time to finalize the contract than the solicited approach because of various disputes, proposals and counterproposals during negotiations. • The government was also concerned about the apparent high toll rates, construction cost (which caused the high toll rates), and ROW requirements.
	Private Side	• Aside from the above issues and bottlenecks, the processing and approval of the project was found cumbersome and time-consuming. Issues that took time to resolve included setting of reasonable toll rates and toll adjustment formulae, acceptable rate-of-return, ROW requirements, contract provisions, and lenders' requirements.
Legal Aspects	Legal Basis	• The project was approved in accordance with the TRB charter and the PNCC franchise.
	Legal Issues	

STAGE 4: Tender (Investor Selection) Stage

Proponent		
	Public	DPWH TRB PEA
	Private	PNCC NLTC CMMTC UMPC
Current Practice	Public Side	• The current practice involves the following: ▪ The government establishes the capabilities of the JV Company to finance, construct, operate and maintain the toll road facility. ▪ The government reviews the completeness of the proposal by the JV Company. ▪ The government assesses accurateness of all analysis, estimates and projections.
	Private Side	• The current practice involves the following: ▪ The JV Company exhibits its full understanding in the development of the project. ▪ Feasibility study and submission of project proposal is undertaken with diligence supported by reliable data and information. ▪ Adequate preliminary engineering design with realistic construction cost estimate is done. ▪ Risks sharing and management are adequately identified. • On the Skyway, Citra submitted to PNCC, DPWH and TRB, an unsolicited proposal to finance, design, build, and operate and maintain the Skyway project, counting on its experience in undertaking a similar project in Indonesia and the two (2) entities entered into as a joint venture forming NLTC. • On NLEX, the Lopez Group submitted an unsolicited proposal for the project to PNCC, thru DPWH/TRB, in 1992 and the two (2) entities negotiated and entered into a joint venture, forming CMMTC. • On SLEX, several unsolicited proposals from prospective investors had been presented to PNCC. Aside from MTD, earlier Hopewell and NDC also planned to invest in the project, but these did not materialize because of financial and legal issues PNCC selected MTD (Malaysian tollways firm) as its investor after considering the latter's unsolicited proposal for the project, and the two entities entered into a JV, forming SLTC. • On MCTE, several firms submitted unsolicited proposals to PEA which finally selected UMPC.
Issues/ Bottlenecks	Public Side	• The following concerns have emerged: ▪ The government could rely mainly on the materials submitted by the Joint Venture Company (JVC) in determining its qualification and capability. ▪ Contract finalization with the single JVC is through negotiation based on its submitted proposal. ▪ Clearances, issuances and approvals from other government agencies undertaken after contract finalization. • On all four JV projects, there was no competition or full transparency in the selection by PNCC/PEA of the investor-partner. PNCC and PEA considered unsolicited proposals from private groups to enter into JV and negotiated the terms for financing, design, construction and O&M under varying terms. Often, the financial capability of the proponent was put into question. Best-value-for money could not be ascertained.
	Private Side	• The following issues have arisen: ▪ Many disputes, proposals and counterproposals during negotiation. ▪ Delays in the issuance of clearances and approvals from concerned agencies affect timing and schedule of project implementation, including ECC from EMB and endorsement from RDC. ▪ Difficulty in securing MMDA's approval of the proposed traffic engineering and management during construction. • For future projects, all four firms agree on the bidding mode under BOT law - as an alternative to the unsolicited JV mode - based on a government FS which sets out parameters and specifications for design, construction and O&M. Most prefer that the bid offer be in terms of toll rate given a fixed GFS. They also stressed that the bidding process needs to be shortened.
Legal Aspects	Legal Basis	• The JV mode was undertaken by PNCC pursuant to its charter which grants PNCC the franchise to the expressways and their linkages and extensions. A JV for toll ways was used by PEA/PRA in accordance with its charter..
	Legal Issues	• Questions have been raised as to whether PNCC could legally assign its franchise to a JV Company thru usufruct rights, especially since its basic franchise already expired in May 2007. • There are too many agencies – PNCC, PEA, BCDA, NDC, etc. - that undertake PPP expressway projects, apart from DPWH which is the main road agency of the government. Some of these agencies implement these projects thru their broadly defined charters which allow them to go into ventures (such as roads) outside their core functions, e.g., land reclamation in the case of PRA and bases conversion and development in the case of BCDA. This has resulted in uncoordinated development of expressways based mostly on unsolicited proposals and JVs. There is a need to revisit this situation and to designate DPWH as the sole entry point for expressway projects.

STAGE 5: Contracting Stage

Proponent	Public / Private	TRB PNCC PEA NLTC CMMTC SLTC UMPC
Current Practice	Public Side	• Contracting was thru a Supplemental Toll Operation Agreement (STOA) between TRB and the PNCC joint ventures, since PNCC already has an existing franchise. In the case of MCTE, contracting was thru a Toll Operation Agreement (TOA) between TRB and PEA-UMPC.
	Private Side	
Issues/ Bottlenecks	Public Side	• Only preliminary design was done by the JV Company before the contracting stage. Hence, the government had a tedious task reviewing the costs, traffic, and toll rates. This was aggravated by the fact that there were n competing bids to test the reasonableness of the JV proposals. • There were also conflicts in the allocation and mitigation of risks, with the government tending to assign most of the risks to the private sector. The negotiations to resolve these conflicts have been lengthy and complicated.
	Private Side	• The contracting process was lengthy and complicated – especially to resolve issues pertaining to scope of work at the elevated and ground levels, toll rates, responsibilities of proponent and government, lenders' requirements. • On MCTE, contracting was delayed also because of several changes in the ownership of the JV Company.
Legal Aspects	Legal Basis	• The legal basis for contracting thru a STOA in the case of the Skyway, NLEX and SLEX is the PNCC franchise and the TRB charter. In the case of MCTE, the legal basis for contracting thru a TOA is the PEA charter and TRB charter.
	Legal Issues	• CMMTC agrees on the delineation of responsibilities between DPWH and TRB with respect to contracting per EO 686

STAGE 6: Toll Operation Agreement Stage

Proponent	Public	PNCC CMMTC SLTC TRB
	Private	PEA NLTC UMPC
Current Practice	Public Side	• This was done thru a STOA between TRB and the JV Company in the case of the PNCC JV projects, and thru a TOA in the case of MCTE.
	Private Side	
Issues/ Bottlenecks	Public Side	• Main issues were addressing and balancing the interests and risks of the users/public (quality service at reasonable toll rates), the government (economic feasibility), and the proponent and its financiers (financial viability). • On the Skyway, this was the first BOT/PPP project on expressways for a JV. Hence, there were no precedents to derive lessons from. • On NLEX, TRB/DPWH undertook a lengthy series of reviews and revisions of the draft STOA to adequately meet and reconcile the interests of the users, the government, and the JV Company and its financiers. • On SLEX, the draft STOA went through several reviews and modifications by an inter-agency group – TRB, DPWH, OP, NDC – together with the JV partners. Among the issues were conditions for loan drawdown, procurement, etc.
	Private Side	• Main issues are assurance that the project is profitable, that it will earn revenues that will cover the costs including prompt repayment of loans, and that it involves manageable risks. • On the Skyway, there were numerous requirements of government and lenders, resulting in many revisions in the draft STOA. • On NLEX, the financiers/lenders of NLTC requested clarification of about 30 points in the proposed STOA, apparently to ensure that their interest is amply protected – e.g., material adverse government action, investors' step-in rights, toll rate adjustments, priority to debt repayment in the use of toll revenues, etc. For future projects, NLTC said that the proponent can assume traffic/market, construction, and financing risks. But the government should guarantee prompt ROW delivery, GFS, and toll rate adjustments, per contract, and the government should compensate the proponent for delays in providing these undertakings. • The legal basis for the STOA is provided by the PNCC franchise and the TRB charter.
Legal Aspects	Legal Basis	• In the case of the Skyway, NLEX and SLEX, the legal basis for contracting thru a STOA is provided by the PNCC franchise and the TRB charter. In the case of MCTE, the legal basis for contracting thru a TOA is provided by the PEA charter and TRB charter.
	Legal Issues	• Congress and other groups have posed questions as to whether (i) the PNCC can still legally operate considering that its franchise already expired in May 2007, (ii) whether the STOA for 30 years between TRB and the PNCC JV is valid as an administrative franchise in lieu of a legislative franchise, and (iii) whether PNCC could legally assign, by usufruct, its franchise to a JV Company These pending issues have caused uncertainty and risks on the part of investors.

STAGE 7: ROW Acquisition/Resettlement Stage

Proponent	Public	DPWH CMMTC PEA
	Private	PNCC NLTC UMPC
Current Practice	Public Side	• DPWH usually funds and acquires the ROW.
	Private Side	• For the Skyway, CMMTC advanced its funds to expedite the issuance by property owners of the Permits to Enter so that construction can immediately begin.
Issues/ Bottlenecks	Public Side	• Main issues are cumbersome documentation, opposition by some owners and settlers, disagreement on property pricing, prolonged negotiation and expropriation proceedings, and funding difficulties. • On the Skyway, there was a delay in budgeting adequate funds and in releasing them because actual ROW costs significantly exceeded the estimated costs, there was a delay in budgeting adequate funds and in releasing them. • On NLEX, designs standards of interchanges were lowered to reduce ROW acquisition. For C-5 Expressway, it was difficult to clear the illegal dwellers occupying the ROW of Republic Avenue. • On SLEX, ROW acquisition was cumbersome and lengthy. The ROW cost increased 20 times in the last 3 years. There were significant delays and numerous requirements in documentation, negotiation, court expropriation, property valuation, and resettlement of informal settlers. On TR3, a large owner-developer claimed that the land value of its property should be paid at commercial-industrial prices based its development plan, but TRB/DPWH argued that the land should be priced based on the actual land us – raw/agricultural – at the time of taking of the property. TRB/DPWH also found it difficult to meet the demands of informal settlers at Barangay Turbina along TR3 who had to be relocated. • On MCTE, major ROW acquisition was along C-5 Expressway where negotiations with the owners were difficult and court expropriation took a long time.
	Private Side	• The private sector is beset by the ROW issues mentioned above for the public side. • On the Skyway, government delivery of ROW for Stage 2 has been delayed, as DPWH has no GAA funding in 2009. CMMTC was asked to advance the cost of ROW. • On SLEX, SLTC suggests that risks on schedule for ROW be given attention. Award and financial closure cannot be made unless ROW acquisition is completed. Full ROW funding and acquisition should be done before start of construction. • On NLEX, NLTC's funders require that the ROW be cleared and ready for delivery before financial closure. NLTC assisted the government ROW team in expediting action to acquire the ROW, including follow up with the owners and the courts. In future projects, NLTC agrees that FS should define the ROW alignment; government should freeze development within the alignment, and start ROW acquisition and complete it before the bidding. • On SLEX, SLTC agrees on above public side of the issues. For future projects, SLTC agrees that the FS should define the ROW, the NG should fix it and complete ROW acquisition before the bidding. Once the NG defines the expressway ROW, LGUs should be instructed not to issue development/building permits within the ROW. SLTC suggests special courts be designated which are dedicated to ROW cases to expedite expropriation proceedings. The government should guarantee prompt ROW delivery per contract. • On MCTE, there were delays and corruption (as perceived by UMPC) in ROW acquisition and payments. The government should address corruption in ROW valuation. For future projects, UMPC suggests that the government should define the ROW alignment in FS, provide ROW funding, and acquire ROW before construction, preferably before bidding. The government should organize and train a full-time ROW group to cover planning, acquisition, monitoring. Government should provide DPWH police powers and should exercise political will in ROW acquisition and clearance. The IRR for the ROW acquisition law (RA 8974) needs to be improved with the participation of stakeholders.
Legal Aspects	Legal Basis	• ROW acquisition is based on the ROW law (RA 8974). Removal and resettlement of affected informal settlers is governed by RA7279.
	Legal Issues	• To avoid legal issues, there is a need for clear provisions in the TOA which state the government/DPWH shall be solely responsible for, and bear all costs in relation to ROW activities. Apart from acquisition of the ROW, these should include the removal and resettlement of informal settlers and other occupants, and the removal, relocation and reinstatement of public utilities, such as electric, telephone, water supply, drainage, and similar facilities. • There appears to be undue conversion of agricultural lots to commercial/industrial uses to justify higher land prices for ROW. Also, some land owners complained that their lots were priced much lower than those of adjacent lots with similar characteristics; this could mean inconsistent application of the laws and rules pertaining to valuation of properties.

STAGE 8: Fund Preparation Stage

Proponent	Public	DPWH CMMTC PEA
	Private	PNCC NLTC UMPC
Current Practice	Public Side	• The government, thru DPWH, provides funding for the ROW.
	Private Side	• The private proponent/JV Company provides funding for the civil works, toll facilities, and related costs.
Issues/ Bottlenecks	Public Side	• Major issues usually met are (i) ROW cost overruns and (ii) delays in fund release. • For the Skyway, DPWH experienced budget constraints, while ROW costs were much more than earlier estimated. There was a delay in programming additional ROW funds and in releasing them. • For NLEX, ROW funds programmed by DPWH were not enough because of its limited budget. Hence, BCDA had to advance part of the ROW funds, to be repaid by DPWH thru the annual GAAs. • For MCTE, DPWH had to spread out the budgeting of ROW funds over several years because of it limited budget ceiling.
	Private Side	• Common problems include (i) difficulties and delays in attaining financial closure and (ii) unforeseen changes needing additional funding – proposed additional facilities, LGU fees, etc. • For the Skyway, the financial closure was delayed because of difficulty in meeting lenders' requirements – acquired ROW, approved toll rates, construction dates, etc. CMMTC stressed that, in the future, risks on schedules for financial closure should be given greater attention. Banks usually require adequate FS, approved toll rates, guarantee on tolls, and letter of credit for revenue shortfalls. GFS subsidy on construction cost should be considered to make the project financially viable at affordable toll rates. Loan financing should preferably be in pesos to reduce risks and adjustments due to foreign exchange fluctuations. CMMTC is willing to assume financing as well as construction risks, but government should (i) cover shortfalls in traffic/ revenues and share in surpluses, (ii) provide agreed GFS subsidy on construction, and (iii) assure implementation of agreed toll rates. • For NLEX, there was a long delay in financial closure - 8 years – to fully address the financiers' requirements and clarifications (about 30 points). NLTC pointed out that the proponent can assume financing risks as well as traffic/market and construction risks, provided government guarantees prompt ROW delivery, GFS, and toll rate adjustments, per contract. The government should compensate for delays in providing these undertakings. • For SLEX, IFC financing did not materialize as it required financial closure, which local banks could not achieve since they required a clear franchise. PNCC franchise expired in May 2007. When a STOA was issued by TRB as an administrative franchise, this was opposed in a case still pending with the Supreme Court. SLTC obtained a Phil-exim guarantee for proposed domestic loans but this was not acceptable to local banks. Also, the EIA/ECC was not clear. Per MTD (SLTC's investor), a Malaysian bank could extend a loan provided that SLTC takes over O&M and assigns the toll collections to pay off the debt. But this could not be realized as PNCC refused to hand over O&M including toll collections. For future projects, SLTC suggests GFS as subsidy for construction to make projects financially viable at toll rates users are willing to pay, especially where traffic is low. • On MCTE, UMPC experienced significant difficulties and delays in attaining the requirements of its financiers for financial closure – e.g., adequate toll rates and adjustment formulae to cover costs, complete ROW, ECC, technical audit showing soundness of the works done, etc.
Legal Aspects	Legal Basis	• Government funds for ROW are included in the DPWH infrastructure program, while the corresponding appropriations cover is authorized in the GAA. • Private funding of the project, from equity and debt, is authorized thru the PNCC franchise.
	Legal Issues	

STAGE 9: Detailed Design Stage

Proponent		
	Public	PNCC CMMTC SLTC
	Private	PEA NLTC UMPC
Current Practice	Public Side	▪ An Independent Design Checker (IDC) is engaged to work for the government. ▪ The IDC sees to it that the design being undertaken by the JV Company is in accordance with the approved project configuration, proposed level of improvement incorporated in the contract. ▪ The IDC reviews the works of the JV Company to conform with the design standards and specifications of DPWH. ▪ The IDC submits a monthly progress reports to DPWH discussing, among others, progress of work (delayed or on schedule), major accomplishments for the month, minutes of meetings between government and the JV Company incorporating possible implications and recommendations. ▪ The IDC supervises the JV Company in securing all clearances and approvals from other government agencies required for the implementation of the project.
	Private Side	• The following is the usual process: ▪ The BOT Company engages a design consultant for the preparation of the detailed engineering design of the project. ▪ The Company invites qualified consultants to work as IDC for the government. ▪ The selection process for the IDC, from invitation, short listing and evaluation of their proposals and contract agreement, is approved by the government. ▪ The design consultant of the BOT Company works closely with the IDC in all aspects of design work. ▪ The BOT Company, thru its design consultant, prepares the EIS of the final plan to secure ECC from EMB and traffic impacts, management and engineering measures at different stages of construction for review and approval of affected communities and, where applicable, MMDA.
Issues/ Bottlenecks	Public Side	• The following concerns of the government must be given attention in the DED: ▪ Balancing the design against ROW acquisition requirements, i.e. high standard entry/exit points in the toll road, but larger areas are to be acquired. ▪ Various public meetings and consultations in the finalization of plan especially involving major ROW acquisition. ▪ Availability of relocation sites for affected informal dwellers and price and method of payments in case of private land and property owners. ▪ Coordination with utility companies for the relocation of affected utilities. ▪ Resolution on flooding and blocked access to existing establishments. ▪ Possible over-design in terms of capacity (e.g., number of lanes) and strength (stresses). This could unnecessarily increase the costs and, therefore, the toll rates. This point to the need to adopt value engineering in the FS and design. • For NLEX, some facilities initially appeared to be over-designed, e.g., clearance requirements, toll gates, etc. There were also pressures to relocate or open up new exits. TRB/DPWH addressed these concerns according to the design standards. • For MCTE, there was difficulty in getting acceptance by LGUs of the alignment and access by coastal communities to the sea for their livelihood. Securing an EIA/ECC was also difficult because of environmental concerns – effect on water quality and ecology of the bay, livelihood of fishermen, etc.
	Private Side	• The following concerns of the private side must be given attention in the DED: ▪ Design delays due to unresolved road alignments. ▪ Change of project configuration such as road alignment, location and/or addition of interchanges, additional structure to mitigate impacts to on-going or planned projects in the area. ▪ Any delays in the design works would affect securing required project, clearances, and approvals. • On NLEX, NLTC had to revise the designs to meet new design requirements (e.g., required vertical clearance, seismic retrofitting, additional exits and crossings, etc.). For future projects, NLTC prefers that the proponent continue to handle DED since international funders want the contractor to assume and control design-build tasks. The government should provide bidders all engineering investigation reports. • On SLEX, there were numerous changes in government/PNCC design scope and requirements – e.g., retrofitting vs. reconstruction of viaduct (TR1), interchanges/exits at Calamba-Sto. Tomas (TR3), etc. • On MCTE, there were several changes in the alignment and design – e.g., coastal ve. inland, viaduct vs. causeway/reclaimed, bridge design, fill materials, C-5 link alignment, to address requests from big land owners and developers, etc. For future projects, UMPC suggested that DED continue to done by the BOT proponent based on design specifications and parameters set by the government as part of the bidding documents.
Legal Aspects	Legal Basis	• The DED is part of the proponent's responsibility under the STOA/TOA, which is included in the bidding documents. The DED has to comply with DPWH/TRB design standards.
	Legal Issues	• To avoid disputes, there should be clear provisions in the TOA which would state that (i) the review and approval by the government (DPWH) of the DED prepared by the JV Company does not diminish the responsibility of the latter over the integrity of the design, nor does it transfer any part of that responsibility to the government, and (ii) any changes in the DED resulting from additional works ordered by the government which are not in the original scope of the project should be funded by the government.

STAGE 10: Construction Stage

Proponent		
	Public	PNCC CMMTC SLTC DPWH
	Private	PEA NLTC UMPC
Current Practice	Public Side	• The current practice on the government side for PPP projects involves the following: ▪ An Independent Certification Engineer (ICE) works for the government for the supervision of the construction being undertaken by the JV Company. ▪ The ICE submits monthly progress reports to DPWH presenting, among others, significant work activities for the month, problems encountered and solutions adopted coordination and minutes of meetings held during the month, etc. ▪ The ICE conducts random test of the works of the JV Company/contractor to check whether it adhere to the standard specifications of DPWH. ▪ The ICE supervises construction activities of the JV Company/contractor at all stages to monitor progress of work, to resolve any problems that might delay or affect progress of works, etc. ▪ The ICE submits to DPWH for resolution issues and problems that could not be resolved with the JV Company/contractor together with the recommendation.
	Private Side	• The current practice for PPP projects involves the following responsibilities of the BOT Company/contractor: ▪ The BOT Company either undertakes the construction of the project or engages a principal contractor on a turn key basis. ▪ Construction work should be in accordance with the approved design and work specifications. ▪ The BOT Company/contractor shall adhere at all times to the requirements and conditions in the clearance and approval issued by other government agencies to minimize adverse effects to the environment, including traffic rerouting plan and traffic engineering and management during construction. ▪ The BOT Company/contractor shall respect access requirements of existing establishments adjacent to the project.
Issues/ Bottlenecks	Public Side	• Construction is often hampered by delayed ROW acquisition which is due to inability to address the following requirements: ▪ Early completion of required documents to facilitate acquisition of affected land and improvements. ▪ Adoption of fair market price of land affected. ▪ Fund availability for payment of affected land and improvements. • The government appears lax in enforcing the construction milestones in the contract, and in declaring the JV Company in default for failure/delay in project implementation. • The government must ensure that traffic management was adequate to prevent traffic congestion during construction. • On NLEX, proper sequencing of construction and management of the traffic flow during construction were major concerns to reduce public inconvenience. Fortunately, NLTC adopted an effective construction sequence and traffic management scheme. • On SLTC, because of the heavy vehicular flow, traffic management during construction is a major concern. The private contractors appear slow and their staging of construction to minimize traffic disruption is not efficient (unlike that of NLTC). • On MCTE, PEA initiated the construction of the Manila-Cavite-Coastal Road from R-1 to Bacoor, Cavite. Reclamation works encountered problems with the materials and substandard pavement structure, resulting in very costly maintenance works. When it was open to the public, the completed section was not operated as toll road due to unfulfilled TRB requirements. Monitoring and supervision by the government has not been adequate based on several construction issues. The ECC has not been strictly observed during construction.
	Private Side	• Among the construction concerns that the BOT Company/contractor must address are the following: ▪ Prompt action in eliminating or relieving traffic bottlenecks caused by construction activities. ▪ Limiting evening construction activities affecting peaceful evenings of communities around the project area. ▪ Attention to safety to public, to workers, to travelers and to establishments that might be affected at different project stages. • On the Skyway project, CMMTC had difficulty securing numerous permits from different LGUs and NG units, as well as utility companies (electric, water, telephone, drainage, etc.). Also, ROW acquisition was sometimes delayed. There were reported violations of the ECC during construction. In future projects, CMMTC is willing to assume construction as well as financing risks, but the government should (i) cover shortfalls in traffic/revenues and share in surpluses, (ii) provide agreed GFS subsidy on construction, and (iii) assure implementation of agreed toll rates. • On NLEX, the government should ensure unimpeded construction by providing the cleared ROW on time. The private proponent can assume construction risks, as well as traffic and financing risks, but the government should guarantee prompt ROW delivery, GFS, as well as toll rate adjustments, per contract. The government should compensate the proponent for delays or failure in providing these undertakings. • On SLEX, SLTC said its construction is delayed because PNCC has not given the contractors proper access to work areas; to address this, on 09 June 09 PGMA directed DPWH to grant contractors access to the project. LGUs, including barangays, are requiring various permits (e.g., business, construction, excavation, etc.) with fees which cause cost increases and delays. For future projects, SLTC suggested that the government should provide cleared ROW in time to ensure unimpeded construction. During construction, LGUs should not be allowed to require construction permits and fees and to stop works on national expressway projects approved by NG. • On MCTE, there was a public outcry against the initially built substandard pavement structure which affected travel speed and safety along the completed R-1 Expressway. On-going construction of the MCTE from Zapote to Kawit has been delayed due to the limited capabilities of the contractor, sub-contractors, and project management, aggravated by the delayed financial closure and loan drawdowns. Construction is also hampered by political intervention. UMPC suggested that the government should ensure unhindered construction by providing cleared ROW on time.
Legal Aspects	Legal Basis	• Construction responsibilities are based on the STOA, and must follow the approved DED as well as DPWH construction standards.
	Legal Issues	• To avoid legal disputes, there is a need to provide and enforce clear provisions in the TOA to the effect that the JV Company shall assume the risks of construction, except for variations initiated by the government in the following cases: (i) Where there are changes or variations in the minimum performance standards for design and construction or in the scope of the project during construction. Any additional cost or ROW required shall be for the account of the government. If these changes result in delays, the construction period shall be extended accordingly; and (ii) Where there is a change in law such that a variation is necessary to ensure compliance.

STAGE 11: Operation/Maintenance Stage

Proponent	Public	PNCC CMMTC SLTC DPWH
	Private	PEA NLTC UMPC TRB
Current Practice	Public Side	• TRB/DPWH monitors and supervises the O&M.
	Private Side	• The JV Company, thru its designated operator, undertakes the O&M, including toll collections
Issues/ Bottlenecks	Public Side	• TRB appears to be lax/remiss in monitoring O&M and enforcing rules provided in the TOA – e.g., (i) queues have formed because of closed gates during non-peak hours, (ii) no weigh-in-motion machines (WIMs), (iii) no or insufficient variable message signs, (iv) speed control.
	Private Side	• On the Skyway, the government, for social/political reasons, has not always enforced the agreed toll rates and adjustments as provided in the STOA. Government has not duly compensated the operator for revenue loss in these cases. Traffic is low on the elevated structure because the motorists apparently find the toll rates too high. CMMTC feels that multiple operators for the different expressways in and near Metro Manila are feasible, provided that they use consistent O&M standards, and adopt one clearing house (3rd party) for toll collections. • On NLEX, there was initial resistance of motorists to the high toll rates, but this was countered by good quality of service supported by effective public relations showing significant benefits to the expressway users. Maintenance works sometimes caused traffic build-up and some work areas have no or few workers. NLTC stressed the need for the government to ensure the adoption of initial toll rates and adjustments per contract. The proponent can assume O&M risks, as well as traffic/market, construction, and financing risks, but government should guarantee prompt toll rate adjustments and other government obligations per contract. Government should compensate for delays in providing these undertakings. • On SLEX, SLTC claims that PNCC is reluctant to turn over the O&M to SLTC. For rehabilitation projects, SLTC suggests that the proponent should take over O&M during construction to protect the expressway from overloaded trucks, and to guarantee the payment of its debt to creditors. • On MCTE, traffic management could be improved to facilitate traffic flow especially towards the ends of the tollways. There should be a clear "waterfall" in allocating toll revenues: (i) O&M, (ii) debt service, (iii) taxes, and (iv) excess revenues for new projects. The government should promptly provide ROW and assure implementation of agreed toll rates and their adjustments per contract. It should provide proper compensation for cost of delay in toll rate adjustments.
Legal Aspects	Legal Basis	• O&M is based on the STOA and the O&M standards of TRB/DPWH.
	Legal Issues	• CMMTC agrees on the delineation of O&M regulatory responsibilities between DPWH and TRB per EO 686.

STAGE 12: End of Contract and Facility Transfer Stage

Proponent	Public	DPWH CMMTC PEA TRB
	Private	PNCC NLTC UMPC DPWH
Current Practice	Public Side	• The contract will end in 30 years after construction.
	Private Side	
Issues/ Bottlenecks	Public Side	
	Private Side	
Legal Aspects	Legal Basis	• Provisions pertaining to the end of the contract and transfer of the facility are spelled out in the STOA and TOA.
	Legal Issues	

ANNEX 7.6-1

ANNEX 7.6-1

ECONOMIC COST-BENEFIT CASH FLOW

1. North-South Link Expressway (Mil. Peso)

	Cost			Benefit	Net Cash Flow
	Construction	Maintenance	Total	VOC+TTC	
2011	0.0		0.0	0.0	0.0
2012	0.0		0.0	0.0	0.0
2013	290.4		290.4	0.0	-290.4
2014	948.6		948.6	0.0	-948.6
2015	4,774.6		4774.6	0.0	-4,774.6
2016	9,522.7		9522.7	0.0	-9,522.7
2017	9,522.7		9522.7	0.0	-9,522.7
2018		87.4	87.4	9,043.5	8,956.2
2019		87.4	87.4	9,289.5	9,202.1
2020		87.4	87.4	9,535.4	9,448.1
2021		87.4	87.4	9,840.1	9,752.7
2022		87.4	87.4	10,144.7	10,057.3
2023		87.4	87.4	10,449.3	10,361.9
2024		87.4	87.4	10,753.9	10,666.6
2025		87.4	87.4	11,058.5	10,971.2
2026		87.4	87.4	11,363.2	11,275.8
2027		378.6	378.6	11,667.8	11,289.2
2028		87.4	87.4	11,972.4	11,885.0
2029		87.4	87.4	12,277.0	12,189.7
2030		87.4	87.4	12,581.6	12,494.3
2031	-7,616.7		-7,616.7		7,616.7
Total	17,442.3	1,426.9	18,869.2	139,977.0	121,107.8

EIRR=	**29.1%**
NPV=	**10,830.0**
B/C=	**2.02**

2.NAIA Expressway- Phase II (Mil. Peso)

	Cost			Benefit	Net Cash Flow
	Construction	Maintenance	Total	VOC+TTC	
2011	0.0		0.0	0.0	0.0
2012	0.0		0.0	0.0	0.0
2013	198.0		198.0	0.0	-198.0
2014	564.1		564.1	0.0	-564.1
2015	1,813.9		1813.9	0.0	-1,813.9
2016	3,617.2		3617.2	0.0	-3,617.2
2017	3,617.2		3617.2	0.0	-3,617.2
2018		33.2	33.2	2,037.4	2,004.3
2019		33.2	33.2	2,169.6	2,136.4
2020		33.2	33.2	2,301.7	2,268.5
2021		33.2	33.2	2,358.9	2,325.7
2022		33.2	33.2	2,416.2	2,383.0
2023		33.2	33.2	2,473.4	2,440.2
2024		33.2	33.2	2,530.6	2,497.4
2025		33.2	33.2	2,587.9	2,554.7
2026		33.2	33.2	2,645.1	2,611.9
2027		143.8	143.8	2,702.3	2,558.5
2028		33.2	33.2	2,759.5	2,726.4
2029		33.2	33.2	2,816.8	2,783.6
2030		33.2	33.2	2,874.0	2,840.8
2031	-2,947.2		-2,947.2		2,947.2
Total	6,863.3	541.9	7,405.2	32,673.3	25,268.1

EIRR=	**18.0%**
NPV=	**816.7**
B/C=	**1.19**

3. C-6 Expressway + Global Link

3.1 C-6 Expressway + Global Link (All Section) (Mil. Peso)

	Cost			Benefit	Net Cash Flow
	Construction	Maintenance	Total	VOC+TTC	
2011	0.0		0.0	0.0	0.0
2012	0.0		0.0	0.0	0.0
2013	1,639.4		1639.4	0.0	-1,639.4
2014	4,763.4		4763.4	0.0	-4,763.4
2015	7,652.1		7652.1	0.0	-7,652.1
2016	15,077.1		15077.1	0.0	-15,077.1
2017	15,077.1		15077.1	0.0	-15,077.1
2018		387.6	387.6	19,272.9	18,885.2
2019		387.6	387.6	20,578.7	20,191.1
2020		387.6	387.6	21,884.6	21,497.0
2021		387.6	387.6	22,637.9	22,250.3
2022		387.6	387.6	23,391.2	23,003.6
2023		387.6	387.6	24,144.5	23,756.9
2024		387.6	387.6	24,897.9	24,510.2
2025		387.6	387.6	25,651.2	25,263.5
2026		387.6	387.6	26,404.5	26,016.9
2027		1876.2	1876.2	27,157.8	25,281.6
2028		387.6	387.6	27,911.1	27,523.5
2029		387.6	387.6	28,664.5	28,276.8
2030		387.6	387.6	29,417.8	29,030.1
2031	-12,911.7		-12,911.7		12,911.7
Total	31,297.4	6,527.9	37,825.3	322,014.6	284,189.3

EIRR=	**32.7%**
NPV=	**28,747.0**
B/C=	**2.43**

3.2. C-6 Expressway West + Global Link (Mil. Peso)

	Cost			Benefit	Net Cash Flow
	Construction	Maintenance	Total	VOC+TTC	
2011	0.0		0.0	0.0	0.0
2012	0.0		0.0	0.0	0.0
2013	808.7		808.7	0.0	-808.7
2014	2,334.6		2334.6	0.0	-2,334.6
2015	3,704.7		3704.7	0.0	-3,704.7
2016	7,295.0		7295.0	0.0	-7,295.0
2017	7,295.0		7295.0	0.0	-7,295.0
2018		144.1	144.1	10,166.5	10,022.4
2019		144.1	144.1	10,737.5	10,593.4
2020		144.1	144.1	11,308.6	11,164.4
2021		144.1	144.1	11,597.3	11,453.2
2022		144.1	144.1	11,886.0	11,741.9
2023		144.1	144.1	12,174.8	12,030.6
2024		144.1	144.1	12,463.5	12,319.4
2025		144.1	144.1	12,752.2	12,608.1
2026		144.1	144.1	13,041.0	12,896.8
2027		493.7	493.7	13,329.7	12,835.9
2028		144.1	144.1	13,618.4	13,474.3
2029		144.1	144.1	13,907.1	13,763.0
2030		144.1	144.1	14,195.9	14,051.7
2031	-6,256.2		-6,256.2		6,256.2
Total	15,182.0	2,223.4	17,405.4	161,178.5	143,773.1

EIRR=	**34.2%**
NPV=	**15,162.6**
B/C=	**2.58**

4. CALA Expressway (Mil. Peso)

	Cost			Benefit	Net Cash Flow
	Construction	Maintenance	Total	VOC+TTC	
2011	0.0		0.0	0.0	0.0
2012	0.0		0.0	0.0	0.0
2013	470.8		470.8	0.0	-470.8
2014	1,468.7		1468.7	0.0	-1,468.7
2015	2,860.7		2860.7	0.0	-2,860.7
2016	5,622.8		5622.8	0.0	-5,622.8
2017	5,622.8		5622.8	0.0	-5,622.8
2018		208.5	208.5	8,046.2	7,837.7
2019		208.5	208.5	8,403.5	8,195.0
2020		208.5	208.5	8,760.7	8,552.3
2021		208.5	208.5	9,317.5	9,109.0
2022		208.5	208.5	9,874.2	9,665.7
2023		208.5	208.5	10,430.9	10,222.5
2024		208.5	208.5	10,987.7	10,779.2
2025		208.5	208.5	11,544.4	11,335.9
2026		208.5	208.5	12,101.1	11,892.7
2027		999.0	999.0	12,657.9	11,658.9
2028		208.5	208.5	13,214.6	13,006.1
2029		208.5	208.5	13,771.3	13,562.9
2030		208.5	208.5	14,328.1	14,119.6
2031	-4,734.3		-4,734.3		4,734.3
Total	11,311.4	3,500.7	14,812.1	143,438.1	128,626.0

EIRR=	**36.7%**
NPV=	**13,704.4**
B/C=	**2.86**

5 C-5/FTI/Skyway Connector Road (Mil. Peso)

	Cost			Benefit	Net Cash Flow
	Construction	Maintenance	Total	VOC+TTC	
2011	0.0		0.0	0.0	0.0
2012	0.0		0.0	0.0	0.0
2013	31.7		31.7	0.0	-31.7
2014	123.2		123.2	0.0	-123.2
2015	872.8		872.8	0.0	-872.8
2016	1,740.4		1740.4	0.0	-1,740.4
2017	1,740.4		1740.4	0.0	-1,740.4
2018		18.6	18.6	1,157.8	1,139.2
2019		18.6	18.6	1,364.0	1,345.4
2020		18.6	18.6	1,570.2	1,551.6
2021		18.6	18.6	1,604.6	1,586.0
2022		18.6	18.6	1,639.0	1,620.4
2023		18.6	18.6	1,673.4	1,654.8
2024		18.6	18.6	1,707.8	1,689.1
2025		18.6	18.6	1,742.1	1,723.5
2026		18.6	18.6	1,776.5	1,757.9
2027		71.8	71.8	1,810.9	1,739.1
2028		18.6	18.6	1,845.3	1,826.7
2029		18.6	18.6	1,879.7	1,861.1
2030		18.6	18.6	1,914.1	1,895.4
2031	-1,378.9		-1,378.9		1,378.9
Total	3,129.7	295.3	3,424.9	21,685.4	18,260.4

EIRR=	**25.4%**
NPV=	**1,386.6**
B/C=	**1.73**

6. Central Luzon Expressway

6.1 Central Luzon Expressway 2 lane (Phase I + II) (Mil. Peso)

	Cost			Benefit	Net Cash Flow
	Construction	Maintenance	Total	VOC+TTC	
2011	0.0	0.0	0.0	0.0	0.0
2012	0.0	0.0	0.0	0.0	0.0
2013	318.1	0.0	318.1	0.0	-318.1
2014	1,147.1	0.0	1147.1	0.0	-1,147.1
2015	2,825.6	205.0	3030.6	0.0	-3,030.6
2016	5,580.2	0.0	5580.2	0.0	-5,580.2
2017	5,580.2	0.0	5580.2	0.0	-5,580.2
2018		205.0	205.0	3,154.9	2,949.9
2019		205.0	205.0	3,246.7	3,041.7
2020		205.0	205.0	3,338.4	3,133.4
2021		205.0	205.0	3,453.2	3,248.2
2022		205.0	205.0	3,568.0	3,363.0
2023		205.0	205.0	3,682.8	3,477.8
2024		205.0	205.0	3,797.7	3,592.7
2025		205.0	205.0	3,912.5	3,707.5
2026		205.0	205.0	4,027.3	3,822.3
2027		993.5	993.5	4,142.1	3,148.6
2028		205.0	205.0	4,256.9	4,051.9
2029		205.0	205.0	4,371.7	4,166.7
2030		205.0	205.0	4,486.5	4,281.5
2031	-4,610.7		-4,610.7		4,610.7
Total	10,840.6	3,658.6	14,499.2	49,438.8	34,939.6

EIRR=	**16.0%**
NPV=	**404.6**
B/C=	**1.06**

6.2 Central Luzon Expressway(Phase-1) 2 lane (Mil. Peso)

	Cost			Benefit	Net Cash Flow
	Construction	Maintenance	Total	VOC+TTC	
2011	0.0		0.0	0.0	0.0
2012	0.0		0.0	0.0	0.0
2013	155.1		155.1	0.0	-155.1
2014	527.0		527.0	0.0	-527.0
2015	1,274.9		1274.9	0.0	-1,274.9
2016	2,506.3		2506.3	0.0	-2,506.3
2017	2,506.3		2506.3	0.0	-2,506.3
2018		91.7	91.7	1,577.5	1,485.8
2019		91.7	91.7	1,623.3	1,531.7
2020		91.7	91.7	1,669.2	1,577.6
2021		91.7	91.7	1,726.6	1,635.0
2022		91.7	91.7	1,784.0	1,692.4
2023		91.7	91.7	1,841.4	1,749.8
2024		91.7	91.7	1,898.8	1,807.2
2025		91.7	91.7	1,956.2	1,864.6
2026		91.7	91.7	2,013.6	1,922.0
2027		444.2	444.2	2,071.1	1,626.9
2028		91.7	91.7	2,128.5	2,036.8
2029		91.7	91.7	2,185.9	2,094.2
2030		91.7	91.7	2,243.3	2,151.6
2031	-2,076.4		-2,076.4		2,076.4
Total	4,893.0	1,544.0	6,436.9	24,719.4	18,282.5

EIRR=	**18.1%**
NPV=	**595.0**
B/C=	**1.19**

6.3 Central Luzon Expressway(Phase-1) 4 lane (Mil. Peso)

	Cost			Benefit	Net Cash Flow
	Construction	Maintenance	Total	VOC+TTC	
2011	0.0		0.0	0.0	0.0
2012	0.0		0.0	0.0	0.0
2013	232.6		232.6	0.0	-232.6
2014	790.4		790.4	0.0	-790.4
2015	1,912.3		1912.3	0.0	-1,912.3
2016	3,759.4		3759.4	0.0	-3,759.4
2017	3,759.4		3759.4	0.0	-3,759.4
2018		141.1	141.1	1,845.4	1,704.2
2019		141.1	141.1	1,932.6	1,791.4
2020		141.1	141.1	2,019.7	1,878.6
2021		141.1	141.1	2,143.5	2,002.3
2022		141.1	141.1	2,267.2	2,126.1
2023		141.1	141.1	2,391.0	2,249.8
2024		141.1	141.1	2,514.7	2,373.6
2025		141.1	141.1	2,638.5	2,497.3
2026		141.1	141.1	2,762.2	2,621.1
2027		684.0	684.0	2,886.0	2,202.0
2028		141.1	141.1	3,009.7	2,868.6
2029		141.1	141.1	3,133.5	2,992.3
2030		141.1	141.1	3,257.2	3,116.1
2031	-3,114.7		-3,114.7		3,114.7
Total	7,339.5	2,377.7	9,717.2	32,801.3	23,084.1

EIRR=	**15.2%**
NPV=	**55.0**
B/C=	**1.01**

7. SLEx Extension 2 lane (Mil. Peso)

	Cost			Benefit	Net Cash Flow
	Construction	Maintenance	Total	VOC+TTC	
2011	0.0		0.0	0.0	0.0
2012	0.0		0.0	0.0	0.0
2013	97.2		97.2	0.0	-97.2
2014	472.5		472.5	0.0	-472.5
2015	1,616.9		1616.9	0.0	-1,616.9
2016	3,201.7		3201.7	0.0	-3,201.7
2017	3,201.7		3201.7	0.0	-3,201.7
2018		117.9	117.9	3,446.1	3,328.2
2019		117.9	117.9	3,503.1	3,385.2
2020		117.9	117.9	3,560.1	3,442.2
2021		117.9	117.9	3,609.1	3,491.2
2022		117.9	117.9	3,658.2	3,540.3
2023		117.9	117.9	3,707.3	3,589.4
2024		117.9	117.9	3,756.4	3,638.5
2025		117.9	117.9	3,805.5	3,687.6
2026		117.9	117.9	3,854.6	3,736.7
2027		571.4	571.4	3,903.7	3,332.3
2028		117.9	117.9	3,952.7	3,834.8
2029		117.9	117.9	4,001.8	3,883.9
2030		117.9	117.9	4,050.9	3,933.0
2031	-2,594.4		-2,594.4		2,594.4
Total	5,995.6	1,986.3	7,981.9	48,809.5	40,827.6

EIRR=	**29.7%**
NPV=	**3,808.2**
B/C=	**1.98**

8.Calamba-Los Banos Toll Expressway (Mil. Peso)

	Cost			Benefit	Net Cash Flow
	Construction	Maintenance	Total	VOC+TTC	
2011	0.0		0.0	0.0	0.0
2012	0.0		0.0	0.0	0.0
2013	250.8		250.8	0.0	-250.8
2014	690.8		690.8	0.0	-690.8
2015	876.1		876.1	0.0	-876.1
2016	1,725.9		1725.9	0.0	-1,725.9
2017	1,725.9		1725.9	0.0	-1,725.9
2018		65.7	65.7	1,202.5	1,136.9
2019		65.7	65.7	1,322.3	1,256.6
2020		65.7	65.7	1,442.1	1,376.4
2021		65.7	65.7	1,532.8	1,467.1
2022		65.7	65.7	1,623.5	1,557.8
2023		65.7	65.7	1,714.1	1,648.5
2024		65.7	65.7	1,804.8	1,739.2
2025		65.7	65.7	1,895.5	1,829.9
2026		65.7	65.7	1,986.2	1,920.6
2027		318.2	318.2	2,076.9	1,758.8
2028		65.7	65.7	2,167.6	2,102.0
2029		65.7	65.7	2,258.3	2,192.6
2030		65.7	65.7	2,349.0	2,283.3
2031	-1,516.6		-1,516.6		1,516.6
Total	3,752.8	1,106.0	4,858.8	23,375.6	18,516.8

EIRR=	**20.4%**
NPV=	**936.5**
B/C=	**1.38**

9. R-7 Expressway (Mil. Peso)

	Cost			Benefit	Net Cash Flow
	Construction	Maintenance	Total	VOC+TTC	
2011	0.0		0.0	0.0	0.0
2012	0.0		0.0	0.0	0.0
2013	285.1		285.1	0.0	-285.1
2014	890.6		890.6	0.0	-890.6
2015	3,931.6		3931.6	0.0	-3,931.6
2016	7,842.0		7842.0	0.0	-7,842.0
2017	7,842.0		7842.0	0.0	-7,842.0
2018		91.1	91.1	6,210.0	6,118.9
2019		91.1	91.1	6,493.1	6,402.0
2020		91.1	91.1	6,776.2	6,685.1
2021		91.1	91.1	7,058.7	6,967.6
2022		91.1	91.1	7,341.2	7,250.0
2023		91.1	91.1	7,623.6	7,532.5
2024		91.1	91.1	7,906.1	7,815.0
2025		91.1	91.1	8,188.6	8,097.5
2026		91.1	91.1	8,471.1	8,379.9
2027		330.9	330.9	8,753.5	8,422.6
2028		91.1	91.1	9,036.0	8,944.9
2029		91.1	91.1	9,318.5	9,227.4
2030		91.1	91.1	9,601.0	9,509.8
2031	-6,301.1		-6,301.1		6,301.1
Total	14,490.1	1,424.4	15,914.6	102,777.7	86,863.1

EIRR=	**25.5%**
NPV=	**6,624.6**
B/C=	**1.75**

10. La Mesa Parkway+NLEx-East (1) (Mil. Peso)

	Cost			Benefit	Net Cash Flow
	Construction	Maintenance	Total	VOC+TTC	
2011	0.0		0.0	0.0	0.0
2012	0.0		0.0	0.0	0.0
2013	198.0		198.0	0.0	-198.0
2014	766.5		766.5	0.0	-766.5
2015	2,398.2		2398.2	0.0	-2,398.2
2016	4,717.3		4717.3	0.0	-4,717.3
2017	4,717.3		4717.3	0.0	-4,717.3
2018		195.8	195.8	3,414.0	3,218.2
2019		195.8	195.8	3,578.9	3,383.1
2020		195.8	195.8	3,743.8	3,548.0
2021		195.8	195.8	3,819.6	3,623.9
2022		195.8	195.8	3,895.4	3,699.7
2023		195.8	195.8	3,971.2	3,775.5
2024		195.8	195.8	4,047.0	3,851.3
2025		195.8	195.8	4,122.9	3,927.1
2026		195.8	195.8	4,198.7	4,002.9
2027		866.8	866.8	4,274.5	3,407.7
2028		195.8	195.8	4,350.3	4,154.5
2029		195.8	195.8	4,426.1	4,230.3
2030		195.8	195.8	4,501.9	4,306.2
2031	-3,848.8		-3,848.8		3,848.8
Total	8,948.5	3,215.9	12,164.4	52,344.3	40,179.9

EIRR=	**21.3%**
NPV=	**2,273.1**
B/C=	**1.39**

ANNEX 8.5-1

ANNEX 8.5-1

NET CASH FLOW OF EACH PROJECT FOR EQUITY IRR

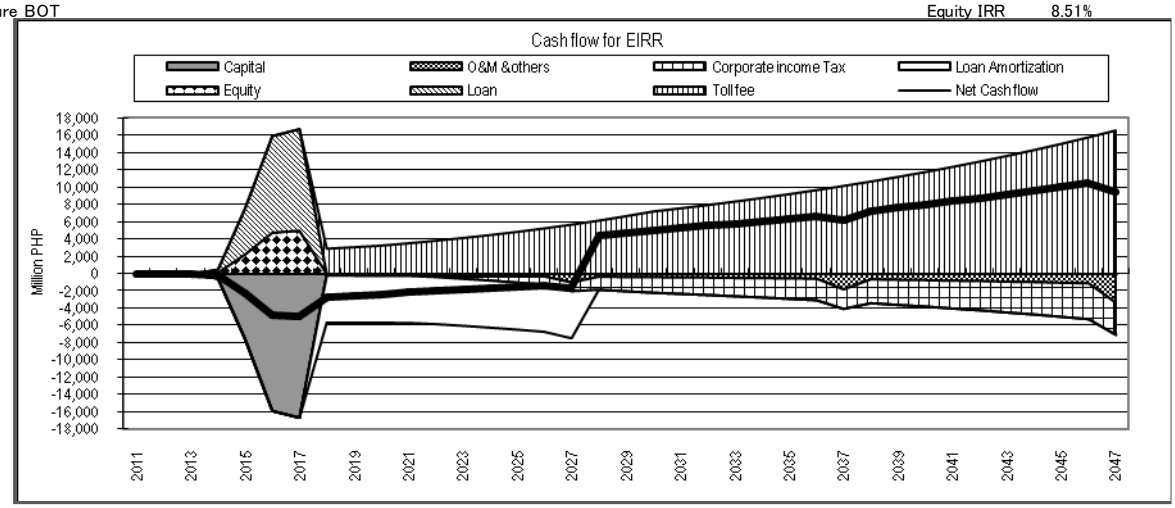
1. NLEx-SLEx Link Expressway
2. NAIA Expressway-2
3-1. C-6 Expressway + Global Link
3-2. C-6 Expressway South-East Link + Global Link
4. CALA Expressway
5. C-5*FTI*Skyway Connector
6-1. CLEx Phase 1+2 (2-lane)
6-2. CLEx Phase 1 (2-lane)
6.3. CLEx Phase 1 (4-lane)
7. SLEx Extension (to Lucena)
8. Calamba-Los Banos Toll Expressway
9. R-7 Expressway
10. NLEx-East & La Mesa Parkway

Net cash flow of each project for Equity IRR

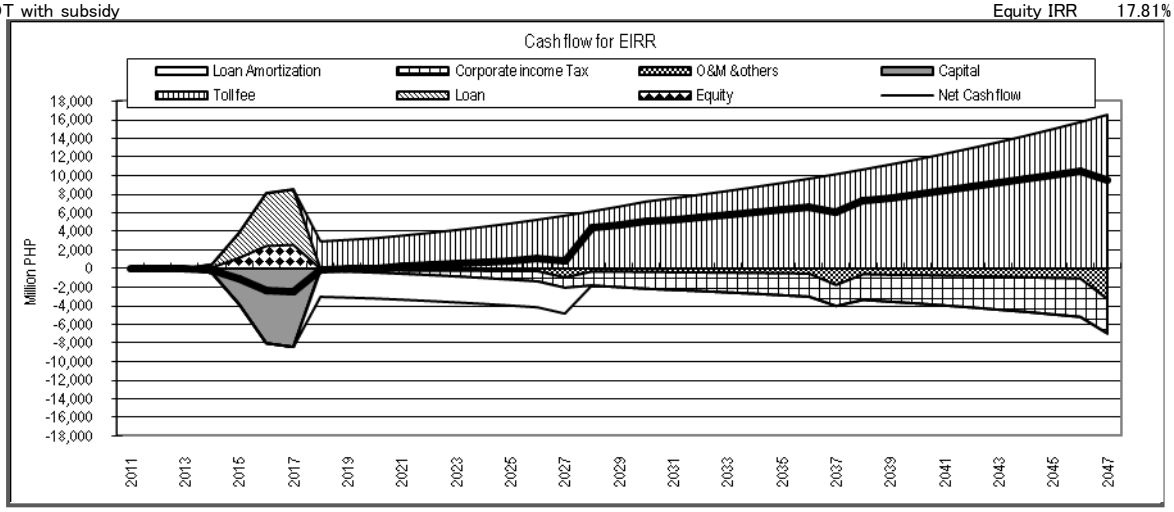
* in case of funding with government own budget for public expenditure

1. NLEX–SLEX Link Expressway

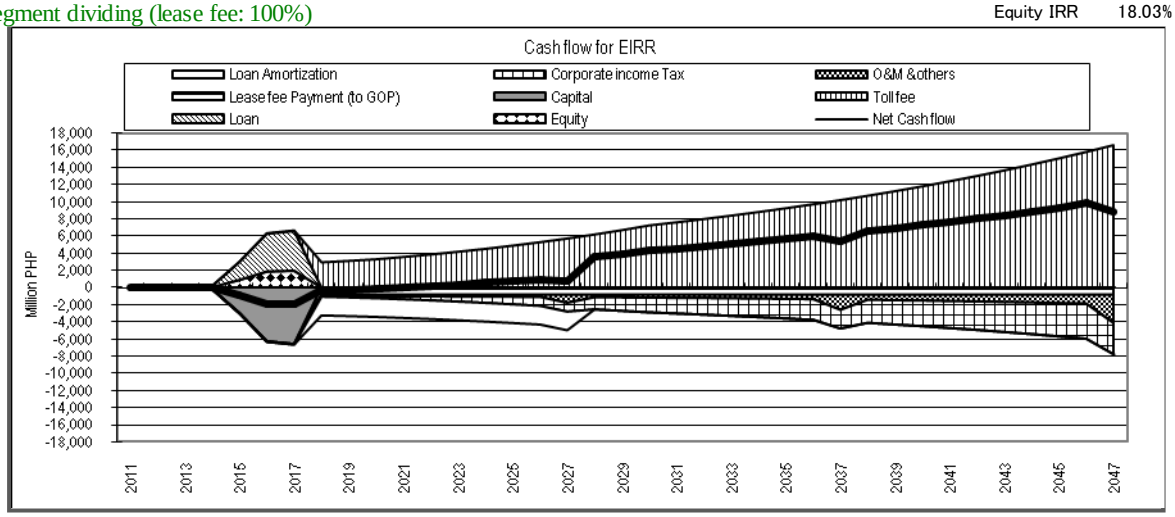
Pure BOT Equity IRR 8.51%



BOT with subsidy Equity IRR 17.81%

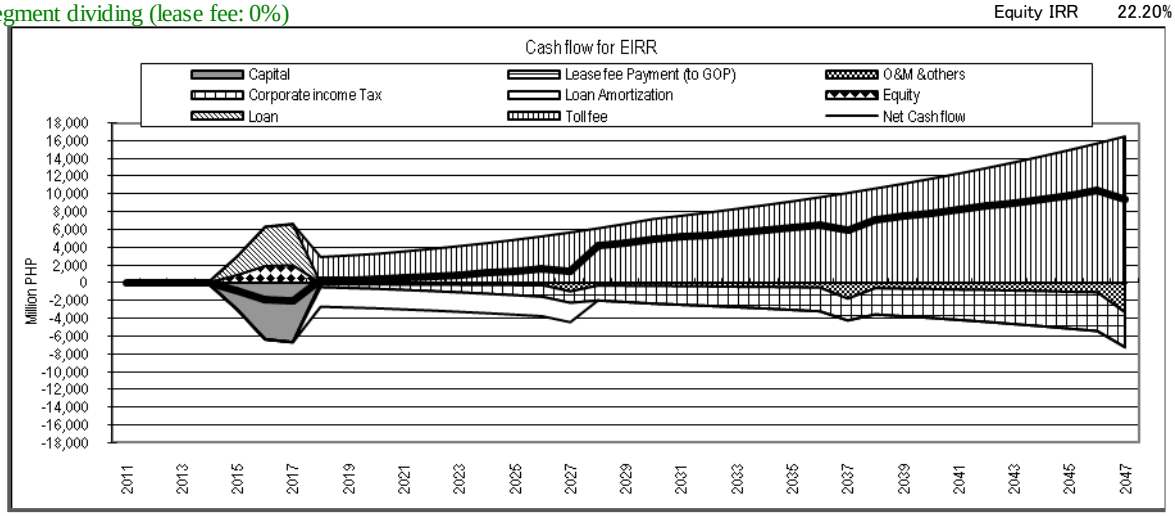


Segment dividing (lease fee: 100%) Equity IRR 18.03%

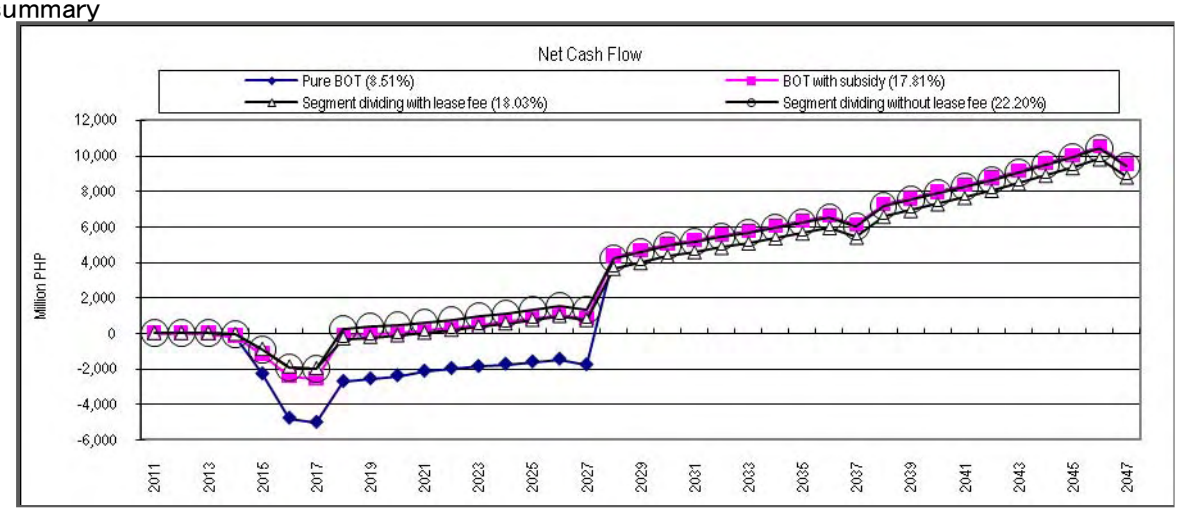


Segment dividing (lease fee: 0%)

Equity IRR 22.20%



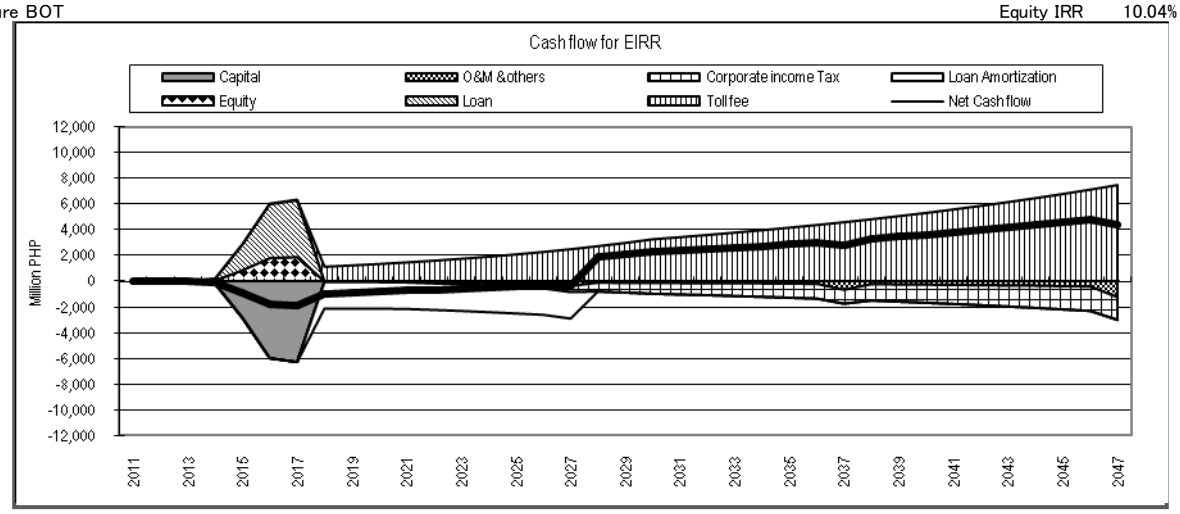
summary



2. NAIA Expressway-2

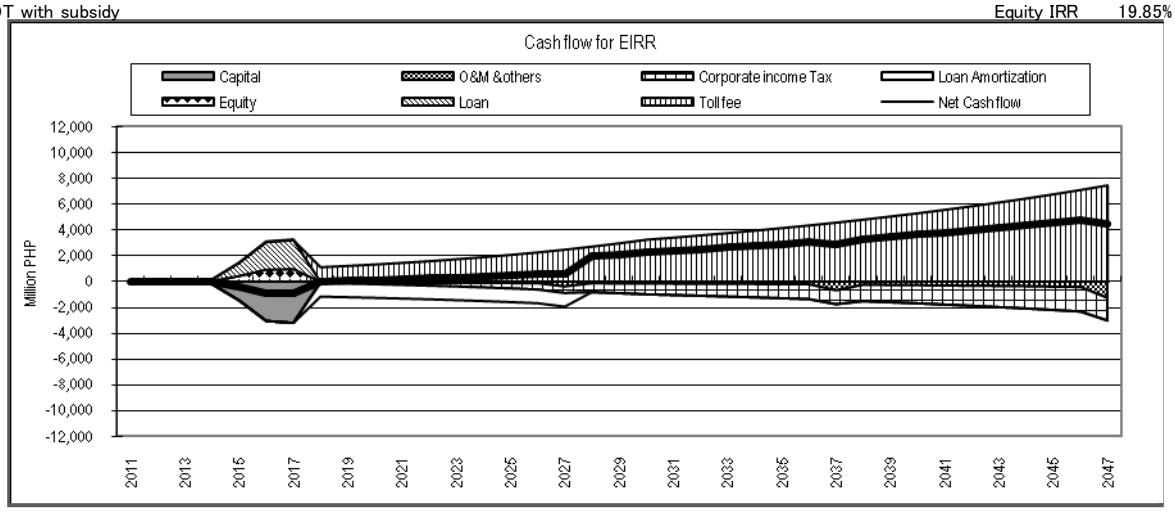
Pure BOT

Equity IRR 10.04%



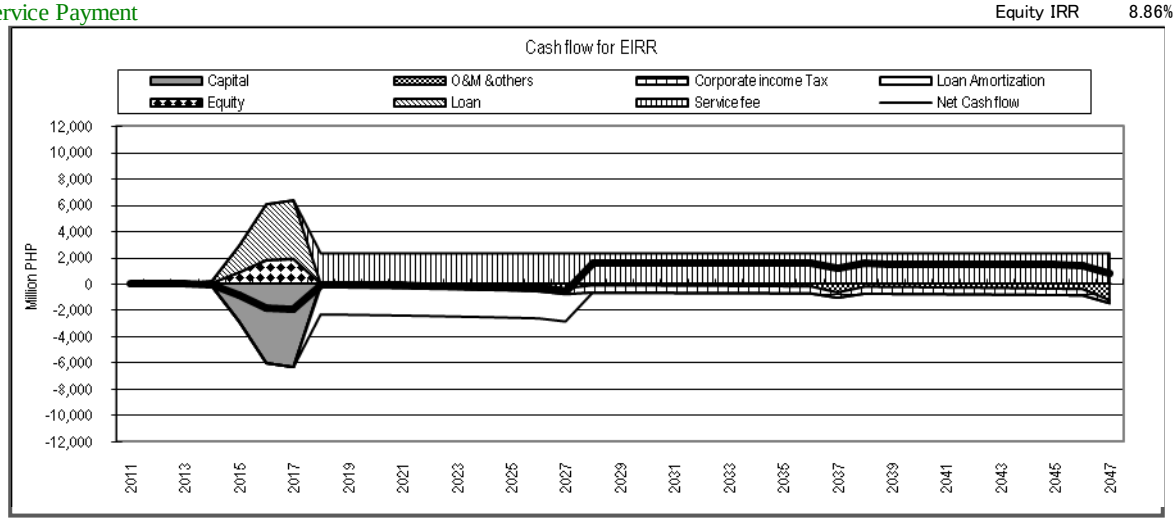
BOT with subsidy

Equity IRR 19.85%

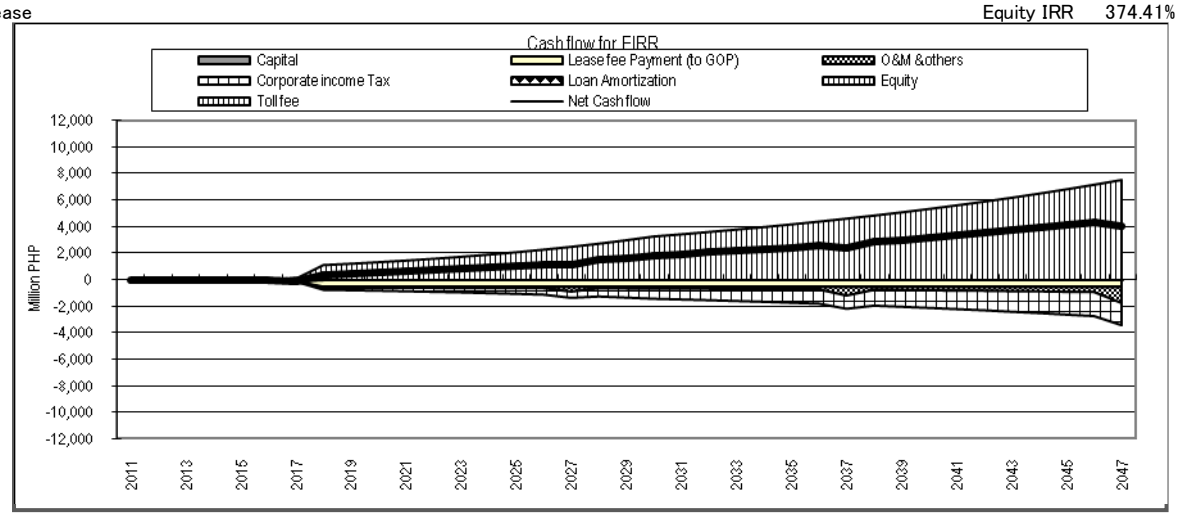


Service Payment

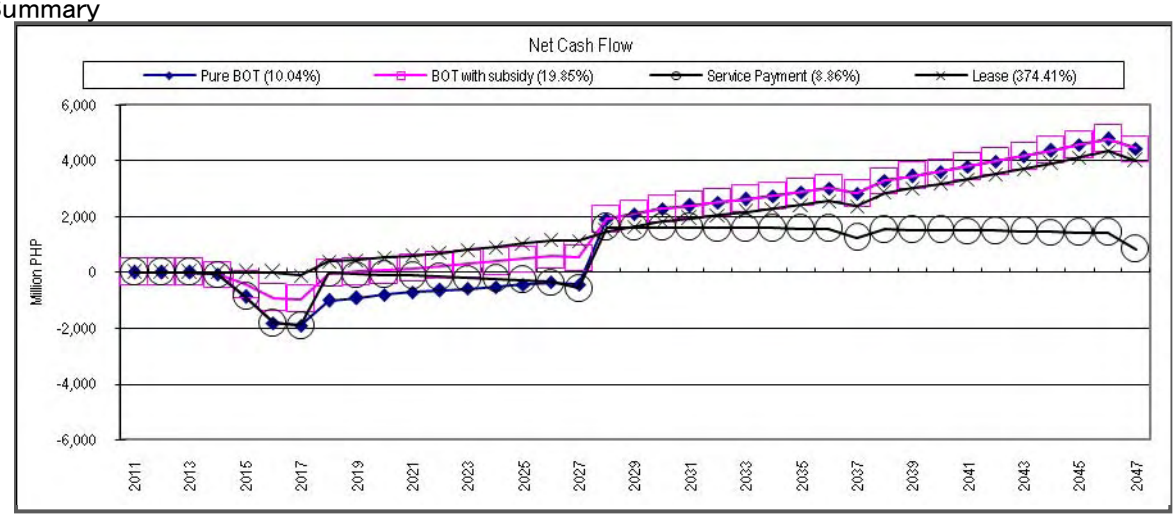
Equity IRR 8.86%



Lease Equity IRR 374.41%

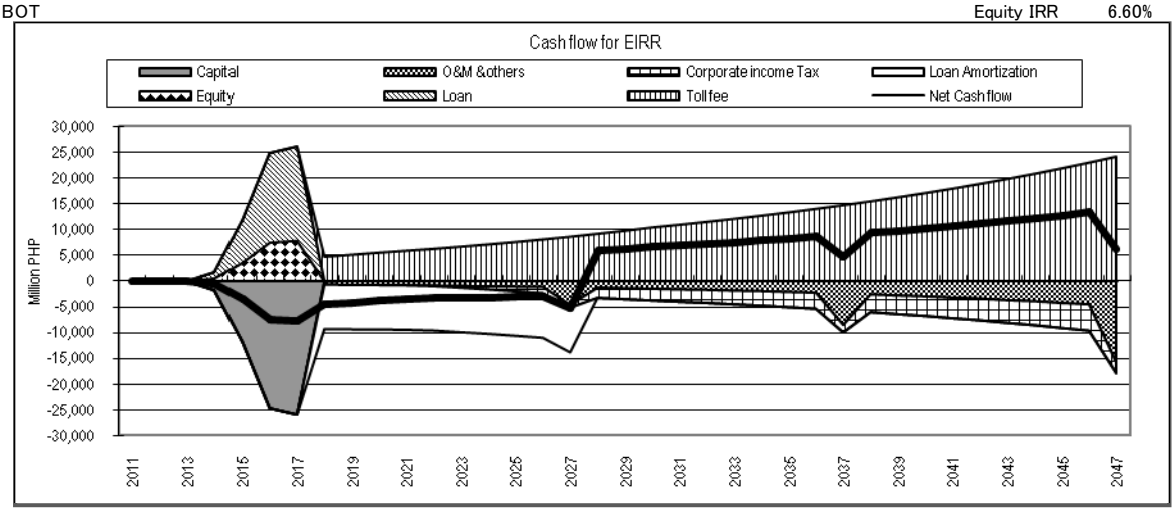


Summary

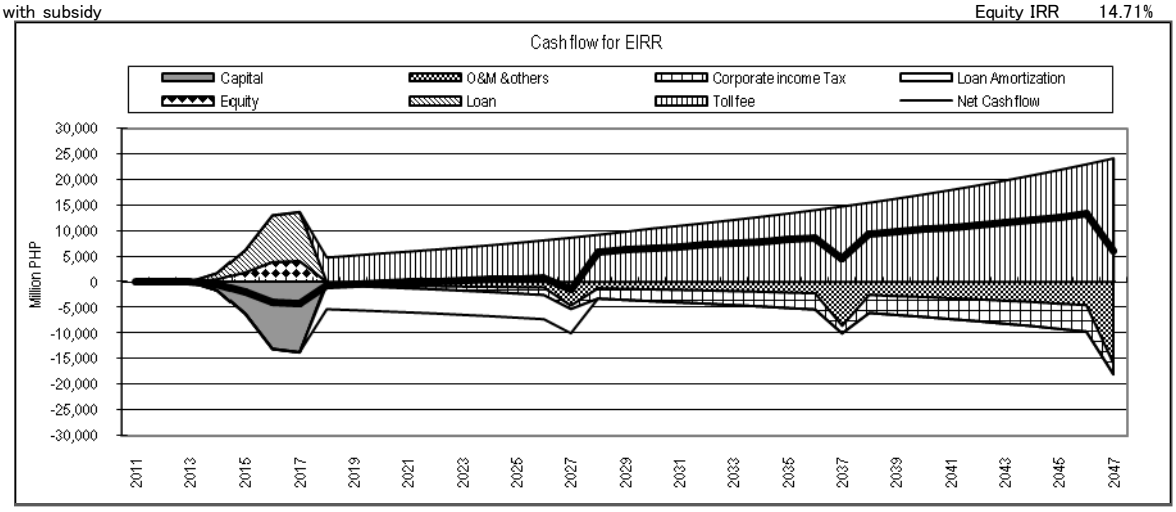


3-1. C-6 Expressway + Global Link

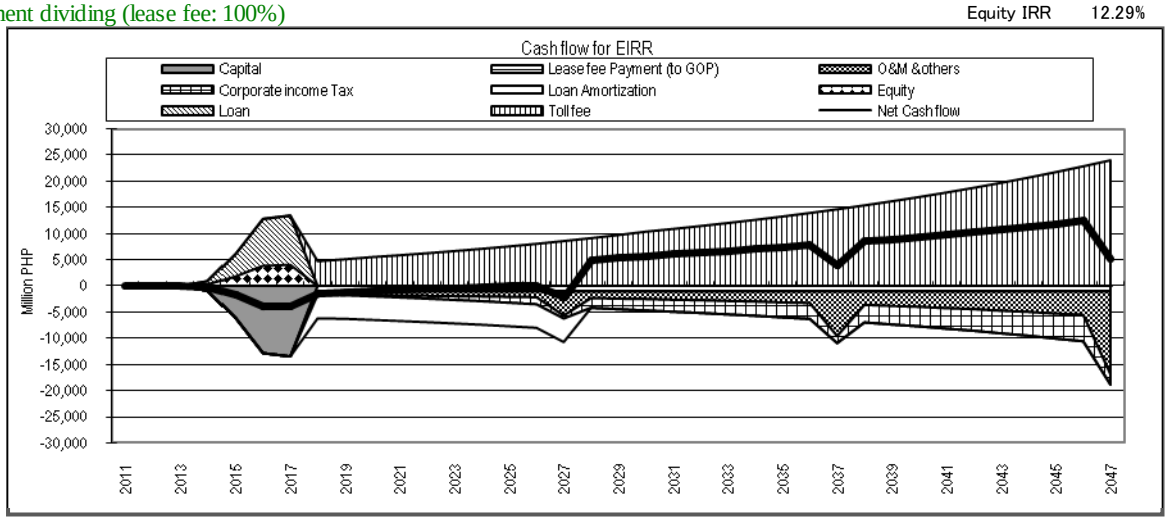
Pure BOT Equity IRR 6.60%



BOT with subsidy Equity IRR 14.71%

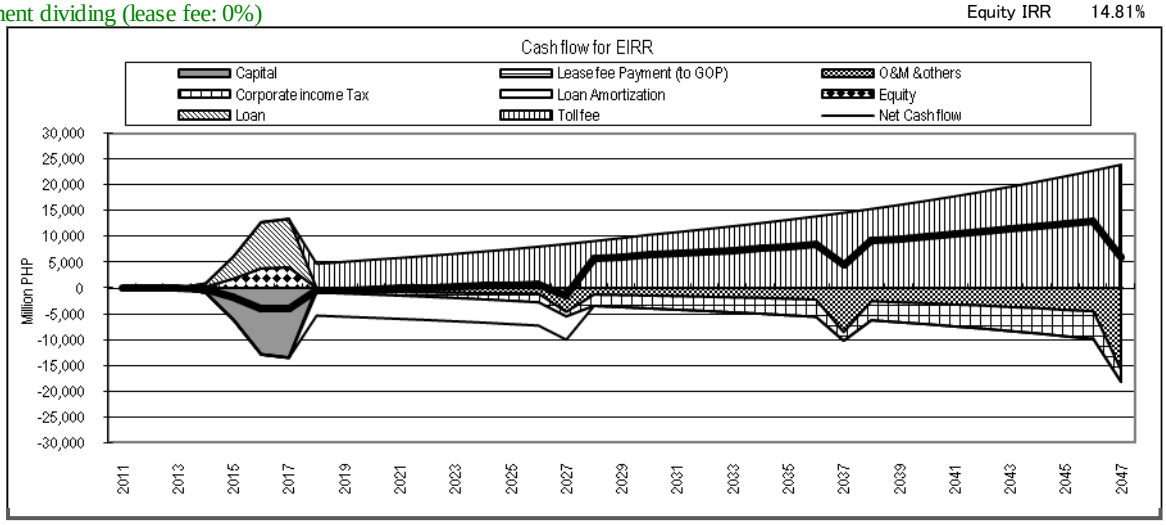


Segment dividing (lease fee: 100%) Equity IRR 12.29%

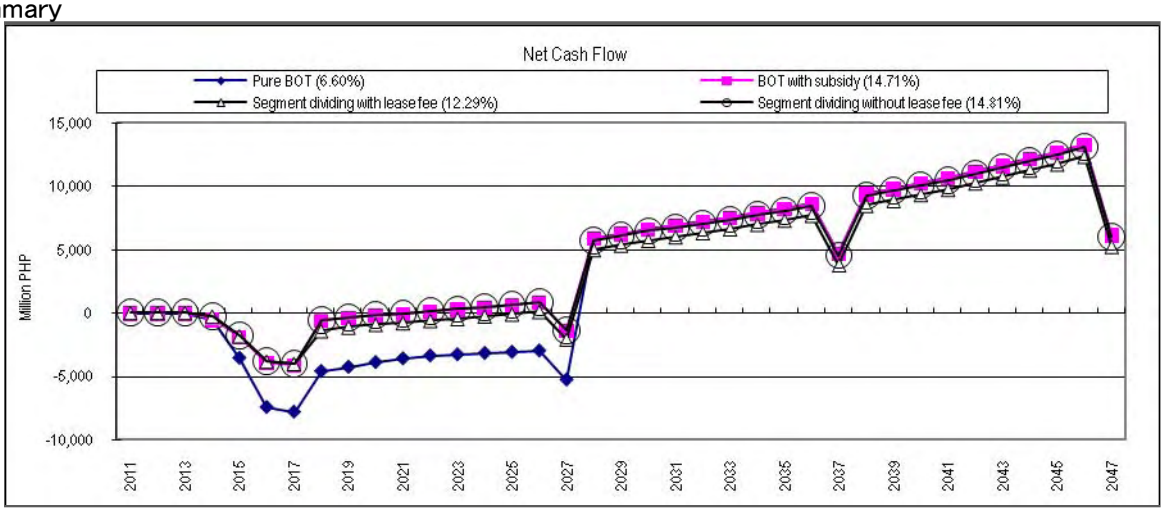


Segment dividing (lease fee: 0%)

Equity IRR 14.81%

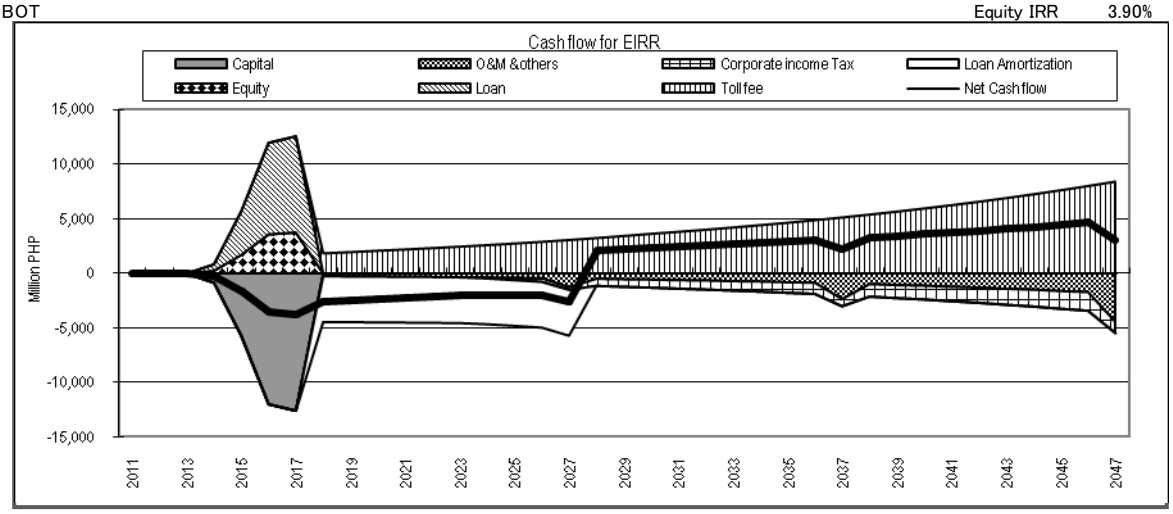


summary

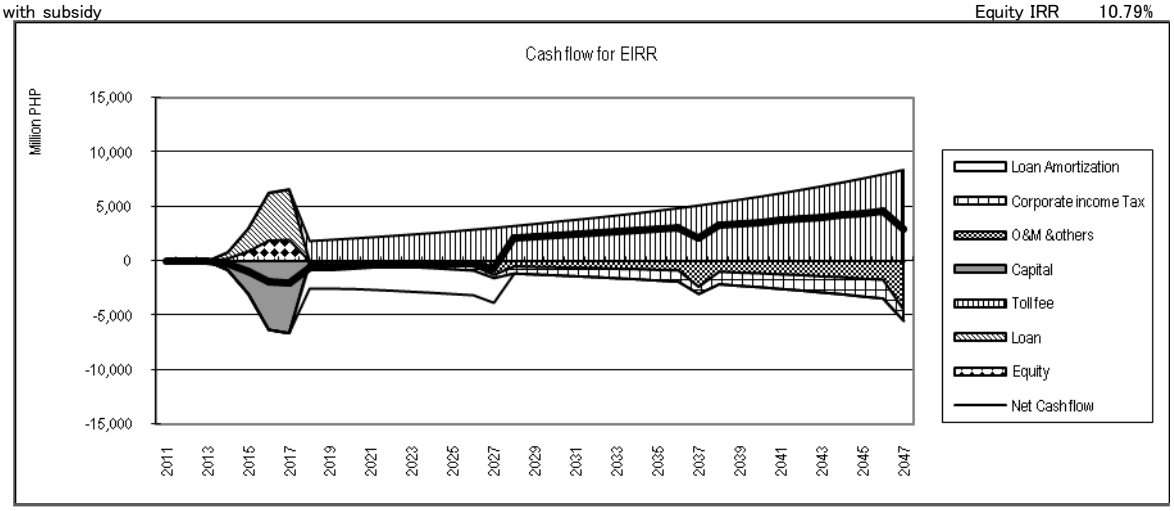


3-2. C-6 Expressway South-East Link + Global Link

Pure BOT Equity IRR 3.90%

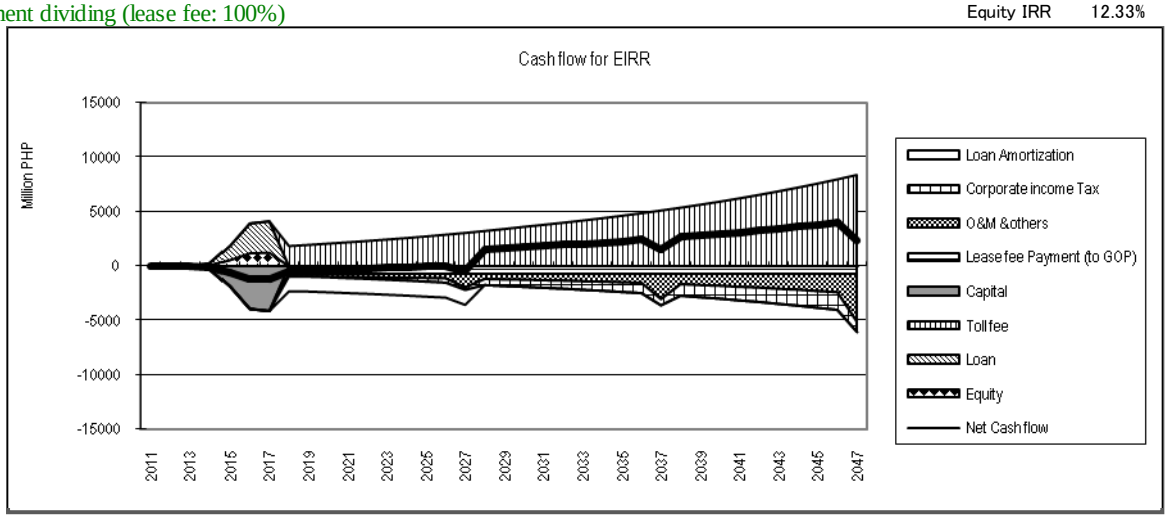


BOT with subsidy Equity IRR 10.79%



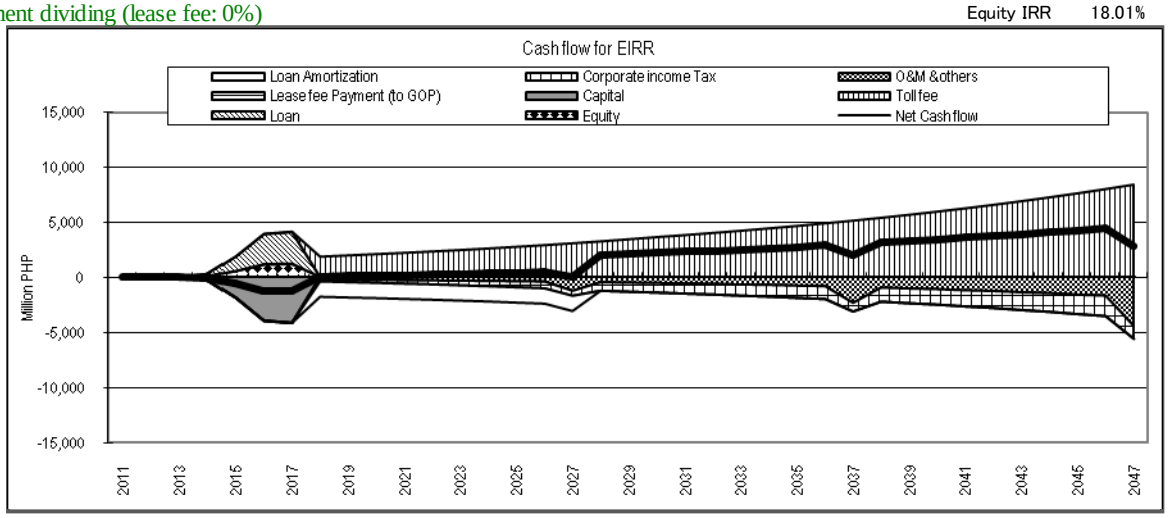
Segment dividing (lease fee: 100%)

Equity IRR 12.33%

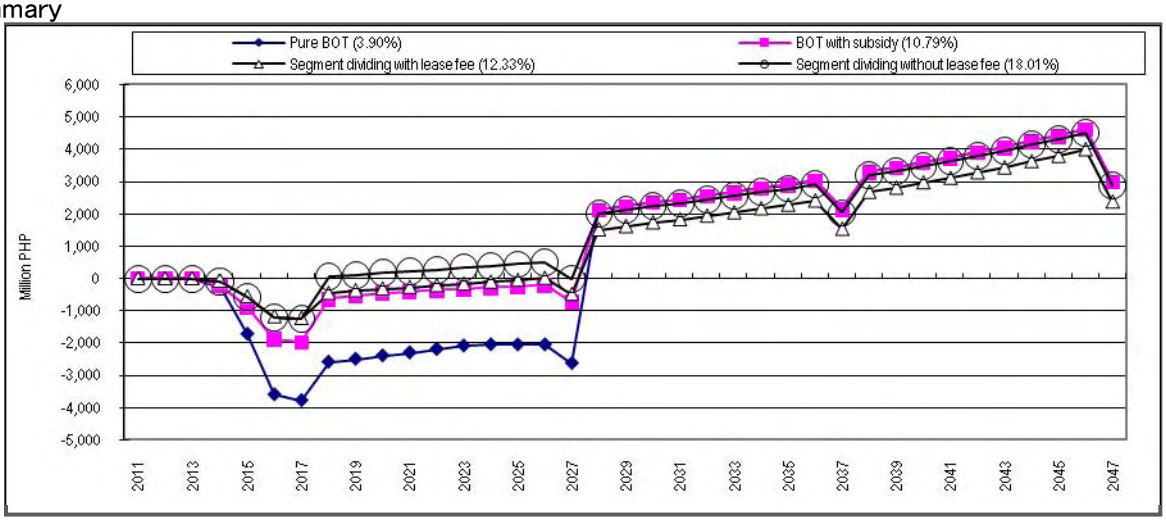


Segment dividing (lease fee: 0%)

Equity IRR 18.01%



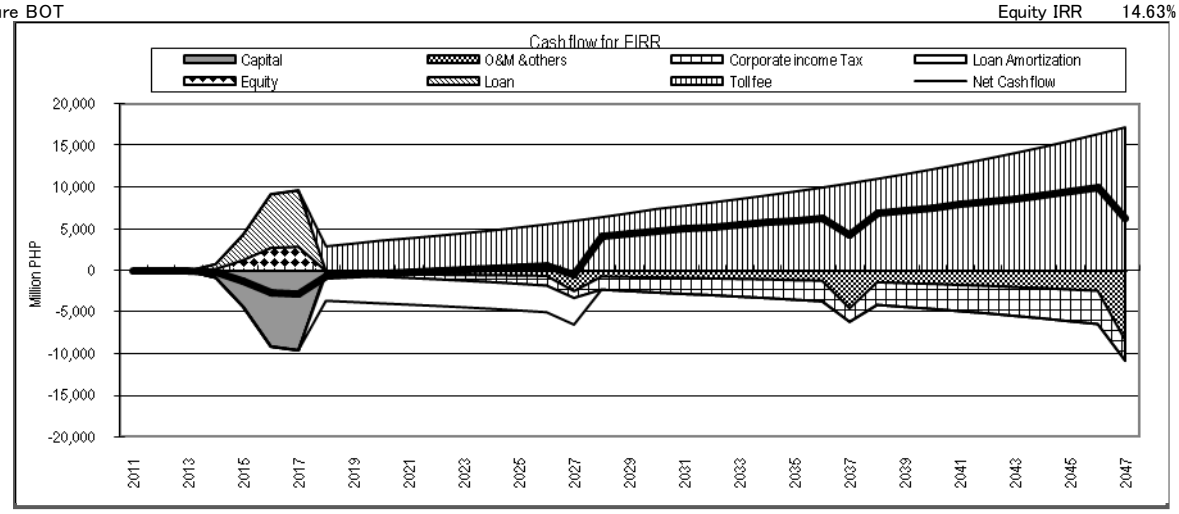
summary



4. CALA Expressway

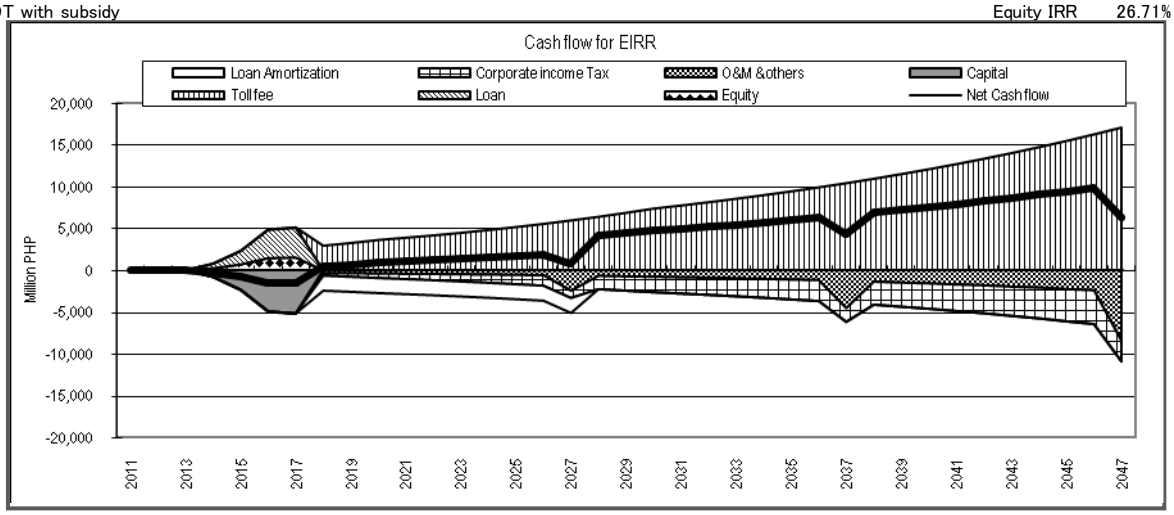
Pure BOT

Equity IRR 14.63%



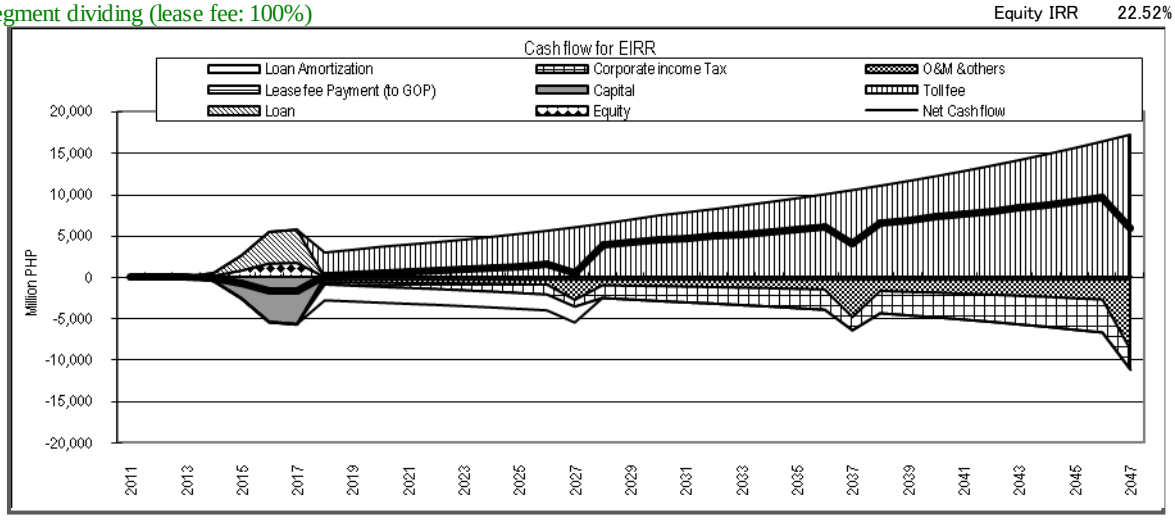
BOT with subsidy

Equity IRR 26.71%



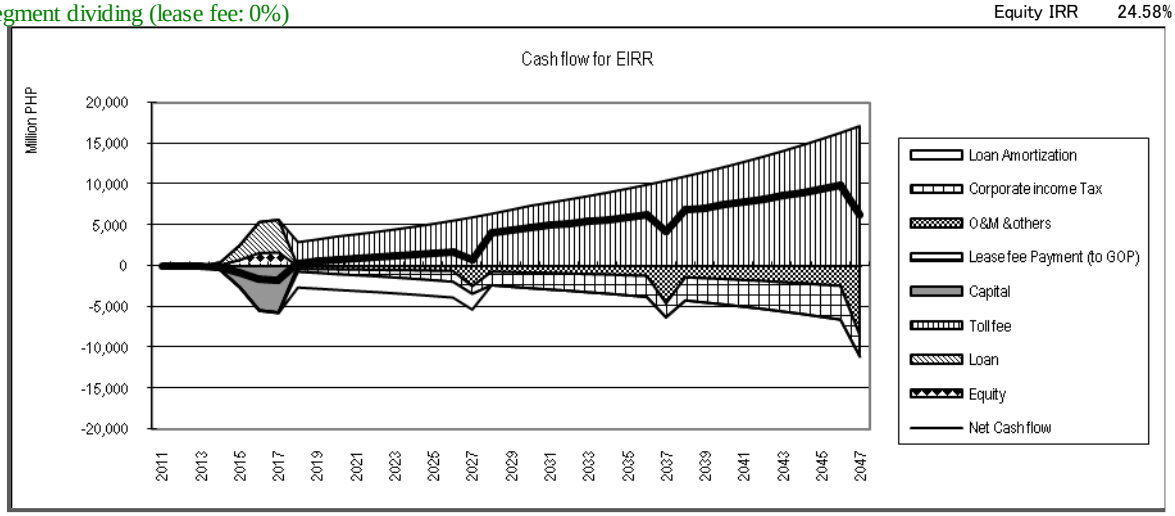
Segment dividing (lease fee: 100%)

Equity IRR 22.52%



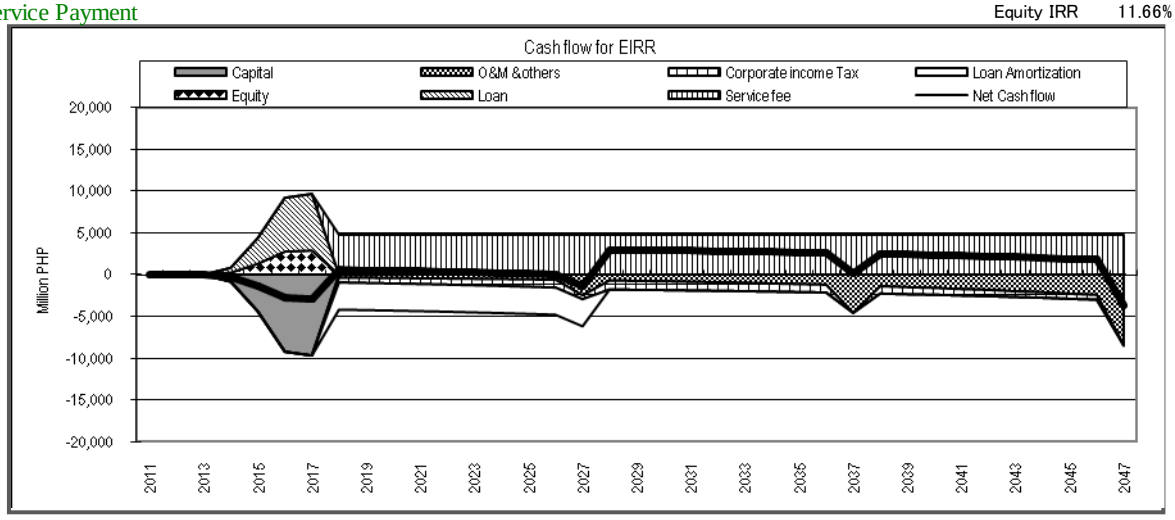
Segment dividing (lease fee: 0%)

Equity IRR 24.58%



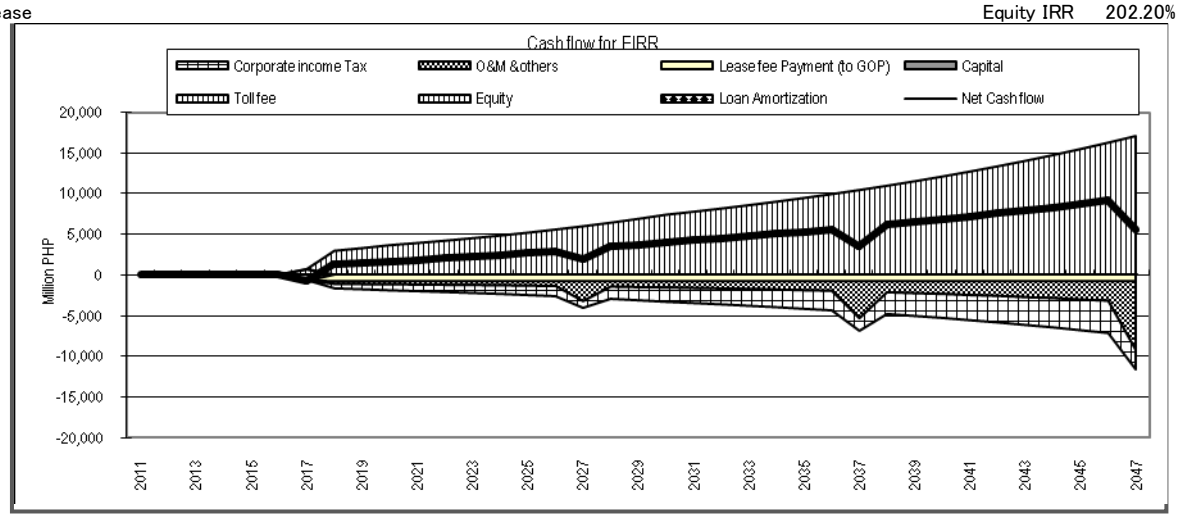
Service Payment

Equity IRR 11.66%

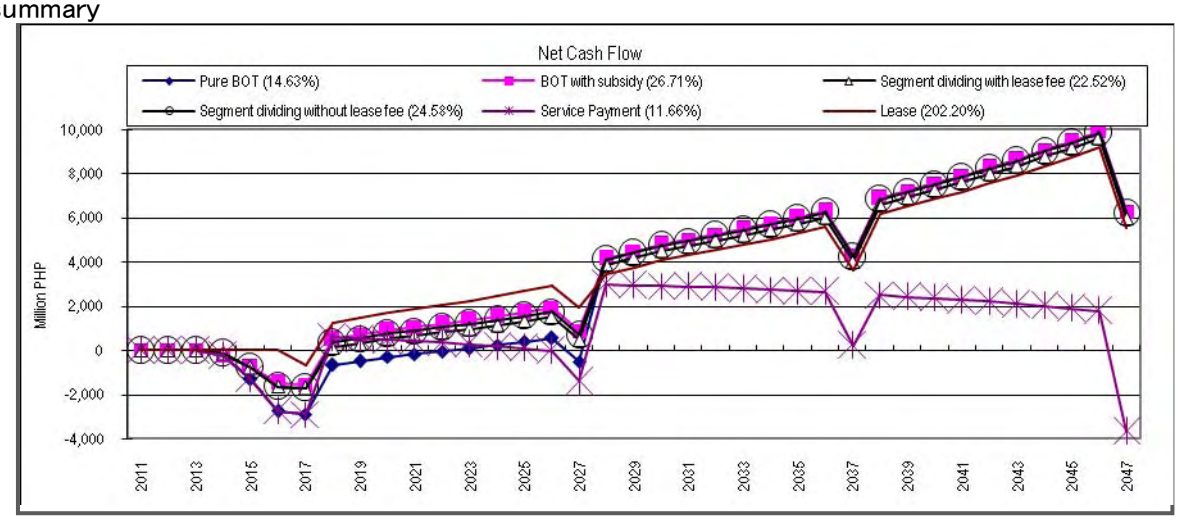


Lease

Equity IRR 202.20%

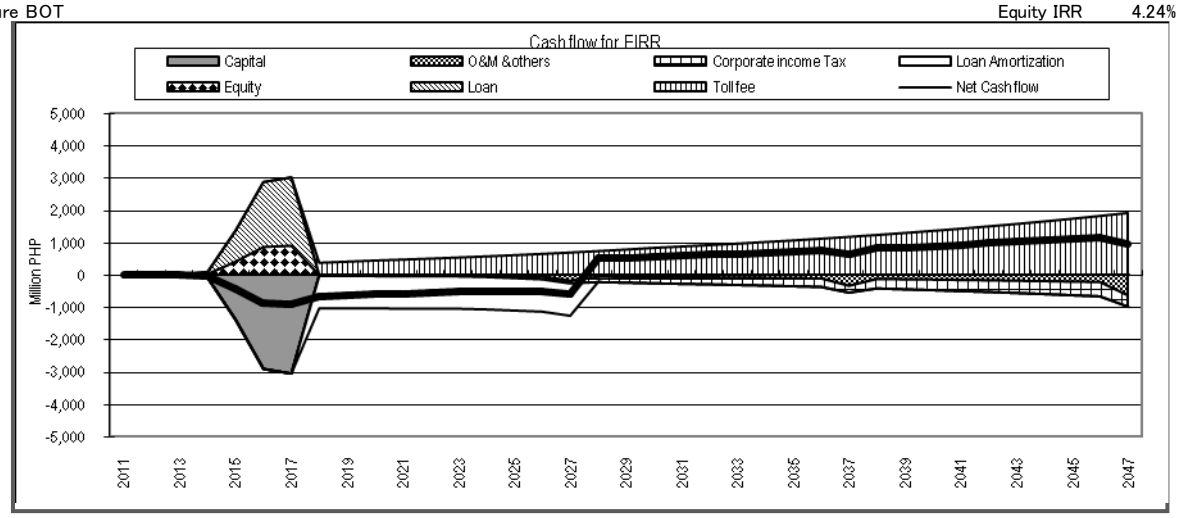


summary

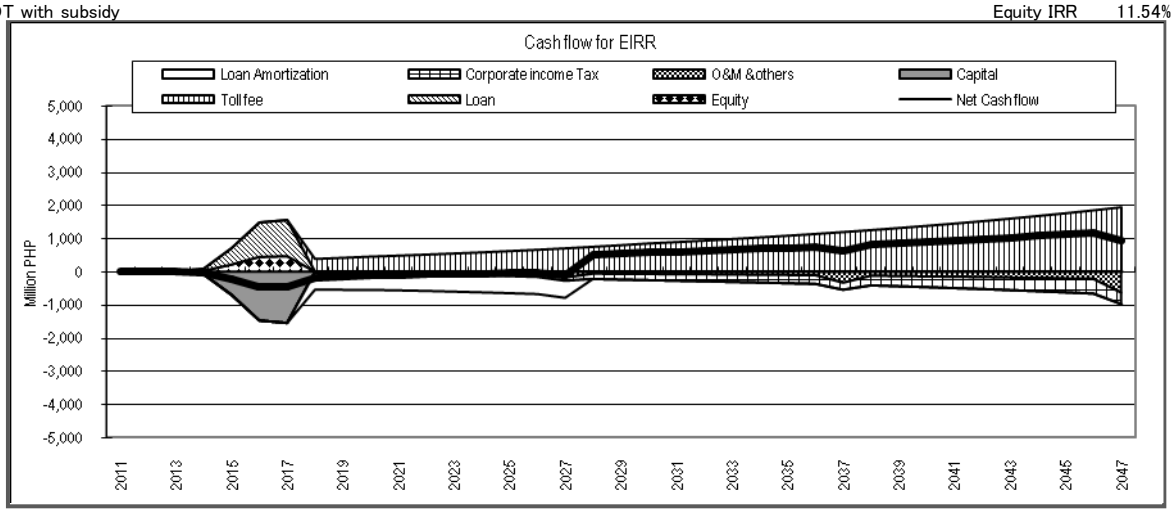

Net Cash Flow
Pure BOT (14.63%)
BOT with subsidy (26.71%)
Segment dividing with lease fee (22.52%)
Segment dividing without lease fee (24.58%)
Service Payment (11.66%)
Lease (202.20%)
Million PHP
10,000
8,000
6,000
4,000
2,000
0
-2,000
-4,000
2011
2013
2015
2017
2019
2021
2023
2025
2027
2029
2031
2033
2035
2037
2039
2041
2043
2045
2047

5. C-5・FTI・Skyway Connector

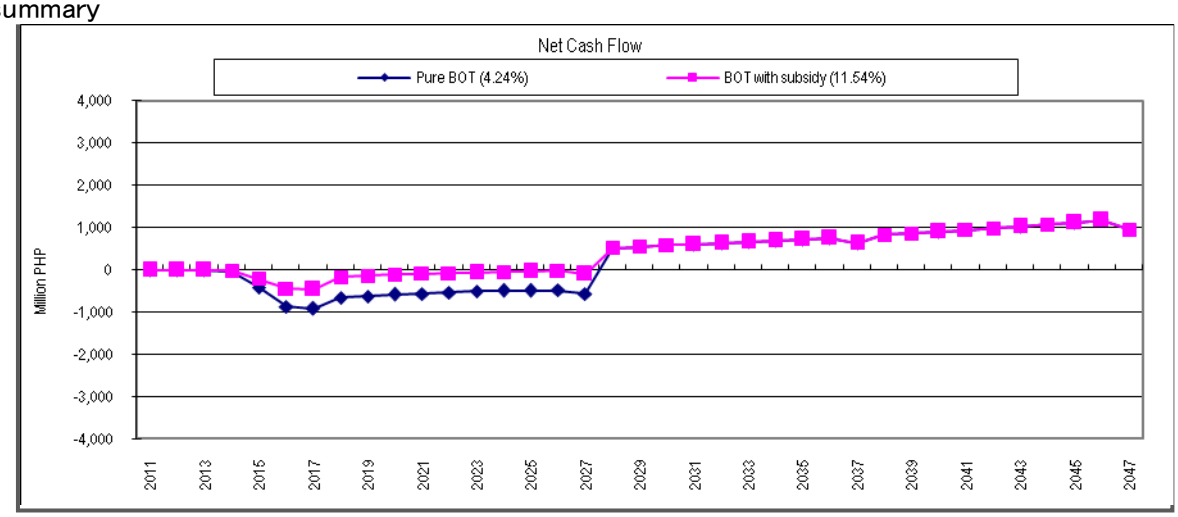
Pure BOT Equity IRR 4.24%



BOT with subsidy Equity IRR 11.54%



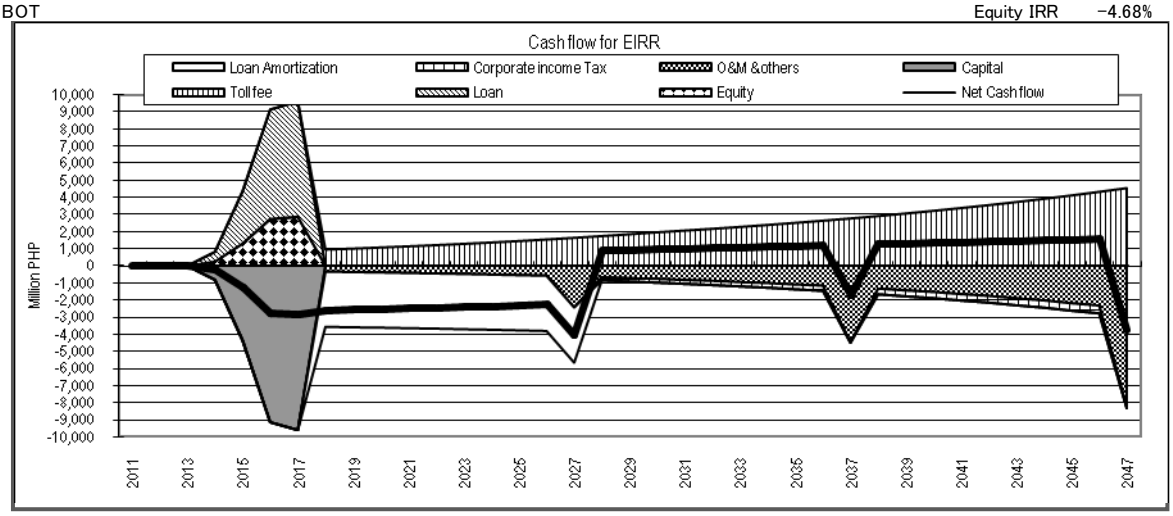
summary



6-1. CLEX Phase1+2 (2-lane)

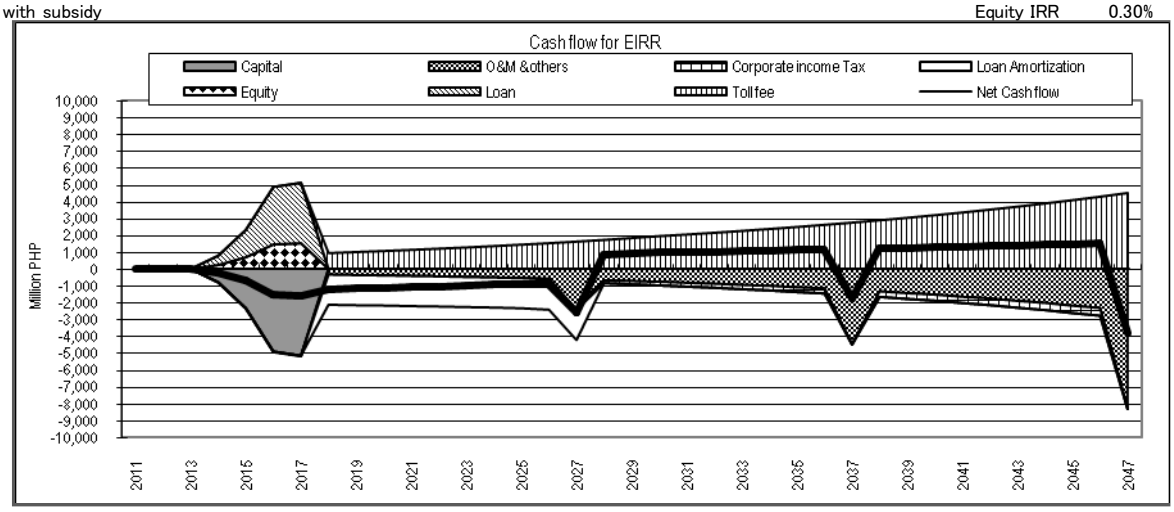
Pure BOT

Equity IRR −4.68%



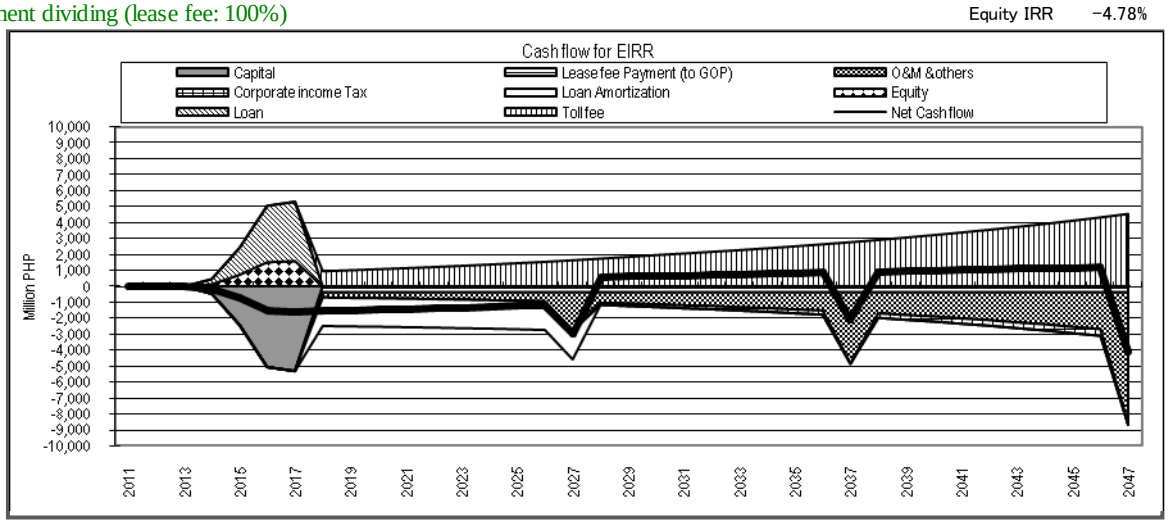
BOT with subsidy

Equity IRR 0.30%



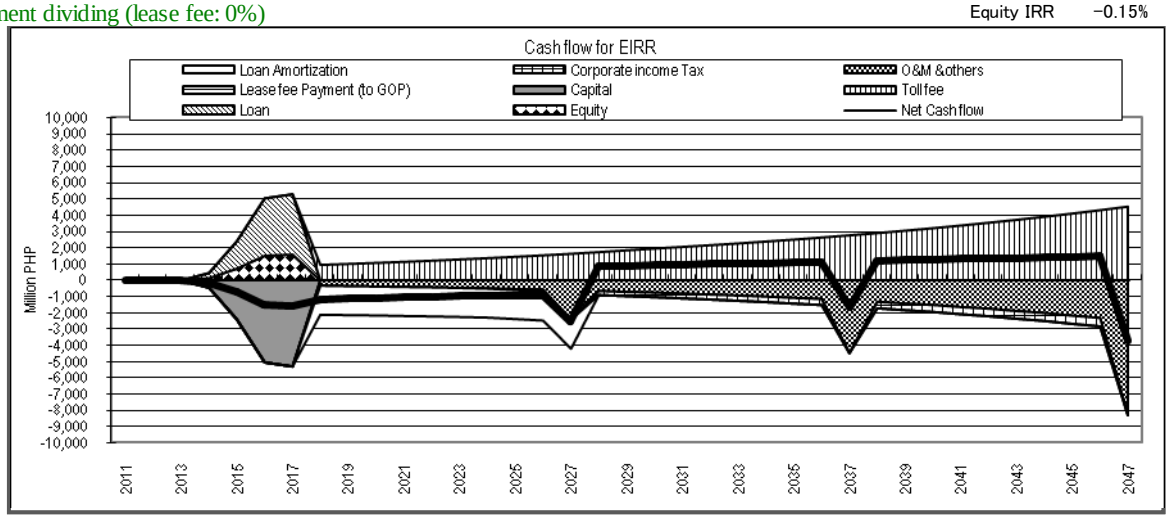
Segment dividing (lease fee: 100%)

Equity IRR −4.78%



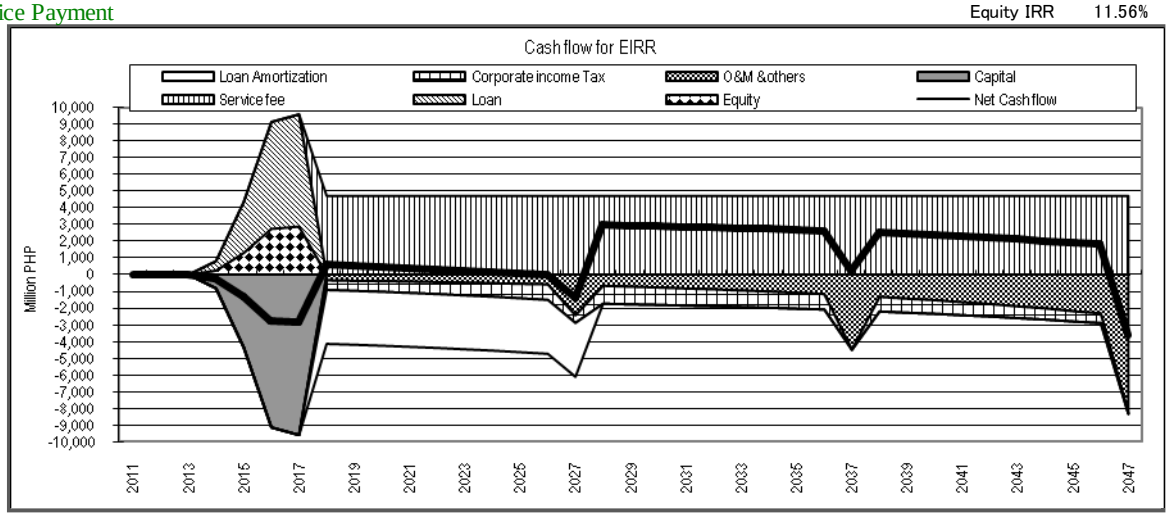
Segment dividing (lease fee: 0%)

Equity IRR −0.15%



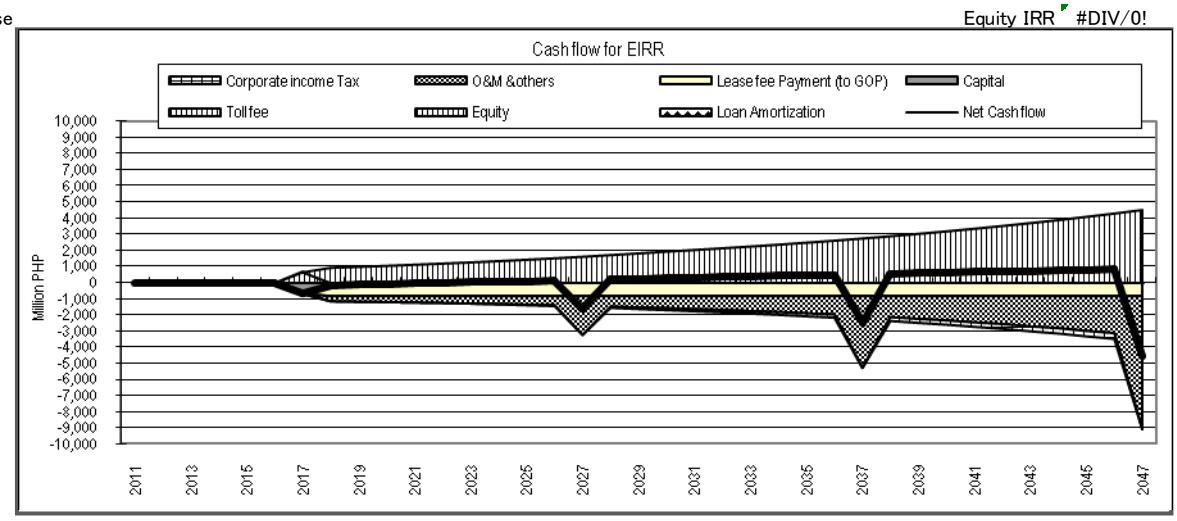
Service Payment

Equity IRR 11.56%

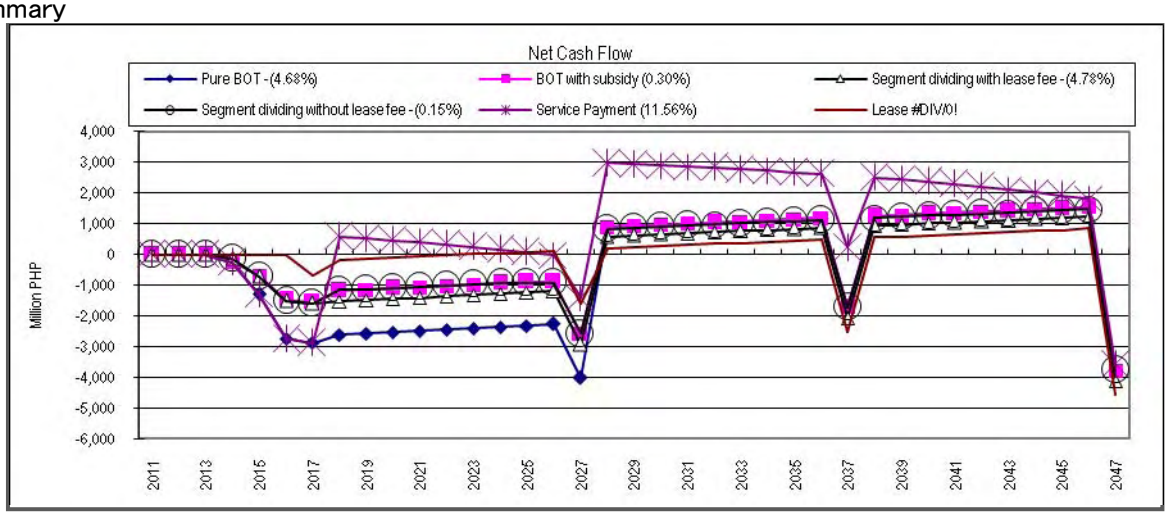


Lease

Equity IRR #DIV/0!



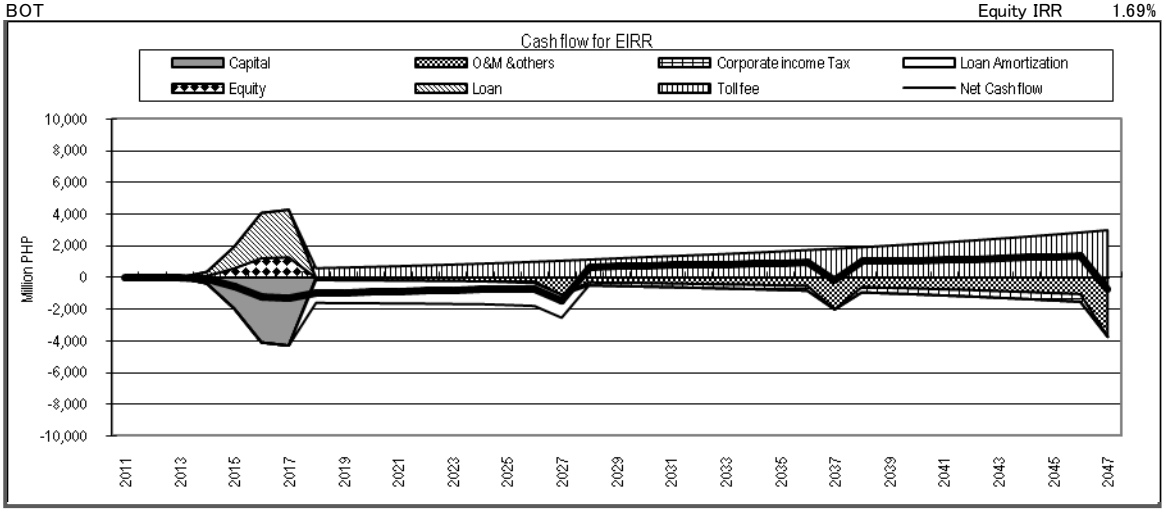
summary


Net Cash Flow
Pure BOT - (4.68%)
BOT with subsidy (0.30%)
Segment dividing with lease fee - (4.78%)
Segment dividing without lease fee - (0.15%)
Service Payment (11.56%)
Lease #DIV/0!
Million PHP
4,000
3,000
2,000
1,000
0
-1,000
-2,000
-3,000
-4,000
-5,000
-6,000
2011
2013
2015
2017
2019
2021
2023
2025
2027
2029
2031
2033
2035
2037
2039
2041
2043
2045
2047

6-2 CLEX Phase1 (2-lane)

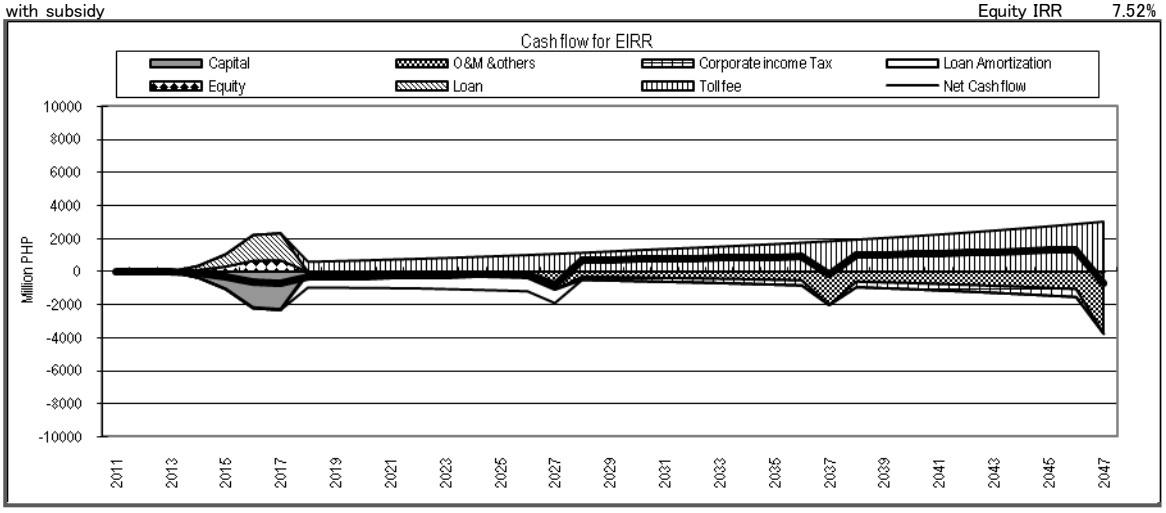
Pure BOT

Equity IRR 1.69%



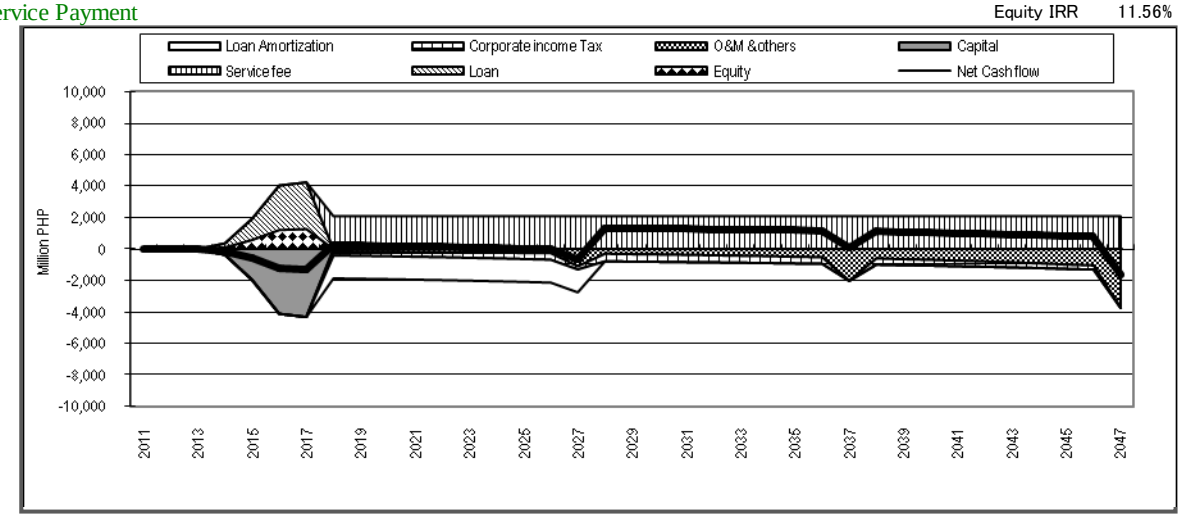
BOT with subsidy

Equity IRR 7.52%

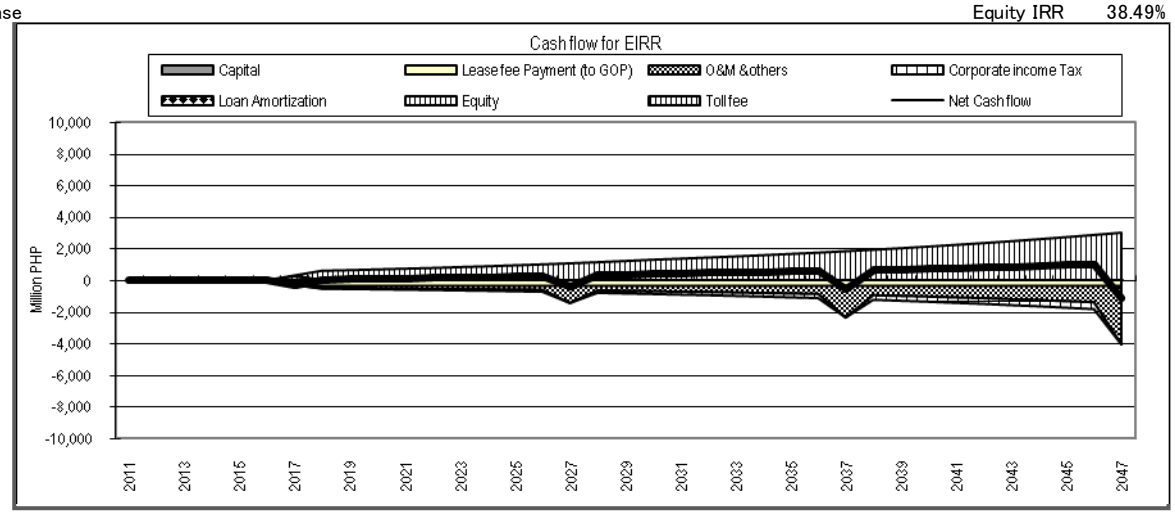


Service Payment

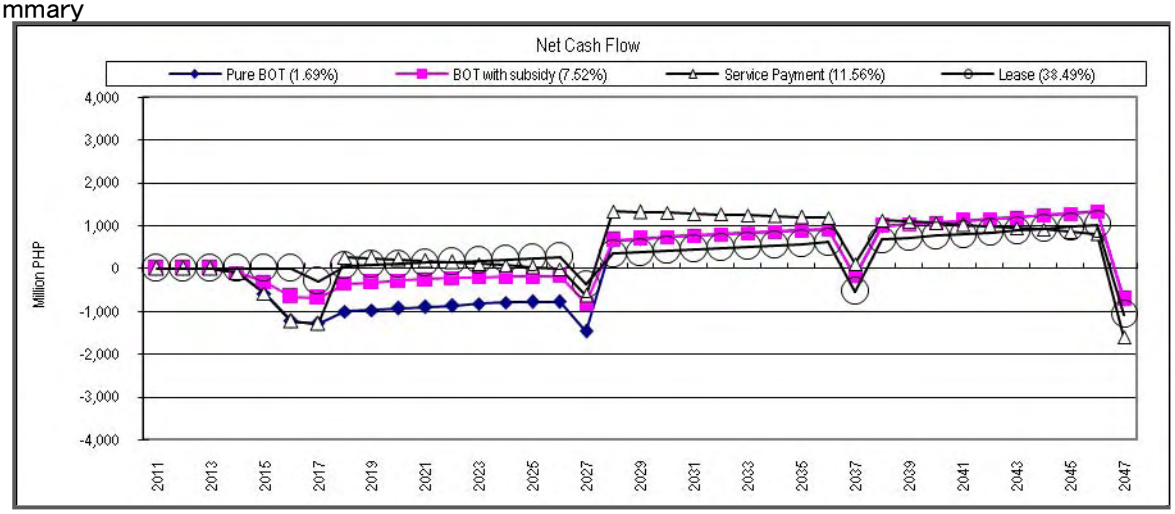
Equity IRR 11.56%



Lease Equity IRR 38.49%



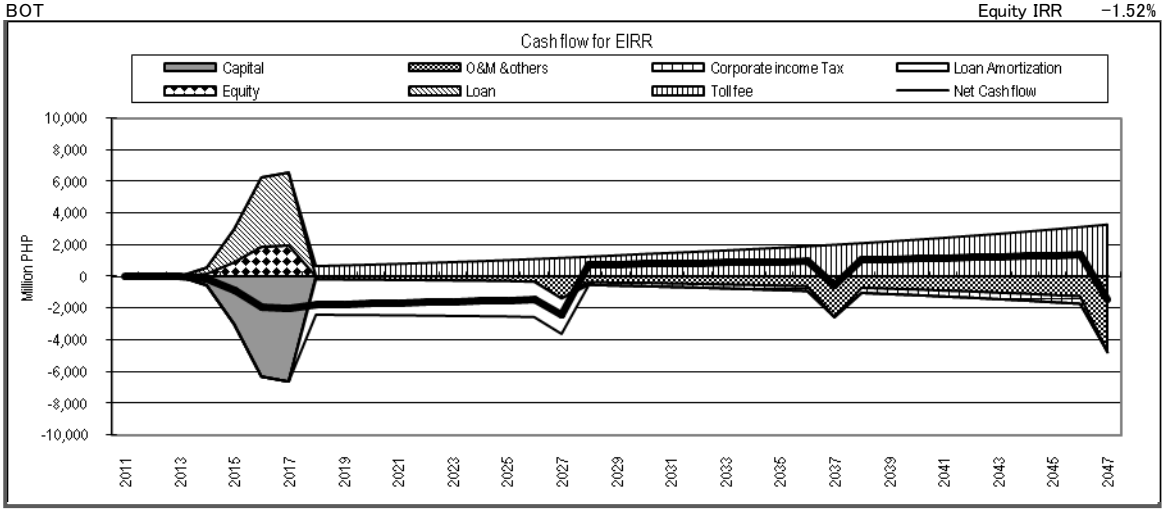
summary



6-3 CLEX Phase1 (4-lane)

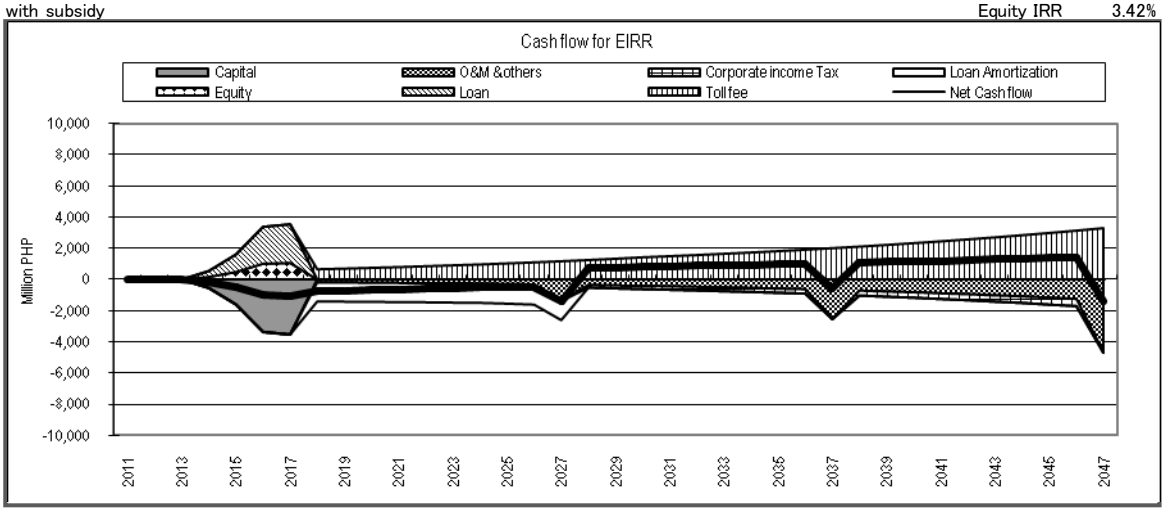
Pure BOT

Equity IRR −1.52%



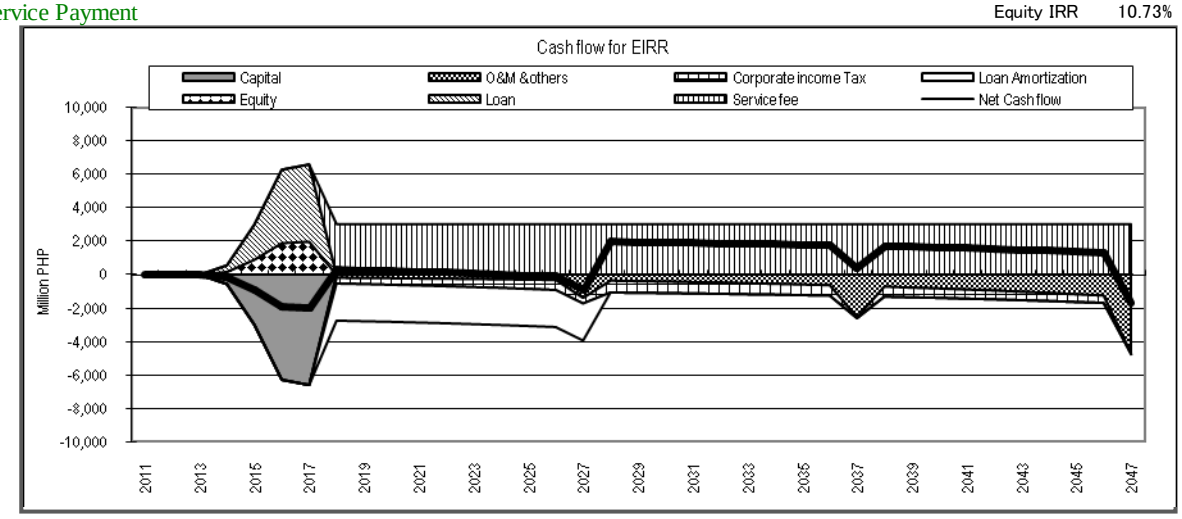
BOT with subsidy

Equity IRR 3.42%



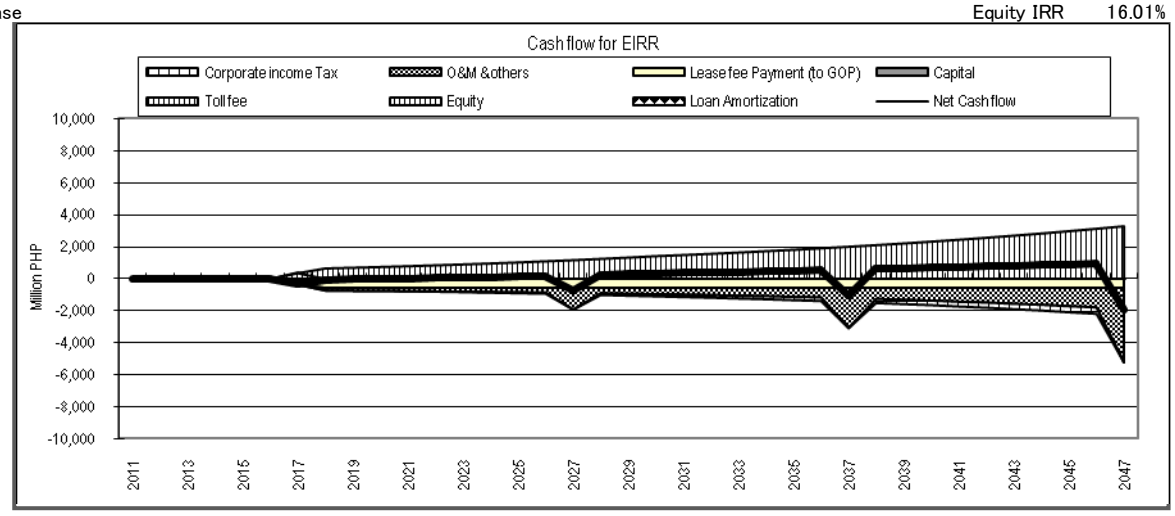
Service Payment

Equity IRR 10.73%

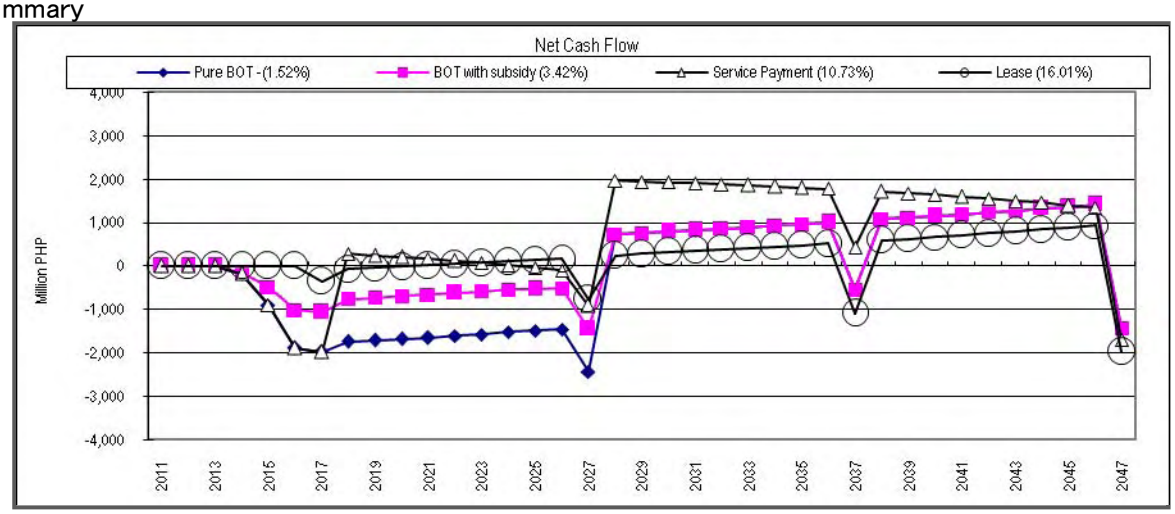


Lease

Equity IRR 16.01%

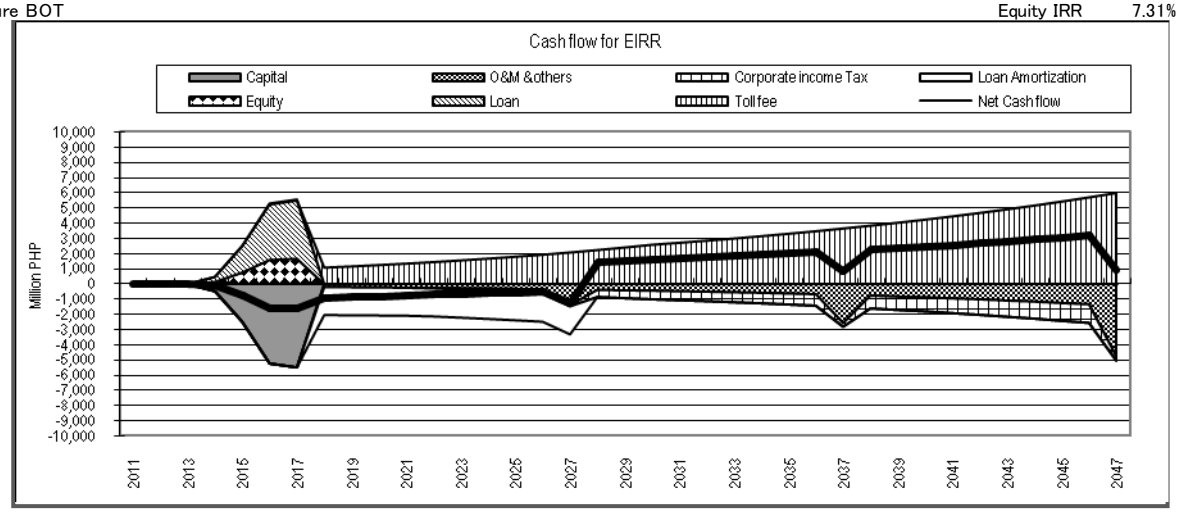


summary

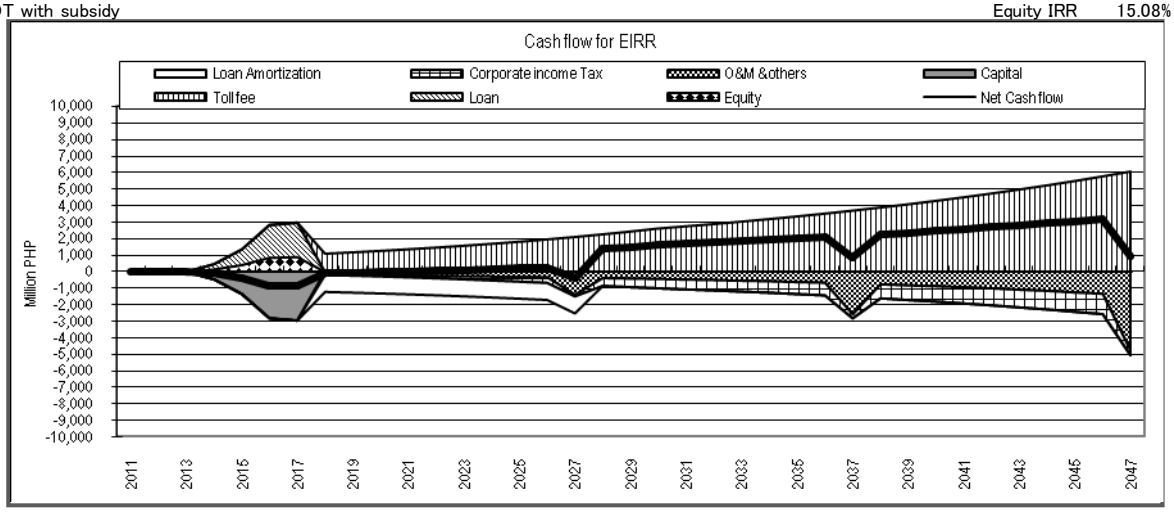


7. SLEX Extension (to Lucena)

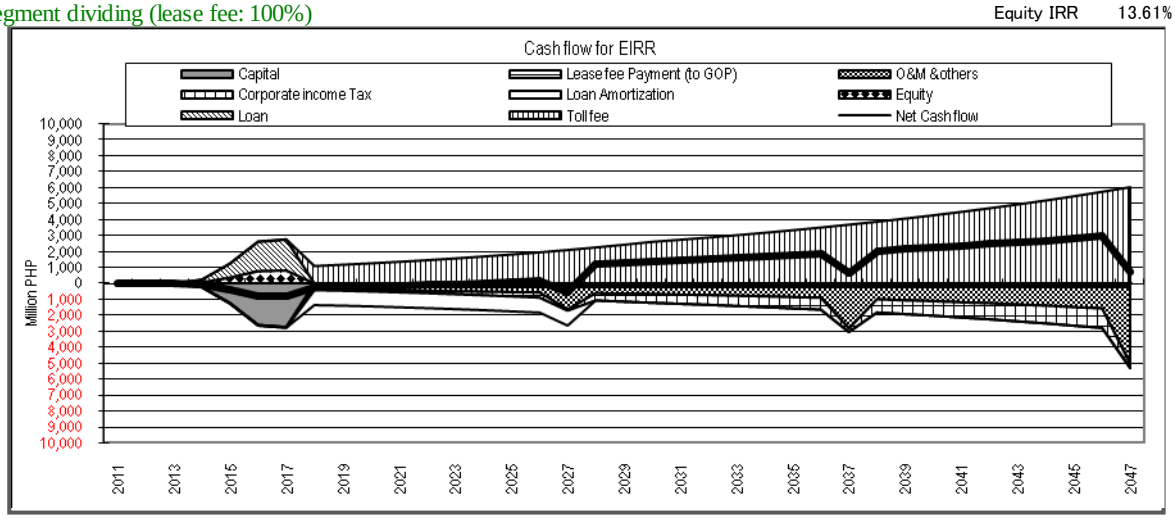
Pure BOT — Equity IRR 7.31%



BOT with subsidy — Equity IRR 15.08%

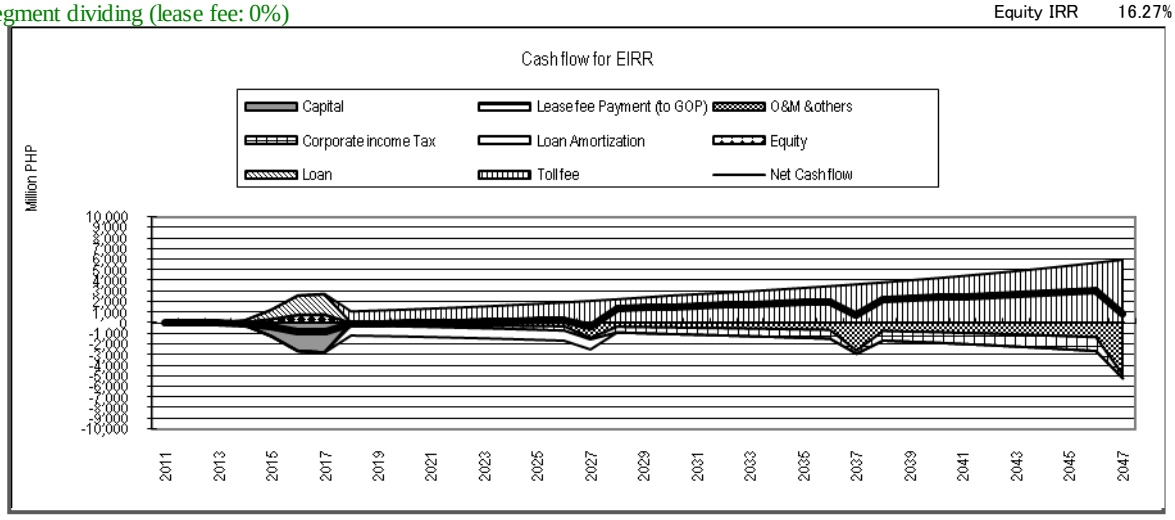


Segment dividing (lease fee: 100%) — Equity IRR 13.61%



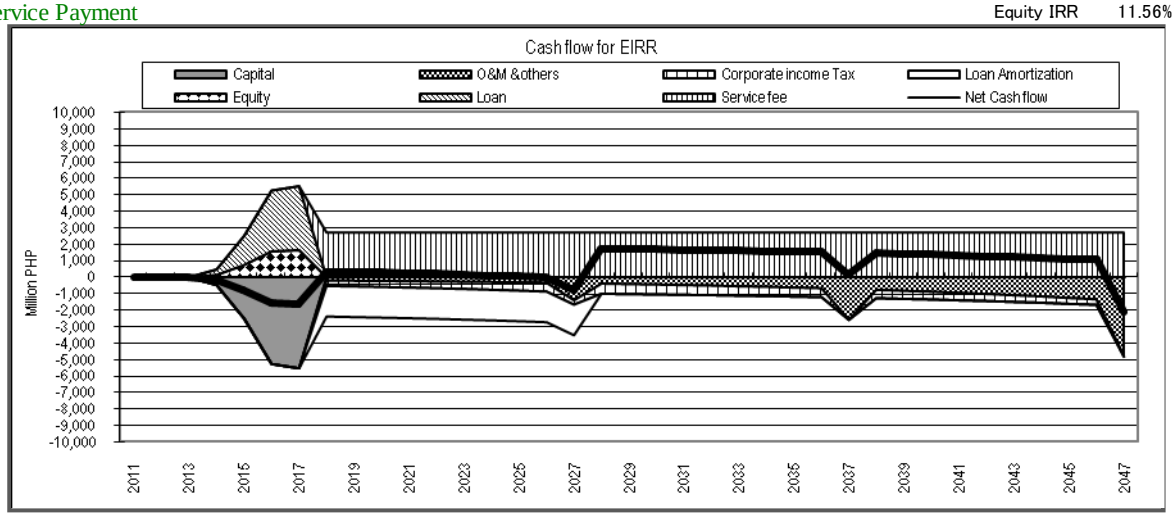
Segment dividing (lease fee: 0%)

Equity IRR 16.27%



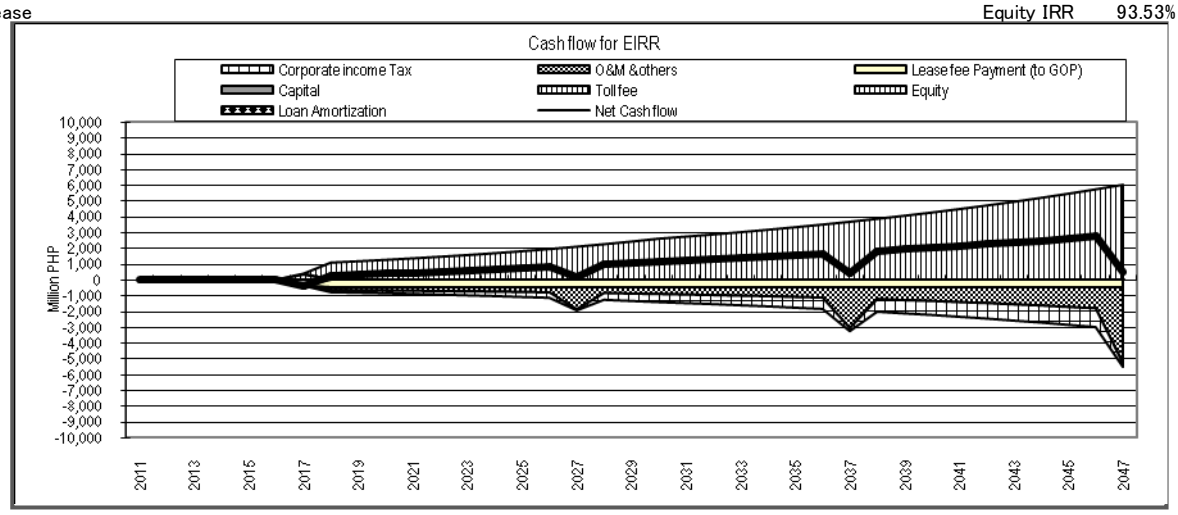
Service Payment

Equity IRR 11.56%

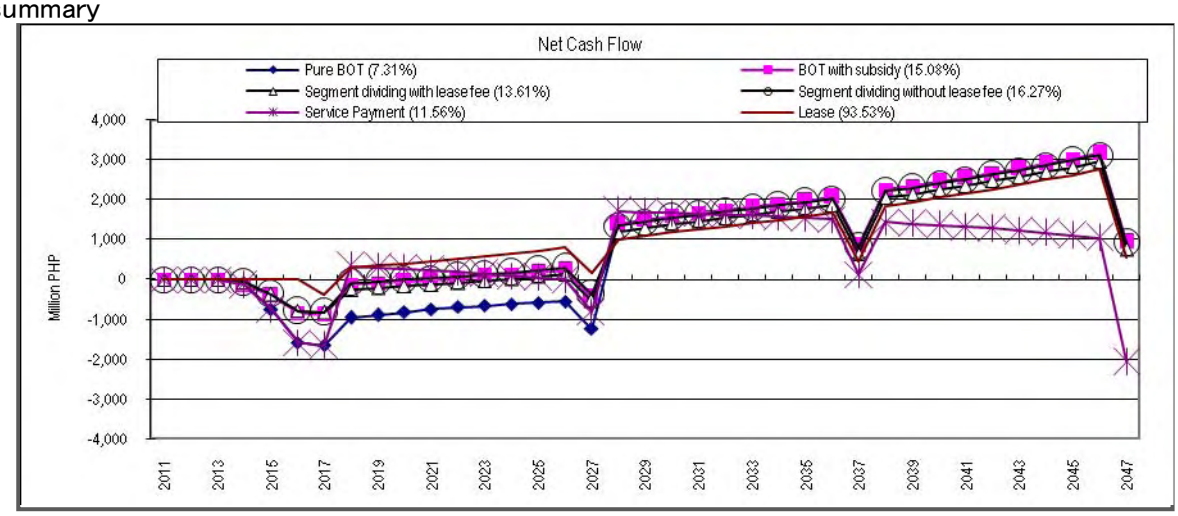


Lease

Equity IRR 93.53%

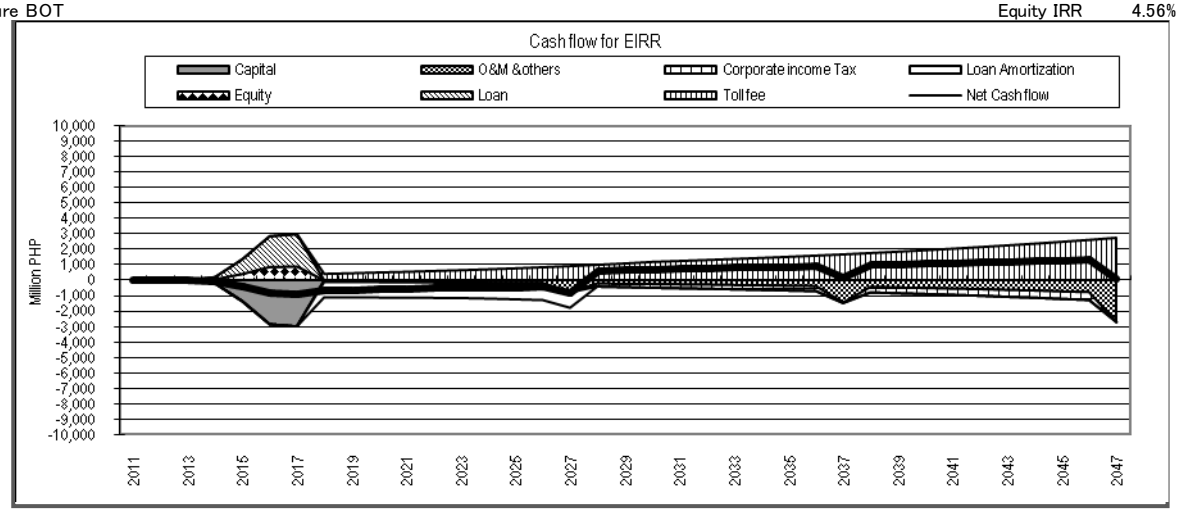


summary

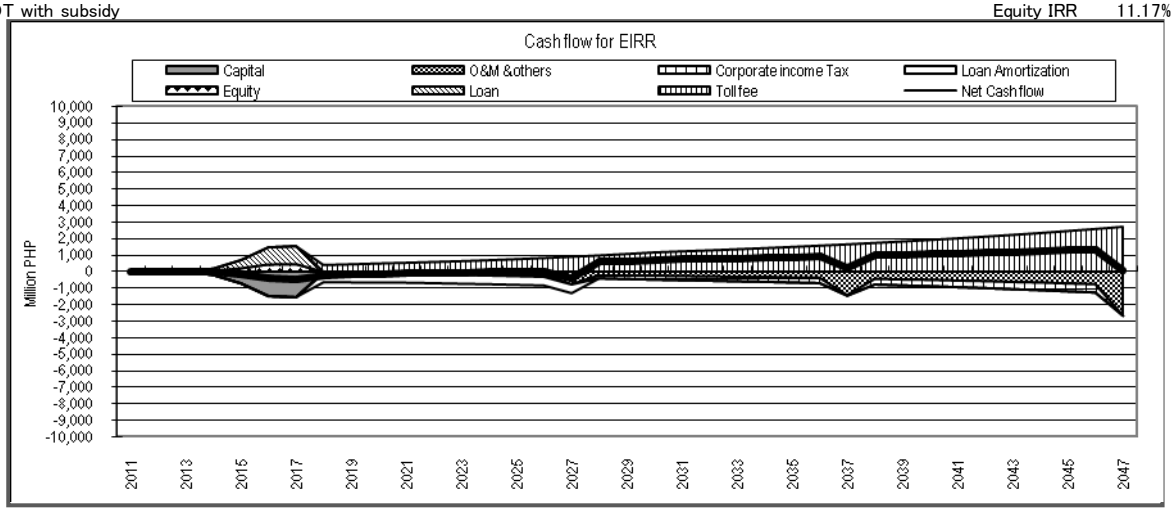

Net Cash Flow
Pure BOT (7.31%)
BOT with subsidy (15.08%)
Segment dividing with lease fee (13.61%)
Segment dividing without lease fee (16.27%)
Service Payment (11.56%)
Lease (93.53%)
Million PHP
4,000
3,000
2,000
1,000
0
-1,000
-2,000
-3,000
-4,000
2011
2013
2015
2017
2019
2021
2023
2025
2027
2029
2031
2033
2035
2037
2039
2041
2043
2045
2047

8. Calamba-Los Banos Toll Expressway

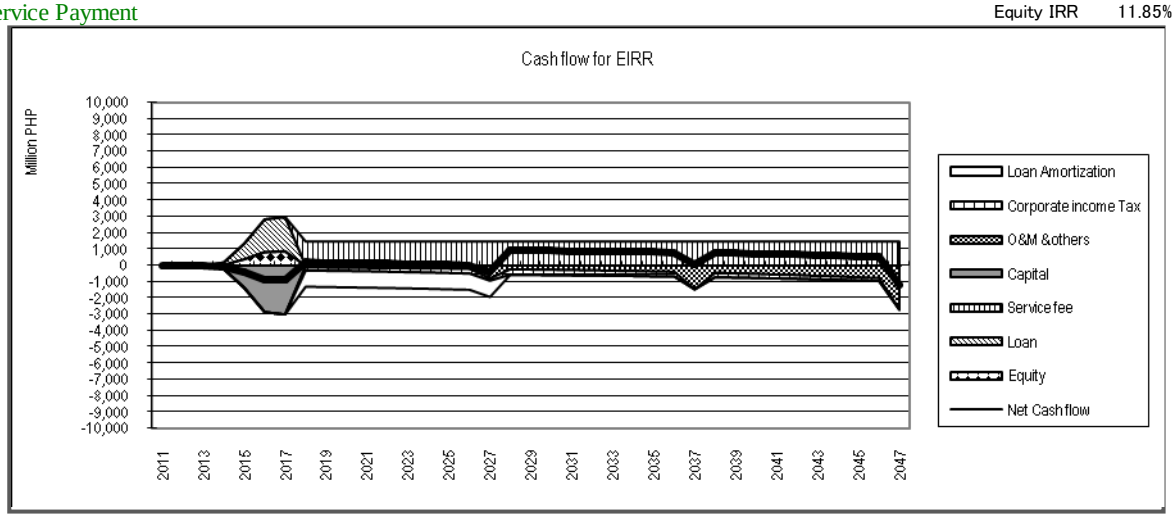
Pure BOT Equity IRR 4.56%



BOT with subsidy Equity IRR 11.17%

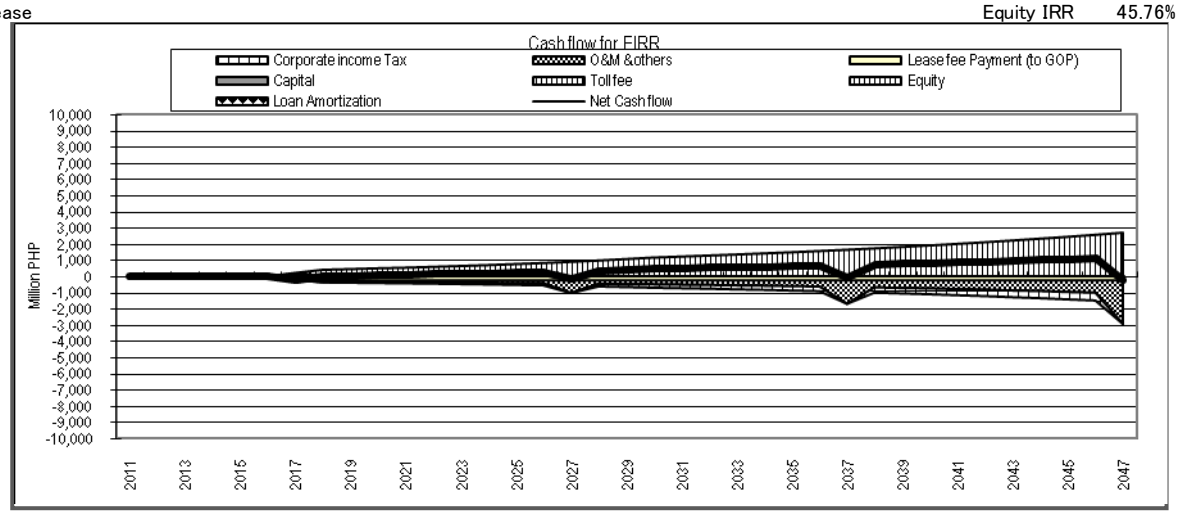


Service Payment Equity IRR 11.85%

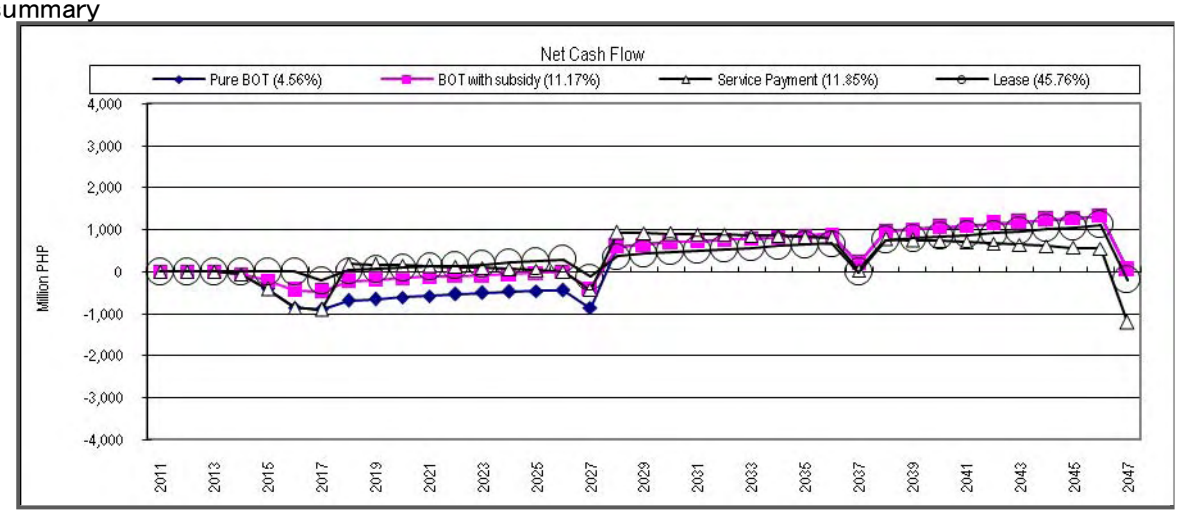


Lease

Equity IRR 45.76%

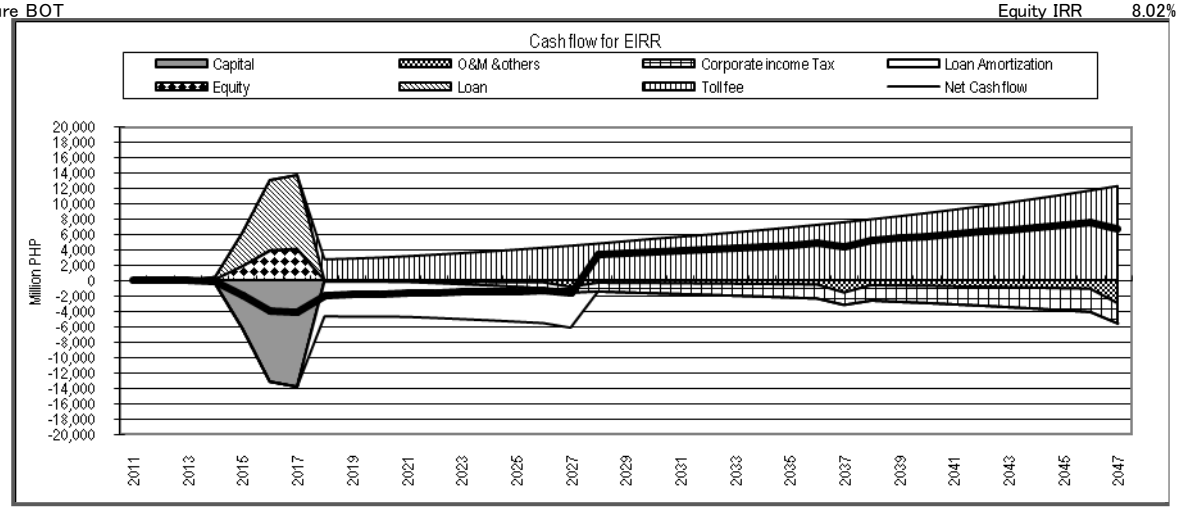


summary

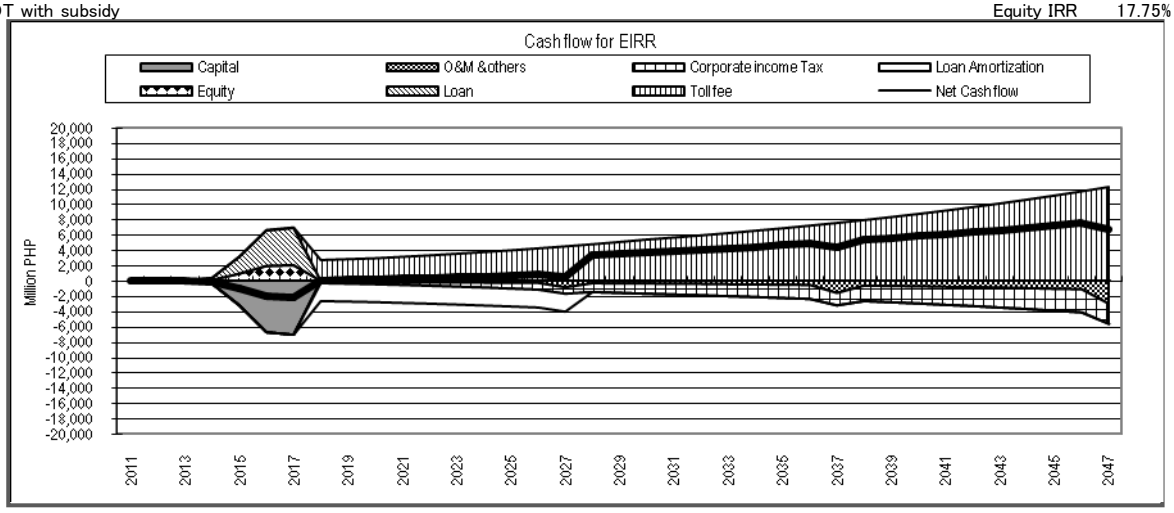


9. R-7 Expressway

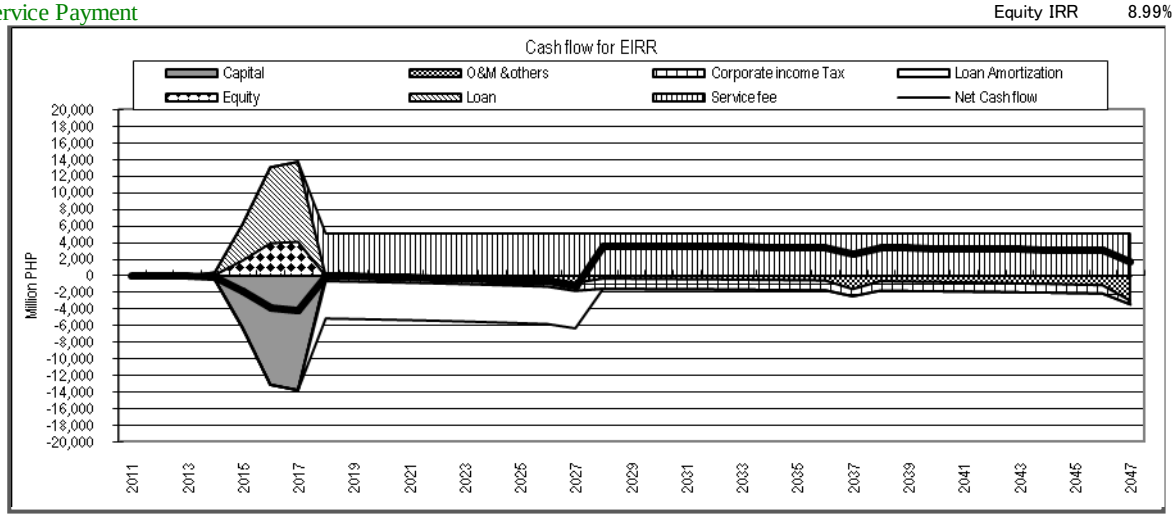
Pure BOT Equity IRR 8.02%



BOT with subsidy Equity IRR 17.75%

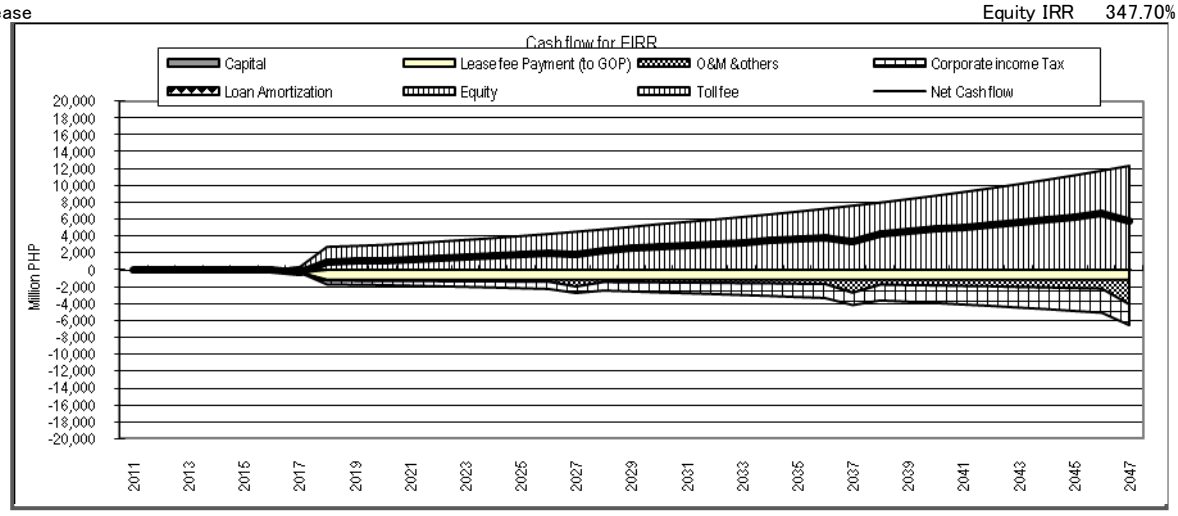


Service Payment Equity IRR 8.99%

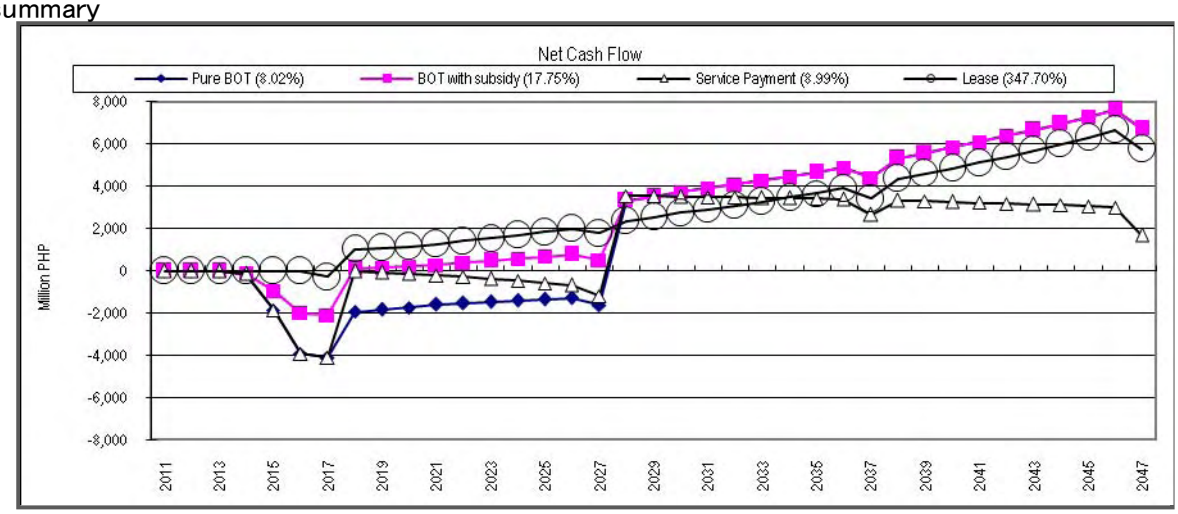


Lease

Equity IRR 347.70%

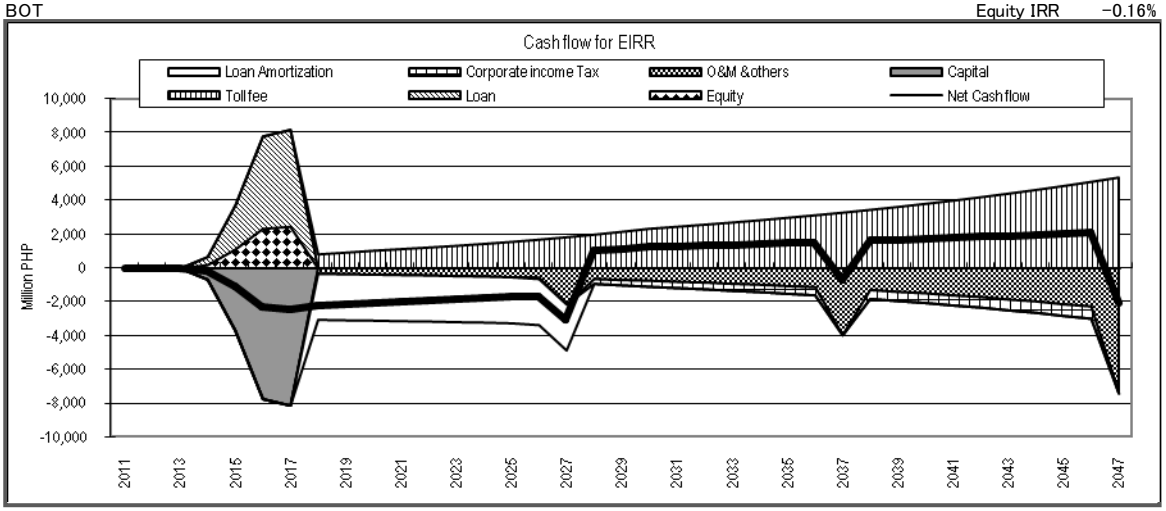


summary

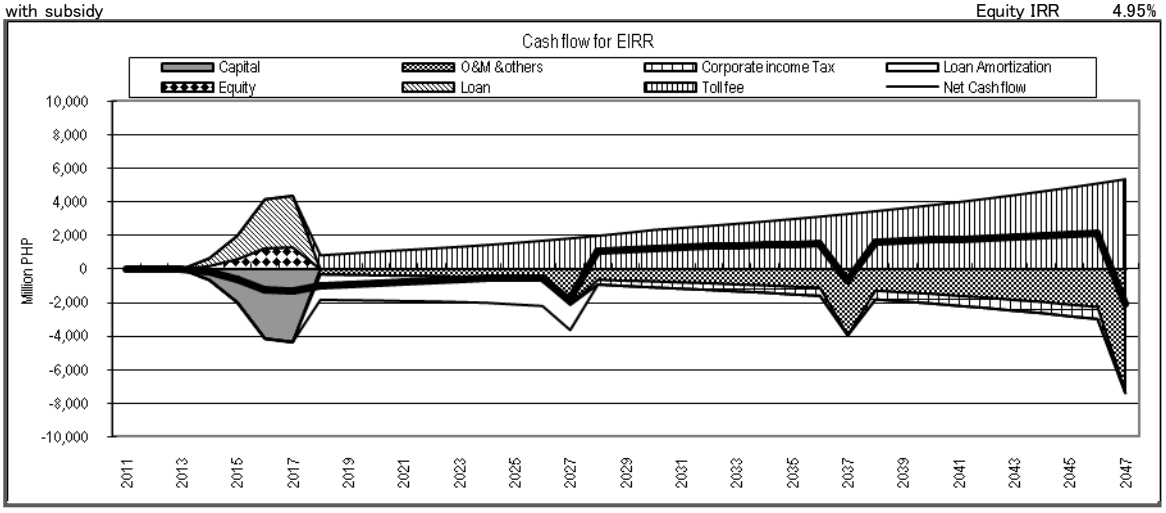


10. NLEX-East & La Mesa Parkway

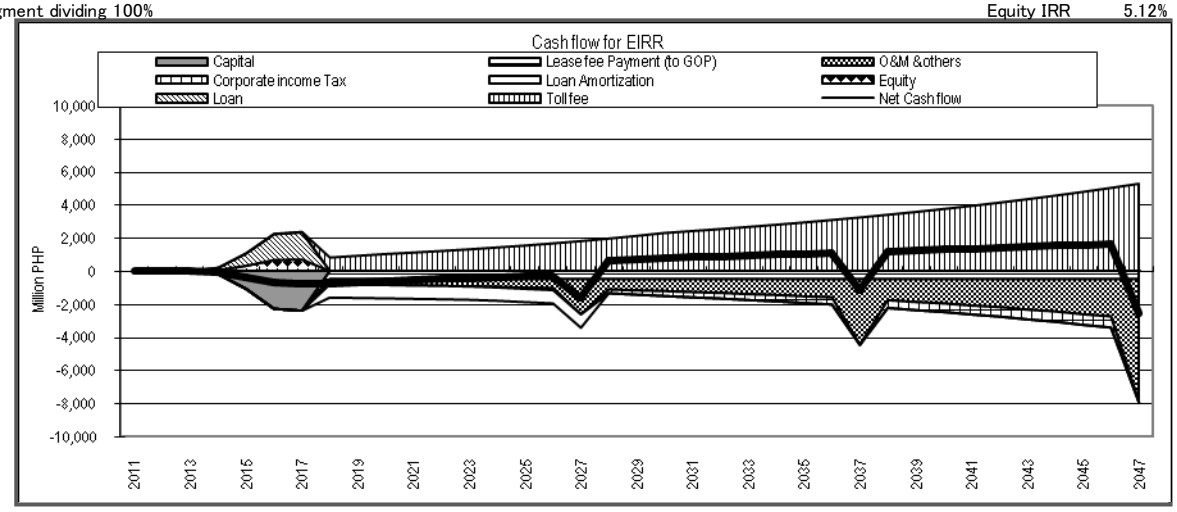
Pure BOT Equity IRR −0.16%



BOT with subsidy Equity IRR 4.95%

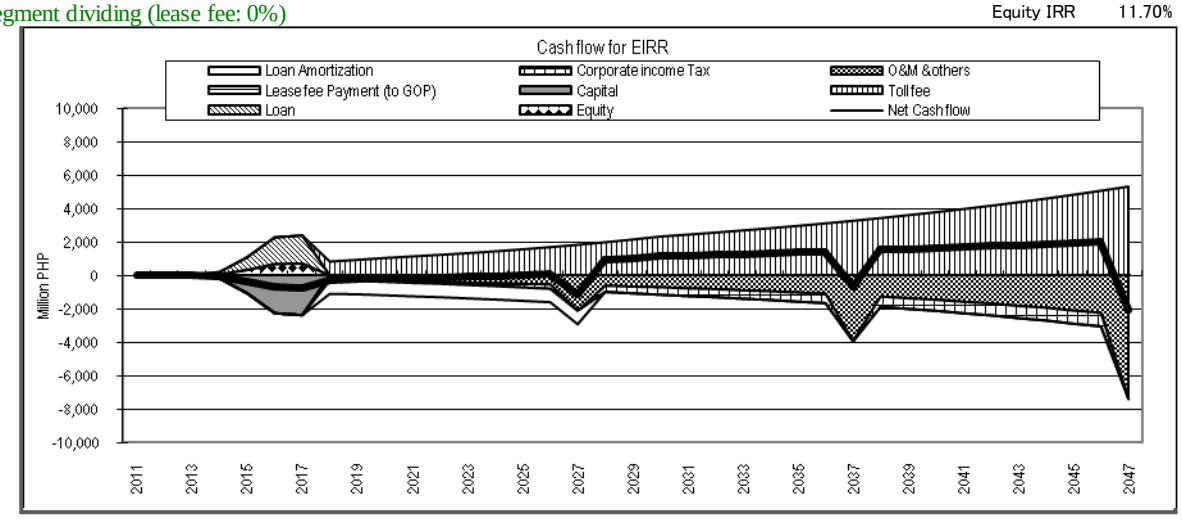


Segment dividing 100% Equity IRR 5.12%



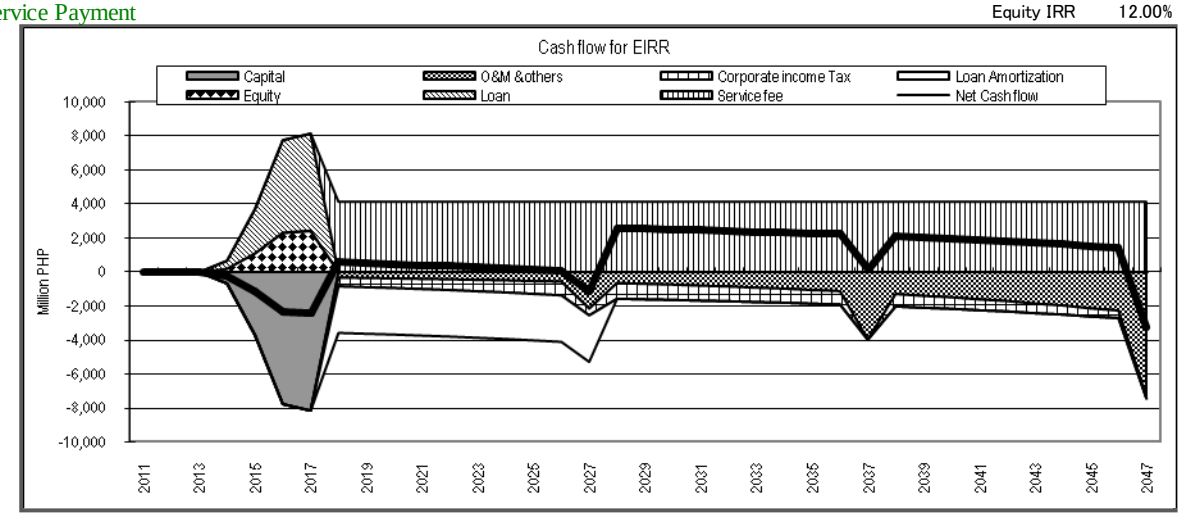
Segment dividing (lease fee: 0%)

Equity IRR 11.70%



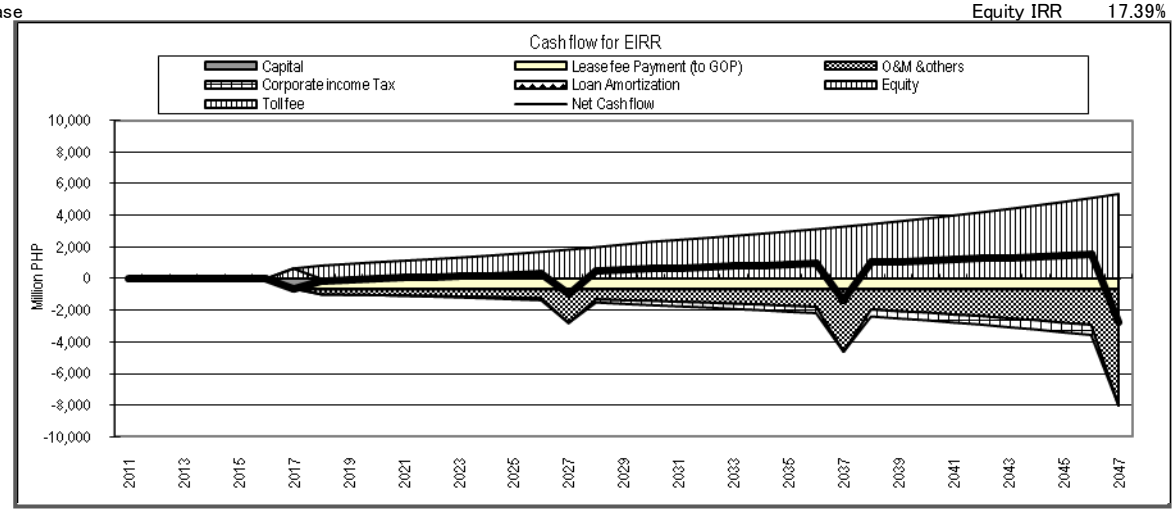
Service Payment

Equity IRR 12.00%

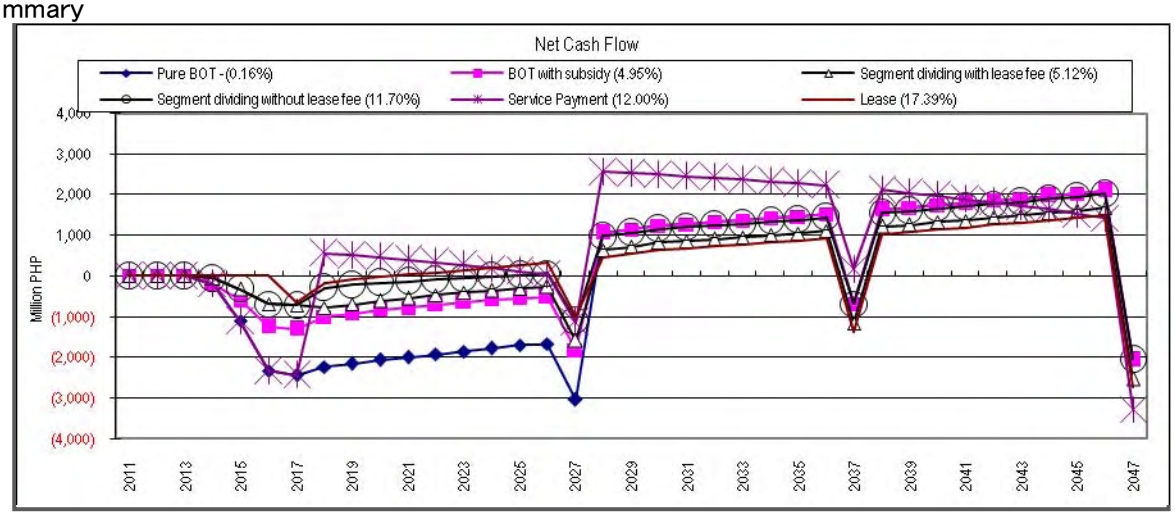


Lease

Equity IRR 17.39%



summary


Net Cash Flow
Pure BOT - (0.16%)
BOT with subsidy (4.95%)
Segment dividing with lease fee (5.12%)
Segment dividing without lease fee (11.70%)
Service Payment (12.00%)
Lease (17.39%)
Million PHP
4,000
3,000
2,000
1,000
0
(1,000)
(2,000)
(3,000)
(4,000)
2011
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