

Appendix to Chapter 2

Table AP2.1 Historical Records of Transport Related Plans and Study Reports in Jabotabek

Year	Title	Acronym	Sponsor
1981	Urban Suburban Railway Transportation in Jabotabek (M/P)	USRTJ	JICA-Moc
1982	Traffic Management and Road Network Development	TRMND	IBRD-Moc
1985	DKI Jakarta Structural Plan	RUTR	DKI-Jkta. - Moc
1986	Jakarta Urban Transport Programme	JUTP	IBRD
1987	The F/S on Urban Arterial Road System Development Study in Jakarta Metropolitan Area	ARSDS1	JICA-MPW
1988	F/S The Consulting Engineering Services for Jakarta Outer Ring Road Proje - Phase 1	JORR1	JICA-MPW
1990	PD-The Consulting Engineering Services for Jakarta Outer Ring Road Project - Phase 2	JORR2	JICA-MPW
1990	The Study on Integrated Transportation System Improvement by Railway and Feeder Service in Jabotabek Area	ITSI	JICA-MoC
1991	Traffic Management and Parking Policy Implementation	TMPPi	IBRD-MoC
1992	Traffic Impact Studies for Mixed Development in Sudirman CBD, Taman Anggrek, Pondok Indah Mall, Cempaka Putih, Kota Kasablanka, and so on	TISM	P.T. Pamintori Cipta (private)
1992	Feasibility Study on Area Control System Project	FS-ATCS	MoC
1992	Transport Network Planning and Regulation	TNPR	IBRD-MoC
1992	Jakarta Mass Transit System Study	JMTSS	GTZ-BPPT
1992	DKI Jakarta Strategic Planning	RENSTRA	DKI-Jakarta
1993	Consolidated Netwrok Plan	CNP	IBRD-MoC
1993	Jakarta Mass Transit System Development and Conseptual Design, Cost and Implementation for Underground System	JDCD	US Aid - BPPT
1993	Jabotabek Metropolitan Development Plan Review	JMDPR	IBRD-MPW
1995	The F/S on Urban Arterial Road System Development Study in Jakarta Metroplotan Area	ARSDS2	JICA - MPW
1996	MRT - Basic Design Study	BD	DKI-Jkta. - JEG
1996	Technical Assistance Project for Jakarta Urban Transport Short-Term Implementation Program	JUTSI	IBRD
1996	Jakarta Immediate Action Programme	JIAP	IBRD
1997	Jabotabek Public Transport Review	JPTR	IBRD - MoC
1997	Technical Assistance Service for the Jakarta Primary Road Improvement Identification Project	JPRIIP	IBRD - MPW
1998	Strutural Plan 2010	SP2010	DKI Jakarta
1998	Preliminary Study for Railway Double Double Tracking on the Bekasi Line Corridor	PSRDDT	JICA - MoC
1998	F/S On Kapuk - Teluknaga - Tangerang Toll Road	KTTTR	P.T. Kapuknaga Indah (private)
1998	DKI Jakarta Strategic Planning	RENSTRA	DKI Jakarta
1999	MRT - Revised Basic Design Study	BD/Rev.	JTCA - MoC
2000	IBRA - Valuation Study of Jakarta Outer Ring Road	IBRA	IBRA

Source: JICA Study Team compilation.

Notes: 1.) The above listing is by no means comprehensive. It identifies only the most important works relevant in this context.

- 2.) IBRD = International Bank for Reconstruction and Development of the World Bank Group
JICA = Japan International Cooperation Agency
MoC = Ministry of Communications
MPW = Minsitry of Public Works

Appendix to Chapter 3

Table AP3.1(1) Laws and Government Regulations Regarding Roads in General and Toll Roads in Particular

I S S U E	1980 Bill of Law No.13/ 1980 Regarding Roads	1990 Government Regulation (PP) No. 8/1990 Regarding Toll Roads	2000 Bill of Law (Draft) Revision of Law 13/1980 regards Roads
Land acquisition & compensation			Article 25, (1) to (4) stipulate that land acquisition may be conducted by the Government/local Government using budget resources and/or any private investor. However, the land right remains with the Government and/or local Government.
General provisions/conditions for toll roads	Chapter VI, Article 15 specifies that a toll road is an alternative to an existing public road, and Article 16 specifies that toll roads must have a better specification than existing public roads and that they must provide a more reliable service to users.		Chapter IX, Article 22 states that a toll road is operated with the intention to distribute development and its outcome. Article 22, Section 2 stipulates that the objective of operating a toll road is to improve efficiency of services of distribution. Article 22, Section 3 states that a toll road is an alternative of an existing public road. Article 23 stipulates that a toll road must have specifications and a level of service better than existing public roads and it must provide more reliable service to users.
Determination of a toll road	Article 14 stipulates that the President determines a road section as toll road based on the Minister's suggestion.	Article 39, (1) states that a road section is determined as a toll road by the President based on the Minister's suggestion.	Article 21, (3) stipulates that any road section is determined as toll road through Ministerial Decree based on suggestions from the Road Authority according to road status and by considering inputs from agencies specified in Article 19 (2).
Ownership	Article 13 stipulates that ownership is "in the hand of the Government".		Article 21, (1) states that the property rights of toll roads are "in the hand of the state". Section (2) stipulates further that the Government decides the general road network plan and that some of its alternative sections may be designated as toll road sections.
Eligibility to invest in toll roads	Law 13/1980 stipulates clearly that investment in toll roads can only be made by the Government through the state-owned company P.T. Jasa Marga.	Article 38, (2) states that P.T. Jasa Marga, to which toll road operations have been delegated, may do so "in cooperation with other parties". It is, however, not clear whether 100% private investment is possible or not.	
Authority to operate toll roads	Based on Article 13, the GOI delegates in Article 17 the authority to operate toll roads to a Government owned company namely P.T. Jasa Marga. Article 17, (4) notes also that such delegation of authority does not free the GOI from its responsibility for toll roads.	Article 38 (1) delegates "some" or the "whole" authority of operating toll roads to the Government owned company P.T. Jasa Marga. Article 38 (2) stipulates that the company may conduct operations of the toll roads with "other parties". The cooperation mentioned in Article 38 (2) does not imply a transfer of authority.	Article 24 states that the authority to operate toll roads may be delegated to a government owned company; a local government owned company, a private company or a cooperation. Article 24 (2) stipulates that such delegation does not free the Government and/or local government from their responsibility for the toll road.

Source: JICA Study Team compilation based on the respective law texts.

Table AP3.1(2) Laws and Government Regulations Regarding Roads in General and Toll Roads in Particular

I S S U E	1980 Bill of Law No.13/ 1980 Regarding Roads	1990 Government Regulation (PP) No. 8/1990 Regarding Toll Roads	2000 Bill of Law (Draft) Revision of Law 13/1980 regarding Roads
Toll tariff & tariff adjustment mechanism	Article 18 (2) determines that the type of vehicles and toll tariffs are determined through a Presidential Decree.	Article 40 stipulates that the vehicle types and toll tariffs are decided upon the President based on the Minister's recommendations.	Article 26 of the draft stipulates that: a) guidelines for determining initial tariffs are determined by the GOI based on suggestions from the Agency referred to in Article 20(2) b) a formula for adjusting tariff levels is determined by GOI based on suggestions of the same agency c) initial toll tariffs and adjustment mechanism are determined by the GOI according to the road status and suggestions made by the same agency referred to above.
Toll road financing		Article 41 stipulates that the GOI covers the pre-feasibility study and land acquisition cost for the development of a toll road. Article 42 states that the toll road development cost, which includes feasibility study, engineering design, construction as well as maintenance cost are to be borne by the agency or by the agency in cooperation with other parties.	
Collateral damage	Article 19(2) stipulates that the government owned company for the toll road must repay any disadvantages suffered by toll road users that are the result of misconduct in operating a toll road.		Article 27(1) states that the company operating a toll road must compensate for any disadvantages suffered by toll road users resulting from any mistake in technical design, construction, operational and maintenance process of the toll road.

Source: JICA Study Team compilation based on the respective law texts.

Assumptions (Project specific)		Options		Implications	
System Configuration [What is the loan to finance ?]	a.)	W1, W2, W2'; S, E1+ E1(2); E2; E3; N;	1.)	Strong implications for total project base cost and, therefore, overall investment needs Borrowing entity & its responsibilities. Jl. Cakung ... & Jl. Jampea Cilicing are not toll roads FIRR calculations. Which part of the investment enters the calculation, if it finances partly roads which do not fall under the responsibility of the borrowing entity.	
	b.)	W1, W2; W2'; E1+E1(2); E2; E3; Jl Cakung ...; Jl. Jampea Cilicing	2.)		
	c.)	W1; W2; W2'; E1+E1(2); E2; E3; S; N; Jl. Cakung; Jl. Jampea Cilicing	3.)		
	d.)	Traffic information & control system			
	e.)	Frontage/Access roads			
Loan Type & Conditionalities	a.)	Special Yen Loan (SYL)	1.)	Strong impacts on: Cost-structure (SYL !) Therefore investment Financing cost Repayment period Risk distribution Strong impact on selection of potential "implementing entity"	
	b.)	Normal ¥ loan			
	c.)	Other financing options	2.)		
Construction Method	a.)	Conventional Procurement Method	1.)	Strong impact on implementation time needed, therefore interest during construction, therefore capital needs Depending on type of implementing entity, strong implications for Gvt. supervision and control	
	b.)	Fast Track Procurement Method	2.)		
Project Implementing or Executing Entity	a.)	Fully private sector	1.)	If a.); sovereign guaranteed lending not possible If b.); ODA lending/borrowing possible If c.); ODA borrowing possible. However, risk & guarantee distribution becomes key element. Avoid: implicit subsidy to private sector	
	b.)	Fully public sector	2.)		
	c.)	Public Private Partnership (PPP)	3.)		
Government Counter-part budget	a.)	Central Government	1.)	The financing scheme for the government counterpart budget has a very strong impact on timely completion & IDC Likewise, there are strong implications on returns and risk distribution allocated to the implementing entity	
	b.)	Central & local Government			
	c.)	Local Government & SOE	2.)		
(Policy specific)					
Strategic Goal for Toll Road Development and O&M	a.)	Future public sector role	1.)	Most fundamental impacts on: Long-term vision for implementing entity Toll levels & structures Potentials for cross-subsidizing Cover future investment needs Fundamental impact on public/private transport sector roles	
	b.)	Future private sector role			
	c.)	Future public/private sector role	2.)		
Toll rates; subsidies & affordability	a.)	Toll rate with subsidy element	1.)	Fundamental impact on demand Fundamental impact on attractiveness for private sector capital	
	b.)	Toll rate without subsidies	2.)		

Source: JICA Study Team.

Figure AP3.1 Quick Check Assumption Matrix for Jakarta Outer Ring Road (JORR Feasibility Study)

Appendix to Chapter 5

AP 5.1 Grand Summary of Engineering Base Cost (1/2)

CASE A; JORR only (Traffic Information System)

No.	Item	Closed System			
		F/C	L/C	TOTAL	
		Mil. Yen	Mil. Rupiah	Mil. Yen	Mil. Rupiah
1	Construction Civil Works	17,056	2,094,619	44,984	3,373,783
2	Equipment Installation	13,194	78,918	14,246	1,068,477
3	Physical Contingency	2,365	213,408	5,211	390,802
4	Consulting Engineering Services for Civil Works	2,006	40,617	2,548	191,067
5	Consulting Engineering Services for Equipment Installation	910	8,293	1,021	76,543
	Total	35,531	2,435,855	68,009	5,100,675
	F/C,L/C Rates	0.522	0.478		

F/C,L/C Rates		F/C	L/C		
1	Construction Civil Works	0.379	0.621		
2	Equipment Installation	0.926	0.074		
3	Physical Contingency	0.454	0.546		
4	Consulting Engineering Services for Civil Works	0.787	0.213		
5	Consulting Engineering Services for Traffic Managing Systems	0.892	0.108		

- Notas; 1) Contingency is 10% of the Civil Works and 5% of the Equipment Installation Works
 2) The cost of "Maintenance Equipment " for Traffic control Equipment (Mil. Yen 118) is included in the F/C component of Item 2
 3) Conversion Rates Yen 106 = US\$ 1.0 = Rupiah 7,950 Yen 1.0 = Rupiah 75

CASE B; JORR + JUIT + 3 Radial Tollways (Traffic Information System)

No.	Item	Closed System			
		F/C	L/C	TOTAL	
		Mil. Yen	Mil. Rupiah	Mil. Yen	Mil. Rupiah
1	Construction Civil Works	17,056	2,094,619	44,984	3,373,783
2	Equipment Installation	19,672	128,556	21,386	1,603,975
3	Physical Contingency	2,689	215,890	5,568	417,577
4	Consulting Engineering Services for Civil Works	2,006	40,617	2,548	191,067
5	Consulting Engineering Services for Equipment	1,160	8,293	1,242	95,293
	Total	42,583	2,487,974	75,727	5,679,525
	F/C,L/C Rates	0.562	0.438		

F/C,L/C Rates		F/C	L/C		
1	Construction Civil Works	0.379	0.621		
2	Equipment Installation	0.920	0.080		
3	Physical Contingency	0.483	0.517		
4	Consulting Engineering Services for Civil Works	0.787	0.213		
5	Consulting Engineering Services for Traffic Managing	0.934	0.087		

- Notas; 1) Contingency is 10% of the Civil Works and 5% of the Equipment Installation Works
 2) The cost of "Maintenance Equipment " for Traffic control Equipment (Mil. Yen 236) is included in the F/C component of Item 2
 3) Conversion Rates Yen 106 = US\$ 1.0 = Rupiah 7,950 Yen 1.0 = Rupiah 75

AP 5.1 Grand Summary of Engineering Base Cost (2/2)

CASE C; No introduction of Traffic Information System

No.	Item	Closed System			
		F/C	L/C	TOTAL	
		Mil. Yen	Mil. Rupiah	Mil. Yen	Mil. Rupiah
1	Construction Civil Works	17,056	2,094,619	44,984	3,373,783
2	Equipment Installation	6,513	30,185	6,916	518,676
3	Physical Contingency	2,031	210,971	4,844	363,312
4	Consulting Engineering Services for Civil Works	2,006	40,617	2,548	191,067
5	Consulting Engineering Services for Equipment	546	8,293	613	49,243
	Total	28,152	2,384,685	59,904	4,492,800
	F/C,L/C Rates	0.470	0.531		

F/C,L/C Rates		F/C	L/C		
1	Construction Civil Works	0.379	0.621		
2	Equipment Installation	0.942	0.058		
3	Physical Contingency	0.419	0.581		
4	Consulting Engineering Services for Civil Works	0.787	0.213		
5	Consulting Engineering Services for Traffic Managing	0.891	0.168		

- Notas; 1) Contingency is 10% of the Civil Works and 5% of the Equipment Installation Works
 2) The cost of "Maintenance Equipment " for Traffic control Equipment (Mil. Yen 59) is included in the F/C component of Item 2
 3) Conversion Rates Yen 106 = US\$ 1.0 = Rupiah 7,950 Yen 1.0 = Rupiah 75

Appendix to Chapter 7

Appendix 7: Comparison of Base Cost Estimations

As has been observed in the main text, the two primary data and information sources for the review and assessment of the JORR project proposal are the 1999 Implementation Plan prepared by the Ministry of Public Works and the 2000 Valuation Study prepared for IBRA. However, the results of both studies are not compatible, due to differences in overall study objectives, underlying project system configuration, unit and base price parameter, cost breakdowns and base cost structures. Such differences would obviously lead to different project base costs and, hence, investment requirements, which in turn cannot be compared for the reasons indicated.

It was, therefore, necessary to eliminate such differences, in order to allow for a comparison of the two previous base cost estimations with the one obtained by this assessment. Table AP7.1 summarizes the differences. The major items, which needed adjustment and/or harmonization in the present review and assessment are introduced and discussed below.

(1) Underlying system configurations.

The JORR proper is defined comprising the sections W1, W2, S, E1, E2, E3, and N (see Figure 2.1.2). This configuration was adjusted for the SYL request in the 1999 Implementation Plan to include W2', which forms part of the Jakarta-Serpong toll way already under construction by P.T. Jasa Marga. Section N was excluded and 2 feeder roads were added to facilitate access to Section E3. The feeder roads do not, strictly speaking, form part of the JORR toll way. They also fall under the jurisdiction of DKI Jakarta. Notwithstanding this fact, feeder roads may form part of the loan request. The 2000 Valuation Study looked, for obvious reasons, only at the segments of the JORR proper.

(2) Capacity and number of lanes.

Both studies assumed a 3x3 lane configuration for the JORR segments with no practical capacity bottlenecks occurring up to the year 2015.

(3) Base year prices.

The Implementation Program used December 1998 prices and the Valuation Study March 2000 prices. However, since cost-structures were not identical, it was not possible to assess whether December 1998 prices were properly price adjusted to March 2000 levels before harmonizing underlying cost structures.

(4) Cost breakdown and base costs

The Implementation Program provided proper breakdown of costs into local and foreign cost components using Rupiah and \ as the currency denominators. The Valuation Study, however, used US dollar as unit currency denominator without identification of local and foreign cost components. Both studies use an unusually low and unexplained 7 percent margin for physical contingencies. In addition,

Table AP7.1 Comparison Base Cost Estimation 1999 MPW Implementation Plan and 2000 Valuation Study For Jakarta Outer Ring Road (JORR)

1999 Public Works Implementation Program				2000 IBRA Valuation Study			
UNDERLYING PROJECT SYSTEM CONFIGURATION							
Priority	Section	km	Comment	Priority	Section	km	Comment
2	W1	9.8	None	1	W1	9.8	None
1	W2	11.2	None	1	W2	11.2	None
1	W2'	3.0	Added		W2'	Not included	None
	S	14.8	Operational	1	S	14.8	None
3	E1	11.9	None		E1	11.9	None
4	E2	9.2	None		E2	9.2	None
4	E3	4.8	None		E3	4.8	None
4	Cilincing Access	7.7	Replace "N"		N	5.2	None
Total		72.4		Total		66.9	
CAPACITY / NUMBER OF LANES							
3x3 up to 2015				3X3 up to 2015			
BASE YEAR FOR PRICES							
Dec-98				Mar-00			
COST BREAKDOWN							
Into Local & foreign cost components				No breakdown into local & foreign cost components			
		Rupiah million	¥ million			Rupiah million	US\$ million
1.) Construction cost		3,343,920	55,732	1.) Construction cost		4,405,273	599.4
2.) Toll operating system		1,330,800	22,180	2.) Toll operating system		1,543,450	210.0
3.) Phys. Contingency		327,240	5,454	3.) Phys. Contingency		308,369	42.0
4.) Cons. Services 1.)		158,340	2,639	4.) Cons. Services 1.)		315,919	47.9
5.) Cons. Services 2.)		32,400	540	5.) Cons. Services 2.)		130,183	17.7
Total		5,192,700	86,545	Total		6,703,194	917.0
				[Note: including Ppn and N section.]			
				Inluding N, but no Ppn		6,064,319	825.2
				Excluding N and Ppn		5,050,921	687.2
STRUCTURAL FLOW OF BASE COST CALCULATION							
1.) Construction Work				1.) Design Cost			
add 2.) Toll operating system				add 2.) Supervising cost			
add 3.) Physiscal contingencies 7%				add 3.) Construction cost			
add 4.) Consul. Services JORR				add 4.) Extra works			
add 5.) Consul. Services Info.system				add 5.) Physical contingency 7% [on 3.) only]			
= BASE COST				add 6.) Toll & Info. System			
				= BASE COST			

Source: 1.) Valuation Study Of Jakarta Outer Ring Road; The Indonesian Bank Restructuring Agency-IBRA; May 2000.
2.) Implementation Plan for Jakarta Outer Ring Road (Special Yen Loan); MPW; July 1999.

Ppn (VAT) was included in the year 2000 Valuation Study in the base construction cost thereby inflating total base cost, since margins on total construction cost were used to arrive at other cost components. The Valuation Study furthermore levied physical contingency only on construction cost and not the other hardware systems, but it added needed resources for extra works, which was not covered in the 1999 Implementation Study.

(5) Structural flow of base cost calculations.

The structural flow of base cost calculation differs considerably between both studies. This had to be transformed into unified standard case cost categories as elaborated upon in the main text, in order to allow for comparability.

It was therefore necessary, in view of all the above circumstances, in order to allow for section-wise cost adjustments and comparison:

- 1) To select March 2000 Valuation Study unit-cost, since they are the latest available, break them down into proper local and foreign cost components and reapply those unit cost to the project system configuration agreed to with the Indonesian authorities
- 2) To recalculate basic construction cost and apply standard margins, and
- 3) To adjust section-wise base for the local and foreign cost components to September 2000 base prices.

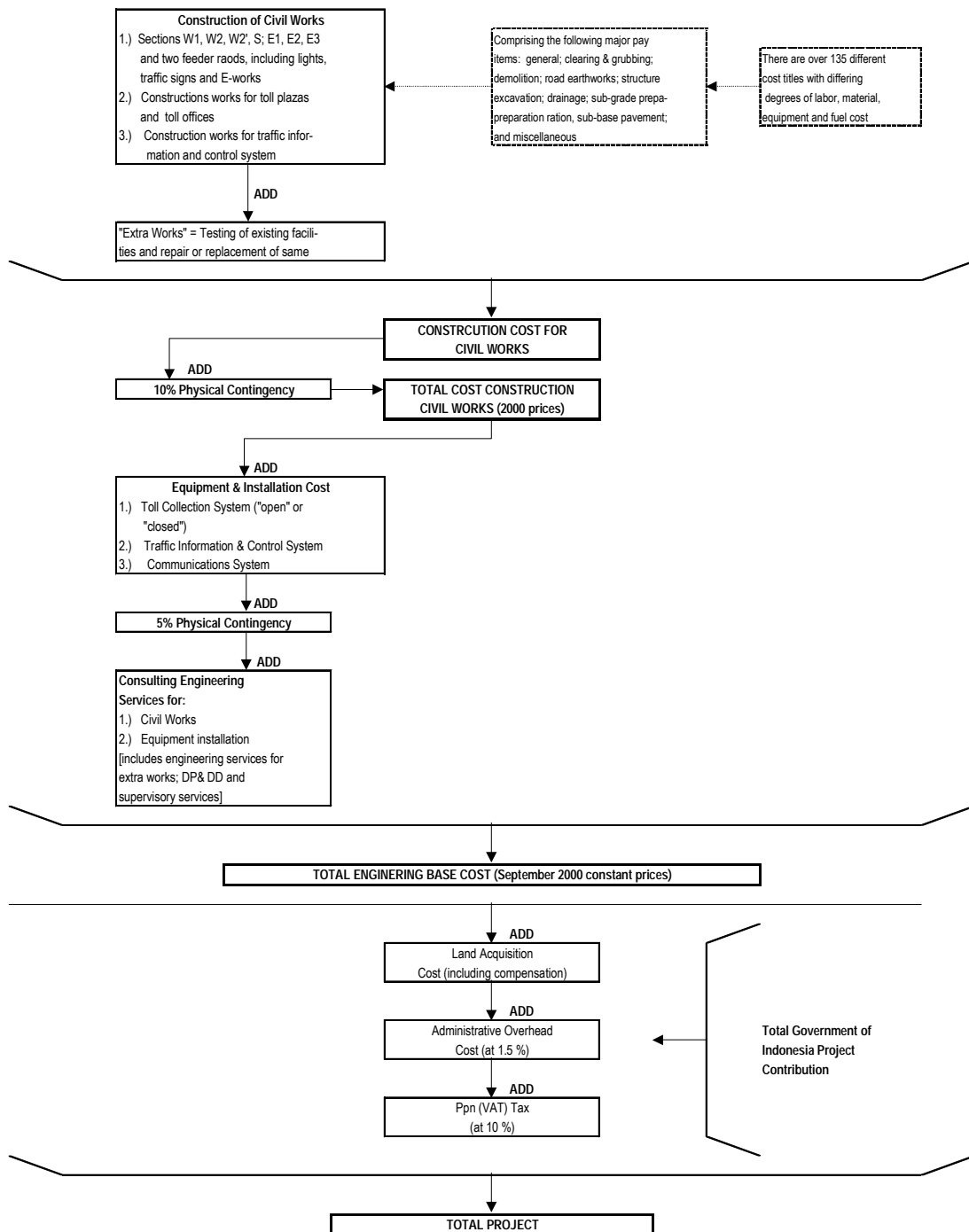


Figure AP 7.1 Cost Structure for Engineering and Total Project Cost

Table AP 7.2 Representative Motor Vehicle Types and their Key Characteristics

Vehicle Category	Share in the Existing Fleet *)	Representative Vehicle	Maker	c.c.	Engine	h.p.	Fuel	(Unit: as indicated)	
								Average Retail Price (million Rupiah)	
								1999	2000
1. Sedan + Van**)	42.10%	Toyota Corolla 1800 A/T	Toyota	1800	4 cyl.	115	Gasoline	207.00	207.00
2. Pick-up	4.90%	Toyota Kijang KF 60 FD	Toyota	1800	4 cyl.	80	Gasoline	59.30	62.00
3. Minibus (public)	5.10%	Toyota Kijang Minibus	Toyota	3660	4 cyl.	115	Gasoline	84.00	85.00
4. Medium Bus	1.50%	Mitsubishi Colt FE 304	Mitsubishi	3200	4 cyl.	100	Diesel	79.50	93.50
5. Large Bus	1.40%	Mitsubishi FE114/119	Mitsubishi	3200	4 cyl.	100	Diesel	145.00	145.00
6. Small Truck ***)	4.00%	Mitsubishi Colt FE 304	Mitsubishi	3200	4 cyl.	100	Diesel	79.50	93.50
7. Medium Truck		Mitsubishi FE114/119	Mitsubishi	3200	4 cyl.	100	Diesel	145.00	145.00
8. Large Truck	1.50%	Mitsubishi Fuso FM 517	Mitsubishi	7500	6 cyl.	190	Diesel	177.00	204.00
9.) Taxi	8.70%	Toyota Corolla 1800 A/T	Toyota	1800	4 cyl.	115	Gasoline	207.00	207.00
10.) Motorbykes	30.90%	Honda	Honda	125	1 cyl.		Gasoline	9.54	9.54

Source: JICA Study Team based on GAIKINDO and P.T. Astra Motor data.

Notes: *) Based on traffic survey data by study team.

**) 36.5% for sedan and 5.6% for van.

***) The 4% comprises both categories, small and medium truck.

1. Retail prices are approximately only, since actual retail prices are not released.

Table AP 7.3 Components for Vehicle Operating Cost Calculations

(Unit : Rupiah)			
Parameter		Financial Price	Economic Price
<u>A. Price of vehicle</u>			
Passenger car	Toyota Corolla 1800 A/T	207,000,000	128,149,560
Van	Toyota Kijang Minibus	90,000,000	55,717,200
Pick-up	Toyota Kijang KF 60 FD	62,000,000	38,382,960
Taxi	Toyota Corolla 1800 A/T	207,000,000	128,149,560
Minibus (public)	Toyota Kijang Minibus	85,000,000	52,621,800
Medium Bus	Mitsubishi Colt FE 304	93,500,000	57,883,980
Large Bus	Mitsubishi FE 114/119	145,000,000	89,766,600
Small Truck	Mitsubishi Colt FE 304	93,500,000	57,883,980
Medium Truck	Mitsubishi FE 114/119	145,000,000	89,766,600
Large Truck	Mitsubishi Fuso FM 517	204,000,000	126,292,320
<u>B. Price of one Set of Tyre/Tube *)</u>			
Passenger Car	185 x 14	1,288,300	867,541
Van/Pick-up	550 x 13	1,102,400	742,356
Medium Bus	750 x 16	2,529,600	1,703,433
Large Bus	900 x 20	4,830,100	3,252,589
Small Truck	750 x 15	2,439,200	1,642,557
Medium Truck	900 x 20	4,830,100	3,252,589
Large Truck	900 x 20	7,245,150	4,878,884
<u>C. Fuel and Engine Oil Price [per litre]</u>			
Gasoline [Premium]		1,100	900
Diesel		600	491
Engine oil/Passenger Car		13,000	10,637
Engine oil/Minibus & Petrol Truck		13,000	10,637
Engine oil/Bus & Diesel Truck		8,000	6,546
<u>D. Wages **) [per hour]</u>			
Maintenance		3,385	3,385
Driver (Bus)		3,955	3,955
Driver (Truck)		4,520	4,520
Conductor (Bus)		2,424	2,424
Assistant (Truck)		2,260	2,260

Source: JICA Study Team.

Note: The depreciable value of the vehicles is 90 percent of their price.

*) Locally made requiring tubes. Price includes therefore cost for tubes.

**) Bus driver wages are based on Rp.200,000 regular salary, Rp. 650,000 work allowance; Rp.50,000 for medical and Rp. 4,000 for insurance. Monthly actual work time is adjusted as 160 hrs./month at 70%. Truck driver wages are roughly factor 1.1 that of bus drivers. Bus conductors wages are based on Rp. 125,000 basic salary, Rp. 375,000 work allowance; Rp. 50,000 medical and Rp. 4,000 insurance.

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Table AP 7.4 Individual & Weighted Vehicle Operating Costs (VOC)

(Economic prices)

(Unit: Rupiah)

Speed [km/hour]	Motorcycle	Passenger Car		Pick-up	Bus			Truck	
		Sedan	Van		Small	Medium	Large	Small/Medium	Large
10	276.03	3,321.0	1,421.9	1,093.5	1,332.3	1,384.6	2,012.7	1,747.3	2,689.3
15	219.24	2,474.1	1,080.2	830.9	1,042.5	1,065.0	1,557.7	1,330.0	2,071.0
20	187.25	2,027.2	896.6	689.5	887.7	904.6	1,330.5	1,119.3	1,759.4
25	166.03	1,744.8	778.8	598.5	789.9	809.9	1,197.7	993.7	1,574.9
30	150.86	1,547.6	695.6	534.4	722.8	749.6	1,114.7	912.4	1,456.9
35	139.71	1,401.4	633.7	486.7	675.1	710.0	1,062.2	857.7	1,379.4
40	131.52	1,288.5	586.1	450.4	641.1	684.3	1,030.5	820.7	1,328.9
45	125.70	1,199.2	548.9	422.3	617.5	668.7	1,014.1	796.4	1,298.1
50	121.91	1,127.4	519.8	400.8	602.5	660.8	1,009.6	781.6	1,282.2
55	119.90	1,069.1	497.2	384.6	594.8	659.3	1,015.0	774.5	1,278.5
60	119.51	1,021.8	480.1	372.9	593.5	662.9	1,028.8	773.6	1,284.7
65	120.64	983.4	467.6	365.2	598.0	671.2	1,050.0	778.0	1,299.7
70	123.20	952.7	475.9	361.0	607.9	683.5	1,077.9	787.1	1,322.2
75	127.12	976.9	489.0	360.0	622.9	699.4	1,111.8	800.3	1,351.5
80	132.26	996.2	503.8	362.1	642.8	718.7	1,151.4	817.2	1,387.1
85	138.89	1,010.8	521.2	366.9	667.3	741.2	1,196.5	837.6	1,428.5
90	146.67	1,020.5	545.0	374.5	696.3	766.7	1,246.6	861.2	1,475.3
95	155.68	1,025.5	579.0	384.5	729.7	795.0	1,301.7	887.7	1,527.3
100	165.90	1,026.0	628.0	397.0	767.4	826.1	1,361.6	917.2	1,584.2

Source: JICA Study Team.

Motorcycle & Weighted Vehicle Operating Costs

Speed [km/hour]		Passenger Car	Bus	Truck
10	276.03	1,944.3	1,461.2	2,004.2
15	219.24	1,451.3	1,136.8	1,532.1
20	187.25	1,190.7	968.4	1,293.9
25	166.03	1,025.8	865.0	1,152.2
30	150.86	910.5	796.4	1,060.9
35	139.71	824.9	749.4	1,000.0
40	131.52	759.0	717.3	959.3
45	125.70	706.9	696.5	933.2
50	121.91	665.1	684.7	918.1
55	119.90	631.4	680.4	911.9
60	119.51	604.2	682.7	913.0
65	120.64	582.4	690.8	920.3
70	123.20	566.6	704.3	933.0
75	127.12	580.4	722.8	950.6
80	132.26	591.9	746.0	972.6
85	138.89	601.3	773.7	998.7
90	146.67	608.9	805.8	1,028.6
95	155.68	615.0	842.0	1,062.2
100	165.90	620.1	882.4	1,099.1

Source: JICA Study Team.

Table AP 7.5 Factors for Converting Financial into Economic Prices

Cost Item	Cost Component	Conversion Factor
Land acquisition	LC	0.843
Civil works	LC	0.843
	FC	0.795
Engineering services	LC	0.843
	FC	1.00
Equipment Cost	LC	0.843
	FC	0.795
Project overhead	LC	0.872
O&M	LC/FC	0.86
Physical contingency	LC	0.843
	FC	0.795

Source: JICA Study Team.

Note: LC = local cost; FC = foreign cost.

Table AP 7.6 Average Value of Time by Income Group, Trip Purpose & Mode

(Unit: Rupiah per person in 2000)

Household Income Group	Trip Purpose	Value Time	Motorcycle	Car	Bus	Railway	Other	Total
High	HB	15,000	67	1,257	106	0	21	238
	HBS	10,000	104	639	116	80	56	171
	HBO	12,000	18	580	73	0	17	120
	NHB	11,000	0	344	22	0	15	63
Upper Middle	HB	6,000	649	1,185	442	768	126	493
	HBS	4,000	148	392	414	128	255	321
	HBO	5,000	207	589	267	120	221	288
	NHB	3,000	31	230	24	24	11	51
Lower Middle	HB	3,000	791	324	457	816	210	421
	HBS	2,000	107	60	315	256	345	257
	HBO	2,500	204	124	185	180	142	166
	NHB	1,200	28	32	21	19	8	20
Low	HB	1,500	309	34	210	276	261	215
	HBS	1,000	44	14	123	88	264	137
	HBO	1,000	102	14	63	32	109	74
	NHB	800	9	14	6	6	3	7
Value of time by Mode of Transport			2,818	5,832	2,844	2,793	2,064	3,042

Source: JICA Study Team

Table AP 7.7 Project Base Cost All resources & All Cost Components (No Traffic Information and Control System)

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Major Cost Category	(September 2000 constant price base)																					(Unit:Billion Rupiah)		
	2001			2002			2003			2004			2005			2006			Total			Total		
	LC	FC	Total	LC	FC	Total	LC	FC	Total	LC	FC	Total	LC	FC	Total	LC	FC	Total	LC	FC	Total	LC	FC	Total
	[in percent]			[in percent]			[in percent]			[in percent]			[in percent]			[in percent]			[in percent]			[in percent]		
1. Construction Civil Works	0.0	0.0	0.0	0.0	0.0	0.0	299.1	175.3	474.4	769.7	448.6	1,218.3	682.5	405.4	1,087.9	343.3	249.9	593.2	2,094.6	1,279.3	3,373.8	64.07	60.58	62.70
2. Toll Collection, Traffic Information & Control & Communications Equipm.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.4	129.5	139.9	11.2	253.0	264.3	8.5	106.0	114.5	30.2	488.5	518.7	0.92	23.13	9.64
3. Physical Contingency	0.0	0.0	0.0	0.0	0.0	0.0	29.9	17.5	47.4	77.5	51.3	128.8	68.8	53.2	122.0	34.8	30.3	65.0	211.0	152.4	363.3	6.45	7.22	6.75
4. Consulting Engineering Services for Civil Works	0.4	1.4	1.7	15.2	56.2	71.4	16.0	59.4	75.4	3.4	12.7	16.1	3.4	12.7	16.1	2.2	8.2	10.4	40.6	150.5	191.1	1.24	7.13	3.55
5. Consulting Engineering Services for 2. Above	0.0	0.0	0.0	1.1	8.5	9.6	1.9	13.9	15.7	1.0	6.5	7.5	1.0	6.5	7.5	3.4	5.6	9.0	8.3	41.0	49.3	0.25	1.94	0.92
6. Engineering Base Cost Sub-total	0.4	1.4	1.7	16.3	64.7	81.0	346.9	266.0	612.9	862.0	648.6	1,510.6	766.9	730.9	1,497.8	392.1	400.0	792.1	2,384.6	2,111.6	4,496.2	72.95	100.00	83.56
7. Land Acquisititon; Compensation; Administration & Utility Relocation	173.4	0.0	173.4	236.9	0.0	236.9	54.3	0.0	54.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	464.6	0.0	464.6	14.21	0.00	8.64
8. add: 10% physical contingency	17.3	0.0	17.3	23.7	0.0	23.7	5.4	0.0	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46.5	0.0	46.5	1.42	0.00	0.86
9. Duty & Levies on Imports	0.0	0.0	0.0	0.0	0.0	0.0	8.8	0.0	8.8	28.9	0.0	28.9	32.9	0.0	32.9	17.8	0.0	17.8	88.4	0.0	88.4	2.70	0.00	1.64
10. Ppn (VAT)	17.4	0.0	17.4	25.3	0.0	25.3	40.1	0.0	40.1	86.2	0.0	86.2	76.7	0.0	76.7	39.2	0.0	39.2	284.9	0.0	284.9	8.72	0.00	5.30
11. GOI Contribution Sub-total	208.1	0.0	208.1	286.0	0.0	286.0	108.6	0.0	108.6	115.1	0.0	115.1	109.6	0.0	109.6	57.0	0.0	57.0	884.4	0.0	884.4	27.05	0.00	16.44
12. Project Base Cost (All resources)	208.5	1.4	209.9	302.3	64.7	367.0	455.5	266.0	721.5	977.1	648.6	1,625.7	876.5	730.9	1,607.4	449.1	400.0	849.1	3,269.0	2,111.6	5,380.6	100.00	100.00	100.00