



ECONOMIC ISSUES IN THE DEVELOPMENT OF COMMUTER RAIL SERVICES IN JABODETABEK REGION

Final Issues Paper

September, 2015

Low Carbon Support Programme to Ministry of Finance, Indonesia

Acknowledgements

This issues paper was prepared under leadership of Bp. Bara Ampera with support of Bp. Agunan Samosir, Faradina Salsadilla, Adisti and Vina Damayanti (all of Center for Climate Change and Multilateral Financing Policy [PKPPIM] in MOF), also Izhar Manzoor, Ika Putri, Corinne Stubbs and Keitaro Tsuji (from UCLA). Consulting support was provided by Prasetyo Hatmodjo; and Damantoro, consultants with the consulting firm PT Castlerock Consulting as sub-consultants to the United Kingdom Low Carbon Support Programme to the Ministry of Finance Indonesia. Work occurred in close collaboration with the management leadership of PKPPIM under overall leadership of its Director Dr. Syurkani Ishak Kasim, with management supervision by Dr. Syaifullah. The strong support and involvement of PKPPIM officials in leading this study is gratefully acknowledged. Thanks are also provided to the commuter rail company, PT. KCI for the valuable time they provided for discussions and the data and information provided to the study team. The issues and recommendations contained in the paper are those of the study team alone and do not necessarily reflect the views of the Ministry of Finance or the Government of the Republic of Indonesia. The paper aims to outline issues as the basis for further discussion in support of developing appropriate policies for the promotion of efficient economic rail services in Jabodetabek region.

Disclaimer

This Final Issues Paper has been prepared through the Low Carbon Support Programme to the Ministry of Finance Indonesia for purposes of policy development and discussion. The views expressed in the Issues Paper are those of the sub-contracted authors alone and in no way should be construed as reflecting the views of the Ministry of Finance or the Government of Indonesia.

Inquiries Regarding This Final Issue Paper

Any inquiries regarding this Issues Paper or other reports of the LCS Program may be addressed to enquiries@lcs.or.id.

Abbreviations

ADB	Asian Development Bank
ALS	Area Licensing System
AMDAL	Analisa Mengenai Dampak Lingkungan (Environmental Impact Assessment)
APBD	Anggaran Pendapatan Belanja Daerah (Local Revenue/Expenditure Budget)
APBN	Anggaran Pendapatan Belanja Negara (State Revenue/Expenditure Budget)
APBNP	Anggaran Pendapatan dan Belanja Negara Perubahan (Revision of State Revenue and Expenditure Budget)
ATO	Automatic Train Operation
ATP	Automatic Train Protection
ATS	Automatic Train Stopping
B/C Ratio	Benefits Costs Ratio
BKF	Badan Kebijakan Fiskal (Fiscal Policy Agency)
BKPM	Badan Koordinasi Penanaman Modal (Investment Coordinating Board)
BRT	Bus Rapid Transit
BUN	Bendahara Umum Negara (State General Treasurer)
BUPI	Badan Usaha Penjaminan Infrastruktur (Infrastructure Guarantee Enterprise)
DIPA	Daftar Isian Pelaksanaan Anggaran (List of Budget Implementation)
Dirjen	Direktur Jenderal (Director General)
DG	Directorate General
DGR	Directorate General of Railway
EPC	Engineering Procurement and Construction
ERP	Electronic Road Pricing
GCA	Government Contracting Agency
GHG	Green House Gas
GR	Government Regulation
IMO	Infrastructure Maintenance Obligation
IRR	Internal Rate of Return
IRSDP	Infrastructure Reform Sector Development Project
Jabodetabek	Jakarta Metropolitan Area which consists of Jakarta, Bogor, Depok, Tangerang, Bekasi
JAPTraPIS	Jabodetabek Public Transportation Policy Implementation Strategy
JUTPI	Jabodetabek Urban Transportation Policy Integration Project
KCJ	Kereta Commuter Jabodetabek
KKPPI	Komite Kebijakan Percepatan Penyediaan Infrastruktur (Policy Committee for Acceleration of Infrastructure Provision)
KPA	Kuasa Pengguna Anggaran (Authorized Budget User)
KRL	Kereta Rel Listrik (Electric Multiple Unit)
KRD	Kereta Rel Diesel (Diesel Multiple Unit)
LTA	Land Transport Authority
LRT	Light Rail Transit
MIGA	Multilateral Investment Guarantee Association
MRT	Mass Rapid Transit
MoF	Ministry of Finance
MoT	Ministry of Transportation
NMT	Non-Motorized Vehicle
NPV	Net Present Value
OCC	Operation Control Center
O&M	Operation and Maintenance
P3CU	Public Private Partnership Central Unit
Perda	Peraturan Daerah (Local Government Regulation)
PIP	Pusat Investasi Pemerintah (Indonesia Investment Agency)

PKPPIM	Pusat Kebijakan Pendanaan Perubahan Iklim dan Multilateral (Centre for Climate Change Financing and Multilateral Policy)
PM	Peraturan Menteri (Regulation of Minister)
PMK	Peraturan Menteri Keuangan (Regulation of the Minister of Finance)
PP	Peraturan Pemerintah (Government Regulation)
PPP	Public Private Partnership
PPh Badan	Pajak Penghasilan Badan (Company's Income Tax)
PPK	Pejabat Pembuat Komitmen (Officer Commitment Making)
PPITA	Private Provision of Infrastructure Technical Assistance
PR	Presidential Regulation
PRGs	Partial Risks Guarantees
PSO	Public Service Obligation
PSD	Platform Screen Doors
PT. IIF	PT. Indonesia Infrastructure Fund
PT. KCJ	PT. KA Commuter Jabodetabek
PT. KAI	PT. Kereta Api Indonesia
PT. PII	PT. Penjaminan Infrastruktur Indonesia (PT. Indonesia Infrastructure Guarantee Fund or IIGF)
Renstra	Rencana Strategis (Strategic Plan)
RPJMN	Rencana Pembangunan Jangka Menengah Nasional (National Medium Term Development Plan)
SOC	State Owned Company
PT SMI	PT. Sarana Multi Infrastruktur
SPM	Surat Perintah Membayar (Letter of Payment Instruction)
TAC	Track Access Charge
TAP4I	Technical Assistance for Public and Private Provision of Infrastructure
TOD	Transit Oriented Development
UKL-UPL	Upaya Pengelolaan Lingkungan – Upaya Pemantauan Lingkungan (Efforts on Environmental Management and Monitoring)
VAT	Value Added Tax
VGf	Viability Gap Funding

Table of Contents

ACKNOWLEDGEMENTS	i
ABBREVIATIONS	ii
EXECUTIVE SUMMARY	viii
1. INTRODUCTION	1
1.1. Overview	1
1.2. High Potential for Fuel Savings by a Shift to Rail.....	1
1.3. The Strong Economic Case for Enhanced Investment in Commuter Rail.....	2
1.4. Remainder of this Report	5
2. EXISTING FISCAL FRAMEWORK	6
2.1. Fiscal Framework for Railway Services.....	6
2.1.1. Public Service Obligations (PSO).....	6
2.1.2. Track Access Charges (TAC).....	7
2.1.3. Infrastructure Maintenance and Operations (IMO)	8
2.1.4. Reporting and Auditing of PSO, TAC and IMO	10
2.1.5. Cost Components for Calculation of PSO	13
2.1.6. Issues related to PSO, TAC and IMO.....	13
2.1.7. Other Economic Instruments.....	16
2.2. Traffic Restraint.....	17
2.2.1. Road Pricing	17
2.2.2. Fuel Pricing.....	19
2.2.3. Parking Pricing.....	20
2.3. Jakarta City Regulations No 3 and 4 on Support to MRT Development.....	20
3. ISSUES ON WAYS TO ENCOURAGE AN INCREASED RAILWAY MODAL SHARE IN THE JABODETABEK REGION	21
3.1. Overview of Issues.....	21
3.1.1. Increasing Railway Modal Shares	21
3.1.2. Increasing Level of Attractiveness of the Existing Railway Service.....	22
3.1.3. Costs/Tariffs.....	24
3.1.4. Increasing Track Capacity.....	27
3.1.5. Encouraging Modal Shift.....	28
3.1.6. Introducing Trip Generator / Attractors around Railway Stations	30
3.1.7. Increasing the Coverage Area of Railway Services	32
3.2. Operation of Rail Transport in the Jabodetabek Region	35
3.2.1. Situation of Rail Operators	35
3.2.2. Situation of Rail Users.....	40
3.3. Fiscal Policies and Regulations on Rail Transport in Jabodetabek	43
3.3.1. Rail Infrastructure Development.....	44
3.3.2. Rail Operational Costs	44
3.3.3. Rail Revenues.....	48
3.4. Available Data on Railway Sector GHG Emissions	50

3.4.1. GHG Emissions and Systems Performance	50
3.4.2. Rail Transport Emissions Data	50
3.5. Increasing Private Sector Involvement (PPPs) and Options for Separating Ownership of Infrastructure and Rolling Stock.....	51
3.5.1. Public Private Partnerships	51
3.5.2. Separating Ownership of Infrastructure and Rolling Stock	64
3.6. Implications of Future Development of MRT and Monorail Systems for the Commuter Rail System	70
 4. ISSUES FOR DEVELOPING A COHERENT AND EFFICIENT FISCAL POLICY FRAMEWORK TO INCREASE THE MODAL SHARE OF RAILWAYS.....	71
4.1. Improving Levels of Attractiveness	72
4.2. To Reduce Travel Costs/Tariffs.....	73
4.3. Increasing Track Capacity	73
4.4. Encouraging Modal Shifts	74
4.5. Generating New Passengers.....	74
4.6. Increasing Coverage of Railway Services	74
 5. CONCLUSIONS	76
5.1. Clarify that PT KJC is eligible for VAT Exemptions for Imports, Goods Delivered and Services Provided	76
5.2. Ensuring all PSO Payments Paid to the Parent Company Pass to the Subsidiary PT KJC	77
5.3. Increasing Railway's Modal Share.....	77
5.4. Encourage the Development of Public Private Partnerships for Rail Infrastructure Development	79
5.5. Move to More Effective Management of an Integrated Approach to Ownership of Infrastructure and Rolling Stock.....	79
5.6. Pursue Effective Integration between Commuter Rail, MRT and Monorail Systems	80
 REFERENCES.....	81
 ANNEX 1. ECONOMIC ASSESSMENT OF RAIL INFRASTRUCTURE DEVELOPMENT IN JABODETABEK	85
ANNEX 2. REVIEW OF PT. KCJ FINANCIAL REPORTS, 2012 - 2013.....	89

List of Tables

Table 1-1: Fuel Consumption per Mode of Transport	1
Table 1-2: Illustration of Fuel Consumption Savings from 1,000 Passengers Shifting to Rail 2	
Table 1-3: Results - Full Financial Scenario	4
Table 3-1: Programs Included in the Jabodetabek Railway Masterplan.....	23
Table 3-2: Hong Kong TOD Operating Profit Contributions, 2012	31
Table 3-3: Trips Allocation and Number of Train Sets on Each Line.....	36
Table 3-4: Income Statement of PT KAI (Rp Billions)	37
Table 3-5: Balance Sheet – Rp Billions	37
Table 3-6: Problems Related to Level of Security and Convenience	39
Table 3-7: Number of Incidents and Cancelled Train Schedules, 2013	40
Table 3-8: Fiscal Policies for Rail Infrastructure Development.....	46
Table 3-9: Fiscal Policies for Rail Operations Improvement	47
Table 3-10: Fiscal Policies to Increase Rail Revenue.....	49
Table 3-11: Advantages and Disadvantages of Vertical Integration/Vertical Separation.....	65
Table 3-12: Possible Costs and Benefits of Full Vertical Separation (Compared with Holding Company Model)	68
Table 4-1: List of Actions / Measures to Increase Railways' Modal Share	71
Table 5-1: List of Actions / Measures, Implementation Stages and Responsibilities	77

List of Figures

Figure 2-1: Scheme of PSO Provision (Perpres 53 of 2012)	7
Figure 2-2: Scheme of Track Access Charge (Perpres 53 year 2012)	8
Figure 2-3: Scheme for Providing Funds for Infrastructure Maintenance (Perpres 53, 2012)	9
Figure 2-4: Scheme for Providing Funds for Infrastructure Operations (Perpres 53, 2012)	10
Figure 2-5: Scheme of Auditing and Reporting Utilization of Funds for PSO, TAC and IMO (Perpres 53, 2012)	11
Figure 2-6: Disbursement and Auditing of PSO (Reg. of MoF No 172/PMK.02/2013)	12
Figure 2-7: Scheme of PSO, TAC and IMO based on PM.56 of 2013	14
Figure 3-1: Factors Influencing Modal Choice	21
Figure 3-2: Concept of Increasing Railway Modal Share	25
Figure 3-3: Concept of Feeder Services	28
Figure 3-4: Massive Property Development above Depot in Hong Kong	31
Figure 3-5: Jabodetabek Commuter Rail Lines	33
Figure 3-6: Railway Network in Tokyo and its Suburbs	34
Figure 3-7: Jabodetabek Railway Master Plan 2020	35
Figure 3-8: Number of Jabodetabek Railway Passengers Quarterly and Yearly, (2010 to 2013)	38
Figure 3-9: Summary of Progress of PPP Regulatory Framework Since 1998	56
Figure 3-10: PPP Projects Development	63

Executive Summary

The aim of this issues based study is to support the Center for Climate Change Financing and Multilateral Policy (Pusat Kebijakan Pendanaan Perubahan Iklim dan Multilateral – PKPPIM) in the Fiscal Policy Agency (Badan Kebijakan Fiscal – BKF) of the Ministry of Finance (MOF) to identify issues to support formulation of effective low carbon policies in Indonesia. The scope of the study is to review existing fiscal arrangements relating to rail-based commuter transportation in Jabodetabek region and to outline issues and options for possible future economic reforms.

This study report focuses on identifying and assessing existing fiscal policies relating to reducing emissions through increased usage of rail-based land transportation in Indonesia, with focus on the Jabodetabek region. The focus here is on: (i) public service obligations; (ii) track access charges; (iii) infrastructure maintenance and operations; and (iv) the eligibility of the rail operator PT KJC to receive exemptions from VAT. It then goes on to outline issues and possible options for economic policy initiatives that could be considered over time by the Ministry of Finance and other Agencies to support enhanced but efficient usage of rail travel in Jabodetabek region and potentially more widely in Indonesia's cities over the medium term. The report is issues based aiming to review prospects of promoting increased but efficient use of commuter rail transport in Jabodetabek over time.

Economic policies to promote commuter rail services cannot be developed in isolation. As greenhouse gas (GHG) emission reductions will result from changes in modal shares (from other transport modes to rail) a successful strategy will require policies to increase usage of rail transport while at the same time decreasing usage of other types of (higher-polluting) transport modes. Both policies need to be mutually complementary to each other.

The study identifies six key areas of economic policy to be pursued to increase the modal share of railways in efficient and equitable ways. These are:

- to provide adequate revenues and / or public expenditures to improve the attractiveness of existing commuter rail services (including access to VAT operations and pursuit of private investment through PPPs);
- to pursue efficient optimal approaches to the setting of tariffs and the funding of capital and operational costs;
- to increase track capacities which will require further investment;
- to introduce feeder services and traffic restraint policies (road pricing, parking pricing, fuel pricing etc.) to encourage modal shifts from private to public transport, including railways;
- to generate new passengers and enhanced revenues by among other things implementing the concept of transit oriented development (TOD); and
- to expand the existing coverage of railway services by new investment in railway lines.

Potential savings in fuel consumption by shifting passengers from road transport to railway transport are very significant, estimated to be in the magnitude of 90% of existing fuel costs. The net economic benefits of shifting from road to rail are also found to be significant. In the future, the availability of land will be more and more limited. Therefore, it will not be possible to

build more and more roads to accommodate rapid increases in motorized vehicles which in recent years in Jabodetabek have been growing at the rate of about 12% per annum, or about 3,480 additional vehicles per day. Consequently, trip makers should be encouraged to shift from road to rail. This can be done (on the demand side) by implementing feeder services and traffic restraint policies, either through use of fiscal instruments (e.g., road pricing, fuel pricing, parking pricing) or non-fiscal instruments (e.g., three in one policy), and (on the supply side) by increasing railway capacity, both by improving the attractiveness of existing systems and constructing more railway lines.

An important recommendation of this study is to treat railway infrastructure development in a similar way to that of non-toll public roads. Consequently, investment costs (of railway infrastructure) should be treated as sunk costs, and maintenance/operation costs should be the obligation of the government, just as is the case with most existing city roads. In other words, infrastructure maintenance obligations (IMO) should be paid by government and track access charges (TAC) should not be applied to operators as is currently the case. Provision of railway infrastructure is not solely for collecting revenue but also to maximize levels of mobility in order to maximize social and economic activities in efficient and equitable ways. This study indicates that high economic rates of return can be achieved from further significant public investment in commuter rail in Jabodetabek and the approach of the existing Jabodetabek transport master plan to support such public investment in commuter rail is well based.

Results of a survey undertaken with Jabodetabek rail passengers show that about 58% of surveyed passengers consider that existing ticket prices are fair; some 40% mentioned that tickets are too cheap, and only 2% mentioned that ticket prices are expensive. Some 80% of the surveyed passengers mentioned that they would be willing to pay higher ticket prices as long as levels of services were improved. Dissatisfaction responses were mostly related to overcrowding and lack of reliability. This is consistent with surveys of non-train passenger who mentioned that they would use the train service if the trains were less crowded.

The survey results indicate that ticket fares could potentially be increased without causing social unrest. However, the 80% of passengers whose monthly income is less than Rp. 5 Million should be taken into account. Ticket fares may be increased, but some in the very poorest group might not be able to pay the full fare. The highest income 20% of passengers have monthly incomes of more than Rp. 6 Million. They and middle income earners should be expected to pay full fares. Middle and higher income group tend to use private cars or taxis in cases where the train service is not available. Differentiated pricing should be considered to allow concessional pricing to a well-defined group of poorer members of the community.

Public Private Partnerships (PPPs) are a potentially useful mechanism to allow involvement of private investors in infrastructure development, including railway infrastructure. Since in most cases railway infrastructure projects are not currently financially feasible, related property development opportunities using transit oriented development approaches (TOD) should be offered to attract private investor(s). There is a possibility that property development adjacent to railway stations might not generate significant direct contributions in terms of revenue. Nevertheless, they can still generate a significant growth in passengers, which in turn will generate more fare box revenue, providing appropriate prices are charged and appropriate services are provided. However, TOD projects require mature and certain investment arrangements, meaning that project definitions and legal arrangements surrounding PPPs have to be clear and certain. Financing scenarios including respective public and private role sharing and risk allocation also have to be clear so that private partners can see and have confidence in the long term viability of TOD type projects. This paper in section 3.5.1 provides detailed

information as to how a PPP could be structured to support rail development including the potential use of Viability Gap Funding under MOF Regulation 223/PMK.011/2012.

Learning from Europe's experiences, separating ownership of infrastructure and rolling stock has ended up with complicated coordination and management arrangements. It has not reduced costs; has not really promoted competition; and has not improved the modal shares of rail. On the other hand, vertical integration (such as in Japan, Hong Kong, Singapore) has been proven to be more efficient. Therefore a vertical integration approach to rail management such as in Japan, Hong Kong and Singapore is recommended for Jabodetabek rather than pursuit of vertical separation as is the practice in European countries. This will require reform to more clearly define the roles of the Ministry of Transport and PT KAI / PT KJS and over time new funding arrangements to provide for a single entity to manage all system assets. Moving to the promotion of PPPs will assist to speed up the processes of reform towards a more effective integrated management of operations.

In the context of total transport systems, the planned development of MRTs and Monorail systems in Jabodetabek will expand the coverage of railway services and hence, will further increase railway's modal share. Since there will need to be some form of connection between commuter rail services with MRT and Monorail, the MRT and Monorail can act as feeders to commuter rail and vice versa. This means that good coordination between PT. KCJ on the one hand and operators of the MRT and Monorail systems on the other hand, will be really important in future. Significant further development of new commuter railway tracks in the region will also be required to complement growth of the MRT and Monorail systems. MRT, Monorail and commuter rail investments all warrant very close consideration for Government funding support and use of the MOF Viability Gap Funding mechanism under PPP arrangements should be closely considered for the future.

The economic issues set out in this paper are raised to stimulate further policy discussion on ways to improve public transport services in Indonesia's crowded cities while also improving local economies, reducing local pollution and also assisting international climate change efforts through reducing greenhouse gas emissions. The issues and recommendations raised are those of the authors alone and do not necessarily reflect the views of the Ministry of Finance or the Government of the Republic of Indonesia.

1. Introduction

1.1. Overview

Jabodetabek is notorious for traffic jams and bad air pollution. One of the reasons is the rapid growth of motorized vehicles which has been very high over an extended period. Statistical data shows that the annual growth of the vehicle population in DKI Jakarta from 2009 to 2012 was recorded at 14.32%, 11.25% and 9.52% respectively¹. This means that the increase from 2011 to 2012 was 1,270,511 units or about 3,480 units per day consisting of 2,643 motorcycles, 551 private passenger cars and 286 other vehicles. Because such high growth rates cannot be balanced by growth in road space, traffic jams seemingly cannot be avoided. Traffic jams together with high utilization rates of motorized vehicles have resulted in high fuel consumption and hence high fuel subsidies (until the recent removal of gasoline subsidies – though diesel subsidies remain) and worsening air pollution.

1.2. High Potential for Fuel Savings by a Shift to Rail

Comparisons of fuel consumption between road based and rail based transportation modes are provided in Table 1.1. With assumptions on vehicle occupancy rates (average number of passengers per vehicle) and average fuel consumption per kilometer trip, fuel consumption of private cars is calculated as 0.037 liter/pass/km trip, which is the highest mode of consumption. This is followed by motorcycles (0.027 liter/pass/km trip), mini buses (0.014 liter/pass/km trip); and city buses (0.013 liter/pass/km trip). The lowest fuel consumption occurs with trains (0.002 liter/pass/km trip). This means that fuel consumption of a private car (per passenger per kilometer) is nearly 17 times higher than that for train passengers.

Table 1-1: Fuel Consumption per Mode of Transport²

Mode of Transport	Average no of Passengers/Vehicle)	Fuel Consumption		
		Km/Liter	Liter/Veh/Km	Liter/Km/Pass
Motor Cycle	1.5	25	0.04	0.027
Private Car	3	9	0.11	0.037
Mini Buses (Angkot)	8	9	0.11	0.014
City Buses ³	40	2	0.50	0.013
Trains ⁴	1.500	0.33	3.00	0.002

Savings in fuel consumption for transporting 1,000 passengers by using road transport (motor cycles, cars and public buses) and rail transport are shown in Table 1.2 with shares of each transport mode as per the modal share in the JUTPI Study of 2010 which revealed⁵:

- Walking/non-motorized transport (NMT) = 22.6%
- Motor cycles = 48.7%

¹Jakarta Dalam Angka (Jakarta in Figure), 2013, Table 11.1.9

²Pemberdayaan Audit Kelayakan Jalan Untuk Mengoptimasi Peran dan Fungsi Jalan Dalam Meningkatkan Perekonomian Nasional page 6, by: Hadiwardoyo, 2013

³Rencana Induk Perkeretaapian Nasional page 12, by: Ministry of Transport, Directorate General of Railway, 2012

⁴Ibid page 12

⁵SITRAMP Transportation Master Plan (Revised), Coordinating Ministry of Economic Affairs, 2012, Figure 2.3.1, P. 9

– Passenger cars ⁶	=	13.5%
– Public buses	=	12.9%
– Others ⁷	=	2.3%
– Total	=	100.0%

Table 1-2: Illustration of Fuel Consumption Savings from 1,000 Passengers Shifting to Rail

Transport Mode	Modal Share ⁸	Total Road Transport	Modal Share (Road)	No of Pass	Ave. no of pass / vehicle	No of Veh	Ltr/Veh / Km Trip ⁹	Total Fuel Consumption (Ltr/Km Trip)
NMT	22.6%							
Mtr. Cycle	48.7%		65%	649	1.5	433	0.04	17.32
Private. Cars	13.5%		18%	180	3.0	60	0.11	6.67
Buses	12.9%		17%	172	40.0	5	0.50	2.50
Others	2.3%							
	100.0%	75.1%	100.0%	1,000				
Fuel Consumption by Road Transport								26.49
Fuel Consumption by Railway				1,000	1,500.0	1	3.00	3.00
Saving in fuel consumption (%)								89%

Source: Authors estimates

From Table 1.2 the fuel consumption when using road transport is calculated as 26.49 liters per kilometer trip. On the other hand, fuel consumption by using rail transport is only 3.0 liters per kilometer trip. This means that by shifting 1,000 passengers from road transport to rail transport, fuel consumption will be reduced from 26.49 liters to 3.0 liters per kilometer trip. This means that the saving in fuel consumption will be about 89%. (Note: vehicle occupancy rates and average numbers of passengers per vehicle are assumed to remain unchanged).

Assuming that the amount of emissions is linearly proportional to fuel consumption and that electricity costs of rail services are non-subsidized, the shifting of 1,000 passengers from road transport to rail transport would result in reducing transport related air pollution by 89%. The more passengers that shift from road to rail transport, the more exhaust emissions and fuel subsidies (currently diesel only) that could be reduced.

1.3. The Strong Economic Case for Enhanced Investment in Commuter Rail

To reduce traffic congestion and air pollution, both the Central and City Governments have recognized the need to encourage people to reduce utilization of private vehicles by shifting as

⁶ Includes taxis and 3 wheelers

⁷ Includes rail and ojek

⁸ Ibid

⁹ Table 1.1

many people as possible to public transport and to non-motorized vehicles as well as shifting passengers from road transport to rail transport. For this purpose (among others), the Provincial Government of DKI Jakarta has started building an MRT system along the Fatmawati – Bundaran - Hotel Indonesia corridor as well as preparing for implementation of (electronic) road pricing in order to encourage trip makers to shift from private transport to public transport.

To accommodate shifting passengers from road transport to rail transport, significant public investment will be needed to improve the existing railway system both in terms of quality and carrying capacity. The results from previous studies suggest that public investments in railway projects are generally economically viable. Economic viability results from the three following studies were positive as follows:

1. Double Tracking Serpong Line:¹⁰

- a. Economic NPV = Rp. 1.9 T (financial prices of October 2003);
- b. Economic IRR = 18.9%;
- c. B/C Ratio = 1.9 (total benefits = Rp. 4.3 T; costs = Rp. 2.3 T);
- d. Discount Rate = 12%; and
- e. US Dollar 1 = Rp. 8.500 (= Japanese Yen 109.08).

(Note: economic benefits included savings in vehicle operating costs, travel time costs, and avoided costs).

2. Underground MRT Fatmawati-Kota Line (first year of evaluation = 1997; first full year of operation = 2002; last year of evaluation = 2013)¹¹

- a. Economic NPV = Rp. 9.7 T (constant, mid-1996 terms);
- b. Economic IRR = 22%;
- c. B/C Ratio = 3.05;
- d. Discount Rate = 12%; and
- e. US Dollar 1 = Rp. 2,340 (mid-1996).

3. Underground MRT Blok M-Kota Line (first year of evaluation = 1997; first full year of operation = 2002; last year of evaluation = 2013):¹²

- a. Economic NPV = Rp. 5.9 T (constant, mid-1996 terms);
- b. Economic IRR = 19%;
- c. B/C Ratio = 2.54;

¹⁰ Sitramp II Jabodetabek (2004), Table 4.14.6 page 4-100

¹¹ Transportation Study, Table 8, page 201 Jakarta MRT Project, Basic Design Blok M-Kota (1996),

¹² Ibid Table 10 page 202

- d. Discount Rate = 12%; and
- e. US Dollar 1 = Rp. 2,340 (mid-1996).

The benefits of the underground MRT project included¹³:

- Time saving of existing and new public transport users;
- MRT reliability benefits;
- Highway decongestion benefits;
- Vehicle operating costs savings;
- Bus costs savings;
- Resource savings (consumer spending reallocation);
- Accident reductions;
- Pedestrian severance reductions; and
- Air pollution reductions.

- 4. Economic Model Simulation.** As part of this study a model simulation on financial and economic benefits attainable from increased investment in commuter rail in Jabodetabek was undertaken. Full results of this model simulation are presented in Annex 1. The economic feasibility of rail system development in Jabodetabek was assessed using data from the Ministry of Transport Jabodetabek rail system master plan which provided for improvements to existing infrastructure, plus 597 kms of new rail infrastructure for an investment of IDR 459.5 billion. The data was assessed under various assumptions and sensitivities.

Economic assessment was based on two scenarios, namely: (i) full financial assessment, in which the calculations included full repayment of all investment costs – equivalent to the private sector using full commercial financing; and (ii) a sunk cost approach, where the investments for rail system development are borne by the government using the government budget, so investment repayment is excluded from the calculation. Results of the financial assessments are summarized in the following two tables:

Table 1-3: Results - Full Financial Scenario

No	Indicator	Value
1	NPV (billion IDR)	29,640
2	IRR	8.98%
3	Benefit / Cost Ratio (BCR)	1.48

¹³ Jakarta MRT Project, Basic Design Blok M-Kota (1996)

No	Indicator	Value
1	NPV (billion IDR)	395,242
2	IRR	20.33%
3	Benefit / Cost Ratio (BCR)	3.15

Assessment results (expectedly) indicate that the sunk cost scenario yields higher value on all three summary indicators than the full financial scenario with economic performance being higher than simple financial performance. While the full financial scenario indicates moderately positive results, these would not likely be adequate to attract private investment alone. The simulation indicates quite robust returns for the sunk cost scenario suggesting there is a case for some government fiscal support making it more attractive for private investors to participate in the development of the rail system in Jabodetabek. Options may also exist for partial provision of sunk costs from the budget with the remainder being provided by the private sector.

Sensitivity analysis on the indicators revealed that increases in fuel subsidies are a significant factor influencing the economic performance of rail system investment. The higher the subsidies, the more economic it is to pursue public investment in rail infrastructure because of significant savings in subsidies that can be attained.

1.4. Remainder of this Report

This study report now focuses on identifying and assessing existing fiscal policies relating to reducing emissions through increased usage of rail-based land transportation in Indonesia, with focus on the Jabodetabek region. It then goes on to outline issues and possible options for new fiscal policy initiatives that could be considered over time by the Ministry of Finance to support enhanced but efficient usage of rail travel in Jabodetabek region and potentially more widely in Indonesia over the medium term. The issues based report aims to review prospects of promoting increased but efficient use of rail transport and sets out options for policy reforms and new initiatives that could be developed and implemented by MoF over time.

The study commences with assessment of existing fiscal policies and is followed by identifying potential new measures to increase the modal share of railways in efficient ways; including identifying public investments needed to implement new measures. This is followed by the identification of broader appropriate fiscal policies in relation to the needed investments to increase the modal share of railways.

2. Existing Fiscal Framework

2.1. Fiscal Framework for Railway Services

Important existing fiscal policies for the railway system in Jabodetabek area include PSO (Public Service Obligations), TAC (Track Access Charges); IMO (Infrastructure Maintenance and Operations); and other fiscal instruments. The legal basis for PSO, TAC and IMO policies is a Regulation of the Indonesian President, (Perpres) No. 53 of 2012 on: (i) Public Service Obligations and Subsidies for Railway Pioneer Transport Systems; (ii) Costs for the Use of State Owned Railway Infrastructure; and (iii) Maintenance and Operations of State Owned Railway Infrastructure. For the application of this Perpres, there are 3 (three) key regulations issued by the Minister of Transportation and the Minister of Finance. The 3 regulations are:

- 1) Regulation of the Minister of Transportation No 56 of 2013 on Cost Components which can be Reckoned for Implementation of PSOs under Railway Pioneer Transport Systems;
- 2) Regulation of the Minister of Transportation No 62 of 2013 on Guidelines for Calculation of Costs for Utilization of State Railway Infrastructure; and
- 3) Regulation of the Minister of Finance No 172/PMK.02/2013 on Procedures for Providing Disbursements and Liabilities of Operations of Public Service Obligation Fund for Economy Class Rail Transport Sector.

Based on Presidential Decree (Perpres) 53 of 2012, Public Service Obligations (PSO) are defined as government obligations to provide affordable railway transport services to the community. This policy is applicable if the community cannot afford to use the service. According to Article 2.3, in cases where the tariff is not affordable by the general public the tariff for economy class is then set by the Minister of Transport in coordination with the Minister of Finance. If there is a discrepancy between tariffs being set by the railway operators and the one set by the Government, the deficit is borne by the Government. The portion paid by the Government is called PSO.

Regulations relating to other fiscal instruments (as elaborated further in 2.1.7 below) include: (i) Government Regulation No. 146 of 2000 on the Exemption from VAT of Prescribed Imports and Goods Delivered and Services; and (ii) public financial support to PPPs in rail infrastructure and other sectors, including through the Viability Gap Funding Mechanism.

2.1.1. Public Service Obligations (PSO)

The scheme of PSOs based on the Perpres 53 of 2012 is shown in the Figure 2.1. In accordance with the Perpres, the aim of the PSO is to make ticket fares affordable for most railway passengers. In cases where the ticket fare is not affordable, the Government (i.e., the Minister of Transport in coordination with the Minister of Finance) sets an affordable tariff level. The difference between tariffs set by Operators and the one set by the Government will be balanced by the Government in the form of PSO (Article 2.2).

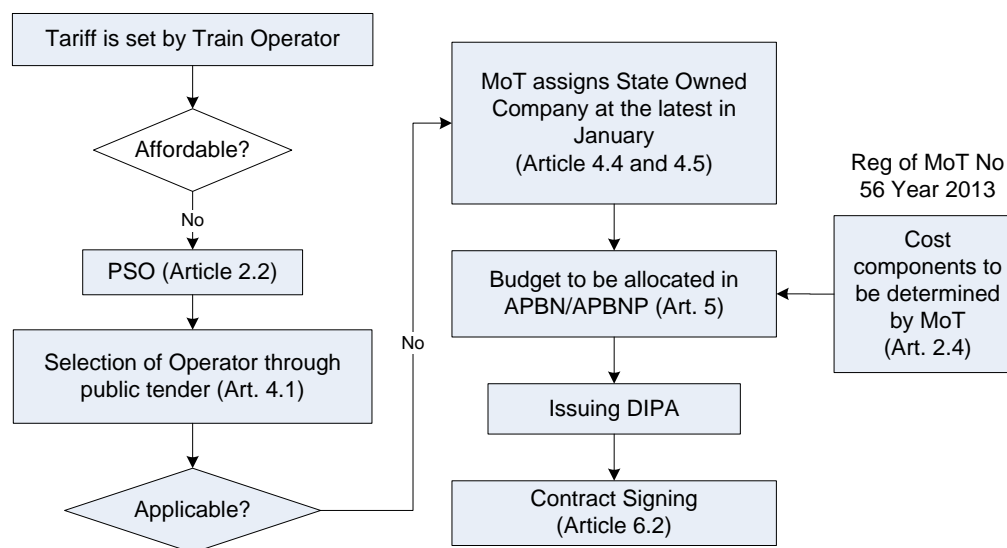


Figure 2-1: Scheme of PSO Provision (Perpres 53 of 2012)

Selection of a train operator to implement PSO is in theory done through public tender (Article 4.1). However, if for some reason the tender cannot be conducted, the Minister (of Transport) is entitled to assign a state owned company (Article 4.4). Such assignment has to be done in January at the latest each year (Article 4.5).

The budget for PSO is allocated through the Central Government budget (APBN or APBNP) (Article 5). The budget is calculated in accordance with cost components that are determined by the Minister in charge (Article 2.4). Cost components are regulated through Regulation of the Minister of Transport No. 56 of 2013.

Having allocated the budget, the DIPA (Daftar Isian Pelaksanaan Anggaran or List of Budget Implementation) can be issued. Having received the DIPA, a contract between the Government (Authorised Budget User) and the Train Operator may be signed.

2.1.2. Track Access Charges (TAC)

Perpres number 53 of 2012 indicates that railway infrastructure and rolling stock are operated by different operators. Therefore, rolling stock operators are required to pay a charge for using railway infrastructure. In accordance with the Perpres, this kind of charge is called a Track Access Charge (TAC). The scheme of Track Access Charge based on Perpres 53 of 2012 is shown in Figure 2.2.

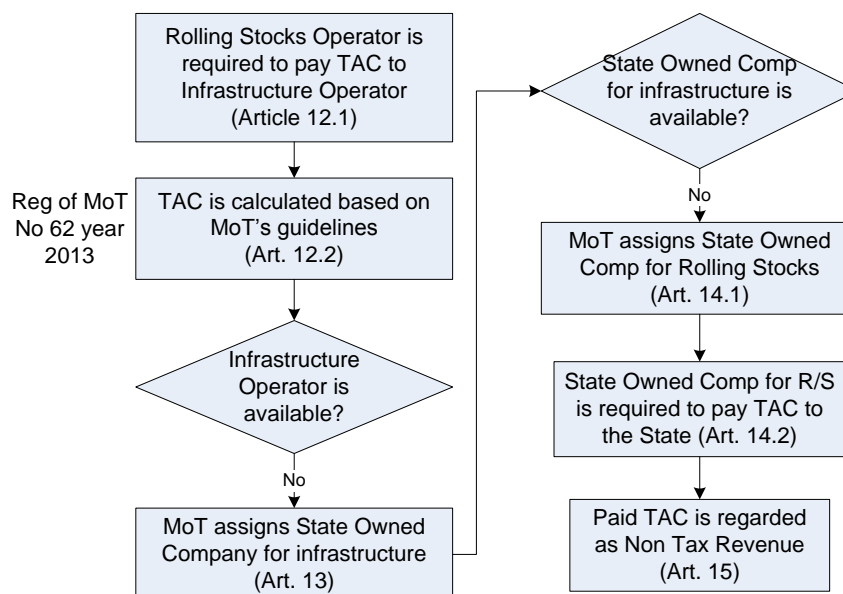


Figure 2-2: Scheme of Track Access Charge (Perpres 53 year 2012)

According to Article 12.2, TAC is calculated based on guidelines issued by the Minister of Transport, which appear in Regulation of the Minister of Transport No 62 of 2013. In cases where infrastructure operators are not available, the Minister assigns a State Owned Company for infrastructure (Article 13). However, since no State Owned Company for infrastructure has been established as yet, in practice the Minister assigns a State Owned Company for Rolling Stock, i.e., rolling stock operator (Article 14.1). Rolling Stock Operators are required to pay TAC (Article 14.2) to the State. The paid TAC is regarded as a Non Tax Revenue (Article 15).

2.1.3. Infrastructure Maintenance and Operations (IMO)

IMO (Infrastructure Maintenance and Operation) involve total costs for maintenance and operations of railway infrastructure. Since the railway infrastructure belongs to the Government, such maintenance and operations costs are thus the obligation of the Government. Consequently, the Government is required to pay costs to those operating and maintaining the railway infrastructure.

Provision of funds for maintenance and operations of railway infrastructure is regulated separately in Perpres 53 of 2012. Provision of funds for maintenance of infrastructure is regulated in Articles 16 through 19, while provision of funds for operation of infrastructure is regulated in Articles 20 to 22 of the same regulation.

Figure 2.3 indicates that maintenance of railway infrastructure is basically conducted by infrastructure operators (Article 16) which in theory are selected through open tender (Article 17.1). In cases where a public tender cannot be conducted, the Minister (of Transport) assigns a State Owned Company for infrastructure to maintain the state owned railway infrastructure (Article 17.4). However, since a state owned company for infrastructure has not been established as yet, in practice the Minister (of Transport) assigns the State Owned Company for

Rolling Stock, i.e., rolling stock operator (Article 17.5) to operate and maintain infrastructure. Such assignment has to be done at the latest in January each year (Article 17.6).

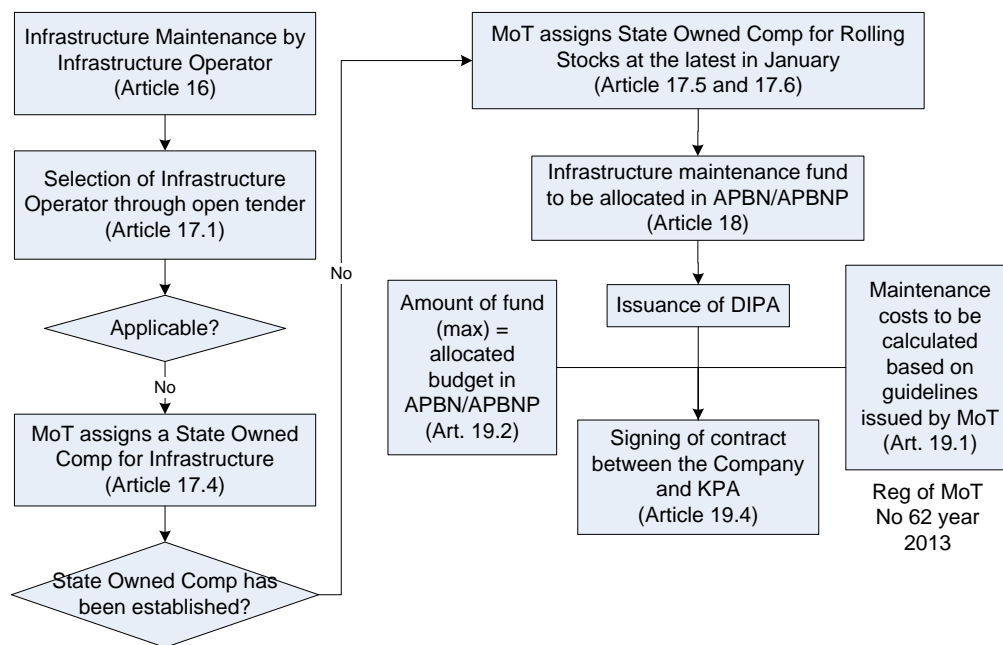


Figure 2-3: Scheme for Providing Funds for Infrastructure Maintenance (Perpres 53, 2012)

In order to maintain State owned railway infrastructure, the Government, through the Minister (of Transport) allocates funds in the APBN/APBNP (Article 18). Having received a funding allocation, the DIPA can be issued. The maximum amount of funds for infrastructure maintenance shall not be more than the allocated budget in the APBN/APBNP (Article 19.2). Maintenance costs are calculated based on guidelines issued by the Minister (of Transportation) (Article 19.1), in this case based on Minister of Transportation Regulation No. 62 of 2013. Having received the DIPA, the Government (i.e., Authorised Budget User) may sign a contract on behalf of the Government with the company, i.e., the rolling stock operator.

Provision of funds for infrastructure operations is shown in Figure 2.4. According to Article 20.1, the Minister of Transport assigns a State Owned Company which administers and operates railway infrastructure which belongs to the state. However, since such a state owned company has not been established as yet, in practice the Minister (of Transport) assigns a State Owned Company which operates the rolling stock, i.e., rolling stock operator (Article 20.2). Such an assignment has to be done at the latest in January each year (Article 20.3). The budget for operation of railway infrastructure is allocated in APBN/APBNP (Article 21). Having received a budget allocation in APBN/APBNP, the DIPA can be issued and a contract between the Authorised Budget User (KPA) on behalf of the Government and the assigned rolling stock operator can be signed (Article 22.4). Operations costs are to be calculated based on guidelines issued by the Minister (of Transport) (Article 22.1), in this case through a Regulation of the Minister of Transport No 62 of 2013. The amount of funds for railway infrastructure operations shall not be more than the allocated budget in the APBN/APBNP (Article 22.2).

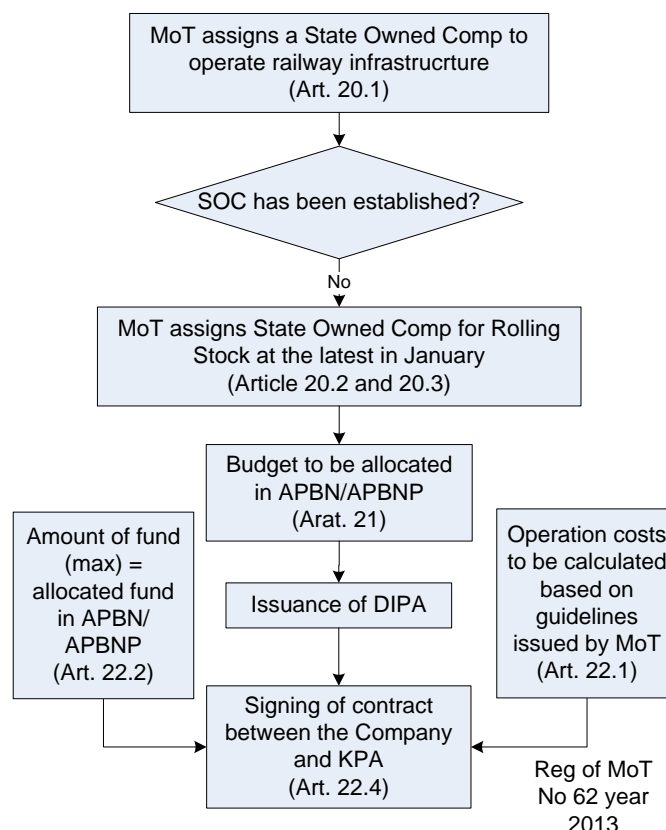


Figure 2-4: Scheme for Providing Funds for Infrastructure Operations (Perpres 53, 2012)

2.1.4. Reporting and Auditing of PSO, TAC and IMO

Similar to any other public expenditure, the use of Government funding is subject to audit and is requires financial reports to the Government. The scheme of auditing and reporting the use of Government funds for the PSO, the TAC; and the IMO is regulated by Article 23 through 26 of the Perpres 53 of 2012. The scheme is shown in the Figure 2.5 which indicates that the operator which receives Government funds is required to have separate accounting (Article 23) and is required to provide an accountability report (Article 25.1). The use of funds for implementing the PSO as well as for the TAC and the IMO is monitored and verified by the Minister (of Transport) (Article 24). After being audited, it will be known if the funds provided are excessive or in deficit. In cases where the funds are excessive, the excess funds shall be returned to the State (Article 26.2). Contrary to this, where the funds are not enough, the deficit will be budgeted in APBN / APBNP (Article 26.3). Having been audited, the operator is required to submit the audit report to the Minister (of Transport) within 1 (one) month of being audited.

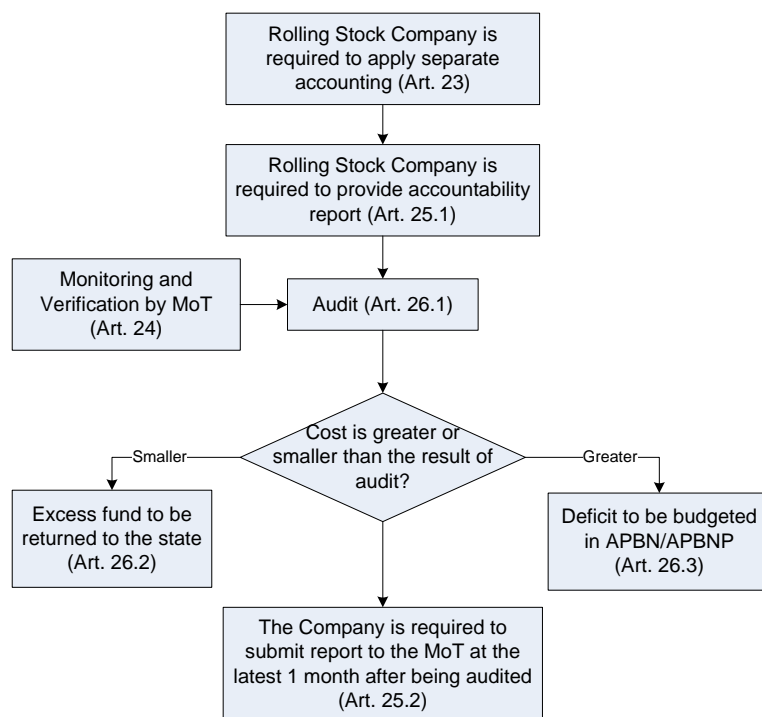


Figure 2-5: Scheme of Auditing and Reporting Utilization of Funds for PSO, TAC and IMO (Perpres 53, 2012)

The PSO audit is amplified by Regulation of the Minister of Finance No. 172/PMK.02/ 2013 on Procedures for Provision, Disbursement, and Accountability of Funds for Administering Public Service Obligations of the Economy Class Rail Transport Sector. According to this regulation, the disbursement and auditing of PSO is as shown in Figure 2.6.

Figure 2.6 indicates that the process is started with a budget allocation for PSO funding in APBN/APBNP (Article 3.1) which is followed by issuance of the DIPA (Article 3.2). The Minister of Finance assigns the Director General of Railways as the Authorized Budget User (Article 4.1), and KPA then appoints 3 officers, namely (Article 4.2):

1. Pejabat Pembuat Komitmen (PPK) or Officer of Commitment Making;
2. Signer of Letter of Payment Instruction or Penandatanganan Surat Perintah Membayar (SPM);
3. Treasurer or Bendahara; and
4. Upon these appointments, the KPA sends a copy of the Decree to the Head of Office of the State Treasury Service as State General Treasurer or Bendahara Umum Negara (Article 4.3).

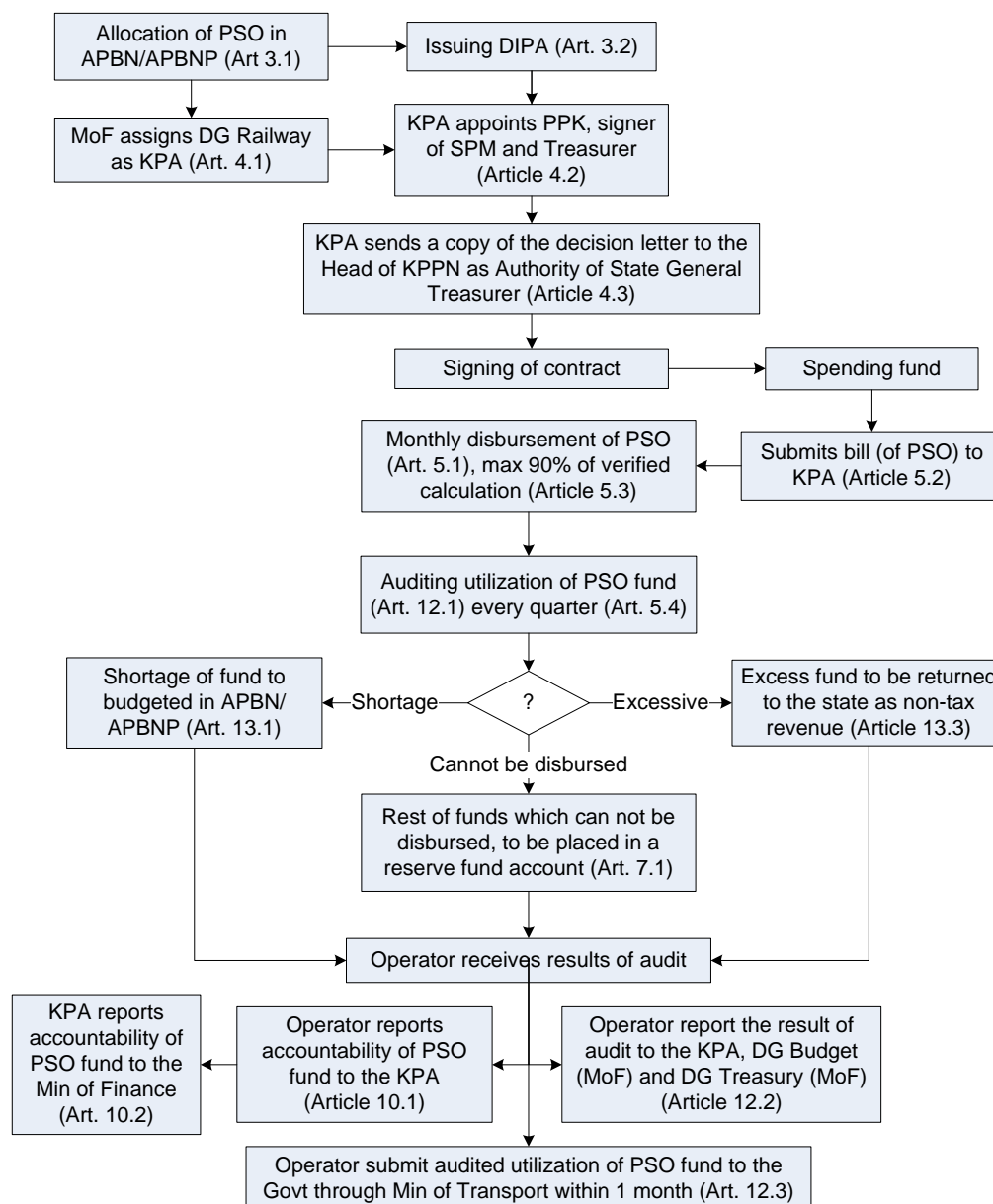


Figure 2-6: Disbursement and Auditing of PSO (Reg. of MoF No 172/PMK.02/2013)

After signing a contract, the operator may utilize the PSO funds in order to reduce tariffs to agreed levels. Since the funds are to be disbursed monthly (Article 5.1), the operator has to submit an invoice each month to the KPA (Article 5.2). Disbursements may be at maximum 90% of the verified calculation (Article 5.3). The excess or shortage of fund will be paid later after a calculation and verification process which is carried out in every quarter (Article 5.4).

Based on Article 12.1 and in line with Article 8, utilization of the PSO funds need to be audited. In cases where the funds are found to be in shortage, the shortage can be budgeted in APBN or APBNP (Article 13.1). In contrary, if the fund is found to be excessively, the excess fund must be returned to the state as non-income tax (Article 13.3). If for some reason some portion of

funds cannot be disbursed, then the funds will be placed in a special account as a reserve fund (Article 7.1). The amount of funds shall be equal to the respective invoice or at the maximum equal to the rest of fund which has not been disbursed in the DIPA (Article 7.2).

After calculation and verification process, the operator is required to report on the accountability of the utilization of PSO funds to the KPA (Article 10.1). The operator also needs to submit report on the results of audit to the 3 parties, namely: (i) KPA; (ii) Director General of Budget; and (iii) Director General of Treasury (Article 12.2). In addition, the operator needs to submit audited utilization of the PSO fund to the Government through the Minister of Transportation within 1 month (Article 12.3).

2.1.5. Cost Components for Calculation of PSO

In relation to implementation of the PSO, the Minister of Transport has issued Regulation No. PM 56 of 2013 on Cost Components which can be Accounted for in Implementation of Public Service Obligations and Railway Transport Pioneer Operations. According to this regulation, the calculation of PSOs may cover the following cost components: (i) capital costs, including depreciation of rolling stock; interest; and lease payments; (ii) fixed costs and variable costs for both direct and indirect operating costs; (iii) maintenance costs of rail cars, electric multiple units (KRL), diesel multiple units (KRD), locomotives; and gen-sets.

Based on this regulation, the cost of utilizing railway infrastructure (i.e. Track Access Charges) may be included in fixed direct operating costs. Therefore, PSO does not only cover deficits in operating costs, but some elements of total production costs as well as capital costs and taxes, except for corporate taxes such as income tax (PPH Badan) based on company profits, value added taxes, import duties, and land and building tax.

Based on the above, the scheme of PSO, TAC and IMO is as shown in the Figure 2.7. The costs related to rolling stock include operations and maintenance, replacement and new investment. The costs related to infrastructure include operation and maintenance, replacement and new investment. In this case the train operator is obliged to pay track access charges (TAC) to balance the costs related to infrastructure operations and maintenance, but the TAC can be included as cost components in the calculation of the PSO.

In 2013, PT KAI received IDR 683.99 billion in PSO revenue from the Government for the economic class subsidy (an increase of 9% compared to IDR 623.89 billion received in 2012). This PSO revenue increases the company's income and its current assets. However, the PSO only contributed 8% of total company's revenues in 2013. No data is available on how much out of PSO received by the parent PT KAI in 2013 was channelled to KCJ its subsidiary responsible for Jabodetabek commuter rail services. PSO does not significantly contribute to PT. KAI's financial performance, rather external financing is much more important for cash flows which increased by 89.2% from IDR 1.95 trillion in 2012 to IDR 3.69 trillion in 2013.

2.1.6. Issues related to PSO, TAC and IMO

Based on the discussion above, the issues related to PSO, TAC and IMO are as follows:

- a) The Government provides the PSO, but it only covers deficits in production costs, not total costs. PT. KCJ is hoping that in the future, the PSO does not only compensate the gap between production costs and fare levels, but also covers total costs, including indirect costs to procure more railway cars and to build more railway infrastructure;

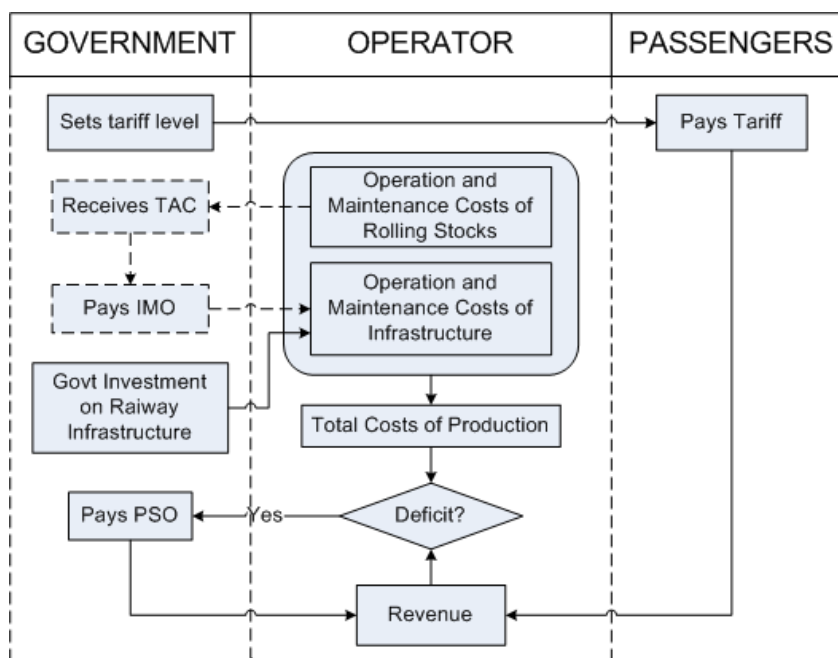


Figure 2-7: Scheme of PSO, TAC and IMO based on PM.56 of 2013

- b) Based on the Government Regulation No 19 of 1998, the role of PT KAI includes: (i) transportation of passengers and goods, (ii) maintenance of railway infrastructure, (iii) operation of railway infrastructure, and (iv) supporting businesses. As a subsidiary company of PT. KAI, the role of PT. KCJ includes providing railway commuter services by using electric trains as well as non-passenger transport businesses in the Jabodetabek area. If the government seriously wishes to have vertical separation of rolling stock and infrastructure, eight (8) years after enactment of Rail Transport Act in 2007, there should be a clear regulation on the double role that PT KAI has now as rolling stock and infrastructure operator. There is need for a smooth transition period to allow vertical separation to happen smoothly. Otherwise, the government is only providing unclear signals on the separation issue and in practice is tending to have a form of horizontal integration instead.
- c) For the time being, infrastructure is owned by the Government. Since the Government has assigned PT. KAI to maintain and operate the infrastructure, the Government is expected to pay IMO to PT. KAI. However, since PT. KAI is the sole user of the infrastructure, PT. KAI is thus expected to pay the full cost of the maintenance and operations of the infrastructure. Therefore, in practice TAC is regarded as equal to IMO. Consequently, the Government does not pay IMO and in return, PT. KAI does not pay TAC while PT KAI is required to maintain the infrastructure. This may lead to a situation where PT. KAI chooses to do maintenance at only bare minimum levels necessary. In

the spirit of developing a multi operator rail industry, and in order to develop a more competitive industry and invite more investors to step in, the interchangeable nature between IMO and TAC should be ended. If the current practice continues, there will be no positive signal to the market and other potential players in the rolling stock and / or rail infrastructure industries. Implementation of IMO and TAC implies that railway infrastructure is treated similarly to toll roads where road users are expected to pay the full costs of operations and maintenance. Contrary to this infrastructure should be treated similarly to non-toll roads where operations and maintenance costs are obligations of the Government.

- d) Maintenance and operations costs of railway infrastructure may be increased by increasing the levels of utilization, however, the increase is not linearly proportional. Similarly, reducing levels of utilization is not followed linearly by reducing the costs. In fact, up to a certain point, maintenance and operations costs are constant, depending on: (i) natural factors (like temperature, moisture, etc.), (ii) number of personnel involved in the operations and maintenance regime; and (iii) standard salaries. Therefore, the assumption that TAC should be equal to IMO is not appropriate and will not develop a healthy rail infrastructure.
- e) The regulation issued by the Minister of Transport (PM.62 of 2013) implies that railway infrastructure is operated by an infrastructure operator which is separate from that of the rolling stock company. Since there is interdependency between infrastructure and rolling stock, decisions on the one side will automatically affect the other side. Therefore separation between the two will lengthen decision making processes and may lead to mis-alignment. In addition, the more modern the railway system the interfaces between infrastructure and rolling stock become more intense. In the most extreme case, when rolling stock is operated in a fully automatic mode, it does not require drivers or conductors, so operators of rolling stock are simply not needed. It would be better if operation and maintenance of both rolling stock and infrastructure are in one hand.
- f) The report on accountability utilization of PSO fund is not carried out through one gate. The operator reports directly to: (i) KPA; (ii) Director General of Budget (within Ministry of Finance); (iii) Director General of Treasury (within Ministry of Finance); and also to the Government through the Minister of Transport. It would be better if the report were submitted through one gate (KPA). The KPA could then distribute the report to the Minister of Finance, to the Minister of Transport, to the Director General of Budgets and to the Director General of Treasury. If the Government is seriously thinking about multi operator systems in the future, then current accountability reporting practices will lengthen the bureaucratic processes and discourage other potential operators from participating in the PSO scheme. The call to simplify the PSO reporting scheme has been heard with the stated intention of the Central Government to provide a one stop service for all public sector PSOs in the future.
- g) The regulation issued by the Minister of Finance (PMK No 172/PMK.02/2013 Article 5) enables disbursement of PSOs on a monthly basis. However, PT. KAI does not take benefit of the opportunity to get PSO monthly because the process is regarded as too bureaucratic and in addition, the auditing process is regarded as inconvenient. Since PSO involves public money auditing is a must. PT. KAI may not take the PSO unless it is able to meet minimum levels of services based on the tariff set by the government. Levels of tariff should be managed by government in order to maximize levels of mobility bearing in mind efficiency and equity considerations. It would be easier to effectively

manage tariff levels if IMO was paid by the government without being balanced by an obligation of the operator to pay TAC.

2.1.7. Other Economic Instruments

2.1.7.1 VAT Exemptions on Imports

Government Regulation Number 146 of 2000 provides for VAT exemptions of imports of certain prescribed goods and services. This includes imports relating to trains, train spare parts and tools needed for the repair and maintenance of trains. The main provisions of this regulation as they relate to commuter rail service in Jabodetabek are as follows:

- Under Article 1 “imports” and under Article 2 “goods” delivered” are exempted from VAT for (among others) “trains and their spare parts as well as tools for the repair and maintenance of trains that are imported and used by PT (Persero) Kereta Api Indonesia and also components or materials imported or delivered to by parties appointed by PT (Persero) Kereta Api to be used in the manufacture of trains as well as train spare parts and tools used for repairs and maintenance and infrastructure development which will be used by PT (Persero) Kereta Api Indonesia”;
- Under Article 3 certain taxable services are exempted from VAT including (among others) train repairs and maintenance services received by PT (Persero) Kereta Api Indonesia; and
- In relation to exemptions for train related goods under Articles 1 and 2 if the exempted items are not being used for the original intended purpose or have been transferred (partially or fully) to another party within five years from the time of the exemption the VAT shall be paid within one month of transfer and on assessment of lateness by the DG Taxes may attract a penalty in line with regulations. The VAT payable shall not be credited.

Note that the Government Regulation only makes reference to exemptions for PT (Persero) Kereta Api (and parties appointed by it to do repairs and maintenance etc.). No specific reference is made to the 100% owned subsidiary of PT Kereta Api, namely PT KA Commuter Jabodetabek, PT KJC which is the sole operator of the Jabodetabek commuter rail services. Apparently attempts by PT KJC to obtain exemptions directly have been rejected by DG Taxes on grounds that it is not referred to in the regulation. This seems a questionable ruling as Articles 1 and 2 allow for exemptions for components or materials imported or delivered to by parties appointed by PT (Persero) Kereta Api to be used in the manufacture of trains as well as repairs and maintenance and infrastructure development. The intent of the Regulation appears to be to allow exemptions for PT (Persero) Kereta Api and its subsidiaries / appointed parties. If possible this issue should be addressed by administrative review and decision of DG Taxes but if this is not possible then an amendment to Government Regulation 30 of 2003 should be considered.

PT KJC has not been able to provide the study team estimates of how many trains and / or train parts have been imported or delivered in the past or how many services have been provided that might have been VAT exempt - and thus it has not known how much VAT has been paid. Similarly they have not been able to provide estimates of future quantities of trains, train parts, train services etc. that will be used and thus are not able to provide estimates of future VAT amounts that will fall due if the exemption is not applied. Further more detailed work on the

costs of formally exempting PT KJC from the VAT could be made in a later study providing historical and forecast data can be provided by PT KJC.

2.1.7.2 Public Financial Support to PPPs in Rail and Other Infrastructure Sectors

As elaborated in more detail in Section 3.5.1 the Government has developed a scheme of fiscal support for infrastructure PPPs which allow for Government funding to fill the gap where projects demonstrate economic viability but not financial viability. Subject to detailed viability analysis and competitive and transparent procedures both Central and Regional Governments may contribute to the Viability Gap Fund (VGF) to support construction and other eligible costs of projects above Rp 100 billion in total project costs. The VGF scheme has not yet been utilized in a rail based PPP but rail should be eligible providing a satisfactory PPP could be structured and providing the tests of viability are met.

2.2. Traffic Restraint

Traffic restraint involves travel demand management for which the aim is to shift private transport users into public transport (including rail transport) as well as to manage traffic flows. Traffic restraint can consist of both non-fiscal and fiscal instruments. Non-fiscal instruments may include such policies as forcing high occupancy levels in vehicles (e.g. three in one policy); and odd / even vehicle identification numbers, though even here fiscal imposts (fines) apply for noncompliance. Fiscal instruments typically include road pricing (the most popular measure), fuel pricing; and parking pricing.

2.2.1. Road Pricing

Road pricing is a technique to manage travel demand by imposing retribution to allow access to defined road(s) or areas which are sometimes called area licensing systems (ALS). Such travel demand management techniques are stated in Part VII of Government Regulation No. 32 of 2011 on Management and Engineering, Impact Analysis, and Traffic Demand Management.

Road pricing involves policies to limit the use of road transport, particularly private transport, by using fiscal instruments. The main goal is to increase transport costs for private transport users for using road infrastructure, so that public transport become more attractive, and thus “forces” trip makers to shift from private to public transport.

Mechanisms to collect money can be either manual or electronic. Cases where the money is collected by using electronic equipment are called Electronic Road Pricing (ERP). Under this policy, a form of levy is imposed to each (private) vehicle entering a defined road segment or corridor or area. The levy should be expensive enough to force private transport users to leave their private transport outside the zone. The more expensive the levy the more effective is the result.

Road pricing can also be used to control traffic flows whereby the levy is imposed not only for private vehicles, but also for taxis, three wheel vehicles, small (public) buses, as well as small freight vehicles. The goal is to shift from small vehicles to high capacity vehicles (like MRT or

rail transport), so that the number of vehicles operated on the road can be reduced without reducing mobility.

Road pricing policy has been implemented in Singapore since 1975. The cordon pricing via a manually enforced paper permit system was replaced by Electronic Road Pricing (ERP) in 1998, which was then followed by expressway pricing. The annual gross revenue (in 2008) was about SGD 125 Million (USD 90 Million) with net revenue of about SGD 100 Million (USD 72 Million). The UK implemented road pricing in 2003 starting in Central London. Gross revenue collected in 2008 was GBP 268 Million (USD 435 Million) and net revenue was GBP 137 Million (USD 222 Million)¹⁴. In the case of Singapore, collected ERP revenue goes to the Government Consolidated Fund and is not dedicated for transport. However, it was made clear that ERP system is a traffic management tool and not for revenue collection¹⁵. These initiatives have resulted in less traffic congestion.

According to the Article 79 of Government Regulation No 32 of 2011, road pricing can be applied to private transport as well as freight transport (Clause 1). Clause 2 of the same Article mentions that road pricing may be implemented for a particular road, or area, or corridor except for national roads, as long as:

- 1) The ratio of traffic volume over capacity is greater than 0.9;
- 2) The road consists of at least 2 carriageways and each carriageway consists of at least 2 lanes;
- 3) Average speed during peak hours is less than 10 km/hour; and
- 4) There is an available MRT system with levels of service that at least meet prescribed minimum standards (note that the availability of an MRT system has been interpreted as a high capacity transport mode which is capable of transporting passengers in mass quantities rapidly. Consequently, MRT systems do not necessarily refer only to rail based transportation systems, but can also be in the form of Bus Rapid Transit (BRT).

Article 80 Verse 2 of the same regulation says that collected retribution shall be dedicated to improving traffic performance and increasing levels of service of public transport.

There are a number of issues related to road pricing, including:

- **Double taxation.** The levy is not a tax, in fact the levy is a kind of penalty. When the road is in saturated condition, any additional vehicle entering the road will cause traffic jams, either for that driver as well as for others. Since the driver causes traffic jams, then it is fair for the driver to pay a penalty. Another way of seeing this policy is, the driver has to pay retribution for the convenience of enjoying driving in free flow traffic;
- **Road pricing versus toll-roads.** The ultimate goal of road pricing is to shift passengers from private to public transport, on the other hand, paying toll fees prior to entering a toll road is aimed to repay investment costs. That is why, the levy on road pricing should be expensive enough so as to make its effect more significant, while the toll tariff should be

¹⁴International Scan: Reducing Congestion and Funding Transportation Using Road Pricing page 3 (Vance Smith et al) cosponsored by AASHTO, FHWA, NHCPR, April 2010

¹⁵The Singapore Experience: The evolution of technologies, costs and benefits, and lessons learnt, page 7 (Kian-Keong CHIN, Land Transport Authority, Road Operations & Community Partners, Singapore), December 2009.

as low as possible, just enough to repay investment costs and to generate a fair amount of profit for the investor;

- **Road pricing versus public goods.** It is true that public roads are public goods. However, since demand is much larger than capacity, it should be regulated, so that utilization of the road can be optimized. This can be illustrated by pouring sand into a funnel. If the sand is poured all at once, the sand does not flow because it gets jammed. However, if the sand is poured little by little (i.e., regulated), the sand can flow freely. The conclusion is, if the capacity of public goods is abundant they can be used freely, but to the contrary, when the capacity is limited, the usage needs to be regulated;
- **Earmarking of the collected money.** Based on an existing regulation, the money collected through road pricing policy may be treated as a kind of tax which goes to the tax office. If this is true, then people will complain where they are of the opinion that road pricing policy is just a tool to collect more money from the community. Therefore, the money collected through road pricing policy could be considered for earmarking for financing public transport, increasing levels of service, as well as providing more public transport capacity – though earmarked funds are only likely to meet a small part of needs so it is overall public financing that is important. Consequently, the use of money has to be transparent, and the Government has to be able to prove that adequate total money is really dedicated to improve and to finance public transport for the benefit of the community, in this case in return for their “sacrifice” in shifting from private to public transport. In the case of earmarking, the policy would need to be supported by a Government Regulation, so that the collected money can be earmarked and dedicated for improving public transport systems. Where revenues are not earmarked (such as in Singapore) the Government should be able to demonstrate that adequate total public financing is being applied to public transport; and
- **In terms of regulations, taxation is normally imposed on objects rather than subjects.** For example taxes on vehicles, taxes on land and houses, etc. However, there is one example of a tax for a defined goal, i.e., taxes dedicated to lighting over public roads (Pajak Penerangan Jalan Umum). This kind of tax is paid directly by customers (of PLN) together with their electricity bills. This precedent could be used by the Government to formulate regulations on road pricing, especially to ensure that the money collected through road pricing can be earmarked and dedicated for financing public transport systems.

2.2.2. Fuel Pricing

Fuel pricing is quite similar to road pricing. The price of fuel may be increased dramatically (removal of fuel subsidies, imposition of fuel taxes etc.) to make travel costs using private vehicles become more expensive. To implement this idea, subsidized fuel prices are typically only applicable for public transport, but not private transport. Depending on the goal, taxis may be regarded as private vehicles, therefore, taxis would not be entitled to having subsidies on fuel prices. In this way, private transport users are “forced” to leave their private vehicles (including taxis) and shift to public transport of high capacity such as Bus Rapid Transit (BRT) or MRT.

2.2.3. Parking Pricing

As regulated in Part V of PP 32 of 2011, another approach similar to road pricing and fuel pricing is parking pricing. The idea is to increase the burden for private transport users. If the number of parking spaces is limited, and if the parking fee is very expensive, then the use of private vehicles becomes difficult and more expensive. In this way, drivers will be encouraged to shift to public transport.

It should be noted that implementation of traffic restraint policies has a direct impact on reducing the capacity of private transport. Therefore, it has to be balanced with increasing the capacity of public transport. Otherwise, mobility of the community will be jeopardized, which in return will hamper social and economic activities. In other words, if on the one hand traffic restraint policies are being implemented, then on the other hand, it should be seen as obligatory to also implement public transport policies by increasing capacity through developing and operating public transport of large capacity modes like BRT and / or MRT.

For the time being, traffic restraint has not been implemented as yet in Jakarta or other Indonesian cities, even though, the law and regulations are already available.

2.3. Jakarta City Regulations No 3 and 4 on Support to MRT Development

It is well understood that in most cases, railway projects are implemented based on economic viability rather than financial viability. In other words, MRT Projects are typically not financially viable. Thus DKI Jakarta City Government has issued Local Government Regulation (Perda) No 3 of 2008 on the Establishment of PT MRT Jakarta, and Perda No 4 of 2008 on Local Equity Participation in PT MRT Jakarta in relation to implementation of the first MRT Project in Jakarta.

Perda No 3 of 2008 appoints PT MRT Jakarta to build, operate and maintain a MRT in Jakarta. During the operations phase, PT MRT Jakarta will sign a contract with DKI Jakarta City Government to provide services of agreed levels in accordance with international standards. In order to guarantee sustainability, DKI Jakarta City Government (with approval from the Local Parliament) will allocate subsidies through the local government budget (APBD) in the form of Public Service Obligations. Mechanisms of subsidies will be regulated further in the contract. In addition, PT MRT Jakarta may also be granted concessions to develop property around stations/depots and along MRT corridors to enhance user numbers and in parallel to generate non-farebox revenue to secure commercial aspects of the system.

Perda No 4 of 2008 facilitates PT MRT Jakarta to get local equity participation from DKI Jakarta City Government in the form of cash. The amount is equal to a 99% stake with local equity amounts to be sourced purely from the regional budget (APBD). Grants and loans from the National Budget (APBN) for the years 2008-2024, will be disbursed in accordance with an agreed schedule which is stated in the attachment to Perda No 4 of 2008.

3. Issues on Ways to Encourage an Increased Railway Modal Share in the Jabodetabek Region

3.1. Overview of Issues

3.1.1. Increasing Railway Modal Shares

Modal share is defined as the proportion of trips served by each mode of transport (private vehicle, public bus, train, etc.). Therefore, by definition, the railway modal share is understood as the proportion of trips made by railway as compared to private transport systems (motorcycles and cars including taxis) and other road transport systems (public buses, three wheelers, etc.).

Figure 3.1 indicates that modal choice is affected by 4 factors, namely: (i) level of attractiveness; (ii) travel costs; (iii) travel time; and (iv) travel distance. The level of attractiveness is affected by safety and security, comfort, convenience, reliability, etc.

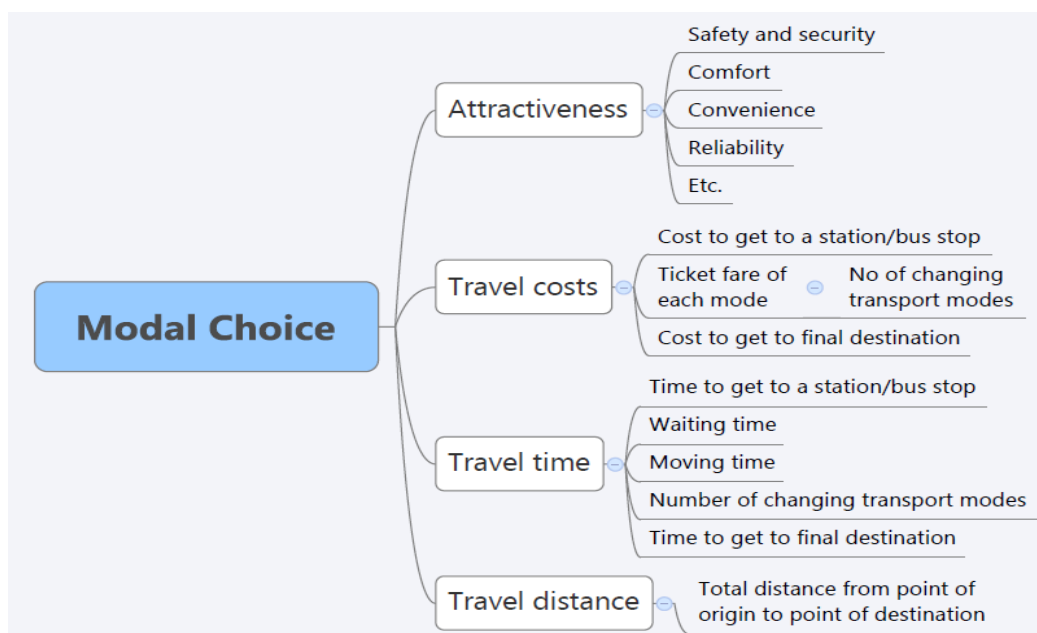


Figure 3-1: Factors Influencing Modal Choice

Travel costs involve total costs from the point of origin (e.g., home) to the final destination (e.g., office, school, shopping mall, hotel, hospital, recreation area, etc.). To reach their final destination, travellers might need to transfer to another transport mode. According to JAPTraPIS¹⁶, the number of transfers required is the highest for railway users compared to all other transport users. In the case of commuting trips, the portion without transfer is less than 60%, about 30% need to make 1 transfer, and about 5% need to make 2 or more transfers.

In cases involving no transfers, travel time is directly related to travel distance and speed. The number of transfers will affect travel time and costs because there will always be additional time

¹⁶Project for the Study on Jabodetabek Public Transportation Policy Implementation Strategy in the Republic of Indonesia - JAPTraPIS Figure 3.3.3 page 3-12 (JICA and DG Land Transportation, Ministry of Transportation, 2012)

and costs in each transfer process. Therefore, the more transfers, the higher will be total travel costs and the longer will be the total travel time.

Travel distance very much depends on the network structure and geographical locations of the origins and destinations of trips. There can be cases where the straight distance between points of origin and destination are not very long, but because there is no direct connecting route travel distance becomes longer than desirable.

Out of the four factors, travel costs, travel time and travel distance are the most important factors for modal choice. In most cases decisions are made based on either the lowest travel costs, travel time or travel distance. Travel cost is the most sensitive to lower income passengers. They prefer to spend more time waiting or to travel a greater distance rather than to spend more money on a faster transport mode. For high income passengers, travel time is more sensitive rather than transport costs. High income passengers may choose more expensive transport costs in order to get to their destination in a shorter time, or in order to get to the destination punctually.

Based on the discussion above, measures to be taken to increase railway modal share are as follows: (i) improving level of attractiveness; (ii) reducing costs/tariff; (iii) increasing track capacity in order to reduce headway and hence waiting time; (iv) encouraging modal shifts from private transport to public transport by increasing the cost of private transport; (v) introducing trip generators / attractions around stations in order to minimize travel time/distance and number of transfers between transport modes; and (vi) increasing coverage of railway services in order to minimize travel time/distance as well as number of transfers between transport modes.

3.1.2. Increasing Level of Attractiveness of the Existing Railway Service

The level of attractiveness is a factor affecting modal choice. The more attractive the system, the more preferable it is for passengers. In general, the existing Jabodetabek commuter railway service is not regarded as attractive. Therefore, the main considerations for those currently choosing rail are either travel time/distance or total travel costs.

There are several factors affecting level of attractiveness. Some of the factors are: (i) safety and security; (ii) level of comfort; (iii) level of convenience; and (iv) speed. According to SITRAMP Jabodetabek 2004¹⁷, security is the most important factor affecting modal choice, followed by level of comfort, cost / tariffs, level of convenience; and speed. This study showed that sensitivity of each factor differs depending on income level. Travellers with high income levels are very sensitive to declining security levels but are less sensitive to the increasing tariff levels. Inversely, residents with low income levels are less sensitive to decreasing security levels, but are very sensitive to increasing tariff levels.

The level of safety may be improved by improving the maintenance regime, while the level of security may be improved by installing CCTV, installing two-way communication systems, and assigning security guards both in stations and inside the rolling stock. These measures are meant to minimize criminal actions like pick pockets, theft, or robbery. Such measures also can be used to minimize sexual harassment, racial abuse etc.

¹⁷ Study on Integrated Transportation Mater Plan (SITRAMP) Jabodetabek Phase II (JICA and National Development Planning Agency, 2004) Figure 4.2, page 4-3

The second factor is comfort. Comfort is mostly associated with passenger density, air conditioning systems and riding quality. Comfort is also affected by seating arrangements and seating availability. However, standing in an urban train is regarded as common. There may be priority seating for particular passengers with physical challenges such as senior passengers, pregnant women, women with babies, etc. Passenger density can be reduced by providing more trains, while air conditioning systems and riding quality can be improved by improving the maintenance regime for both rolling stock and rail infrastructure. Maintenance of railway tracks would be easier and less expensive if level crossings between roads and railway tracks could be eliminated, and also, if there was no access (for animals and human beings) to cross railway tracks. Such measures would keep ballast in clean and good condition so that riding comfort would be improved.

The third factor is convenience in terms of easy access, integrated ticketing systems, less queues, easy transfers, etc. in a modern railway station. In addition, factors like punctuality, reliability, no annoyance (from hawkers, beggars, street singers, fruit / vegetables vendors, etc.) are also expected by passengers. Easy access includes provision of pedestrian crossings to and from stations. The level of convenience is also affected by frequency. The higher the frequency, the more convenience for passengers, because they will not waste their valuable time waiting too long for their train.

The fourth factor affecting levels of attractiveness is speed. Speed is affected by the condition of the rolling stock and tracks. However, in terms of urban railways maximum speed is not very high because station spacing is normally quite short, less than 1 kilometer away. Thus before reaching maximum speed trains already commence to decelerate. Although the maximum speed is not very high, average speed is still very important because it affects travel time directly.

Some efforts to increase levels of attractiveness have already been mentioned in the Jabodetabek Railway Master Plan. The program is called improvement of supporting facilities which includes improving railway stations. The masterplan has been formalized in the form of Regulation of the Minister of Transportation No PM.54 of 2013 on Mass Transit Masterplan in the Jabodetabek Urban Area. The programs included in the masterplan are shown in Table 3.1. Target person trips to be served by implementation of these programs are 2,286,369 person trips (6.3% of all trips) by 2020 and 5,340,483 person trips by 2030¹⁸.

Table 3-1: Programs Included in the Jabodetabek Railway Masterplan¹⁹

No	Programs	Estimated Costs (Rp. Trillion)	
		Government	Private
1.	Construction of new railway lines	372,300	116,500
2.	Improvement of existing line capacity and railway stations	65,020	
3.	Development of supporting facilities of Jabodetabek Railway	22,185	
Sub-total		462,345	116,500
Grand Total		579,050	

¹⁸ Jabodetabek Railway Masterplan 2020 (Concept 2), Slide no 4, March 2013.

¹⁹ Regulation of the Minister of Transportation No 54 of 2013 on Mass Transit Masterplan in the Jabodetabek Urban Area. See the4 Introduction and Annex 2 for further analysis of investment returns for the Jabodetabek Railway Master-Plan.

3.1.3. Costs/Tariffs

The second factor is costs / tariffs. Transport costs / tariffs should be affordable. Tariffs are particularly sensitive to low income passengers. Increasing tariff levels is normally matched by reducing numbers of passengers. On the contrary, reducing tariff levels will, other things equal, lead to increasing numbers of passengers.

If tariff levels are too low, numbers of passengers will be large. However, the revenue which is equal to the number of passengers multiplied by the tariff is likely to be too low compared with total production costs. To get more revenue, tariffs may need to be increased. However, there is a constraint related to increasing tariff levels. If tariff levels are set above affordable levels, passengers will simply shift to other more affordable modes of transport where available. Therefore, levels of tariff should be set at optimum levels which will result in maximum revenues bearing in mind demand constraints.

The affordable tariff level is basically influenced by income levels. In some developed countries (like Australia²⁰ and United Kingdom²¹) transport expenditure is about 10-13% of total household expenditure. For comparison, transport expenditure in Jakarta is about 20-30% of total expenditure²²

To set an effective level of subsidy the Government needs to assess the optimum level to maximize revenue bearing in mind demand constraints. Secondly, the Government needs to check whether the proposed revenue can cover total production costs. It then needs to determine subsidy levels in relation to these considerations and bearing in mind the economic and social benefits of the subsidy.

²⁰ Economy-Wide Modeling of Impacts of COAG, Patterns of Household Expenditure, Table 13.1, 13.2 and 13.3 page 198-200 (<http://www.pc.gov.au/data/assets/pdf/0016/118114/14-coag-reform-supplement-chapter13.pdf>)

²¹ Weekly Household Expenditure, an Analysis of the Regions of England and Counties of the United Kingdom Figure 5.7 page 28 (Office for National Statistics dated 08 February 2013) (http://www.ons.gov.uk/ons/dcp171766_297746.pdf)

²² Sitramp Jabodetabek Phase II (2004) Table 2.1 page 2-5

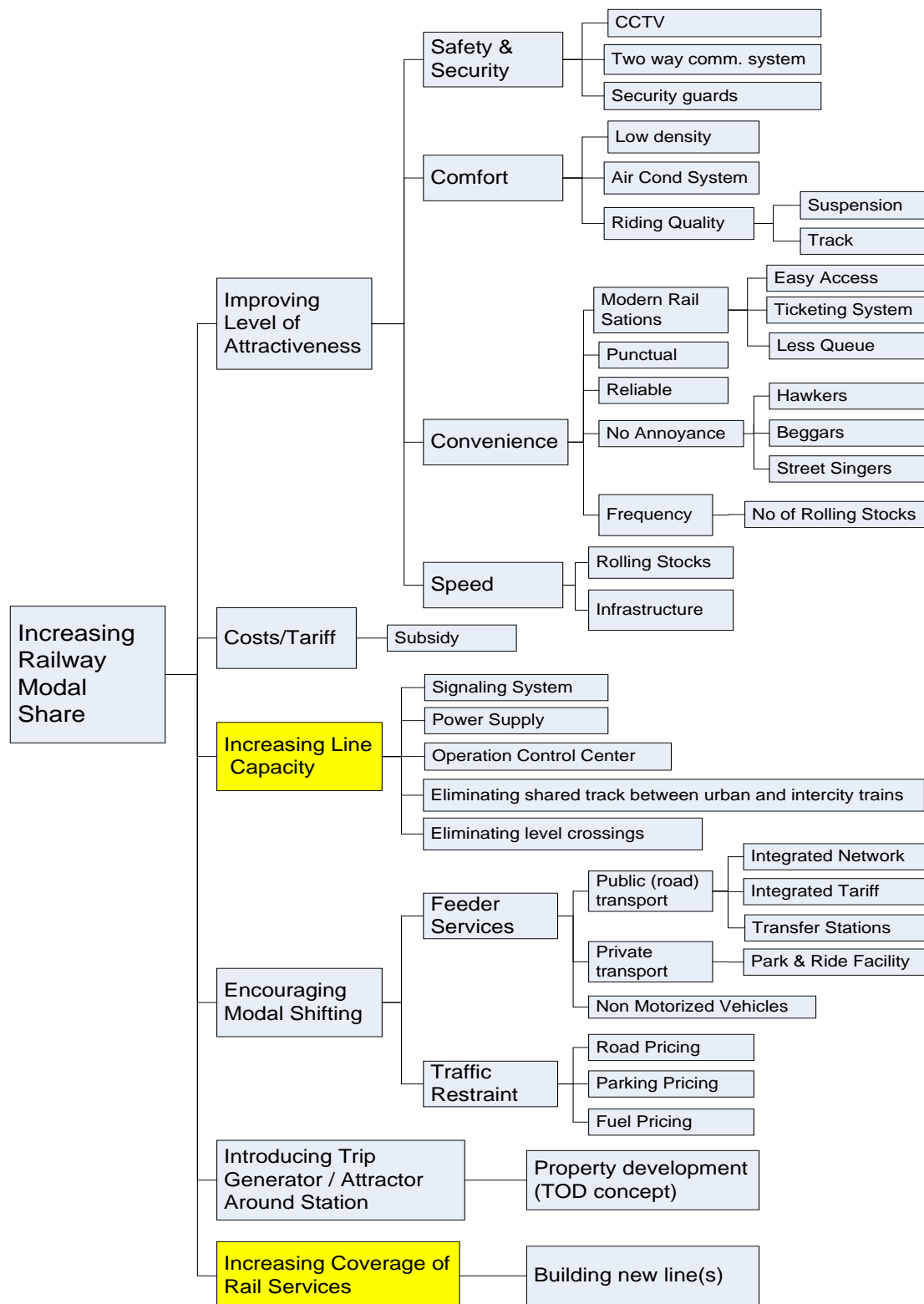


Figure 3-2: Concept of Increasing Railway Modal Share

In the case of Jabodetabek, the subsidy for railway passengers is provided through the PSO mechanism. However, since railways are not a single mode to reach final passenger destinations, total transport costs also depend on the fares of other transport modes and the number of transfers. According to the JAPTrapis Study, only about 60% of railway passengers (commuters) reach their final destination without transfer, about 30-35% have to do 1 transfer, and the rest 5-10% have to do 2 or more transfers²³. It is possible to reduce total transport costs by minimizing the number of transfers such as by increasing railway coverage and introducing feeder services as well as by implementing integrated transport services, including integrated ticketing systems.

In determining tariff levels, there are two objectives to be targeted by the Government. The first target is how to minimize transport costs so that low income people can afford to go to work and to send their children to school. This means that the Government needs to provide as much PSO as possible so that tariff levels can be set at minimum levels. Secondly, if tariff levels are too low, the train will be overcrowded, so that for higher income levels (i.e., private car users) the service is not attractive. Consequently, they will keep on using private cars, which in turn, will lead to serious traffic jams.

If the target of the government is to attract more private transport users to use public transport (i.e., railway services) the government needs to make railway services more attractive. If this is the case then the Government may set tariffs at higher levels. In this way, the number of passengers will be decreased, with the level of density lower and automatically the level of attractiveness will be improved.

Note that according to survey results²⁴, about 58% of passengers mention that the ticket fare is fair and about 40% of them say that tickets are too cheap. Some 79% are willing to pay higher fares as long as levels of comfort are improved. About 24% of passengers feel indifferent and about 36% feel dissatisfied. Two main reasons for their dissatisfaction are overcrowding and unreliable time schedules. The 79% of passengers who are willing to pay more are most probably but not limited to those (about 5% of passengers) whose monthly income is more than Rp. 11 million per month; or those (4.7% of passengers) who use a private car from home to the departure train station; or those (20% of passengers) who use private cars or can afford taxis in cases where they do not use commuter trains²⁵.

As noted in Figure 2.2 above and as elaborated in detail in sections 2.2.1 (Road Pricing); 2.2.2 (Fuel Pricing); and 2.2.3 (Parking Pricing) broader policies of traffic management and restraint are a critical feature of policy design for increasing the modal share of railways. As rail services grow in capacity and as the quality of services improve there will be increasing scope for using traffic restraint measures (road pricing, fuel pricing, parking pricing) to affect the demand for both rail and non-rail transport services. This will be to the benefit of both reduced traffic congestion and lower pollution and greenhouse gas effects.

²³ Project for the Study on Jabodetabek Public Transportation Policy Implementation Strategy in the Republic of Indonesia (JAPTrapis), Volume 2 Main Text, Chapter 3 Page 12 (Directorate General of Land Transportation and JICA, February 2012)

²⁴ Improving the Performance of KRL Jabodetabek, the Jakarta Commuter Train, by: Izhar Manzoor, Ika Putri, Corrine Stubbs, Keitaro Tsuji, University of California, Los Angeles, Luskin School of Public Affairs, Master of Public Policy Class of 2014 (Appendix 3: Passenger Survey Results)

²⁵ Ibid

3.1.4. Increasing Track Capacity

For the time being, the existing Jabodetabek track is already operated close to capacity. The capacity cannot be increased due to the old signalling systems, and shared tracks between commuter trains and long distance trains as well as freight trains. This is particularly the case for the Bekasi and Serpong lines. In addition, in some locations, level crossings between road and rail tracks exist and limit track capacity.

The main purpose of increasing track capacity is to reduce headway / movement constraints. This will lead to increasing carrying capacity and at the same time will reduce waiting times, which in turn will reduce total travel times.

To increase track capacity, operations of urban / commuter trains should ideally be separated from those of intercity and freight trains. Assuming the existing track is dedicated for intercity trains the Government would need to construct new track to be dedicated for urban / commuter trains and another new track for operations of freight trains. The plan to construct new tracks is already documented in the railway master plan as shown in the introduction; Section 3.1.2; and Annex 2 of this report.

Having separated operation of urban/commuter trains from that of intercity and freight trains, track capacity can be maximized by modernizing signalling systems. This is associated with implementation of an Operations Control Center (OCC) in conjunction with implementation of Automatic Train Operations (ATO), Automatic Train Protection (ATP), and Automatic Train Stopping (ATS). In this way, the trains can be operated with a high level of automation, so that operating headway can be reduced down to 2-3 minutes during peak hours and 4-5 minutes during off peak hours. This means that during peak hours about 20-30 trains per hour could be deployed. Assuming carrying capacity per train is 2500 passengers, hence, system capacity per hour will be about 50,000-75,000 passengers per hour per direction.

Since increasing frequency will consume more power/electricity additional sub-stations would need to be provided in order to ensure adequate power supply. It would also be beneficial if in the future platform screen doors (PSD) were provided. This would increase safety of the railway passengers significantly.

In addition, level crossings between railway tracks and roads also need to be eliminated. Level crossings do not directly affect track capacity, but the existence of level crossing may cause collisions between train and road vehicles, and secondly, if trains are operated with short headways (say 2-3 minutes) there is not enough time for road traffic to cross the rail track safely and existing inefficiencies and delays to road traffic will be intensified.

There are two alternatives to eliminating level crossings. The first alternative is to elevate the entire rail track. This may be more preferable because: (i) the total costs might be cheaper, and (ii) the rail track does not become a barrier separating areas either side of the rail track. The second alternative is by constructing under/over passes. Because the number of level crossings are numerous the total costs might be more expensive than elevating the entire rail track. However, constructing under/over passes can be done one by one sequentially. Contrary to this the construction of elevated track should be done entirely at once, so it needs a large amount of investment.

Responsibility for constructing under/over passes depends on the road status. If the status is a national road, responsibility will be with Directorate General of Highways (DG Bina Marga,

within Ministry of Public Works), but if the status is a provincial or local road, the responsibility will be with Local Government at Provincial or Kabupaten/Kota level respectively.

There are several programs mentioned in the Jabodetabek Railway Master Plan 2020 in relation to increasing track capacity. The programs include (among others) construction of double and double-double rail tracks as well as new stations. In addition, there is also a program for rehabilitation of signalling and telecommunication systems. However, this program is regarded as a supporting facility rather than for increasing track capacity. Because the program is only rehabilitation (of the existing system), which will not change the system significantly, the operating headway cannot be reduced significantly. If that is the case, then the rehabilitation of signalling and telecommunication systems will not increase track capacity.

3.1.5. Encouraging Modal Shift

For the time being, the railway modal share in Jabodetabek is still very low with the share of railways (and ojek) still only about 2.3%. Therefore it needs some effort to encourage modal shifting from road transport to rail transport by introducing feeder services and implementing traffic restraint policies.

Feeder services. The objective of introducing feeder services is to minimize the number of transfers between modes of transport, which lead to reducing total travel times and travel costs. Similarly, the objective of providing park and ride facilities is to reduce travel times (and travel costs) to get to a railway station.

A network of feeder services needs to be integrated with that of the railway, hence, feeder services can be regarded as an extension of the railway network, which enlarges coverage of railway services, so that the total network can cover the origin and destination of the trips. Figure 3.3 indicates that the railway (i.e. with the highest system capacity) will function as the back bone of the integrated transport system, and road transport (bus and other road transport), which is of lower capacity, will function as feeders to the railway services.

It would be ideal if the integration was not only within the network system, but also included integrated tariffs. By having integrated tariffs, transport costs do not depend on the number of transfers between modes, but depend on travel distance only.

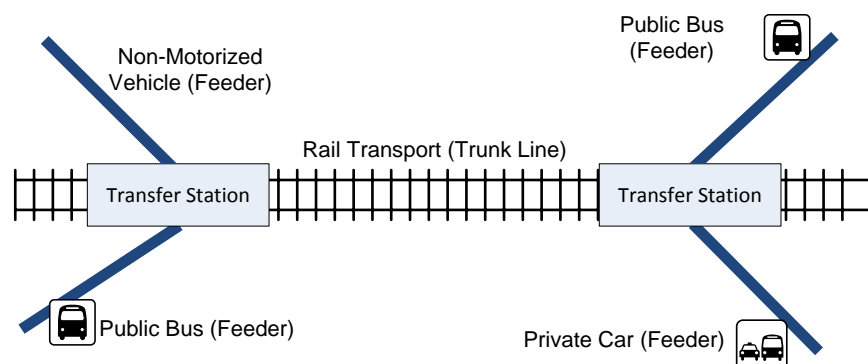


Figure 3-3: Concept of Feeder Services

In order for the feeder services to feed the trunk line (i.e., railway transport) efficiently, an integrated transfer station is needed to make transfers from rail transport to road (public) transport and vice versa become easier. In a city like Tokyo for example, bus stations are provided right in front of railway stations, integrated to the railway station. The aim is to make train passengers continue their trips by using public buses to their final destination. The better the system, the lower additional time and costs during the transfer process.

The idea of an integrated transfer station was already applied in the design of the Gambir railway station, which is one of the busiest railway stations in Jakarta. In the station design, bus bays were designed to facilitate transfers of passengers from rail transport to public buses and vice versa. Unfortunately, the idea was not implemented appropriately, so that easy transfer never became available.

The integration between railway services and private transport can be provided by introducing park and ride facilities around railway stations. By having park and ride facilities, private transport users can park their vehicles in the parking lot around the station and then continue their trip by using railway services. To attract more private transport users, parking fees should be integrated with the railway tariff, or in other words, train passengers would get special discounts on the parking fees. In order to be more attractive, the park and ride facility may accommodate non-motorized vehicles as well.

The Jabodetabek Railway Master Plan 2020 has mentioned the situation of transfer of passengers. However, transfers are only between railway lines (of the same transport mode), and between railway lines and busways.

Traffic Restraint. As discussed in Section 2 of this report, traffic restraint policy is a kind of travel demand management system which aims to shift private transport users into public transport as well as to manage traffic flows. The idea is to increase costs of using private transport, so that trip makers will shift from private transport into public transport.

The most popular instrument to implement traffic restraint is Road Pricing. Under this policy, a kind of levy is applied for private vehicles on entering a defined corridor or area. The levy is either collected manually or electronically. To make modal shifting more effective, road pricing may be implemented together with fuel pricing and parking pricing.

Since the objective is to shift trip makers from road transport to rail transport, hence, the levy could not only be applied to private cars and motorcycles, but also to other road transport modes such as taxis and other hired vehicles. The higher the levy then numbers of passengers shifting will be more significant.

Based on the Government Regulation No. 12 of 2011 on Management and Engineering, Impact Analysis and Traffic Demand Management, Article 80, the collected levy shall be dedicated for improvement of:

- Traffic performance, and
- Levels of service of public transport.

In addition as elaborated in section 2.2 other road restraint mechanisms will also be important particularly: (i) optimal pricing of fuel to reflect its economic value including external costs; and (ii) effective parking pricing to increasingly discourage motorists from bringing their vehicles into cities through increasing use of public transport services, providing these are being supplied.

3.1.6. Introducing Trip Generator / Attractors around Railway Stations

Another measure to increase the railway modal share is by introducing trip generator / attractors around railway stations, or within walking distance from a station. The aim is to make the point of origin / destination as close as possible to railway station, hence to minimize travel time and at the same time eliminate travel costs to get to the station. Providing final destinations are around or within walking distance from stations most railway passengers will not need to transfer to road transport. This will result in reducing travel time / costs as well as reducing additional burdens on the road network.

This may be done by introducing concepts of Transit Oriented Development (TOD). TOD is defined as mixed use community living that encourages people to live near transit services and to decrease their dependence on driving²⁶. In this concept, transit stations normally function as centers of the neighbourhood, which cover 400-800 meters from the center, so are still within walking distance.

TOD may incorporate features such as²⁷:

- Walk-able design with pedestrians as the highest priority;
- Train stations as a prominent feature of town centers;
- A regional node containing a mixture of uses in close proximity including offices, residential, retail; and civic uses;
- High density, high quality development within 10 minutes walk circling / surrounding train stations;
- Collector support transit systems including trolley buses, street cars, light rails, etc.;
- Designed to include easy use of bicycles, and other non-motorized vehicles as daily support transportation systems; and
- Reduced and managed parking inside a 10 minute walk circle around the town center (rail station).

TOD is mentioned in the Article 61e of Government Regulation 32 of 2011. The article is meant to encourage and facilitate integration between transport plans and spatial plans around stations. The aims of implementing the TOD concept are (among others):

- To concentrate large numbers of passengers in a particular point (i.e., railway station), so that they can be effectively transported by train;
- To get dual benefits, on the one hand, property developers will get benefits from railway passengers who are potentially their customers. On the other hand, train operators will get benefits from property developers because their customers will become potential passengers of the railway services;

²⁶ Calthorpe, 1993 as quoted by Iwan Prijanto (2012) in Transit Oriented Development (unpublished document)

²⁷ Transit Oriented Development (Iwan Prijanto, 2012 – unpublished document)

- To provide a kind of “door to door service”. In the case of road transport, the vehicle comes toward the “door” (point of destination) while in the case of rail transport, the “door” (point of destination) is arranged as close as possible and within walking distance from a railway station; and
- To reduce levels of dependency on road transport, because the buildings around the station will be the final destination of most train passengers, and will be within walking distance from the station, therefore, road transport is hardly needed to reach final destinations.

The TOD concept has been implemented in many big cities like Hong Kong, Singapore, Tokyo, etc. from a long time ago. This concept is working very well in generating train passengers, which in return, increases fare box revenues, i.e., revenues coming from ticket sales. Figure 3.4 provides an example of TOD implementation in Hong Kong.

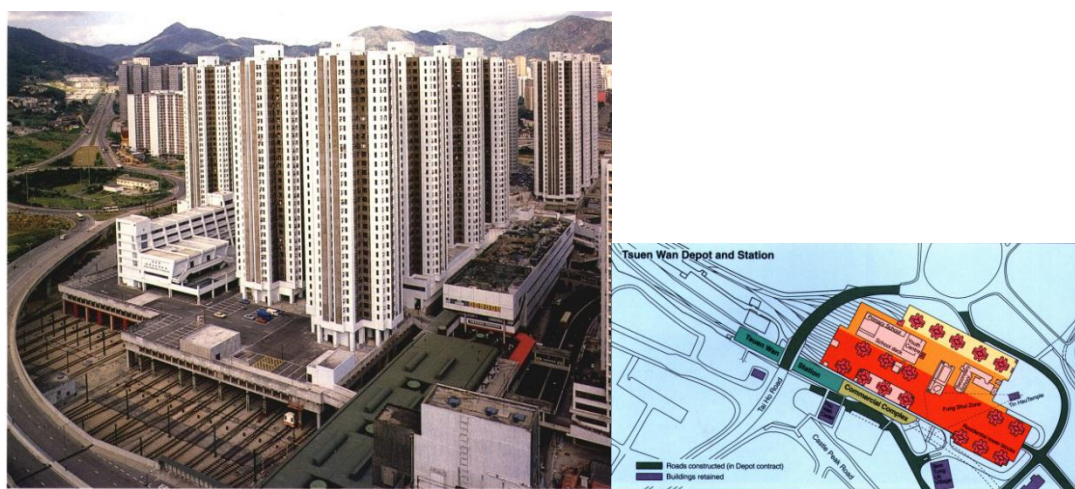


Figure 3-4: Massive Property Development above Depot in Hong Kong²⁸

According to a Hong Kong MTRC report, the farebox recovery ratio in Hong Kong is about 186%²⁹. It means that revenue from tickets can cover 186% of operations and maintenance costs, which is the highest in the world. The success of Hong Kong in implementing the TOD concept can be seen in Table 3.2.

Table 3-2: Hong Kong TOD Operating Profit Contributions, 2012³⁰

No.	Source of Contributions	HK\$ (Billion)	Percentage
1.	Transport operations	6.7	40%
2.	Station commercial businesses	3.3	20%
3.	Property rental and management businesses	2.8	17%
4.	Other businesses	0.1	1%
5.	Property development	3.2	19%
6.	Mainland of China and Int'l subsidiaries	0.6	4%
Total		16.7	100%

²⁸ Engineering Trip arranged by Ove Arup, 1996

²⁹ Farebox Recovery Ratio (http://en.wikipedia.org/wiki/Farebox_recovery_ratio)

³⁰ <http://www.mtr.com.hk/eng/investrelation/financialinfo.php> (excludes study and business development expenses)

From Table 3.2 it is clear that the contribution to operating profit from implementation of the TOD concept (i.e. station commercial businesses, property rental and management businesses; and property development) is very significant at about 56% of total. The implementation of the TOD concept not only contributes to profits, but also generates (new) passengers (who want to travel to high demand and convenient locations), which in turn enhances rider numbers and hence farebox revenues. In the case of Hong Kong, mass transit systems carry about 68% of the workforces to all workplaces³¹. This is comparable to the modal share of railway in Tokyo (2009) which was about 76%³², while the modal share of railway and related transport in Jabodetabek is still very low, about 2.3% including ojek³³.

To implement this TOD concept, a station should be integrated with high rise apartment buildings, offices, hotels, shopping centers, community centers, etc. The principle is that high intensity buildings which generate high transport demand will be matched with high capacity transport facilities such as the MRT. Good coordination between railway authorities and City Planning Departments within Local Governments is very important. In the case of Hong Kong, the railway operator is entitled to cooperate with property developers to implement the TOD concept. In the case of Singapore, the authority to develop property around stations belongs to the Land Transport Authority (LTA). Similar to Singapore, in Tokyo, integration between property development and railway stations is the responsibility of the City Government.

In the case of Jabodetabek, the TOD concept could be implemented by providing easy access from stations to a center of activities in the surrounding areas. Alternatively, railway operators could lease available land around stations or sell air rights above stations to a property developer to develop high rise buildings around and above station areas. In coordination with the City Government (Department of City Planning) the TOD concept could also be used as a mechanism to re-arrange and rejuvenate areas around stations and along the railway corridor.

The idea of implementing TOD has been included in the Jabodetabek Railway Master Plan 2020. There are 13 points in Jabodetabek area being indicated as Integrated Development Areas. They are: Mangga Dua, Kota, Pasar Senen, Thamrin, Tanah Abang, Sudirman, Rasuna Said, Manggarai, Cawang, Blok M, Kuningan, Cisauk, and Cikarang.

3.1.7. Increasing the Coverage Area of Railway Services

Increasing the coverage area of railway services means building new lines in order to provide new locations of origin and / or destination of trips, therefore, reducing either travel time, travel costs or travel distances. If (at least) either the point of origin or the point of destination is within the coverage area, rail services become an option, otherwise, trip makers will use other modes of transport to do the trip. By having railway services close to points of origin and / or destination, train passengers do not need to transfer to other modes of transport, which leads to either reducing travel time, travel costs or travel distances.

Figure 3.5 shows that coverage of railway services in Jabodetabek area is still very low. According to a previous study the population covered by railway and busway services in 2010

³¹ Gordon (2010) as found in A Comparative Study Of Transit-Oriented Developments In Hong Kong, by: Bukowski, B, Boatman, D, Ramirez, K, Du, M, 2013, page 13 (http://www.wpi.edu/Pubs/E-project/Available/E-project-022713-065611/unrestricted/Comparative_Study_of_TOD_in_Hong_Kong.pdf)

³² Tokyo Metro Presentation in 2009.

³³ JUTPI Commuter Survey (2010) as found in the Revision of SITRAMP Transportation Master Plan, Figure 2.3.1, page 9 (The Coordinating Ministry of Economic Affairs, 2012)

was only about 17.2%³⁴. This is one reason why the railway modal share in Jabodetabek area is still very low (2.3%). Therefore, increasing railway coverage is justifiable and needed to increase railway modal share.

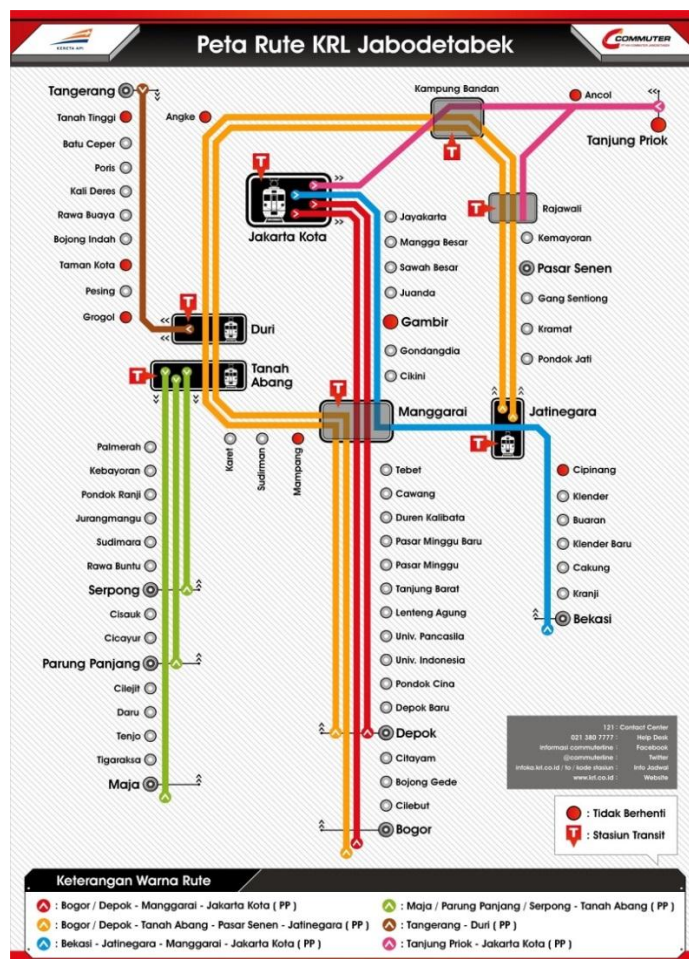


Figure 3-5: Jabodetabek Commuter Rail Lines³⁵

In contrast to the Jabodetabek area, in a city like Tokyo the rail network covers nearly the entire city. For most people, at any point in the city, a railway station can be reached within a radius of 300 meters³⁶. The large coverage area is one of the reasons why the railway modal share in Tokyo (for commuting) is quite significant, i.e., around 75%³⁷.

The network density of the Greater Tokyo area is shown in Figure 3.6. There are 882 interconnected train stations in Greater Tokyo Area, 282 of which are subway stations. There

³⁴ JUTPI Estimate (2011) as found in the Revision of SITRAMP Transportation Master Plan, Table 7.3.3, page 49 (The Coordinating Ministry of Economic Affairs, 2012)

³⁵ <http://www.krl.co.id/peta-rute-loopline.html>

³⁶ Tokyo Metro Presentation (2009)

³⁷ Strategy for Combating the Congestion in Jakarta, Slide no 22, presentation by Aldian, Project Manager of Jabodetabek Urban Transportation Policy Integration Project (JUTPI) on October 12th, 2011.

are 30 operators running 121 passenger rail lines, of which 102 lines are serving the Tokyo area exclusively with the remaining 19 lines serving the Greater Tokyo Area³⁸

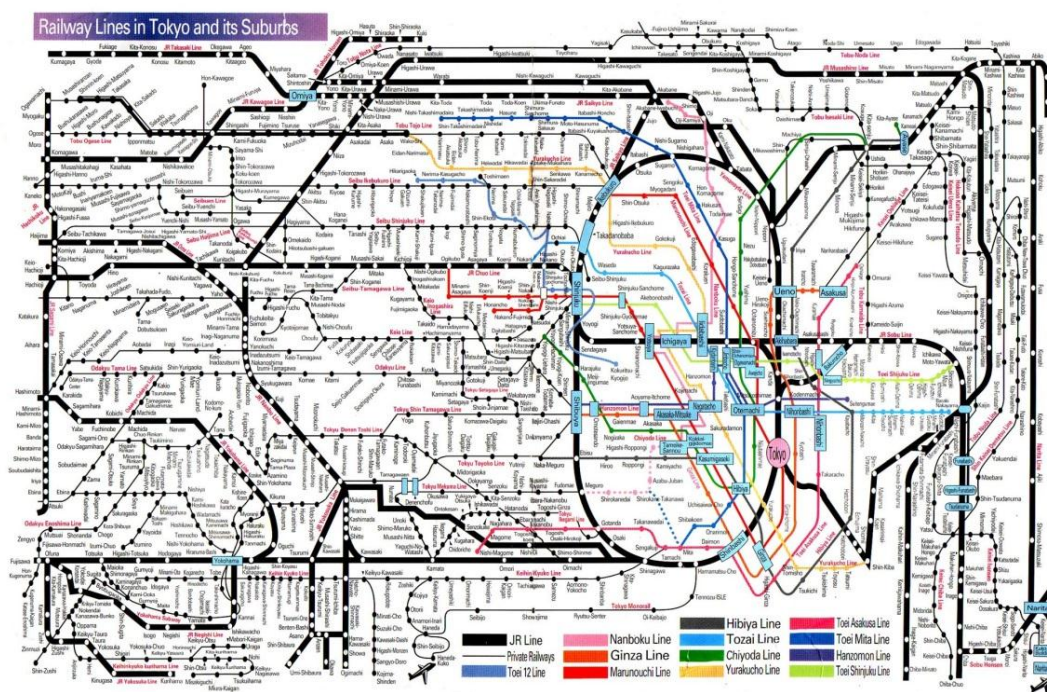


Figure 3-6: Railway Network in Tokyo and its Suburbs³⁹

In the absence of new railway lines, feeder services may be used to increase service coverage, especially if tariffs and networks are integrated. In the early stages regular bus services may be introduced to feed the railway service. As the demand increases, the regular bus service may be converted to a Bus Rapid Transit (BRT) service. Later on when the demand already matches that of rail transport the BRT line may then be converted to rail transport. Depending on the level of demand, this may be in the form of Light Rail Transit (LRT) or Mass Rapid Transit (MRT). The process should not be complicated, because Government has already had full control of the right of way during the operation of the BRT.

According to the Jabodetabek Railway Master Plan 2020⁴⁰, future development of the railway network in Jabodetabek is as shown in the Figure 3.7. The new lines are targeted to be finished by 2020 and 2030. In the short term (by 2020) the targeted lines include the airport line (12 Km), MRT North-South Line (Lebak Bulus to Kampung Bandan – 23 Km); and the Monorail (147 Km). Thus significant scaling up of investment is needed.

³⁸ http://en.wikipedia.org/wiki/Transportation_in_Greater_Tokyo

³⁹ <http://discomer.com/ac-tokyo-train-network/>

⁴⁰ Regulation of the Minister of Transportation No: PM.54 Year 2013

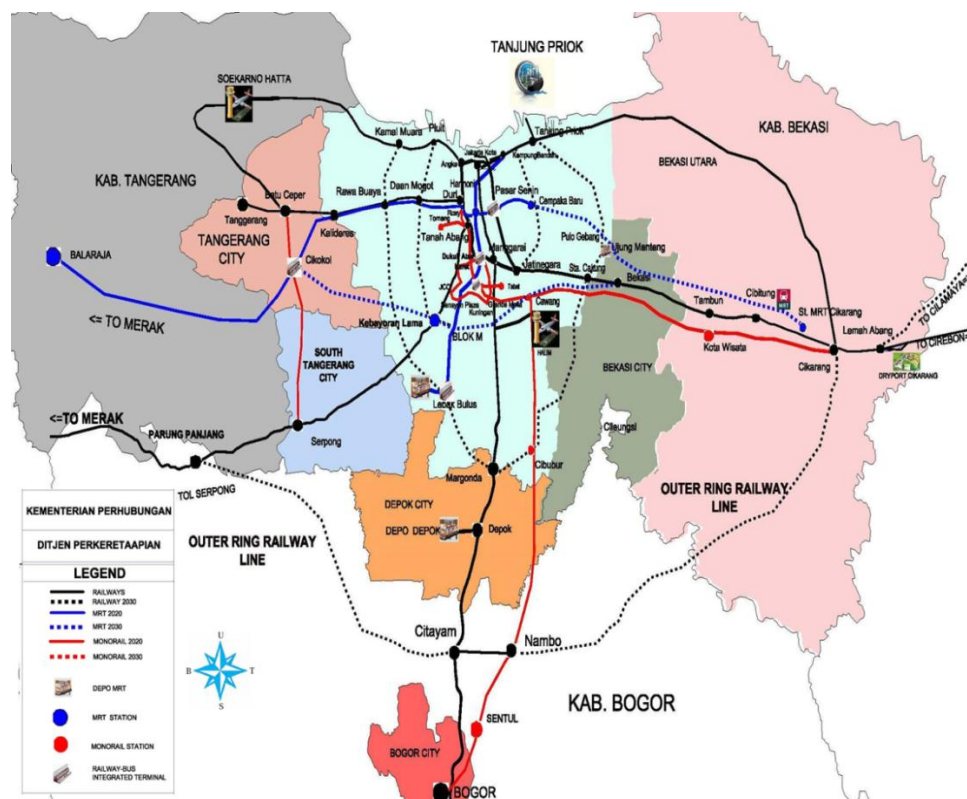


Figure 3-7: Jabodetabek Railway Master Plan 2020⁴¹

3.2. Operation of Rail Transport in the Jabodetabek Region

3.2.1. Situation of Rail Operators

In the past, commuter trips were served by the Jabodetabek Urban Trip Division under PT. Kereta Api (Persero) or PT. KAI. Later on in 2008, PT. KA Commuter Jabodetabek (PT. KCJ) was founded to operate trains in the Jabodetabek (Jakarta, Bogor, Depok Tangerang and Bekasi) area. Based on Presidential Instruction No 5 of 2008 and a letter issued by the Minister of State Owned Business Entities (No. 5-653/MBU/2008) PT. KCJ became a formal subsidiary of PT. KAI on 15th September 2008 based on the Deed of Establishment No. 415.⁴²

The status of PT. KAI is a state owned company, but PT. KCJ as a subsidiary of PT KAI is purely a private company. As a private company, PT. KCJ is not entitled to receive PSO. Therefore, the PSO is channelled through PT. KAI as a state owned company⁴³. Some portion of the PSO is kept by PT. KAI to subsidize operations of economy trains outside Jabodetabek and the rest of the PSO is passed on to PT. KCJ to subsidize operations of commuter economy trains within the Jabodetabek area.

⁴¹ Masterplan Perkeretaapian jabodetabek 2020, Konsep2 (Ministry of Transportation, DG Railway, March 2013)

⁴² www.krl.co.id/sekilas-krl.html

⁴³ Statement of PT KCJ Official during FGD in Hotel Alila at 16th June 2014.

PT. KCJ has recently implemented new time schedules through which a number of trips have been re-arranged to avoid long queues of both commuter and long distance trips in a number of stations like Jatinegara, Manggarai and Gambir, especially during morning and evening peak hours. In addition, the number of trips (train schedules) was increased from 589 trips to 645 trips per day, an increase of about 10%⁴⁴. The trips allocation is shown in the Table 3.3.

Table 3-3: Trips Allocation and Number of Train Sets on Each Line⁴⁵

No	Lines	No of Train Sets	No of Trips
1.	Bogor/Depok Line	33	294
2.	Bekasi Line	9	117
3.	Serpong Line	8	104
4.	Tangerang Line	3	62
5.	Feeder Line: Manggarai-Sudirman-Karet-Tanah Abang-Duri-Kp Bandan-Jakarta Kota	3	68
Total		56	645

Note: *) non-commercial line

Table 3.3 is based on each train set consisting of 8 cars (8 car trains) except for the Bogor/Depok line where there are 9 train sets (out of 33 train sets) which consist of 10 cars each (10 car trains). Out of the 294 trips allocated for the Bogor/Depok line, 194 trips are allocated for the Central Line and 104 trips are allocated for the Loop Line which are located inside the DKI Jakarta area⁴⁶.

To improve the maintenance regime, PT. KCJ has signed a Memorandum of Understanding (MOU) with PT. KCJ and PT. GMF Aeroasia (GMF) on June 18th, 2014. GMF is a reputable company in the maintenance and repair of aircraft. Therefore, PT. KCJ expects that GMF will be able to maintain and repair electric motors like traction motors, generator motors and compressor motors in order to increase reliability and performance of their fleet⁴⁷.

Another effort of PT. KCJ to improve their service is the implementation of electronic ticketing systems. In this regard, PT. KCJ has collaborated with three different banks, i.e., BRI, Mandiri and BNI to provide pre-paid tickets, namely BRIZZI (BRI), E-Money (BNI) and Tap Cash (Mandiri). The e-ticketing system is also integrated with Trans Jakarta buses. In addition the e-ticketing system can also be used for transactions in several retail stores like Carrefour, Indomaret and Gas Stations which belong to Pertamina⁴⁸. Before signing a Cooperation Agreement with the three banks mentioned above, PT. KAI had earlier signed an agreement with BCA to provide pre-paid tickets called FlazzCard. Therefore, for the time being there are already four different pre-paid tickets being used on the Jabodetabek commuter lines⁴⁹.

⁴⁴ <http://www.krl.co.id/BERITA-TERKINI/melalui-gapeka-2014-pt-kcj-tambah-jumlah-perjalanan-krl-jabodetabek.html>

⁴⁵ Ibid

⁴⁶ Ibid

⁴⁷ <http://www.krl.co.id/BERITA-TERKINI/gmf-tandatangani-kesepakatan-bersama-dengan-pt-kai-commuter-jabodetabek.html>

⁴⁸ <http://www.krl.co.id/BERITA-TERKINI/pt-kcj-dan-tiga-bank-bumn-luncurkan-integrasi-kartu-prabayar-dengan-e-ticketing-commuterline.html>

⁴⁹ <http://www.krl.co.id/BERITA-TERKINI/pt-kcj-tandatangani-perjanjian-kerja-sama-penggunaan-kartu-prabayar-e-ticketing-krl-dengan-bni-bri-dan-mandiri.html>

Financial Position of PT KAI and PT KCJ

Annex 2 provides a fuller analysis of the financial position of PT KAI and PT KCJ based on 2012 and 2013 financial reports of PT KAI with a brief summary contained here. Note that only the accounts of PT KAI are publically available with accounts for its subsidiary PT KJC not available publically and the management of both companies refused to provide them for purposes of this study.

PT KAI in 2013 received IDR 683.0 million of PSO from government which included PSO for commuter rail services though the proportion of this distributed to PT KCJ is not available. Overall, the income statement of PT KAI (see below) showed significant growth in all components in 2013 with operating income growing by 111% (in important part said to be due to improved KCJ performance) while operating costs and expenses only grew by 104% and 103% respectively. Net (after tax) profit increased by 168% Notably significant amounts of income taxation were provided for in 2012 and 2013 equivalent to around 6.3% of PSO received..

Table 3-4: Income Statement of PT KAI (Rp Billions)

Item	2012	2013	Growth
Operating Income	382,196	806,556	111%
Operating Costs	(260,558)	(532,243)	104%
Operating Expenses	(60,400)	(122,610)	103%
Operating Profit	61,238	151,703	148%
Other Income (Expenses)	5,014	26,306	425%
Profit (Loss) Before Income Tax	66,245	178,009	169%
Tax Income (Expense)	(15,732)	(42,863)	172%
Current year Profit (loss)	50,513	135,146	168%

Likewise, the balance sheet (see below) also showed significant growth of the company's assets, liabilities, and equity in 2013. Current liabilities grew most at 141% in 2013 much higher than current asset which only grew by 111%. However, in absolute figures, current assets were still double the value of current liabilities in 2013, while total assets were almost twice as high as total liabilities with equity growing strongly in 2013 to levels of Rp 461.0 billions with the total liabilities to equity ratio being a quite low 0.55. On paper PT KCJ has a relatively sound financial position with some scope for further debt raising to support further growth of the entity including potentially growth of KCJ.

Table 3-5: Balance Sheet – Rp Billions

Item	2012	2013	Growth
Asset			
Current Asset	204,313	431,652	111%
Fix Asset	235,969	284,749	21%
<i>Total Asset</i>	440,282	716,401	63%
Liabilities			
Current Liabilities	92,452	222,910	141%
Long Term Liabilities	16,972	32,539	92%
<i>Total Liabilities</i>	109,424	255,449	133%
Equity	330,856	460,951	39%
Total Liabilities and Equity	440,280	716,400	63%

Number of Passengers

Operations areas of PT KCJ are divided into 3 areas. The three Operation areas are Operation Area 1, which covers a line along Tebet Station – Bogor Station, Operation Area 2, which covers a line along Jakarta Kota station – Bekasi Station and Operation Area 3, which covers a line along Tangerang Station – Angke Station – Tanah Abang Station – Parung Panjang – Maja.

Among the three Operations Areas, the highest number of passengers is transported in Operations Area 1 which in 2013 transported about 46% of the total transported commuter passengers. Operations Areas 2 and 3 transported about 31% and 23% of passengers respectively.

Figure 3.8 indicates that railway passengers have increased from 124 million passengers in 2010 to nearly 157 million in 2013, an increase of 21% over three years. During the period 2010-2011, the number of passengers decreased by about -3%. However, during 2011-2012 and 2012-2013 the number of passengers has been increased steadily by 10% and 14% respectively. The highest increase (20%) was experienced during the second and third quarters of 2013. The decrease and increase of the railway passengers were most likely affected by level of tariff as a result of the implemented fiscal policy.

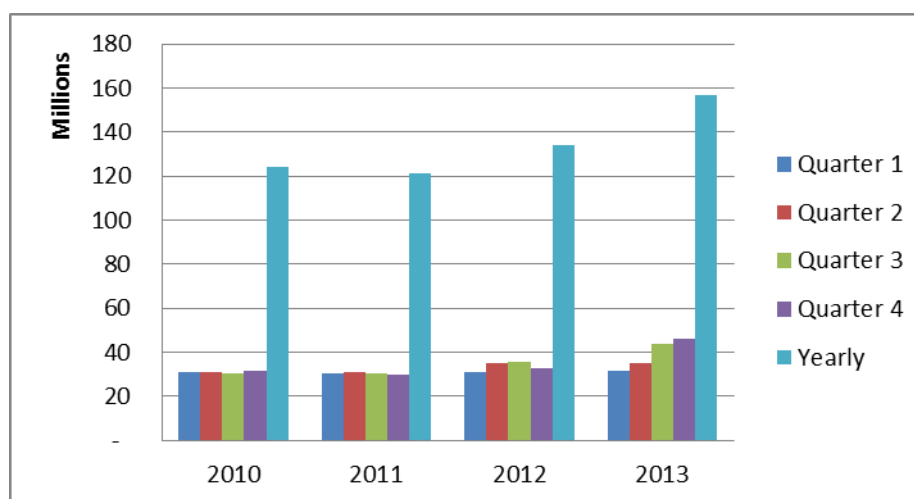


Figure 3-8: Number of Jabodetabek Railway Passengers Quarterly and Yearly, (2010 to 2013)⁵⁰

Security and Convenience

As mentioned before, based on passenger preference survey on rail service by JUTPI, safety is the most important aspect of rail service quality. There were a number of problems which influenced levels of service, especially levels of security and convenience. The problems during the period from January 2012 until April 2014 were recorded as shown in the Table 3.4. One important problem is wedging of train doors. When a train is overcrowded, passengers need more oxygen. For this reason, some passengers try to keep the doors open by wedging the

⁵⁰ Data supplied by PT. KCJ

train door. They do not realize that such action is very dangerous because passengers may fall from the moving train. At other times, passengers have tried to open train doors by force. This was done when the train was stopped (e.g. because of breakdowns). The third problem is throwing stones at trains. This action is undertaken by people outside the train (e.g. kids or juveniles) along the corridor for unknown reasons.

Table 3-6: Problems Related to Level of Security and Convenience⁵¹

No	Incidents	2012	2013	2014*)
1.	Wedging train doors	11	10	0
2.	Opening train doors by force	1	0	0
3.	Throwing stones at trains	13	24	12
4.	Train vandalism	0	0	3
5.	Sexual harassment	2	2	0
6.	Criminal actions	14	17	4
7.	Invalid ticket	23	10	0
8.	Illegal hawkers/beggars	0	30	4

Note: *) period of January – April 2014 (4 months)

During the first 4 months of 2014 there were three incidents of train vandalism. However, during 2012 and 2013 there was no record of train vandalism. This may be because there were no incidents of train vandalism or the data is not available.

Sexual harassment was recorded twice in 2012 and twice in 2013. The real number may be somewhat higher, but the incidence was not always reported. The problem is that on one side victims may be quite reluctant and or embarrassed to report the cases, and on the other side the regulation is not very clear and unlike in other countries (e.g. Singapore or Japan), the law enforcement is not very strong.

Criminal actions like pick pockets or mugging represent one of the most serious problems in public transport, including commuter rail services. The number of criminal actions was recorded as 14, 17 and 4 during 2012, 2013 and 2014 respectively. Since the period of 2014 was only four months, it means that during 2014 the frequency is at the average of more than one criminal action per month.

During 2012 and 2013 there were many problems concerning illegal tickets. However, the number has dropped during the first four months of 2014. Possibly some passengers were confused by changing from the traditional ticketing system to the electronic ticketing system, while during 2014, the passengers have been getting more familiar with electronic ticketing system.

Another problem is the number of illegal hawkers and beggars inside the trains. During 2013 there were 30 cases while during 2014 (first 4 months) there were only 4 cases.

Reliability of Services

Reliability of services is influenced by the number of incidents that cause traffic disruptions. There were 1,735 incidents recorded during 2013 which might have caused delay or cancellation of train schedules. Table 3.5 indicates the number of cancelled train schedules were 5,127 times in total which can be interpreted as being caused by 1,735 incidents. This means that on average, each incident has cancelled nearly 3 scheduled trains.

⁵¹ Data received from PT. KCJ (2014)

Table 3-7: Number of Incidents and Cancelled Train Schedules, 2013⁵²

No	Type of Incidents	No of Incidents	No of Cancelled Train Schedules
1.	EMU (electric rolling stock)	1,161	1,837
2.	Conventional Train (rolling stock)	29	3
3.	Operations	93	48
4.	Signal & Telecom	162	106
5.	Overhead Power Supply	49	56
6.	External Factors	191	3.031
7.	Track and Bridges	38	16
8.	Crew	12	30
	Total	1,735	5,127

Out of the 1,735 incidents, 67% were related to the poor reliability of electric multiple units (rolling stock). The second largest was related to external factors (11%) and the third was related to signals and telecommunication (9%). Incidents related to tracks and bridges were only about 2% of the total. This indicates that most of the rolling stock (EMU) are not in good condition and in need of improved maintenance and / or upgrade.

According to the data received from PT.KCJ (2014), the total number of cancelled schedules was about 3% out of 190,279 schedules. During the first semester of 2014, the proportion of cancellations remains unchanged (3%)⁵³. This means that reliability of services remains unchanged.

Any cancellation of a train schedule automatically reduces the numbers of transported passengers which then leads to reduced farebox revenue. In addition, in the long term, it will negatively affect levels of attractiveness, which in turn affects levels of passenger demand and then leads to reducing farebox revenue. Therefore, the maintenance regime should be improved, and consequently, maintenance costs should be increased.

3.2.2. Situation of Rail Users

Views of rail users were obtained mostly from survey results conducted by Izhar Manzoor, Ika Putri, Corinne Stubbs and Keitaro Tsuji of the University of California, Los Angeles⁵⁴. In addition, information was also taken from a mailing list called “KRL Mania” whose members are mostly frequent or daily users of the rail services. Within the group they express complaints, appreciation, or simply share information.

The results of the survey are as follow⁵⁵:

- **No, of surveyed passengers** : 500 passengers
- **Date and time:**

⁵² Interpreted from data supplied by PT. KCJ, 2014 (Gangguan 2013_rekap)

⁵³ Interpreted from data supplied by PT. KCJ, 2014 (FREK KA THN 2010-2014)

⁵⁴ Improving the Performance of KRL Jabodetabek, the Jakarta Commuter Train, Appendix 3 (Izhar Manzoor, Ika Putri, Corinne Stubbs and Keitaro Tsuji of University of California, Los Angeles, Luskin School of Public Affairs, Master of Public Policy Class of 2014)

⁵⁵ Ibid

- Date of the survey : December 29th, 2013 to January 24th, 2014
- Days of the week :
 - Weekdays : 80%
 - Weekends : 20 %
- Times of the day :
 - Morning peak hours : 30% (05.00-09.00 AM)
 - Afternoon peak hours : 40% (16.00-21.00 PM)
 - Off peak hours : 30% (09.00 AM-16.00 PM)
- **Surveyed lines**
 - Bogor/Depok Line : 60 %
 - Bekasi Line : 25 %
 - Serpong Line : 10%
 - Tangerang Line : 5%
- **Passengers characteristics:**
 - Occupation :
 - Private sector : 45.6%
 - Students : 33%
 - Civil servants : 7.6%
 - Entrepreneur : 5.6% (small business owners / self-employed)
 - Part timers : 3.6%
 - Others : 2.4%
 - Housewives : 2.2%
 - Monthly income:
 - Less than Rp. 2 Million/month : 41.8%
 - Rp. 2-5 Million/month : 38.4%

- Rp. 6-10 Million/month : 14.8%
- Rp. 11-15 Million/month : 2.6%
- Rp. 16-20 Million/month : 0.8%
- More than Rp. 20 Million/month : 1.6%
- Gender :
 - Male : 48.6%
 - Female : 51.4%
- Frequency of travelling by train:
 - Very often (3-7 days a week) : 49.8%
 - Often (1-2 days a week) : 24.0%
 - Seldom (1-3 days a month) : 17.6%
 - Almost never : 8.6%
- Trip purposes
 - Going to works/schools : 77.8%
 - Visiting family/friends : 12.6%
 - Recreation : 9.6%

The results of the survey indicate that a very small portion of passengers (0.4%) were very satisfied with the services provided by PT. KCJ. Furthermore,, about 39.4% were satisfied, 24.4% were indifferent, 28.6% somewhat un-satisfied; and the remaining 7.4% were very unsatisfied. Reasons stated for dis-satisfaction were: (i) overcrowded, (ii) unreliable time schedule which is affected by many factors like unreliable rolling stock, signalling systems, external factors, etc., (iii) levels of comfort including air conditioning, (iv) other factors including sexual harassment, and (v) long queues to buy tickets.⁵⁶ According to the Regulation of the Minister of Transport No PM 9 of 2011 on Minimum Level of Service Standard for Railway Transport Passengers, the maximum passenger density inside urban/commuter railways is 6 passengers per meter square.

Despite many complaints mentioned above, passengers still continue to travel by KRL for several different reasons. The reasons are: faster (72%), cheaper (35.8%), more comfortable (14%), more practical/convenient (8.2%), more punctual (4.4%); and other reasons (13%).

⁵⁶ Ibid

The complaints about overcrowded and unreliable time schedules are somewhat consistent with the opinion of the non-passengers of trains⁵⁷ and the conversations revealed in KRL Mania⁵⁸.

With ticket fares there were only a small number of passengers (1.8%) who complained that fares are expensive. Most of them (57.8%) mentioned that ticket prices were fair, while a significant 40.4% of the surveyed passengers mentioned that the fare was too cheap. When they were asked whether they were willing to pay a higher fare, 78.6% of them said that they were willing to pay higher fares as long as the train was more comfortable, or in the other words, if levels of service were improved. The statement about the fares being cheap is consistent with the survey result which says that 35.8% of the surveyed passengers use KRL because the ticket fare is cheap.

3.3. Fiscal Policies and Regulations on Rail Transport in Jabodetabek

This section analyzes fiscal policies and regulations on rail transport in Jabodetabek. By definition, fiscal policies could be in the form of several instruments such as taxes, subsidies, government expenditure, or financing that are given to a particular sector. In the case of rail transport these fiscal instruments could be applied directly or indirectly to rail transport systems in Jabodetabek.

As identified in earlier sections, to increase the share of rail transport, two important measures are attractiveness improvement and capacity increases. Activities of those two measures can be categorized into: (i) infrastructure development; (ii) operations; and (iii) revenue improvements - against which policy and regulatory analysis will be framed.

Fiscal policy analysis will cover all types of rail systems that are now being operated, developed, or planned in Jabodetabek, which are:

- In operation: commuter rail (KRL Jabodetabek), inter-city rail, and freight rail system;
- In construction: MRT, monorail; and airport rail; and
- In design: elevated loop rail track and light transit rail.

The main sources of rail transport policy and regulations referred to relate to the National Medium Term Development Plan (RPJMN), the National Rail Transport Masterplan (RIP-Rencana Induk Perkeretaapian), and the DG Rail Strategic Plan (Renstra Dirjen Perkeretaapian), Existing Laws, Government Regulations and all subordinate regulations covered below.

This study focuses on analysis of policies and regulations concerning taxes, subsidies, government expenditures for infrastructure finance, operational costs; and revenue maximization.

⁵⁷ Ibid, Appendix 4

⁵⁸ Mailing list of the frequent users of the Jabodetabek commuter train services

3.3.1. Rail Infrastructure Development

By definition, development involves expansion of existing rail infrastructure that is now operated by PT. KAI. Expansion of new rail infrastructure will improve its service coverage and increase carrying capacity. Fiscal policies and regulations in the development of rail transport infrastructure have two objectives. The first is to improve fiscal capacity of the government (MoT) for funding rail infrastructure projects as part of the National Railway Master Plan (RIP) implementation, and the second is to promote Public / Private Partnership (PPP) projects in the rail transport sector by providing an enabling environment for private sector participation and increased feasibility of rail infrastructure projects. Hence, fiscal policies and regulations can be divided into two categories as explained in Table 3.6.

Issues regarding fiscal policy in rail infrastructure development include:

- Support from fiscal policy in rail infrastructure development is far behind that of road transport: for example land capping, land revolving fund, land acquisition fund;
- Support mainly focuses only on rail track infrastructure with less fiscal support for infrastructure for rail signals for commuter trains and power supplies for rail electrification;
- In term of infrastructure financing mechanisms, there are limited schemes for rail compared to road transport: bridging fund, guarantee fund, development service SMI; and
- In terms of PPP projects there are limited regulations compared to those of road transport.

3.3.2. Rail Operational Costs

In order to increase passengers, rail transport services should offer benefits for using rail compared to other modes of transport. Since rail transport has dedicated and uninterrupted rail track infrastructure, this mode offers reliability and high quality services as two major advantages. However, in order to achieve reliability and predictability the rail system needs sound operations planning and management, which can be cost intensive. While on the other hand, to really serve as a mass transport provider and to create benefits out of it, rail transport should be affordable for most of the people.

Therefore fiscal policy should be designed bearing in mind that operators should provide reliable and good quality services. Fiscal support from central government is the cheapest source of money for the train company that might be potentially provided through relaxation of many fiscal instruments imposed on rail operators such as VAT, import duties, infrastructure fees, etc. In the case of the Jabodetabek rail system, the reliability of train schedules is mostly impeded by problems of signalling and power supply, while service quality is mainly impeded by inadequacy of good quality rolling stock and station infrastructure. Given the fact that in 2013 only 8% of the revenue came from PSO, it could be increased further to improve financial capacity of the train company and to reduce its dependency on commercial financing that is prone to several financial risks such as exchange rate and commodity risks.

The government could also potentially provide fiscal policy support to assist rail operators in improving signalling and power supply infrastructure by revising policies on VAT, tax, import

duties; and excise imposed on the procurement processes of train signalling equipment and infrastructure. While for the power supply for electric train cars, government could potentially provide fiscal incentives for development and improvement of power infrastructure and on the costs of electricity for rail operators.

Fiscal sustainability could be achieved through reaching a balance between the costs to implement such fiscal policies and fuel subsidy reductions from the shift of rail passengers from cars or motorcycles, and reductions in oil imports. Following the recent elimination of fuel subsidies for gasoline vehicles the budget savings generated should be allocated in part to the improvement of public transport services, including rail services.

Another potential fiscal policy is to improve affordability of good quality and reliable rail services through the use of operational subsidies either through the PSO or alternative well targeted arrangements.

A further important issue is that rail transport has a greater fiscal burden (gets less fiscal support) compared to road transport, creating an unequal playing field to stay competitive (treatment under the VAT is one example here).

Table 3-8: Fiscal Policies for Rail Infrastructure Development

No	Category of Policy and regulation	Policy	Case Examples	Regulation	Remark
1	Government fiscal capacity strengthening	Loans for infrastructure development	Double-double Track MRT Jakarta	<u>GR No 25 year 2001</u> on the second revision of <u>GR No 42 year 1995</u> on Tax Regulations for Government Projects funded by Foreign Loans and Grants - Article 3 Revenue tax is forgone	Applies to other infrastructure with no preferential rail policy
		Loans to Local Governments	MRT Jakarta	<u>GR No 10 Year 2011</u> on procedures for foreign loan and grant acquisitions, Article 7 passage 2 on lending fiscal policy support for local government infrastructure projects	Proportional dispute. The portion of on-lending fund from central Govt does not usually allow for project financial feasibility. No formulation of viable rail projects at local levels
		Utilization of fiscal windows from fuel price hikes / subsidy reductions	Elevated loop-line Jakarta	Depends on annual budget decisions	No provision to ensure direct allocations of savings for rail and public transport infrastructure development
2	Promotion of private sector participation	Promotion of PPP schemes	Airport Rail	<u>PR No 67 year 2005</u> on PPP Infrastructure Projects	Tendering processes have been complex
		Increasing project feasibility	Airport Rail	Finance Ministerial Decree (<u>FMD</u>) No. <u>223/PMK.011/2012</u> on Viability Support for part of construction cost at the PPP project between Government and Infrastructure Provision Company - article 2	Viability Gap Funding (VGF) is a government contribution to any infrastructure project regulated by MoF but must be less than 50% of total investment costs
		Financial support for land acquisition	Airport Rail	<u>GR No 56 Year 2009</u> on Rail Transport Operation article 316-317, Government support for land acquisition costs that can be compensated via concession contract periods	No protection for risks from fluctuating land market prices
		Risk sharing and compensation for private initiators in unsolicited projects	Monorail project	<u>PR No 66 Year 2013</u> as third revision of <u>PR No 67 year 2005</u> on PPP for Infrastructure Project Article 14 provides for a 10% initiators compensation for unsolicited projects and article 16 on risk sharing	This regulation did not solve dispute between PT Jakarta Monorail and Jakarta Government on the initial construction costs

Table 3-9: Fiscal Policies for Rail Operations Improvement

No	Category of Policy and regulation	Policy	Case Examples	Regulation	Remark
1	Improved service reliability and quality	Relaxation of fiscal instruments	PT INKA	Import duty on rail spare parts borne by government (MOF, PMK <u>106/Pmk.011/2012</u>)	More for rail manufacturing industries rather than supporting rail operations
		Relaxation of fiscal instruments		VAT forgone via Finance Ministerial Regulation No 53/PMK.011/2013 on import duty for rail manufacturing industry	Targeted to rail manufacturing industry
		Relaxation of fiscal instruments		TAC: Transport Ministerial Regulation <u>No 62 Year 2013 on TAC</u>	Practice of offsetting TAC with IMO creates unclear calculation of the real operational and maintenance costs for high quality services as regulated by the minimum service standards
		Relaxation of fiscal instruments		Transport Minister Regulation No. <u>62 Year 2013</u> on Cost Calculation Guideline of Utilization of Government Owned Rail Infrastructure (TAC)	Has never being implemented because it is always offset by IMO
		Equal treatment of Fuel Subsidy between rail and road sector		Presidential Regulation No.15 year 2012 on Retail Prices and Consumption of Subsidized oil	Though the rail sector is eligible for subsidized oil it does not get safeguards from supply shortages.
2	Improved affordability	Operational subsidies to rail operators providing funding via public service obligations (PSO)	KRL Jabodetabek	Transport Ministerial Regulation <u>No 56 Year 2013</u> on Cost Component of PSO and Pioneer Service	Operators cannot carry over retained payments to the next fiscal year. This creates insecurity of income for rail operators
				Transport Ministerial Regulation No <u>51 Year 2012</u> on Subsidies for Rail Pioneer Services	Jabodetabek commuter rail is not eligible for pioneer service subsidy

3.3.3. Rail Revenues

Fare box and non fare box revenue

Rail revenue comes from fare box and non-fare box revenue. Fare box revenue is operational income from tickets that each passenger pays for using the service. Non-fare box revenue is side income from other business activities of the rail operator. Table 3.8 summarizes fiscal policy options for increasing rail revenue.

The main source of fare box revenue is ticket income which is a function of patronage and fare price. The more passengers the better. The higher the fare price for a given number of passengers the better for the operator. KRL Jabodetabek as part of its service improvement program has developed a single service class to simplify operations planning, management, and fare structure. As a consequence, what are now called economic services are now using air-conditioned train cars similar to what was previously called express/executive service.

On the other hand, the Government decided to provide affordable public train services and set fares for economic services that are significantly lower than that of the economic price as proposed by the operator. This has created a gap between fare box revenues and operations costs that leads to operator losses. In addressing this issue, the government allocates a budget to pay PSO that is calculated based on passenger numbers rather than train operation production costs.

Fare Setting and Public Service Obligations

Fiscal policy can balance the gap between the cost of quality services and service affordability through fare setting and PSO policies. The combination of the two should be designed to promote efficiency of rail operations while encouraging the public to use rail.

Other fiscal policies that can improve rail revenue are regulations related to income tax (PMK Nomor 146/Pmk.011/2013), revenue tax (PMK Nomor 221/Pmk.011/2010), and company tax. While such policies might seem to be benefiting the rail sector, other competing sectors (especially road transport) enjoy similar privileges. Support to rail should be implemented very comprehensively to avoid barriers to entry to the rail sector that is now still in the state of a natural monopoly.

As for the non-fare box revenue, the main source of income comes from side businesses related to assets that are owned or managed by the rail operator. At the moment, the Jabodetabek commuter rail operator does not own any assets, neither rail track infrastructure nor stations. The only fixed assets that they own are trains / train cars. Fiscal policy can improve non-fare box revenue through regulations related to property rights and to the lease rights of rail assets.

Some important issues here are:

- Fare and PSO policy for commuter rail in Jabodetabek is yet to promote operational efficiency and full recovery of costs for quality services;
- Disputes in asset ownership between rail operators and other stakeholders impedes the utilization of assets to increase non-fare box revenue;
- Regulations on public assets also limit the business model. For example, there is no regulation on asset hypothecation; and
- PT KAI still has to pay and carry liabilities of the MoT staff pension scheme.

Table 3-10: Fiscal Policies to Increase Rail Revenue

No	Category of Policy and regulation	Policy	Case Examples	Regulation	Remark
1	Fare box revenue	Fare policy	KRL Jabodetabek	Transport Ministerial Regulation No 28 of 2012 on Calculation and Establishment Guidelines for Passenger Rail Fare Structure	The Government sets an 8% profit margin only from fixed and variable direct costs
		Public Service Obligation	KRL Jabodetabek	Regulation of the Minister of Transportation No 56 year 2013 on Cost Components which can be Reckoned in Implementation of Public Service Obligation and Railway Transport Pioneer	This policy does not really compensate for the gap between the selling price and cost of rail operations. PSO is calculated based on passenger numbers instead of operational production of the rail service
		Farebox recovery ratio	Nil	n.a.	The ratio of public transit operating revenues compared to operating expenditures goes in line with service performance standards and fare policies
		Transportation Trust Fund	Nil	n.a.	Source of funding or improving farebox recovery ratios. The Transportation Trust Fund is a trust fund mechanism to subsidize daily ridership, so that the farebox revenue can cover construction and repair of transport infrastructure including rail system
2	Non fare box revenue	Asset separation	Utilization of rail track right of way	n.a.	Rail operators can utilize space in the rail track right of way for public utilities and take a fee from it
		Asset utilization	Station Business area	<u>Government Regulation No 27 year 2014 on Government Asset Utilization</u>	Dispute between rail operators and local government or other government agencies remains (case of area close to Senen and Manggarai station)
				<u>Government Regulation No. 40 Year 1996 on Lease Rights, Land Rights, and Use Rights of Government Owned Land Assets</u>	Rail operators can create non fare box revenue by leasing asset
				<u>Government Regulation No. 36 year 1997 on Excise on Lease Income from Land Property Rights</u>	Government can get income from lease excise
		Asset clarification		<u>Finance Ministerial Regulation No. 96/PMK.06/2007 on Mechanism of Utilization, Operations, Revocation and hand over of State Owned Assets</u>	Disputes between rail operator and other stakeholders remain

3.4. Available Data on Railway Sector GHG Emissions

3.4.1. GHG Emissions and Systems Performance

The high potential of rail transport to reduce transport GHG emissions very much depends on rail system performance. Rail transport has long been recognized as a more environmentally friendly mode of transport with huge potential for reducing fuel consumption and GHG emissions compared to private vehicles (cars and motorcycles). Using the most recent modal share data in Jabodetabek (JUTPI, 2010), the emissions reduction simulation in chapter one showed that rail passenger trips have the potential to reduce fuel consumption by 89% compared to the same rail passenger trips by private transport. With private vehicle trips making up 50% of daily trips in Jabodetabek (JUTPI, 2010), there is huge potential for GHG emissions reductions through a shift from private vehicles to trains. Unfortunately, the Jabodetabek KRL system service coverage and quality are still low. Over the decade from 2000 to 2010, KRL Jabodetabek only served less than 1% of total daily trips in Jabodetabek.

The claim that rail systems can significantly reduce GHG emission should be used with some caution, for this claim will very much depend on the utilization of the rail system itself. In fact, the simulation was made with the assumption that rail has high passenger numbers or in other words that the operating capacity is well utilized. Based on PT KCJ data, the utilization rate of Jabodetabek commuter rail in both directions is only 49.8% of its operating capacity. This increases emissions per passenger and decreases GHG emission reductions per passenger when compared to private vehicle trips.

Therefore, in order to increase GHG reductions from the rail transport sector in Jabodetabek, there are two actions that have to be taken. The first action is to develop the rail network and the second is to increase passenger numbers and utilization rates. Enhanced rail network development will improve accessibility of the system. The more rail track being built, the more people that can access and use the rail system easily. The KRL Jabodetabek now has 235 km of rail track network and 74 stations and only covers 18.6% of the total Jabodetabek area of 6,392 km². This estimate is conservative given the fact that there has been no systematic effort to develop an integrated multimode system that connects the rail system to become a door-to-door service.

The second action is to increase passenger numbers (patronage), with a relatively balanced spread among operational hours of the system. These efforts would improve system utilization from what it is now of 49.8%. This is mainly caused by the imbalance of travel patterns of Jabodetabek rail passenger that are mainly concentrated during morning and afternoon peak hours. Efforts to improve this condition can be done by developing more various trip attractors such as activity centers, TOD, and high-mix density development along train track services.

3.4.2. Rail Transport Emissions Data

The Directorate General of Rail Transport (DGR) implements Presidential Regulation no 61 year 2011 on the National Action Plan to Reduce GHG Emissions. Since 2012, DGR has prepared an action plan for the rail sector that can contribute to national emissions reductions. The plan identifies five actions for Jabodetabek with total potential GHG emission reductions of 38.62 million ton of CO₂eq over the 10 year period from 2010-2020. The five actions covered: i) development of 35kms of double-double track from Manggarai to Cikarang; ii) procurement of 1,024 rail cars for 890 km of the Jabodetabek commuter rail system; iii) development of 23.3 kms of Jakarta MRT phases I and II; iv) development of 33

kms of the Jakarta airport train; and v) development of 27 kms of the Jakarta monorail system.

As of June 2014, the Directorate General Rail Transport is still developing methodology to calculate GHG emission reductions from the rail sector. No figures officially reported so far, but the approach is as follows:

Rail Transport Emissions Reductions Calculations
<p>Methodology:</p> <p>Rail Emission reductions = Motor Vehicle Emissions – Rail Emissions</p> <p>Motor Vehicle Emissions = 20 x number of passengers x average fuel consumption for each previous mode x emission factor</p> <p>Rail Emission = 20 x number of passenger x average rail fuel consumption x emissions factor</p> <p>Note:</p> <ul style="list-style-type: none"> - Rail emissions are emissions incurred by rail operations - Yet to include % of passenger shifting from each mode category (car, motorcycle, and bus)

In 2014 a UCLA study on the contribution of Jabodetabek commuter rail to CO₂ reductions and monetary benefits found that it reduce 539 kilo ton CO₂ or equal to a 5.8% reduction of transport CO₂ emissions in Jabodetabek. It also generates monetary benefits of IDR 2.3 trillion from saving of fuel consumption, fuel subsidies, and transportation costs.

3.5. Increasing Private Sector Involvement (PPPs) and Options for Separating Ownership of Infrastructure and Rolling Stock

3.5.1. Public Private Partnerships

Government worldwide has sought to increase involvement of the private sector in the delivery of public services in many different forms such as direct privatization of formerly state owned industries, contracting out of services (e.g., garbage collection), the use of private finance to provide public infrastructure, etc.⁵⁹ The main features of PPPs are⁶⁰:

- A partnership involves government on the one side and one or more private investor(s) on the other side;
- Each participant is a principal who is capable of bargaining on their own behalf. On the government side, a special agency capable of entering into partnerships has to be set up before commencement of collaboration;
- There is an enduring and stable relationship among parties;
- Each participant brings resources to the partnership. The resources may be in material forms (money, land) or non material forms (concessions, permits); and
- Each participant shares responsibility to produce outcomes.

⁵⁹ Public Private Partnerships, Managing Risks and Opportunities (Akintola Akintoye, Matthias Beck and Cliff Hardcastle) page 3

⁶⁰ Ibid, page 6

In the Indonesian legal context, the PPP is understood as cooperation between government and business entities in the provision of infrastructure through a Cooperation Contract or Concession Permit⁶¹. However, private companies are always profit oriented. Consequently, if the project is not financially viable private investors are not interested in participating.

According to Lubis⁶², PPP have been very popular for more than two decades as a scheme to implement public infrastructure. The concept has been implemented successfully in sectors like telecommunication, energy, and clean water. The road sector, including toll roads, has not been very successful; while other sectors like harbours, airports, as well as railways have performed even worse. In the PPP concept, Government is expected to work hand in hand with the private sector to construct high quality public infrastructure but with low investment costs as a result of low interest rates and efficient works as well as innovation of the private partners.

Lubis⁶³ notes that in 1991 the World Bank started to offer loans for Technical Assistance for Public and Private Provision of Infrastructure (TAP4I) to the Government of Indonesia. This was followed by Private Provision of Infrastructure Technical Assistance (PPITA) and the Infrastructure Reform Sector Development Project (IRSDP) through loans of the Asian Development Bank (ADB). However, the results were not very clear.

The main problem of implementing PPP is mostly related to financial viability. On the one hand Government wants to invite private investors to finance the project, but on the other hand, most of the public infrastructure projects are not financially viable.

By nature, the financial viability of public infrastructure is very low, therefore, decisions to implement the project are largely based on economic viability such as increasing job opportunities, increasing levels of economic activity, reducing air pollution, reducing fuel subsidies, etc. If that is the case, then projects need to be financed by government. Take an example of Jalan Thamrin in Central Jakarta or Jalan Jenderal Sudirman in South Jakarta. In either case, the roads do not generate revenue. However, it is compulsory for the Government to build, operate and maintain the roads. The main concern of the Government is not on how much revenue the investment will generate, but more on economic benefits such as an increasing number of transactions, an increasing number of investments, improving image and competitiveness of the city, etc.

PPP Institutional Framework in Indonesia

In accordance with guidelines provided by the Coordinating Ministry of Economy, the PPP institutional framework in Indonesia is as follows:

Business Entity: A business entity is an Indonesian entity which is owned by project sponsor(s). The Business Entity is the one who signs a Cooperation Agreement between the Business Entity and the Government Contracting Agency (GCA).

Commercial Banks: Commercial Banks provide loans to finance the project. Commercial Banks may be either foreign or domestic ones. Domestic banks may provide funds for small scale projects, and foreign banks (generally) provide funds for large scale projects.

Multilateral Development Banks: Multilateral Development Bank may facilitate additional credit for example in the form of partial risk guarantees (PRGs) for business entities or project creditors. The Multilateral Development Banks include World Bank, Asian

⁶¹ Regulation of the State Minister of National Development Planning / Head of National Development Planning Agency No 3 of 2012, Article 1, point 7.

⁶² Outlook Infrastruktur: Berharap Kemitraan Pemerintah Swasta (Harun al-Rasyid Lubis)

⁶³ Ibid

Development Bank and its affiliation such as Multilateral Investment Guarantee Association (MIGA).

Project Sponsors. Project Sponsors are the project developers who are responsible for developing projects as well as for capital placement. They are shareholders of the business entity. Project sponsors may consist of local and foreign investors.

Infrastructure Guarantor. To increase credit viability of a PPP project, Government has founded an Infrastructure Guarantee Business Enterprise (Badan Usaha Penjaminan Infrastruktur – BUPI) ⁶⁴. In this case, PT. Penjaminan Infrastruktur Indonesia – PT. PII (or PT. Indonesia Infrastructure Guarantee Fund – PT. IIGF) has been assigned as BUPI which is responsible for evaluating, structuring guarantees, as well as providing guarantees for PPP projects⁶⁵.

Infrastructure Funds. To provide infrastructure funding Government has provided 3 (three) financial instruments under the Ministry of Finance. They are: (i) PT. Sarana Multi Infrastruktur (PT. SMI) which facilitates funding activities in the form of debt, equity and mezzanine financing⁶⁶ and focuses its activities on small and medium scale businesses⁶⁷; (ii) PT. Indonesia Infrastructure Fund (PT. IIF) which is a non-bank financial institution and provides capital for infrastructure projects in Indonesia focusing its activities on large scale infrastructure projects which are commercially viable⁶⁸; and (iii) *Pusat Investasi Pemerintah* (PIP) or Indonesia Investment Agency which is a Public Services Agency (*Badan Layanan Umum*) under the Ministry of Finance and provides pre-financing arrangements, especially for land acquisition and also provides financing for infrastructure including clean energy and green financing for investment ⁶⁹.

The Ministry of Finance (Risk Management Unit). The Ministry of Finance grants Government guarantees as well as tax incentives in the implementation of PPP projects. The Risk Management Unit is responsible for assessing and evaluating each submitted request for a guarantee. All approved guarantees are then managed by PT. PII (PT. IIGF)⁷⁰.

Advisors. Advisors provide advice to the Ministry of Finance as well as to P3CU to develop a good scheme of PPP projects, in order to help Government Contracting Agencies to prepare promising projects⁷¹.

P3CU (Public Private Partnership Central Unit). P3CU is a unit within Bappenas which is chaired by the Director of the Directorate for Public Private Partnership Development⁷². P3CU is responsible for ensuring policy consistency, quality control and transparency, establishing standards and principles that all transactions must follow, and monitoring execution for compliance. Other tasks include: (i) assisting line ministries and local governments in identifying, preparing, and implementing PPP Projects; (ii) reviewing project evaluations carried out by PPP Nodes; (iii) assessing requests for Government Support to PPP Projects; (iv) coordinating such support with the Ministry of Finance; (v) publishing

⁶⁴ Regulation of the State Minister of National Development Planning / Head of National Development Planning Agency No. 3 of 2012, Article 1, Point 15.

⁶⁵ <http://www.iigf.co.id/Website/Home.aspx>

⁶⁶ Public Private Partnerships: Infrastructure Projects Plan in Indonesia, by: Ministry of National Development Planning / National Development Planning Agency (2013), page viii

⁶⁷ *Kerjasama Pemerintah dan Swasta, Panduan Bagi Investor Dalam Investasi di Bidang Infrastruktur* (Coordinating Ministry of Economy, April 2010) page 10

⁶⁸ <http://iif.co.id/>

⁶⁹ Public Private Partnerships: Infrastructure Projects Plan in Indonesia, by: Ministry of National Development Planning / National Development Planning Agency (2013), page viii

⁷⁰ *Kerjasama Pemerintah dan Swasta, Panduan Bagi Investor Dalam Investasi di Bidang Infrastruktur* (Coordinating Ministry of Economy, April 2010) page 5

⁷¹ *Ibid*, page 5

⁷² *Ibid*, page 5

status reports on PPP projects and disseminating relevant information; (vi) preparing guidelines and manuals for PPP Projects; and (vii) building capacity in the PPP Nodes⁷³ (which are working unit within a ministry/institution at national and local levels). PPP Nodes may be newly established or embedded within existing units. PPP Nodes are responsible for arrangement of cooperation between government and a business entity⁷⁴.

KKPPI or Policy Committee for Acceleration of Infrastructure Provision is a committee chaired by the Coordinating Minister for Economic Affairs. As an inter-ministerial committee, its member consists of several ministers, including (among others) Minister of Home Affairs, Minister of Finance, Minister of Energy and Mineral Resources, Minister of Public Works; and Minister of Transportation. The committee is responsible for: (i) developing strategy in the implementation of infrastructure provision acceleration, (ii) coordinating and monitoring implementation of policies for acceleration of infrastructure provision, (iii) developing policies for implementation of Public Service Obligations in accelerating infrastructure provision; and (iv) coordinating resolution of any problems related to the acceleration of infrastructure provision⁷⁵.

Government Contracting Agency (GCA). GCA is a ministry, government institution, province, local government or city which is responsible for: (i) conducting tenders, (ii) being a partner of the private entity, (iii) signing a contract between government and a private entity for implementation a PPP project; and (iv) issuing permits for a business entity within a framework of administering a PPP project⁷⁶.

Institutions issuing licenses and permits. There are licenses and permits needed in the implementation of PPP projects. Institutions issuing such licenses and permits are: Investment Coordinating Board (BKPM), Ministry of Manpower and Transmigration; and other institutions which issue licenses and permits for operational activities of the PPP projects⁷⁷.

Users. Users or off-takers are business entities who will buy the product or services delivered by the PPP projects under an off-take agreement which governs the price and or volume which make up the revenue⁷⁸.

Third parties (services providers). Service providers are involved during implementation of the PPP projects. They may be involved as EPC (Engineering Procurement and Construction) contractors, O&M (Operations and Maintenance) Operators, etc. The services will be administered under a particular service agreement between the business entity and the service provider⁷⁹.

PPP Regulatory Framework for Provision of Infrastructure

The Government has taken a series of major steps to accelerate provision of infrastructure by refining policy and regulatory frameworks in order to improve attractiveness and competitiveness of PPP projects. The regulatory framework depicted in Figure 3.9 was initially issued in 1998, starting with Presidential Decree No. 7 year 1998 which regulated

⁷³ Public Private Partnerships: Infrastructure Projects Plan in Indonesia, by: Ministry of National Development Planning / National Development Planning Agency (2013), page viii

⁷⁴ Regulation of the State Minister of National Development Planning / Head of National Development Planning Agency No. 3 of 2012, Attachment, page 16.

⁷⁵ Presidential Regulation No 12 year 2011 on Amendment of Presidential Regulation No 42 Year 2011 on Policy Committee for the Acceleration of Infrastructure Provision, Article 1.

⁷⁶ Kerjasama Pemerintah dan Swasta, Panduan Bagi Investor Dalam Investasi di Bidang Infrastruktur (Coordinating Ministry of Economy, April 2010) page 5

⁷⁷ Ibid, page 5

⁷⁸ http://en.wikipedia.org/wiki/Project_finance

⁷⁹ Kerjasama Pemerintah dan Swasta, Panduan Bagi Investor Dalam Investasi di Bidang Infrastruktur (Coordinating Ministry of Economy, April 2010) page 5

cooperation between the Government and Business Entities in the development and management of infrastructure. The Decree was then replaced by Presidential Regulation No 67 of 2005 on Cooperation between Government and Business Entities in Infrastructure Provision. This regulation was in response to Article 51 of Presidential Decree No 80 of 2003 which stipulated that the provision of goods and or services through cooperation between government and business entities will be regulated by a particular Presidential Decree.

The 2005 Perpres was then amended by Perpres No 13 of 2010, Perpres No 56 of 2011 (second amendment) and Perpres 66 of 2013 (third amendment). The original Perpres and all the successive amendments have provided clearer and more detailed requirements about unsolicited proposals, content of cooperation agreements, as well as government support and guarantees to PPP projects.

The Perpres (no 13 of 2010) mentions that PPP schemes may cover the following infrastructure: (i) transportation which includes services at an airport, provision of ports and or services at a ports, rolling stock and railway infrastructure, (ii) toll roads and bridges, (iii) irrigation, (iv) drinking water, (v) wastewater, (vi) telecommunications and information, (vii) electricity, and (viii) oil and gas.

According to the regulations above, a PPP scheme is specifically aimed at provision of infrastructure. A project to be done in a PPP scheme is called a Cooperation Project. The Cooperation Project is defined as provision of infrastructure which is done through a Cooperation Agreement or granting a permit between the Minister/Head of Institution/Head of Region and the Business Entity.

Cooperation projects can be either solicited or unsolicited projects. Solicited projects are identified and prepared by the Government. Unsolicited projects are identified and prepared by a business entity, and then are proposed to Government. Selection of a business entity as a private partner for both solicited and unsolicited projects is conducted through open tender.

In order to increase the viability of PPP Projects, Perpres 56 of 2011 mentions that Government (through the Minister or Head of Institution or Head of Region) may provide support and guarantees. The support may be in the form of a fiscal contribution, land acquisition, part of construction, etc. The Minister of Finance may approve Government support in the form of tax incentives and or fiscal contributions. In addition, the Government may also provide Government Guarantees over the Cooperation Project. All the support and guarantees provided by the Government must be stated explicitly in the tender document.

In terms of project financing, Perpres 66 of 2013 says that within 12 months after signing of a Cooperation Agreement, a loan agreement must have been signed and be ready to be disbursed in order to be able to start construction work. In case the business entity fails to get funds to finance the project, time extensions (maximum of 12 months) may be granted by the Minister or Head of Institution or Head of Region, as long as the failure is not the fault of the business entity in accordance with criteria that have been set up by the Minister or Head of Institution or Head of Region.

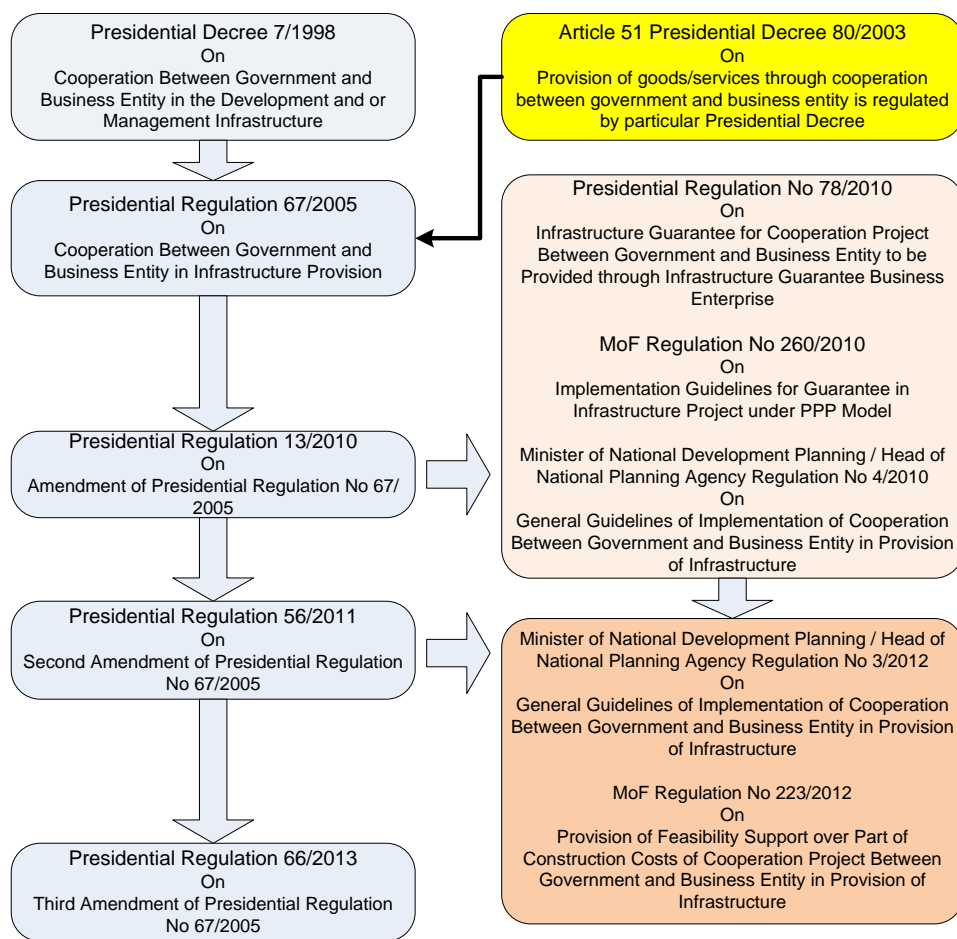


Figure 3-9: Summary of Progress of PPP Regulatory Framework Since 1998⁸⁰

Presidential Regulation No 78 of 2010 regulates support which may be provided by the Government. The support is in the form of Government Guarantee which will be granted by the Minister of Finance for a cooperation project. A single mechanism for granting such guarantee is through PT. Penjaminan Infrastruktur Indonesia – PT. PII (or Indonesia Infrastructure Guarantee Fund – IIGF) in its capacity as BUPI (Infrastructure Guarantee Business Enterprise). The establishment of PT. PII aimed to expedite the development of infrastructure by providing guarantees in accountable, transparent and credible ways.

PT. PII (as Infrastructure Guarantor) provides guarantees for various infrastructure risks that may occur because of the government's action or inaction, which may result in financial losses to the cooperation project. The risks include delays in processing permits and licenses, changes of rules and regulations, lack of tariff adjustments; and failure to integrate the network / facilities, etc.

MoF Regulation No 260 of 2010 provides guidelines for implementation of infrastructure guarantees for cooperation projects between the Government and business entities. The regulation is in response to Presidential Regulation No 78 of 2010, particularly Article 15 Clause 5 (concerning regress), Article 16 Clause 3 (concerning compensation for provision of a guarantee), and Article 18 Clause 4 (concerning counter guarantees).

⁸⁰ Public Private Partnerships: Infrastructure Projects Plan in Indonesia, by: Ministry of National Development Planning / National Development Planning Agency (2013), page vii

To increase the financial viability of PPP Projects, Government has issued MoF Regulation No 223 of 2012 on Provision of Feasibility Support (Viability Gap Funding - VGF) Over Part of Construction Costs of Cooperation Projects Between Government and Business Entities in Provision of Infrastructure (Permen Keuangan No. 223/PMK.011/2012). The objectives of the regulation are: (i) to increase financial viability of eligible PPP projects, (ii) to assure implementation of PPP Projects which are of good quality and within planned time frames; and (iii) to provide public services which are within affordable tariffs. Support is available for construction and other eligible costs of projects (above Rp 100 billion in total project costs) that after detailed pre-viability appraisals⁸¹ demonstrate that they have economic viability but not financial viability and where the provision of VGF would enable financial viability to be achieved. Approvals of VGF funding are made by the Minister of Finance on receipt of recommendations of the Viability Gap Fund Committee. The Regulation makes provision for Regional Governments to provided financial support to VGF funding in partnership with the Central Government. The receipt, approval and disbursement of funds are based on principles of open competition and transparency.

The Ministry of National Development Planning / Head of National Planning Agency has issued regulation No. 4 of 2010 which was then replaced by Regulation No. 3 of 2012 on General Guidelines for Implementation of Cooperation between Government and Business Entities in Provision of Infrastructure. The regulation provides cross-sector operational guidelines for the implementation of PPP projects in infrastructure.

In general, land acquisition is needed for implementation of a project. Land acquisition is regulated by Law No. 2 of 2012 which is followed by Presidential Regulation No 71 of 2012. These laws and regulations provide procedures of land acquisition particularly for development projects serving public interests.

Earlier regulations on environmental impact assessment were replaced by Government Regulation No 27 year 2012 on Environmental Permits. This regulation provides guidelines for environmental impact assessments, as well as procedures to get environmental permits.

Category and Criteria of PPP Projects

PPP projects consist of 3 categories in accordance with their respective stages and level of readiness. The 3 categories are: (i) Potential Projects, (ii) Prospective Projects (formerly known as priority projects); and (iii) Ready for Offer Projects. The criteria for each project category are as follows⁸²:

(1) Potential Projects:

– Eligibility criteria:

- Compliance of the projects with master plans both at national and regional levels, including the infrastructure sector's strategic plan; and
- Compliance of the project location with the formally issued Spatial Planning approval; and
- The impact of the project in promoting inter-connection across infrastructure sectors as well as across regions.

⁸¹ The Regulation sets out seven detailed steps that must be taken to complete a pre-viability study

⁸² Public Private Partnerships: Infrastructure Projects Plan in Indonesia, by: Ministry of National Development Planning / National Development Planning Agency (2013), page xii-xv

- **Land acquisition, environmental assessment, and government support / government guarantee:**
 - Availability of designated project location and estimated land size (including extension);
 - Availability of cost estimation for land acquisition and indicated need of resettlement in accordance with the applicable laws and regulations;
 - Availability of plan and schedule for execution of land acquisition and resettlement program; and
 - Indicated need of government support and or government guarantee and (if applicable) the required documents for obtaining approval.
- **Supporting documents:**
 - Preliminary study, and
 - Executive summary of the preliminary study.

(2) Prospective Projects:

- **Eligibility criteria:**
 - Feasibility of the projects:
 - Economically viable based on cost benefit analysis in social terms; and
 - Technically, legally and financially feasible based on the findings from the outline business case conducted during project preparation.
 - Availability of risks assessment and risks allocation;
 - Availability of best option for procurement of modality;
 - Availability of identified necessary government support and or government guarantee (if applicable); and
 - Availability of information on required land acquisition
- **Environmental assessment**
 - Environmental Impact Assessment or UKL-UPL (Efforts on Environmental Management and Monitoring) should have been started by the Government Contracting Agency during the process of preparation of the nProject Readiness Assessment;
 - Preparation of the EIA (AMDAL) documents should have been completed prior to the Project Readiness Assessment; and
 - Where an EIA is not required, processing of environmental permits may be carried out based on recommendations provided by an authorized agency.

– **Land Acquisition and Resettlement**

- Land acquisition and resettlement process should be started by GCA during the process of preliminary appraisal of the pre-feasibility study; and
- Land acquisition and resettlement plan should be completed by GCA before finishing the process of project readiness assessment. The plan shall be followed by obtaining approval for the budget proposals and the project implementation schedule based on the applicable laws and regulations.

– **In cases where Government Support is required:**

- Type of support (fiscal or non-fiscal) as well as the amount has been identified by GCA; and
- Proposal to Ministry of Finance (in accordance with MoF Regulation No 223 year 2012) has been submitted by GCA in order to obtain approval in principle for having Viability Gap Funding (VGF).

– **Government Guarantees:**

- During preliminary appraisal of the pre-feasibility study, GCA should get information from the BUPI whether or not the project is eligible to get a government guarantee;
- In case a government guarantee is needed, during assessment of the project readiness, GCA should submit an application to the BUPI to obtain such a guarantee; and
- GCA should ensure that a confirmation letter is issued by the BUPI prior to the completion of the final business case during the transaction stage, in order for the project to move forward into the next stage, i.e., contract management stage.

– **Supporting documents:**

- Project preparation; and
- Executive summary of the project preparation.

(3) Ready for Offer Projects:

– **Eligibility Criteria**

- For solicited projects, GCA should have already received endorsement from stakeholders. For unsolicited projects, the proponent should have already received approval from the GCA;
- Status of project readiness, technical conformity, market appetite and procurement modality have all been confirmed;
- EIA (AMDAL) has been completed;
- Detailed output specification has been drafted;

- Tariff structure has been drafted;
- All the financial analysis, financial model, risks allocation and mitigation strategies and (if applicable) all requirements to obtain provision of government support and or guarantee have been completed;
- Procurement plans have been drafted and already consider the following:
 - The likelihood private investors are interested in the proposed projects;
 - Rationality of the plan/schedule of the bid implementation; and
 - Presence and readiness of a procurement committee.
- Draft of PPP Agreement has been made ready.
- **Environmental Assessment**
 - All Amdal documents or UKL-UPL as prerequisites to finalize the Pre-Feasibility Study have been completed by GCA;
 - All the Amdal Documents or UPL-UKL have been submitted to the respective Minister/Governor/Head of Region through the Secretariat of Amdal Commission at central, province or regency/municipal level and are ready to be used as the basis for issuance of the required environmental permit; and
 - All the obligations of the Business Entity have been identified.
- **Land Acquisition**
 - GCA has submitted an application for issuance of determination of project location;
 - Program of land acquisition and resettlement has been completed based on recommendations found in the Amdal or UPL-UKL Documents;
 - GCA has confirmed the availability of the budget for land acquisition;
 - When the tender process has started, GCA has confirmed that the land acquisition process has been started; and
 - When the tender process is started, GCA has confirmed that the resettlement program has been carried out.
- **Government Support**
 - Pre-Feasibility Study Documents should have been submitted by GCA to the Minister of Finance to obtain approval in principle for government support in the form of non-financial fiscal contributions; and
 - Agreement in principle to obtain VGF Government Support has been received by GCA.

– **Government Guarantee**

- Guarantee Application Package along with Pre-Feasibility Study Documents should have been submitted by GCA to the BUPI to obtain the required Government Guarantee; and
- The Guarantee Application Package will be assessed by the BUPI to find out whether or not the project is eligible to get such guarantee.

– **Supporting documents**

- Pre-Feasibility Study Documents;
- Executive summary of the pre-feasibility study; and
- In-principal approval for Government Support and or Government Guarantee (as required).

Solicited and Unsolicited Proposals

PPP Projects may be promoted by the Government as well as business entities. The ones promoted by the Government are called solicited projects, while the ones promoted by a private business entity are called un-solicited projects.

a) Solicited Proposals

For the solicited proposal, the project cycle is shown in Figure 3.11 which shows that the process consists of four phases, namely Planning, Project Preparation, Transaction and Contract Management.

The first phase is the Planning Phase. During this phase, activities include project identification and selection as well as prioritization. In order to screen the projects during phase 1, evaluation is based on eligibility criteria which are set as follows: (i) compliance of the projects with the master plan both at national and regional levels, including the infrastructure sector's strategic plan; (ii) compliance of the project location with the Spatial Plan; and (iii) impact of the project in promoting inter-connection across infrastructure sectors as well as across regions. The identified projects then be screened further by using Multi Criteria Analysis (MCA) to determine its priority. The outputs during the planning phase are a list of priority projects and documents of preliminary studies. The institutions involved in this phase are the Government Contracting Agency (GCA), and Public Private Partnership Central Unit or P3CU; and Bappenas. During this phase the Government may start with: (i) public consultation to disseminate information; (ii) early stages of the environmental impact assessment process; and (iii) early stage of the land acquisition process.

The second phase is called Projects Preparation. The activities during this phase are focused on the outline business case and an assessment of project readiness. The outline business case is a study related to financial viability and an indication of government support and or guarantees. Government support may include land acquisition, fiscal support (financial and non-financial); and other forms of support. Depending on the available information, the project may be categorized as potential, prospective, or a ready to offer project. The main outputs of this phase are documents of project preparation. During the second phase, Government may start with the process for requesting required Government support and or guarantees, to continue the process of Environmental Impact Assessment, to continue the process of land acquisition and resettlement, and to continue public consultation to get feed-back from the general public. The institutions involved in this phase are: (i) GCA , (ii) Policy Committee for Acceleration of Infrastructure Provision or KKPPI, (iii)

Indonesia Investment Coordinating Board or BKPM, (iv) Public Private Partnership Central Unit or P3CU, Bappenas, (v) Risk Management Unit, Ministry of Finance, (vi) Indonesia Infrastructure Guarantee Fund or IIGF in its capacity as infrastructure guarantor, (vii) National Land Agency in relation to land acquisition processes; and (viii) State Ministry of Environment in relation to environmental impact assessments.

The third phase is called transactions. The main activities during the transaction phase are: (i) completion of pre-feasibility study, (ii) completion of business case, (iii) confirmation or approval in principle for government support and or government guarantee, (iv) public consultation and market sounding, (v) finishing environmental impact assessment and obtaining environmental permit, (vi) finishing land acquisition and resettlement process, (vii) finalizing PPP Agreement as well as Guarantee and Regress Agreement; and (viii) drafting a bid implementation program. Having done all the process mentioned above, the Government Contracting Agency (GCA) then starts the procurement process and then signs the PPP Agreement as well as a Guarantee and Regress Agreement. The institutions involved in this phase are: (i) GCA, (ii) Policy Committee for Acceleration of Infrastructure Provision or KKPPI, (iii) Indonesia Investment Coordinating Board or BKPM, (iv) Public Private Partnership Central Unit or P3CU Bappenas; and (v) National Land Agency in relation to land acquisition processes.

Fourth Phase is called contract management. In this phase the main activities are: (i) establishing contract management plan including financial close, signing EPC contract and signing operation contract, and (ii) implementation and monitoring of the contract management. The items to be monitored are allocation and disbursement of government support and or evaluation of the government guarantee and regress agreement. During this phase efforts with environmental management (UKL) and efforts with environmental monitoring (UPL) are required to be implemented. The institutions to be involved in this phase are: (i) GCA, (ii) Risks Management Unit within Ministry of Finance, (iii) Indonesia Infrastructure Guarantee Fund in its capacity as infrastructure guarantor, (iv) Indonesia Investment Coordinating Board or BKPM, (v) Public Private Partnership Central Unit or P3CU, Bappenas; and (vi) Ministry of Environment or KLH.

b) Unsolicited Proposals

Based on Presidential Regulation No 56 year 2011, a private business entity, either national or foreign, may propose a PPP project to a Minister/Head of Institution/ Head of Region with the following criteria (Article 10 of Presidential Regulation 56 year 2011:

1. The proposed project is not included in the master plan of the respective sector;
2. The proposed project is technically integrated with master plan of the respective sector;
3. The proposed project is economically and financially feasible; and
4. Does not require Government Support in the form of financial contribution

In addition to the above requirements, Article 11 of the same Presidential Regulation also stipulates that the proposal shall be accompanied by the following documents:

1. Feasibility Study;
2. Plan of cooperation arrangement;
3. Financing plan and sources of fund; and

4. Plan of proposed cooperation which includes: time schedule, process and evaluation method.

Having fulfilled all the above requirements, the candidate of the project proponent is not automatically appointed as the project proponent, but to follow the approval process as the proponent of an unsolicited proposal and then participating in competitive tender process as summarized in the Figure 3.10.

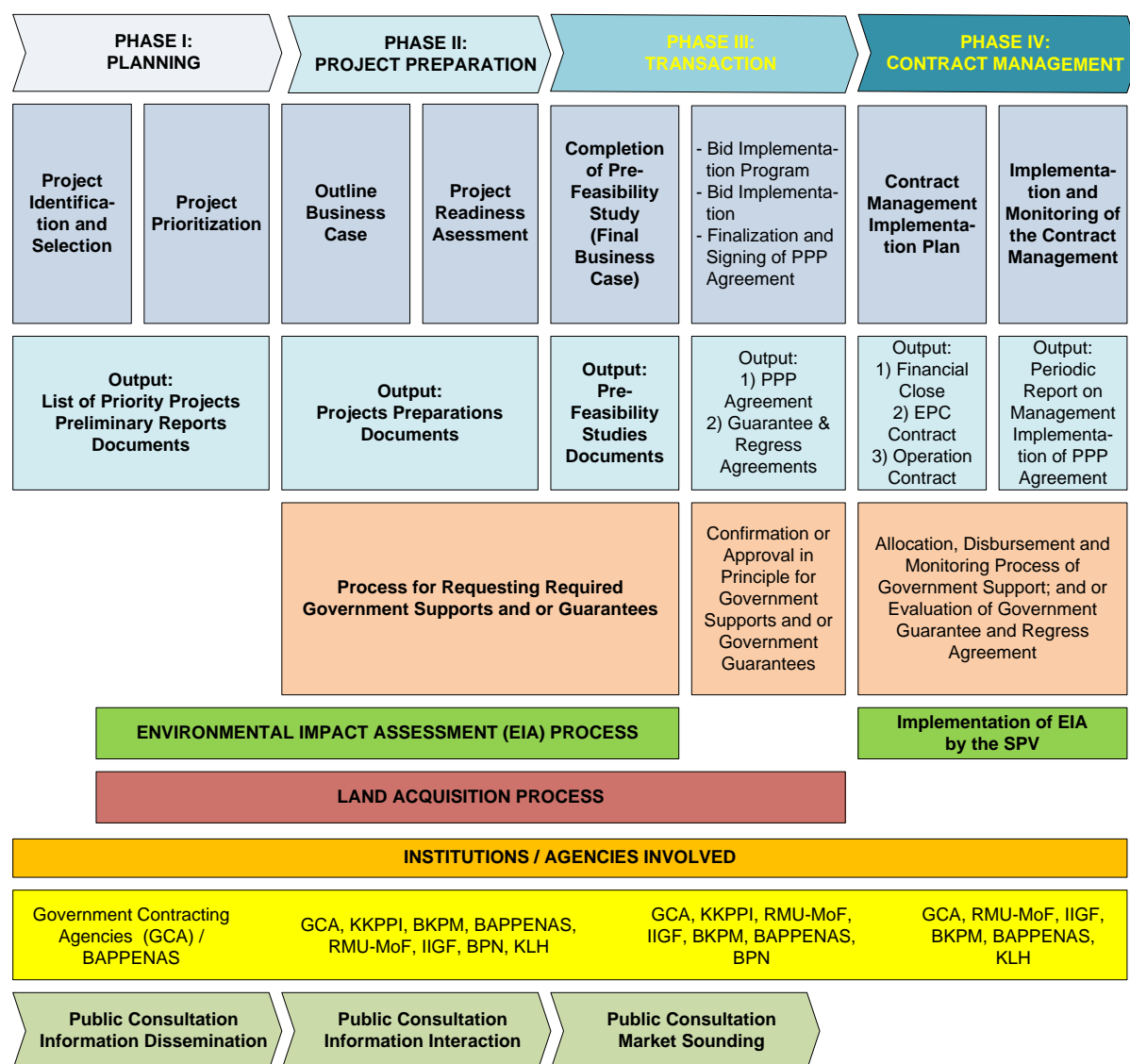


Figure 3-10: PPP Projects Development⁸³

Factors Affecting Successful Implementation of a PPP Project

There are at least 3 main factors affecting successful implementation of a PPP scenario. The factors are: (i) level of readiness, (ii) financing scenarios, including role sharing and risk allocation, and (iii) consistency of government to play its role.

⁸³ Public Private Partnerships: Infrastructure Projects Plan in Indonesia, by: Ministry of National Development Planning / National Development Planning Agency (2013), page x

Level of readiness. Level of readiness of the proposed PPP project depends on availability of information. There are three categories of level of readiness namely potential projects, prospective projects and ready for offer projects. The more mature the project, the more information has been made available. This means that it is easier for private investors to make decisions whether or not they will participate in the proposed project and to answer questions on how they will participate in the proposed project.

Financing scenarios, role sharing and risk allocation. Financing scenarios are composed based on financial simulations. The simulation aims to find out the financial viability of the project. Based on the same simulation, role sharing between the government and the private investor may be determined. The output of such simulations includes:

- Sources of funds and interest rate;
- Proportion of loan and equity;
- Type and amount of government support:
 - Fiscal (financial and non-financial); and
 - Non-fiscal.

Since each party needs to know its own role in the project the financing simulation needs to be complemented with role sharing between government and private investors. In addition, potential risks need to be explored. Risk assessment at least include risk identification, risk quantification (level of significance and probability), as well as risk treatment and control mechanisms. In line with Article 16 of the Presidential Regulation No 67 of 2005, the identified risks may be allocated to the one who can manage them best.

Dedication of each party to carry out its respective role. Successful implementation of PPP also very much depends on dedication of each party to carry out its respective roles. The role of government may include issuing permit(s) including environmental permits, land acquisition, and provision of government support in the form of fiscal and / or non-fiscal interventions in timely ways. Land acquisition is typically the role of the government because otherwise it will be very difficult, time consuming and costly which in turn will affect viability of the project.

3.5.2. Separating Ownership of Infrastructure and Rolling Stock

Traditionally the railway industry was typically vertically integrated, with both rolling stock and infrastructure operated and maintained by the same company. However, this approach has been challenged since the late 1980s. Instead of vertical integration, vertical separation has been practiced in several European countries, for long distance freight in Australia, and in some developing countries in Eastern Europe. In North America and Japan, both open access and vertical separation have been rejected⁸⁴. The idea of vertical separation may have been adopted from air, sea; and road transport, in which infrastructure and vehicles (rolling stock) are operated and maintained separately by different companies.

Vertical separation is defined as separation between infrastructure and operations. The level of separation may be categorized in three different levels of intensity, namely: (i)

⁸⁴ Rail Freight: The Benefits and Costs of Vertical Separation and Open Access, by Jeremy Drew (Drew Management Consultant), 2006, page 1 (<http://abstracts.aetransport.org/paper/index/id/2509/confid/12>, date accessed May 2014)

accounting separation, that is infrastructure operators and railway operators make up one company but their accounts are distinct; (ii) organizational separation, that is the infrastructure company is different from the rolling stock company, but both are within the one holding company, though with their accounts separated; and (iii) institutional or full separation, that is infrastructure and rolling stock constitute totally different companies⁸⁵

The opposite of vertical separation is vertical integration. **Vertical integration** is defined as a single company which controls all aspects of operations and maintenance for both infrastructure and rolling stock.

The general argument for vertical separation is based on the assumption that competition is needed to improve performance, and that competition may work better with (full) vertical separation⁸⁶. Competition is expected to increase the degree of efficiency, and hence, reduce costs.

The general argument for vertical integration is related to the complexity of the railway sector, which needs close coordination between tracks and trains. Separation is assumed to reduce possibilities for system-wide (track and train) optimization of investment and operations, which may lead to increasing costs as well as less efficient and effective railways⁸⁷.

One of the most comprehensive studies concerning railway reforms, including vertical separation was the EVES-Rail Study. This study was submitted to the Community of European Railway and Infrastructure Companies (CER) in 2012. The study was done by the Institute of Transport Studies University of Leeds, Kobe University, University of Amsterdam and Civity Management Consultants⁸⁸.

Advantages and Disadvantages of Vertical Separation are shown in the Table 3.9 below. Each point is then discussed further.

Table 3-11: Advantages and Disadvantages of Vertical Integration/Vertical Separation

No.	Impact on	Vertical Integration	Vertical Separation
a.	Coordination between Operators of Infrastructure and Rolling stock	+	-
b.	Costs	+	-
c.	Competition	0	0
d.	Increasing demand and modal share	0	0

a. Coordination between operators of infrastructure and rolling stock

Whatever the form or structure of railway organization, the need for good coordination mechanisms between infrastructure and rolling stock must be recognized. Coordination is needed whether in terms of investment planning, production planning, time table planning, and production (real time)⁸⁹.

By nature, internal coordination within a single company is easier (and faster) compared with coordination between two different companies. Within one company, all decisions pertaining to both infrastructure and rolling stock can be taken by one line of command. However, each

⁸⁵ EVES-Rail Economic effects of Vertical Separation in the railway sector, by Didier van der Velde et al, Report to Community of European Railway and Infrastructure Companies, 2012, Full Technical Report, page 11 (http://www.cer.be/index.php?elD=tx_nawsecuredl&u=0&file=uploads/media/Full-Report.pdf&t=1410866211&hash=4e014306702bc16cf32ec0f66f631553b59bfca7, date accessed April 2014)

⁸⁶ Ibid, page 8

⁸⁷ Ibid, page 8

⁸⁸ Ibid, cover page

⁸⁹ Ibid, page 33

representative of the companies might not have enough power to make decisions, especially if the decisions relate to significant amounts of money. Therefore, the decision making process can take longer than expected.

The following provide examples of lessons that may be learned from the European experience in terms of investment planning coordination, production planning coordination, time table planning coordination; and production (real time) coordination. The examples are:

- **Examples of Problems with Investment Planning Coordination.** Key issues are related to a mismatch between market needs and infrastructure investments, and between infrastructure and rolling stock investment, both in sizing and in technical specifications related to compatibility and performance.
 - In Britain, investment planning is coordinated through “route utilization strategies” undertaken by Network Rail; and “high level output specifications” undertaken by the government. Coordination is conducted and overseen by the Planning Oversight Group. The government then steps in with funding to ensure that the infrastructure operator is adequately financed to undertake investment. Problems arise when neither infrastructure operators nor train operators have a good overview at the system level. This will lead to a situation where both parties cannot help each other to find the most cost-effective solutions. In addition, they may have incentives to argue for excessive investment to satisfy their own interests;⁹⁰
 - Another example of both a lack of coordination and of misalignment of incentives also occurred in Britain regarding the replacement of London sub-urban rolling stock. For some reason, several London commuter operators simultaneously ordered large fleets of new rolling stock with higher performance and higher electricity consumption. Therefore, heavy costs of strengthening the power supply were imposed. There was no reason for train operators to take this cost into account, but neither for the infrastructure operators to undertake the necessary work. The result was a period of time when the new rolling stock could not be fully utilized, until the government funded the necessary work⁹¹.
 - Experience from Sweden regarding the implementation of new signalling systems (ERTMS – European Rail Traffic Management System) illustrates some of the problems in coordination that may appear in a vertical separation regime. As a system, in the long run, implementation of ERTMS will have a positive impact in terms of inter-operability and increasing capacity and also lead to financial savings. However, while the infrastructure operator will get the savings, the train operators are facing substantial costs for new on-board equipment, and at least in the short term they will get no benefits or additional revenues from this investment, and they cannot simply increase ticket fares to cover the costs. In addition, there are many technical problems to be solved that call for coordination, for example when it comes to testing compatibility between on-board and track-side equipment. These problems have been discussed for several years in Sweden, but there is no viable solution, for example on a different financing model or a redistribution of costs and savings between the two parties⁹².

⁹⁰ Ibid, page 82

⁹¹ Ibid, page 82

⁹² Ibid, page 83

- **Examples of Problems on Production Planning Coordination.** Conflicts can arise as parties optimize their own business interests without looking at advantages and disadvantages at system level. Consequently, this will lead to higher system costs.
 - In Britain a case study on Chiltern Railways came to the conclusion that infrastructure operators do not have sufficient knowledge about the needs of train operators to specify investment in the most effective way. In addition, the infrastructure operator does not allow train operators to provide their requirements, thus, they do not receive sufficient guidance about their actual needs;⁹³
 - An example from the Netherlands shows that vertical separation was leading to contradictory preferences for the infrastructure operator and train operators about infrastructure functionality. A partial solution to this problem was found in developing joint approaches between ProRail (infrastructure operator) and NS (main train operator). Under this forum, joint screenings of all cost-reducing options (such as reductions in the number of switches) are conducted in more culturally traditional approaches, rather than stricter distant supply/demand approaches; and⁹⁴
 - In France the SNCF (train operator) observed that reconfigurations or renewals of infrastructure undertaken by RFF (infrastructure operator) have led to reductions of functionality of some of the installations. These affect directly on the stability of train operations (punctuality) and the available capacity. However, these impacts were not sufficiently taken into consideration. Consequently, future upgrading will be very expensive due to a lack of consideration of the integral system-wide impacts of the decisions being made.⁹⁵
- **Examples of Problems on Time Table Planning Coordination.** The problems are mostly during track closures for maintenance during periods that could otherwise generate good traffic. Misalignment at this stage may cause waste capacity, reducing the performance of railways as a whole, increasing total system costs and missed market opportunities. The negative impacts are mostly borne by train operators:
 - In Britain operators of infrastructure are responsible for time table calculations and path allocations. However, the infrastructure operator does not tend to seek increased traffic to maximize revenue through track access charges - instead, they tend to run less trains in order to meet regulatory targets; and⁹⁶
 - In order to minimize maintenance costs, infrastructure operators in the Netherlands conduct maintenance activities at times which are not preferred by train operators who prefer to minimize customer impacts. After a complaint from train operators to the Competition Authority a (partial) solution was found. Train operators and infrastructure operators were assisted to have mutual discussions on maintenance timing. However, this did not solve long term issues, because this directly impacts upon the finances of the infrastructure operator, but the vertical separation does not allow for system-wide trade-offs.⁹⁷

⁹³ Ibid, page 87

⁹⁴ Ibid, page 87

⁹⁵ Ibid, page 87

⁹⁶ Ibid, page 90

⁹⁷ Ibid, page 90

- **Examples of Problems on Production (Real Time) Coordination.** These problems are mostly related to disruption handling and feedback loops. Inappropriate coordination between operators of infrastructure and trains may result in losses in reliability and punctuality. This will ultimately affect patronage. In addition, failing to properly and consistently analyze operations, disruptions and their root-causes may lead to missed opportunities in terms of optimization at all stages.
 - In the Netherlands a National Operations Control Center Rail (OCCR) was established in 2010. The aim is the optimization of transport operations by improving incident management. The aim was not successfully achieved because as a result of the separation of organizations of trains and infrastructure, not many people who had an overview of the entire operational railway system were involved. Secondly, management of vital operational railway processes was hampered by the physical separation between representatives of the train operators and the infrastructure operators. For a solution, a joint representative body consisting of infrastructure and train operators was established. One of the results of this approach was an ability to isolate disruption from the rest of the network, preventing further spreading of maintenance and a shorter recovery time; and
 - In the Netherlands both the infrastructure and train operators have set up organizational units outside the OCCR to analyze failures on a daily basis and to allocate the results to the responsible units (drivers – rolling stock – infrastructure). Many useful suggestions for improvement resulted, but the absence of one line of command between infrastructure and train operators makes the balance of costs and benefits difficult because they may be unevenly distributed across both organizations.

b. Costs

Many studies have been undertaken to try to determine the impact of vertical separation on costs. Studies conducted in Europe found out that possible costs and benefits as a result of vertical separation are as set out in Table 3.10.

Table 3-12: Possible Costs and Benefits of Full Vertical Separation (Compared with Holding Company Model)⁹⁸

No.	Possible Costs	Possible Benefits
1.	Increased transaction costs	Increased competition, leading to lower costs and improved services
2.	Costs of duplication	Increased specialization, leading to lower costs and improved services
3.	Misalignment of incentives, leading to increased costs and poorer services in: <ul style="list-style-type: none"> – Investment coordination – Production planning efficiency – Timetabling optimality – Production coordination 	Improved financial transparency, leading to improving regulation efficiency and funding, leading to lower costs and improved services.

In general, one would expect that vertical separation would provide assurances to train operators of non-discrimination and therefore attract the greatest degree of competition, which should lead to lower costs and improved services. However, this is not the case of the current Indonesian monopoly - unless there are more train operators established in the near

⁹⁸ Ibid, Table 19, page 114

future. Available competition will be between rail and road which is affected by many factors such as transport capacity, travel time, risks, and total costs.

Other possible advantages of having vertical separation are increasing specialization and improving transparency. By increasing specialization, operations and maintenance of infrastructure can be carried out in the most efficient way, hence, lowering costs and in parallel improving levels of services. Financial transparency in itself will help governments to make appropriate decisions in relation to funding allocations.

Unfortunately, besides the benefits mentioned above, vertical separation also increases costs such as transaction costs, costs of duplication; and misalignment of incentives which lead to increasing costs and poorer services in: (i) investment coordination, (ii) production planning efficiency, (iii) timetabling optimality, and (iv) production coordination.

Transaction costs are defined as costs incurred during processes of transactions, which include costs of survey activities, costs of negotiation processes, and if necessary costs of legal action to enforce contracts. Costs of misalignment are additional costs throughout the value chain, resulting from misalignment of incentives between parties created by structural reforms.

The study concluded that at existing traffic densities, imposing vertical separation on all European countries (which have not yet separated), would add costs of about Euro 5.8 billion. The costs may increase up to Euro 8 billion if density levels are increased by 10% for example as a result of strategies set up by the Commission of European Railways. The increase of costs will be higher with increasing levels of density. The second conclusion is, the higher proportion of freight running on the network, the higher the costs increased by imposing vertical separation. This may be due to freight traffic which causes more coordination problems compared with passenger traffic.

c. Competition

In Europe, vertical separation is often advocated in railway industries, because it is assumed to be necessary to eliminate discrimination in getting access to infrastructure (networks) and therefore helpful to the development of competition. Competition is then expected to increase efficiency. Competition may be in the form of competition between modes of transport, for example between road transport and rail transport, or intra-rail competition, between train operators.

In the European context, issues of discrimination are quite sensitive, because each member of the European Community has an equal opportunity to get access to the network. Therefore, in the Indonesian context, implementation of vertical separation would need to be followed by establishing new train operators.

There are several studies in this regard, including: the EVES Rail Study (2012); and Drew, J., and Nash, C.A. (2011). The EVES Rail Study (2012) found no evidence that vertical separation increases competition compared with a holding company model, and likewise no evidence that such increased competition would reduce costs. In line with EVES Rail Study (2012), Drew, J., and Nash, C.A. (2011) concluded that the choice between vertical separation and integration may not be the most important factor in determining the extent of intra-rail competition.

d. Modal Shares

Modal share is defined as shares between modes of transport. This will depend on modal choice, which is defined as the mode of transport to be chosen by trip makers to make a trip or to transport goods from points of origin to points of destination.

The choice will be affected by two factors, namely: (i) the least travel time; and / or (ii) the least transport costs. Travel time is not only affected by speed, but also numbers of transfers between modes of transport to complete the trip. Similarly, transport costs are calculated as total costs from points of origin to points of final destination. In the case of cargo, it includes costs of loading and unloading as well as cargo handling during transfers.

Based on the discussion above, since vertical separation will not affect either travel time nor travel costs it will not affect modal shares.

Summary in Relation to Horizontal versus Vertical Integration

On balance this study comes down in favour of the model of vertical integration being more suitable for Indonesia at this stage of rail development. To be effective this will require better definition of the respective roles of the Ministry of Transport and PT KAI / PT KJC and over time contractual arrangements being explored seeing the current operator managing all rail assets under revised funding arrangements for PSOs; TACs and IMOs. Movement to a PPP funding arrangement will accentuate the need to restructure ownership and manage arrangements as current approaches will not be acceptable to the private sector.

3.6. Implications of Future Development of MRT and Monorail Systems for the Commuter Rail System

The functions of a commuter rail system on the one hand and MRT as well as Monorail on the other hand are different to each other. By definition, the function of a commuter rail system is to transport passengers from surrounding areas, i.e., Bodetabek to Jakarta and vice versa. Contrary to this MRT and Monorail are both categorized as urban rail systems which serve urban passengers inside the Jakarta area. Fortunately, the corridors being served are different to each other. Commuter rail serves passengers in radial directions to and from the Bodetabek Area, while MRT serves passengers in North-South direction, and Monorail serves passengers in a circular direction inside Jakarta.

Therefore, if they are managed properly they can be complementary to each other which results in enhancing passengers for each of them. In this way, in the morning, passengers of commuter rail system can continue the trip by using either the MRT or Monorail to reach final destinations and in the evening the same passengers can use MRT or Monorail to a central station and then continue their trip by commuter rail system to their homes.

In the context of the total transport system, the existence of MRTs and Monorails will expand coverage of railway services. This will further increase railway's modal share. Expansion of MRT and monorail systems could be assisted by the use of PPPs and appropriate Government supported funding mechanisms including the use of Viability Gap Funding Mechanisms of the Ministry of Finance (see section 3.5.1 for further elaboration of VGFs).

4. Issues for Developing a Coherent and Efficient Fiscal Policy Framework to Increase the Modal Share of Railways

Sound, coherent and efficient transport policies are needed to ensure an appropriate modal share for all forms of transport including rail. There should be a clear statement on modal shares in transport policies to be followed by actions and measures to realize the stated modal share. Targeted modal shares need not necessarily follow the existing trend; rather targets can be stated in Government transport policies. The stated modal share can then be used to determine investment needs and funding for each transport mode.

In the case of railways and the modal share of Jabodetabek systems, as mentioned in earlier sections, there are six matters to be addressed in order to increase railway's modal share. The six matters are: (i) improving levels of attractiveness of railway services; (ii) to reduce travel costs; (iii) to increase track capacity; (iv) to encourage modal shifting; (v) to introduce trip generators / attractors around stations; and (vi) to increase coverage of railway services. The sequence of pursuing the six matters also indicates levels of easiness in implementation as well as magnitudes of investment needed.

A summary list of actions / measures to increase railways' modal share is shown in Table 4.1.

Table 4-1: List of Actions / Measures to Increase Railways' Modal Share

No	Objectives	Actions / Measures	Fiscal Policy	Institution(s) Responsible
1.	To improve levels of attractiveness	To improve levels of safety and security	Adequate funding of infrastructure and rolling stock	Railway operator; Ministry of Transport (DG Railways); Ministry of Finance
		To provide more rolling stock which may affect length of trains, headways, length of platforms, relocation of traffic signals, relocation of switches and crossings in order to increase capacity	To provide public expenditure especially on public goods / investments with high economic returns	Ministry of Transport (DG Railways); Ministry of Finance; Railway Operators
		To improve the maintenance regime to increase levels of comfort	IMO should not be regarded as equal to TAC	Ministry of Transport (DG Railway); Ministry of Finance and Railway Operator
		Increased levels of convenience by modernizing railway stations, providing pedestrian crossings, increasing punctuality and reliability, removing annoyances, and increasing frequency	Adequate funding of rail operators. Consider inviting private investor(s) to participate in PPP schemes	Ministry of Transport (DG Railways); Railway Operators, Local Governments (Depts. of Public Works; and Transport)
2	To pursue optimal travel costs / tariffs	To apply appropriate tariff levels in order to maximize farebox revenues	PSO to balance the gap between revenue and total production costs	Ministry of Transport (DG Railway); Ministry of Finance
3	To increase track capacities	New investments in: (i) introduction of modern signalling systems, including ATS, ATP, and ATO; (ii) increasing power supplies; (iii) introduction of operations control centers	Government investment especially on public goods / investments with high economic returns	Ministry of Transport (DG Railway); Ministry of Finance

No	Objectives	Actions / Measures	Fiscal Policy	Institution(s) Responsible
		New investments to construct new track(s) to eliminate shared tracks between urban and intercity trains as well as freight trains	Government investment especially on public goods / investments with high economic returns	Ministry of Transport (DG Railway); Ministry of Finance
		New investment to eliminate level crossings	Government investment especially on public goods / investments with high economic returns	Ministry of PW or Local Government (Dept. of PW) depending on the road status. Ministry of Finance
4.	To encourage modal shifting from private transport to public transport	Introduction of feeder services including public transport, private transport, non-motorized vehicles	PSO to balance the gap between revenues and total production costs	Ministry of Transport (DG Railways); Local Governments (Dept. of Transport). Ministry of Finance
		Implementation of traffic restraint policies by using fiscal instruments (e.g. ERP, road pricing, fuel pricing and parking pricing)	Consider new fiscal instruments to directly channel revenue raised to rail finance (earmarking)	Ministry of Finance (DG Tax) and Local Governments
5.	To generate new passengers	To implement TOD concepts around depots, stations and along the corridor	To invite private investor(s) in PPP schemes	Ministry of Transport (DG Railways); Railway Operators; Local Governments (Dept. of City Planning)
6.	To increase coverage of railway services	New investment to construct new railway lines	Government investments especially on public goods / investments with high economic returns. Also inviting private investor(s) in PPP schemes for parts of projects which are financially viable	Central and Local Governments - Ministry of Transport (DG Railways); Local Governments (Dept. of Transport). Ministry of Finance

4.1. Improving Levels of Attractiveness

Such measures include improving levels of safety and security, providing more rolling stock, improving the maintenance regime, and increasing levels of convenience, including increasing punctuality and reliability as well as increasing frequency. Measures like improving levels of safety and security, increasing the number of rolling stock, improving the maintenance regime, modernizing railway stations and minimizing annoyances are largely in the hands of railway operators providing they are properly capitalized and have adequate financial returns and cash-flows.

Increasing the number of rolling stock will lead to either reducing headways (with the same train lengths) or increasing train lengths (with the same headways). Each of these options will have different consequences. Increasing train lengths may affect platform lengths, relocation of traffic signals; and relocation of switches and crossings. The second option, of reducing headways will be related to levels of automatic operations which are affected by introduction of operation control centers (OCC) in parallel with Automatic Train Operations (ATO), Automatic Train Protection (AT), and Automatic Train Stopping (ATS).

Government investment is needed to extend platform lengths, relocate traffic signals and to relocate switches and crossings as well as to introduce OCC in parallel with ATO, ATP and ATS. (Note: introduction of OCC and ATO/ATP/ATS is also part of the measures to increase

track capacity). Supportive fiscal policies through productive and efficient public investments are needed to allow developments in these areas.

4.2. To Reduce Travel Costs/Tariffs

Appropriate tariff levels will very much depend on levels of income. Where levels of income are very low tariff levels should be set accordingly with targeted concessional pricing for the poor. However, if this is widely applied revenue would be too low compared with total production costs. Therefore, if the poor are to be targeted with concessions there will be a need for government subsidies so that on the one hand tariffs are affordable for poorer railway passengers, while on the other hand train operators do not suffer losses with the subsidy covering the gap between tariff revenues and costs of production.

In terms of fiscal policy government should continue to provide subsidies in form of PSOs based on a cost recovery regime, in which government pays the gap between concessional low ticket revenue due to affordable fare setting and the high operational costs of providing high quality services.

4.3. Increasing Track Capacity

Further major investment is needed for increasing track capacity. This will include: new investment for introducing modern signalling systems (operation control centers, Automatic Train Operations, Automatic Train Stops) in parallel with operations control centers (OCC) so that the fleet can be operated with short headways (2-3 minutes) or 30-20 trains per hour per direction. To increase the track capacity, shared tracks between urban trains and intercity trains as well as freight trains need to be avoided. Therefore, the Government needs to invest in constructing new track(s) to separate operations of urban trains from that of intercity trains and freight trains.

Eliminating level crossings between rail tracks and roads is very necessary. Otherwise, the road can never be sufficiently open for traffic. Providing the fleet is operated with 2-3 minute headways, it means that trains will come at intervals of every 2-3 minutes, which is not enough time for traffic to cross the rail tracks. Therefore, existing level crossings need to be eliminated by either elevating rail tracks or constructing new fly overs/underpasses. In the context of Jabodetabek, to elevate rail track is more ideal and less expensive compared to constructing new flyovers and or underpasses. However, constructing elevated track has to be done all at once which requires a big amount of investment finance. As an alternative to this the construction of fly overs / underpasses can be done piece by piece, location by location, which, in terms of cashflow, this option may be more manageable.

In terms of fiscal policies:

- Government investment is needed to introduce modern signalling systems (operations control centers, Automatic Train Operations, Automatic Train Stops) in parallel with Operation Control Centers (OCC); and
- Government investment is needed to eliminate level crossings by either elevating rail track or constructing over / under passes.

4.4. Encouraging Modal Shifts

To encourage modal shifting from private to public transport (rail transport) may be enhanced by providing feeder services and implementing traffic restraint policies. Feeder services will enlarge the coverage of railway services. This will be the role of Departments of Transport within local governments to organize the entire transport network, as well as to determine trunk lines and feeder lines. To serve the feeder lines, additional buses may be needed, but this can be provided by private operator(s). Secondly, parking lots may be provided around railway stations to encourage trip makers to park their vehicles at the parking lot and continue their trips by using railway services. To provide parking facilities, private investor(s) may be invited.

Other measures to encourage modal shifting include implementing traffic restraint policies. The most popular traffic restraint instrument is electronic road pricing (ERP). The aim is to increase costs of using private vehicles by imposing levys. The levy should be expensive enough so as to cause trip makers to shift from private to public transport. One issue here is consideration of earmarking the collected levy to be dedicated to improved and subsidized public transport. As further elaborated in section 2,2 it will also be important to implement strong related traffic restraint policies, including: (i) fuel pricing that reflects the full economic costs and also the externality costs of fossil based fuels; and (ii) parking pricing that can act as a strong disincentive for utilization of private vehicles and as an incentive for switching to public service based transport providing adequate supplies have been provided.

In terms of fiscal policies (mainly City) Governments and the private sector will need provide investment funding to support feeder services and to introduce parking fees and other disincentives to private vehicle usage including the appropriate pricing of fuel. Central Government could support such initiatives by utilizing some of the savings from previous spending on fuel subsidies. One further source of funding public investments supporting rail transport is utilization of the levys collected from road pricing instruments.

4.5. Generating New Passengers

Generating new passengers can be achieved by implementing concepts of transit oriented development (TOD). This involves property development around stations and depots with new facilities oriented around railway stations. In general, this can be commercially viable. Therefore, it would be easy to invite private partner(s) to participate in such activities.

In terms of fiscal policies TOD approaches should not need special fiscal policies. To implement such policies key roles will need to be undertaken by Departments of City Planning within Local Governments to support transit oriented development.

4.6. Increasing Coverage of Railway Services

Of all the points mentioned above, the most significant investment relates to increasing the coverage of railway services. Increasing the coverage of railway services will mean constructing new railway lines to extend the existing network. According to the Railway Law No 23 of 2007, new railway lines which cross borders between Provinces will be the responsibility of the Central Government, otherwise new investments will be under administration of the local or provincial governments respectively. Rail lines connecting two different kabupaten / kota will be the responsibility of the Provincial Governor, and rail lines which are exclusively inside a kabupaten or kota will be the responsibility of the respective bupati or city mayor.

Before constructing new railway lines, the service coverage will need to be enlarged by introducing feeder services either in the form of regular bus services or Bus Rapid Transit (BRT) services, like the Trans Jakarta Busway (see Chapter 3).

In terms of fiscal policies:

- Central Government will need to provide guarantees, soft international loans etc. to finance major parts of the project which are economically but not commercially viable. The most recent example here is the planned airport train connecting Manggarai to Soekarno-Hatta international airport;
- Repayments of the soft loans may be shared between the Central Government and Local or Provincial Governments. Recent examples of this policy include loans for the Jakarta MRT project, where central government will pay 49% of Japanese loan and the remaining 51% will be paid by the Jakarta City Government;
- Private partner(s) may be invited into PPP schemes to participate in parts of relevant investment projects which are commercially viable; such as Adhikarya Consortium who want to build a monorail in the East-West Corridor connecting Bekasi and Tangerang; and
- Private partner(s) may be invited into PPP schemes to participate in providing feeder service(s) either in the form of regular bus services, or BRTs.

The success of the above mentioned policies should not be measured in isolation one by one, but rather measured as a whole package to be implemented over a medium term framework. Key success indicators can be measured based on increasing numbers of passengers as well as fuel consumption and congestion reductions in the transport sector.

5. Conclusions

There are six main measures recommended to Government policy makers to support urban rail development in Jabodetabek as described in this final chapter. Each measure can be supported by appropriate fiscal policies to maximize outputs and outcomes.

5.1. Clarify that PT KJC is eligible for VAT Exemptions for Imports, Goods Delivered and Services Provided

One of the financial burdens for PT KCJ as a commuter train operator in Jabodetabek is the Value Added Tax (VAT) that works to lower its limited profit potential. Similar to all other companies PT. KCJ is required to pay VAT, but unlike other private companies who can maximize profit through market prices and various service types, the main business of PT. KCJ is to provide public services in the form of commuter rail services which are subject to minimum service standards and regulated fare policies. Furthermore as detailed in 2.1.7 the clear intention of Government Regulation 38 of 2003 is that public sector providers of train services be exempted from the VAT for imports, goods delivered and services received. Due to a technicality these VAT exemptions have not been received even though PT KJC is a fully owned subsidiary of PT KAI which is formally prescribed in the Government Regulation as being eligible for VAT exemptions. Removing this technicality and making PT KJC eligible for VAT exemptions would assist its cashflow and help it to improve operations..

The Ministry of Finance could use legal clarification of the VAT eligibility of PT KJC as one potential fiscal instrument to improve PT. KCJ's financial performance, so lessening the need for broader exemptions or subsidies. Clarification could occur either through administrative decision of DG Tax or alternatively by revisions to the Government Regulation. As PT. KCJ now operates only one service (Economy Air Conditioned Service) following termination of executive services and non-AC economic services – the commuter train service in Jabodetabek could be treated as a clear case for VAT exemption as was the apparent intention of the Government Regulation. Improved financial performance of PT. KCJ, could also improve its investment capacity allowing it to increase service capacity and to improve service quality.

PT KJC has not been able to provide the study team estimates of how many trains and / or train parts have been imported or delivered in the past or how many services have been provided that might have been VAT exempt - and thus it is not known how much VAT has been paid. Similarly they have not been able to provide estimates of future quantities of trains, train parts, train services etc. that will be imported or used and thus are not able to provide estimates of future VAT amounts that will fall due if the exemption is not applied. Further more detailed work on the costs of formally exempting PT KJC from the VAT could be made in a later study providing historical and forecast data can be provided by PT KJC.

As an alternative to direct use of VAT exemptions other fiscal assistance arrangements could also be considered to ensure that PT. KJC is properly capitalized and receives adequate income from a mix of fare and non fare revenues and the PSO so allowing for effective and efficient operations and expansion.

5.2. Ensuring all PSO Payments Paid to the Parent Company Pass to the Subsidiary PT KJC

In order to provide quality rail services PT KJC which now operates the commuter rail services and manages fare revenues in most cases has limited scope to fill the gap between operational costs and fare revenues. Under the law public rail services such as Jabodetabek commuter rail are eligible for PSO. However PT. KJC is not eligible to directly receive the PSO from government, rather it receives it from PT. KAI its holding company, due to its status as private company and amounts received are typically not adequate to allow for efficient and effective operations and expansion.

5.3. Increasing Railway's Modal Share

Increasing railway's modal share is an important factor for reducing fuel consumption, which in turn will reduce fuel subsidies as well as motor emissions as sources of air pollution. Increasing the modal share of railways should be carried out through a combination of policies supporting rail capacity expansion and services improvement. Six measures to increase the railway modal share as explained in chapter 4 are summarized in Table 5.1 which lists implementation stages broadly sequenced in terms of ease and cost of implementation.

Table 5-1: List of Actions / Measures, Implementation Stages and Responsibilities

Actions/Measures	Implement- ation Stages	Responsible Institutions
To improve levels of attractiveness: <ol style="list-style-type: none"> To improve level of safety and security; To provide more rolling stock; To improve maintenance regime; and To increase level of convenience by: modernizing railway stations, increasing levels of punctuality and reliability, cutting annoyances, increasing frequency (i.e., reducing headway); and providing pedestrian crossings 	1	Operator, Ministry of Transport (DG Railways), Local Government (Department of Public Works, Department of Transport); and Ministry of Finance
To reduce travel costs / tariffs: By applying appropriate tariff levels in order to increase farebox revenues as well as providing subsidies (PSO) for low income passengers	2	Operator, Ministry of Transport (DG Railways); and Ministry of Finance (DG Budget)
To increase track capacity: <ol style="list-style-type: none"> New investment to implement modern signalling systems including ATS, ATP, ATO; Constructing new sub-stations to increase power supply; New investment to implement modern operational control center; New investment to construct new track(s) to eliminate shared tracks between urban and intercity trains as well as freight trains; and New investment to eliminate level crossings between rail tracks and roads 	3	Operator, Ministry of Transport (DG Railway), Ministry of Public Works (DG Bina Marga) or Local Government (Dept. of Public Works); and Ministry of Finance
To encourage modal shifting from private/road transport to public/rail transport: <ol style="list-style-type: none"> Introducing feeder services, Implementing traffic restraint policies by using fiscal instrument, e.g., road pricing, fuel pricing, parking pricing 	4	Ministry of Transport, Ministry of Finance (DG Tax), Local Government (Dept. of Regional Revenue); and Ministry of Finance

Actions/Measures	Implement- ation Stages	Responsible Institutions
To generate new railway passengers: Implementing TOD concept around depot, stations and railway corridor	5	Ministry of Transport (DG Railways), Local Government (Dept. of Spatial Planning)
To increase coverage of railway services: New investment to construct new lines (MRT, Monorail, Tram, etc.)	6	Bappenas, DG Railway, Local Government (Bappeda, Dept. of Transport); and Ministry of Finance

Table 5.1 indicates that the first stage aims to attract more passengers by improving levels of attractiveness. The second stage aims to provide subsidies for low income passengers while at the same time expecting high income passengers to pay full economic fares. Increasing railway passengers may not be able to be accommodated by the existing system because track capacity is simply not adequate, therefore, during the third stage, track capacity has to be increased by implementing modern signalling systems as well as eliminating shared tracks between urban trains and intercity as well as freight trains. Having achieved enough track capacity, more passengers will need to be encouraged to shift from private/road transport to public/rail transport. This would be done in the fourth stage by implementing traffic restraint policies (i.e., road pricing, fuel pricing, parking pricing). In the fifth stage, more passengers will be generated around depots and stations by implementing the TOD concept. The sixth stage involves increasing coverage of railway services by constructing new railway lines.

In order to estimate saving in fuel consumption more detailed study would be needed to simulate modal shifting as well as analyzing costs and benefits of developing rail based transportation systems compare with that of road based transportation systems. The results of further study may be used to justify whether to develop rail based transportation system or to stay with road based transportation system. The studies on double tracking along the Serpong Line as well as the study on Underground MRT Fatmawati-Kota Line both have shown that railway projects can be robustly economically viable.

In 2012, the increase of motorized vehicles in DKI Jakarta was statistically recorded as 1,270,511 units per year or about 3,480 units per day consisting of 2,643 motorcycles, 551 passenger cars, and 286 other vehicle units. Such a rapid increase of motorized vehicles cannot be accommodated by building more and more roads because in the future availability of land will be more and more limited as well as very costly. Therefore, trip makers should be encouraged to shift from road transport to rail transport. This can be done by implementing traffic restraint policies either using fiscal instrument (e.g., road pricing, fuel pricing, parking pricing) or non-fiscal policies (e.g., three in one policy).

Implementation of TAC and IMO for railway infrastructure is identical to operations on toll roads in which all maintenance and operation costs are paid directly by road users. Contrary to this it is recommended that railway infrastructure in future be treated similarly to that of non-toll roads. In this case, provision of railway infrastructure is not solely to collect revenue but to increase levels of mobility which in turn directly affects increasing intensity of social and economic activities of the community.

Consequently, investment cost should be treated as sunk costs, and maintenance/ operation costs as obligations of the Government just as in the case of (for example) Jalan MH Thamrin or Jalan Jenderal Sudirman, etc.

5.4. Encourage the Development of Public Private Partnerships for Rail Infrastructure Development

Public / Private Partnerships provide a potentially useful mechanism to involve private investors in infrastructure development, including railway infrastructure. Since in most cases railway infrastructure projects are not financially feasible, property development (using the TOD concept) should be offered to attract private investor(s). While property development might generate development and income that may not immediately contribute to farebox revenue, in the longer term, it will definitely help the rail system to develop passenger growth, which in turn will generate more farebox revenue. For these reasons PPP projects have to be mature, meaning that project definitions have to be clear, financing scenarios including role sharing and risks allocation also have to be clear so that private partners can see the viability of projects.

The Ministry of Finance could support the development of TOD areas near train station by supporting land capping, which has been widely implemented for toll road projects, and by increasing local government fiscal capacity in the land acquisition process. MOF could also potentially provide support through the Viability Gap Funding mechanism under MOF Regulation 223/011/2012. To our knowledge no unsolicited proposals for PPPs for rail infrastructure development have been put forward and it is likely that the Government would need to structure a solicited PPP seeking private support from the market and also from relevant Regional Governments. It is beyond this scope of this study to determine the likely structuring of such a solicited PPP and the extent if any to which VGF funding might be applicable. However, further detailed study in this area is recommended by this study.

5.5. Move to More Effective Management of an Integrated Approach to Ownership of Infrastructure and Rolling Stock

Learning from Europe experiences, separating ownership of infrastructure and rolling stock has ended up with complicated coordination. It did not reduce costs, did not really promote competition, and did not improve modal shares. On the other hand, vertical integration (like in Japan, Hong Kong, Singapore) has been proven to be more efficient. Therefore vertical integration like Japan, Hong Kong and Singapore is the recommended approach rather than pursuit of vertical separation as in the practice of European countries.

The Government, mainly through the Ministry of Transport could support more effective vertical integration by more clearly defining the roles and responsibilities of the Ministry of Transport and PT Kai and ensuring appropriate funding mechanisms for rail infrastructure development and maintenance on one hand and for train service delivery on the other. This could be assisted by expediting due diligence and asset definition / separation processes between the Ministry of Transport as infrastructure owners and PT. KAI and PT. KCJ as rail operators. When assets cannot be easily defined or separated due to legal framework compliance issues, fiscal instruments could be developed to provide clear concession and / or other contracts between the government and PT KAI or PT KCJ setting out the respective roles and responsibilities of each. This could include consideration of contracting PT KAI or PT KLC as the proprietor of government rail assets. Movement to the development of PPPs as recommended in 5.4 could assist to better define a well-managed approach to vertical integration in Indonesia as private sector investment support is unlikely to be forthcoming without more clearly defined roles for the Ministry of Transport and PT KAI / PT KJC.

The main responsibilities here rest with the Ministry of Transport. However, MOF could play an important role in facilitating change through ensuring:

- That the Ministry of Transport has a credible sub sector plan for rail including proper contractual arrangements between the Ministry and PT KAI / PT KJC and that future medium public funding requirements (both new investment and maintenance) for rail are contained in the MTEF for transport which is to some extent controlled by MOF;
- That PSOs; TACs; and IMO are properly and transparently managed in future with over time exploration of consolidated funding to PT KAI / PT KJC in its contracted role of managing all rail assets; and
- That a solicited PPP proposal is explored and encouraged (see 5.4) the structuring of which will assist to provide more viable approaches than currently exist to the funding of different components of the rail sector.

5.6. Pursue Effective Integration between Commuter Rail, MRT and Monorail Systems

In the context of total transport systems, government plans to build MRTs and Monorails will expand coverage of commuter railway services and hence, will further increase railways modal share. There will be a need over time to develop strong connections between commuter rail and MRT and Monorail services. Both MRT and Monorail will act as feeders to commuter rail and vice versa. This means that good coordination between PT. KAI on the one hand and operators of the MRT and Monorail on the other hand will be really important.

The Ministry of Finance should consider providing fiscal policy support to increasing the financial feasibility of MRT and Monorail projects in cases where high economic returns are evident. In the development of Jakarta MRT phase I, the Central Government has already agreed to cover 49% of the total loan agreement. With the proposed monorail development dating from 2006, government at the time agreed to provide an income guarantee to private investors. Unfortunately the project was terminated due to lack of funding from the private side. Similarly fiscal policy support could be considered for the new SOE consortium that proposes to build an elevated monorail above the toll road (managed by consortium members) from Bekasi to Tangerang. Implementation of say 49% viability gap funding (VGF) with an initial investment could increase the financial feasibility of monorail projects while reaping high economic returns.

While the coordination of commuter rail services with future MRT and monorail services will be of high importance it is beyond the scope of this report to provide detailed spatial planning solutions as to how this coordination will be best achieved over time.

References

1. Badan Pusat Statistik DKI Jakarta. 2013. Jakarta in Figures.
2. Hadiwardoyo, Sigit Pranowo. December 2013. Empowering Audits of Road Feasibility to Optimize the Role and Function of Roads in Improving the National Economy), (Speech during Inauguration of Professor in the field of Transportation Science, Engineering Faculty, University of Indonesia).
3. Coordinating Ministry of Economic Affairs Republic of Indonesia. 2012. Revision of SITRAMP Transportation Master Plan.
4. JICA in coordination with National Development Planning Agency. 2004. Study on Integrated Transportation Master Plan (SITRAMP).
5. Basic Design Blok M – Kota. 1996 Transportation Study, Jakarta MRT Project.

International Scan Team. April 2010. Reducing Congestion and Funding Transportation Using Road Pricing.
6. Kian-Keong CHIN (Land Transport Authority, Road Operations & Community Partners, Singapore). December 2009. The Singapore experience: The evolution of technologies, costs and benefits, and lessons learnt.
7. Directorate General of Land Transportation – Ministry of Transportation and JICA. 2012. Project for the Study on Jabodetabek Public Transportation Policy Implementation Strategy – JAPTraPIS.
8. Ministry of Transportation, Directorate General of Railway, March 2013. Jabodetabek Railway Masterplan – Concept 2).
9. Australian COAG. 2014. Economy-Wide Modelling of Impacts of COAG, Patterns of Household Expenditure, (<http://www.pc.gov.au/data/assets/pdf/0016/118114/14-coag-reform-supplement-chapter13.pdf>).
10. UK Office for National Statistics. February 2013. Weekly Household Expenditure, an Analysis of the Regions of England and Countries of the United Kingdom (http://www.ons.gov.uk/ons/dcp171766_297746.pdf).
11. Izhar Manzoor, Ika Putri, Corrine Stubbs, Keitaro Tsuji, University of California, Los Angeles, Luskin School of Public Affairs, Master of Public Policy Class of 2014. Improving the Performance of KRL Jabodetabek, the Jakarta Commuter Trains.
12. Calthorpe, 1993 as quoted by Iwan Prijanto. 2012. in Transit Oriented Development (unpublished document).
13. Iwan Prijanto. 2012. Transit Oriented Development (unpublished document).
14. Engineering Trip arranged by Ove Arup, 1996.
15. Farebox Recovery Ratio (http://en.wikipedia.org/wiki/Farebox_recovery_ratio).
16. <http://www.mtr.com.hk/eng/investrelation/financialinfo.php>.

17. Gordon. 2010. As found in A Comparative Study Of Transit-Oriented Development in Hong Kong, by: Bukowski, B, Boatman, D, Ramirez, K, Du, M, 2013 (http://www.wpi.edu/Pubs/E-project/Available/E-project-022713-065611/unrestricted/Comparative_Study_of_TOD_in_Hong_Kong.pdf).
18. Tokyo Metro Presentation in 2009.
19. Aldian, Project Manager of Jabodetabek Urban Transportation Policy Integration Project (JUTPI). October, 2011. Strategy for Combating Congestion in Jakarta. Presentation.
20. http://en.wikipedia.org/wiki/Transportation_in_Greater_Tokyo.
21. <http://www.krl.co.id/peta-rute-loopline.html>.
22. <http://discomer.com/ac-tokyo-train-network/>.
23. www.krl.co.id/sekilas-krl.html.
24. <http://www.krl.co.id/BERITA-TERKINI/melalui-gapeka-2014-pt-kcj-tambah-jumlah-perjalanan-krl-jabodetabek.html>.
25. <http://www.krl.co.id/BERITA-TERKINI/gmf-tandatangani-kesepakatan-bersama-dengan-pt-kai-commuter-jabodetabek.html>.
26. <http://www.krl.co.id/BERITA-TERKINI/pt-kcj-dan-tiga-bank-bumn-luncurkan-integrasi-kartu-prabayar-dengan-e-ticketing-commuterline.html>.
27. <http://www.krl.co.id/BERITA-TERKINI/pt-kcj-tandatangani-perjanjian-kerja-sama-penggunaan-kartu-prabayar-e-ticketing-krl-dengan-bni-bri-dan-mandiri.html>.
28. Mailing list of frequent users of the Jabodetabek commuter train services.
29. Akintola Akintoye, Matthias Beck and Cliff Hardcastle. 2011. Public Private Partnerships, Managing Risks and Opportunities.
30. Harun al-Rasyid Lubis. 2012. Outlook Infrastructure: Expecting Public Private Partnership.
31. Coordinating Ministry of Economy, April 2010. Public Private Partnerships, Guidance for Investor to Invest in the Infrastructure Sector.
32. <http://www.iigf.co.id/Website/Home.aspx>.
33. Ministry of National Development Planning/National Development Planning Agency. 2013. Public Private Partnerships: Infrastructure Project Plan in Indonesia.
34. <http://iif.co.id/>.
35. http://en.wikipedia.org/wiki/Project_finance.
36. Jeremy Drew (Drew Management Consultant). 2006. Rail Freight: The Benefits and Costs of Vertical Separation and Open Access. (<http://abstracts.aetransport.org/paper/index/id/2509/confid/12>).

37. Didier van der Velde. 2012. Eves-Rail Economic Effects of Vertical Separation in the Railway Sector. Report to Community of European Railway and Infrastructure Companies.
(http://www.cer.be/index.php?eID=tx_nawsecuredl&u=0&file=uploads/media//Full-Report.pdf&t=1410866211&hash=4e014306702bc16cf32ec0f66f631553b59bfcaf).
38. Regulation of the Minister of Transportation No PM.54 of 2013 on Mass Transit Masterplan in the Jabodetabek Urban Area).
39. Presidential Regulation No 53 of 2012 on Public Service Obligations and Subsidies for Railway Pioneer Transport, Cost for the Use of State Owned Railway Infrastructure, and Maintenance and Operation of State Owned Railway Infrastructure.
40. Regulation of the Minister of Transport No PM.56 of 2013 on Cost Components which can be Reckoned in Implementation of Public Service Obligation and Railway Transport Pioneer).
41. Regulation of the Minister of Transportation No: PM.62 of 2013 on Guidelines for Calculation of Costs for Using State Owned Railway Infrastructure).
42. Regulation of the Minister of Finance No 172/PMK.02/2013 on Procedures for Providing, Disbursement, and Accountability of Public Service Obligation Fund for Rail Transport of Economy Class.
43. Government Regulation No 32 of 2011 on Management and Engineering, Impact Analysis, and Traffic Demand Management).
44. Local Government Regulation No 3 of 2008 on Establishment of Regionally Owned Enterprises MRT Jakarta Company Limited).
45. Regional Regulation No 4 of 2008 on Local Equity Participation in MRT Jakarta Company Limited.
46. Regulation of the Minister of Transport No PM 9 of 2011 on Minimum Levels of Service Standard for Railway Transport Passengers).
47. Presidential Regulation No 67 of 2005 on Cooperation Between Government and Business Entities in Infrastructure Provision and its subsequent amendments (Perpres 13 of 2010, Perpres 56 of 2011 and Perpres 66 of 2013).
48. Presidential Regulation No 78 of 2010 on Infrastructure Guarantee in Cooperation Project Between Government and a Corporation Through an Infrastructure Guarantee Enterprise).
49. Regulation of the Minister of Finance No 260/PMK.011/2010 on Guidelines for Infrastructure Guarantee in Cooperation Project between Government and a Corporation).
50. Regulation of the Minister of Finance NO 223/PMK.011/2011 on Provision of Feasibility Support over Part of Construction Costs of Cooperation Project between Government and Business Entity in Provision of Infrastructure).
51. Regulation of the State Minister of National Development Planning / Head of National Development Planning Agency No 3 of 2012 on General Guidelines for Implementation of Cooperation between Government and Business Entity in Provision of Infrastructure).

- 52. Regulation No 12 of 2011 on Amendment of Presidential Regulation No 42 of 2011 on Policy Committee for the Acceleration of Infrastructure Provision).
- 53. Law No 2 of 2012 on Procurement of Land for Development of Public Interests and Presidential Regulation No 71 of 2012 on Implementation of Procurement of Land for Development of Public Interests.
- 54. Government Regulation No 27 of 2012 on Environmental Permits.
- 55. JICA Jabodetabek Transportation Integration Study – Japtrapis. 2012.

Annex 1. Economic Assessment of Rail Infrastructure Development in Jabodetabek

Simulation of Economic Feasibility of Rail Infrastructure Development

For this study, in addition to estimation of fuel saving per rail passenger, economic feasibility of rail system development is assessed using Jabodetabek as a case study. The Ministry of Transport issued Ministerial Regulation No. 54 of 2013 on the Jabodetabek rail system master plan, listing 597 km rail infrastructure projects and IDR 459.5 billion of investment. This study becomes the basis for calculating the economic assessment.

Assumptions

To calculate the economic performance, the assumptions used are as set out in the table below.

No	Assumptions	2015	Source	Remark
1	Government investment	Rp 459.505 billion	Source: Koica study, 2013	Total investment calculated by Koica study evenly spread over 5 years equal to IDR 91.901 billion per year
2	Personnel costs	10%	<u>Source: EU guideline, 2012</u>	Non operator HRD costs (management staff) are calculated from annual investment
3	Institutional and regulatory costs	0.10%	<u>Source: EU guideline, 2012</u>	Institutional and regulatory costs are calculated as 0.1% of total up front investments;
4	Discount rate	8.14%	<u>Source: Faisal Basri, 2014</u>	Average BI rate 2005-2014
5	Exchange Rate 1 USD	9,882	<u>Source: Kontan data center</u>	USD exchange rate 2005-2014
6	Govt Interest	10.1%	<u>Source: Faisal Basri, 2014</u>	Using PIP rate = BI rate + 2 %; use average BI rate 2005-2014
7	Average rail trip distance	14.1	Source: Jutpi study, 2013	In km
8	Fuel savings per rail passenger	3.7	Source: analysis	Liter, proportionally as shifting scenario
9	Inflation	7.59%	<u>Source: BPS, 2014</u>	Average 2005-2014
10	Daily railway passengers	700,000	Source: Koica study, 2013	Spread evenly based on projection years 2020 and 2030
11	Fares per passenger	5,000	Target	Round up to the nearest IDR 50 of 10% fare annual increase
12	Non farebox revenue	20%	Target	Annual target from operational cost
13	Fuel Subsidy	1,000	Projection	Projected from government plan to implement zero or fixed subsidy
14	Fuel Price	8,500	Projection	Projected from historical data and latest developments on price of substitution oils (biofuel)
15	Average income per hour	2,885	Source: Jabodetabek UMR	Based on Regional minimum wage in Jabodetabek
16	Time saving per passenger	8,654	Source: Jabodetabek UMR	Based on Regional minimum wage in Jabodetabek and time lost from Jutpi study, 201
17	Annual health cost per passenger	5,000,000	Source: FKM UI, 2014	IDR (increase 5% per year)

It should be carefully noted that initial value of some assumptions might change over time, including in the near future, such as fuel pricing and fuel subsidies, and other macro assumption such as inflation, Bank rate, discount rate, and government rate. However, some assumptions might have a relatively constant value throughout the calculation period. The assumptions also consist of some targets and projections that were set conservatively based on literature study from international best practices.

Three economic indicators

This economic assessment uses three indicators namely: Net Present Value (NPV), Internal Rate of Return (IRR), and Benefit to Cost ratio (BCR). These are used as indicators to assess the economic performance of rail project.

Sensitivity analysis on indicators was performed on a full financial scenario to see the impact of fuel subsidy changes to economic performance of rail system infrastructure investment. The results show that higher fuel subsidies yield higher indicator values with various elasticities. The higher change was shown by NPV, for which a 1% increase in fuel subsidies will increase NPV by 0.57%. Among the three indicators, the CBR has the lowest elasticity to fuel subsidies. Based on its elasticity value, all indicators showed a value less than 1, indicating that increase in fuel subsidies is significant to the economic performance of rail system investment. The higher the subsidies the more economic it is to pursue public investment in rail infrastructure.

Sensitivity Analysis of NPV for Various Values of Fuel Subsidies

No	Indicators	Value						Elasticity to Fuel price
1	Fuel subsidy	500	700	800	900	950	1000	1.00
2	NPV	24,285	25,651	26,334	27,017	27,359	27,700	0.14
3	IRR	8.87%	8.91%	8.94%	8.96%	8.97%	8.98%	0.01
4	BCR	147.52%	147.67%	147.74%	147.81%	147.85%	147.88%	0.0025

Two scenarios of economic assessment

The study conducted an economic assessment based on two scenarios. The first scenario used the assumption of full financial scale, in which the calculations include payment of all investment costs. This scenario shows the economic feasibility, when the investment on rail system development in Jabodetabek is offered to the private sector using purely commercial financial circumstances and terms. The second scenario takes a sunk cost approach, where the investments for rail system development in Jabodetabek are borne by the government using the government budget, so investment repayment is excluded from the calculation.

Results - Full Financial Scenario

No	Indicator	Value
1	NPV (billion IDR)	29,640
2	IRR	8.98%
3	Benefit / Cost Ratio (BCR)	1.48

No	Indicator	Value
1	NPV (billion IDR)	395,242
2	IRR	20.33%
3	Benefit / Cost Ratio (BCR)	3.15

The calculation naturally indicates that the sunk cost scenario yields higher value on all financial indicators than the full financial scenario. This is similar to many infrastructure projects, in which economic performance is higher than financial performance due to the wider range of benefits applicable.

While the full financial scenario indicates moderately positive results these would not likely be adequate to attract private investment alone. The simulation does imply quite robust returns for the sunk cost scenario suggesting there is a case for fiscal incentives to be applied and also scope for some government fiscal support making it more attractive for private investors to participate in the development of the rail system in Jabodetabek providing their role is well defined.

Financial Analysis of Rail Infrastructure Investment in Jabodetabek

Full Financial Scenario

Financial Planning (billion IDR)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Investment Cost																
1 Physical Investment	91,901	91,901	91,901	91,901	91,901											
2 Personnel cost	9,190	9,190	9,190	9,190	9,190	9,190	9,190	9,190	9,190	9,190	9,190	9,190	9,190	9,190	9,190	9,190
3 Institutional and regulatory investment	92															
Operational Cost																
4 Operations				247	494	741	988	988	988	988	1,087	1,196	1,315	1,447	1,592	1,751
5 Maintenance				198	395	593	791	791	791	791	870	957	1,052	1,157	1,273	1,401
6 Renewals				148	296	445	593	638	662	687	713	740	769	798	828	859
7 Interest	621	1,286	2,003	2,779	3,626	3,626	3,626	3,626	3,626	3,626	3,626	3,626	3,626	3,626	3,626	3,626
8 Payment	7,352	14,573	22,349	30,773	39,963	39,963	39,963	39,963	39,963	39,963	39,963	39,963	39,963	39,963	39,963	39,963
9 Discount rate	124.71	195.97	301.08	327.13	468.02	593.75	754.62	927.23	1,090.93	1,286.01	1,523.54	1,835.02	2,153.22	2,550.70	2,929.69	3,444.69
Total Cost	109,281	117,146	125,744	134,971	145,148	53,373	53,534	53,706	53,870	54,065	54,303	54,614	54,932	55,330	55,709	56,224
Revenue																
Farebox	1,278	2,008	2,847	3,843	5,338	6,676	8,446	10,552	12,556	14,945	17,794	21,400	25,214	29,994	34,536	40,740
Non farebox	256	402	854	178	415	623	830	846	854	863	935	1,157	1,254	1,361	1,477	1,604
Economic Benefit																
Fuel Subsidy reduction	950	1,357	1,764	2,198	2,645	3,102	-	-	-	-	-	-	-	-	-	-
Fuel cost saving	8,072	11,531	15,872	21,977	29,099	37,220	45,853	52,025	60,775	65,903	71,221	77,868	83,566	96,657	101,337	112,295
Public Health improvement	3,500	5,190	7,003	9,058	11,317	13,773	16,257	19,145	21,556	24,262	27,215	30,885	34,403	38,549	41,950	46,694
Time saving	2,181	3,352	4,688	6,286	8,141	10,270	12,565	15,339	17,902	20,886	24,285	28,568	32,986	38,313	43,218	49,865
Total Revenue	16,235	23,838	33,028	43,540	56,955	71,663	83,951	97,907	113,644	126,860	141,450	159,878	177,423	204,874	222,518	251,198

Sunk Cost Scenario

Financial Analysis (billion IDR)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Investment Cost																
1 Physical Investment	91,901	91,901	91,901	91,901	91,901											
2 Personnel cost	9,190	9,190	9,190	9,190	9,190	9,190	9,190	9,190	9,190	9,190	9,190	9,190	9,190	9,190	9,190	9,190
3 Institutional and regulatory investment	92															
Operational Cost																
4 Operations				247	494	741	988	988	988	988	1,087	1,196	1,315	1,447	1,592	1,751
5 Maintenance				198	395	593	791	791	791	791	870	957	1,052	1,157	1,273	1,401
6 Renewals				148	296	445	593	593	593	593	652	717	789	868	955	1,050
7 Interest	621	1,286	2,003	2,779	3,626	3,626	3,626	3,626	3,626	3,626	3,626	3,626	3,626	3,626	3,626	3,626
9 Discount rate	124.71	195.97	301.08	327.13	468.02	593.75	754.62	925.95	1,088.96	1,283.33	1,521.80	1,834.27	2,153.89	2,552.99	2,933.82	3,450.91
Total Cost	101,308	101,287	101,392	101,418	101,559	9,784	9,945	10,116	10,279	10,473	10,712	11,024	11,344	11,743	12,124	12,641
Revenue																
Farebox	1,278	2,008	2,847	3,843	5,338	6,676	8,446	10,552	12,556	14,945	17,794	21,400	25,214	29,994	34,536	40,740
Non farebox	256	402	854	178	415	623	830	830	830	830	913	1,148	1,263	1,389	1,528	1,681
Economic Benefit																
Fuel Subsidy reduction	2,849	4,070	3,527	4,395	2,645	3,102	3,527	4,002	2,171	2,354	-	-	-	-	-	-
Fuel saving	8,072	11,531	15,872	21,977	29,099	37,220	45,853	52,025	60,775	65,903	71,221	77,868	83,566	96,657	101,337	112,295
Public Health improvement	3,500	5,250	7,166	9,377	11,851	14,590	17,421	20,755	23,639	26,916	30,542	35,062	39,509	44,784	49,300	55,512
Time saving	2,181	3,427	4,901	6,717	8,894	11,472	14,350	17,909	21,370	25,490	30,302	36,443	43,021	51,087	58,917	69,500
Total Revenue	18,134	26,687	35,167	46,488	58,243	73,682	90,427	106,074	121,341	136,438	150,772	171,921	192,572	223,911	245,619	279,728

Annex 2. Review of PT. KCJ Financial Reports, 2012 - 2013

In order to better understand the financial performance of PT. KCJ, the study reviewed the financial reports of the holding company PT. KAI for 2012 and 2013. The reports included income statements and balance sheets of PT. KCJ with comparative figure for 2012 and 2013 which became the basis for this review.

PT KAI in 2013 received IDR 683.0 million of PSO from government which included PSO for commuter rail. Unfortunately PT KAI does not disclose the distribution of such PSO so that analysis on the impact of PSO in the PT KCJ financial performance cannot be reviewed.

The volume of PT KAI commuter rail passengers increased by 130.68% from 56.25 million passengers in 2012 to 129.77 million passengers in 2013, increasing commuter rail revenue by 60.23% from IDR 378.71 billion in 2012 to IDR 606.82 billion in 2013. Overall, the income statement showed significant growth in all financial components. Net profit increased by 168% far exceeding costs and expenses, which only grew by 104% and 103% respectively. Notably significant amounts of income taxation were provided for in 2012 and 2013.

Income Statement (Rp Billions)

Item	2012	2013	Growth
Operating Income	382,196	806,556	111%
Operating Costs	(260,558)	(532,243)	104%
Operating Expenses	(60,400)	(122,610)	103%
Operating Profit	61,238	151,703	148%
Other Income (Expenses)	5,014	26,306	425%
Profit (Loss) Before IT	66,245	178,009	169%
Tax Income (Expense)	(15,732)	(42,863)	172%
Current year Profit (loss)	50,513	135,146	168%

Likewise, the balance sheet also showed significant growth of the company's assets, liabilities, and equity. Current liabilities grew most at 141% in 2013 compared to 2012. This was higher than current asset which only grew by 111% over the same period. However, in absolute figures, current assets were still double the value of current liabilities in 2013, while total assets were almost twice as high total liabilities with equity growing strongly in 2013 to levels of Rp 461.0 billion. This indicates that on paper PT KCJ has a relatively sound financial position.

Balance Sheet – Rp Billions

Item	2012	2013	Growth
Asset			
Current Asset	204,313	431,652	111%
Fix Asset	235,969	284,749	21%
<i>Total Asset</i>	440,282	716,401	63%
Liabilities			
Current Liabilities	92,452	222,910	141%
Long Term Liabilities	16,972	32,539	92%
<i>Total Liabilities</i>	109,424	255,449	133%
Equity	330,856	460,951	39%
Total Liabilities and Equity	440,280	716,400	63%

Financial Performance Ratios

Financial Analysis	2012	2013	Growth	Indication of Annual Performance
Cost per Revenue	0.84	0.81	-3%	Good
Liquidity ratio (asset/liability)	13.90	8.75	-37%	Bad
Return of Asset	0.14	0.21	52%	Good
Return of equity	0.19	0.33	78%	Good
Liability to income ratio	0.29	0.32	11%	Bad
Contribution of other income	7.6%	14.8%	95%	Good
Debt per equity ratio	0.33	0.55	68%	Bad
Profit liability coverage	6.6	7.3	11%	Good

Some financial indicators showed major improvement in 2013. The cost per revenue ratio decreased in 2013 indicating that with higher revenues the company used lower costs indicating short term efficiency gains in the production process. Return on assets increased by 52% from 14% in 2012 to 21% in 2013, showing a significant increase in the company's profitability. Further PT KCJ doubled its total assets by 111% from IDR 204 billion in 2012 to 431 billion in 2013 linked to improving profitability but also a growth in liabilities. Profit liability coverage improved by 11% from 6.6 in 2012 to 7.3 in 2013. In addition the contribution of other income increased by 95% in 2013.

On the other hand, some other indicators suggested a weakening of performance. The liquidity ratio decreased by 37% from 2012 to 2013 with an increase in total liabilities (by 133%) with current liabilities increasing by 141%.

Based on interviews with the PT KCJ top management, increases in commercial debt occurred to finance the slow PSO reimbursement mechanism, and to invest in new rolling stock to replace (not increase) dilapidated existing rolling stock as part of service improvement⁹⁹ The liability to income ratio increased by 11% from 0.29% in 2012 to 0.32% in 2013, showing a slight worsening due to high increases in current and total liabilities in 2013.

Overall, the financial performance of PT KCJ showed significant improvement in 2013 though total liabilities grew sharply, the income still covered all costs with PT KCJ making a profit.

⁹⁹ Meeting with PT KCJ top Management in 2014.