Japan International Cooperation Agency (JICA)
National Development Planning Agency (BAPPENAS)
Republic of Indonesia

THE STUDY ON
INTEGRATED TRANSPORTATION MASTER PLAN
FOR JABOTABEK (PHASE I)

PROCEEDINGS OF A ONE-DAY SEMINAR "TOWARDS AN INTEGRATED TRANSPORTATION SYSTEM FOR JABOTABEK"

APRIL 2001

PACIFIC CONSULTANTS INTERNATIONAL
ALMEC CORPORATION

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1. Introduction

Following the completion of the *Study on Integrated Transportation Master Plan for Jabotabek – Phase I*, Bappenas in cooperation with JICA will hold a one-day seminar entitled **"Towards an Integrated Transportation Systems for Jabotabek"**. The seminar was held on April 3, 2001, at Le Meridien Hotel, Jl. Jend. Sudirman Jakarta.

1.1 About the Study

The overall objective of the Study is to identify possible policy measures and solutions to ease transportation problems in the Jabotabek region, especially in the central part of DKI Jakarta, taking into account the urban structure and also encouraging public transport usage. The Study was divided into two phases, namely Phase 1 and Phase 2. The Study area covers the Jabotabek region comprising DKI Jakarta, Bogor, Depok, Tangerang and Bekasi.

The Phase 1 of the Study has been conducted since March 2000. The Study focused on reviewing the recent evolution of the policy framework, including decentralization, liberalization and privatization, in which the urban transport sector is administered and operated; identifying main issues and causes which delayed the implementation of various projects/programs proposed by a series of planning studies in the past; and identifying and studying a set of possible urgent projects to ease noticeable transportation problems in Jabotabek. The target year for the short-term implementation plan to be formulated in the Phase 1 is the year 2005. In the Phase 1, the Jakarta MRT project and the JORR project were also reviewed.

The planned Phase 2 of the Study will primarily be the preparation of the Integrated Transportation Master Plan for Jabotabek. The target year for the master plan to be formulated in the Phase 2 is the year 2020.

1.2 The Objectives of the Seminar

The seminar aims at the following three points:

(1) To disseminate the findings and recommendations on the conceptual integrated transportation master plan and short-term implementation plan as well as review of the Jakarta MRT Project,

(2) To exchange ideas on urban transportation problems in Jabotabek and formulate the direction to solve them based on the recommendation proposed by the Study team, and

(3) To share opinions on urban transportation policy and strategy for the transportation system development among the stakeholders; relevant

governments, transport operators, and the general public.

1.3 Scope of the Seminar

The Seminar was divided into two sessions; morning session and afternoon session. In the morning urban transportation policies and strategies, and directions towards the development of integrated transportation system for Jabotabek were discussed. Land use in Jabotabek area and its interaction with transportation system, as well as improvement plans for bus and railway transport systems were reviewed. The position of the MRT Project was also analyzed in the view of integrated transportation system for Jabotabek region.

In the afternoon session, the Jakarta MRT project was reviewed in more detail. Several aspects, including financial and economic analyses, social impacts, private sector participation, central and local government perspectives, as well as users' perspectives on this project were discussed.

1.4 Participants of the Seminar

The participants of the Seminar included the persons representing central and local government agencies, state-owned enterprises, non-governmental organizations, universities, experts, transportation-related organizations, and society.

1.5 Seminar Program

The seminar program is indicated in the following table.

Seminar Program

Time	Agenda	Panelist
8:15 - 9:00	Registration	
9:00 - 9:10	Remarks from Committee	Dr. Imron Bulkin (Bappenas)
9:10 – 10:00	**Opening Session**	
	Keynote Speech I	Mr. Hiroyoshi Ihara (JICA Indonesia Office)
	Keynote Speech II	Prof. Haruo Ishida (JICA Advisory Team)
	Opening Remarks	Prof. Bambang Bintoro (Bappenas)
10:00 –10:15	**Coffee Break**	
10:15 - 12:00	**Conceptual Integrated Transportation Master Plan**	
	Moderator	Dr. Sutanto Soehodo (MTI)
	Presentation	Mr. Tomokazu Wachi (JICA Study Team)
	Review on Land Use and Integrated Transportation System	Prof. BS. Kusbiantoro (ITB)
	Review on Public Transport Improvement Plans	Dr. Heru Sutomo (UGM)
	The Experience of Railway Development in Japan	Mr. Yoshiaki Murata (JICA Advisory Team)
	Discussion Session	
12:00 -13:00	**Lunch Break**	
13:00 - 15:30	**Review on the Jakarta MRT Project**	
	Moderator	Dr. Suyono Dikun (MTI)
	Presentation	Mr. Isamu Gunji (JICA Study Team)
	Review on Financial & Economic Analysis I	Dr. Sidharta Utama (UI)
	Review on Financial & Economic Analysis II	Dr. Bambang Brodjonegoro (UI)
	Operator's Perspective	Mr. Sjahrizal Siregar (PT. KAI)
	Social Impacts	Drs. Dodi Prayogo, MPst (UI)
	Possibilities for Private Sector Participation	Mr. Santoso Ramelan (Bakrie&Bro)
	Central Government's Perspectives I	Mr. Maryono, (DG of Budget)
	Central Government's Perspectives II	Mr. Bambang Susantono (Deputi II, Menko)
	Local Government's Perspectives	Mr. Rusdi Yusuf, Bappeda DKI
	Local Legislative Perspectives	Ir. Sugeng Pratna (Komisi D DPRD DKI)
	Users' Perspectives	Mr. Agus Pambagio (YLKI)
15:30 - 16:00	**Coffee Break**	
16.00 - 17:15	Discussion Session	
17:15 –17:25	**Closing Remarks**	Prof. Bambang Bintoro (Bappenas)

2. Opening Session

2.1 Remarks from the Seminar Committee

Dr. Imron Bulkin

Distinguished Head of JICA Advisory Committee,
Distinguished Head of Delegation of the Japan International Cooperation Agency,
Distinguished First Secretaries of Embassy of Japan,
Distinguished Deputy Chairman for Production, Trade, and Infrastructure, Bappenas
Distinguished participants,
Ladies and gentlemen,

Assalamu'alaikum, wr.wb,

First of all, I would like to take this opportunity to thank God the Almighty, that only through His blessings we could gather here to attend the one-day Seminar entitled "Towards an Integrated Transportation System for Jabotabek". This seminar is jointly organized by the National Development Planning Agency (Bappenas) and the Japan International Co-operation Agency (JICA).

On behalf of the seminar committee, I would like to warmly welcome all the participants and the panelists, who will share valuable insights for the seminar.

Ladies and gentlemen,

This seminar is held following the finalization of the "Study on Integrated Transportation Master Plan for Jabotabek – Phase I", which has been conducted since March 2000.

In principle, this seminar has the following three main objectives:

First, to disseminate the findings and recommendations on the conceptual integrated transportation master plan and short-term implementation plan for Jabotabek area as well as review of the Jakarta MRT Project,

Second, to exchange ideas on urban transportation problems in Jabotabek and formulate the direction to solve them based on the recommendations proposed by the Study, and

Third, to share opinions on urban transportation policies and strategies for the transportation system development among the stakeholders, relevant governments,

state-owned enterprises, transport operators, non-governmental organizations, universities, experts, transport associations, as well as the general public.

Distinguished participants,

The Seminar will be divided into two sessions. The morning session will discuss on urban transportation policies and strategies, as well as directions towards the development of integrated transportation system for Jabotabek area. The land use in Jabotabek area and its interaction with transportation system, as well as improvement plans for bus and railway transport systems will be reviewed. The position of the MRT Project will also be analyzed in the view of integrated transportation system for Jabotabek area.

The afternoon session will review on the MRT Project in more detail. Several aspects, including financial and economic analysis, social impacts, private sector participation, central and local legislative and government perspectives, operator's perspectives, as well as users' perspectives on this project will be discussed.

I sincerely appeal that all participants could give comments and opinions during the seminar. Your active participations would certainly be beneficial toward the formulation of an Integrated Transportation System for Jabotabek.

Finally, I would also take this opportunity to express my sincere gratitude and appreciation to all participants for the time you have given to attend this seminar. I am confident that our seminar will be successful and able to fulfill the intended objectives of the Seminar.

Thank you very much for your attention,

Wabilaihittaufik wal hidayah,

Wassalamu'alaikum Wr. Wb.

2.2 Keynote Speech (I)

Mr. Hiroyoshi IHARA, Representative, JICA Indonesia Office

Prof. Dr. Bambang Bintoro, Prof. Haruo Ishida, Honorable Guests, Ladies and Gentlemen, On behalf of the Japan International Cooperation Agency (JICA), it is my great pleasure to say a few words on this opening of the Seminar on the study on Integrated Transportation Plan for JABOTABEK Phase 1.

First of all, I would like to convey my appreciation to all the participants of this Seminar. At the same time, I also wish to express my great appreciation to the officials concerned from BAPPENAS and other related organizations. Without their dedication, this Seminar could not have been successfully prepared.

Ladies and Gentlemen, JABOTABEK is one of the eminent megalopolis in the world. The expansion of social and economic activities and the subsequent growth of travel demand in JABOTABEK has inevitably brought about various urban transportation problems, which, have become increasingly serious in recent years.

Jakarta's development has accelerated and spread into the surrounding areas, its urban structure is changing rapidly. A current urbanization towards the BOTABEK area has been taking place through the development of dormitory towns in the area, and as such, has been accelerating the traffic concentration into Jakarta.

The urban transportation system service in Jakarta and its environs has not been able to be expanded in such a way as to keep pace with urban development growth. In the year 2000, it was estimated that one million people were commuting to and from Jakarta everyday.

Traffic congestion in JABOTABEK is caused by various factors, namely physical bottleneck due to inconsistent carriageway width and reduced capacity at intersections. In order to improve such poor traffic condition, it is necessary to realize a revolutionary change within the present urban structure and land use, which, rely much on individual vehicle uses in comparison to those which rely on public transport uses in the future.

Indonesia is now in the transition period of decentralization, and which therefore, casts significant influence on urban and regional developments. Jakarta, will continue playing a significant role as a gateway for international trade, business and social communication. A transparency and public involvement should be maintained in the process of policy decisions for planned preparations.

Following which, in correspondence to the city traffic problem of JABOTABEK, JICA has conducted the Phase 1 study on Integrated Transportation Plan for JABOTABEK here

in Jakarta for the past nine months since March 2000.

In this phase 1 study, review of F/S for JORR (Jakarta outer-ring road) and MRT (mass rapid transit) and planning of a short-term implementation plan has been conducted. The study team is due to submit the result of the phase 1 study to the Indonesian side, soon.

Ladies and Gentlemen, during the Seminar of today, I await comments from various sides focusing on the contents of a proposal of phase 1 survey, which is a very significant for the public to understand that socialization is a key issue for this study. JICA will be continuing the study after Phase1 to support counter measures for the solution for city traffic problem of JABOTABEK. In phase 2 study, a complete personal trip survey will be conducted, consisting of various kinds of traffic investigation, environmental investigations, etc.

Upon the collection of the basic data on urban traffic planning, to be followed by building a database, the master plan of the traffic system of JABOTABEK will be formulated.

As the title of the project signifies, to plan an actual scenario is to be specially considered implying the Integration of various kinds of systems, such as the possibility of:

- the integration of land used and a transportation system,
- the integration of a private mode plus a public transportation system, and
- the integration of a railroad network and bus system and so on.

We believe that it is necessary to take into consideration such integration from various aspects.

Ladies and Gentlemen, the stakeholder meeting is a key component not only in the phase 1 study but also in the phase 2. I am of the opinion that an agreement on the study from the various groups at the stakeholder meeting is crucial, and it should be achieved by the citizens' participation.

For the promotion of the use of public traffic, the burden from various groups is sometimes to be considered and to enlist a common cooperation bearing the burden in mind through a stakeholder meeting at the time is important.

Moreover, pertaining to a stakeholder meeting, the Indonesian side should process it positively in collaboration with related organizations, while the JICA study team considers that it is supporting the Indonesian side.

Ladies and Gentlemen, I sincerely hope that this Seminar would be able to produce meaningful results for you, and following which, those results could be feedback to the

solution for the city traffic problem

In conclusion, I would like to present once again my sincere gratitude to everyone here and request your constant cooperation with the JICA activities. May I conclude my address wishing all of your success, good health and future prosperity for you and your family?

Thank you very much for your kind attention.

Terima kasih banyak.

2.3 Keynote Speech (II): Integration in Transportation Policies (Summary)

Prof. Haruo Ishida, Team Leader of JICA Advisory Team

Need of Integration of Transportation System

There are many aspects of urban transportation problems. Many words are necessary to describe the degree of the transportation problems. They are congestion, environmental deterioration, traffic safety problems and equal access to transportation services and the deterioration of public transport. It is difficult to solve urban transportation problems due to unstable economic and political situation and limited resource fund. The main issues are how to raise funds and how to reach a consensus among the various stakeholders who have various interests. In fact there are many problems to be solved. One of the keywords to the solution is integration, thus the study has the word "Integration" to its title.

Integration of Urban Transportation System

There are many ways of integration. First of all, integration of various transportation modes is important. Terminals, railway stations, parking facilities are important transportation nodes in order to have a smooth transfer from one mode to another mode. Road network and public transport network should have good integration with various transportation modes.

The second one is integration of land use and transportation system. Land use affects significantly on the transportation demand. If the existing transportation facilities, road network or public transport network is not enough to accommodate the increasing demand, then development of an appropriate land use and suitable urban pattern should be considered. A transit-oriented urban development, where public transport demand is large enough along the public transport network, could be accomplished with high-rise buildings, resulting in a very condensed land use along the public transport routes. Especially combination of railway and urban development is important. In this regard, the policy on city planning and land zoning control with transportation system could enhance efficiency of transportation system.

The third one is integration of transportation infrastructure development, which will provide larger capacity, with various transport demand management (TDM) measures. It should be understood that neither transportation infrastructure development nor TDM measures could solve the problem. Consequently, a good combination of supply side and demand side transportation policy should be established. Development of sub-infrastructure is sometimes needed for TDM. For example, a road needs to be widened to accommodate bus lanes, and park-and-ride facilities, railway station and

station plaza should be developed to enhance public transport services.

The economic policies for demand control and fund generation is also of great magnitude. This includes road pricing and gasoline tax. The gasoline price in Indonesia is very low, probably too cheap compared to the international price. This implies that eventually the Government of Indonesia has to provide subsidy to the car users. Not only in Japan, but also in other countries, gasoline tax is very high and the revenue from gasoline tax is utilized for infrastructure development. In Japan, the USA and Germany, gasoline tax is earmarked to the infrastructure development.

Importance of Public Involvement

Many groups are concerned with the transportation master plan. This includes users, operators, governments, residents, business firms, the general public, next generation, natural environment, and global environment. Organizing stakeholders and obtaining consensus are important issues in public participation. In the integrated transportation master plan study for Jabotabek, a participatory approach has been taken to involve the general public by exchanging views and discussing among various stakeholders. The Phase 2 Study will further extend this challenge of public involvement in formulating the master plan.

Integration of Planning and Implementation

Last but not least is integration of planning and implementation of projects. The strategy of implementing projects should be included in the master plan. First of all, a good master plan should be established. Then the principal organization should take the lead to implement the projects in cooperation with related organizations. At present, in Indonesia, both central and local governments are being reorganized and restructured in the process of decentralization. The Jabotabek region is very wide; therefore, principal sub-regional or sectoral organizations are needed.

The strategy of implementation project should be established taking limited funds into account. In some occasions it may be better to concentrate the limited sources to one or two projects, which are most significant in terms of effect to alleviate or solve transportation problem. In order to implement the projects smoothly and effectively, some supporting measures are required. New city planning scheme should be established to combine urban development with transportation system development. Management of the projects should be improved and public initiative should also be introduced to speed up the implementation of projects. Public involvement is indispensable to obtain understanding, acceptance, support and cooperation from the public.

Even if such kind of supporting measures are introduced, nothing can be done without sufficient funds; therefore, generation of new funding sources is also of great importance. The taxation and strategic use of ODA, long-term program, policy loan and soft loan should be reviewed and transportation policies should be assessed and evaluated. Assessment and monitoring of the projects are quite important to recognize the existing situation of transportation development program and to build consensus among the various stakeholders.

Examples of Integration: Singapore Model

1) Integration between Land Use and Transportation

A good example of integration of urban planning and transportation planning and integration of railway line and bus services can be seen in Singapore. The MRT (Mass Rapid Transit) in Singapore has been constructed to connect suburban, new town, residential areas and the downtown areas, and the central business district (CBD). New towns have been developed around the MRT system. At the same time, its public transport network is also well developed to integrate the MRT system with other transportation systems.

2) Restriction of Car Ownership and Usage

Restriction of car ownership in Singapore is very strict and strong constraint is imposed on car usage as well. The strong car restriction policy is compensated by provision of good public transport system, cheaper, faster and more punctual transportation system like MRT. The extensive traffic control and management has been implemented in Singapore and recently electronic area licensing scheme has been introduced to replace the previous manual system. In fact, Singapore is the first country to have this area licensing scheme. These policy implementations have been achieved by strong and effective implementation capability, which can be represented in the strong leadership of Mr. Lee Kwan Yew.

Example of Integration: Tokyo Model

1) Railway Network Development and Urban Development

Historically the urban area in the Tokyo metropolitan area has expanded along the railway corridor as railway network developed. The railway corridor has potential to develop high-density areas. This pattern has not been formed spontaneously but railway companies have made best effort to combine urban development along the railway corridor with railway development in order to attract more passengers. A good transportation system has made land more attractive and more useful. The development benefits were reflected in increase in land price. When railway lines are constructed, the

land price is expected to increase along the railway. The Japanese private railway company absorbed the benefits incurred by railway development through the land development along the railway line.

2) Various Revenue Sources for Railway Business

Another example can be quoted from the Tamagawa electric railway company. The railway line was opened in the beginning of the 20th century. During the first 30 years or so, about a third to half of the company's revenue came from the railway farebox revenue but about 50 percent of revenue came from the other sources. This is an electric railway company so that it had its own power plant and rights to sell electricity to the city. Approximately half of its revenue was earned in the electricity business and about 12 percent came from the bus transport business, that is, feeder bus services to railway stations.

3) Merits of Through Operation

In the Tokyo metropolitan area suburban railways were mainly developed by private companies. When subways were constructed in the central area of Tokyo, it was planned to have through operation of the trains beyond the jurisdiction of each railway company. The through operation is very good from the viewpoint of passengers since it makes travelling more convenient and comfortable for passengers by reducing number of transfers and shortening travel time. It is also good for a railway company because no transfer facility is needed at the terminus point in the city. The railway company can reduce construction cost of the terminal at the city center, since land price in the city is very expensive and land acquisition is also difficult. A depot can be developed in the suburban area.

4) Conditions for Through Operation

In Jakarta a good railway network has been developed by the Jabotabek railway and the planned MRT would add some convenience. In order to make full use of potential of railway, through operation is strongly recommended. There are some conditions for through operation to become possible. One condition is hardware. The different railway lines should have the same gauge, the same voltage of electricity and the same train control system. Furthermore, it is crucial to coordinate their operation among the different railway companies with regard to train operation schedule, cost allocation and revenue sharing. In order to make full utilization of the existing railway network, these conditions should be met through prudent planning and coordination.

2.4 Opening Remarks

Dr. Prof. Bambang Bintoro, Deputy for Industry, Trade and Infrastructure, Bappenas

Ladies and Gentlemen,

The policy and implementation actions that may flow from JICA's study on the integrated transportation system for Jabotabek should have a pivotal influence on the future of transport and indeed of much of the fabric of urban development in Jakarta. The principles progressively set out in preparing the way for this key underpinning for Jabotabek's successful future will also be lessons that apply to the major structure and transportation issues of our other rapidly growing metropolitan and large cities.

We are at a pivotal point in the study and planning process itself. We need now to come to some measure of closure in moving from analysis of the recent evolution of policy and frameworks, particularly in decentralization, liberalization and private sector participation as they impact on the urban transport sector and on MRT as well as other large scale infrastructure investment prospects. At the same time we know we cannot 'short-cut' this process if we are to jointly come to understand and resolve the balance between complex stakeholder interests, the fundamental economic and financial issues and profound interaction with the sustainable development of this city.

Twenty years of planning studies and intensive interaction between the stakeholder forces together with vast economic and social change underlay the work carried out in this Phase 1 study of the Integrated Transport Master Plan. I thank JICA, the agencies and individuals who have contributed to the study, and the study team itself for bringing together, updating, and placing in perspective, that massive amount of work.

A critical part of this contribution has been in identifying the main issues and causes that delayed the implementation of the programs proposed in the past. Another critical part has been to begin to bring together broad-based community participation in such important planning processes. The new consensus needs to be based on decentralized leadership within government, the business community and civil society. At the same time, that leadership has to deal with intractable financial limitations and complex economic, social and environmental forces that interplay in a very fundamental way and have a strong structural influence on the future of the city.

In the seminar you are being asked to consider several of these issues as they relate to choices we might make to achieve transport system viability.

We have to be very careful, for instance, in considering how promoting and taking advantage of more intensive land use around the transport system to increase usage and

revenue, can at the same time draw down the usage of our existing economic and social infrastructure in nearby areas.

We have to be careful of the influence to further intensify the process of concentrating activities in a few central areas. The short-run social and economic effects on local communities can be profound. The long-term consequences of improving transit speeds and convenience, and so extending the practical distance of commuter travel in particular corridors, can easily increase the future problems of the city and the transport system.

The transport system is to serve the city, and must not unduly capture 'rental' benefits or constrain opportunity for participation in economic and social life of less influential groups.

Most critically, the simplified solutions of today's transport problems should not commit the city to a structurally constrained pattern of development that reduces its economic efficiency or constrains future quality of life improvements.

Just as our planning integrates the impacts of economic and social developments that have occurred in recent years, we need also to take into account other developments that are committed to. We need to take advantage of the momentum that has been created rather than inhibiting urgent progress. For instance, at the outset of the study, consideration of the Jakarta Outer Ring Road was included as a problem to be resolved and the study has provided an excellent review and assessment on the economic and financial viability of this scheme. As a scheme to address that urgent requirement is already in motion, that development can be "accounted for" rather than considered as another variable in our discussion.

Today's discussion is carefully structured and each session addresses one of the critical areas of principle, community concern, policy requirement and practical constraint. These are not simply technical questions, they are not questions that we must look at merely in terms of how to make an `investment or a 'service' viable; they are fundamental questions about social equity, economic equity, and the safeguarding of the future health and structural development of the city. At the same time questions posed address a few of the practical questions of detail, such as those that need to be addressed in resolving the policy and social issues in constraining some modes of transport to increase usage of our proposed system, whilst carefully providing affordable services to the lowest income groups.

I greatly appreciate the way JICA and the government and consultant team have structured some of those issues to make them clear and approachable so that each seminar session can contribute substantially to their clarification and the case for their resolution. It would be very easy for our discussion to include an ever-broadening range of issues;

there is immense scope for that in such complex discussions of such great social significance. We need to "keep our eyes on the ball" so that we add clarity to both the process of building incremental steps of consensus, as well as clearly setting out the issues that need to be worked through, as our collective "terms of reference" for the next integrative transport planning phase.

In closing I ask you to take careful note of the session topic that addresses a key problem, in all city planning and especially pertinent to us in setting out our terns of reference for the future. That is, the formal institutional arrangements and informal processes that can adapt to and best serve the transportation and similar 'structurally interwoven' planning and services arrangements for a metropolis that will now span three provinces. Internalizing the process, the benefits and the cost in any sub-community of Jabotabek is neither feasible nor supportable; we need to find the way to work together on a faster, more transparent and surer basis.

Thank you.

3. Morning Session: Conceptual Integrated Transportation Master Plan

3.1 Conceptual Transportation Master Plan and Short-term Implementation Plan (Summary)

Tomokazu WACHI, JICA Study Team

(1) Understanding the Present Situation

(a) Road Network Problems and Issues

For the supply side of road network, the road network in Jabotabek has lack of collector and local roads and road density is low. In addition, the East – West connection is weak. On the demand side, the problem is seen in the concentration of traffic in CBD as well as the continuously increasing traffic demand.

(b) Causes of Traffic Congestion

Traffic congestions are brought about by a variety of causes, which include the following: 1) Physical bottleneck due to inconsistent carriageway width, 2) Reduced capacity at intersections, 3) Presence of street market/street vendors, 4) Loading and unloading of bus passengers on the road, 5) Inappropriate parking practices (illegal parking, double parking,) 6) Departure/arrival of a lot of buses at bus terminal, 7) U-turning vehicles, 8) Railroad crossings, and 9) Bad driving practices.

(c) Problems and Issues in Railway Sector

In the railway transportation sector the following problems and issues have been identified: 1) Station plazas do not have sufficient space or are non-existent, 2) Access roads to stations are poor or non-existent, 3) Station facilities are poor, 4) Train operation is not punctual and slow, 5) Number of electric cars is insufficient resulting in overcrowded trains, 6) Spare parts are difficult to procure, 7) Frequent failure of electric power facilities due to lightning, and 8) Train operation poses danger due to outdated signaling system.

(d) Bus Transport Problems and Issues

Problems and issues facing bus transport are as follows: 1) Bus crew's profit-oriented operation (unreliable bus operation,) 2) Inefficient use of bus terminals, 3) Weak enforcement on bus operation, 4) Financial difficulties for bus operators due to economic crisis, 5) Decreased number of buses in operation, 6) Increased incidence of robbery on board and at bus terminals, 7) Poorly maintained bus-related facilities, and 8) Inadequate bus route structure.

(e) Impediments to Project Implementation

Based on the review of the past studies and projects, the following have been identified as causes which delay the implementation of the projects: 1) Shortage of Development Fund, 2) Land Acquisition Problem, 3) Institutional Failure: Lack of Power and Co-ordination, and 4) Lack of Human Resources, Planning Data and Master Plan by Local Government.

(2) Review of Existing Master Plans

The direction of regional development designated in "Jabotabek 2015" is confirmed as follows:

1) Restricted area consists of the southern part of the Jabotabek region for water reservoir and the technically irrigated agricultural lands in the northern part of Kabupaten Bekasi.

2) Primary direction of urban development is set East–West.

3) Buffer zones are designated between settlement areas.

(3) Developing a Conceptual Integrated Transportation Master Plan

(a) Objectives for Transportation System Development

The Study Team proposed four objectives for urban transportation system development. The objectives consist of 1) Efficiency to support economic activities, 2) Equity in mobility among all the members in society, 3) Betterment of the urban environment by minimizing the adverse effects of vehicle emissions and noise, and 4) Safety to reduce victims in transport accidents.

(b) Urban Transportation Policy Measures

To achieve the objectives, four urban transportation policies have been proposed by the Study Team and these policies are further broken down into more detailed urban transportation policy measures as follows: 1) Infrastructure development, 2) Traffic control and management, 3) Improvement of public transport services, 4) Transportation demand management, 5) Normalization of transport facilities, 6) Reduction of air pollution and noise, and 7) Improvement of transport safety.

(c) Establishing a Conceptual Integrated Transportation Master Plan

Prior to establishing a short-term implementation plan, a conceptual integrated transportation master plan was developed to bring consistency between a short-term implementation plan and a long-term development plan. Emphasis was given to major transportation facilities in the conceptual master plan.

(d) Transportation System Development Policy

The Study Team proposed five transportation system development policies: 1) Development of Primary Transportation System to support Inter-regional Transport Demand, 2) Strategic Corridor Development, 3) Strengthening Accessibility between Urban Centers in Botabek, 4) Improving Accessibility between Urban Centers in Botabek and Jakarta and 5) Hierarchical Road System Development.

1) Development of Primary Transportation System

Primary transport system should be developed to improve access to important transportation facilities such as seaport and airport.

Improvement of accessibility to the Tg. Priok Port should be further enhanced by construction of the Jakarta Outer Ring Road (E-3 Section.) This improvement can be accomplished by construction of the Tg.Priok－Citayam－Parung Panjang new railway line for freight transport as well.

At the same time accessibility to the Soekarno Hatta International Airport should be improved by construction of the Jakarta Outer Ring Road (W-1 Section and W-2 Section). The extension of the Tangerang Line to the Soekarno Hatta International Airport would support the travel needs of air passengers.

2) Strategic Corridor Development

Transportation network can be viewed as a tool for guiding urban structure in a desirable direction.

Transportation system development in the East-West direction would induce urban development in a designated area. This includes strengthening the Tangerang – Jakarta – Bekasi east-west corridor and developing the MRT East-West Line (Tangerang – Duri – Bekasi).

For the North - South direction, Jakarta – Depok – Cibinong – Bogor north-south corridor should be improved to further meeting the travel demand.

3) Strengthening Accessibility between Urban Centers in Botabek

Accessibility between urban centers in Botabek should be enhanced to achieve sustainable development in urban centers in Botabek by augmenting mutual interaction between the centers. Furthermore, development of the Outer Outer Ring Road would improve accessibility between the urban centers in Botabek.

4) Improving Accessibility between Urban Centers in Botabek and Jakarta

Accessibility to the urban centers in Botabek from the national primary center Jakarta should be strengthened to support the urban activities in urban centers in Botabek. Public transportation system should be further developed between Jakarta and the urban centers in Botabek. Moreover, arterial road should be developed more intensively between Jakarta and the urban centers in Botabek.

5) Hierarchical Road System Development

Road system should be developed in a hierarchical manner in order to develop well-organized urbanized areas. In addition, in as much as there has been division of community owing to railway development and toll road development, sufficient access between areas should be provided as well.

Linear road network development with grid pattern arterial road system is proposed in the Tangerang-Jakarta-Bekasi corridor as well as in the Jakarta – Depok – Cibinong – Bogor corridor.

Collector road should be added in Jakarta to connect arterial streets and local streets. Flyover and underpass should be constructed at major intersections and between divided areas.

(4) Short-term Implementation Plan

(a) Criteria for Short-term Implementation Plan

The economic crisis has made it difficult for the government to allocate a huge amount of fund for transportation infrastructure development; therefore, projects which do not require a huge fund should be selected for short-term implementation plan.

Implementation of many projects has been delayed due to land acquisition problem, thus the projects and programs without land acquisition problem should be selected for short-term plan.

(b) Short-term Railway Improvement Plan

The proposed short-term railway improvement plan consists of the following components:

1) Improvement of Station Facilities, including Improvement of Station Plaza and Access Roads, Construction of Pedestrian Deck/Underground Passage, Construction of Over-Track Station and Raising/Extension of Platform and Improvement of Track Layout;

2) Reinforcement of Stabling Yard at Bogor Station;

3) Rehabilitation of Electric Facilities for Protection of Signaling from Lightning and Rehabilitation of Damaged Communication Facilities;

4) Improvement of Level Crossing Equipment especially on the Western and Eastern Lines;, and

5) Procurement of Additional 32 Electric Cars to increase frequency for Jabotabek railway.

The total cost of improvement is Rp. 323,501 million, which is broken down as follows: Rp. 93,875 million for Station Facility Improvement, Rp. 37,437 million for Countermeasures for Lightning, Rp. 121,192 million for Rehabilitation of Communication Facilities, Rp. 52,329 million for Improvement of Level Crossings, and Rp. 18,668 million for the additional 32 Electric Cars.

6) East-West Connection by Short-cut

The direct connection of east and west will enable the operation of trains directly from Tangerang, Serpong and Bekasi to Dukuh and Manggarrai stations in the CBD. This might be included in the intermediate term but it would encourage development in the east-west direction.

(c) Short-term Bus Transport Improvement Plan

1) Reformation of Bus Operation Regime

Reformation of bus operation is the most crucial improvement in bus transportation in Jabotabek. The specification of bus service should be reviewed and, at the same time, a new fare collection system should be considered. A bus operation monitoring system, or bus location system, is proposed not only for passenger convenience but also for control and management of bus operation by bus company and relevant agency. This costs Rp. 8,703 million for 35-bus demonstration project.

2) Bus Priority Corridor Development

Introduction of busway would lead to efficient bus operation by providing exclusive space for buses. This scheme is proposed on Jl. Pemuda/ Jl. Pramuka corridor (11.4 km) and Jl. Sudirman and Jl. Thamrin corridor (8.2 km), and the estimated cost is Rp. 7,903 million and Rp. 8,436 million in case of "with flow," respectively.

3) Bus Priority Signal System

The bus priority signal system would further enhance smooth bus operation.

4) Bus Route Restructuring

Bus route structure should be reviewed and restructured based on the actual bus passenger demand and passenger travel pattern.

(d) Short-term Road Development Projects/Program

Two road development projects are proposed for short-term implementation plan. They are the Kota Bogor Ring Road Project (4.06 km) and the Jakarta – Bekasi Connecting Road Project. (4.13 km)

Another important proposed measure is establishment of the metropolitan-wide road network master plan.

(e) Traffic Control and Management Measures

Traffic control and management measures are usually seen as short-term measures. Policy measures of this category include 1) Traffic Signal Improvement, 2) Traffic Control Devices, 3) Geometric Improvement, 4) Pedestrian Facility Improvement, 5) Traffic Information System, and 6) Alleviation of Traffic Congestion at Specific Points.

Traffic signal can be improved in various ways, such as upgrading of the existing signals, signal coordination, review of signal phasing and timing, rehabilitation of existing signals, and installation of additional signals.

The locations for alleviation of traffic congestion are selected at 1) Tomang Intersection in DKI Jakarta, 2) Ciledug Intersection in Kota Tangerang, 3) Ciputat Area in Kabupaten Tangerang and 4) Tambun Intersection in Kabupaten Bekasi.

(f) Soft Measures to be implemented in Short term

Various soft measures can be implemented in the short term without large fund requirement. This includes the following measures:

1) Traffic Restraint Scheme such as Road Pricing, Parking Restraint Policy;

2) Short-term Environmental Improvement Plan;

3) Traffic Safety Enhancment Program;

4) Development of Urban Transportation Planning Database System; and

5) Human Resource Development in various fields, such as traffic control and signal system, vehicle inspection system, prevention of air pollution, database management and GIS-aided land use planning and control system.

(g) Urban Development related to Transportation

1) Land Use Zoning

Land use zoning to guide future land development is a tool to induce the desirable urban structure geared toward promoting rail-based transport passengers. The effects would take a long time but the action can be taken in short term, e.g., Special Development Zone.

2) Capture of Development Benefit

Methodology for capturing development benefits incurred from railway developments should also be taken into consideration, e.g., involvement of landowners in transportation system development.

(h) Institutional Set-up

It is recommended that the Jabotabek Transport Authority (tentative) be established to make consistent metropolitan-wide transportation system development plan and to manage and control transport demand in the region.

(i) Urban Transport Demonstration Projects

The Study Team proposed the implementation of the following demonstration projects in Phase 2 study in cooperation with relevant agencies:

1) Bus demonstration project;

2) Railway East-West direct operation and improvement of accessibility by providing feeder bus service; and

3) HOV (High Occupancy Vehicle) lane on inter-regional expressway.

3.2 Review of Land Use and Integrated Transportation System: Some Principles (Summary)

Prof. BS. Kusbiantoro, Institute of Technology Bandung

Some principles should be adopted to achieve an integrated transportation system.

First of all, the difference in land use between Jakarta and Botabek is compared. In contrast with the land use in Botabek, Jakarta is dominated by tertiary activities like banking or financial sectors; therefore, passenger trips are more important than freight transportation. Sufficient access is required for passenger travels between centers or sub-centers. In addition, good access should be provided to other cities, to other regions, or even to other countries. In this regard, access to the airport is also important. Given these activities, priority should be given to passenger trips. A compact land use, high-rise buildings, and mixed land use and mixed group are also needed towards zero transportation within centers. Mixed land use and mixed group is a key for integration of land use and transportation system.

On the other hand, Botabek is more concentrated on secondary activities such as manufacturing industry; consequently, freight transportation is more important than passenger trips. Botabek needs greater access to other cities for distribution of raw materials or products. A seaport is important for distribution of commodities.

The land use can be divided into the following two types. One is Type A, which is characterized as relatively well-established areas. In case of the MRT corridors, the land use along the north-south corridor falls under Type A. The existing trip demand is relatively high on this corridor. The other type is B, which is identified as areas not yet well established. The east-west corridor of the MRT can be categorized in this type. In the future, the trip demand will be increased on this corridor.

Comparing Type A and Type B, Type A is relatively well developed, thus the changes of land use is limited. The additional passenger demand is also limited, which would make the introduction of a new MRT or new railway system too expensive. Rather the existing railway network would be enhanced by identifying its potential. Stations are categorized into two types; namely, the stations with good access supported by road network and those with poor access. The stations with good access have potential to become major stations and the others, minor stations. Based on that, we could develop or improve the relevant stations according to this classification.

Type B is not an established area. In this land use there is room for urban renewal or urban redevelopment. Zero transportation trip can be expected within centers or sub-centers; on the other hand, large trip volume will be generated between sub-centers

because each center usually has its own unique function such as electronic industry or government and so on.

For Type B, we can do more with urban renewal development along the MRT corridor, in this case, the east-west corridor, and to restructure the supporting road network, so that door-to-door service for MRT or railway can be provided.

The urban centers in Botabek are expected to grow as self sustainable cities supported by provision of social and economic facilities and services within the centers, so that zero commuting trips to other cities are expected in the most extreme case. In these areas improvement of the existing railway services and the supporting road network is important.

Lastly, when considering integrated planning in the era of autonomy, the land use and transportation should be viewed as a system and should be integrated among areas. On the other hand, if we have an integrated system, the net benefit will be unequally distributed among the related regions.

For the first step, by using benefit-cost analysis, it should be proven that net benefit of the integrated plan would be much greater than an individual plan or program. Then it should be determined how to redistribute its costs and benefits. Based on this understanding, negotiation or compensation should be made among local governments. There is also a need to establish a forum or an organization for developing an integrated plan and programs. The precondition towards developing an integrated transportation system for Jabotabek is political support and commitment by involving public and private sectors. This should be supported by software measures, for example, legal aspect as well as organization and human resources. The financial resource is also needed for soft measures because usually, in Indonesia, funds are prepared merely for hardware but the funds for software are often ignored.

The last but not the least and the crucial point is leadership. It needs further discussion on who will be the leader, whether the head of the forum, the mayor, the regent or the governor.

3.3 Review of Public Transport Improvement Plans (Summary)

Dr. Heru Sutomo, Gajah Mada University

In Jakarta, many studies have been done in the area of public transport and most of them are thorough and comprehensive studies. Yet we have not really witnessed success of the improvements even after several years, especially after the wave of economic and political crisis.

In general, compared to other metropolitan cities, Jakarta is not good enough in setting a system. There are frequent users who already knew the road network, but many visitors cannot easily get access to information on the road network itself. Public transport service in Jakarta is not good enough for attracting visitors, either. The structure of public transportation system is not clear; it is uncertain which routes are trunk lines and which routes serve as feeder services. In contrast, we are aware that those who come to Londoncan easily go to some places by underground railway; the same can be said of Tokyo. This indicates that the transportation system can be understood not only by the residents but also by visitors in those cities.

The present bus operation in Jakarta is based on terminal system. All buses have to go to terminal and buses create congestion problem at terminals by themselves. No terminal is capable of handling ten thousand buses or more in a day.

Even during peak hours, bus frequency is not as high as expected because some buses travel long distances. It is proposed that bus route distance be shortened to improve bus frequency. The average distance to bus service is around 300 meters. If this distance is too far for people, facilities should be added to reduce walking distance. The bus transfer rate is high enough, reaching almost 60%. It means that six out of ten travelers have to change buses. There is always a trade-off between convenience and costs. If the fare system allowed passengers to pay only once regardless of the number of transfers, which is adopted in Vienna and other cities, this problem could be solved. Under the current fare system, people must pay each time they transfer.

The operation speed of buses at 10 km per hour is slow. It is merely twice as fast as walking and slightly less than a bike ride. As a consequence, bus operators have to face more competition. Bus priority scheme would contribute to improving efficiency of bus operation since it enables buses to travel faster.

In Jakarta around 1.5 million passengers travel during peak hours on about 22,000 buses. It implies that one bus should carry about 70 to 100 passengers. The use of a small fleet like Kijang or even Metro Mini is not appropriate in the context of Jakarta urban transportation.

Since many buses operated run in deficit at present, renewal is rarely done and the quality of bus services has never been improved.

Regarding regulation, more efforts should be made, especially on the licensing system, in which there is no element of competition at present. In many cases competition improves quality and at the same time reduces the cost. Privatization of the bus transport industry in Sweden has proven effective, cutting the operating cost up to 60 percent. It means that they can cut the operating cost, although keeping the same quality of service. There is still an opportunity for improvement by putting regulation, which enables to create competition among operators. Nowadays, what has been happening is the opposite way, that is, oligopoly. All operators work together and decrease service quality aiming for better profit, so that there is no competition whatsoever in this current system.

It should be kept in mind that autonomy is becoming the wave of everyday life. Even now, the central government does not have the capability to put together all the guidelines on public transport. The authority including tariff setting has been handed over to the local authority. There would be a danger of local authorities setting their own tariff and standard in different ways.

The procedure of licensing system is not different from those in other cities or even other countries. However, the difference lies in the fact that it is always unclear how a license is granted or what the criteria are for issuing a license.

We should identify problems and their causes. Either poor quality of the fleet or poor quality of the crew is often pointed out but it should be noted that those are two different things and should be distinguished from each other.

Bus lanes were introduced several years ago but after that minimal efforts have been made to improve effectiveness. Many bus lanes do not properly work as planned. In fact, a very cost effective way to improve bus transport is to reinforce the bus lane system. In Perth, for example, they simply use color pavement and it is very distinctive. Red pavement on the bus lane is easily supported by other road users and they do not encroach on the bus lane. This measure is not expensive but normally the result is quite significant.

The other problem is bus racing. The problem of bus racing is that a bus driver tends to adjust a certain part of the engine, so that the engine becomes powerful but, at the same time, it produces very dark exhaust gas, which is actually the issue of environment.

Getting reliable data on public transport is difficult simply because bus operators do not issue tickets. To deal with the problem, ticket sale machines can be put at bus shelters,

then ticket sales data is recorded. This data is very useful in bus transport planning.

Problems should be identified and analyzed to explore the root problem. Some problems are simply the consequence of other problems. The problems must be addressed properly and continuously because we must deal with the root problem. We might be able to eliminate other problems if the root problem was solved.

The enforcement is also one of the crucial problems. Eventually there is no enforcement system against those who violate the law or regulation. Furthermore, a monitoring system on bus operation has not been established either. If a bus location system is available, the location of buses running on the road or buses violating their routes can be identified; therefore, it is very useful for monitoring purpose. The current licensing process is not fair and the licensing system is murky; no one can really see what is in it. In the era of transparency of administration, it should be exposed to everyone. For instance, it should be explained why Mayasari Bhakti is given permission to run a particular road or why a certain operator is allowed to keep his license in spite of poor service. We must carry out a diagnosise on the problem itself.

Generally, transport planning, especially public transport planning, was not given attention by the authority. When checking the structure of DLLAJ, which is the local office for traffic and transport, there is no section responsible for planning of public transport. There is no public transport planning function in local authority level.

A very serious problem is the absence of a standard of service quality for public transport to date. A standard should be set on safety, punctuality and reliability of bus operation.

More comprehensive planning should be established including public transport planning. Traffic management should be planned in favor of public transport.

There is still room to cut the cost by improving maintenance. It is rather expensive for owners with one or two vehicles to maintain their units properly. Merger of these operators can be proposed in order that they can build up a maintenance center serving 50 vehicles or so.

Lastly, the way bus crews can get secured income should be explored. It is recommended that the number of crew be reduced to a one-man operation, whenever possible. If one crew can operate the bus, they can be paid at a reasonable level, otherwise, we have to pay for three crew members for one bus operation. It results in low income of crews.

Pricing system can be promoted by introducing competition and a tendering system. It would create a fair business environment among the operators.

3.4 Experience of Railway Development in Japan (Summary)

Mr. Yoshiaki Murata, Railway Bureau, Ministry of Land, Infrastructure and Transport, Government of Japan

Railways are very important facilities in Japan. They can carry a large number of passengers at high speeds. They are also environment-friendly and provide public transportation services. On the other hand, railways require enormous investment and can be exposed to business risk. Therefore, unless railway projects are fully evaluated in advance and implemented systematically, they become a financial burden on urban development. Today the government plays a significant role in railway construction, including fund raising.

There were five types of management systems of urban railways in Japan. The first one is National Railway and its group of companies. The others include the Private Sector, Public Sector, Teito Rapid Transit Authority and the Third Sector.

Japan Railway (JR) was established as a group of companies through reform of Japanese National Railway in 1987. The lines controlled by JR were constructed as trunk railway lines during the period of Japan National Railway. They are also being utilized as urban railway by increasing the number of stations in urban areas.

Private railway lines are constructed and managed by utilizing private funds. Most of them were originally constructed as railway lines connecting large cities with surrounding smaller cities. However, as large cities have expanded, the nature of private railway has evolved into railway within cities.

The aim of subway construction is to alleviate road traffic congestion in urban areas. The third sector consists of corporate bodies established through investment by regional government and various private railway companies. The railways were constructed by corporate bodies, mainly connecting the existing railway lines with newly developing areas. At present, the Third Sector plays the central role in urban railway construction in Japan.

The construction of subways requires enormous funds, thus the profitability is low. It has been almost impossible for a private company to construct new lines because of its inability to raise sufficient funds for construction. Therefore, the central government and Tokyo Metropolitan government established TRTA to invest in the project. Funds for construction of new subway lines have been obtained from various sources, public funds and loan, in addition to subsidies from the central government and regional government.

The role of central government is preparation of a master plan for railway network development in a city area, coordination in metropolitan-wide city planning and provision of subsidy and low interest financing for railway construction. On the other hand, the role of regional government is coordination in city planning and financing for railway construction.

It should be emphasized that the role of government is important in railway development. However, the government agency concerned must obtain a consensus for the financial assistance. This financial assistance should not be viewed as a business investment which expects sufficient return but rather as a part of the cost which is required for promotion of urban development.

The Saitama Railway Corporation started the operation of the subway in the end of March. The length of this line is 15 km, the construction period is 6 years and the transportation capacity is 230,000 passengers a day.

When railway is constructed in Japan, it is expected to achieve an annual surplus within ten years after commencement of the operation, and an accumulated surplus should be accomplished within 30 years. However, neither reducing the cost of subway construction nor increasing railway fare income is possible under the current condition in Japan. Thus the minimum goal is set to at least cover operating cost.

The total construction costs including rolling stock amount to 280 billion yen (or about 2.4 billion USD). Half of the capital was prepared by cities, one-third was provided by relevant companies that manage railway services, and the remaining portion came from investments by various private companies, such as financial institution and companies located along the line. The central government, combined with regional government, contributed half of the total investment as government subsidy. Moreover, obligatory charges are to be levied from the housing development companies operated along the corridor.

Eighty (80) percent of the borrowing consists of the government's long-term, low interest loan. The term of redemption is 25 years. This aims at limiting the burden of interest as much as possible. In addition, it aims to avoid the repayment of large amount of borrowing within a few years after the commencement of operation, which is the most difficult period for raising funds.

According to the economic crisis, construction cost has increased and passenger demand has declined. To deal with this problem, construction cost was controlled strictly and financial assistance was added mainly from regional government. In this way these difficulties can be overcome.

In conclusion, fund raising is a key to urban railway construction. Therefore, both central and regional governments must be deeply concerned with urban railway construction. Involvement of both central and regional governments in a railway project is the primary key to its success.

3.5 Comments and Questions in the Morning Session

The discussions were undertaken in a talk show style guided by a moderator, Dr. Sutanto Soehodo (MTI). Questions and comments were invited from seminar participants as well as panelists as follows;

Mr. Purnomo Sidi, West Java Transport Society/Kimpraswil on the Transport System Development Policy

For strategic corridor development of east-west and north-south corridors, these corridors are eventually connected to form a "T-shape" system and the connection between the east-west and the north-south would create problems. It would cause conflict between inter-regional passenger transport and intra-metropolitan because they are different flows of traffic.

The hierarchy of urban center should be taken into account when considering transportation system development policy for urban center strengthening. For instance, Tangerang, Depok, Cibinong, Bogor, Bekasi and Cikarang are of different level compared to the other urban centers in Botabek.

Regarding hierarchical road system development, the linear road network development with grid pattern arterial road system could be considered as the Primary and Secondary systems. The primary system is normally a network serving regional transport, while secondary system is a network within the urban area. Grid-pattern arterial road system for the corridor would have weakness in the hierarchy and create more potential conflicts.

The concept of the special development zone should be clarified in relation to urban structure or sub-urban center.

Policy between public and private transport would be clearer if modal share between private and public transport were provided.

Comments for Prof. Kusbiantoro

It is good to analyze the land use and transport system. We could also consider land use function as the primary activity. Land use for primary activity usually produces flow of goods and land use for secondary function usually creates daily traffic, which generates passenger flows. It is suggested that this matter be considered in the analysis of other land uses within the Jabotabek area.

For the policy of decentralization, the relationship with major cities outside the Jabotabek region, such as Bandung, Cirebon and Serang, should be clarified, especially with Serang, which has become one of the urban centers and a provincial capital.

Question for Dr. Heru on Para-transit

It is necessary to analyze the major type of public transport system for improving public transport. There are road-based and rail-based transport and also bus operation and para-transit operation. The improvement of para-transit operation is different compared to bus operation. Para-transit system is quite effective and it has become one of the most efficient systems in South Asia.

Answer from Dr. Heru Sutomo

Para-transit is competitive and suitable for a certain size of city like Bandung and other cities. The use of small vehicles is actually unfair because the success of one operation gives burden and extra cost to other road users.

For Jakarta, a larger size of vehicle should be focused for public transport. It is recommended to have a minimum size of vehicle with between 25 and 30 seats, since this capacity has an element of mass transport.

It should be noted that the old traffic law, Traffic Law of 1965, stated that the minimum size of public transport vehicle is 20 seats. However, the new traffic law allows utilizing a vehicle with a seating capacity of 8 and it would create more problems than benefit.

Perhaps a small vehicle is suitable for peripheral areas and suburban areas as a complementing mode of transport.

Question from Mr. Djoko, Jasa Marga on Tariff Setting

There is no free road nor free railway use. Tariff is directly related to the viability of any transportation system or project. Since public concerns are about the service quality, transparency, management and tariff setting, do you have any concept on tariff setting? Is it necessary to establish an independent tariff regulatory body?

Answer from Dr. Heru Sutomo

Tariff setting is the next step after cost. We are going to reduce the cost by putting competition as a stimulus for any entrepreneurs, then a decision on the tariff will be made.

There is an objective in deciding the tariff. The authority should also consider whether the government is willing to make the transport industry itself sufficient or not. One rule cannot fit all because certain cities may have a different objective. For example, in Stockholm, the local government is willing to pay 70 percent of the total running cost of public transport to promote tourism, and the passenger revenue covers merely 30 percent.

Instead, the government enjoys the growth of tourism. In terms of tariff, there is no one rule that fits all.

Question from Mr. Danang Parikesit, Gajah Mada University

Was there anything mentioned in the report about short-term plan of the integrated transportation for Jabotabek? Any numbers shown with regard to what extent the projects in the short term could achieve its objective? The report clearly mentioned several objectives but numbers related to the objectives were not shown. Is it going to be included in the next stage or already included in the first stage of the project?

Question for Prof. Kusbiantoro

On the integrated transportation for Jabotabek, it is suggested that a higher level of land use and transportation be looked into. The term "integrated transportation system" is confusing. Does it mean making everybody happy by allowing them to converge in one place?

Answer from Prof. Kusbiantoro

An integrated concept for the short-term is costly because we have to share the same idea, the same vision and this process takes time. It also takes time to change our culture. Usually we prefer to do things on a short-term basis, for instance, direct impact, quick building and so on. But to adopt an integrated approach means taking time to develop our vision and idea, but the benefit is long-term. .

Comments from Prof. Ishida

In an ideal world, everybody can be satisfied. That being the case, in Utopia, everyone could be satisfied. But the word "Utopia" which comes from the Greek "ou" meaning "not" and "topos" meaning "place" is actually nowhere, but somewhere, somehow, something can be set to the transportation field.

We cannot assure everyone can be satisfied, but if we can set some assumptions or give choices to the general public, say, pay a higher fare or higher tax or waste time or damage their health, we can show the consequence of the different choices. That is the obligation or duty of transportation engineering and planning. So, no one can be satisfied without any share of burden or compensation.

With regard to bus operation, not only in Jakarta but also in Bangkok and Manila, the operators of bus services are losing money mainly due to the strict tariff setting by the government. Even in Manila or Jakarta, the operators of premium bus services, like PATAS AC, are getting money for their business. It is not necessary to have low tariff for low-income people. This is a kind of welfare policy or income distribution policy of

the government. Why should the bus operator undertake the income or welfare policy for the government?

4. Afternoon Session: Review of the Jakarta MRT Project

4.1 Review of Jakarta MRT Project (Summary)

Mr. Isamu Gunji, Team Leader of JICA Study Team

1. History and Background of Jakarta MRT Project

The proposed MRT is a "greenfield" project that has resulted from an almost 20-year-long process of general transport/public transport planning for the Jabotabek area. A shape of the MRT was officially identified in the Consolidated Network Plan prepared by the Inter-Department Working Group in 1993 and developed through the 1997 Basic Design prepared by DKI Jakarta and the private sector Indonesian-Japanese-European Group (IJEG), and the 1999 Revised Basic Design by MOC/JTCA.

2. Project Base Cost

The project base cost was estimated at 13,683 billion Rupiah in constant 2000 prices for the selected alternative alignment, and of which major cost components are shown in Table 2.1.

Table 2.1 MRT Project Cost Estimate (in constant 2000 prices)

Major Cost Components	Cost (Billion Rp.)	Composition (%)
(1) Civil Work and Equipment	9,011	66%
(2) Consulting Engineering Services	858	6%
(3) Physical Contingency, Insurance, etc.	1,138	9%
Sub-total (Engineering Base Cost)	*11,007*	*80%*
(4) Land Acquisition and Compensation	771	6%
(5) Tax and Duties	1,904	14%
Sub-total (GOI Contribution)	*2,675*	*20%*
Total (Project Base Cost)	**13,683**	**100%**

Source: JICA Study

3. Projection of 2005 MRT Ridership and Revenue against Varied Fare Levels

Table 3.1 shows relationships between MRT ridership and the fare box revenue against varied fare levels. The result indicated that the average fare level of Rp.2600 could produce maximum revenue with the estimated demand of about 180,000 passengers per day in 2005, and 330,000 passengers per day in 2015.

Table 3.1 Projection of 2005 MRT Ridership and Revenue against Varied Fare Levels (without enhancement measures)

Fare Structure	Total Passenger (1000 pax/day)	Passenger-Km (1000 pax-km/day)	Revenue (million Rp/day)	Note: Average Fare
(1) Rp.500 access + Rp.100/Km	368	2110	395	Rp.1075
(2) Rp.800 access + Rp.325/Km	177	975	458	Rp.2600
(3) Rp.800 access + Rp.425/Km	137	746	427	Rp.3100
(4) Rp1000 access + Rp.575/Km	84	447	341	Rp.4050

Source: JICA Study Team

Besides the "no enhancement measure" option, some alternative measures to enhance the MRT ridership were assumed and which study results are compared in Table 3.2.

Table 3.2 Projection of MRT Demand in Different Scenarios (at an average fare level of Rp.2600/ride)

Enhancement Measures (Demand Scenarios)	Ridership (x 1000 pax/day)	
	Year 2005	Year 2015
(1) Do nothing (No enhancement measures)	177	325
	(100)	(100)
(2) Road Capacity Capping by TDM measures (ex. Road Pricing, Parking Control, etc.)	278	571
	(157)	(176)
(3) TDM measures + Bus Route Restructuring + Intensive Land Use in Rail Stations	402	650
	(227)	(200)

Source: JICA Study Team

4. Economic and Financial Internal Rate of Returns (IRRs)

Based of the project costs, passenger demand and revenues at the optimum average fare level of Rp.2600/ride, the economic and financial rate of returns were analyzed for the alternative demand scenarios as presented in Table 4.1.

Table 4.1 Economic and Financial Internal Rate of Returns (IRRs)

	Demand Scenario*		
	(1)	(2)	(3)
Economic IRR	7.5%	13.2%	14.1%
Financial IRR	Negative	Negative	Negative

Source: JICA Study Team

* Note: refer to Table 3.2

Efforts to enhance the MRT ridership are essential to make the project economically feasible (Demand scenarios 2 and 3). Meanwhile, the project is financially unfeasible and it requires significant improvements in financing structure to enable an operating

entity to run the MRT in a financially sound manner.

5. Financially Enabling Conditions

The life cycle MRT project cost was estimated and summarized in Table 5.1.

Table 5.1 Life Cycle MRT Project Cost (Demand Scenario 3)

Initial Investment Cost			Life Cycle Additional Investment Cost			Life Cycle Total Investment Cost	Life Cycle Operation & Maintenance Cost
Operations Related Costs*	Civil Work & Remaining Costs	Sub-Total	Additional Rolling Stock	Facilities Replace-ment Cost	Sub-Total		
2.7	11.0	13.7	1.1	4.9	6.0	19.7	12.5
(20%)	(80%)	*(100%)*	(18%)	(82%)	*(100%)*	-	-
(14%)	(56%)	(70%)	(5%)	(25%)	(30%)	*(100%)*	-

Source: JICA Study Team

Note *: Including platform facilities, rolling stock, power supply & distribution system, workshop equipment, safety & security systems, signaling & train control systems, communication system, SCADA system, control center, etc.

6. Return on Investment (ROI) by Combined Scenarios

The return on investment was estimated as shown in Table 6.1. The result indicates that the project will become financially feasible only when the responsibility of the operating entity is confined to the operation-related cost, which is about 14% of the life cycle investment or 20% of the initial investment costs. Provided that the lending or on-lending conditions to the operating entity should be 5%~7% per annum, the return after financing should be lowered to a few percentage. Therefore, the project feasibility will not be assured without strong financial support from the central government, such as lower interest rate, longer grace and repayment periods.

Table 6.1 ROI by Combined Scenarios on Investment and Passenger Demand

Investment Scenario* (% Share of Life Cycle Investment by Operating Entity)	Demand Scenarios (Demand in 2005)		
	(1) No Enhancement Measures	(2) Road Capacity Capping by TDM Measurers	(3) TDM, Bus Rerouting & Intensive Land Use
	(177,000 pax/day)	(278,000 pax/day)	(402,000 pax/day)
Invest. Scenario 1: 100%	Negative	Negative	Negative
Invest. Scenario 2: 44%	4.2%	6.4%	7.1%
Invest. Scenario 3: 39%	5.1%	7.6%	7.9%
Invest. Scenario 4: 14%	7.1%	9.4%	9.6%

Note: **Investment Scenario 1:** Life Cycle Total Investment Costs
Investment Scenario 2: Operation-Related Initial Investment and Additional Rolling Stock & Replacement Costs
Investment Scenario 3: Operation-Related Initial Investment and Replacement Costs
Investment Scenario 4: Only Operation-Related Initial Investment Cost
*: Annual Operation and maintenance costs are assumed to be fully shouldered by Operating Entity

7. Conclusion and Recommendations

As a result of the review of Jakarta MRT Project, it can be concluded that:

1) Necessity of the MRT project has been strongly emphasized from the transport planning point of view. However, the project will become economically feasible only if every effort to enhance the MRT ridership is successfully achieved with various measures.

2) Since the project is not financially feasible a financing support by the government is essential to enable the MRT operating entity to run the system.

In order to attain the project feasibility, the following recommendations will be made:

a) Absolute financial support by GOI, sharing more than 80% of the initial investment cost,

b) Strong political will and consensus among people to receive a great financial contribution by GOI,

c) Low lending terms to GOI for the long-term loan such as Special Yen Loan,

d) Minimal on-lending conditions by GOI at less than 5% p.a. to Operating Entity. The higher the on-lending rate to the operating entity, the higher the share of investment cost should be borne by GOI, and

e) Absolute necessity to effectively execute enhancing measures to encourage the use of MRT.

4.2 Review on the Jakarta MRT Project: Financial & Economic Analysis (I) (Summary)

Dr. Sidharta Utama, University of Indonesia

Passenger Demand Forecast

It may be optimistic to increase passenger demand at annual growth rate of 6.3%. If the demand is overestimated, it would result in shortage of revenues and would lead to financial difficulty to the operating entity.

Price Adjustment Mechanism

If the financial analysis was made on current price, thus the underlying assumption could be that price and fare be adjusted to inflation. However, toll rate in Jakarta has not been adjusted to inflation for the past 5 years. A price adjustment mechanism is needed to bring about a healthy financial condition.

Target Market

The target market for MRT is set for PATAS AC users but it should be extended to private car users since diversion of private car users would contribute to alleviate traffic congestion more significantly. Targeting private car users is more feasible in terms of economic benefit.

Risk of Exchange Rate Fluctuation

The Study utilized the exchange rate of Rp. 8,000 to one US dollar; however, the currently prevailing exchange rate is around Rp.10,400. Therefore, the internal rate of return should be lowered. To reduce the risk, we should minimize the import content of the Project.

Cost Risk

The cost of the MRT project consists of a large portion of fixed cost. To reduce risk, fixed cost components should be reduced as small as possible.

Share of Government Funding

Investment Scenario 2 is recommended to give motivation to the operating entity to perform well. With Demand Scenario 2 or 3, the internal rate of return of 6 – 7 percent seems not high, but it would be 15 to 17 percent after it is adjusted to inflation.

It is proposed that the share of government funds be determined based on the proportion of external benefit and internal benefit (revenue), rather than financial viability of the operating entity.

Capital Structure

The proposed capital structure of 70% debt and 30% equity is risky since merely the most optimistic scenario would bring about positive cash flow. Furthermore, the fix coverage ratios are very low in all scenarios. It implies that the default risk is very high. Therefore, it is recommended that debt to equity ratio be lowered. Also interest payment should be tied to the revenue generated and debt should be in Rupiah currency.

4.3 Review on the Jakarta MRT Project: Financial & Economic Analysis (II) (Summary)

Dr. Bambang Brodjonegoro, University of Indonesia

Possibility to Finance by Loan

First of all, regarding the soft yen loan that the government of Japan offered to finance the project, from macro economic point of view, especially from the central government budget, it is very risky to take on any loan, even though it is a very soft loan. Historically, the Japanese funding agency always gives Indonesia a relatively soft interest rate. Unfortunately, due to the crisis, the problem is with the central government budget. Any additional loan will be very risky since our debt already reached almost 100 percent of our GDP.

Financial Responsibility for MRT Project

Another issue is who will bear the sunk cost This MRT project is a very huge project, so that it will create huge sunk cost. The responsible agency might be a choice between the central and local government. In this case, if we tried to build the MRT, the local government might be the more responsible body to handle the sunk cost because everything will be locally (what? procured?). All the materials of the MRT cannot be easily transported to other regions. In this case, the local government might have more possibility in handling sunk cost. However, it depends on the financial capacity of the local government itself.

New MRT Development or Improvement of Existing Transportation System

Second issue is whether we have to build the MRT or we should improve the existing transportation system first. Taking into consideration the budget situation as well as the general condition in Indonesian economic activity, it is better for the government and for the Japanese funding agency to consider improving the existing transportation system because the existing transportation system, especially in Jakarta, is not optimal yet. It does not achieve the maximum capability; therefore, we should focus first on that existing system before getting into a risky project, such as the MRT project.

Needs for Coordination by Special District

The reason why the transportation system is not optimal yet is that there is a problem of coordination among the local governments in Indonesia, especially for this case, between Jakarta government and Botabek governments. There is no real coordination among them. The first step to be taken is to set up strict coordination among the local governments before making detailed improvement on the existing transportation system.

This is not an easy job. A proposal can be put forward to make a special district for the metropolitan area like Jakarta. This special district does not have to be an administrative district. Administrative district is still to be the existing local government. For instance, Jakarta provincial government, West Java, Banten, Tangerang Kabupaten and Bekasi Kabupaten and so forth. They are still there but we need a special district to deal with special issues. And one big issue in the metropolitan area is transportation. That special district has to be the party responsible for overseeing the improvement of the transportation system. This is one thing that we can do before taking the big risk with the MRT project.

Marketing Strategy for MRT Passengers

The impact of MRT should be explored at least for the Jakarta economy. Regarding the strategy of the marketing of MRT itself, we had better adopt the push strategies, emphasizing on diversion from the private car users because one factor to the success of implementing MRT depends on making the private car users shif to MRT quickly. This is the main objective of having the MRT, not the diversion of bus passengers to the MRT because that will not solve the traffic congestion in Jakarta. In this case, the bus system should still be there and be improved because that is the duty of local government or the central government to provide all social classes or all levels of society with the appropriate transportation system. If some groups feel that bus system is more appropriate, then the government should provide the appropriate level of bus services. Similarly, if people prefer to use MRT, then MRT services has to be provided. Every group should have appropriate services. If we focus on the private car users, we will have greater potential revenue for the MRT itself.

Macro Economic impact of MRT Project

I did some study four years ago to examine the impact of the MRT development. At that time, using the data of 1997, the study revealed that the construction of the MRT would create the output multiplier of 1.8, that is, there is 0.8 as indirect effect of MRT in Jakarta. This is based on the construction itself, not the operation. The employment multiplier was 2.1. The income multiplier is slightly higher than the others accounting for about 2.3. In terms of multiplier, having the Jakarta MRT project , especially during the crisis period, is very good to alleviate some problems in the local economy. Regarding the job generation, the MRT project would create an additional 20,000 jobs in Jakarta annually. It can be said that this figure is low and it should be more, compared with the MRT's huge amount of investment. Ideally this kind of project should create more than 50,000 jobs. With regard to Regional Gross Domestic Product (RGDP) generation by building MRT, the impact to Jakarta was counted not merely using the value of the investment itself but also by how much the Jakarta RGDP would increase.

It was estimated that about 0.2 percent of additional RGDP would be generated in Jakarta. This number seems small, but it should be noted that annual growth in normal time is 6 or 7 percent, thus an additional 0.2 percent by having the project means something significant for the Jakarta economy. The government could expect this kind of macro economic impact, if they still build MRT, regardless the budget and funding itself.

4.4 Review on the Jakarta MRT Project: Operator's Perspective (Summary)

Mr. Sjahrizal Siregar, PT. Kereta Api Indonesia

If PT. KAI was asked to be the operator of MRT, there would be no problem because the company has experience in this field, even in difficult business time as the case in Indonesia right now. Even if the central or local government enters the railway business like MRT, it would be a welcome event and we wish them well as competitor in a fair and healthy business environment.

Transport industry should be developed based on competitive principle. The power of control would not function well if an operator has no capability to control the system.

Prior to subway development there are other things to do, that is, to make efficient use of the existing resources. It may be the time for us to internalize the benefit of transport system to solve the financial problem in the transport sector.

The resources are not fully utilized in our environment. PT. KAI should review these resources and maximize the business opportunity. If the government does go into railway, prior to investment in this risky business, the government should learn the difficulties in operation of railway and improvement of the existing system. PT KAI should improve its fiscal policy and start joint operation or cooperation with other businesses. In advance to construction, a clear policy needs to be established, otherwise, no investor will be interested and public opinion will not support the MRT construction.

For mass transport, there is a dilemma. If a decision is made to postpone again the development of transport system, opportunity will be lost and social cost would increase. On the other hand, if no decision is made, it is also risky. We burn oil on the road and generate air pollution. We have a right to enjoy better life. Now Jakarta is no longer a good place to live due to environmental deterioration.

If another company runs the MRT, the government should provide competitive and healthy business environment. If PT KAI can procure the facilities from the government, the other company should also be treated equally with us. (?)

As an operator, we prefer the Investment Scenario 4 proposed in the Study. If the cost increased by 20 percent, the IRR would be 4.5 percent but if we manage efficiently, the IRR could increase to 14.3 percent. From the beginning, the project should not be treated as a side-business of the government but handled in a professional way. Efficiency can be tripled if PT KAI managed the project properly.

Lending issue is not an important issue for PT KAI since we can mobilize our potential competence. PT. KAI, however, cannot bear unrealistic burden and tasks in unclear

commitment. Without any commitment, the company cannot develop the system. PT. KAI can build the MRT system and pay interests on the loan. It would be no problem if it is based on clear commitment.

4.5 Review on the Jakarta MRT Project: Social Impacts (Summary)

Dr. Dody Prayogo, MPst., University of Indonesia

The first point is pertaining to regional inequality. People, especially those living outside of Jakarta, believe that Jakarta is the center of wealth, power, economic activities and human resources. If cost burden for MRT development is imposed on the central government, it eventually imposes the cost of the construction on people living outside of Jakarta, like Aceh and Irian. The local government must be directly responsible for the cost construction based on "Beneficiary Pay Principle". In order to facilitate that, there should be tax reform on social funding system, such as initiating a progressive tax system, general tax system and tax system for luxurious cars and number of individual private cars.

The second issue is public attitude. The main issue of public attitude is how participation of the people can be accommodated. The variety of mechanisms can be applied, including a poll of people, a social survey, a public hearing and socialization. In terms of public participation, it is important that people in Jakarta should be given some opportunity to state their opinion on the MRT project. The local government or MRT project agency should conduct some scheme of public involvement.

The third issue is social jealousy. Mass rapid transport should give the benefit to all social classes; in other words, in principle, all of the citizens in Jakarta should be able to have access to MRT. In many cases, there may be some kind of subsidy for ticket fare. The subsidizing system is another important issue to be studied. From the viewpoint of ability to pay, ticket amounting to Rp 2,600 (?) is too expensive because now the daily payment is merely about Rp 5,000 (?).

The fourth issue is about the importance of social assessment. Technical assessment, financial assessment and demographic assessment have been conducted in the Study but analysis on the social impact has not been completed. This is important because of the danger of people destroying facilities as a result of social anger. It is necessary to check some information on places considered as "hot spots," and the characteristics of the community and the citizenry, like population density, along the MRT corridor.

When some station facilities are built, people come to that point, and then informal sector, KAMPUNG, new slump area, etc. will follow. That impact may be very significant. When railway transportation is developed, social problem will arise and social change will occur in the area of railway. Basically we understand that the railway system is a basic transportation facility and urgently required for a metropolitan city like Jakarta. But during this period of riot and reformation, much more problems will come up than

we expect when this facility is developed. Attention should be paid and the impact cannot be neglected.

4.6 Review on the Jakarta MRT Project: Possibilities for Private Sector Participation (Summary)

Mr. Santoso Ramelan, Bakrie & Brothers

In the terms of reference regarding the involvement of private sector in Jakarta MRT project, it was mentioned that there are two purposes of that. One is to reduce the burden on public sector of central/local government, and the other is to introduce an efficient management skill by private sector.

There are some patterns of privatization, such as BOO, BOT, BLT and DBOM, all of which are applied to separate capital investment in infrastructure facilities and operation facilities. It seems very crucial and urgent task to select who will become the investor for the whole project or only the operating entity. The possibility for our company and the others to join this project depends on financial feasibility.

As a private company, we emphasize that the project should be human-oriented, rational and realistic. Firstly, citizens should have a right to be involved. Secondly, from the viewpoint of private sector, the project should be rational for the company to survive and be responsible for all stakeholders concerned with the company including the public, government, owner, financial institution, etc. We prefer the scheme that provides the efficient and effective mechanism that will secure revenue enough for operating cost, fixed cost, non-operating cost, appreciation and depreciation cost and financial cost. Thirdly, we should be realistic and we have to finish what we have started using all resources in our control. In other words, we should not use any resources out of our control.

With separation of infrastructure construction from operating facilities emerges the problem of sharing revenue between private sector and public sector. Regarding the reality to be involved in the big project, the private sector should consider the capability in raising fund, and providing the technology and the well-experienced human resources to manage or to work. As a result of the present economic situation in Indonesia, where we are facing a banking crisis, liquidity problems and loan constraint, it is difficult to find long-term financial market. It limits construction activity for the infrastructure that costs around 70 percent of the total cost of the MRT project.

The decision on the privatization pattern, however, depends on the public sector or local government. In handling this portion, public sector have to use a financing scheme that can be arranged by G to G basis, and make available land acquisition with reasonable price including provision of rights to utilize the land.

It is still difficult to pay interest even for the low rate of G to G loan. We will be

responsible for the operating facilities provided by BOO pattern, which includes finance to provide IMM such as train, rolling stock, cars, maintenance and replacement, if almost all of the facilities provided by the public and then the private sector can operate at a profit.

In addition, good and transparent partnership between private sector and public sector must be established in the scheme. Public sector should make an effort to implement enhancement measures, and private sector can be involved in implementation that includes management and optimization of land utilization at the depot as real estate and property development, and management in optimizing the implementation at minimum cost.

In our preferred scheme, we can use the convention of revenue sharing in the public sector portion. The implementation can be managed by a joint venture (JV) company, which will be established and owned by public sector and private sector.

The participation of private sector could achieve the purpose of reducing the financial burden of public sector and sharing the efficient private management skill to optimize the resource of the system.

Finally, if Jakarta started to use the MRT system in the north-south and the east-west corridors, more tracks will be needed to accommodate the increasing passenger demand, then many other cities will also need an MRT system.

The project would also generate a lot of job opportunities directly for design, construction, procurement, production, operating services including repair and maintenance and indirectly for media, restaurants, shops, kiosks and property business.

Indonesia has not yet had any experience in construction and operation of MRT system and still needs assistance from foreign experience for this project, which will give not only project experience, technology transfer and job opportunity but also a lot of benefits to the citizens by saving working time and energy, with better health as the result. The MRT fare system must be the key to success in modal-shift fromprivate car to MRT, rather than from bus to MRT. Even if there is social impact, if we can provide good security, we do not have to worry about the jealousy because jealousy can be alleviated by good campaign through mass media or promotion of this project.

4.7 Review on the Jakarta MRT Project: Central Government's Perspectives (I) (Summary)

Mr. Maryono, DG of Budget

The fiscal condition of the central government is very tight. The budget allocation during the five-year period especially for railway transportation, including the Jabotabek railway project, is not more than Rp. 5 billion in the FY 2000 and Rp. 6 billion in FY 2001. The project cost for the MRT amounts to almost 15 trillion, which is equivalent to 20 percent of grant transfer to local government. Thus, the allocation of such amount of funds seems very difficult to negotiate with our legislature.

For example, the Manggarai – Cikarang double-double tracking project needs Rp. 210 billion. Our legislature already cancelled this project since counterpart funding could not be prepared. The funding plan, including the scheme of SYL (Special Yen Loan), should be carefully prepared. The SYL scheme sounds attractive but it would be more attractive if 51 percent of materials could be procured from domestic market and only 20 or 25 percent from Japanese origin. In case of 51 percent of Japanese origin, there is no chance for us to get cheaper ones, for instance, materials from China. This percentage should be cut to 20 percent.

Secondly, I would like to explain about the capability building budget to maintain this program. We should not focus on merely building the MRT system but it is more important to consider how to maintain it and how to make better use of it to get the best results in the changing environment. Consequently, we should consider the operating fund for maintaining the system in the current development budget because any funding scheme for maintenance is not available in the current budget system.

In the budget proposal for FY 2002, it is mentioned that first priority for development is given to those directly linked with social basic need. In the field of transportation, our 2002 budget proposal emphasizes to maintain the existing network transportation. The 2002 budget allocation is not more than 10 billion rupiah. It is very difficult to implement the MRT project in the short term.

As the Study pointed out, we should recognize that the integrated transportation master plan is needed for Jabotabek. Taking the limitation of the government budget, the implementation of the action programs should have a suitable funding plan, including plan of Japanese loan/JBIC loan and other scheme like subsidy agreement from the central government to local governments.

Another essential element is to carry out the project step-by-step. Secondly, the implementation of the program requires coordination among the implementing agencies.

The agency concerned should prepare transportation projects in the year 2002 to support the MRT system.

Finally, it should be kept in mind that all of the projects are subject to approval by the legislature.

4.8 Review on the Jakarta MRT Project: Central Government's Perspectives (II) (Summary)

Mr. Bambang Susantono, Office of Coordinating Minister for Economic Affairs

Characteristics of MRT Project

First of all, on the characteristics of MRT project, it needs a gigantic investment of Rp 14 trillion and it is highly exposed to business risk. It means that if anything happens on the market of the business sector, it would affect the MRT project.

Experience in Thailand, for example, shows that the Thailand MRT has to restructure USD1 billion as of last month because of the business situation. It also happened in Malaysia. These worldwide experiences show that almost the same experiences happen in this kind of project.

A study by Jonathan Richman of 14 cities in the US in 1999 showed very consistent result that the LRT or MRT projects have underestimation of construction cost and overestimation on ridership. This kind of fact is also happening worldwide including in our neighbor countries.

On the other hand, there are efforts, for example, to include real estate into a package of MRT or LRT or we may call it transit-oriented development. Transportation demand is derived demand. This means that transportation demand really depends on a lot of factors outside the transportation system itself.

We have to secure a stable long-term and low interest fund over a long period. In addition, it is essential that careful analyses should be done on all the options for the MRT to avoid major financial burden to the public fund. During the implementation period, we also have to be careful not to overshoot the budget. Furthermore, the private sector participation in the MRT should be explored as extensive as possible.

Policy of Infrastructure Development in the Office of Coordinating Minister for Economic Affairs

The following are our policies regarding infrastructure development projects:

Policy No. 1 Large infrastructure project should be carried out through private or public-private partnership scheme. We would like to stimulate the domestic capital market by inviting private sector to this kind of infrastructure development.

Policy No. 2 When needed by the government equity, the project has to demonstrate the leverage for the further private sector involvement.

Policy No. 3 Subsidy is justified only if the target is clear and quantified, to the maximum extent possible. It will not be given permanently, and will be abolished gradually.

Policy No. 4 We would like to have value-creation privatization with more value added. The target is not just privatization or that we sell something; we would like to get more value when we sell it.

Policy No. 5 We need capital inflow by injecting fresh money to domestic capital market. Equity-based investment and not loan-based investment would be desirable.

Policy No. 6 We certainly need employment creation and multiplier effect.

Policy No.7 We would like to also have an open market for domestic products, and strict requirements will be imposed to use local product.

Policy No. 8 By having private sector participation in the project, we hope that we can regain the investors' confidence.

Policy employed for a Large Infrastructure Project: the Jakarta Outer Ring Road Project

This is an example how we impose this policy in the Jakarta Outer Ring Road project. Because we have limitation in our budget for land acquisition, we asked the private sector to fund the land acquisition until a certain level under Rp 800 billion. (If the land acquisition costs exceed that ceiling, then the government provides the rest.) But until Rp 800 billion, the private sector is responsible for the land acquisition cost.

The tariff should be determined according to the purchasing power of the society. It means that we would get the tariff set according to the willingness to pay and the ability to pay, so that the private sector has to decide the tariff with reference to both factors.

Another policy that we imposed to the project is that investor must show credibility by providing cash up front of Rp 1.2 trillion within 14 days after the announcement that he or she or the company won the project bidding. By providing this money, the credibility of investor is assured and we hope that it can stimulate the domestic capital market.

Another very important point is that the investor should utilize to the maximum extent possible local resources including labor, managers, contractors, consultants and suppliers. These are all stated in the Ministerial decree or in the KKSK, the financial sector commitment policy for the JORR.

This is a direction of the policy that we would like to employ for this kind of project. The question for the MRT project is whether any investor would like to invest or not. The proponent of this project should openly announce that there is opportunity for the

private sector to participate in the project. In addition, the proponent has to make all efforts to package it with regulatory incentive to make it attractive.

Options such as differentiated tax rate, tax break, the trust fund, using of pension fund should be explored in detail. One of the most important things is that the basic information should be made available to the potential investors, and process should be conducted in a transparent way with a certain degree of accountability.

In principle, beneficiary has to pay and those who suffer from negative impact should be compensated. If the PATAS AC users are the target group, it should be carefully examined what kind of remedy and what kind of incentive should be given to other transportation users. And last but not least is the coordination in transportation planning. It should be checked whether this kind of project has been integrated in the overall integrated transportation planning measures for Jakarta. A stand-alone project might not provide the full benefit to the public.

4.9 Review on the Jakarta MRT Project: Local Government's Perspectives (Summary)

Mr. Rusdi Yusuf, Bappeda DKI Jakarta

Project Capital Investment

Firstly, it should be understood that MRT systems all over the world tell of financially unsuccessful stories. The study suggests that 80 percent of initial capital investment should be borne by the government. If the local government cannot afford to bear 100 percent of the sunk cost, the issue is how to share the cost with the central government.

The revenue alone cannot cover the direct operation and related investment costs, even with additional revenue. In addition, it seems unrealistic to assume the local government has responsibility for the capital cost of the entire project. For the reason of fairness, the DKI government's contribution for the capital cost is accepted to some extent. On the issue of additional investment cost, the reasonable sharing arrangement should be based on the ability of the local government to serve it. Considering the financial capacity of the DKI government, cost sharing should be discussed with central government and all the stakeholders. The important thing is whether DKI government can service the debt by project income or not. We need approval from the legislature on application of loan.

Role of Local Government in Implementation of MRT project

The second issue is the role of local government to implement the MRT enhancement measures. At present public opinion should be widely gained on any government policies. Acceptance and support by the public depends on how transparent the consultation process is and how deep the public is involved in discussion. This is the new paradigm of the situation.

Investment measures mentioned by the Study Team are relevant to DKI Jakarta transportation issue relating to demand management strategy. We have explored since early 1996, however, experiences in Jakarta and they showed that none of these measures could realistically be implemented without any perceived benefits from the traveling public. A social impact study should be conducted before we start the MRT project.

Intensive Land Use Development

The third issue is intensive land use development. It has been emphasized to strengthen urban centers and urban function in surrounding areas of Jakarta and intensive land use development potential around the stations along the railway/MRT corridors. In fact, DKI Jakarta has a structure plan 2010 in which development scenario has been clearly established and land use has incorporated the existence of MRT along the major corridors

in Jakarta. The policy of enhancing and spreading the urban functions within the Jabotabek region need to be seen in the context of preventing more inflows coming to Jakarta rather than moving out from Jakarta.

The Study Team indicated that the trip generation within Jakarta alone constitutes 80 percent of the total trips of Jakarta. The interaction of the MRT at Fatmawati-Blok and M-Sudirman-Thamrin corridors should be viewed as an opportunity to redevelop the land use that previously formed in the ribbon development pattern. However, the different characteristics of areas and the type of development should be taken into account for redevelopment.

The other key issue is how quickly the development outside Jakarta can be realized to accommodate future socio-economic activities in the region. There is a need for coordination, cooperation and integration of the transportation system of Jakarta and Botabek.

We know that the MRT project is a risky project. Dealing with the issue of Jabotabek transportation, before starting the MRT project along the corridor, there is a need for improvement of the bus system. Social issue of the MRT is fare level in relation to purchasing power of the people of Jakarta. Social and economic studies are essential to address this issue.

4.10 Review on the Jakarta MRT Project: Local Legislative Perspectives (Summary)

Ir. Sugeng Priatna, DPRD DKI Jakarta

First of all, the DKI Jakarta government is strongly committed to the development of mass transportation system in Jakarta. .

As for the authority aspect, it is necessary to confirm the institution responsible for this project. The institution tapped to control the project should have authority to decide on investment in this project.

From financial point of view, this project is capital intensive. The local government will face difficulty in fulfilling the financial requirement of the project because the budget allocated in APBD would not be altered to the project. One option is to utilize a two-step loan mechanism with relatively low interest rate.

Local government and local legislature have already discussed about this project to get support from all the people of Jakarta. In addition, we need public opinion and public hearing and public participation. Obviously private role in the project is also very important, especially those who have investment experience in this field of transportation. Both DKI Jakarta government and the local legislature socialized this project in a transparent and precise manner. Society may understand that the project would bring benefit for public and society.

From the aspect of land use planning, Jakarta city has its standard and land use plan toward 2010. Revisions and changes may occur but such revisions and changes should be made taking the planned locations of MRT stations into consideration and making best use of mass transportation system for business activities and the public in general.

DKI Jakarta citizen should not be confused by opinions circulated by mass media and should contribute in various fiscal aspects.

4.11 Review on the Jakarta MRT Project: Users' Perspectives (Summary)

Mr. Agus Pambagio, YLKI (Indonesian Consumer Institute Foundation)

The study covers engineering and financial aspects of the MRT project but there is no social aspect examined in the study such as how to manage passengers. At present it is observed that many railway passengers are hanging on the windows, on the doors, and even on the roof of trains.

There is no guarantee that this situation would not be seen in the MRT or that people would not live or sell something at the subway stations, because this fully air-conditioned place is good shelter for the homeless. In reality PT. KAI has become confused and given up in Gambir and other stations with street vendors, taxi drivers, and so on. To deal with this kind of problem, a social study should be done first.

It is true that people need good mass transportation system but the issue is who can afford it. Among the people working in Sudirman or Thamrin area, maybe only the managerial class can afford it, but office boys, secretaries, and clerks cannot afford to pay the fare. Rp 2,600 is too expensive for ordinary people, even in Jakarta. People who become managers or directors or CEOs will not use the MRT because they prefer to use a private car.

I have a question, that is, whether the Study has analyzed willingness to pay for the MRT or not. Even if it was included in the Study, it would probably be based on PATAS or car users.

We understand that mass transportation should be built, however, we need to know from where the money comes.

According to the DG of Budget, we are already totally bankrupt. Therefore, we have not idea how to finance the project. Do we have to borrow again? We are still in the process of restructuring USD 2.5 billion borrowed from the Japanese government. The Japanese government might not give us a loan anymore after the restructuring.

According to the study conducted by Harvard, in Thailand they do not have enough passengers, and it is difficult to get sufficient ridership even in Malaysia. This would happen in Indonesia as well.

Another concern is with regard to vandalism. To reduce this kind of risk, it can be advised to conduct a pilot project using Jabotabek commuter system and educate people how to become a good passenger through the pilot project. If you could educate the people in Jakarta, implementation of the project could commence, otherwise, people would destroy equipment and facilities of the MRT system. Sad to say, it is very

difficult to educate Indonesian people according to my working experience in this field since 1984.

4.12 Discussion in the Afternoon Session

The discussions in the afternoon session were also undertaken in the same manner as the morning session guided by a moderator, Dr. Suyono Dikun (MTI). Questions and comments were invited from seminar participants as well as among panelists as follows;

Comments from Mr. Iskandar Abubakar of MOC

According to the report, the annual growth of traffic is 3.5%. It means that by 2008 the traffic demand will grow by more than 20% in Jakarta. If it happened, the problem would be very bad and travel time would increase significantly. To avoid this problem, we have to do something to improve public transport.

Secondly, at present the government gives subsidy for fuel, about USD 5 billion a year. About 20 percent of the fuel consumption is made in Jakarta and it implies that every year the government gives fuel subsidy to Jakarta amounting to USD 1 billion.

MRT is very important for the people of Jakarta, because the population of Jakarta has already reached 9 million, and if combined with Botabek, the population amounts to 20 million people.

The question is who should pay for this MRT project? Not only the users but also the beneficiaries, such as private car users; the owners of the building along the corridor should bear the cost. Consequently, we cannot impose the total cost to the MRT passengers but the cost should be borne by all people of Jakarta.

Comments from Mr. Ranendra Dangin, PT. Bahtera Adhiguna

The question is whether the MRT is the sole answer to the transportation problem in Jakarta. The MRT might only solve a small part of the problem. Why don't we improve the existing transportation system especially for DKI?

I agree with YLKI that a social study should be conducted before starting the MRT project. Prior to going through with the technical design, we should look at the previous stage.

There is no law enforcement for street vendors and public transport. For example, on Jl. Gajah Mada, Jl. Harmoni and in Glodok area, street vendors and parked vehicles occupied more than half of the road space. The question is about the usage of the street.

Comments from Mr. Suheru Tjokro, LPEM-FEUI

Everybody has agreed, as mentioned by the first speaker, that theoretically, the important goal of economic policy is efficiency, equality and reduction of environmental impact. From a practical point of view, the policy should be acceptable and implementable.

Every transportation policy, whether it is regulation, pricing, taxation, subsidy or investment, should be judged by whether it can be implemented or not.

In the early 1990s, bus operators could count on their units to register up to 300 operating-km a day, but now this is down to only 200 operating-km a day. This deteriorated condition reduced the efficiency and productivity of the bus operation, and also resulted in higher cost of the bus operation. The main cause of this condition is traffic congestion.

Pricing is only justified if the transportation is efficient. It is unfair if the pricing is based on inefficient transport. Taxation also does not support the increase in equality. Taxation is not only for the poor or the rich. Drivers should also subsidize student fares, for example. The subsidy is given to the poor but also to the rich, those who never paid any maintenance cost for the road. In the national budget, about 90% of the budget is used for roads. Additional investment should be made, but before deciding on any infrastructure investment, we have to ask ourselves whether our transportation is efficient or not. Otherwise, as YLKI and the Social Impact speaker pointed out, people would be paying a very high cost, not only cost for efficiency but also for a wasted infrastructure.

The target market group of MRT is confusing. First, the target is set at private car users, but I never saw any car park or park-and-ride system in a terminal. This system should be socialized in DKI or other regions.

MRT needs a very big investment, and this not only increases the burden of people who are now facing very deep depression, but also foments some jealousy and vandalism. As mentioned by YLKI, we have to undertake a pilot project, whether the passengers can be disciplined and are not going to destroy any facilities or whether they can afford to pay the fare.

Answer from Mr. Gunji, JICA Study Team on Social Impact Study

It is important to conduct a social study and this task is to be included in the second phase. The behavior and the discipline of MRT users and public transport users, even the car drivers, must be shaped from the beginning of school age,. The training or the licensing system for drivers and others also has to be included. This is also related to culture or values of the Indonesian people. The fundamentals are based on the Indonesian value system.

We would like to investigate together what is the common basic data we can share to establish a good system for MRT or public transport system in the future. This is to be reflected in the next phase.

Response from Mr. Rusdi Yusuf, Bappeda DKI Jakarta

I agree with Pak Iskandar. We must do something to improve the bus transportation before starting the MRT project.

Another point is that the social impact study must be done by the central government together with the local government. Since the people of Jakarta are very heterogenous and their strata is marginal, it is important to have the social impact study. We need to sit together with all stakeholders who are responsible for transportation to discuss the transportation issues in Jabotabek.

Response from Dr. Sidharta Utama, University of Indonesia

I agree with the comment that the beneficiary of the project should pay or should bear the project cost. Since the beneficiary is not only the MRT passengers but also people in Jakarta at large, it is but fair that people in Jakarta should bear the cost of the project.

All people in Jakarta should have access to public transport, bus or MRT and so on. For example, if the target market for MRT is Patas AC users or private car users, then other people in Jakarta who cannot afford to pay the fare for MRT or subway should have access to bus or other means of public transport. If the MRT project is undertaken, at the same time, the bus transport system and other public transport system should also be improved. So, if the MRT started its operation in the year of 2008, the condition of other public transport system should also be improved, so that the MRT project becomes socially more acceptable.

Response from Mr. Santoso Ramelan, Bakri and Brothers

Although recognizing the importance of the social study, it does not mean that vandalism is caused by jealousy alone. The reason is that for many years now people do not respect teachers or other people and so on. It is suggested that a study to change the behavior of Jakartan or Indonesian people be conducted. As Pak Sidharta mentioned, as far as there are options for the people, they can live side by side.

Response from Mr. Sugeng Supriatna, DPRD DKI Jakarta

I agree that the social study must be done, because Jakarta has certain problems to address.

In addition, it is very difficult for the government of Jakarta to deal with a large number of the population. The population growth of Jakarta must be reduced at a certain point, so that Jakarta could accommodate them.

Response from Mr. Dody Prayogo, University of Indonesia

The other issue is about the impact of MRT system on the demographic. The impact can be positive and negative because new facilities will invite more people to live along the MRT corridor or station. It means that the density and capacity of the area will increase and it will create social problems. In most cases, social unrest exists in densely populated areas. If we create new facilities around these areas, we also create some potential problem. It is called a psychology of development.

Response from Mr. Sjahrizal Siregar, PT. Kereta Api Indonesia

People are tired of so many studies and seminars; it is time to take action. It is not true that we do not have money, but we waste our money on roads and we cannot manage them. Before making a decision on any road development, it is better to invest on the existing railway.

The answer is that we have to build an MRT, but the MRT must not be underground. If we are only able to build on the road, then we choose that option. As a consequence, the town would be rather in bad shape, but we still can manage.

Response from Mr. Agus Pambagio, YLKI

It is suggested that a pilot project on Jabotabek railway or bus be undertaken, so that we can learn from its outcome.

I agree with the previous speaker that it is important to educate people on discipline starting from an early age. We can use multimedia, such as TV stations and a lot of other media.

The social impact should be anticipated since we are now facing a very sick community. It is necessary to explain things to the community, to give them a good reason or to counter the public need, public comment, and public interaction carefully.

I agree that the beneficiary should pay the MRT project. Those using diesel engine cars or vehicles should pay four hundred percent starting from now, because they enjoy the subsidy. They are not entitled to have the subsidy because they have their own car and they have to pay the cost for maintenance.

Comments from Mr. Bambang Susantono, Office of Coord., Minister of Economic Affairs

Recognizing that we all agree that we cannot eliminate traffic congestion, all we can do is try to minimize the congestion. And if you asked the opinion of planners all over the world, the answer would be the same: we cannot eliminate congestion. All we can do is

just to manage the congestion. The basic philosophy here is that we try to reform transportation planning measures for Jakarta. It is not whether we have an MRT or a busway, but rather, if we have comprehensive measures in place. Actions will be taken by local governments, provincial governments as well as the central government, and usually also the private sector.

Comments from Mr. Maryono, DG Budget

Actually this project is very good, but unfortunately at the moment, we have no money for counterpart fund. Maybe starting from 2005 we can arrange the counterpart fund.

Comments from Prof. Haruo Ishida, JICA Advisory Team

Many difficulties were pointed out by our study and the panelists. These comments will be reflected in the Phase 2 study. Social impact study is one of the main issues in this coming Phase 2 study.

The financial difficulties, and community and social difficulties have been clarified and understood. But if we assumed these difficulties, namely, the existing setting of the institution of society and the financial system, to remain the same, there seems no solution to solve the Jakarta transportation problem. Therefore, it is of great concern that this attractive city will undergo gradual death.

To avoid this tragedy, we have to explore the source and find a good solution from wider perspectives, not only transportation itself but also some institution of financial and taxation schemes. It is expected that this JICA study could contribute to finding the solution. This is a very challenging but, at the same time, very difficult problem.

Comments from Prof. Kusbiantoro, ITB

We know that the population of Jakarta and Jabotabek is 9 and 20 million people respectively. We need an MRT mode because the bus system cannot accommodate all the people. However, we have to remember that MRT and other transport modes will have to function properly as a system.

The second is related to Jakarta or Jabotabek as a town. We have to do this properly, whether we have MRT or not, because this is for all, not only for car users or bus users. From a technological viewpoint, an elevated railway or a subway can be done. From a social viewpoint, if you saw the passengers of the *Parahyangan* and *Argo* trains, you know that most of them are heavy smokers, but they learned to follow the rules of the *Parahyangan* and *Argo* Trains. So, for the future MRT, hopefully we could also educate them.

The problem is from the financial aspect. Given the big burden to the government, the

private sector should be involved in this MRT project. However, the domestic investors are not ready, and at this moment, the foreign investors are not ready either because of the political and economic situation. Therefore, we have to utilize whether railway or road and prepare for the coming of the MRT system. We have to identify the potential stations and how to have a compact city. The east-west corridor seems to be potentially more successful than the north-south corridor. We should make preparation to have the MRT system. It is difficult for the central government to give subsidy in the era of decentralization as well as for local governments. We have to depend on the private sector and to consider incentives for private sector involvement.

Comments from Dr. Heru Sutomo, University of Gajah Mada

When London built its underground railway system 200 hundred years ago, no one realized what the benefit they would enjoy. But less than 100 years later, London reached the top three or top four most comfortable cities in the world and remains in this standing to date.

The full benefit of an underground railway investment cannot be realized in a matter of 10 years or 20 years, but about 100 years or so. We have to think long term, which could be difficult for us since we never really see or think of something beyond our generation. But we hope our children can live in a better environment.

Keeping away from pessimism, especially the social effect, technology could provide an answer. If the social aspect is becoming a problem, then put it on board with social technology. For instance, many of us know that we are not so good in queueing, but when the automatic teller machine was introduced by most banks, everyone learned to patiently stand in line and be served one by one. There is hope that a proper technology will be created to facilitate change, so that there will be no need to teach the whole 200 million people of Indonesia. But we have to find a proper technology, which is suitable for us, and if possible cheaper since we could design and invent it ourselves.

About fund raising, a good example on how the government raises funds can be seen in France. All entities, all government or private businesses, those employing more than 9 people, are subject to pay an employee charge. The employee charge is collected to finance the public transport. As a result, three cities in France have already built an LRT from that financial source. We have to be creative to get our own sources. But I do not know whether this scheme is applicable in Indonesia or not from the viewpoint of the Ministry of Finance.

Comments from Mr. Wachi, JICA Study Team

We have been criticized on that point during the course of the study, but in fact we considered some social factors. We have already understood that law enforcement is very weak through observation and the discussions with the counterparts and in the stakeholder meeting. Many people pointed out that there is no incentive for policemen due to their very low salary.

When we developed the proposal for short-term implementation plan, we took the social aspects into account implicitly. For example, when we made a proposal on monitoring system for bus operation, we recommended that a bus location system using the current technology, GPS, Internet and communication system be included. With this technology, the government agency, DLLAJ, will be able to trace the real time bus operation and they don't have to go to the field to check it.

Regarding social impact study, what kinds of outputs are expected from the study? The most crucial factor to the destruction of many systems seems to be income gap. However, this problem cannot be solved only in transportation planning, and it would require a more profound approach such as income redistribution system. If you are very concerned about the homeless problem at MRT stations, one way to address this is by closing the door of the station or strictly enforcing laws by policemen. But that approach would not solve the fundamental problem, thus we should consider more deeply how to solve the social distrust between different groups of people in the society. The root causes should be explored in more detail and that is related to the social system.

Comment from Mr. Ranendra

Regarding the importance of improving the existing system, pointed out by Pak Siregar, the government should make efforts to prove that the government could improve the existing system.

Response from Mr. Sjahrizal Siregar, PT. KAI

I agree with Pak Ranendra that the railway should be improved, but the government itself should carry out the reform.

The lower the tariff, the more difficult to manage. Tariff can also be used as a social engineering tool. Now the train fare is so cheap and PT KAI cannot control what passengers do in the train. There are many traders and misuse in the low and cheap transport system. We have to do something to eliminate that kind of passenger or trader to meet with the purpose of transportation.

Response from Mr. Sidharta Utama, University of Indonesia

Concerning domestic investors who are not ready for the MRT project mentioned by Prof. Kusbiantoro, judging from the IRR of the project, ranging between 4 and 9 percent, the return is not high but it is quite reasonable. PT. KAI shows some willingness to be the operator of the project and considering 6 to 7 percent IRR. It should be acceptable to PT. KAI.

It is assumed that the first MRT will be built along the north-south corridor. As mentioned earlier, the east-west corridor has more growth in the future. Whether the first MRT should be developed on the north-south corridor is questionable. It seems that the north–south corridor has been selected as the route of the first MRT system simply because the past studies were conducted only for this corridor.

Response from Mr. Gunji, JICA Study Team

It is suggested to have the three C's, Coordination, Cooperation and Collaboration. Collaboration will make our ideas blend well and it is a kind of public participation. When we have a chance to work together, we should consider it as having a variety of valuable lessons shared by people with years of experience. Such kind of opportunity should be given in the next phase of the Study.

Notes by Dr. Suyono Dikun, Moderator

MRT or public transport in general cannot be comparable with toll road. We need politics in public transport and the government needs to take the side of public transport because this is for the people, for the large amount of captive riders, who are usually poor people. Even though the PSP (private sector participation) is possible, the government still has the responsibility for the public transport project for many reasons: energy conservation, environmental improvement to provide a bit of comfort to the poor people in urban areas, and other social reasons.

A decision is going to be made by the ministerial meeting. Hopefully, it would be a political decision based not only on technical merits but also on the feeling of what the people really need.

5. Closing Remarks

Dr. Prof. Bambang Bintoro, Deputy for Industry, Trade and Infrastructure, Bappenas

Distinguished guests,

Ladies and Gentleman,

It is a great honour and pleasure and at the same time a challenge to give the closing remarks and summary to this important gathering.

Before I touch on the substance of my observation of the seminar deliberations, I would like first of all to extend my sincere gratitude to many of you who have worked long hours to make this seminar possible.

I would like first to thank JICA for their continuing and general contribution, cooperation and partnership in supporting this study. I am particularly grateful to Prof. Haruo Ishida and his team including the counterpart team for their hard work, dedication and serious commitment in undertaking this study through a participatory process and making this seminar special for all of us.

Last but not least, I wish to express my personal gratitude to all the keynote speakers, moderators, panelists and all the seminar participants. Their credentials are not only impressive but the demands on their time make their presence here deeply appreciated. Once again, to the many individuals involved in the organization of this seminar, all of you have my profound gratitude.

1) As we approached this seminar many of us must recall the wide range of contentious issues that have diverted progress on MRT, transportation and a consensus of long-term development for Jakarta in the past.

   What is remarkable from what I witnessed here is the solid, rational and open discussion at this professional level, the emerging clarity of purpose, identifying areas where firm recommendation can be made and areas where both analytical work and stakeholder dialogue are needed.

2) I will pick out a few of these from my perspective. Tonight a collective effort of the seminar committee will begin to shape a summary of discussion, consensus and issues that will be conveyed to you and form the basis of a communiqué to senior colleagues in government.

3) The following are my immediate thoughts on the discussion:

(a) There is a consensus that there is a need to resolve the transport planning issues in a manner that deals with the often conflicting stakeholder's interest in the different sectors, local governments and a wide range of community segments.

We can look at this as an integrative process, or coordination of interests, a dialogue and an analytical process.

In any case, it is a process requiring leadership, power and capacity to resolve plans and actions in an informed and transparent manner. An institutional response such as a Jabotabek Transport Authority has been suggested by some. But I sense that regardless of that, there is wide support for a process of directly engaging stakeholders in a dialogue and for which a transport authority, if it were to be adopted, would provide a facilitating and supporting capacity rather than as a new concentration of power.

(b) The concept of preferentially supporting urban corridor development particularly for East-West seems to be well accepted along with the implications of a strengthened "seamless" multi-modal transport hierarchy to link users in the corridor to the primary transportation, rail, toll road and MRT, along the corridors.

(c) There is a clear recommendation on the most financially effective tariff. That of course should be affected also by economic and social policy consideration in itself. But if we take it as is for the moment, it defines a level of financial viability which requires most, if not all, of the investment for "sunk cost" to be borne by somebody other than the operator. Exactly how much can be fine tuned later.

(d) So there is a need to share the "sunk-cost" across beneficiary groups that can include central and local governments, and the main private sector beneficiaries. This subsidy can be seen as a combination of grant, charges and very low cost, long repayment period loans. The process of determining the cost sharing elements needs to be supported by extension of the economic and planning analysis and resolved in the clear light of stakeholder debate which would strengthen the rational of sharing and the basis for the political leadership to finally adopt the shared costs.

(e) There is a whole range of enhancement measures recommended and supportable. We have to extend the analysis on several of these, and particularly to ensure that it is the wider community, social, economic and environmental goals that are addressed, not the narrow needs of one scheme.

That can potentially be achieved. But it means we need to set out a matrix of policy, regulation, planning investment and operational activity streams. You can see a strong case for joint agency action to address this as a concerted, partially coordinated but not necessarily "centralized" process.

(f) In respect of the MRT proposal, it is generally agreed that the basic plan is very useful, but it needs to be developed in several ways.

- The range of planning and dynamic response to contingent changes in the economic climate and potential user responses needs to be extended.
- A fully developed risk management concept needs to be developed. Flexible debt service related to revenue was one suggested response for instance.
- Given the low debt service capacity of the scheme itself, the timing of the large proposed public debt and its opportunity cost needs to be very carefully considered and justified for public and parliamentary scrutiny.
- needs There is a need for more attention not only to the short term and phased connection of the bus services, rail and the MRT to the immediate traffic pattern but also to the rapid development of the East-West corridor.

In respect of broad transportation improvements, my observation suggests that:

(a) Part of the risk management and improvements of the viability of the MRT, rail, bus and toll road services has to do with closer conditional linkages to the timing and sequence of improvements. This ranges from policy, tax and tariff questions through operational linkages.

(b) That must include the initiatives to motivate changes in car usage, more effective bus operations and clearer inter-modal cooperation.

(c) There is a strong need for a clearer accounting to the public and local governments of the economic, employment, environmental and complex social impact of the key transport choices being considered, and their interaction with urban development pattern. This needs to be developed with sound technical support and that should be opened to public debate in a continuing dialogue that extends well beyond our professional circles.

There is clearly a strong call here for review of the broad range of community considerations and actions as part of moving ahead on several streams of transportation

improvements.

I am very grateful for the JICA support in taking us this far in the discussion and look forward to further discussions that commence immediately after this meeting on how we can continue to cooperate to tackle this work program together.

All of this input will be explicitly included in the terms of reference for the second phase, with very close attention to social concerns, which will be drafted immediately following these meetings.

I thank you all for what has been a very constructive discussion and will include your views in my report to the Ministers within the week.

Thank you.

Appendix 1 Presentation Material

Opening Session

1. Key Note Speech II: *Integration in Transportation Policies*
   Prof. Haruo Ishida (Chairman of JICA Advisory Team)

Morning Session

2. *Conceptual Transportation Master Plan and Short-term Implementation Plan*
   Mr. Tomokazu WACHI (Deputy Team Leader, JICA Study Team)
3. *Review on Land Use and Integrated Transportation System: Some Principles*
   Prof. Kusbiantoro (Institute of Technology Bandung)
4. *Review of Public Transport Improvement Plans*
   Dr. Heru Sutomo (Gadjah Mada University)
5. *The Experience of Railway Development in Japan*
   Mr. Yoshiaki MURATA (JICA Advisory Team)

Afternoon Session

6. *Review of Jakarta MRT Project*
   Mr. Isamu GUNJI (Team Leader, JICA Study Team)
7. *Review on the Jakarta MRT Project: Financial and Economic Analysis I*
   Dr. Siddharta Utama (University of Indonesia)
8. *Review on the Jakarta MRT Project: Social Impact*
   Mr. Dody Prayogo (University of Indonesia)
9. *Review on the Jakarta MRT Project: Possibilities for Private Sector Participation*
   Mr. Santoso Ramelan (Bakrie & Brothers)
10. *Review on the Jakarta MRT Project: Central Government Perspectives*
    Mr. Maryono, (Directorate General of Budget)
11. *Review on the Jakarta MRT Project: Local Government Perspectives*
    Mr. Rusdi Yusuf, Bappeda DKI Jakarta
12. *Review on the Jakarta MRT Project: Local Legislative Perspective*
    Mr. Sugeng Supriatna, Committee-D of Local Legislative of Jakarta
13. *Review on the Jakarta MRT Project: Users' Perspective*
    Mr. Agus Pambagio, YLKI (Indonesian Consumer Institute Foundation)

Appendix 1

Key Note Speech II: *Integration in Transportation Policies*

Prof. Haruo Ishida (Chairman of JICA Advisory Team)

Seminar on
Integrated Transportation Master Plan for Jabotabek

Integration in Transportation Policies

April 3, 2001

Prof.Dr. ISHIDA Haruo
Tsukuba University

The Title of the JICA Study:
The Study on Integrated Transport Master Plan for JABOTABEK

What is Integration?

How to Achieve Integration?

Transportation Problems

- Congestion
- Environmental Deteriorations
- Traffic Safety
- Unequal Access to Transportation Services
- Deteriorations of Public Transports

Difficulties to Alleviate Transportation Problems Due to

- Unstable Economic and Political Situation
- Limited Resource Funds
- Various Stake Holders
- Many Related Agencies and Organizations
- Lack of Good Planning and Implementation System
- Limited Available Data

A Key to the Solutions: INTEGRATION

INTEGRATION of

No.1

- Various Transportation Modes and Terminals
  - Network Configuration for Trunk Service and Feeder Services
- Land Use and Transportation System
  - Transit Oriented Development
  - Combination of Railways and Urban Development
  - City Planning Control and Zoning Control
- Infrastructure Development and Various TDM Measures
  - Infrastructure for TDMs : Wider Roads for Bus-lane , P&R Facilities, Station Plazas
  - Economic Policies for Demand Control and Fund Generation : Road Pricing, Car Tax, Gas Tax

INTEGRATION of No.2

- Various Interests
  - Affected Public Users, Operators, Governments, Residents,Business Firms, Next Generations,Natural Environment, Wild Life, Global Environment
- Planning and Implementation of Projects
  - Strategic Implementation of the Projects included in the Master Plan
  - Fiscally Constrained and Agreed Master Plan

To Achieve Integration No.1

- Good Master Plan
- Leadership of the Principal Organization and Cooperation of Related Organizations
  - Regional Principal Organization : Central Area and Conurbation Areas
  - Sector Principal Organization : Roads, Public Transport, City Planning
- Strategic Implementation of Projects
  - Budget Allocation
- Supporting Measures for Infrastructure Development
  - New City Planning Schemes for Well-Combined Urban Development
  - Management of Many PFI Projects Public Initiatives to Speed Up PFI Projects

To Achieve Integration No.2

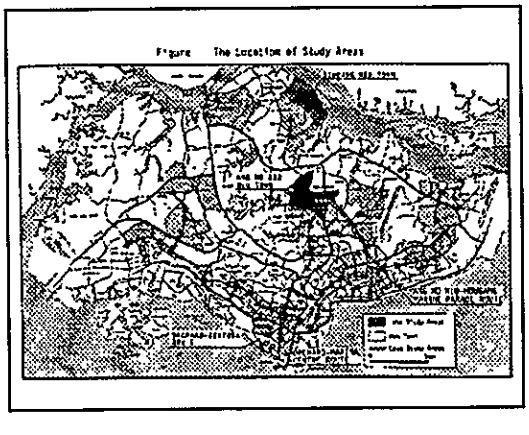
- Public Involvement for Understanding,Acceptance, Support and Cooperation
  - Higher Service Level and Bigger Burden Sharing
  - Transparency and Rationality In Project Developments
  - Performance Measurement System
- New Funding Sources
  - Charging and Taxation
  - Strategic Use of ODA: Long Term Program/ Policy Loans
- Assessment and Evaluation of Transportation Policies
  - Maintaining Database and Promotion of Research Activities

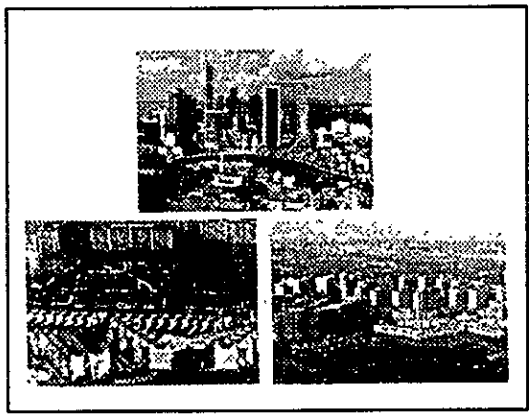
Examples of Good Integrations

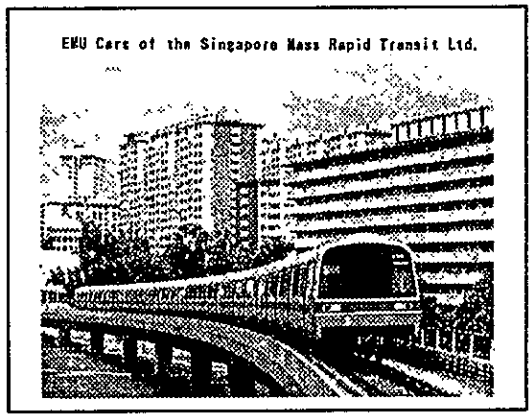
- Singapore
  - Urban Planning and Transportation Planning
  - Trunk Rail-line and Feeder Bus Services
- Tokyo
  - Various Income Sources of Railway Companies
  - Seamless Railway Travel
- LRT and Feeder Services
  - Manila and Bangkok

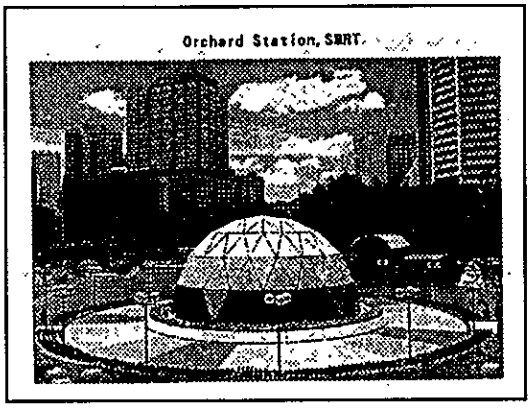
The Singapore Model :

Integration of
Land Use and Transportation System
and
Trunk Line and Feeder Services

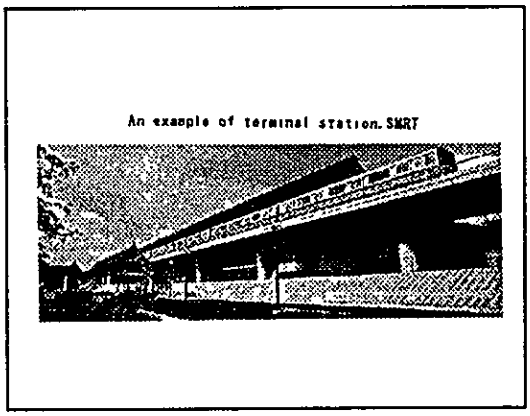


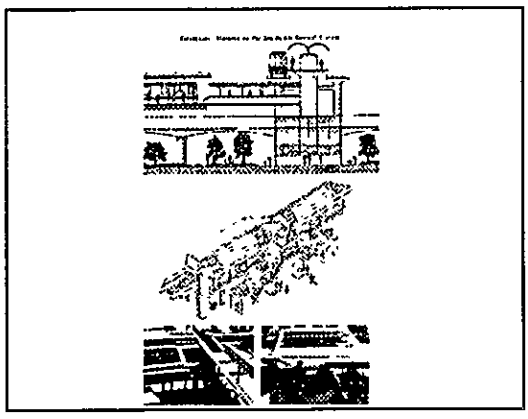



EMU Cars of the Singapore Mass Rapid Transit Ltd.


Orchard Station, SMRT


Somerset Station, SMRT
(Passengers and Platform Screen Doors)


An example of terminal station, SMRT



Highlights of Singapore's Experience

- Well-controlled Land Use and Urban Transport
  New Town Developments Along MRT
- Extensive Road Network Planning
- Restriction in Car Ownership
- Extensive Implementation of Traffic Control and Management
  Area License Scheme / Road Pricing Scheme
- Well Developed Public Transport Network
  MRT and Feeder Transport System
- Strong / Effective Implementation Capabilities

Railway Development in Tokyo

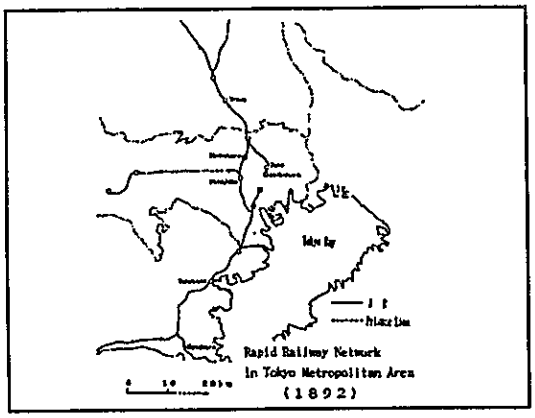
- Private Suburban Railway Development Utilizing Various Income Sources
- Seamless Railway Operation

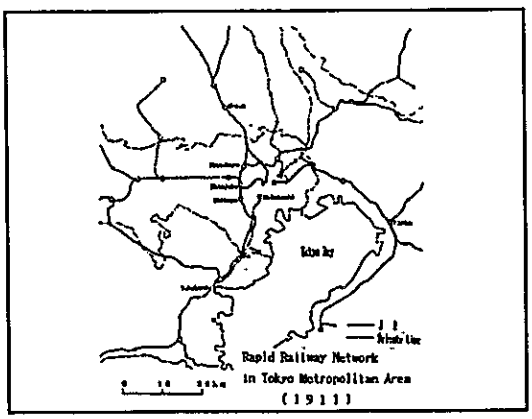
Railway Development in Tokyo

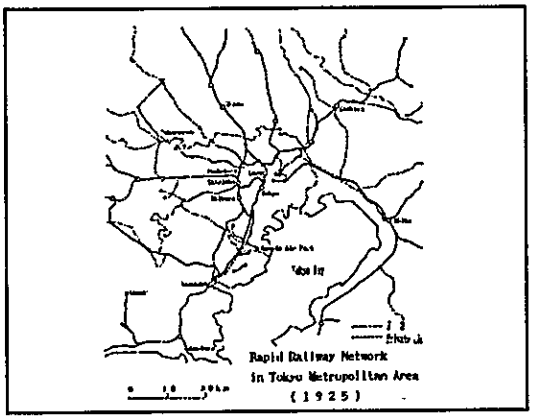
- History of the Railway Network Development in Tokyo
- Suburban Railway
- Railway Business and Side Business

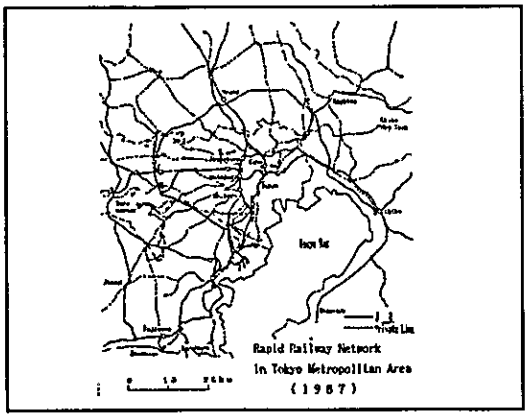
History of the Railway Network Development in Tokyo

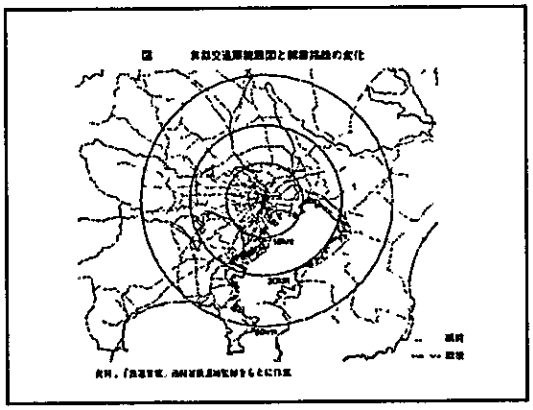
	Development of Railway Line	Gauge Scale	Electronic Voltage
1870~1900 (Early Meiji Era)	•National Railway (Tokaido Line) (Tohoku and Chuo Line ⇒JNR) •Private Trunk Line (Tobu and Seibu Line)	•Consideration for the National Network ⇒1,067 mm only	
1900~1920 (Late Meiji to Taisho Era)	•Trak Electric Railway (Keihin Exp., Keihe Line, etc.)	•Network for Inner City •No Regulation ⇒Several Gauges: 762mm, 1,067mm, and 1,435mm (1929)	
1920~1960 (Taisho to Early Showa Era)	•Suburban Electric Railway (Tokyu, Odakyu Line, etc.)	•Connection to National Railway ⇒1,067 mm	
Present Situation		Most of the gauges are 1,067mm (Keihin Exp., Ginza and Marunouchi Line:1,435mm) (Keio Line・1,372mm)	All lines Use 1,500 V DC (Ginza and Marunouchi Line: 750 V DC)

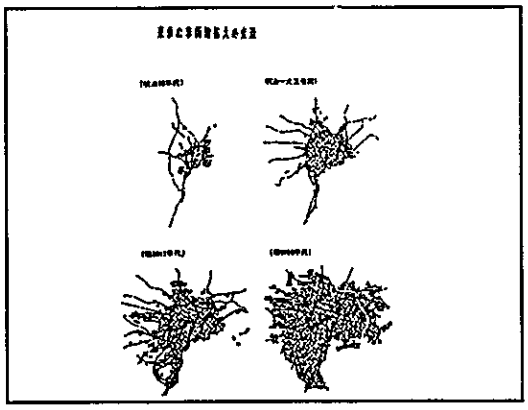





Rapid Railway Network
in Tokyo Metropolitan Area
(1925)


Rapid Railway Network
in Tokyo Metropolitan Area
(1987)





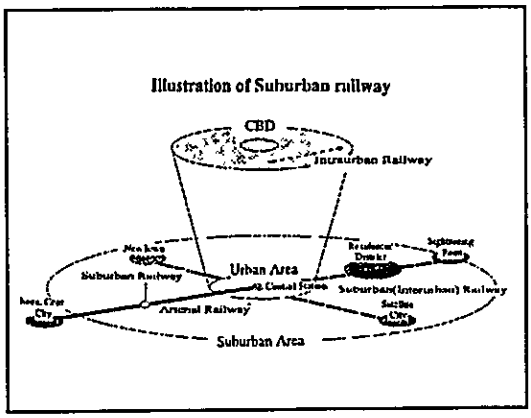
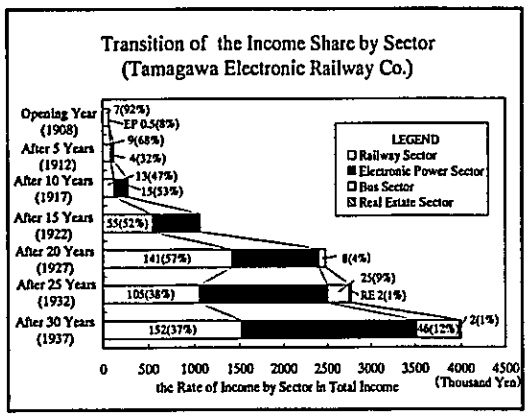
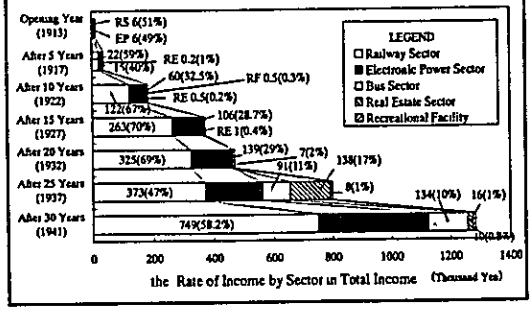


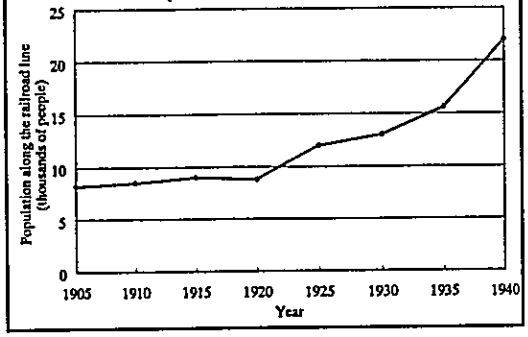
Illustration of Suburban railway
CBD
Intrsurban Railway
Urban Area
Suburban Railway
Arterial Railway
Suburban(Interurban) Railway
Suburban Area


Transition of the Income Share by Sector
(Tamagawa Electronic Railway Co.)
Opening Year (1908)
After 5 Years (1912)
After 10 Years (1917)
After 15 Years (1922)
After 20 Years (1927)
After 25 Years (1932)
After 30 Years (1937)
7(92%)
EP 0.5(8%)
9(68%)
4(32%)
13(47%)
15(53%)
55(52%)
141(57%)
8(4%)
25(9%)
105(38%)
RE 2(1%)
2(1%)
152(37%)
46(12%)
LEGEND
Railway Sector
Electronic Power Sector
Bus Sector
Real Estate Sector
0 500 1000 1500 2000 2500 3000 3500 4000 4500
the Rate of Income by Sector in Total Income
(Thousand Yen)

Transition of the Income Share by Sector (Keisei Electronic Railway Co.)



Transition of the population along the railroad(Keisei Electric Railway Co.)



The Tokyo Model:

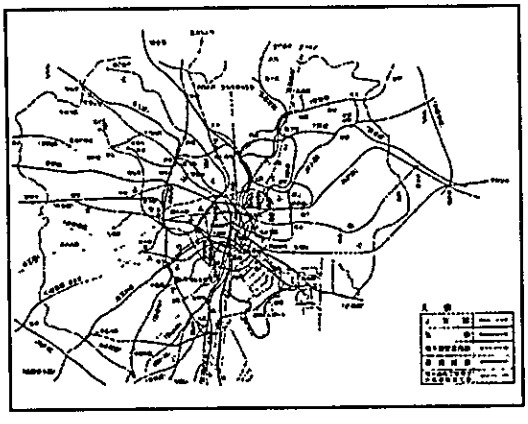
Seamless Travel
- the Metro Tokyo

Railway in Tokyo Metropolitan Region

- Population and Area of TMR
  - Population : 32 million (1995)
  - Area : 15,000 sq. km.
- Length of Railway Lines
  - Total : 2,120 km
  - JR : 877 km
  - Subways : 264 km
  - Private : 979km
- Number of Passengers and Mode Share
  - Number of Passengers : 36 6 million / day
  - Mode Share of Railway :
    - All Purposes 56%
    - Commuting Trips to Central Tokyo 95%

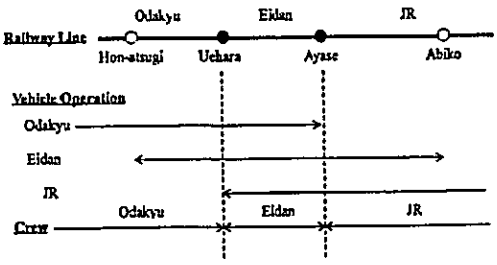
Subways in Tokyo

Line	Opening Year	Through Operation
Ginza	1927	No
Marunouchi	1954	No
Asakusa	1960	Yes
Hibiya	1961	Yes
Touzai	1964	Yes
Mita	1968	Planned but Canceled
Chiyoda	1969	Yes
Yuurakucyo	1974	Yes
Hnazoumon	1978	Yes
Shinjuku	1978	Yes
Nanboku	1991	Yes
No 12	1991	No (Circle Line)



"Through Operation" Scheme: Chiyoda Line

Railway Companies. Odakyu, Eidan and Japan Railways



Merits of Through Operation

- Passenger
  - No Transfer
    - → Convenience, Comfort, Shorter Travel Time
- Railway Company
  - No Turn-around Terminal in the Inner City
    - → Lower Cost and Higher Train Density
  - Depot in Suburban Area
    - → Lower Cost
- Tokyo as a Whole
  - Seamless Railway Network
    - → Efficient and Effective Transport Network

Conditions for Through Operation of Subway in Tokyo

- Hardware
  - Same Gauge
  - Same Voltage of Electricity
  - Same Train Control / Operation System: Signal, ATC
  - Alignment of Railway Track
- Coordination and Agreement
  - Cost Allocation
  - Revenue Distribution
  - Time Table / Diagram

Highlights of Tokyo's Experience

- Strong transportation control arm of the government : Early definition and imposition of standards
- Various Income Generation and Flexibility
- Through operation of subway lines
  - Compatibility of hardware
  - Clear agreement among operators
  - Lower infrastructure costs for operators
  - Minimal transfer of passengers
- Integrated and efficient mass rapid transit

New LRT in Manila & Bangkok

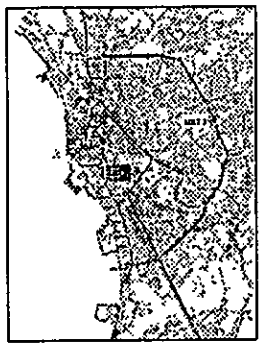
Manila: Metro Rail Transit 3 (MRT 3)

- Opening: December 1999
- Forecast Demand: 600,000 passengers / day
- Present Demand: 220,000 passengers / day
- No bus rerouting along MRT 3 corridor

Bangkok: Skytrain BTS

- Opening: December 1999
- Forecast Demand: 450,000 passengers / day
- Present Demand: 150,000 passengers / day
- No bus rerouting along Skytrain corridor

Manila's LRT 1 & MRT 3



- LRT 1:
  - 15 kms. long
  - 18 stations
  - Fully elevated
- MRT 3:
  - 16 8 kms. Long
  - 13 stations
  - Partially elevated

LRT 1 of Manila

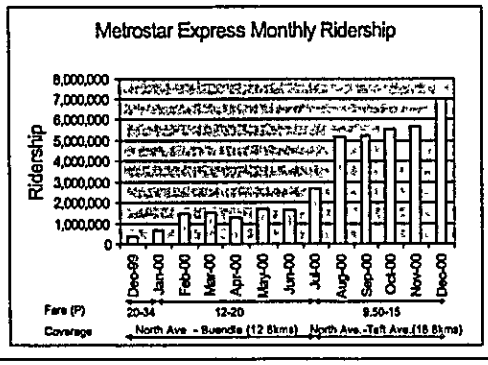
- Opening: December 1984
- Present Demand: 450,000 passengers / day
- $\frac{\text{Revenue}}{\text{OperatingCost}} = 1.50$
- Proposal of Jeepney & Bus rerouting by JUMSUT (JICA, 1983)

Number of Jeepney and Bus routes along LRT 1

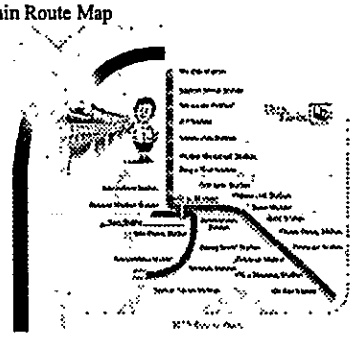
Route Type		Jeepney Routes			Bus Routes		
		Before	After		Before	After	
		1983	1987	1990	1983	1987	1999
I		24	0	0	0	0	0
II		157	51	55	22	0	0
III		39	91	97	43	33	46
IV		146	46	48	27	4	26
V		89	18	29	17	6	5
VI		289	66	76	41	21	39

Note: Different definition of routes in 1983

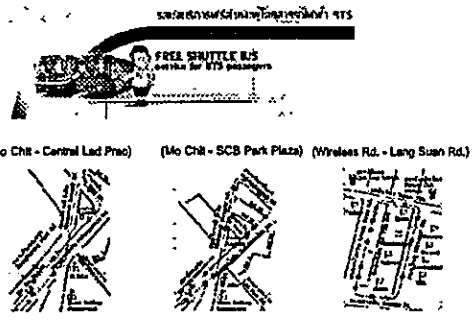
Effects of Fare Reduction and Full Line Services



Skytrain Route Map



Source: http//www.bts.co.th



Source: http//www.bts.co.th

Application to JABOTABEK

- Need for clear vision for mass transit system

  What do we really want?
- Focus on compatibility of lines
- Clear definition and imposition of hardware standards
- Concrete institutional framework to deal with multi-operator scenario

Application to JABOTABEK

- Close coordination among concerned government agencies
- Concrete directions for growth
- Clear hierarchy of public transportation
  - Rail based public transportation
  - Feeder services
- Travel demand measures
- Effective integration of transportation and land use

Appendix 2

Conceptual Transportation Master Plan and Short-term Implementation Plan

Mr. Tomokazu WACHI (Deputy Team Leader, JICA Study Team)

A One Day Seminar

Towards An Integrated Transportation System for JABOTABEK (Phase I)

Conceptual Integrated Transportation Master Plan and Short-term Implementation Plan

JICA Study Team
April 3, 2001

Understanding Present Situation

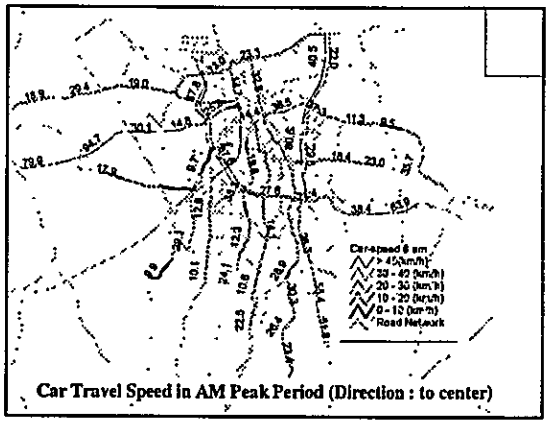
Road Network Problems and Issues

<Supply Side>

- Road network has lack of collector and local roads
- Road density is low
- Weak East – West connection

<Demand side>

- Concentration of traffic in CBD
- Continuous increasing traffic demand



Car Travel Speed in AM Peak Period (Direction : to center)

Causes of Traffic Congestion

- Physical bottleneck due to inconsistent carriageway width
- Reduced capacity at intersections
- Street market/street vendors
- Loading and unloading of bus passengers on the road
- Inappropriate parking practices (Illegal parking, double parking)
- A lot of buses departed from/arrived at bus terminal
- U-turn
- Railroad crossing
- Bad driving practices

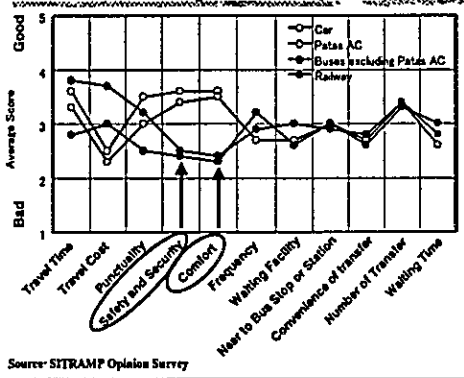
Railway Transportation Problems and Issues

- Station plazas do not have sufficient space or not exist
- Access road to station are poor or do not exist
- Poor station facilities
- Train operation is not punctual and slow
- Overcrowded due to insufficient number of Electric Cars
- Difficulty of procurement of spare parts
- Frequent failure of electric power facilities due to lightning
- Train operation is danger due to outdated signaling system

Bus Transport Problems and Issues

- Bus crew's profit oriented operation (Unreliable bus operation)
- Inefficient use of bus terminals
- Weak enforcement on bus operation
- Financial difficulties for bus operators due to economic crisis
- Decreased number of buses in operation
- Increased robbery on board and at bus terminals
- Poorly maintained bus related facilities
- Inadequate bus route structure

Assessment of Transport Modes by Users



Source: SITRAMP Opinion Survey

Impediments to Project Implementation

Lessons from the Past Studies/Projects

- Shortage of Development Fund
- Land Acquisition Problem
- Institutional Failure: Lack of Power and Co-ordination
- Lack of Human Resources, Planning Data and Master Plan by Local Government

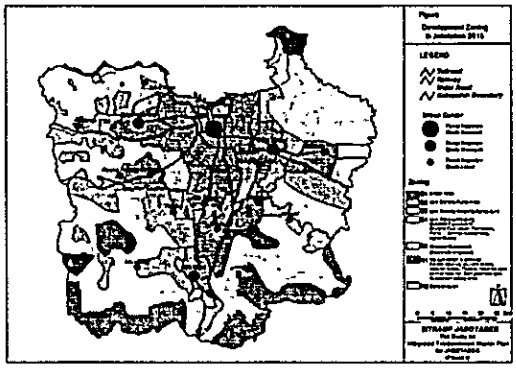
Review of Existing Master Plans

Review of Regional Development Direction designated in "Jabotabek 2015"

1) Restricted area
⇒ Southern part of the Jabotabek region for water reservoir
⇒ Technically irrigated agricultural lands (Northern part of Kabupaten Bekasi)

2) Primary direction of urban development : East-West

3) Buffer zones are designated between settlement areas.



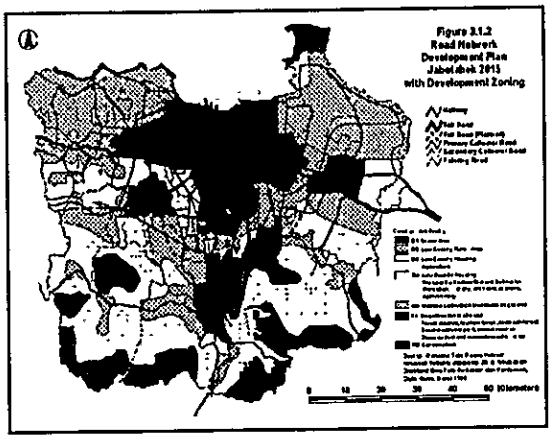


Figure 3.1.2
Road Network
Development Plan
Jabotabek 2015
with Development Zoning

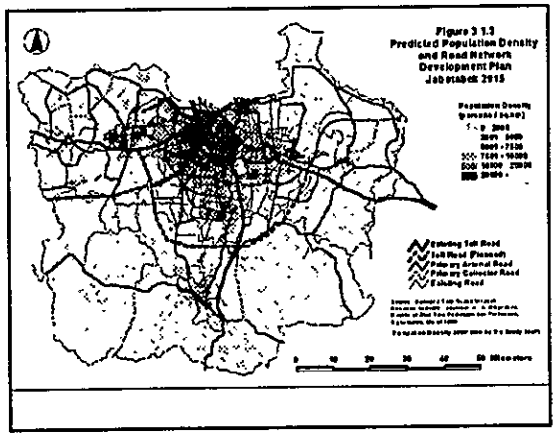
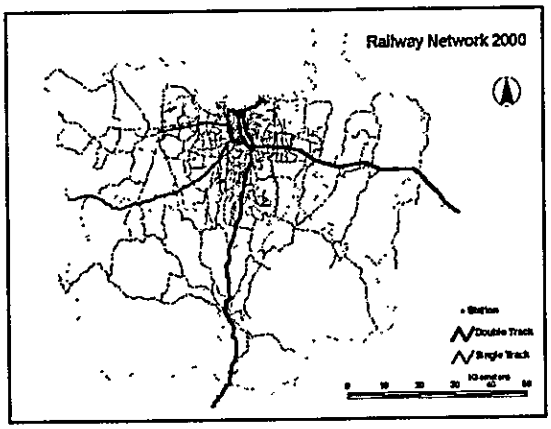
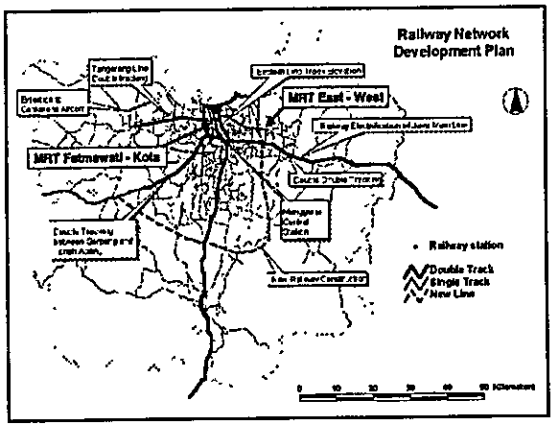
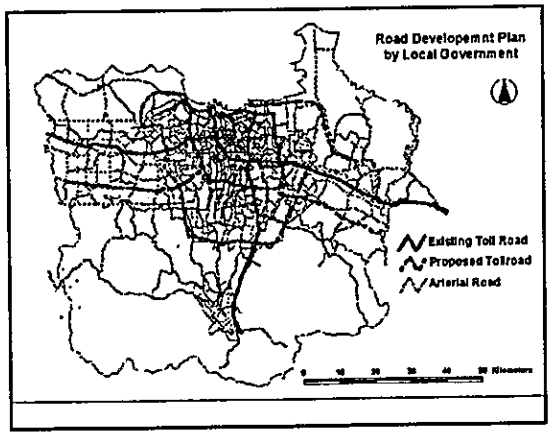
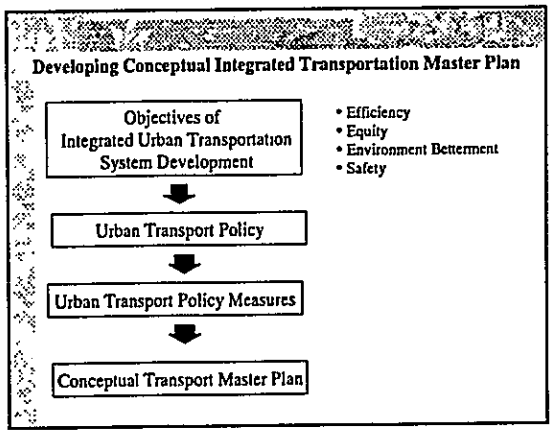


Figure 3.1.3
Predicted Population Density
and Road Network
Development Plan
Jabotabek 2015


Railway Network 2000
Double Track
Single Track

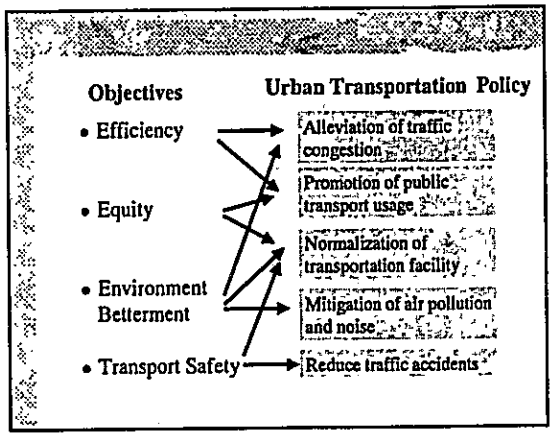

Railway Network
Development Plan
MRT East - West
MRT Fatmawati - Kota
Railway station
Double Track
Single Track
New Line


Road Developemnt Plan
by Local Government
Existing Toll Road
Proposed Tollroad
Arterial Road


Developing Conceptual Integrated Transportation Master Plan
Objectives of
Integrated Urban Transportation
System Development
Urban Transport Policy
Urban Transport Policy Measures
Conceptual Transport Master Plan
• Efficiency
• Equity
• Environment Betterment
• Safety

Objectives of Urban Transportation System Development

1) **Efficiency** to support economic activities,
2) **Equity** in mobility among all the members in society,
3) ***Betterment*** of the urban **Environment** by minimizing the adverse effects of vehicle emissions and noises,
4) **Safety** to reduce victims in transport accidents.



Urban Transportation Policy Measures

1. Infrastructure development
2. Traffic control and management
3. Improvement of public transport services
4. Transportation demand management
5. Normalization of transport facilities
6. Reducing air pollution and noises
7. To improve transport safety

Establishing Conceptual Integrated Transportation Master Plan

- To make consistency between a short-term implementation plan and a long-term development plan
- Emphasis was given to major transportation facilities.

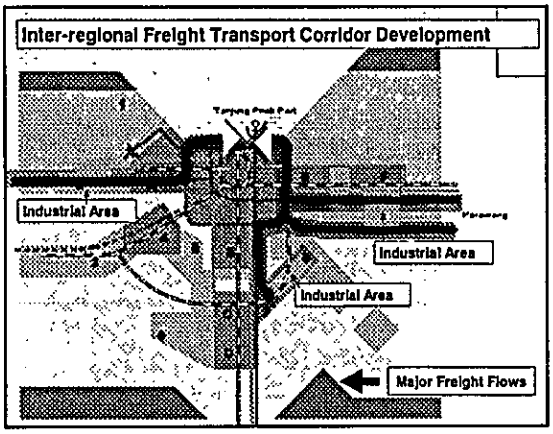
Transportation System Development Policy (Study Team's Proposal)

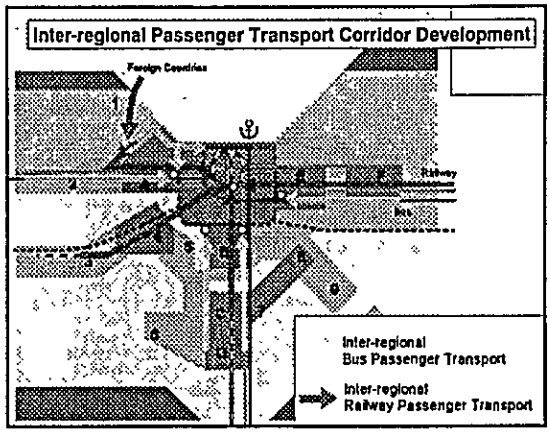
A) Development of Primary Transportation System to support Inter-regional Transport Demand
B) Strategic Corridor Development
C) Strengthening Accessibility between Urban Centers in Botabek
D) Improving Accessibility between Urban Centers in Botabek and Jakarta
E) Hierarchical Road System Development

(A) Development of Primary Transportation System

Primary transport system should be developed to improve access to important transportation facilities such as seaport and airport

- Improve accessibility to Tg. Priok Port by construction of Jakarta Outer Ring Road (E-3 Section)
- Improve accessibility to the Soekarno Hatta International Airport by construction of the Jakarta Outer Ring Road (W-1 Section and W-2 Section)
- Extension of Tangerang Line to the Soekarno Hatta International Airport
- Improve accessibility to Tg. Priok port by construction of Tg.Priok—Citayam—Parung Panjang new railway line for freight transport

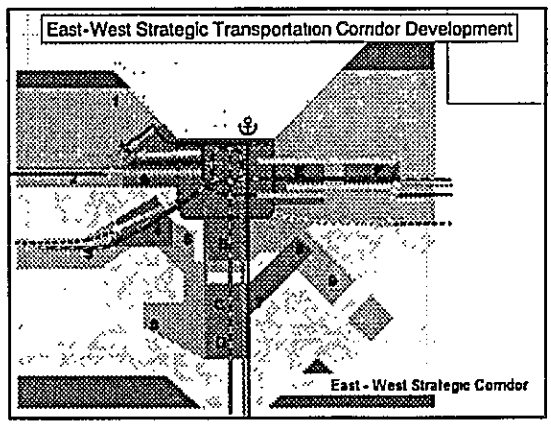




(B) Strategic Corridor Development

Guide urban structure in a desirable direction

1) **East-West direction**: to induce urban development in a designated area
   - Strengthen Tangerang – Jakarta – Bekasi east-west corridor
   - Develop MRT East-West Line development (Tangerang – Duri – Bekasi)
2) **North - South direction**: to enhance to meet the travel demand
   - Improve Jakarta – Depok – Cibinong – Bogor north-south corridor



(C) Strengthening Accessibility between Urban Centers in Botabek

Accessibility between urban centers in Botabek should be enhanced to achieve sustainable development in urban centers in Botabek by augmenting mutual interaction between centers.

Development of the **Outer Outer Ring Road** to improve accessibility between the urban centers in Botabek

(D) Improving Accessibility between Urban Centers in Botabek and Jakarta

Accessibility to urban centers in Botabek from the national primary center, Jakarta should be strengthened to support the urban activities in urban centers in Botabek.

- Public transportation system development between Jakarta and the urban centers in Botabek
- Arterial road development between Jakarta and the urban centers in Botabek

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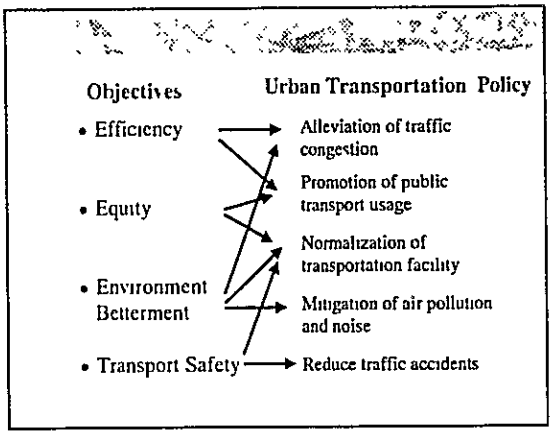

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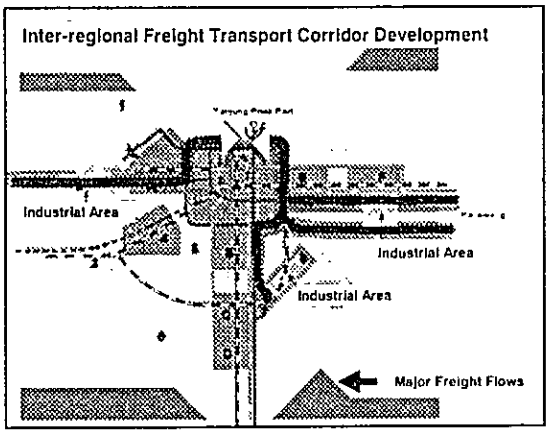

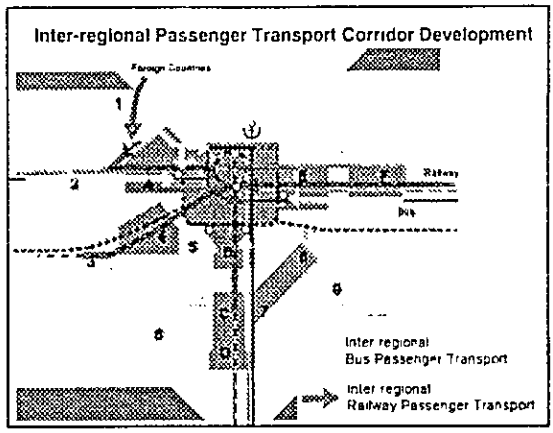

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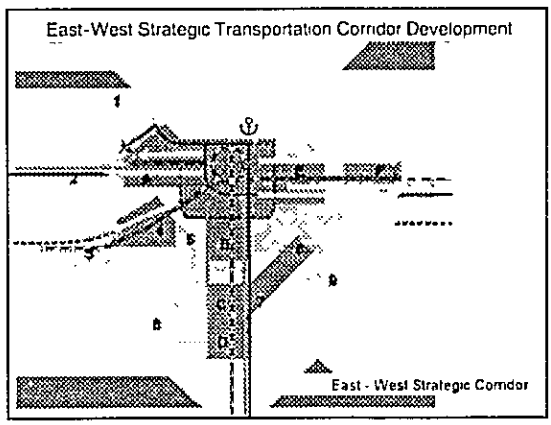

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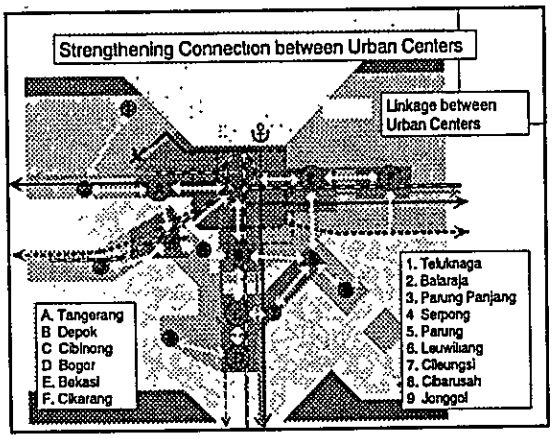
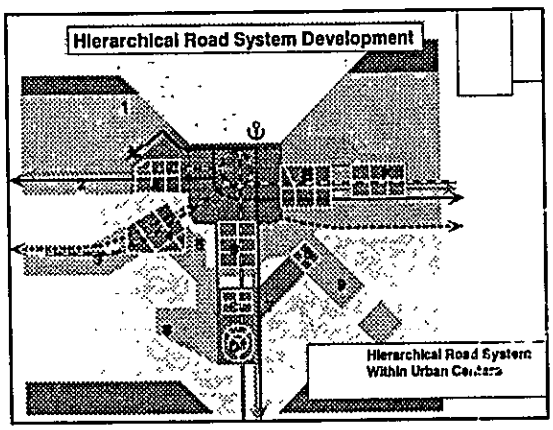
- Public transportation system development between Jakarta and the urban centers in Botabek
- Arterial road development between Jakarta and the urban centers in Botabek

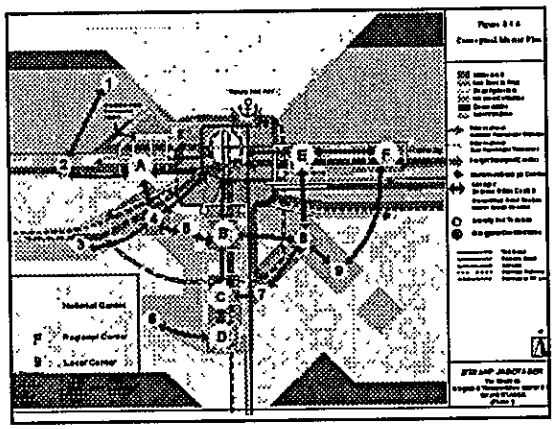


(E) Hierarchical Road System Development

Road system should be developed in a hierarchical manner in order to develop well-organized urbanized areas. In addition, division of community has been already appeared by railway development and toll road development, sufficient access between areas should be also provided.

- Linear road network development with grid pattern arterial road system in Tangerang-Jakarta-Bekasi corridor
- Linear road network development with grid pattern arterial road system in Jakarta – Depok – Cibinong – Bogor corridor
- Collector road development in Jakarta
- Flyovers and underpass construction between divided areas





Short-term Implementation Plan

Criteria for Short-term Implementation Plan

Economic crisis has made Govt. difficult to allocate a huge amount of fund for transportation infrastructure development

Projects which do <u>not</u> require a Huge Fund

Many projects have been delayed to implement due to land acquisition problem

Projects/Programs with No Land Acquisition Problem

Short-term Railway Improvement Plan (1)

1) Improvement of Station Facilities

- Improvement of Station Plaza and Access Roads

  Station: Depok Lama, Citayam, Bogor, Tangerang, Serpong

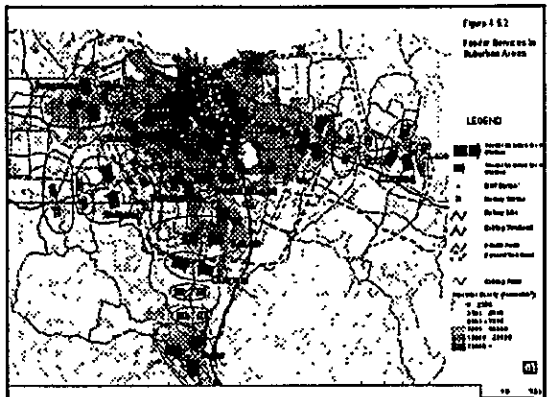
- Construction of Pedestrian Deck/Underground Passage

  Station: Cawang, Pasar Minggu, Depok Lama

- Construction of Over-Track Station

  Station: Cawang, Pasar Minggu, Depok Lama, Bogor

- Raise/Extension of Platform and Improvement of Track Layout



Feeder Services for Railway System in Suburban Area

Short-term Railway Improvement Plan (2)

2) Reinforcement of Stabling Yard at Station Bogor

3) Rehabilitation of Electric Facilities

- Countermeasure of Lightning for Signaling
- Rehabilitation of Damaged Communication Facilities

4) Improvement of Level Crossing Equipment

Level Crossing on the Western and Eastern Lines

5) Procurement of Additional Electric Cars

32 electric cars shall be purchased to increase frequency.

Cost Estimate for Short-term Railway Improvement Plan

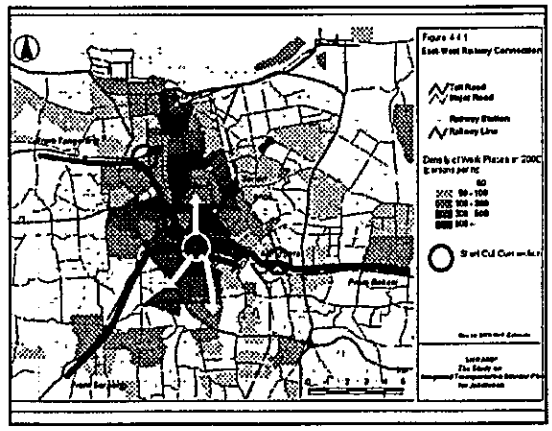
Item	million Rp.
Station Facility Improvement	93,875
Countermeasure of Lighting for Signaling	37,437
Rehabilitation of Communication Facilities	121,192
Improvement of Level Crossing	52,329
Addition of Electric Cars (32 cars)	18,668
Total	323,501

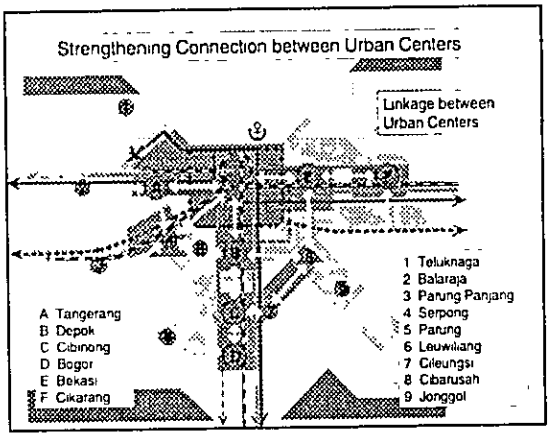
Note. Including Physical Contingency(10%) and Insurance (3.5%)

6) East-West Connection by Short-cut [Intermediate]

Serpong Line and Western Line (Dukuh, Manggarrai)
Tangerang Line and Western Line (Dukuh, Manggarrai)

Item	million Rp.
Short-Cut on Tangerang Line	111,856
Short-Cit on Serpong Line	73,633
Subtotal	185,489
Physical Contingency (10%) and Insurance (3.5%)	25,696
Total	211,185





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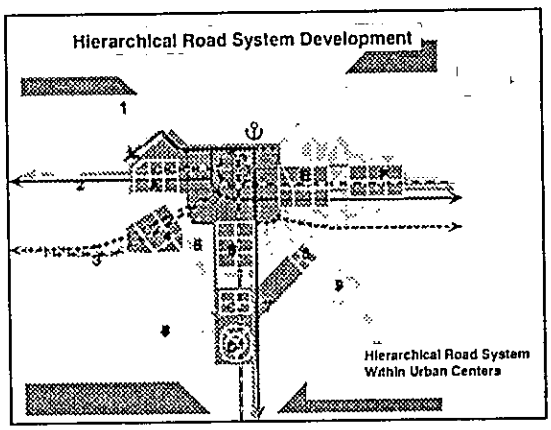

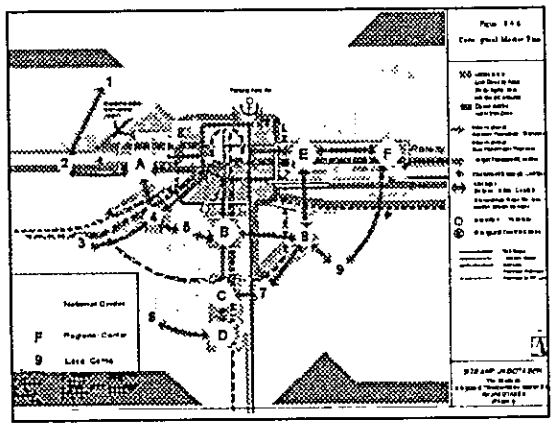

Short-term Implementation Plan

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Projects Programs with No Land Acquisition Problem