

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

MINISTRY OF PUBLIC WORKS

REPUBLIC OF INDONESIA

**THE FEASIBILITY STUDY
ON
URBAN ARTERIAL ROAD SYSTEM
DEVELOPMENT PROJECT
IN
JAKARTA METROPOLITAN AREA**

FINAL REPORT

VOLUME I: TEXT

JANUARY, 1995

**PACIFIC CONSULTANTS INTERNATIONAL
YACHIYO ENGINEERING CO., LTD.**

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国際協力事業団

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Note

The exchange rates used in the Study are:

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(as of the end of August 1994)

Preface

In response to a request from the Government of the Republic of Indonesia, the Government of Japan decided to conduct a Feasibility Study on Urban Arterial Road System Development Study in Jakarta Metropolitan Area and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Indonesia a study team headed by Mr. Nobuwaka Yamakawa, Pacific Consultants International (PCI), and composed of members of PCI and Yachiyo Engineering Co., Ltd. (YEC), three times between April, 1993 and October, 1994.

The team held discussions with the officials concerned of the Government of Indonesia and conducted field surveys and studies at the study area. After the team returned to Japan, further studies were made and the present report was prepared.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the Republic of Indonesia for their close cooperation extended to the team.

January, 1995



Kimio Fujita
President

Japan International Cooperation Agency

THE FEASIBILITY STUDY ON URBAN ARTERIAL ROAD SYSTEM
DEVELOPMENT PROJECT IN JAKARTA METROPOLITAN AREA

January, 1995

Mr. Kimio Fujita
President
Japan International Cooperation Agency

LETTER OF TRANSMITTAL

Dear Sir,

We are pleased to submit you the final report entitled "THE FEASIBILITY STUDY ON URBAN ARTERIAL ROAD SYSTEM DEVELOPMENT PROJECT IN JAKARTA METROPOLITAN AREA".

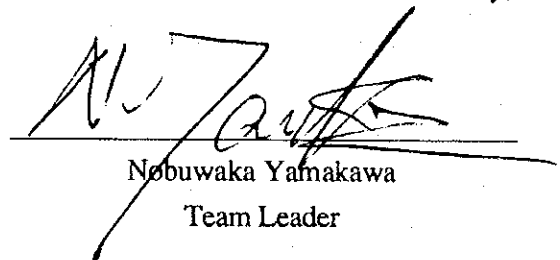
This report has been prepared by the Study Team in accordance with the contracts signed on March 5, 1993, November 15, 1993 and June 10, 1994 between Japan International Cooperation Agency and Pacific Consultants International/Yachiyo Engineering Co., Ltd.

The report examines the existing conditions in DKI Jakarta and surrounding area concerning traffic and transportation, systems, reviews the structure plans and other plans, analyses them and presents the results of a feasibility study.

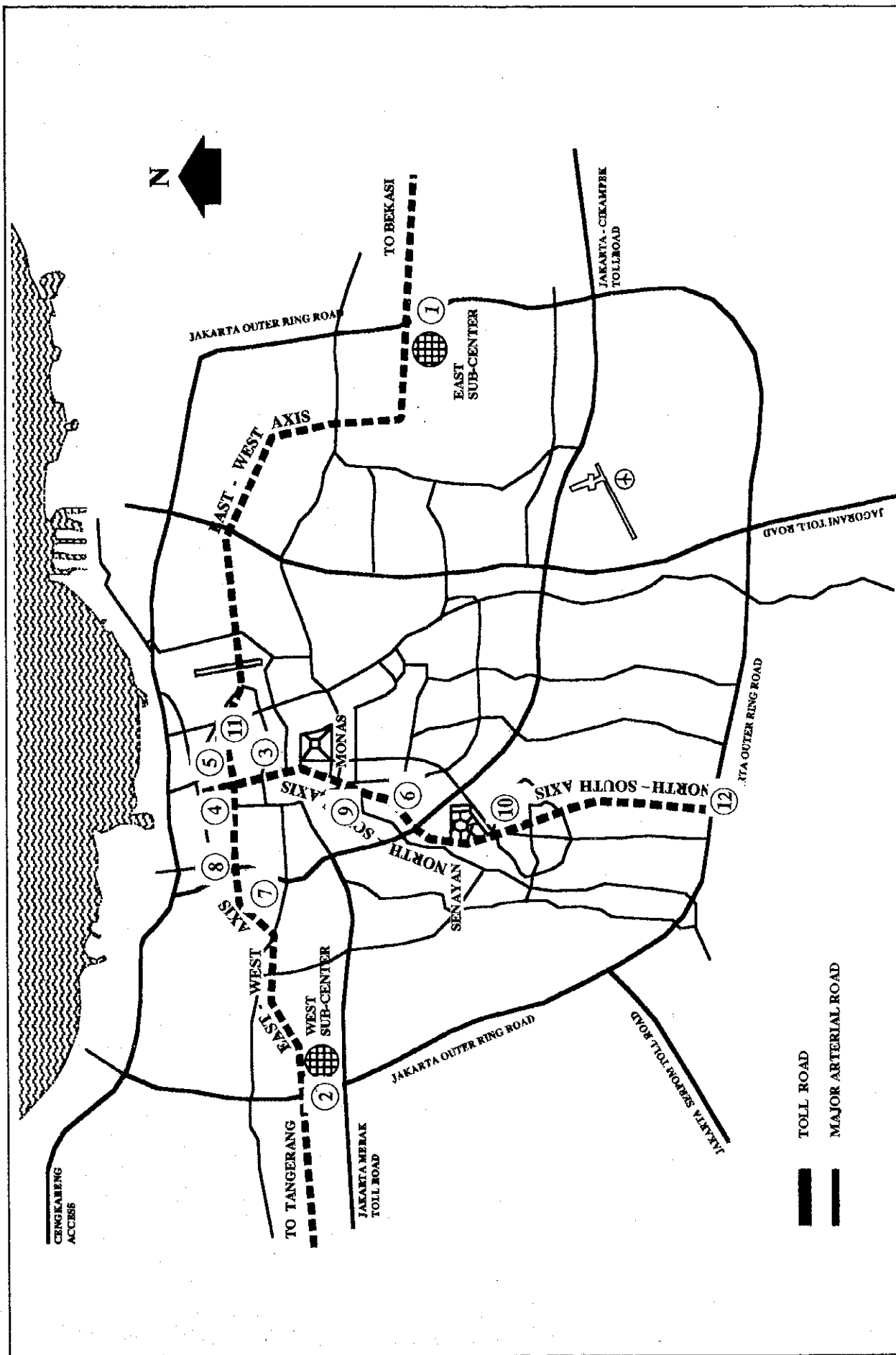
The report consists of Summary, Text, Appendix and Drawings. The Summary summarizes the results of all studies. The Text presents the results of whole study. The Drawings presents the preliminary engineering designs.

All member of the Study Team wish to express grateful acknowledgment to the personnel of your Agency in Tokyo and in Jakarta, Advisory Committee, Embassy of Japan in Jakarta, and also to officials specially the member of Steering Committee and counterparts of the Government of Republic of Indonesia for their assistance extended to the Study Team. The Study Team sincerely hopes that the results of the study contribute to the realization of the projects.

Yours faithfully,



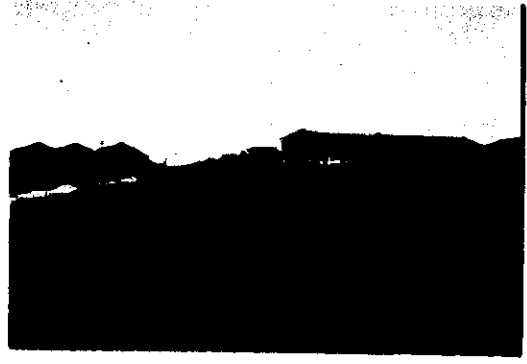
Nobuwaka Yamakawa
Team Leader



PROJECT LOCATION MAP



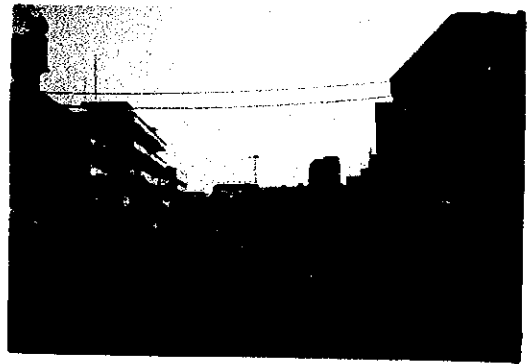
① East Primary Center



② West Primary Center



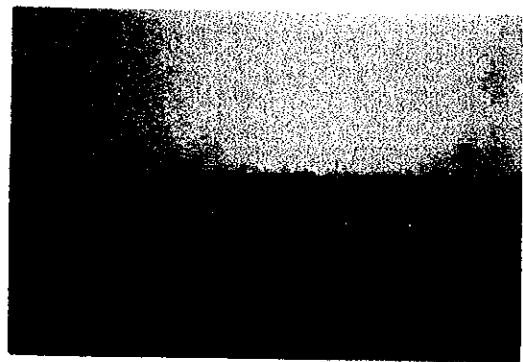
③ Congested Jl. Gajah Mada and Kali Ciliwung



④ Jl. Mangga Besar heading to Mangga Besar Extension



⑤ Elevated Central Railway Line crossing Jl. Mangga Besar



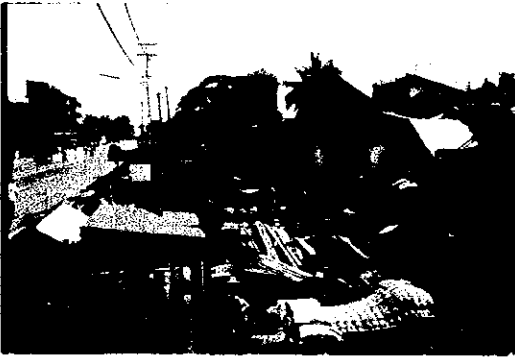
⑥ Kali Malang/Banjir Kanal



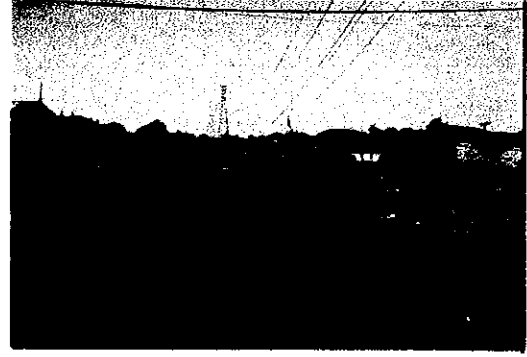
⑦ Tangerang Railway Line



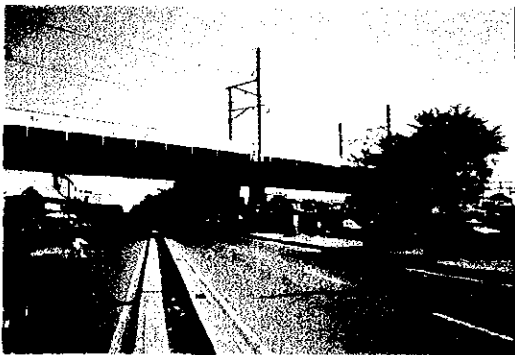
⑧ Senayan Statue



⑨ Land Acquisition on Jl. Jati Baru



⑩ Evacuation on Northern Extension of S-W Arc



⑪ Steel Box Girder fabricated in Indonesia



⑫ Construction of Jakarta Outer Ring Road

**FEASIBILITY STUDY
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URBAN ARTERIAL ROAD SYSTEM
DEVELOPMENT PROJECT
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FINAL REPORT

VOLUME 1 : TEXT

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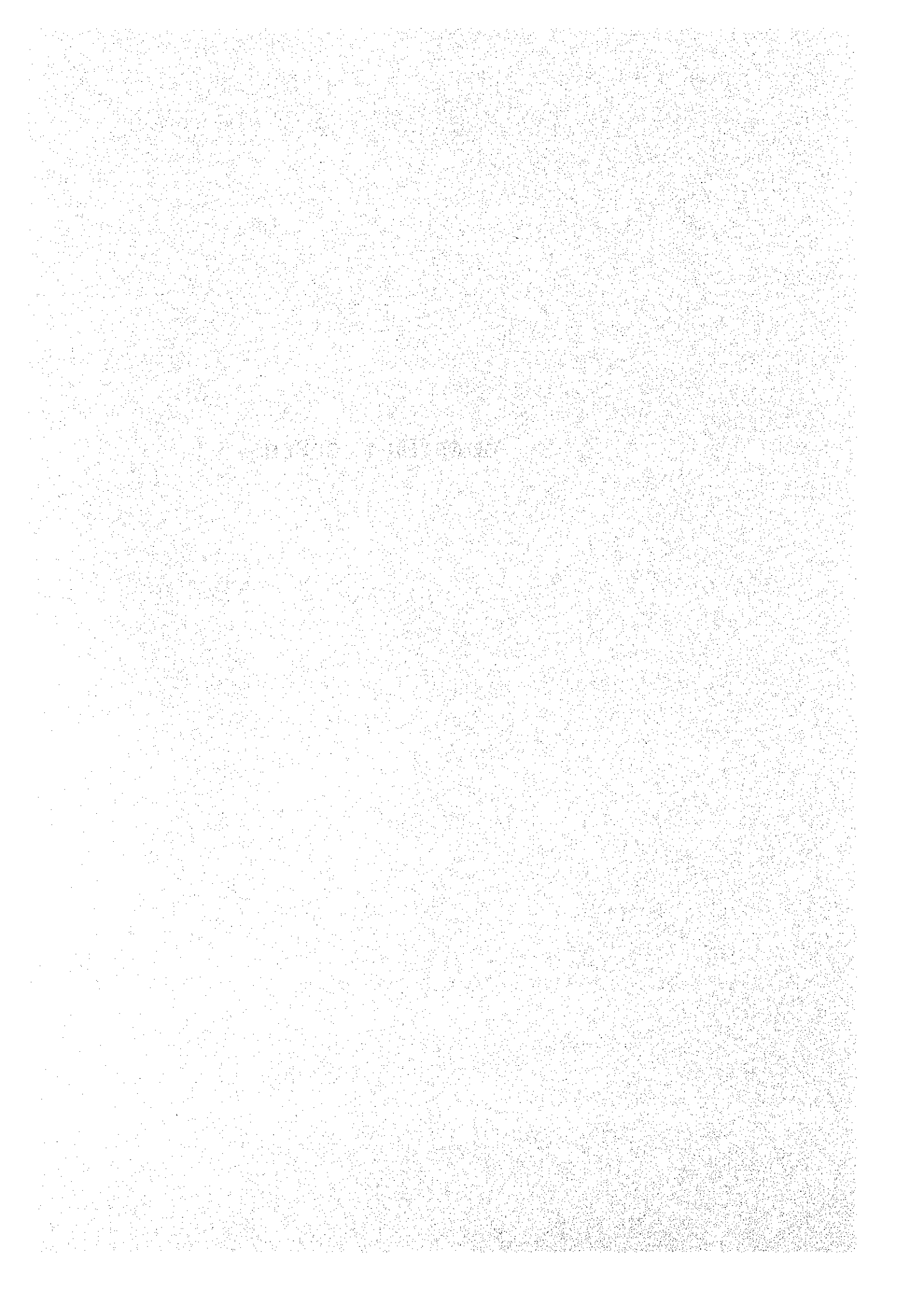
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ABBREVIATIONS

| | |
|---------------------------------------|---|
| AASHTO | American Association of State Highway and Transportation Officials |
| ADT | Average Daily Traffic |
| ANDAL | Environmental Impact Analysis |
| APBN | Anggaran Pendapatan dan Belana Negara (National budget) |
| ARSDS | Arterial Road System Development Study in Jakarta Metropolitan Area |
| ASEAN | Association of Southeast Asian Nations |
| BAPPEDA | Badan Perencanaan Pembangunan Daerah, Regional Development Planning Board |
| BARPENAS | Badan Perencanaan Pembangunan Nasional, National Development Planning Board |
| B/C | Benefit Cost Ratio |
| BPS | Biro Pusat Statistik, Central Bureau of Statistics |
| CBR | California Bearing Ratio |
| cm, cm ² , cm ³ | Centimeter, square centimeter, cubic centimeter |
| DBM | Dinas Bina Marga |
| Bina Marga | Directorate General of Highways, Ministry of Public Works |
| Dia. or Ø | Diameter |
| DKI Jakarta | Jakarta Special Capital Province |
| DPU | Department Pekerjaan Umum, Ministry of Public Works |
| EIRR | Economic Internal Rate of Return |
| EL | Elevation |
| F/S | Feasibility Study |
| GDP | Gross Domestic Product |
| GOI | Government of Indonesia |
| GRDP | Gross Regional Domestic Product |
| IBRD | International Bank for Reconstruction and Development |
| JABOTABEK | Region comprising Jakarta, Bogor, Tangerang and Bekasi local government administrative areas |
| Jasa Marga | Indonesia Highway Corporation |
| JMDP | Jabotabek Metropolitan Development Plan |
| JMDPR | Jabotabek Metropolitan Development Plan Review |
| JORR | Jakarta Outer Ring Road |
| JUDP | Jabotabek Urban Development Project |
| JICA | Japan International Cooperation Agency |
| Kab. | Kabupaten (Regency) |
| Kec. | Kecamatan (Sub-district) |
| Kel. | Kelurahan (Village) |
| Kod. or Kodya | Kotamadya (Municipality) |
| Km | Kilometer |
| LLAJR | Directorate of Road Transport, PHBD |
| m, m ² , m ³ | Meter, square meter, cubic meter |

| | |
|----------------|---|
| MHA | Ministry of Home Affairs |
| MOC | Ministry of Communication |
| MOF | Ministry of Finance |
| MPW | Ministry of Public Works |
| NPV | Net Present Value |
| OD | Origin and Destination |
| OECF | Overseas Economic Cooperation Fund |
| PC | Prestressed concrete |
| PCC | Portland cement concrete |
| PCU | Passenger Car Unit |
| PERMUKA | Perusahaan Umum Kereta Api, Public Corporation of Railways |
| PHBD | Directorate General of Land Transport and Inland Waterways, MOC |
| RC | Reinforced concrete |
| RBWK | District Plan |
| REPELITA | Rencana pembangunan Lima Tahun, Five-Year Development Plan |
| ROW | Right-of-way |
| Rp. | Rupiah |
| Sta. | Station |
| TK. I / TK. II | Tingkat I / Tingkat II (First/Second Level of Autonomy) |
| VOC | Vehicle Operating Cost |

CHAPTER 1 GENERAL



CHAPTER 1 GENERAL

1.1 Background

DKI Jakarta, the capital of Indonesia, is among the largest cities in the world that will have 11.2 million population in 2010. It results in growing 1.55% p.a. and 1.4 times as much as 8.2 million in 1990 census. Growth is more outstanding in Jabotabek as a whole. Tangerang and Bekasi, for example, are expected to have 4 times more population and 3.4 times more job opportunities for the coming two decades. Even though it continues to expand her urbanized area toward its surrounding, especially for east and west fringe of the city based on the development policy of Jabotabek Metropolitan, DKI Jakarta still retains the hub of financial, commercial and administrative activities in Indonesia.

Rapid expansion of social and economic activities stimulate motorization in the urban area, and resultingly chronic traffic congestion takes place on major arterial streets in the central business districts as well as on radial roads in the suburbs.

To cope with such traffic situation in Jakarta, the Government of Indonesia has been implementing the various measures such as the expansion of one way traffic controlled area, increase of intersection with no right turning, application of exclusive bus lane and 3 in 1 regulation in the CBD as short term schemes. The Government also has medium and long term improvement plans to construct toll roads and flyovers, to improve the existing railway for commuters and to introduce Light Rail Transit (LRT) system.

The Feasibility Study on Urban Arterial Road System Development Project in Jakarta Metropolitan Area (hereinafter referred as "the Study"), which was one of the major recommendations from Arterial Road System Development Study in Jakarta Metropolitan Area conducted by JICA in 1987 (hereinafter referred as "ARSDS"), aims at formulating a basic road development plan for the North-South Axis and the East-West Axis and examining the feasibility of selected priority sections of the axes.

1.2 Study Objectives

The Study conducted under the above condition is comprised of the following major components :

- (1) to formulate a basic road development plan for the East-West corridor between Tangerang and Bekasi (approximately 70 kilometers in length) and North-South corridor between Harbour Road and Outer Ring Road (approximately 20 kilometers in length) in Jakarta Metropolitan Area, and to select priority sections of the two corridors; and

- (2) to carry out a feasibility study on the selected sections of the said corridors.

1.3 Scope of the Study and Study Progress

The Study consists of the following three phase :

- Phase I (March, 1993 ~ September 1993) : Basic Development Plan Formulation,
 Phase II (November, 1993 ~ February, 1994) : Feasibility Study Part I, and
 Phase III (June, 1994 ~ January, 1995) : Feasibility Study Part II.

The study approach and phasing are presented in Fig. 1.1.

The study framework were formulated and reports were prepared and submitted to Bina Marga in the course of the study. (Refer to Table 1.1)

1.4 Study Area

The Study covers DKI Jakarta and its environs.

1.5 Organization for Executing the Study

The Study was carried out by the JICA study team and the Indonesian counterpart team jointly organized by Bina Marga, DGLC, Bappeda-DKI and Jasa Marga. The study team was guided by the inter-department Steering Committee and received technical advices from the JICA Advisory Committee. The organization Chart is shown in Fig. 1.2.

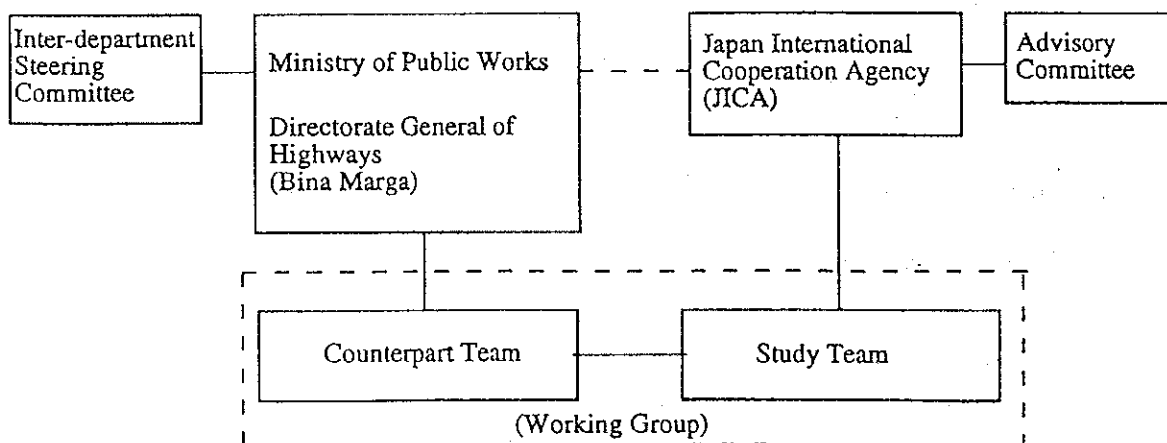
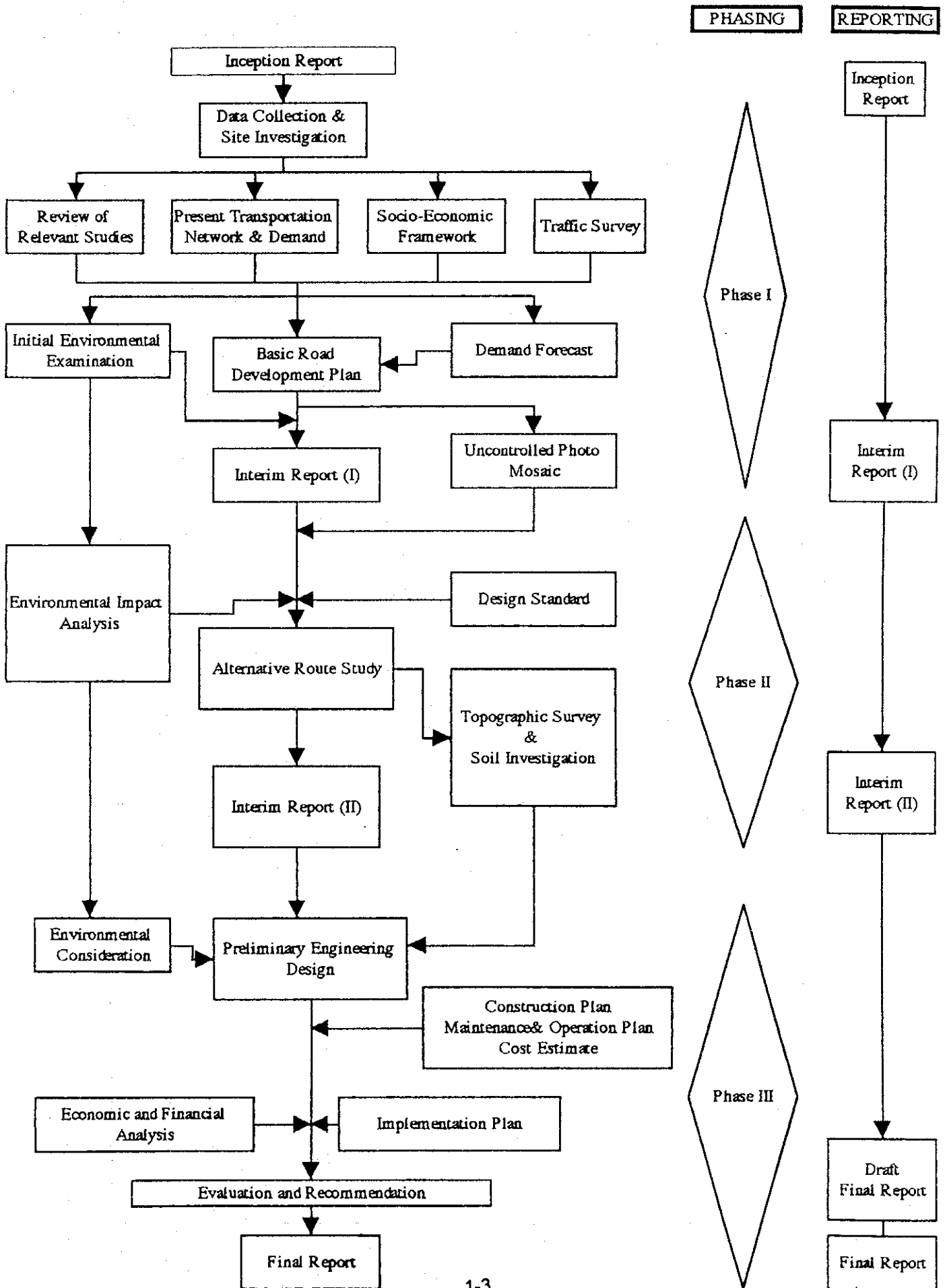


Fig. 1.2 Organization Chart of the Study

Fig. 1.1 Study Approach and Phasing



The member participated in the Study are listed below :

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- Deputy Chairman : Mr. Budihardjo
Head of Regional Development and Planning Coordination
Bureau (Bappeda), DKI Jakarta.
- Secretary : Mr. Sukawan Mertasudira, MSc.
Sub-director of Technical Development, Directorate of
Binkot.
- Member : Mr. Suhartono Tjitrodiwirdjo
Sub-director of Central Region, Directorate of Binkot.
- Member : Mr. Bhudjono
Chief of Unit for Tollway Development, Binkot.
- Member : Mr. Machmuddin Jusuf
Bureau of Transportation and Tourism, National
Development and Planning Coordination Agency
(Bappenas).
- Member : Mr. Bambang Susanto Priyohadi, MPA
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- Member : Mr. Achmad Lanti, MEng.
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- Member : Mr. Iskandar Abubakar, MSc.
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Land Communication, Ministry of Communications.
- Member : Mr. Irsal Jamal
Sub-director, Bappeda DKI Jakarta.
- Member : Mr. Udin Abimanyu
City Planning Bureau, DKI Jakarta.

- Member : Mr. Soeharto
Public Works Bureau, DKI Jakarta.
- Member : Mr. Oi Godjali
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Jasa Marga) (Persero).
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- Counterpart : Mr. Hendri Sarosa,
Binkot
- Counterpart : Mr. Sri Sadono,
Binkot
- Counterpart : Mr. Padri H. Aksah,
DGLC
- Counterpart : Mr. Budirama,
Bappeda DKI
- Counterpart : Mr. Kristianto Adi,
Jasa Marga

3). JICA Study Team

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Mr. Kenji Maruoka (Deputy Team Leader/Highway Engineer)
Pacific Consultants International

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Pacific Consultants International

Mr. Tomokazu Wachi (Traffic Engineer)
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Mr. Akinori Sato (Environmental Analyst)
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Mr. Yousuke Sasaki (Soils and Geological Specialist)
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Mr. Yuji Sorayama (Structural Engineer)
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Mr. J.H. Hamilton (Construction Plan Specialist/Cost Estimator)
Yachiyo Engineering Co., Ltd.

Mr. Masatoshi Kaneko (Economic and Financial Analyst)
Pacific Consultants International

Mr. Yutaka Kokufu (Aerophoto Mosaic Supervisor/Geodetic Engineer)
Pacific Consultants International

4). JICA Advisory Committee

Mr. Yasuo KASHIMA (Chairman)

Mr. Seizo HAYASAKA (Transport Planning)

Mr. Yasuhiro TAKAMATSU (Road Planning)

CHAPTER 2 PRESENT SOCIO-ECONOMIC AND SPATIAL CONDITIONS

CHAPTER 2 PRESENT SOCIO-ECONOMIC AND SPATIAL CONDITIONS

2.1 Geographical Conditions and Administrative Structure

2.1.1 Geographical Conditions

(1) Geography

The study area, Jabotabek, is situated at the north-west region of Java Island facing the Java Sea, approximately 6°12' in south latitude and 106°48' in east longitude.

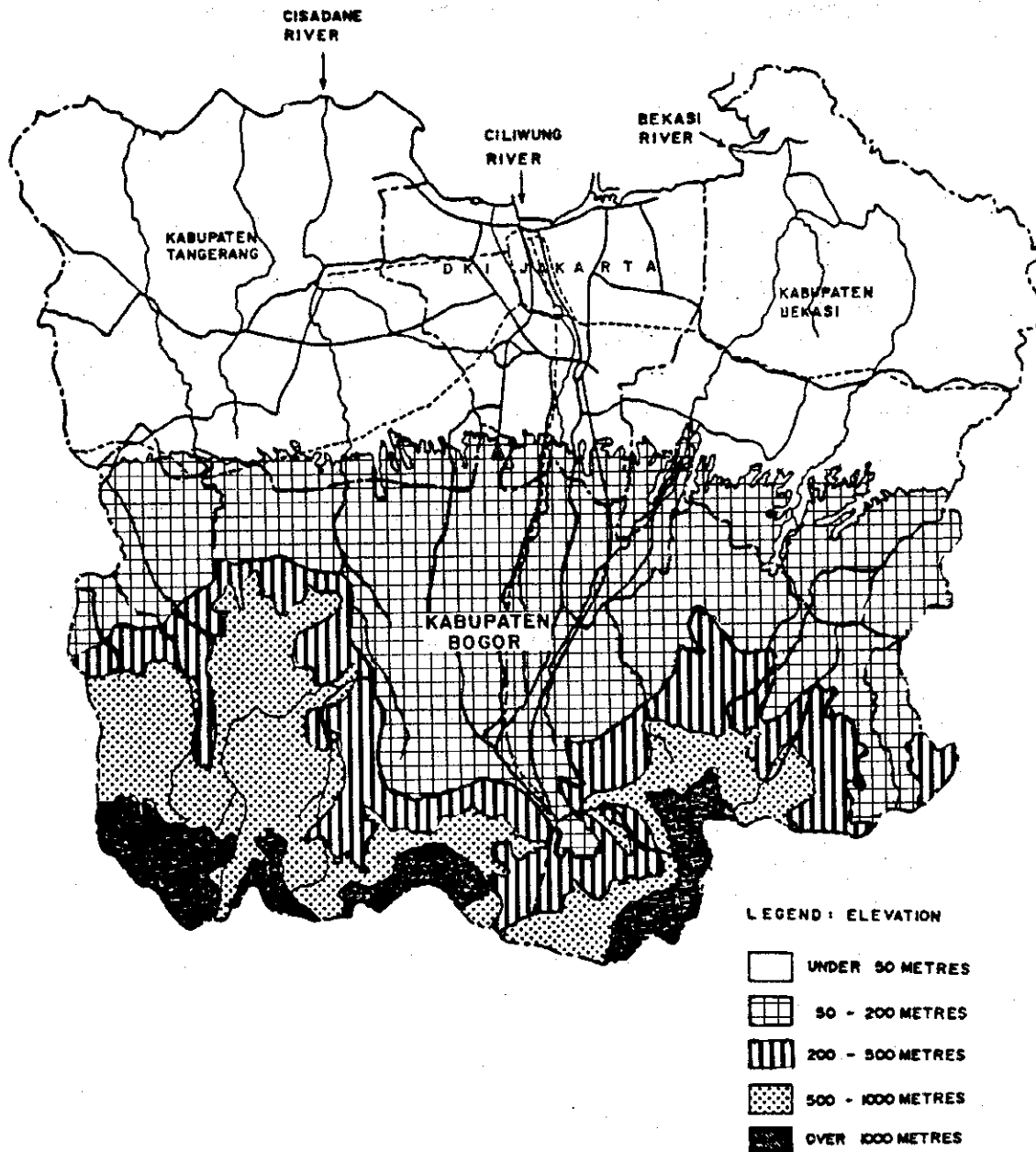
The urban areas of DKI Jakarta, Kab. Tangerang and Kab. Bekasi are spread out on the flat alluvial plain no more than 50 m above sea level and the southern part of Jabotabek is on the diluvial plateau (see Fig. 2.1.1)

The geographical features of the study area are generally flat in the north and flat/rolling in the south with the altitude rising between 0 to 10 and 10 to 50 metres above mean sea level respectively.

There are several rivers in the study area the major being Kali Angke, Kali Pesanggrahan, Kali Ciliwung and Kali Sunter.

The study area is basically formed of sedimentary rocks of the tertiary era, overlayed with volcanoclastic materials of the quaternary diluvial epoch comprising clay, silty or sandy clay, sandy soils, gravel and such mixtures. Along the river banks, alluvial layers are accumulated, but tertiary rocks are not outcropped. In the study area the upper layers are considerably stratified and composed mainly of clayey soils which have weathered under the high temperature and humidity environment to an extensive depth, forming purplish-red to brown lateritic clay in parts with very high water content. Where weathering has not progressed, the volcanoclastic materials are mainly of black and gray cohesive soils which have hardened.

The sediment of the northern alluvial plain is composed mainly of cohesive soils with occasional bars of sand as shown in Figure 2.1.2. The geological sequence to be found in the Project Area is as shown in Table 2.1.1.



FEASIBILITY ON
 URBAN ARTERIAL ROAD SYSTEM
 DEVELOPMENT PROJECT
 IN JAKARTA METROPOLITAN AREA

Fig. 2.1.1
 TOPOGRAPHICAL CONDITION IN JABOTABEK

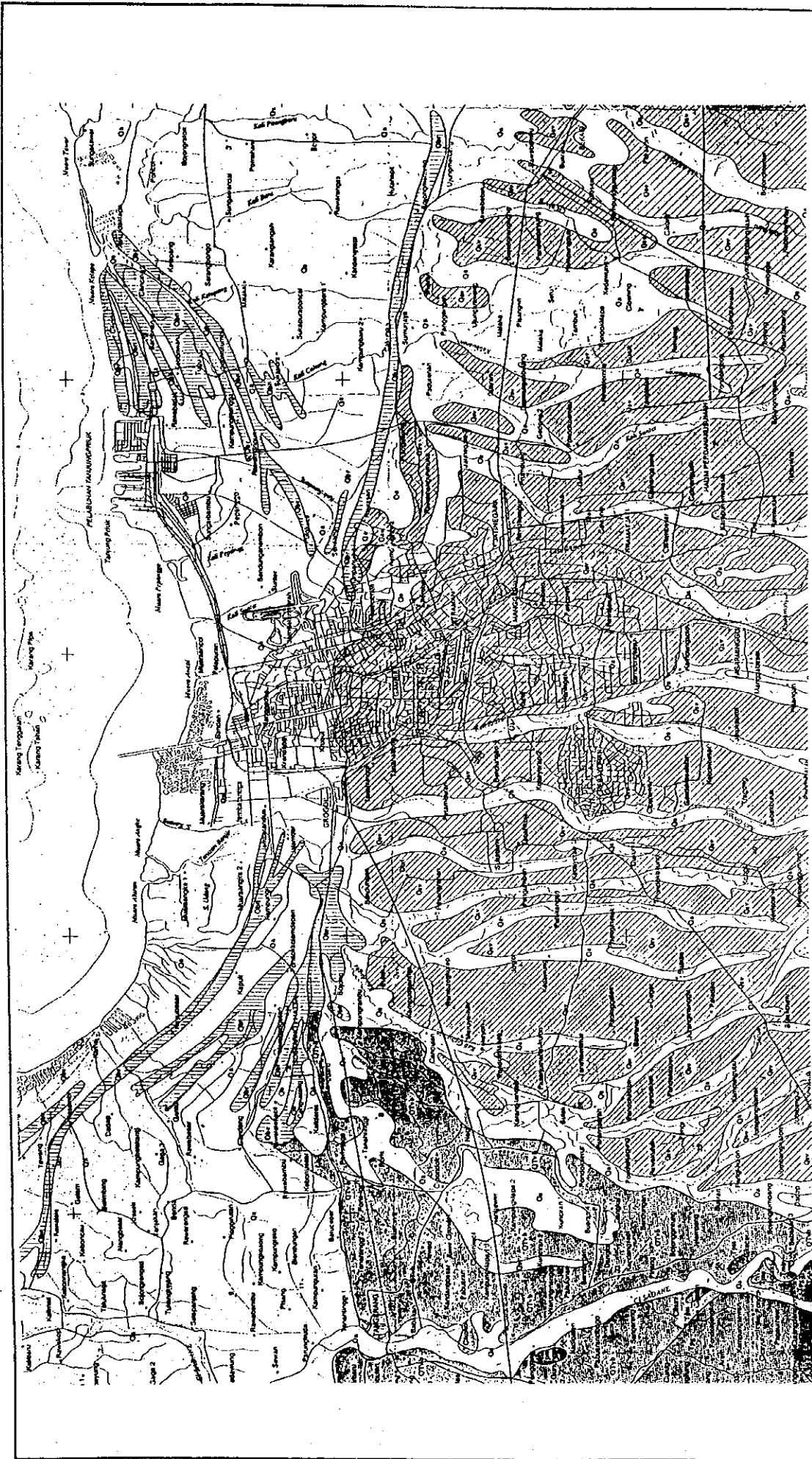


Fig. 2.1.2 Geological Map
**FEASIBILITY STUDY ON
 URBAN ARTERIAL ROAD SYSTEM
 DEVELOPMENT PROJECT
 IN JAKARTA METROPOLITAN AREA**

EXPLANATION

- Qa** ALLUVIAL : Clay, silt, sand, pebble and boulder
- Qbr** BEACH RIDGE DEPOSITS: Coarse sand, well sorted, with mollusc shells
- Qav** ALLUVIAL FAN : Bedded fine tuff, sandy tuff, interbedded with conglomeratic tuff
- Q.tvb** BENTEN TUFF : Tuff, pumice tuff, tuffaceous sandstone

**Table 2.1.1
GEOLOGICAL SEQUENCE IN PROJECT AREA**

| Age | Stratigraphy | Soils |
|---------------------|---------------------|---|
| Quaternary : | | |
| Holocene | Alluvium | Cohesive Soils Cohesionless Soils Organic Soils |
| Pleistocene | Diluvium | Lateritic Soils Volcanic Sediment |
| Plio-Pleistocene | Banten Tuff | Tuff Pumice Tuff Tuffaceous Sandstone |
| Tertiary : | | |
| Pliocene | Genteng Formation | Pumice Tuff Andesite Breccia Tuffaceous Sandstone |

Generally Alluvium (Qa) exist in the form of organic clay, clay, clayey sand, silty clay and sandy clay, the consistency being very soft and plasticity high. The layer thickness of these subsoils is 7 m - 14 m, which makes it necessary to adopt soft ground foundation treatment for stretches where the Toll Road or Frontage Road is planned on high embankments.

Bearing strata consists of conglomerated gravely sand, sandy tuff, sand stone, etc., the consistencies of which are found to be very stiff to hard in depths generally between 15 and 23 meters.

(2) Climate

The climate is tropical monsoon, with two distinct seasons of the rainy season from November to March or April and the dry season from May to October. Monthly rainfall varies from 100 mm to 400 mm during rainy season and is 100 mm at most in dry season. The annual average rainfall is about 1,800 mm and the heaviest monthly rainfall occurs in January with the range of 360 mm to 390 mm per month. Average monthly temperature varies from 25°C to 28°C throughout a year and average relative humidity ranges between 75% and 85%.

(3) Hydrological Condition

There are three major rivers in the study area, the Kali Cisadane in the west, the Kali Ciliwung in the center and the Kali Bekasi in the east. In between these major rivers, its tributaries and minor rivers flow from south to north as shown in Figures 2.1.3 and 2.1.4.

Figure 2.1.5 shows the locations of rainfall observation stations. A number of observation stations exist in the region and have been in operation for varying lengths of time.

Annual rainfall variations and monthly fluctuations of rainfall in Kali Ciliwung basin and surrounding area are shown in Figures 2.1.6 and 2.1.7 which show that beyond Depok (36) located about 30 km from the coastline, annual and monthly rainfall increases with the altitude of the land.

A summary of the analysis is presented in the form of a diagram (Figure 2.1.8) in which the lower half of the figure indicates annual average rainfalls and the distance of the gauge station from the coastline i.e. annual average rainfall increases with the distance from coastline/altitude of the land. The upper half of the figure indicates the altitude of each gauge stations, distance from coastline.

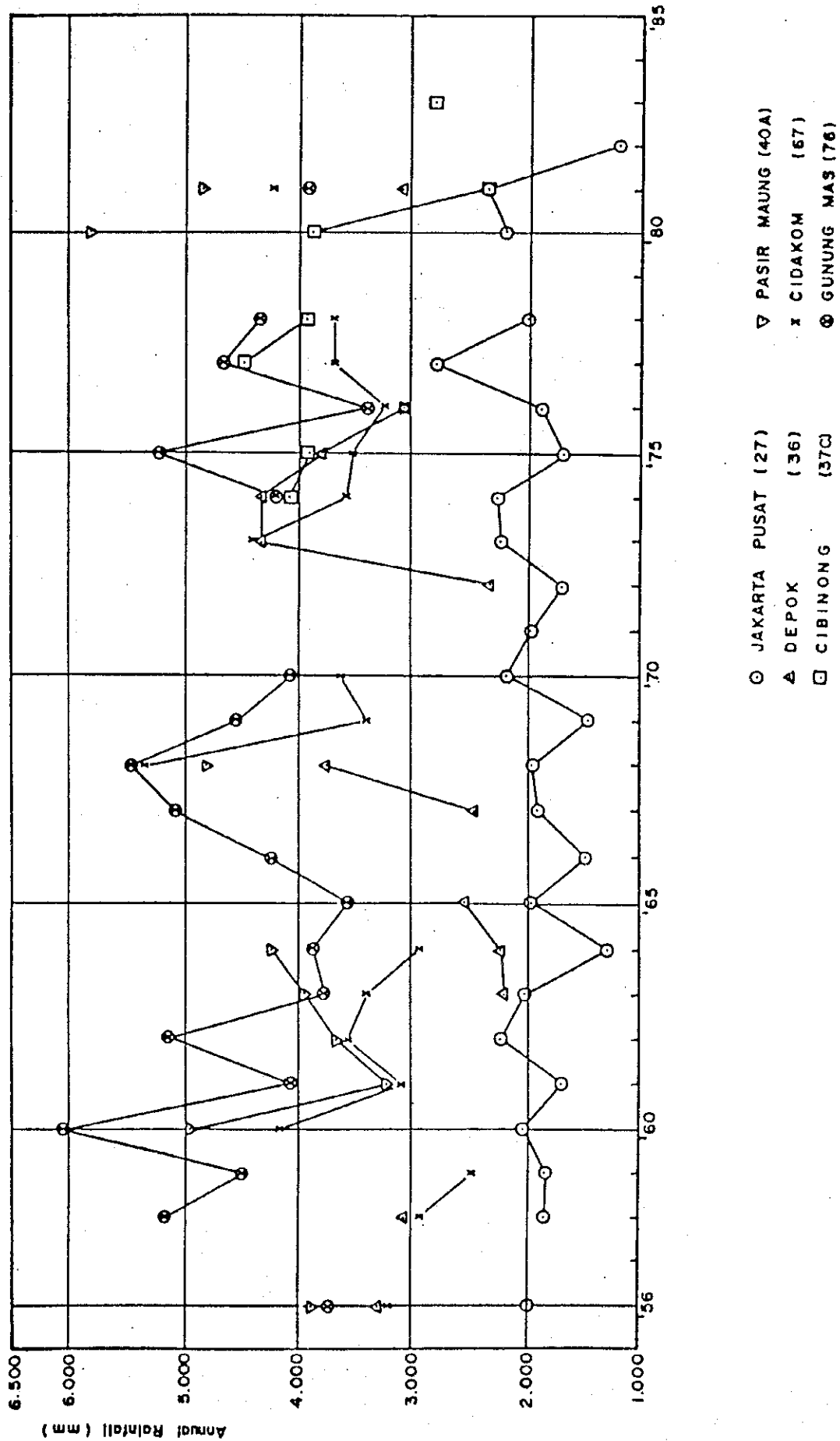
The peak flow of major rivers takes place in January or February to coincide with heavy rainfall in upper stream. The silted-up channels of the lowland area unable to carry the river's floodwater, resulting in periodic flood in Jakarta as shown in Figure 2.1.9.

(4) Impact on Urban Development

The above geographical and climatic conditions have had the following impact on urban development;

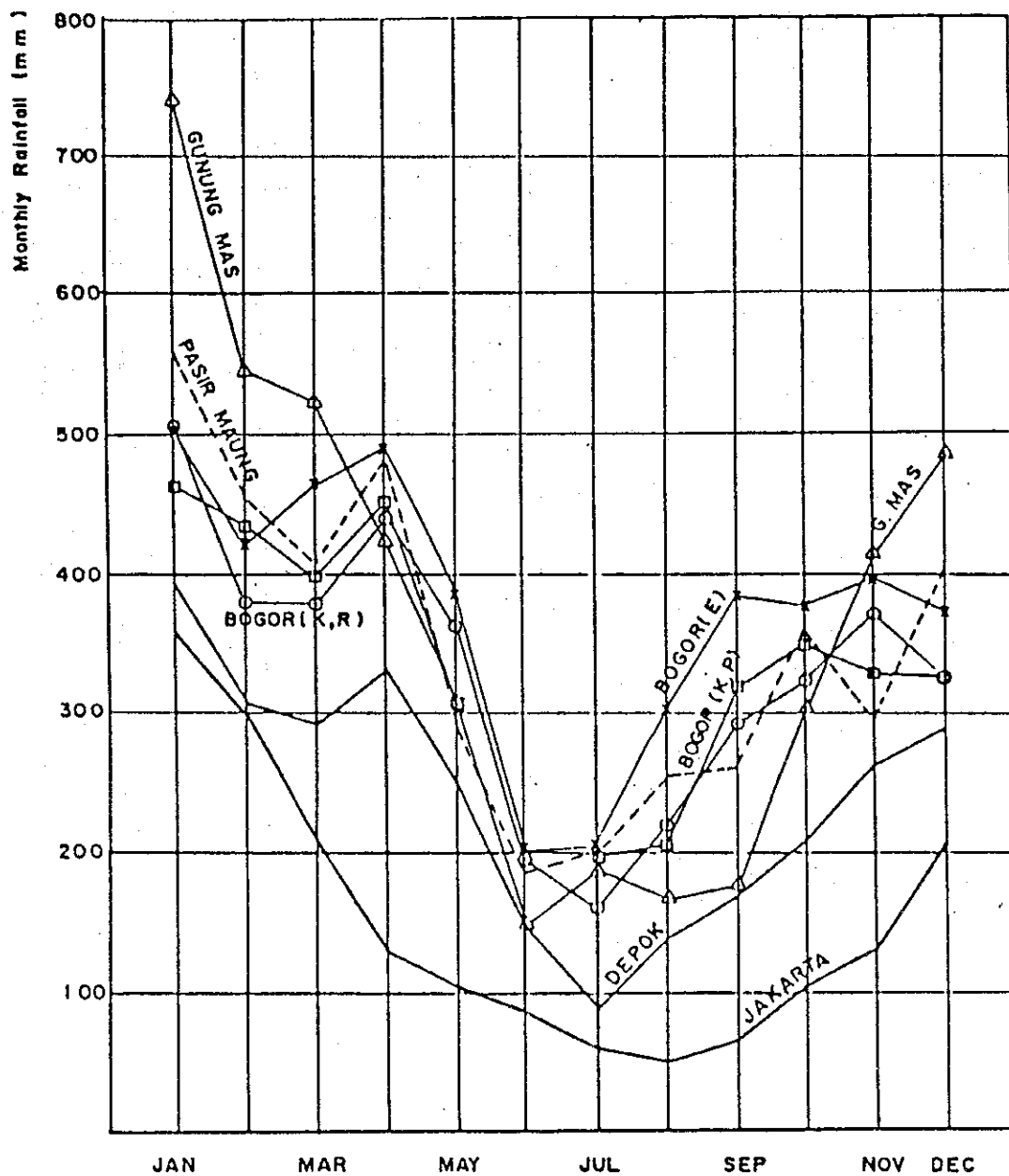
- Rivers running from south to north have encouraged a north to south rather than east to west development axis, and
- Floods, heat, water pollution and sea water intrusion into ground water table have led to increasing and continued urbanization toward the higher and upstream southern area.





FEASIBILITY STUDY ON
 URBAN ARTERIAL ROAD SYSTEM DEVELOPMENT PROJECT
 IN JAKARTA METROPOLITAN AREA

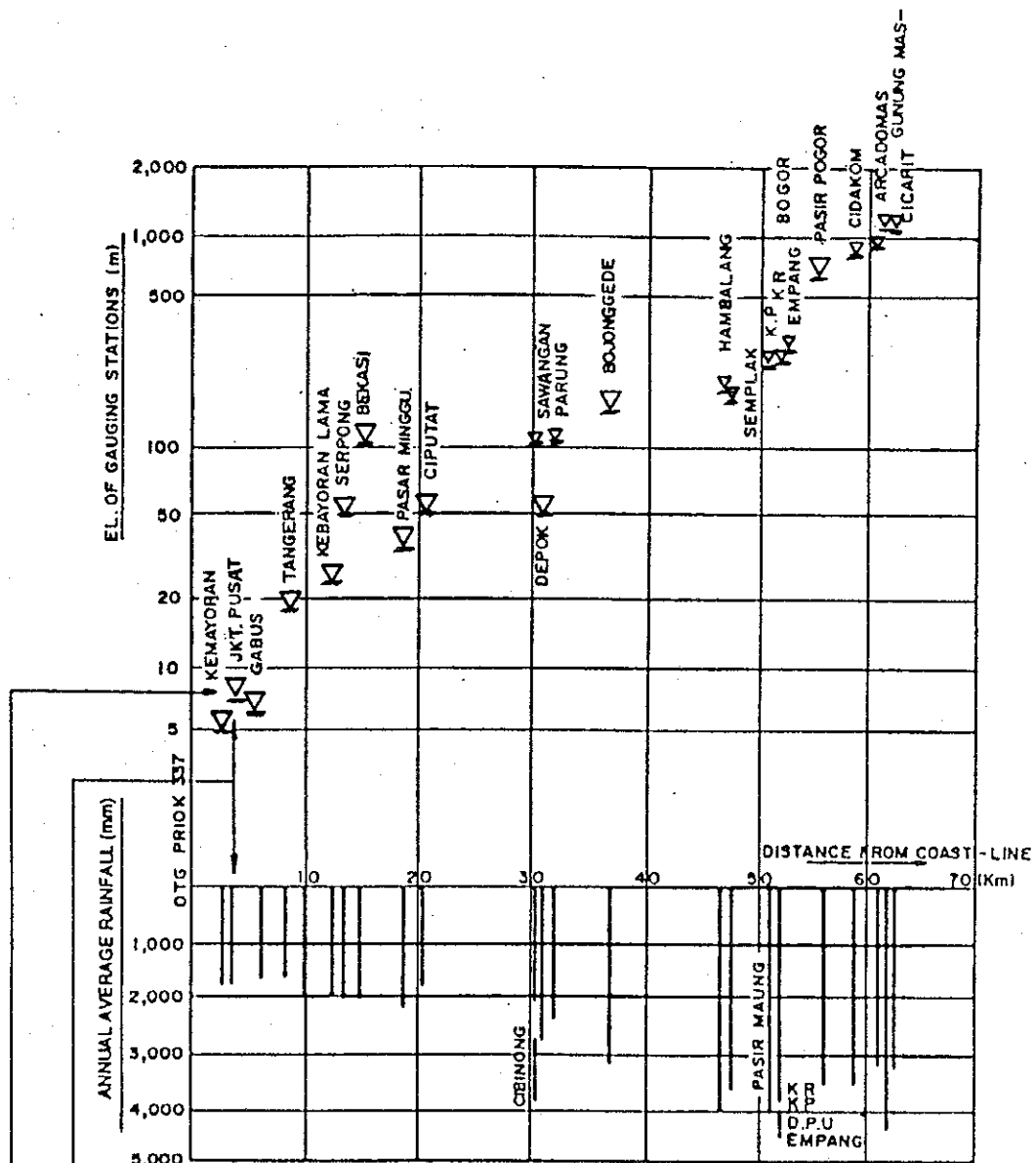
Fig. 2.1.6 Annual Rainfall in Kali Ciliwung Catchment



| | No. | Name of Station | Annual Average (mm) |
|-------|------|------------------|---------------------|
| ————— | 27 | JAKARTA PUSAT | 1,797 |
| ————— | 36 | DEPOK | 2,870 |
| ----- | 40 A | PASIR MAUNG | 4,157 |
| X—X | 46 | BOGOR (EMPANG) | 4,497 |
| ○—○ | 46 B | BOGOR (KEB.RAYA) | 3,949 |
| □—□ | 48 D | BOGOR (KEB.PERT) | 3,941 |
| △—△ | 76 | GUNUNG MAS | 4,412 |

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Fig. 2.1.7 Monthly Rainfall in Ciliwung Basin and Surrounding Area



EXAMPLE :

Rain Gauge Station Jakarta Pusat (No.27)


Elevation of Gauge Station 7 m approx

Fig. 2.1.8 Summary of Rainfall Analysis

Fig. 2.1.9

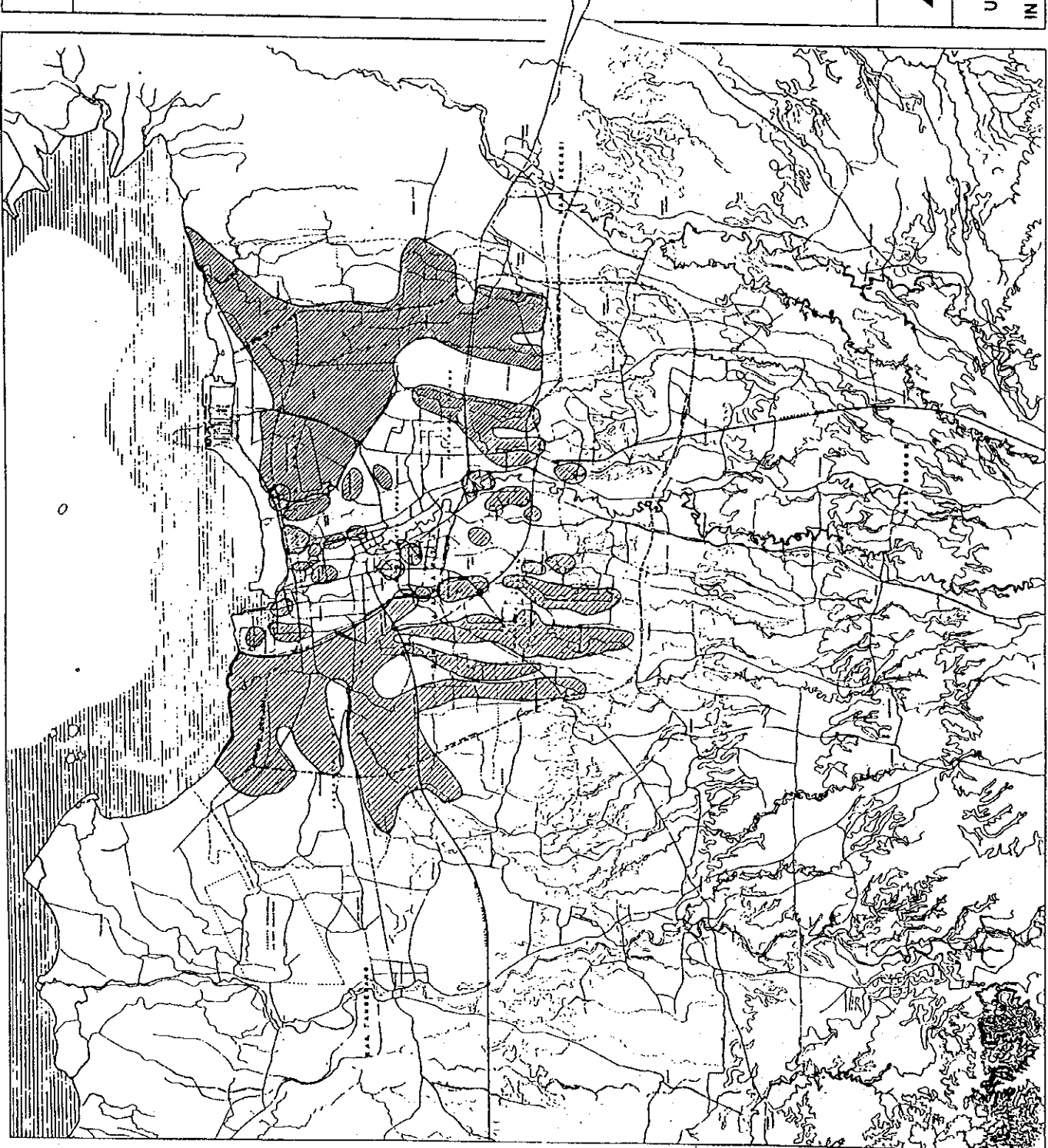
Flood Prone Area in Jakarta

Legend

 Flood Prone Area



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2.1.2 Administrative Structure

Indonesia is composed of over 13,000 islands large and small and has a total area of some 2,000,000 square kilometres.

Administratively, the Republic of Indonesia has 5 levels of hierarchy. At national level, the country is divided into 3 Special Districts (D.I. Aceh, DKI Jakarta and D.I. Yogyakarta) and 24 provinces each of which possesses the same first level of autonomy (Tingkat I). The Island of Java is composed of 2 Special Districts (DKI Jakarta and D.I. Yogyakarta) and 3 provinces (East Java, Central Java and West-Java).

DKI Jakarta is enclosed by West Java province which is further divided into 20 Kabupaten (Regencies) and 4 Kotamadya (Municipalities) each of which possesses the same second level of autonomy (Tingkat II). Jabotabek consists of DKI Jakarta, Kab. and Kod. Bogor, Kab. Kod. Tangerang and Kab. Bekasi (Figure 2.1.10).

DKI Jakarta as the capital city (province) is so dominant that the existing urban development of Jakarta is expanding over her administrative boundary into Botabek Region. In order to overcome the administrative discrepancy between DKI Jakarta and West Java province and to create a comprehensive development plan for Jabotabek, the Jabotabek Development Coordination Board (BKSP Jabotabek) was established by Presidential Decree No. 13 in 1976.

DKI Jakarta is divided into 5 Wilayah (Municipalities) further subdivided into 43 Kecamatan (Sub-Districts) including the Thousand Islands in the Java Sea.

In Jabotabek the Cities of Bekasi and Depok are given the status of "Kota Administrative (Kotif.): which is the intermediate administrative level between Kabupaten and Kecamatan and headed by mayor. Like the DKI mayoralties they do not have a Peoples Representative Council (DPRD).

2.2 Present Demographic Conditions

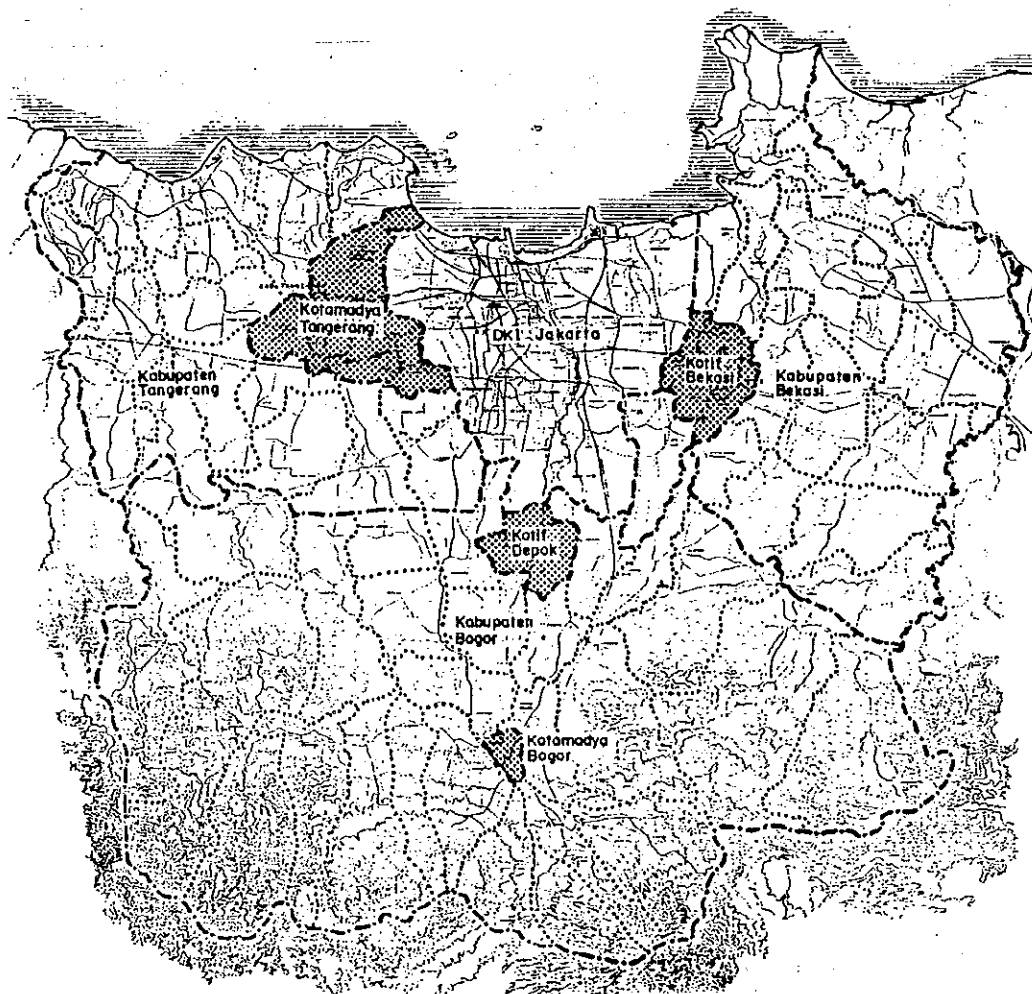
2.2.1 Population

(1) National Level

The Republic of Indonesia has the fifth largest population in the world with approximately 180 million recorded in the 1990 census after China, India, Ex-Soviet Union and the United States of America.

The population of Indonesia grew annually at 1.5% from 1930 to 1960, 2.1% in the 1960's, 2.4% in the 1970's and 2.0% from in the 1980's (Table 2.2.1) and although the annual growth rate started to decline slightly in the 1980's, it is still high.

| District | (ha) | No. of Kec. |
|------------------------|----------------|-------------|
| DKI Jakarta | 65,570 | 43 |
| Kabupaten Bogor | 335,792 | 29 |
| Kabupaten Tangerang | 109,551 | 16 |
| Kabupaten Bekasi | 128,423 | 20 |
| Kotamadya Bogor | 2,275 | 5 |
| Kotamadya Tangerang | 16,426 | 5 |
| Total Jabotabek | 658,037 | 118 |



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Fig.2.1.10 Administrative Structure in Jabotabek

If the 2% growth rate continues, Indonesia will have to accept another hundred million inhabitants in the next 20 to 30 years.

This high population growth since the late 1960's has led to increasingly rapid urban growth and according to the population census in 1971 and 1980, the share of urban population in Indonesia rose from 17.3% in 1971 to 22.4% in 1980, and 30.9% in 1990 (Table 2.2.2). The annual growth rate of urban population from 1980 to 1990 was 5.4%, which was almost the same (5.3%) from 1971 to 1980, and it was more than twice the national population growth rate. This implies that some 70% of the population increase during the period from 1980 to 1990 took place in urban areas. It was 44% during 1971 to 1980.

(2) Java

At regional and provincial level, the population is unproportionally concentrated in Java as shown in terms of share and density (Table 2.2.1). The population of Java in the 1990 census was about 60% of the total (107,527,000 persons), although the area occupies only about 7% of the whole country. The proportion of urban population in Java is also the highest among the islands reading about 35% in the 1990 Census.

(3) Jabotabek

In Java the population is concentrated in DKI Jakarta as shown in the steadily increasing share, density and growth rate (Table 2.2.1). The growth rate is declining slightly from 4.4% (1951-1970) to 4.0% (1971-1980), and distinctively to 2.4% (1980-1990). DKI Jakarta is still growing faster than the national average, but likely to steadily slow down. This growth suggests that DKI Jakarta could possibly reach a population of 12 million in the year 2005 which is eventually the same figure planned by the Jakarta Structure Plan 2005. In the 1990 census the share of population in DKI Jakarta is 7.7% of Javanese and 4.6% of national population. The 1990 Census shows that the urban population of DKI Jakarta accounted for approximately 15% of the national urban population which was lowered from about 20% in 1980 (Table 2.2.2).

Table 2.2.1 Population in Indonesia

Unit : 1,000 persons, (%)

| Islands | 1961 Census | 1971 Census | 1980 Census | 1990 Census |
|-----------------|----------------|----------------|----------------|----------------|
| Sumatra | 15,739 (16.2) | 20,808 (17.5) | 28,016 (19.0) | 36,472 (20.3) |
| Java | 63,060 (65.0) | 76,086 (63.8) | 91,270 (61.9) | 107,527 (60.0) |
| DKI Jakarta | 2,973 (3.1) | 4,579 (3.8) | 6,503 (4.4) | 8,210 (4.6) |
| West Java | 17,615 (18.1) | 21,624 (18.1) | 27,454 (18.6) | 35,382 (19.7) |
| Other Provinces | 42,472 (43.8) | 49,883 (41.9) | 57,313 (38.9) | 63,935 (35.7) |
| Other Islands | 18,287 (18.8) | 22,314 (18.7) | 28,204 (19.1) | 35,249 (19.7) |
| Indonesia | 97,086 (100%) | 119,208 (100%) | 147,490 (100%) | 179,248 (100%) |

| Islands | Density Persons/km ² 1990 | Annual Growth Rate (%) | | |
|-----------------|---|--------------------------|-----------|-----------|
| | | 1961/1971 | 1971/1980 | 1980/1990 |
| Sumatra | 77 | 2.8 | 3.4 | 2.7 |
| Java | 814 | 1.9 | 2.0 | 1.7 |
| DKI Jakarta | 12,495 | 4.4 | 4.0 | 2.4 |
| West Java | 765 | 2.1 | 2.7 | 2.6 |
| Other Provinces | 749 | 1.6 | 1.6 | 1.1 |
| Other Islands | 27 | 2.0 | 2.6 | 2.3 |
| Indonesia | 93 | 2.1 | 2.4 | 2.0 |

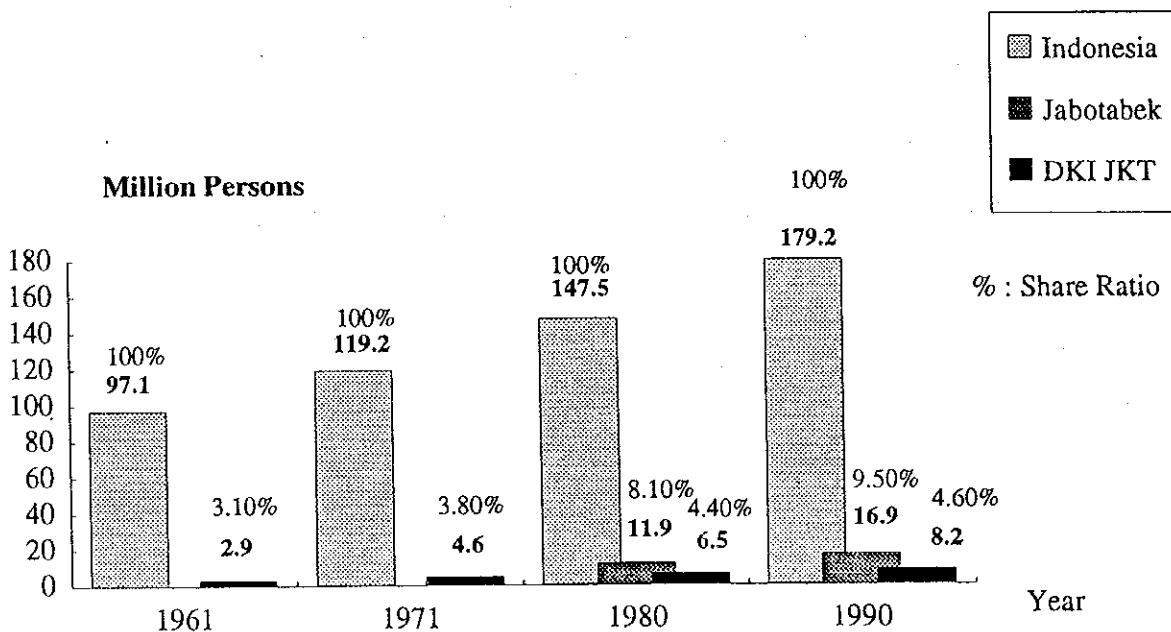


Fig. 2.2.1 Trend of Population

Table 2.2.2 Urban and Rural Population Growth in Jabotabek and Indonesia

Unit : 1,000 persons, (%)

| Region | 1980 | | 1990 | | Annual Growth Rate 1980/1990 (%) | | |
|-------------|-------------------------|------------------------|-------------------------|--------------------------|-------------------------------------|-------|-------|
| | Urban | Total | Urban | Total | Urban | Rural | Total |
| DKI Jakarta | 6,503 (100) (19.8) | 6,503 (100%) (4.4) | 8,228 (100) (14.8) | 8,210 (100%) (4.6) | 2.4 | 0.0 | 2.4 |
| Botabek | 1,295 (23.9) (3.9) | 5,413 (100%) (3.7) | 4,894 (56.0) (8.8) | 8,746 (100%) (4.9) | 14.2 | -0.7 | 4.9 |
| Jabotabek | 7,798 (65.4) (23.7) | 11,916 (100%) (8.1) | 13,122 (77.3) (23.7) | 16,956 (100%) (9.5) | 5.3 | -0.7 | 3.6 |
| Indonesia | 32,846 (22.4) (100%) | 146,776 (100%) | 55,434 (30.9) (100%) | 179,248 (100%) (100%) | 5.4 | 0.8 | 2.0 |

Source : Sensus Penduduk DKI Jakarta, Jawa Barat, Indonesia 1980, 1990
(Biro Pusat Statistik and Kantor Sensus dan Statistik Bandung)

In Botabek and Jabotabek the population growth rate from 1980 to 1990 shows 4.9% and 3.6%, respectively (Table 2.2.3), trends which suggest that Botabek could have around 18 million and Jabotabek as a whole could possibly have as much as 29 million inhabitants in the year 2005.

The share of urban population in Botabek and Jabotabek increased rapidly from 23.9% and 65.4% in 1980 to 56.0% and 77.3% in 1990, respectively (Table 2.1.2). Botabek's urban population growth from 1980 to 1990 was 14.2% per annum which implies that nearly 8% of the population decrease in Botabek from 1980 to 1990 took place in rural areas.

A population movement took place between the census of 1971 and that of 1980 whereby the residential population of the central area of DKI Jakarta decreased, while simultaneously the population in the outskirts and fringe areas surrounding DKI Jakarta, especially in the south and south-western areas steeply increased (Figure 2.2.2).

Table 2.2.3 Population in Jabotabek

Unit : 1,000 persons, (%)

| Region | Area km ² | Population Census | | |
|-------------|-------------------------|-------------------|---------------|---------------|
| | | 1971 | 1980 | 1990 |
| DKI Jakarta | 655.7 | 4,579 (54.9) | 6,503 (54.6) | 8,210 (48.4) |
| Botabek | 5,924.7 | 3,761 (45.1) | 5,413 (45.4) | 8,746 (51.6) |
| Bogor | 3,380.7 | 1,863 (22.3) | 2,741 (23.0) | 3,949 (23.3) |
| Tangerang | 1,259.8 | 1,067 (12.8) | 1,529 (12.8) | 2,724 (16.1) |
| Bekasi | 1,284.2 | 831 (10.0) | 1,143 (9.6) | 2,073 (12.2) |
| Jabotabek | 6,580.4 | 8,340 (100%) | 11,916 (100%) | 16,956 (100%) |

| Region | Density 1990 Persons/ha | Annual Growth Rate (%) | |
|-------------|----------------------------|------------------------|-----------|
| | | 1971/1980 | 1980/1990 |
| DKI Jakarta | 125.2 | 4.0 | 2.4 |
| Botabek | 14.8 | 4.1 | 4.9 |
| Bogor | 11.7 | 4.4 | 3.7 |
| Tangerang | 21.6 | 4.1 | 5.9 |
| Bekasi | 16.1 | 3.6 | 6.1 |
| Jabotabek | 25.8 | 4.0 | 3.6 |

Source : Sensus Penduduk Jawa Barat 1971, 1980 & 1990

Although direct data are limited, there is compelling evidence of a trend toward increasing separation of residence and work place and of resultant rapid increase in the commuting volume, notably across the boundaries of DKI Jakarta from the rapidly growing urban fringe.

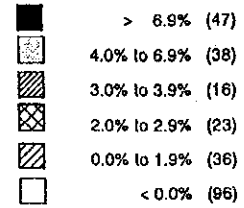
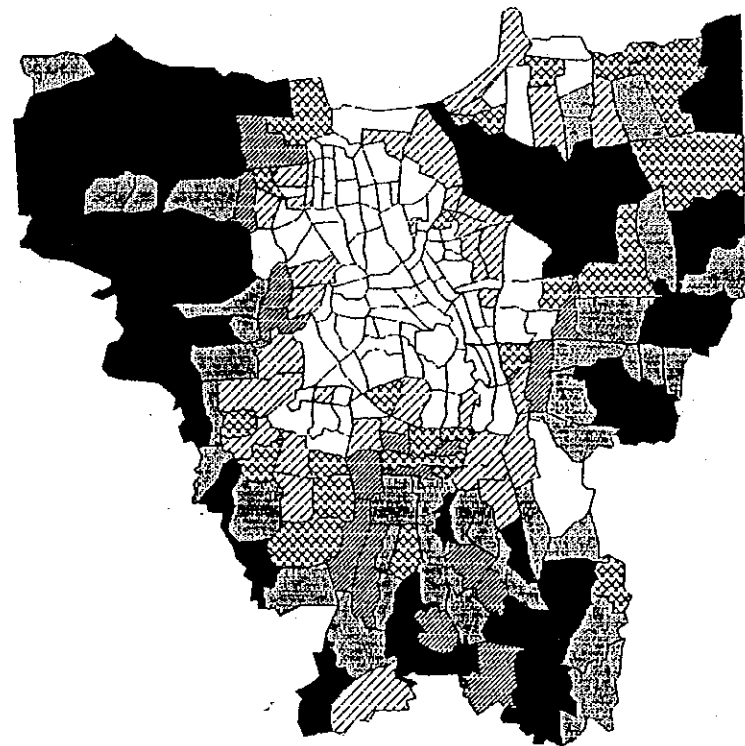
Table 2.2.4 shows estimates of five-year in, out and net-migration of population aged 5 years and over for DKI Jakarta over the periods from 1975 to 1980 and from 1985 to 1990 based on Census sources. The data shows a massive upsurge in out-migration from DKI Jakarta during the latter part of the 1980s. More significant, the great majority of this upsurge is reflected in migration to areas in the province of West Java and in particular to its urban area.

According to these data, this latter flow averaged over 100,000 persons per year between 1985 and 1990 and this does not include movement of young children (under age 5) who are excluded from these numbers. Although other metropolitan centers (notably Bandung) would have captured some of these migrants, there seems little doubt that most of this urban directed out-migration would have been to Botabek. On the other hand, the data also suggest that in-migration varied little, at least in terms of volume, over the 15 year period covered by the table, with, if anything, a marginal increase between the late 1970s and 1980s.

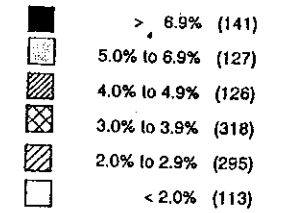
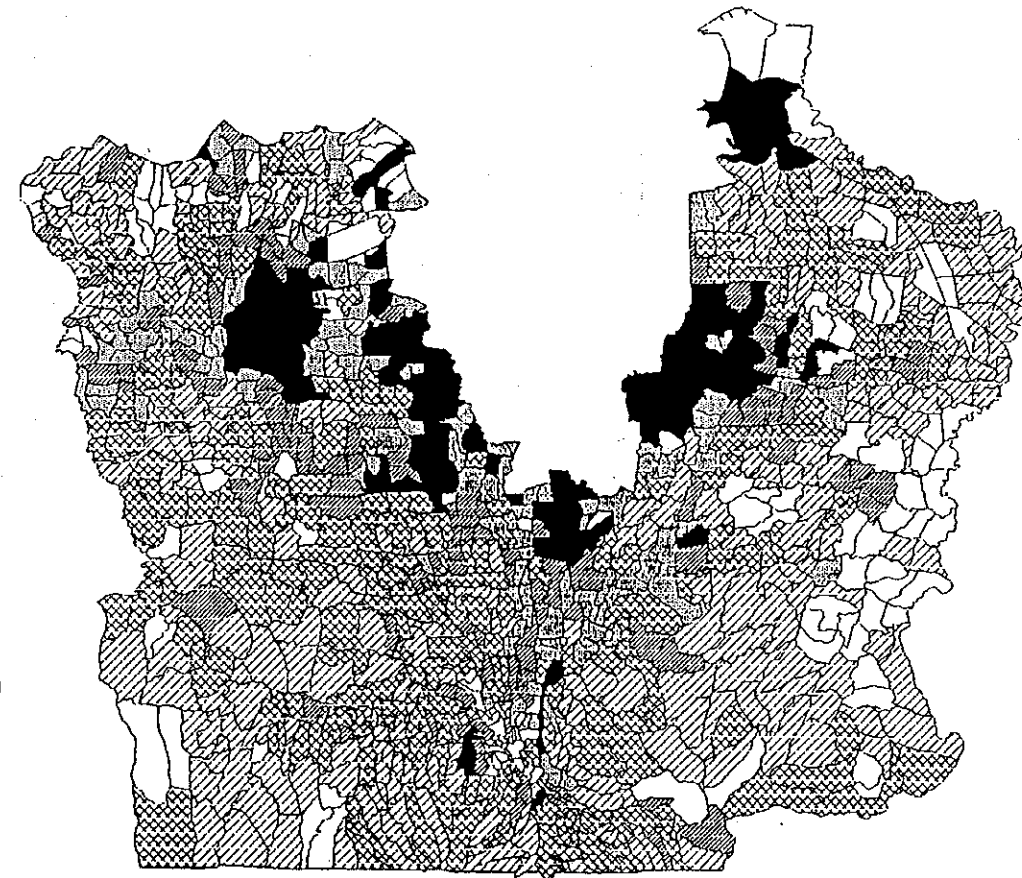
Table 2.2.4 Numbers of In and Out-Migrants 5 Years of Age and Over to and from DKI Jakarta by Place of Origin/Destination, 1975-1980 and 1985-1990 (numbers in thousands)

| Parameter, Region and Time Period | Status of Present Residence | | |
|--|-----------------------------|-------|-------|
| | Urban | Rural | Total |
| Place of Origin (In-migrants) | | | |
| West Java | | | |
| 1975-1980 | - | - | 212 |
| 1985-1990 | - | - | 213 |
| Other Regions | | | |
| 1975-1980 | | | 535 |
| 1985-1990 | | | 606 |
| Total Indonesia | | | |
| 1975-1980 | - | - | 747 |
| 1985-1990 | - | - | 820 |
| Place of Destination (Out-migrants) | | | |
| West Java | | | |
| 1975-1980 | 88 | 159 | 247 |
| 1985-1990 | 538 | 157 | 695 |
| Other Regions | | | |
| 1975-1980 | 74 | 61 | 136 |
| 1985-1990 | 148 | 150 | 298 |
| Total Indonesia | | | |
| 1975-1980 | 161 | 221 | 382 |
| 1985-1990 | 686 | 307 | 993 |

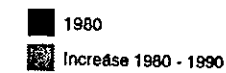
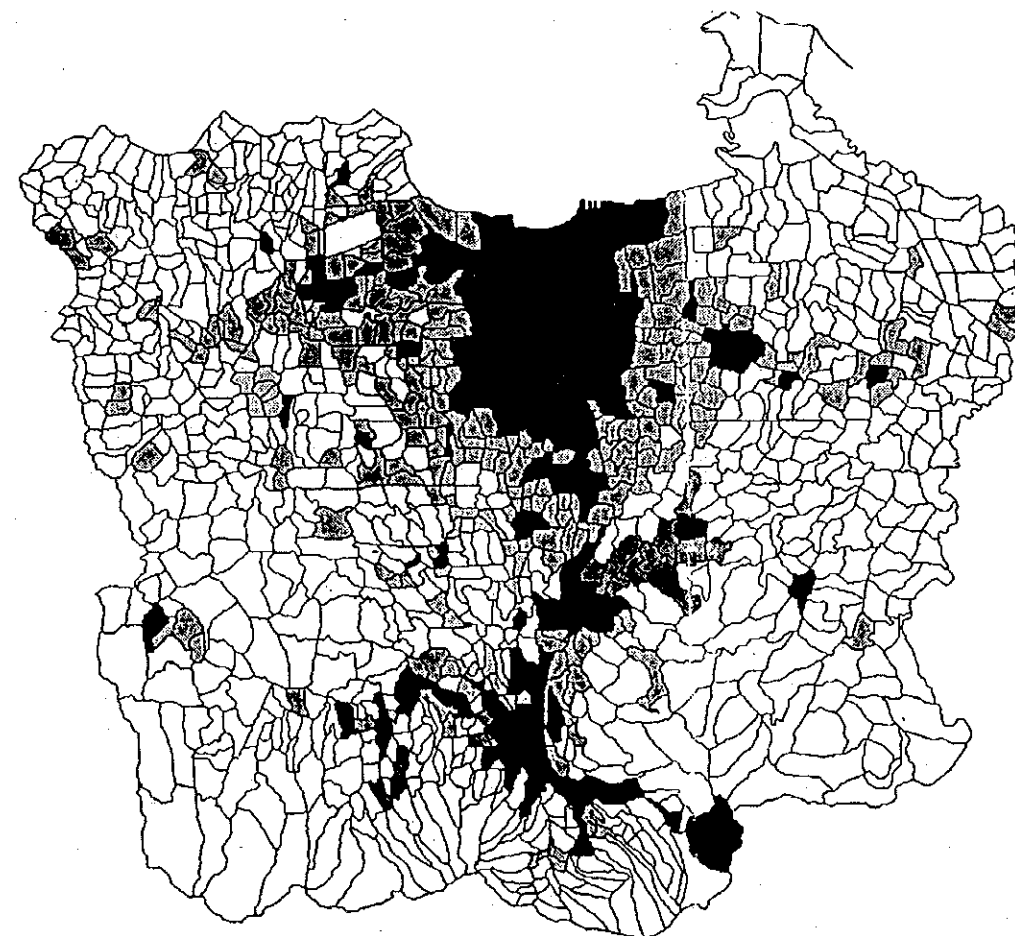
Source : 1980 and 1990 Censuses.



Rates of Pop. Growth
DKI Jakarta 1980-1990



Rates of Pop. Growth
Botabek 1980-1990



MAP 2.11

Urban Desa

Fig. 2.2.2

**POPULATION GROWTH RATES
AND URBANIZATION 1980-1990**

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2.2.2 Employment

(1) Labour Force

In the Indonesian census, the population aged 10 years and over is divided into "economically active" and "economically non active" groups. The former is defined as the "labour force" and is further sub-divided into "employed" and "unemployed" groups. The "economically non active" group is sub-divided into "attending school", housekeeping", and "other" groups.

According to the population census in 1990, the labour force participation rates (labour force divided by population aged 10 and over) in DKI Jakarta and Botabek were 48.7% and 45.9%, respectively, which, although quite similar, are lower than the Indonesian average of 57.3% as given in Table 2.2.5. This is because in Jabotabek, the rural population which generally provides higher labour force participation is smaller and the urban area which has bigger "attending school" population is larger than the average of Indonesia.

Table 2.2.5 Employment Situation in Jabotabek and Indonesia

Unit:1,000 persons, %

| Region | Population | | Population aged 10 and over | | Labour Force | |
|-------------|------------|---------|-----------------------------|---------|--------------|--------|
| | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 |
| DKI Jakarta | 6,503 | 8,210 | 4,684 | 6,473 | 2,001 | 3,151 |
| Botabek | 5,413 | 8,746 | 3,622 | 6,330 | 1,516 | 2,905 |
| Jabotabek | 11,916 | 16,956 | 8,306 | 12,803 | 3,517 | 6,056 |
| Indonesia | 147,490 | 179,248 | 104,454 | 135,714 | 52,110 | 77,802 |

| Region | Employed | | (a) Labour Force Participation Rate | | (b) Unemployment Rate | |
|-------------|----------|--------|-------------------------------------|-------|-----------------------|------|
| | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 |
| DKI Jakarta | 1,924 | 2,926 | 42.7% | 48.7% | 3.8% | 7.1% |
| Botabek | 1,486 | 2,781 | 41.9% | 45.9% | 2.0% | 4.3% |
| Jabotabek | 3,410 | 5,707 | 42.3% | 47.3% | 3.0% | 5.8% |
| Indonesia | 51,192 | 75,851 | 49.9% | 57.3% | 1.8% | 2.5% |

(a) : (Labour Force)/(Population aged 10 and over) x 100

(b) : (Unemployed Population)/(Labour Force) x 100

Source : Technical Report "Demography" of JMDPR, January 1993

(2) Employment by Industrial Sector

Agricultural employment share in both DKI Jakarta and Botabek showed a steady decline from 1980 to 1990, and the agricultural employment itself disclosed negative growth (0.84 times) in DKI Jakarta and only the slight growth (1.08 times) over the same period (Table 2.2.6).

In DKI Jakarta, the tertiary sector (Trade plus other Services) dominates with over 75% in 1980 and 70% in 1990, and the manufacturing industry largely extend its share from 14.9% in 1980 to 20.5% in 1990.

In Botabek, the tertiary sector accounts for about a half of the total employment, followed in 1980 by the agricultural sector (29.0%), but in 1990 by the manufacturing sector (24.0%). If totaled both manufacturing and other industry, the 1990 share (32.5%) becomes higher than the 1980 agriculture share (29.0%). It is envisaged that Botabek is more rapidly changing its employment structure with favor to the secondary industrial sector.

Table 2.2.6 Employment by Industrial Sector, 1980 and 1990

(x 1000 persons)

| Industrial Sector | DKI Jakarta | | | Botabek | | | Jabotabek | | |
|--------------------|-----------------|------------------|----------------|-----------------|-----------------|----------------|------------------|------------------|----------------|
| | 1980 | 1990 | 1980/1990 | 1980 | 1990 | 1980/1990 | 1980 | 1990 | 1980/1990 |
| 1. Agriculture | 37 (1.9%) | 31 (1.1%) | 0.84 (0.55) | 426 (29.0%) | 459 (16.5%) | 1.08 (0.57) | 463 (13.7%) | 490 (8.6%) | 1.06 (0.63) |
| 2. Manufacturing | 285 (14.9%) | 599 (20.5%) | 2.10 (1.37) | 229 (15.6%) | 667 (24.0%) | 2.91 (1.54) | 514 (15.2%) | 1,266 (22.2%) | 2.46 (1.46) |
| 3. Other Industry* | 154 (8.1%) | 224 (7.7%) | 1.45 (0.95) | 94 (6.4%) | 235 (8.5%) | 2.50 (1.32) | 248 (7.3%) | 459 (8.0%) | 1.85 (1.09) |
| 4. Trade | 471 (24.7%) | 778 (26.6%) | 1.65 (1.08) | 331 (22.5%) | 596 (21.4%) | 1.80 (0.95) | 802 (23.7%) | 1,374 (24.1%) | 1.71 (1.01) |
| 5. Other Services* | 963 (50.4%) | 1,294 (44.2%) | 1.34 (0.88) | 388 (26.4%) | 823 (29.6%) | 2.12 (1.12) | 1,351 (40.0%) | 2,117 (37.1%) | 1.57 (0.93) |
| 6. Total | 1,910 (100%) | 2,926 (100%) | 1.53 (1.00) | 1,468 (100%) | 2,780 (100%) | 1.89 (1.00) | 3,378 (100%) | 5,706 (100%) | 1.69 (1.00) |

Source : Sensus Penduduk DKI Jakarta, Jawa Barat, 1980 and 1990

Note : Other industry includes mining; electricity; gas and water; construction.

Other services includes public/private services; transport; finance; other.

(3) Commuter Movements

Based on the 1985 cordon interview survey and the 1993 traffic (passenger) count survey, person trips with "To Work" purpose (commuters) were analyzed and compared between the two years as shown in Table 2.2.7.

Table 2.2.7 Commuters between DKI Jakarta and Botabek

| Direction | | 1985 | 1993 | Growth |
|------------------|-----------|---------------|---------------|--------|
| From | To | (Persons/day) | (Persons/day) | 93/85 |
| Bogor | Jakarta | 27,100 | 102,500 | 3.78 |
| Tangerang | Jakarta | 20,866 | 74,800 | 3.58 |
| Bekasi | Jakarta | 19,825 | 100,500 | 5.07 |
| Total to Jakarta | | 67,791 | 277,800 | 4.10 |
| Jakarta | Bogor | 10,883 | 32,100 | 2.95 |
| Jakarta | Tangerang | 9,512 | 29,900 | 3.14 |
| Jakarta | Bekasi | 8,418 | 28,300 | 3.36 |
| Total to Botabek | | 28,813 | 90,300 | 3.13 |

| Net In-Commuters to Jakarta from | 1985 | 1993 | Growth 93/85 |
|----------------------------------|--------|---------|--------------|
| Bogor | 16,217 | 70,400 | 4.34 |
| Tangerang | 11,354 | 44,900 | 3.95 |
| Bekasi | 11,407 | 72,200 | 6.33 |
| Total from Botabek | 38,978 | 187,500 | 4.81 |

Source : ARSDS and analysis result of 1993 traffic count survey.

Commuters from Botabek to Jakarta in 1993 was estimated at 277,800 persons per day, which was 4.1 times as much as those in 1985. Commuters from Bekasi has increased distinctively compared to the other two directions.

Commuters to Botabek in 1993 was about one-third of those to Jakarta, and they grew directionally, more or less, even about 3 times as much as those in 1985.

Net in-commuters to Jakarta estimated here indicates the balance of job opportunities and employed population either in DKI Jakarta or Botabek.

(4) Number of Jobs

Based on the employed population and the net in-commuters to Jakarta, numbers of jobs in DKI Jakarta and Botabek were estimated as shown in Table 2.2.8. Distribution of commuters' attribute to industrial sectors was assumed as follows :

- Commuters into Jakarta are proportionally distributed by the number of occupations in (1) Professional/Technical related worker, (2) Administrative/Managerial worker, (3) Clerical related worker, (4) Sales worker and (5) Service worker.

- Commuters out of Jakarta are proportionally distributed by the number of occupations in (1) to (3) above.
- Occupation-industrial sector matrix of DKI Jakarta, which is derived from the 1990 census data, is based to re-distribute the commuters of a particular occupation to industrial sectors.

As the consequence, the number of jobs by industrial sector was estimated for Jabotabek as shown in Table 2.2.8.

Table 2.2.8 Estimated Number of Jobs by Industrial Sector in Jabotabek, 1993

| Parameters & Region | Industrial Sector (x 1000) | | | | | Total |
|-------------------------------|----------------------------|---------|-------------------|---------|------------------|---------|
| | Agriculture | Manuf. | Other Industry | Trade | Other Service | |
| Employed Population : | | | | | | |
| DKI Jakarta | 28.0 | 711.0 | 238.0 | 859.0 | 1,368.0 | 3,204.0 |
| Botabek | 457.0 | 891.0 | 301.0 | 689.0 | 1,039.0 | 3,377.0 |
| Bogor | 201.0 | 377.0 | 141.0 | 295.0 | 434.0 | 1,448.0 |
| Tangerang | 148.0 | 292.0 | 90.0 | 227.0 | 344.0 | 1,101.0 |
| Bekasi | 108.0 | 222.0 | 70.0 | 167.0 | 261.0 | 828.0 |
| Jabotabek | 485.0 | 1,602.0 | 539.0 | 1,548.0 | 2,407.0 | 6,581.0 |
| Net In-Commuters to Jakarta : | | | | | | |
| DKI Jakarta | 0 | 7.9 | 2.0 | 104.3 | 73.3 | 187.5 |
| Botabek | 0 | -7.9 | -2.0 | -104.3 | -73.3 | -187.5 |
| Bogor | 0 | -3.1 | -0.8 | -38.6 | -27.9 | -70.4 |
| Tangerang | 0 | -1.3 | -0.2 | -27.6 | -15.8 | -44.9 |
| Bekasi | 0 | -3.5 | -1.0 | -38.1 | -29.6 | -72.2 |
| Jabotabek | 0 | 0 | 0 | 0 | 0 | 0 |
| Number of Jobs : | | | | | | |
| DKI Jakarta | 28.0 | 718.9 | 240.0 | 963.3 | 1,441.3 | 3,391.5 |
| Botabek | 457.0 | 883.1 | 299.0 | 584.7 | 965.7 | 3,189.5 |
| Bogor | 201.0 | 373.9 | 140.2 | 256.4 | 406.1 | 1,377.6 |
| Tangerang | 148.0 | 290.7 | 89.8 | 199.4 | 328.2 | 1,056.1 |
| Bekasi | 108.0 | 218.5 | 69.0 | 128.9 | 231.4 | 755.8 |
| Jabotabek | 485.0 | 1,602.0 | 539.0 | 1,548.0 | 2,407.0 | 6,581.0 |

Source : JICA Team's estimate.

2.3 Present Economic Conditions

Indonesia experienced a high growth rate during the 1970s because of the increase in oil price but a decline of the oil price in the beginning of the 1980s hit the national economy very hard. Since the second half of the 1980s, Indonesian economy has been recovering and maintaining a steady with non-oil/gas products at 1983 constant prices (6.8% p.a. during 1984-1990) as shown in Table 2.3.1.

The regional economic growth is relatively high in Sumatra compared to Java and other major islands in terms of non-oil/gas products. Inside Java island, West Java province keeps the highest growth, among other four provinces, which averages 8.0% p.a. during 1984-1990. Jakarta's average growth was incidentally the same as Indonesia's (6.8% p.a.) over the period 1984-1990, and being improved in the late 1980s.

Regional shares of GDP remain almost the same, in terms of non-oil/gas products at current price comparison, showing a dominant share of Java being about 60%, Sumatra 19%, West Java 16% and Jakarta 14%, as presented in Table 2.3.2.

Table 2.3.1 GRDP and Annual Growth

| Regions* | Year (Billion Rupiah at 1983 Constant Prices) | | | | | | | |
|----------------|---|-------------------|--------|-------------------|--------|-------------------|---------|-------------------|
| | 1984 | 84/86 (% p.a.) | 1986 | 86/88 (% p.a.) | 1988 | 88/90 (% p.a.) | 1990 | 84/90 (% p.a.) |
| Sumatra | 11,708 | (6.1) | 13,173 | (8.4) | 15,478 | (8.5) | 18,211 | (7.6) |
| Java | 38,874 | (6.4) | 44,012 | (6.2) | 49,681 | (8.1) | 58,020 | (6.9) |
| DKI Jakarta | 9,205 | (5.1) | 10,164 | (6.2) | 11,469 | (9.2) | 13,681 | (6.8) |
| West Java | 9,760 | (8.4) | 11,471 | (7.0) | 13,142 | (8.5) | 15,481 | (8.0) |
| Other Province | 19,909 | (6.0) | 22,377 | (5.8) | 25,070 | (7.3) | 28,858 | (6.4) |
| Other Islands | 12,853 | (3.6) | 13,808 | (6.1) | 15,555 | (6.7) | 17,723 | (5.5) |
| Indonesia* | 63,435 | (5.8) | 70,993 | (6.6) | 80,714 | (7.9) | 93,954 | (6.8) |
| Indonesia** | 83,037 | (4.2) | 90,080 | (5.4) | 99,981 | (7.3) | 115,110 | (5.6) |

Source : Statistical Year Book of Indonesia, 1992

Note * Excluding oil and its products

** Including oil and its products

Basic socio-economic indicators are compared among regions as summarized in Table 2.3.3.

Table 2.3.2 GRDP and Regional Distribution

| Regions* | Year (Billion Rupiah at Current Prices) | | | | | | | |
|----------------|---|--------|---------|--------|---------|--------|---------|--------|
| | 1984 | (%) | 1986 | (%) | 1988 | (%) | 1990 | (%) |
| Sumatra | 12,906 | (18.4) | 16,439 | (18.6) | 23,565 | (19.4) | 31,076 | (18.6) |
| Java | 42,687 | (60.8) | 54,518 | (61.7) | 74,525 | (61.3) | 101,379 | (60.1) |
| DKI Jakarta | 10,211 | (14.5) | 12,680 | (14.4) | 16,796 | (13.8) | 22,855 | (13.7) |
| West Java | 10,707 | (15.2) | 14,264 | (16.2) | 20,534 | (16.9) | 27,945 | (16.7) |
| Other Province | 21,769 | (31.0) | 27,574 | (31.2) | 37,195 | (30.6) | 50,579 | (30.3) |
| Other Islands | 14,656 | (20.9) | 17,340 | (19.6) | 23,516 | (19.3) | 34,547 | (20.7) |
| Indonesia* | 70,249 | (100%) | 88,297 | (100%) | 121,606 | (100%) | 167,002 | (100%) |
| Indonesia** | 89,885 | (128%) | 102,683 | (116%) | 142,105 | (117%) | 196,919 | (118%) |

Source : Statistical Year Book of Indonesia, 1992, BPS

Note * Excluding oil and its products

** Including oil and its products

Table 2.3.3 Basic Socio-Economic Indicators

| Development Region | Population, 1990 (Census data, totals rounded) | Av. Ann. Growth Rate (+% p.a) | | GRDP (Rp. Million) | GRDP per capita ('90 prices) (Rp rounded) |
|---------------------------------------|--|-------------------------------|-------|--------------------|---|
| | | 71-80 | 80-90 | | |
| Botabek | 8,876,390 | 4.1 | 5.1 | 6,754,628 | 760,970 |
| Banten | 3,202,920 | 2.6 | 2.6 | 3,424,353 | 1,069,130 |
| Bandung Raya | 9,499,780 | 2.6 | 2.1 | 8,313,412 | 875,120 |
| Sukabumi | 1,967,700 | 2.5 | 1.9 | 956,443 | 486,070 |
| Purwasuka | 3,261,700 | 2.2 | 1.7 | 2,488,013 | 762,800 |
| Cirebon | 5,275,990 | 2.4 | 1.7 | (*)7,317,976 | 1,387,030 |
| Priangan Tim | 3,293,890 | 1.7 | 1.1 | 2,103,246 | 638,530 |
| Sub-Total West Java | 35,378,370 | 2.7 | 2.6 | 31,358,071 | 886,360 |
| DKI Jakarta | 8,254,040 | 3.9 | 2.4 | 22,855,440 | 2,769,010 |
| Total, West Java and Jakarta | 43,632,410 | 2.9 | 2.5 | 54,213,511 | 1,242,500 |
| Total Jabotabek | 17,130,430 | 4.0 | 3.7 | 29,610,068 | 1,728,510 |
| Total Indonesia | 179,379,000 | 2.4 | 2.0 | 196,919,200 | 1,097,780 |
| Jakarta As % of Total DKI/West Java | 18 % | | | 42 % | x2.23 |
| Jabotabek As % of Total DKI/West Java | 39.3 % | | | 55 % | x 1.39 |
| Jabotabek As % of All Indonesia | 9.5 % | | | 15 % | x1.57 |

Source : Technical Report "Economy" of JMDPR, January 1993

Note (*) excludes oil

National figures are preliminary only.

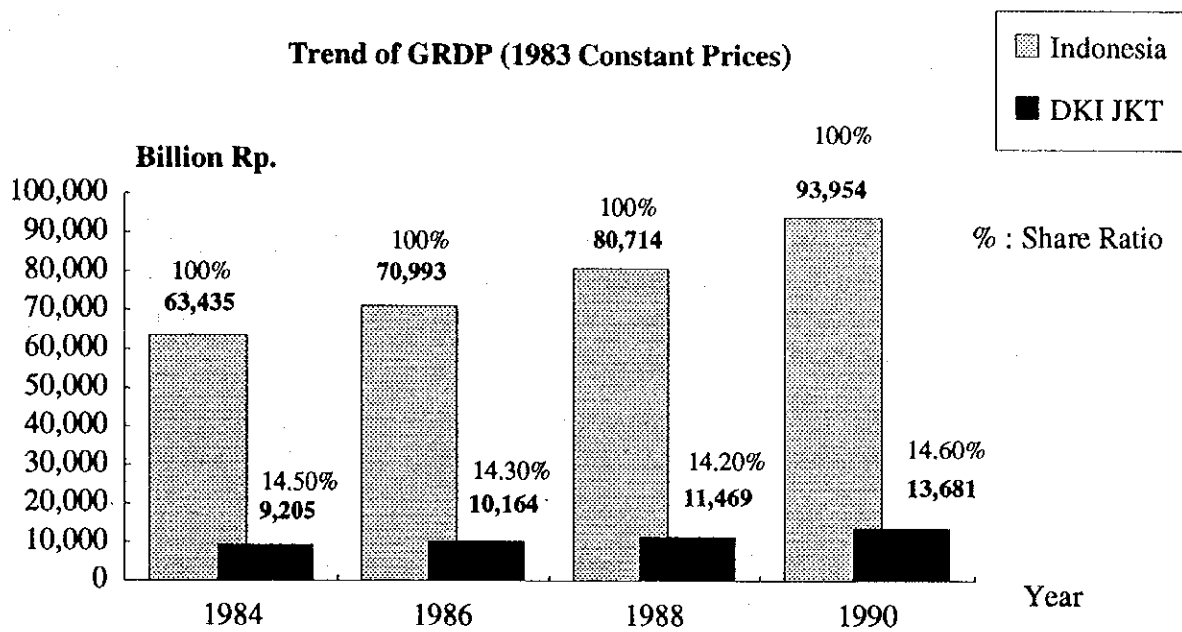


Fig. 2.3.1 Trend of GRDP (1983 Constant Prices)

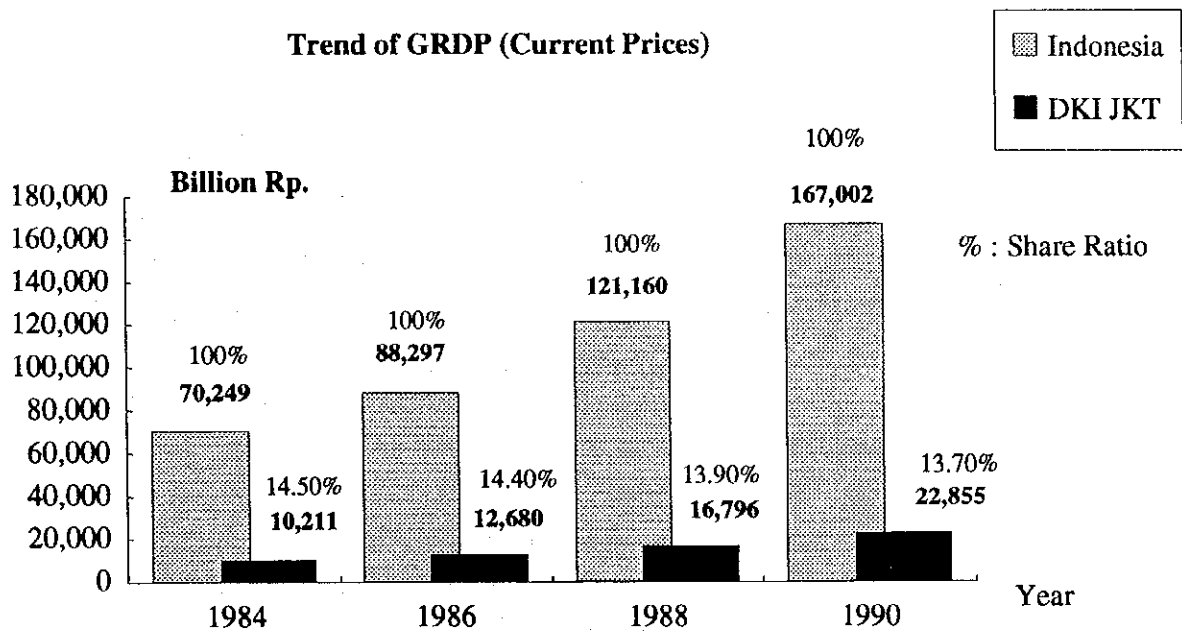


Fig. 2.3.2 Trend of GRDP (Current Prices)

2.4 Present Land Use

2.4.1 General

Very few data are available concerning urban land uses in Jabotabek areas. BPN (National Land Agency) has been recording land use changes with particular concern in estimating agricultural harvest, which is not so pertaining to urban and transport planning.

Beside the JMDPR, the Directorate General of Cipta Karya has commissioned other two projects under the JUDP III loan No. 3246-IND from the World Bank, that is :

- Land Use Map Updating for Botabek and the Establishment of a Development Monitoring System
- Urban Fringe Area Planning Studies

The former project analyzed LANDSAT imaginary data in their due course of the study, and measured land cover with several categories in 1988 and 1992. In a broad sense, therefore, this land cover data has been used to describe general land use patterns and changes in the respective Jabtoabek components.

2.4.2 Land Cover Data

Land cover data derived from 1988 and 1992 were summarized in Table 2.4.1 through 2.4.4, which classify the land cover into several categories.

During the last 4 years from 1988 to 1992, the "Structure, Residential Area" increased by 12,806 ha, and which were compensated by the decrease of "Unstructure, Residential Area" (-4,145 ha), "Non-irrigated Agriculture" (-4,141 ha) and "Bare Land" (-4,384). Besides "Structure, Residential Area", "Industrial Area" and "Urban Infrastructure" land cover increased but the remaining land cover categories were all decreased. Green and other natural environment remain only 19% of the total area, and the base land has almost vanished in 1992.

The land cover in Bogor is dominated by High-dense vegetation (35.6% in 1988 and 32.4% in 1992) followed by Non-irrigated agriculture (24.1% in 1988 or Grass, Bush, Low-dense vegetation (26.9%) in 1992, which expanded the share largely from 61,705 ha in 1988 to 89,226 ha in 1992. The irrigated agriculture land increased together with urban infrastructure, though it is curious that residential areas both structure and unstructure declined in Bogor.

In Tangerang, the residential areas, the unstructure in particular expanded its share from 19.8% in 1988 to 29.3% in 1992, though a dominant land cover is occupied by the irrigated agriculture (38.2%) with its increase in area by 11,328

ha over the same period. On the contrary, the base land and the non-irrigated agriculture decreased their shares.

Bekasi also decreased a share of the non-irrigated agriculture and that of the base land, but adversely increased that of combined residential areas (marginally about 9,800 ha) and that of the irrigated agriculture (marginally about 9,000 ha).

Industrial areas marginally increased more than 1,000 ha either one of Jakarta, Tangerang or Bekasi, but strangely decreased in Bogor. As the same tendency is found in the residential land coverage, it may be safe not to rely on the result of the imaginary data analysis for Bogor before clarification is made pertaining to this interpretation of land cover measurement.

Table 2.4.1 Land Cover DKI Jakarta, 1988 and 1992

| Land Cover Category | 1988 | | 1992 | | Change |
|--------------------------------------|---------------|--------------|---------------|--------------|-------------------|
| | Ha | (%) | Ha | (%) | 1992-1988 (Ha) |
| 1. Structure, Residential Area | 8,357 | 32.9 | 21,163 | 13.0 | +12,806 |
| 2. Unstructure, Residential Area | 28,092 | 37.2 | 23,947 | 43.7 | -4,145 |
| 3. Industrial Area | 771 | 3.0 | 1,926 | 1.2 | +1,155 |
| 4. Urban Infrastructure | 2,332 | 7.8 | 5,031 | 3.6 | +2,699 |
| 5. Irrigated Agriculture | 4,947 | 5.6 | 3,622 | 7.7 | -1,325 |
| 6. Non-irrigated Agriculture | 6,406 | 3.5 | 2,265 | 10.0 | -4,141 |
| 7. High-dense Vegetation | 101 | 0.1 | 82 | 0.2 | -19 |
| 8. Grass, Bush, Low-dense Vegetation | 5,411 | 6.4 | 4,123 | 8.4 | -1,288 |
| 9. Bare Land | 4,656 | 0.4 | 272 | 7.2 | -4,384 |
| 10. Fishpond & Sedimentated Water | 1,462 | 2.1 | 1,346 | 2.3 | -116 |
| 11. Water Bodies | 1783 | 0.9 | 557 | 2.8 | -1,226 |
| 12. Cloud | 39 | 0.0 | 23 | 0.1 | -16 |
| Total | 64,356 | 100.0 | 64,356 | 100.0 | 0 |

Source : DTKTD Cipta Karya

Table 2.4.2 Land Cover Bogor, 1988 and 1992

| Land Cover Category | 1988 | | 1992 | | Change |
|--------------------------------------|----------------|--------------|----------------|--------------|-------------------|
| | Ha | (%) | Ha | (%) | 1992-1988 (Ha) |
| 1. Structure, Residential Area | 1,636 | 0.5 | 2,428 | 0.7 | -792 |
| 2. Unstructure, Residential Area | 29,749 | 9.0 | 31,893 | 9.6 | -2,144 |
| 3. Industrial Area | 306 | 0.1 | 427 | 0.1 | -121 |
| 4. Urban Infrastructure | 1,573 | 0.5 | 194 | 0.1 | +1,379 |
| 5. Irrigated Agriculture | 24,483 | 7.4 | 21,746 | 6.6 | +2,737 |
| 6. Non-irrigated Agriculture | 73,203 | 22.1 | 79,843 | 24.1 | -6,640 |
| 7. High-dense Vegetation | 107,372 | 32.4 | 117,877 | 35.6 | -10,505 |
| 8. Grass, Bush, Low-dense Vegetation | 89,226 | 26.9 | 61,705 | 18.6 | +27,521 |
| 9. Bare Land | 1,087 | 0.3 | 8,413 | 2.5 | -7,326 |
| 10. Fishpond & Sedimentated Water | 117 | 0.0 | 482 | 0.2 | -365 |
| 11. Water Bodies | 1,150 | 0.4 | 1,769 | 0.5 | -619 |
| 12. Cloud | 1,324 | 0.4 | 4,450 | 1.3 | -3,126 |
| Total | 331,226 | 100.0 | 331,226 | 100.0 | 0 |

Source : DTKTD Cipta Karya

Table 2.4.3 Land Cover Tangerang, 1988 and 1992

| Land Cover Category | 1988 | | 1992 | | Change |
|--------------------------------------|----------------|--------------|----------------|--------------|-------------------|
| | Ha | (%) | Ha | (%) | 1992-1988 (Ha) |
| 1. Structure, Residential Area | 530 | 0.4 | 4,215 | 3.1 | +3,685 |
| 2. Unstructure, Residential Area | 27,119 | 19.8 | 40,269 | 29.3 | +13,150 |
| 3. Industrial Area | 388 | 0.3 | 1,302 | 1.0 | +914 |
| 4. Urban Infrastructure | 801 | 0.6 | 1,561 | 1.1 | +760 |
| 5. Irrigated Agriculture | 41,118 | 30.0 | 52,446 | 38.2 | +11,328 |
| 6. Non-irrigated Agriculture | 22,889 | 16.7 | 11,136 | 8.1 | -11,753 |
| 7. High-dense Vegetation | 2,434 | 1.8 | 386 | 0.3 | -2,048 |
| 8. Grass, Bush, Low-dense Vegetation | 19,096 | 13.9 | 18,603 | 13.6 | -493 |
| 9. Bare Land | 15,406 | 11.2 | 1,948 | 1.4 | -13,458 |
| 10. Fishpond & Sedimentated Water | 4,001 | 2.9 | 3,859 | 2.8 | -142 |
| 11. Water Bodies | 2,902 | 2.1 | 1,537 | 1.1 | -1,365 |
| 12. Cloud | 579 | 0.4 | 0 | 0.0 | -579 |
| Total | 137,262 | 100.0 | 137,262 | 100.0 | 0 |

Source : DTKTD Cipta Karya

Table 2.4.4 Land Cover Bekasi, 1988 and 1992

| Land Cover Category | 1988 | | 1992 | | Change |
|--------------------------------------|----------------|--------------|----------------|--------------|-------------------|
| | Ha | (%) | Ha | (%) | 1992-1988 (Ha) |
| 1. Structure, Residential Area | 1,018 | 0.7 | 3,834 | 2.6 | +2,816 |
| 2. Unstructure, Residential Area | 14,557 | 9.8 | 21,618 | 14.6 | +7,061 |
| 3. Industrial Area | 123 | 0.1 | 1,136 | 0.8 | +1,013 |
| 4. Urban Infrastructure | 148 | 0.1 | 686 | 0.5 | +538 |
| 5. Irrigated Agriculture | 55,189 | 37.3 | 64,142 | 43.4 | +8,953 |
| 6. Non-irrigated Agriculture | 27,163 | 18.4 | 13,074 | 8.8 | -14,089 |
| 7. High-dense Vegetation | 1,428 | 1.0 | 1,631 | 1.1 | +203 |
| 8. Grass, Bush, Low-dense Vegetation | 24,387 | 16.5 | 31,254 | 21.1 | +6,867 |
| 9. Bare Land | 12,905 | 8.7 | 2,467 | 1.7 | -10,438 |
| 10. Fishpond & Sedimentated Water | 6,397 | 4.3 | 4,516 | 3.1 | -1,881 |
| 11. Water Bodies | 4,574 | 3.1 | 3,531 | 2.4 | -1,043 |
| 12. Cloud | 0 | 0.0 | 0 | 0.0 | 0 |
| Total | 147,889 | 100.0 | 147,889 | 100.0 | 0 |

Source : DTKTD Cipta Karya

2.4.3 Transformation of Land Cover

The land use map updating project further analyzed how the previous land cover underwent a transformation to the present one. This is explained using matrices presented in Table 2.4.5 through 2.4.8.

A general tendency of the land cover transformation can be summarized as follows:

- A residential area is marginally increased by the transformation largely from the high-dense vegetation, agriculture and base land;
- Industrial area is expanding by the penetration into the above three categories but residential area; and
- Agriculture is mostly expanded by the development of base land

According to these transformation matrices it can be said that:

- Residential land cover increased more than double during 1988-1992 for the respective Botabek components, but it only increased about 20 percent for DKI Jakarta.
- Industrial area increased more than 1,000 ha in Jakarta, Tangerang and Bekasi but only 277 ha in Bogor, which looks unlikely compared with the manufacturing sector growth in the GRDP of Bogor. More detailed analysis will be required to use Bogor figures in particular.

Table 2.4.5 Transformation of Land Cover, DKI Jakarta 1988-1992

| 1992 (To) 1988 (From) | Res. | Ind. | Agr. | H.D.V. | Bare L. | Oth. | WB | Total |
|--------------------------|--------|-------|--------|--------|---------|-------|-----|--------|
| 1. Residential | 40,553 | 1,109 | - | - | 43 | - | - | 41,705 |
| 2. Industrial | - | 425 | - | - | - | - | - | 425 |
| 3. Agriculture | 2,754 | 48 | 1,742 | - | - | - | - | 4,544 |
| 4. High-dense Veg. | 4,030 | 77 | - | 1,342 | - | - | - | 5,449 |
| 5. Bare Land | 3,361 | 221 | 562 | - | 5 | - | - | 4,149 |
| 6. Others | - | - | - | - | - | - | - | 7,528 |
| 7. Water Bodies | - | - | - | - | - | - | - | 557 |
| Total | 50,698 | 1,880 | 2,304 | 1,342 | 48 | 7,528 | 557 | 64,357 |
| Increment | +8,993 | 1,455 | -2,240 | -4,107 | -4,101 | 0 | 0 | 0 |

Source : DTKTD Cipta Karya

Table 2.4.6 Transformation of Land Cover, Bogor 1988-1992

| 1992 (To) 1988 (From) | Res. | Ind. | Agr. | H.D.V. | Bare L. | Oth. | WB | Total |
|--------------------------|---------|------|--------|---------|---------|--------|-------|---------|
| 1. Residential | 50,471 | 97 | - | - | 379 | - | - | 50,947 |
| 2. Industrial | - | 21 | - | - | - | - | - | 21 |
| 3. Agriculture | 6,019 | 27 | 10,890 | - | - | - | - | 16,936 |
| 4. High-dense Veg. | 44,766 | 94 | - | 130,643 | - | - | - | 175,503 |
| 5. Bare Land | 3,532 | 59 | 1,709 | - | 192 | - | - | 5,492 |
| 6. Others | - | - | - | - | - | - | - | 81,176 |
| 7. Water Bodies | - | - | - | - | - | - | - | 1,150 |
| Total | 104,788 | 298 | 12,559 | 130,643 | 571 | 81,176 | 1,150 | 331,225 |
| Increment | 53,841 | 277 | -4,337 | -44,860 | -4,921 | 0 | 0 | 0 |

Source : DTKTD Cipta Karya

Table 2.4.7 Transformation of Land Cover, Tangerang 1988-1992

| 1992 (To) 1988 (From) | Res. | Ind. | Agr. | H.D.V. | Bare L. | Oth. | W.B | Total |
|--------------------------|---------------|--------------|---------------|----------------|----------------|---------------|--------------|----------------|
| 1. Residential | 28,681 | 471 | - | - | 546 | - | - | 29,698 |
| 2. Industrial | - | 80 | - | - | - | - | - | 80 |
| 3. Agriculture | 8,340 | 187 | 29,841 | - | - | - | - | 38,368 |
| 4. High-dense Veg. | 13,122 | 234 | - | 7,347 | - | - | - | 20,703 |
| 5. Bare Land | 5,977 | 316 | 6,492 | - | 202 | - | - | 12,987 |
| 6. Others | - | - | - | - | - | - | - | 33,888 |
| 7. Water Bodies | - | - | - | - | - | - | - | 1,537 |
| Total | 56,120 | 1,208 | 36,333 | 7,347 | 748 | 33,888 | 1,537 | 137,261 |
| Increment | 26,422 | 1,208 | -2,035 | -13,356 | -12,239 | 0 | 0 | 0 |

Source : DTKTD Cipta Karya

Table 2.4.8 Transformation of Land Cover, Bekasi 1988-1992

| 1992 (To) 1988 (From) | Res. | Ind. | Agr. | H.D.V. | Bare L. | Oth. | W.B | Total |
|--------------------------|---------------|--------------|---------------|---------------|---------------|---------------|--------------|----------------|
| 1. Residential | 18,105 | 238 | - | - | 350 | - | - | 18,693 |
| 2. Industrial | - | 9 | - | - | - | - | - | 9 |
| 3. Agriculture | 9,607 | 116 | 40,197 | - | - | - | - | 49,920 |
| 4. High-dense Veg. | 8,119 | 530 | - | 16,007 | - | - | - | 24,656 |
| 5. Bare Land | 2,548 | 234 | 5,340 | - | 558 | - | - | 8,680 |
| 6. Others | - | - | - | - | - | - | - | 42,399 |
| 7. Water Bodies | - | - | - | - | - | - | - | 3,531 |
| Total | 38,379 | 1,127 | 45,537 | 16,007 | 908 | 42,399 | 3,531 | 147,888 |
| Increment | 19,686 | 1,118 | -4,383 | -8,649 | -7,772 | 0 | 0 | 0 |

Source : DTKTD Cipta Karya

CHAPTER 3 PRESENT TRAFFIC AND TRANSPORTATION CONDITIONS

CHAPTER 3 PRESENT TRAFFIC AND TRANSPORTATION CONDITIONS

3.1 Government Budgets and Road Administrative Jurisdiction

3.1.1 Government Budgets

(1) Central Government Budgets

1) Receipts

Table 3.1.1 shows the recent trend of the receipts of central government budgets.

The receipt of central government comprises Routine Receipt and Development Receipt. While the routine receipt ranges about 80% of the total receipt during the fiscal year 1990/91-1992/93, the development receipt ranges about 20%.

The routine receipts is composed of Oil & Gas Receipt (accounting for 26% of the total receipt in the fiscal year 1992/93) and Non Oil & Gas Receipt (55%).

Of the non oil & gas receipt, the income tax (accounting for 20% of the total receipt in the fiscal year 1992/93) and value added tax (18%) are main components.

The development receipts are the total amount of aid programs and aid projects by foreign countries.

During the fiscal year 1989/90 - 1992/93, the total amount of the routine receipts has increased, largely contributed by the increase of the non-oil & gas receipts amount.

On the other hand, for the same period, while the total amount of the development receipts has slightly increased, its share ratios to the total receipts has stagnated.

Compared with before, receipts from oil & gas have been declined, mainly because of stagnant trend of oil prices, and these now account for about 26% (down from 62% in 1981/82) of the total government receipts in the fiscal year 1992/93. On the contrary, the share of receipts of the non oil & gas has increased.

In the planned budget of the fiscal year 1993/94, such a tendency of share reduction of oil & gas receipts is proceeded; while the share of receipts from oil & gas accounts for about 24% (down from 26% in 1992/93), the share of receipts from non oil & gas accounts for about 60% (up from 55% in 1992/93) of the total budgeted receipts in 1993/94. The share

Table 3.1.1 Central Government Receipt

| | (Unit: Billion Rp.) | | | | | |
|--------------------------|---------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 89/90 | 90/91 | 91/92 | 92/93 | 93/94 | |
| | (Actual) | (Actual) | (Actual) | (Actual) | (Budget) | |
| Routine Receipt | 12,274 (88.3%) | 28,740 (75.3%) | 39,546 (80.0%) | 47,452 (80.0%) | 52,769 (81.6%) | 52,769 (84.7%) |
| 1) Oil & Gas Receipt | 8,575 (61.7%) | 11,252 (29.5%) | 17,712 (35.8%) | 15,039 (28.9%) | 15,128 (26.4%) | 15,128 (24.3%) |
| 2) Non Oil & Gas Receipt | 3,699 (26.6%) | 17,488 (45.8%) | 21,834 (44.2%) | 26,546 (51.1%) | 37,641 (60.4%) | 37,641 (60.4%) |
| - Income Tax | 5,488 (14.4%) | 6,755 (13.7%) | 9,580 (13.7%) | 11,913 (18.4%) | 14,848 (23.8%) | 14,848 (23.8%) |
| - Value Added Tax | 5,837 (15.3%) | 7,463 (15.1%) | 8,926 (15.1%) | 10,714 (18.4%) | 11,682 (18.7%) | 11,682 (18.7%) |
| - Land Tax | 590 (1.5%) | 811 (1.6%) | 875 (1.6%) | 1,101 (1.7%) | 1,320 (2.1%) | 1,320 (2.1%) |
| - Import Duties | 1,587 (4.2%) | 2,486 (5.0%) | 2,133 (4.1%) | 2,652 (4.1%) | 3,106 (5.0%) | 3,106 (5.0%) |
| - Other Taxes | 1,924 (5.0%) | 2,204 (4.5%) | 2,545 (4.5%) | 2,749 (4.9%) | 3,102 (5.0%) | 3,102 (5.0%) |
| - Non Tax Receipt | 2,062 (5.4%) | 2,115 (4.3%) | 2,487 (4.3%) | 2,993 (4.8%) | 3,583 (5.7%) | 3,583 (5.7%) |
| Development Receipt | 1,626 (11.7%) | 9,429 (24.7%) | 9,905 (20.0%) | 10,409 (20.0%) | 10,716 (18.4%) | 9,553 (15.3%) |
| - Aid Program | 1,007 (2.6%) | 1,397 (2.6%) | 1,397 (2.8%) | 1,563 (3.0%) | 512 (0.9%) | 427 (0.7%) |
| - Aid Project | 8,422 (22.1%) | 8,508 (17.2%) | 8,846 (17.2%) | 10,204 (17.0%) | 9,126 (14.6%) | 9,126 (14.6%) |
| Total | 13,900 (100.0%) | 38,169 (100.0%) | 49,451 (100.0%) | 51,994 (100.0%) | 58,168 (100.0%) | 62,322 (100.0%) |

Source: Statistical Year Book of Indonesia, 1984 and 1993, Central Bureau of Statistics

ratio of development receipt has decreased to 15% in the 1993/94 budget, compared to previous trends (ranging 18-20% during the actual 1990/91-1992/93).

2) Expenditures

Table 3.1.2 shows the recent trend of the expenditure of central government budgets.

The expenditure of central government comprises Routine Expenditure and Development Expenditure. The share ratios of routine expenditure and development expenditure to the total expenditure amount are about 60% and 40% respectively.

In the breakdown of the development expenditure, the expenditures for Road Facilities amount 679 billion Rp., 972 billion Rp. and 1,225 billion Rp. in the fiscal year 1990/91, 1991/92 and 1992/93 respectively. The share ratios of the expenditure for road facilities to the total expenditure amount and to the total development expenditure amount ranges about 1% - 2% (1.4% in 1990/91, 1.9% in 1991/92 and 2.1% in 1992/93) and about 4% - 5% (3.5% in 1990/91, 4.5% in 1991/92 and 5.1% in 1992/93) respectively, representing a steady increase tendency during the fiscal year of 1990/91 - 1992/93.

The breakdown of development expenditure by sector (18 sectors) shows that the expenditures of the Sector of Transportation and Tourism amount 3,042 billion Rp., 3,968 billion Rp. and 4,385 billion Rp. in the fiscal year 1990/91, 1991/92 and 1992/93 respectively, representing the share ratios to the total development expenditure, 16%, 18% and 18% for the said respective fiscal year.

(2) DKI Jakarta Government Budgets

1) Receipts

The recent trend of the receipts of DKI Jakarta government budgets is shown in Table 3.1.3. The net receipts of DKI Jakarta government comprise Local Taxes, Transfer from Central Government and Development Receipt.

Of these receipt components, the share ratio of local taxes ranges about 55% of the total receipt amount during the recent fiscal years.

2) Expenditures

The recent trend of the expenditures of DKI Jakarta government budgets is shown in Table 3.1.3.

Table 3.1.2 Central Government Expenditure

(Unit: Billion Rp.)

| | 90/91 (Actual) | | 91/92 (Actual) | | 92/93 (Actual) | |
|---|-------------------|-----------------|-------------------|-----------------|-------------------|-----------------|
| Routine Expenditure | 29,998 | (60.7%) | 30,227 | (58.1%) | 34,031 | (58.5%) |
| Development Expenditure | 19,452 | (39.3%) | 21,765 | (41.9%) | 24,135 | (41.5%) |
| Total | 49,450 | (100.0%) | 51,992 | (100.0%) | 58,166 | (100.0%) |
| Breakdown of Development Expenditure | | | | | | |
| Development Expenditure | 19,452 | (100.0%) | 21,765 | (100.0%) | 24,135 | (100.0%) |
| - Development Subsidy to Villages | 181 | (0.4%) (0.9%) | 250 | (0.5%) (1.1%) | 327 | (0.6%) (1.4%) |
| - Development Subsidy to Regencies | 392 | (0.8%) (2.0%) | 583 | (1.1%) (2.7%) | 825 | (1.4%) (3.4%) |
| - Development Subsidy to Provinces | 486 | (1.0%) (2.5%) | 573 | (1.1%) (2.6%) | 701 | (1.2%) (2.9%) |
| - Road Facilities | 679 | (1.4%) (3.5%) | 972 | (1.9%) (4.5%) | 1,225 | (2.1%) (5.1%) |
| - Aid Project | 8,508 | (17.2%) (43.7%) | 8,846 | (17.0%) (40.6%) | 10,204 | (17.5%) (42.3%) |
| - Others | 9,206 | (18.6%) (47.3%) | 10,541 | (20.3%) (48.4%) | 10,853 | (18.7%) (45.0%) |
| Breakdown of Development Expenditure by Sector | | | | | | |
| Development Expenditure | 19,452 | (100.0%) | 21,765 | (100.0%) | 24,135 | (100.0%) |
| 1) Agriculture | 2,392 | (12.3%) | 2,817 | (12.9%) | 2,955 | (12.2%) |
| 2) Industry | 447 | (2.3%) | 493 | (2.3%) | 520 | (2.2%) |
| 3) Mines & Energy | 1,973 | (10.1%) | 2,446 | (11.2%) | 3,013 | (12.5%) |
| 4) Transportation & Tourism | 3,042 | (15.6%) | 3,968 | (18.2%) | 4,385 | (18.2%) |
| 5) Commerce | 244 | (1.3%) | 288 | (1.3%) | 313 | (1.3%) |
| 6) Manpower | 556 | (2.9%) | 745 | (3.4%) | 886 | (3.7%) |
| 7) Regional Development | 1,873 | (9.6%) | 2,409 | (11.1%) | 2,919 | (12.1%) |
| 8) Religion | 35 | (0.2%) | 52 | (0.2%) | 67 | (0.3%) |
| 9) Education & Culture | 2,065 | (10.6%) | 2,503 | (11.5%) | 3,002 | (12.4%) |
| 10) Social/Health | 592 | (3.0%) | 782 | (3.6%) | 955 | (4.0%) |
| 11) Public Housing | 729 | (3.7%) | 833 | (3.8%) | 959 | (4.0%) |
| 12) Law | 41 | (0.2%) | 55 | (0.3%) | 74 | (0.3%) |
| 13) Defence & Security | 982 | (5.0%) | 1,085 | (5.0%) | 1,120 | (4.6%) |
| 14) Information & Communication | 65 | (0.3%) | 73 | (0.3%) | 80 | (0.3%) |
| 15) Science & Technology | 406 | (2.1%) | 502 | (2.3%) | 567 | (2.3%) |
| 16) Government Institution | 143 | (0.7%) | 236 | (1.1%) | 324 | (1.3%) |
| 17) Business Enterprises | 339 | (1.7%) | 377 | (1.7%) | 390 | (1.6%) |
| 18) Natural Resources | 301 | (1.5%) | 334 | (1.5%) | 383 | (1.6%) |
| DIPDAL (Carry Over) | 3,227 | | 1,767 | | 1,223 | |

Source: Statistical Year Book of Indonesia 1993, Central Bureau of Statistics

Table 3.1.3 Receipt and Expenditure of DKI Jakarta Government

| | (Unit: Million Rp.) | | | | | |
|----------------------------------|---------------------|--------------------|--------------------|--------------------|--------------------------|--------------------|
| | '89/90 (Actual) | '90/91 (Actual) | '91/92 (Actual) | '92/93 (Actual) | 93/94 (Estim. Actual) | 94/95 (Budget) |
| (A) Receipt | | | | | | |
| Previous Year Surplus | 57,662 (8.1%) | 96,221 (9.7%) | 192,505 (15.5%) | 180,315 (13.1%) | 149,067 (9.2%) | 267,463 (12.8%) |
| Local Taxes | 429,660 (60.5%) | 618,554 (62.7%) | 700,599 (56.4%) | 774,980 (56.1%) | 919,858 (57.0%) | 1,159,254 (55.4%) |
| Transfer from Central Government | 209,714 (29.5%) | 250,192 (25.3%) | 314,134 (25.3%) | 383,374 (27.8%) | 480,644 (29.8%) | 513,543 (24.5%) |
| - Tax & Non-Tax Distribution | | | | | (150,040) | (201,746) |
| - Donation & Subsidy | | | | | (330,604) | (311,797) |
| Development Receipt | 13,414 (1.9%) | 22,193 (2.2%) | 34,401 (2.8%) | 42,439 (3.1%) | 63,599 (3.9%) | 153,295 (7.3%) |
| Total | 710,453 (100.0%) | 987,161 (100.0%) | 1,241,639 (100.0%) | 1,381,108 (100.0%) | 1,613,168 (100.0%) | 2,093,555 (100.0%) |
| (Annual Net Receipt) | 652,791 | 890,940 | 1,049,134 | 1,200,793 | 1,464,101 | 1,826,092 |
| (B) Expenditure | | | | | | |
| Routine Expenditure | 332,620 (55.0%) | 445,290 (56.8%) | 593,380 (56.4%) | 715,810 (58.1%) | 818,230 (58.3%) | 1,145,300 (54.7%) |
| Development Expenditure | 272,110 (45.0%) | 338,690 (43.2%) | 458,010 (43.6%) | 516,230 (41.9%) | 584,960 (41.7%) | 948,200 (45.3%) |
| Total | 604,730 (100.0%) | 783,980 (100.0%) | 1,051,390 (100.0%) | 1,232,040 (100.0%) | 1,403,190 (100.0%) | 2,093,500 (100.0%) |

Source: Rancangan, Anggaran Pendapatan dan Belanja Daerah (RAPBD), DKI Jakarta, Fiscal Year 1993/94 and 1994/95
(Budget Plan of Receipt and Expenditure of DKI Jakarta, Fiscal Year 1993/94 and 1994/95)

The expenditure of DKI Jakarta government is composed of Routine Expenditure and Development Expenditure. While the routine expenditure accounts for 58% of the total expenditure amount in the fiscal year 1993/94, the development expenditure accounts for 42%.

Table 3.1.4 shows the breakdown of the development expenditure by sector in the fiscal year 1993/94 (estimated actual) and 1994/95 (budget). The classification of breakdown items are different by the fiscal year 1993/94 (18 sectors) and 1994/95 (21 sectors). The expenditure of the Sector of Transportation and Tourism (including the arterial road development) in the fiscal year 1993/94 amounts 142,826 million Rp., representing a share ratio of 22% to the total expenditure amount. The expenditure of the sector of Transportation (including the arterial road development) in the fiscal year 1994/95 (budget) amounts 143,796 million Rp., representing a share ratio of 18% to the total expenditure amount.

(3) Jabotabek Development Budget Tabulation by JMDPR

The study of Jabotabek Metropolitan Development Plan Review (JMDPR) refers to public financings related to the governments of Jabotabek area.

Table 3.1.5 shows the tabulation prepared by JMDPR related to the details of development budgets by sector (18 sectors) for the government of DKI Jakarta, Kotamadya Bogor, Kabupaten Bogor, Kabupaten Tangerang and Kabupaten Bekasi for the fiscal year 1992/93.

Table 3.1.4 Breakdown of Development Expenditure by Sector of DKI Jakarta Government

(Unit: Million Rp.)

| (Sector) | '93/'94 | |
|------------------------------------|---------|----------|
| | (Estm.) | (Actual) |
| 1) Agriculture | 30,169 | (4.7%) |
| 2) Industry | 1,480 | (0.2%) |
| 3) Mines & Energy | 8,874 | (1.4%) |
| 4) Transportation & Tourism | 142,826 | (22.3%) |
| 5) Commerce | 2,291 | (0.4%) |
| 6) Manpower | 5,500 | (0.9%) |
| 7) Regional Development | 76,759 | (12.0%) |
| 8) Religion | 9,400 | (1.5%) |
| 9) Education & Culture | 65,126 | (10.2%) |
| 10) Social/Health | 40,510 | (6.3%) |
| 11) Public Housing | 47,738 | (7.5%) |
| 12) Law | 1,848 | (0.3%) |
| 13) Defence & Security | 21,533 | (3.4%) |
| 14) Information & Communication | 2,576 | (0.4%) |
| 15) Science & Techonogy | 6,430 | (1.0%) |
| 16) Government Institution | 94,729 | (14.8%) |
| 17) Business Enterprises | 44,258 | (6.9%) |
| 18) Natural Resouces & Environment | 37,170 | (5.8%) |
| (Sector Total) | 639,217 | (100.0%) |
| DIPDAL (Carry Over) | 120,923 | |
| Total Development Expenditure | 760,140 | |

Note: Data of Fiscal Year 1993/94 : Not Available of Audited Data

(Unit: Million Rp.)

| (Sector) | 94/'95 | |
|-----------------------------------|----------|----------|
| | (Budget) | |
| 1) Industry | 1,768 | (0.2%) |
| 2) Agriculture | 6,799 | (0.8%) |
| 3) Watewr Resouces & Irrigation | 11,916 | (1.4%) |
| 4) Manpower | 4,320 | (0.5%) |
| 5) Commerce & Business Enterprise | 70,508 | (8.6%) |
| 6) Transportation | 143,796 | (17.5%) |
| 7) Mines & Energy | 1,602 | (0.2%) |
| 8) Tourism & Telecommunication | 14,565 | (1.8%) |
| 9) Regional Development | 164,173 | (20.0%) |
| 10) Environmental & Spatial Plan | 7,212 | (0.9%) |
| 11) Education & Culture | 44,129 | (5.4%) |
| 12) Demography & Family Planning | 1,015 | (0.1%) |
| 13) Social / Health | 41,292 | (5.0%) |
| 14) Public Housing | 105,926 | (12.9%) |
| 15) Religion | 16,225 | (2.0%) |
| 16) Science & Techonogy | 30,124 | (3.7%) |
| 17) Law | 2,868 | (0.3%) |
| 18) Government Institution | 124,016 | (15.1%) |
| 19) Information & Communication | 13,137 | (1.6%) |
| 20) Defence & Security | 16,451 | (2.0%) |
| 21) Social Aids | 421 | (0.1%) |
| (Sector Total) | 822,263 | (100.0%) |
| DIPDAL (Carry Over) | 125,913 | |
| Total Development Expenditure | 948,176 | |

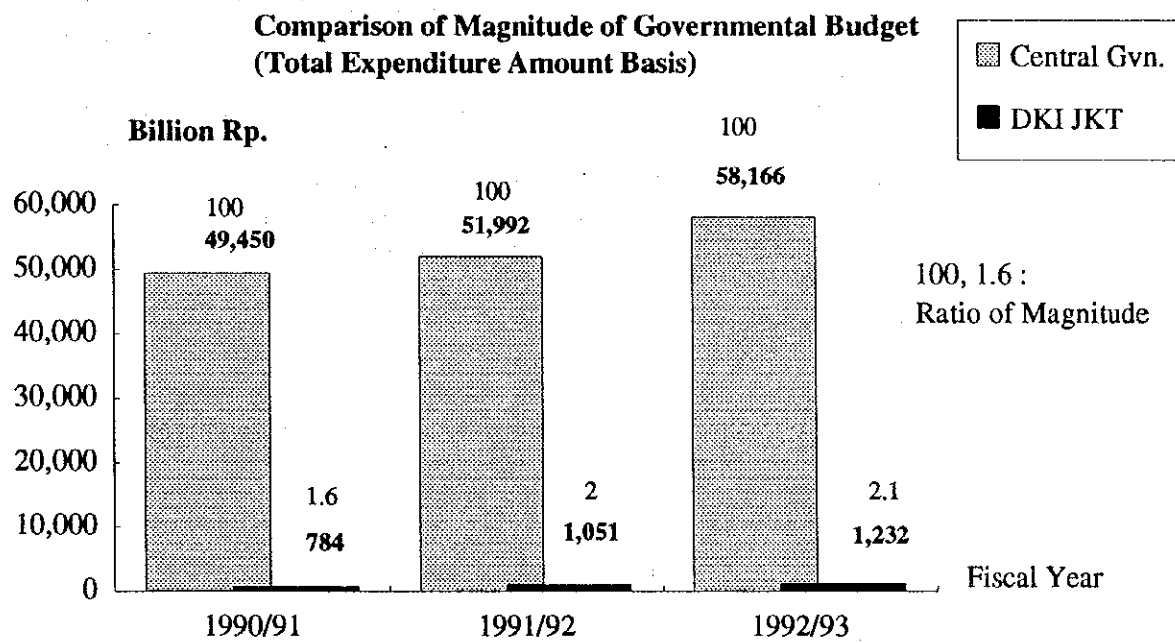
Source: Rancangan, Anggaran Pendapatan dan Belanja Daerah (RAPBD), DKI Jakarta, Fiscal Year 1994/95 (BAPPEDA DKI Jakarta) (Budget Plan of Receipt and Expenditure of DKI Jakarta, Fiscal Year 1994/95)

Table 3.1.5 1992/93 Development Expenditure Budget for JABOTABEK Area
(Tabulated by JMDPR)

| (Sector) | (Unit: Billion Rp.) | | | | | |
|---------------------------------|---------------------|-----------------|---------------|-------------------|----------------|--------|
| | DKI Jakarta | Kodya. Bogor | Kab. Bogor | Kab. Tangerang | Kab. Bekasi | Total |
| 1) Agriculture | 25.76 | 0.09 | 0.72 | 1.13 | 0.31 | 28.01 |
| 2) Industry | 1.05 | 0.02 | 0.08 | 0.05 | 0.01 | 1.22 |
| 3) Mines & Energy | 8.27 | 0.00 | 0.19 | 0.11 | 0.21 | 8.78 |
| 4) Transportation & Tourism | 151.73 | 3.79 | 23.97 | 17.10 | 12.91 | 209.50 |
| 5) Commerce | 0.82 | 0.07 | 0.12 | 2.13 | 0.25 | 3.38 |
| 6) Manpower | 4.06 | 0.01 | 0.28 | 0.08 | 0.02 | 4.45 |
| 7) Regional Development | 63.31 | 0.46 | 5.42 | 5.18 | 4.34 | 78.71 |
| 8) Religion | 6.73 | 0.20 | 0.61 | 0.26 | 0.16 | 7.96 |
| 9) Education & Culture | 64.87 | 1.75 | 4.83 | 4.18 | 6.24 | 81.87 |
| 10) Social/Health | 30.00 | 0.35 | 1.71 | 3.45 | 2.38 | 37.89 |
| 11) Public Housing | 51.61 | 6.50 | 0.52 | 0.40 | 0.37 | 59.40 |
| 12) Law | 1.46 | 0.02 | 0.87 | 0.03 | 0.05 | 2.43 |
| 13) Defence & Security | 16.07 | 0.03 | 0.25 | 0.21 | 0.25 | 16.81 |
| 14) Information & Communication | 2.12 | 0.17 | 0.18 | 0.03 | 0.06 | 2.55 |
| 15) Science & Techonogy | 9.37 | 0.00 | 0.11 | 1.32 | 0.56 | 11.35 |
| 16) Government Institution | 90.46 | 2.32 | 8.42 | 2.19 | 3.20 | 106.59 |
| 17) Business Enterprises | 23.54 | 0.55 | 0.30 | 0.19 | 0.15 | 24.64 |
| 18) Natural Resources | 36.81 | 0.00 | 1.11 | 0.34 | 0.21 | 38.47 |
| (Sector Total) | 588.03 | 16.33 | 49.68 | 38.37 | 31.67 | 724.07 |
| Subsidy | 0.00 | 0.00 | 0.38 | 3.50 | 0.50 | 4.38 |
| Total Development Budget | 588.03 | 16.33 | 50.06 | 41.87 | 32.17 | 728.45 |

Source: JABOTABEK Metropolitan Development Plan Review (JMDPR), Third Planning Report, July 1993 (Draft)

Note : Figures of "JABOTABEK Total" are calculated by the Study Team.



**Fig. 3.1.1 Comparison of Magnitude of Governmental Budget
(Total Expenditure Amount Basis)**

3.1.2 Road Administrative Jurisdiction

Each governmental agency is involved in the following phase of project implementation of road construction and improvement/rehabilitation of public road, maintenance of public road and maintenance/operation of toll road in DKI Jakarta and Jabotabek in accordance with their jurisdiction.

(1) Studies (Masterplan, Feasibility Study)

Directorate General of Highways (Bina Marga), Ministry of Public Works is responsible for executing studies in principle. Directorate General of Human Settlement (Cipta Karya) is responsible for formulating spatial plans integrated improvement plans of all sectors concerning to public works such as structure plan in coordination with agencies concerned. Each agency such as DKI Jakarta and West Java Province is in charge to formulate a masterplan in line with such spatial plan and to publish it after the concurrence of Minister of Home Affairs. A concept of road development masterplan, therefore, is prepared by Bina Marga prior to formulating a spatial plan and handed to Cipta Karya. Bina Marga is in charge to conduct a feasibility study based on a masterplan. Directorate of Urban Road Development (Binkot) is responsible for conducting a feasibility study in urban area including DKI Jakarta, while Directorate of Highway Planning (Bipran) is responsible for rural area.

(2) Detailed Design

Bina Marga, PT. Jasa Marga (Indonesian Highway Corporation) and provincial government such as DKI Jakarta and West Java Province are responsible for conducting detailed design for national road, toll road and provincial road respectively.

(3) Construction and Maintenance

National roads in Jakarta Metropolitan Area is to be constructed by Regional Betterment Office No. 9 (RBO 9) under Bina Marga. Maintenance works for national roads in Jakarta Metropolitan Area are constructed by DKI Jakarta and West Java Province respectively according to their jurisdiction. However, in case that Five-Year Development Plan is designated to construct certain provincial roads Governor may request Minister of Public Works to construct a part of such provincial road. As for the development of toll road by BOT scheme, PT. Jasa Marga selects a successful investor and Minister of Public Works appoints the concessionaire. The appointed concessionaire undertakes construction, operation and maintenance of toll road.