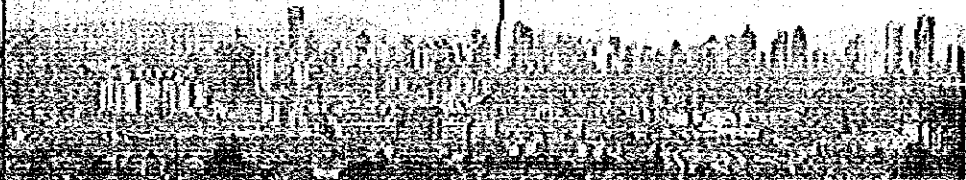




GOVERNMENT OF MALAYSIA
ECONOMIC PLANNING UNIT, PRIME MINISTER'S DEPARTMENT
HIGHWAY PLANNING UNIT, MINISTRY OF WORKS




JAPAN INTERNATIONAL
COOPERATION AGENCY



THE FEASIBILITY STUDY
ON
KUALA LUMPUR
OUTER RING ROAD PROJECT
IN
MALAYSIA

FINAL REPORT
TECHNICAL VOLUME

July 1996

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FUKUYAMA CONSULTANTS
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Exchange Rates (Equivalent in Malaysian Ringgit)

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RM 1.00	=	US\$ 0.40
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(As of August 1995, Ministry of Finance)

PREFACE

In response to a request from the Government of Malaysia, the Government of Japan decided to conduct a Feasibility Study on KUALA LUMPUR OUTER RING ROAD IN MALAYSIA and entrusted the study to Japan International Cooperation Agency (JICA).

JICA sent a study team to Malaysia between March 1995 and March 1996. The study team was headed by Mr. Hiroo Takeda and comprised members of Fukuyama Consultants International and Pacific Consultants International.

The team held discussions with the officials concerned of the Government of Malaysia and conducted field surveys 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 Malaysia for their close cooperation extended to the team.

July 1996



Kimio FUJITA

President

Japan International Cooperation Agency

July 1996

Mr. Kimio FUJITA
President
Japan International Cooperation Agency
Tokyo, Japan

Dear Mr. Fujita,

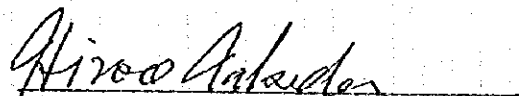
Letter of Transmittal

We are pleased to submit you the study report on the Feasibility Study on Kuala Lumpur Outer Ring Road Project in Malaysia. The report contains the advice and suggestions of the authorities concerned of the Government of Japan and your Agency as well as the formulation of the above mentioned project. Also included are comments made by the Economic Planning Unit (EPU) of the Prime Minister's department and the Highway Planning Unit (HPU) of Ministry of Works, Malaysia during technical discussions on the draft final report which were held in Kuala Lumpur.

This report presents a scheme for construction of the Kuala Lumpur Outer Ring Road and its possibility of privatization. In view of the urgency of the construction of the said road, we recommend that the Government of Malaysia implement this project as a top priority.

We wish to take this opportunity to express our sincere gratitude to your Agency and the Ministry of Foreign Affairs. We also wish to express our deep gratitude to the officials concerned of the EPU and the HPU of the Malaysian Government, the Japanese Embassy in Malaysia and Malaysia Office of your Agency for the close cooperation and assistance extended to us during our investigation and study.

Very truly yours,



Hiroo Takeda

Team Leader

The Feasibility Study on Kuala Lumpur
Outer Ring Road Project in Malaysia

Introduction

Although the objectives of the study are :

1. To carry out the feasibility study including assessing the financial viability of tolling on the KLORR ; and
2. To assess the environmental impact of the project which will constitute one of the criterion for the selection of the preferred alignment,

technology transfer was deemed as important objective. For this purpose various activities were carried out as follows:

(I) Meeting With Counterpart Team

Meetings were held between the JICA Study Team and Counterpart Team. Key issues related to the study were discussed. The main topics were as follows:

- Discussion of Inception Report, Progress Report, Interim Report and Draft Final Report
- Estimation of Socio-economic indicators
- PEIA Report
- Route Selection and Interchange Plan

(ii) Counterpart Training in Japan

Ir. Mohd Fozi Matori from the Highway Planning Unit visited Japan from 20th November to 12th December in 1995 for the JICA Counterpart Training in the fields of highway and bridge engineering courses.

Similarly, Mr. See Ah Sing from the Economic Planning Unit visited Japan from 3rd June to 20th June in 1996 for the JICA Counterpart Training in the field of project evaluation.

(iii) Workshop for Traffic demand forecasting with EMME/2 programme

The workshop was held for 6 days from 8th January to 13th January in 1996. Total 28 engineers and planners from the HPU, Malay University and other organizations participated.

The major themes were as follows :

- Introduction to Transportation Modeling with EMME/2
- Demonstration and Basic Concepts of EMME/2
- Introduction to Graphics
- Building Base Network

- **Function/Scenario Manipulation**
- **Matrices**
- **Assignment, etc**

(iv) Technical Reports

Detail methodologies, analysis and calculation process, etc. are indicated in the Technical Reports.

This Technical Volume was compiled to support the activities of technology transfer, mentioning detail methodologies, analyses and calculations in all the fields of the Study conducted in Malaysia which were not contained in the Main Volume. Environmental Study, however, was excluded on this volume because PEIA Report which was submitted to DOE through DPH is considered as one of Technical Reports.

**THE FEASIBILITY STUDY ON
KUALA LUMPUR OUTER RING ROAD IN MALAYSIA**

**FINAL REPORT
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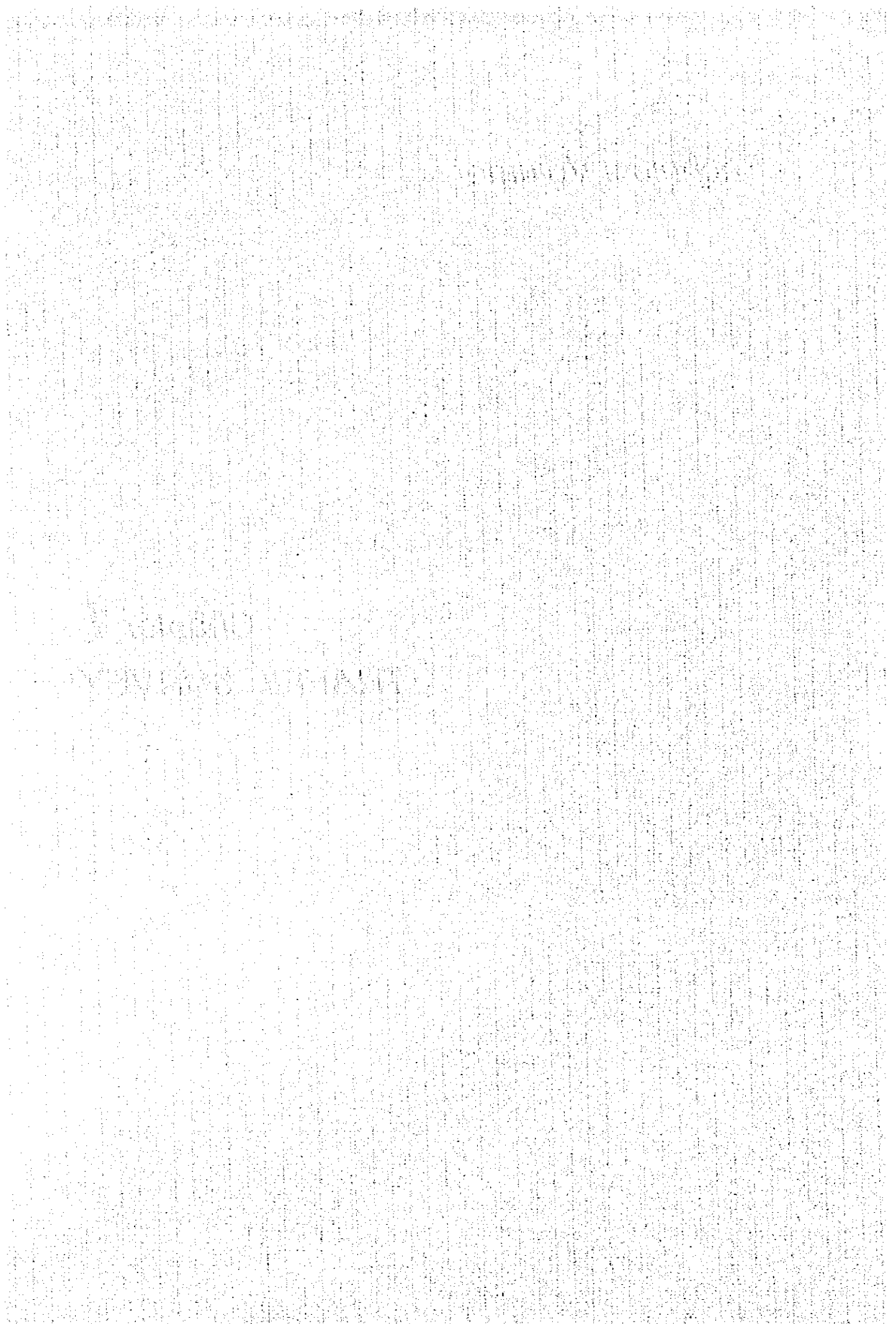
ABBREVIATION

EPU	Economic Planning Unit, Prime Minister's Department
HPU	Highway Planning Unit, Ministry of Works
JKR	Jabatan Kerja Raya (Public Works Department)
JPBD	Jabatan Perancang Bandar Dan Desa (Town and Country Planning Department)
DOE	Department of Environment
RM	Malaysian Ringgit
MC	Malaysian Cen
KLORR	Kuala Lumpur Outer Ring Road
N-SE	North-South Expressway
NKVE	New Klang Valley Expressway
SKVE	South Klang Valley Expressway
HNDP	Highway Network Development Plan
KL	Kuala Lumpur
KLIA	Kuala Lumpur International Airport
GDP	Gross Domestic Products
GRDP	Gross Regional Domestic Products
OD	Origin and Destination
ROW	Right of Way
VOC	Vehicle Operating Cost
LRT	Light Rail Transit
FMP	Fifth Malaysian Plan
SMP	Sixth Malaysian Plan
Jln.	Jalan
Bkt.	Bukit
Tj.	Tanjung
K.	Kuala
Kg.	Kampong

Technical Volume

Chapter 1

TRAFFIC SURVEY



CHAPTER 1 TRAFFIC SURVEY

1.1 INTRODUCTION

Traffic Survey is necessary to collect all relevant traffic data and information to analyze existing traffic volume, flow pattern and to forecast future travel demand in the Study Area. This Traffic Survey collected all necessary data for carrying out all traffic analyses needed in this Study.

1.2 OBJECTIVES

The objectives of the Traffic Survey in this Study are as following :

- a) To determine the traffic demand and flow pattern,
- b) To prepare origin-destination matrices and to know travel characteristics,
- c) To determine level of services of various roads in the Study Area.

1.3 TYPES OF THE TRAFFIC SURVEY

In order to achieve the above objectives, the following Traffic Surveys were conducted.

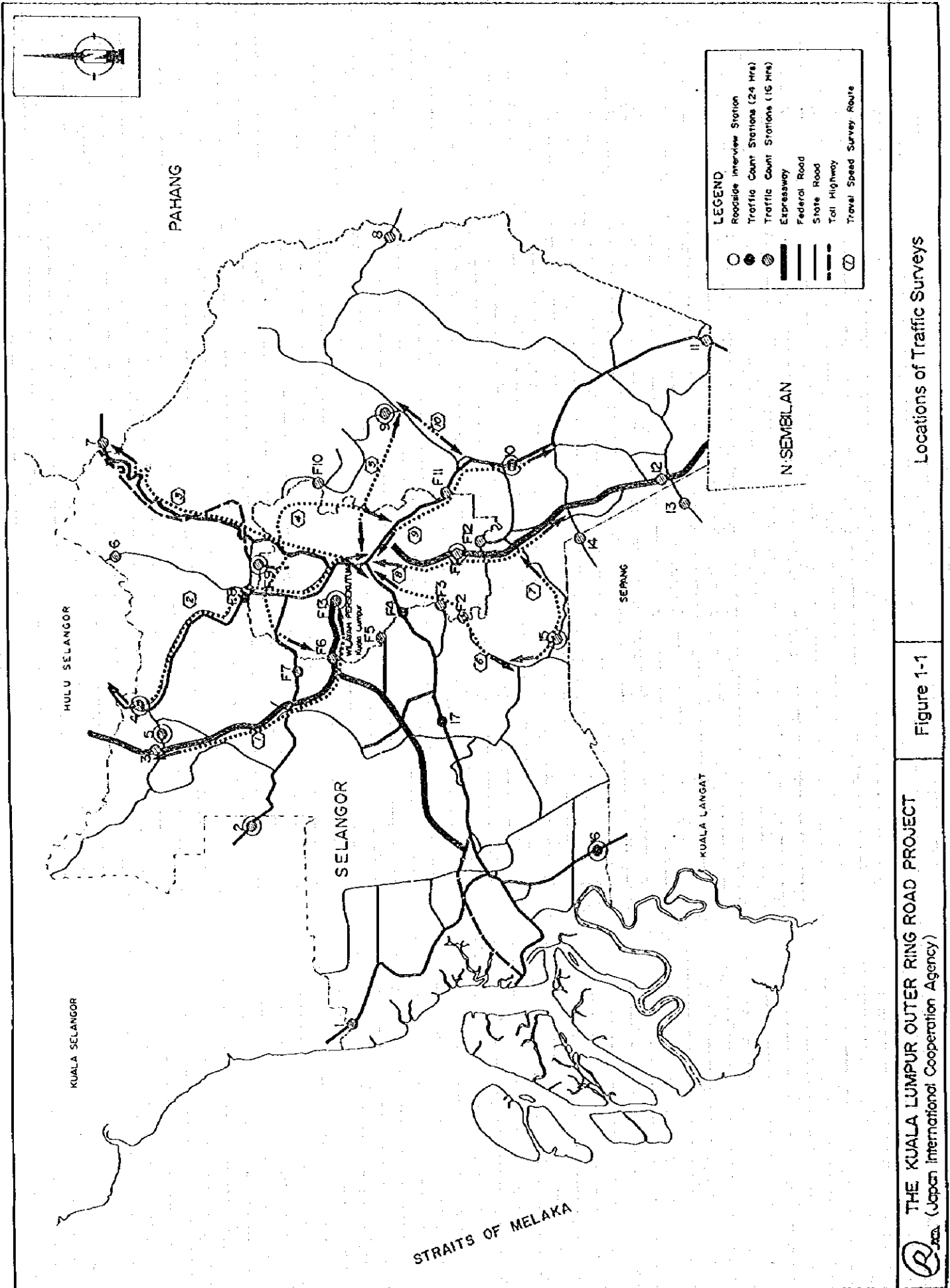
- a) Traffic Count Survey,
- b) Roadside Interview Survey,
- c) Travel Speed Survey.

The locations of these survey stations and Travel Speed Survey routes are shown in Figure 1-1.

1.4 SCHEDULES OF THE TRAFFIC SURVEY

Traffic Count Surveys and Roadside Interview Surveys were conducted from 27th April to 8th May 1995 on working days only (Monday thru Friday).

Similarly, Travel Speed Survey was conducted from 23rd May to 30th May on working days only (Monday thru Thursday).



Locations of Traffic Surveys

Figure 1-1

THE KUALA LUMPUR OUTER RING ROAD PROJECT
 (Japan International Cooperation Agency)



1.5 TRAFFIC COUNT SURVEY

1.5.1 Purpose

The purpose of this survey is to collect the cross sectional traffic volume and flow pattern on expressways, federal roads, state roads and major urban roads in the Study Area. This survey also provides the base for expanding the data collected by Roadside Interview Survey. This survey was conducted at 30 stations covering various locations of the Study Area as shown in Figure 1-1.

1.5.2 Selection of the Survey Stations

Before selecting the survey stations, the road network of the Study Area and past traffic volume data on various roads in the Study Area were studied carefully to get an idea of the existing traffic flow and their pattern. The locations of survey stations were selected on major roads on the cordon line of Kuala Lumpur and Klang Valley Region as well as on other important roads and toll plazas.

1.5.3 Methodology

The traffic volumes were manually counted with the help of counters for each directional flow and vehicular type. The counting was done for two time periods : 24 hours and 16 hours on working days. The counting for 24 hours were done at 5 major locations which have significant traffic during night time, too. The rest 25 stations were subjected to 16 hours counting. The counting was done from 6:00 AM to 10:00 PM for 16 hours and from 6:00 AM to 6:00 AM of next day for 24 hours period.

All the vehicles passing through the survey stations were counted and the volumes were recorded for every hour. The vehicles were classified into 6 types for counting which are further classified into 3 groups as following for the analysis :

- a) Passenger Car
- b) Lorry
- c) Bus

1.5.4 Result of Traffic Count Survey

The data collected from this survey are processed and then analyzed. The collected 16 hours traffic volumes were expanded to daily traffic volumes by using the expansion factor determined by the Highway Planning Unit. The daily traffic volumes by direction for all the survey stations are given in Table 1-1 and the traffic volumes by vehicle groups are shown in Table 1-2. The hourly traffic demand pattern for each direction at each station are shown in Figures 1-2. Direction 1 in the Figures represents traffic volumes towards Kuala Lumpur whereas directions 2 represents traffic volumes away from Kuala Lumpur.

Table 1-1 : Daily Traffic On Various Roads In Federal Territory and Klang Valley Area

Station No.	Name of Road	Location	Traffic Volume		
			Direction 1	Direction 2	Total
Stations along Federal Territory Screen Line					
F2	SR - B11	Lombong Biji Timah Kuchai	8,781	8,065	16,866
F3	SR - B14	Near Junction of SR B11 and B14	39,153	38,025	77,188
F4	FR - 2	Boundary of F.T and Petaling Jaya	214,669	234,262	448,931
F5	Damansara Road	Near Stadium	67,872	70,660	138,532
F6	North Klang Valley Expressway	Bi Lanjan Interchange, Location A	12,815	27,768	40,583
		Bi Lanjan Interchange, Location B	27,685	17,336	45,021
		Bi Lanjan Interchange, Location C	13,815	17,401	31,216
F8	FR - 1	Near Batu Caves	45,221	45,432	90,653
F9	KL - Karak Highway	Gombak Toll Plaza	9,793	11,025	20,818
F10	SR - B21	Near Junction of SR B-21 & B-36	19,105	25,620	44,725
F11	FR - 1	Near Junction of FR-1 & B-52	41,524	40,591	82,115
F12	SR - B13	Near Junction of SR B-13 & B-16	15,998	15,676	31,674
Sub-Total			516,441	551,881	1,068,322
Stations Along Klang Valley Screen Line					
1	FR - 5	Near Kg. Tambak Jawa	8,671	8,801	17,472
2	FR - 54	Kg. Merban Sempak	4,874	4,803	9,677
4	FR - 1	Near Bukit Rawang Jaya Housing	9,358	9,653	19,011
6	SR - B23	Hulu Gombak	1,208	888	2,096
7	KL - Karak Highway	Border of Selangor	6,230	7,419	13,649
8	SR - B32	Genting Peres	389	357	746
11	FR - 1	Beranang	4,365	5,013	9,378
12	KL - Seremban Expressway	South of Bangi Interchange	28,909	30,598	59,507
13	SR - B18	Near KL - Seremban Expressway	3,798	3,363	7,161
14	SR - B11	West of B11 & B13 Junction	5,015	5,032	10,047
15	SR - B11/16	Near Selangor Garden Center	9,528	9,285	18,813
16	FR - 5	Pandamaran	9,586	10,680	20,266
Sub-Total			91,931	95,892	187,823
Other Stations					
F1	KL - Seremban Expressway	Sungai Besi Toll Plaza	43,981	41,597	85,578
F7	FR - 54	East of Sq. Buloh	26,620	27,647	54,267
F13	North Klang Valley Expressway	Jalan Duta Toll Plaza	41,723	34,612	76,335
3	North - South Expressway	Near Ladang K. Garing	9,897	10,515	20,412
5	SR - B27	East of Rawang Interchange	12,033	13,617	25,650
9	SR - B62	Hulu Langat	2,561	1,704	4,265
10	FR - 1	Cheras	19,556	27,394	46,950
17	FR - 2	Subang Jaya	73,919	56,810	130,729
Sub-Total			230,290	213,896	444,186
Grand Total			838,662	861,669	1,700,331

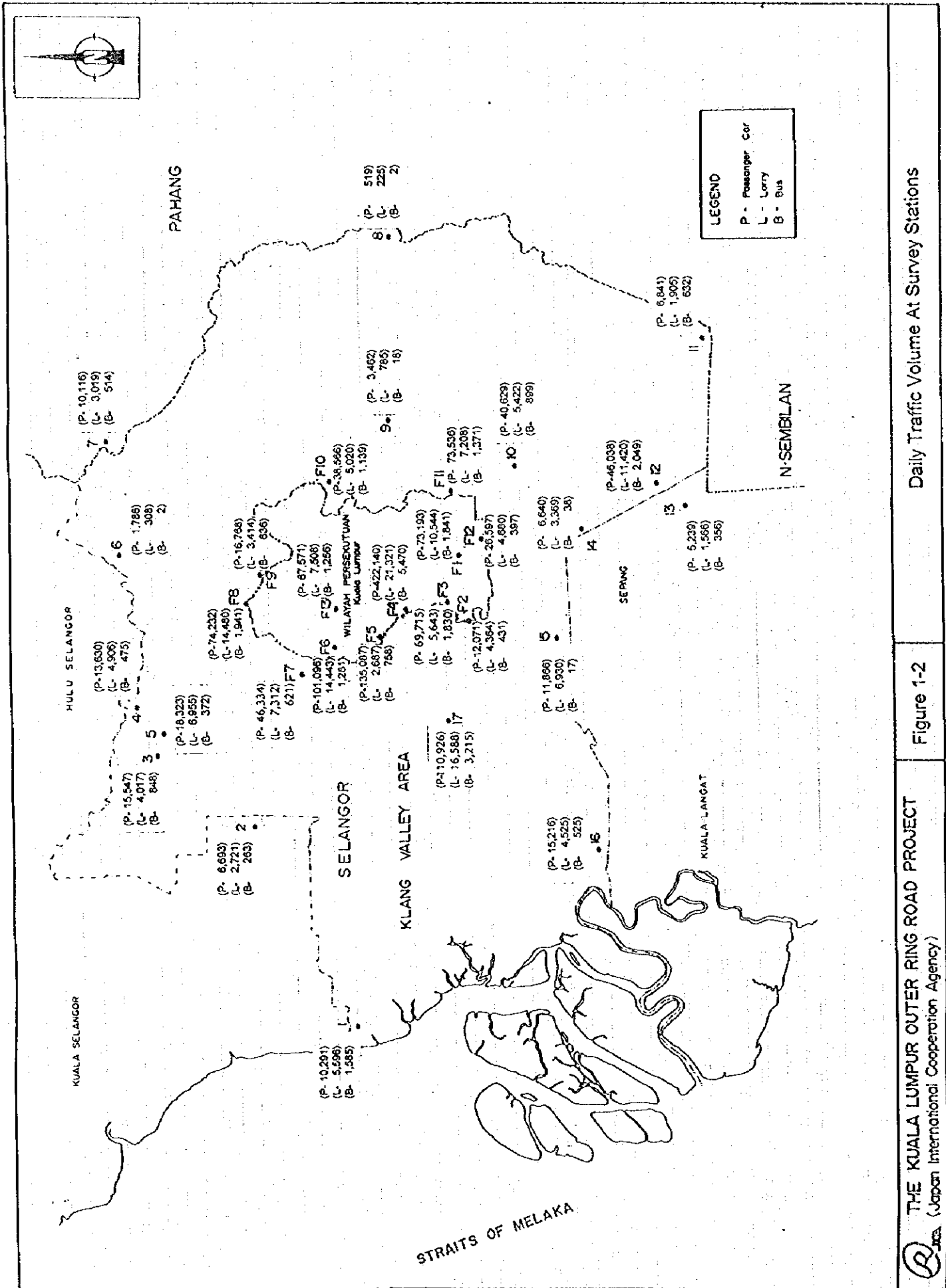
Note: FR - Federal Road
SR - State Road

Direction 1 - Towards Kuala Lumpur
Direction 2 - Away from Kuala Lumpur

Table 1-2 : Daily Volume By Vehicle Groups On Various Roads In The Study Area

Station No.	Name of Road	Location	Traffic Volume			
			P.Car	Lorry	Bus	Total
Stations along Federal Territory Cordon Line						
F4	FR - 2	Boundary of F.T and Pelang Jaya	422,140	21,321	5,470	448,931
F5	Damansara Road	Near Stadium	135,087	2,687	758	138,532
F8	FR - 1	Near Batu Caves	74,232	14,480	1,941	90,653
F1	KL - Seremban Expressway	Sungai Besi Toll Plaza	73,193	10,544	1,841	85,578
F11	FR - 1	Near Junction of FR-1 & B-52	73,536	7,208	1,371	82,115
F3	SR - B14	Near Junction of SR B11 and B14	69,715	5,643	1,830	77,188
F7	FR - 54	East of Sg Buloh	46,334	7,312	621	54,267
F6B	North Klang Valley Expressway	Bt Lanjan Interchange, Location B	39,242	5,552	227	45,021
F10	SR - B21	Near Junction of SR B-13 & B-16	38,566	5,020	1,139	44,725
F6A	North Klang Valley Expressway	Bt Lanjan Interchange, Location A	36,359	3,622	602	40,583
F12	SR - B13	Near Junction of SR B-13 & B-16	26,597	4,680	397	31,674
F6C	North Klang Valley Expressway	Bt Lanjan Interchange, Location A	25,495	5,269	452	31,216
F9	KL - Karak Highway	Gombak Toll Plaza	18,768	3,414	636	20,818
F2	SR - B11	Lombong Bijih Timah Kuchal	12,071	4,364	431	16,866
Sub-Total			1,089,335	101,116	17,716	1,208,167
Stations along Klang Valley Cordon Line						
12	KL - Seremban Expressway	South of Bangi Interchange	46,038	11,420	2,049	59,507
3	North - South Expressway	Near Ladang K Garing	15,547	4,017	848	20,412
16	FR - 5	Pandamaran	15,216	4,525	525	20,266
4	FR - 1	Near Bt. Rawang Jaya Housing	13,630	4,906	475	19,011
1	FR - 5	Near Kg Tambak Jawa	10,291	5,596	1,585	17,472
7	KL - Karak Highway	Border of Selangor	10,116	3,019	514	13,649
14	SR - B11	West of B11 & B13 Junction	6,640	3,369	38	10,047
2	FR - 54	Kg Merban Sempak	6,693	2,721	263	9,677
11	FR - 1	Beranang	6,841	1,935	632	9,378
13	SR - B18	Near KI - Seremban Expressway	5,239	1,566	356	7,161
16	SR - B23	Hulu Gombak	1,786	308	2	2,096
8	SR - B32	Genting Peres	519	225	2	746
Sub-Total			138,556	43,577	7,289	189,422
Other Stations						
17	FR - 2	Subang Jaya	110,926	16,588	3,215	130,729
F13	North Klang Valley Expressway	Jalan Duta Toll Plaza	67,571	7,503	1,256	76,335
10	FR - 1	Cheras	40,629	5,422	899	46,950
5	SR - B27	East of Rawang Interchange	18,323	6,955	372	25,650
15	SR - B11/16	Near Selangor Garden Center	11,866	6,930	17	18,813
9	SR - B62	Hulu Langat	3,462	785	18	4,265
Sub-Total			252,777	44,188	5,777	302,742
Grand Total			1,430,668	188,881	30,782	1,700,331

Note : FR - Federal Road
SR - State Road



Daily Traffic Volume At Survey Stations

Figure 1-2

THE KUALA LUMPUR OUTER RING ROAD PROJECT
 (Japan International Cooperation Agency)



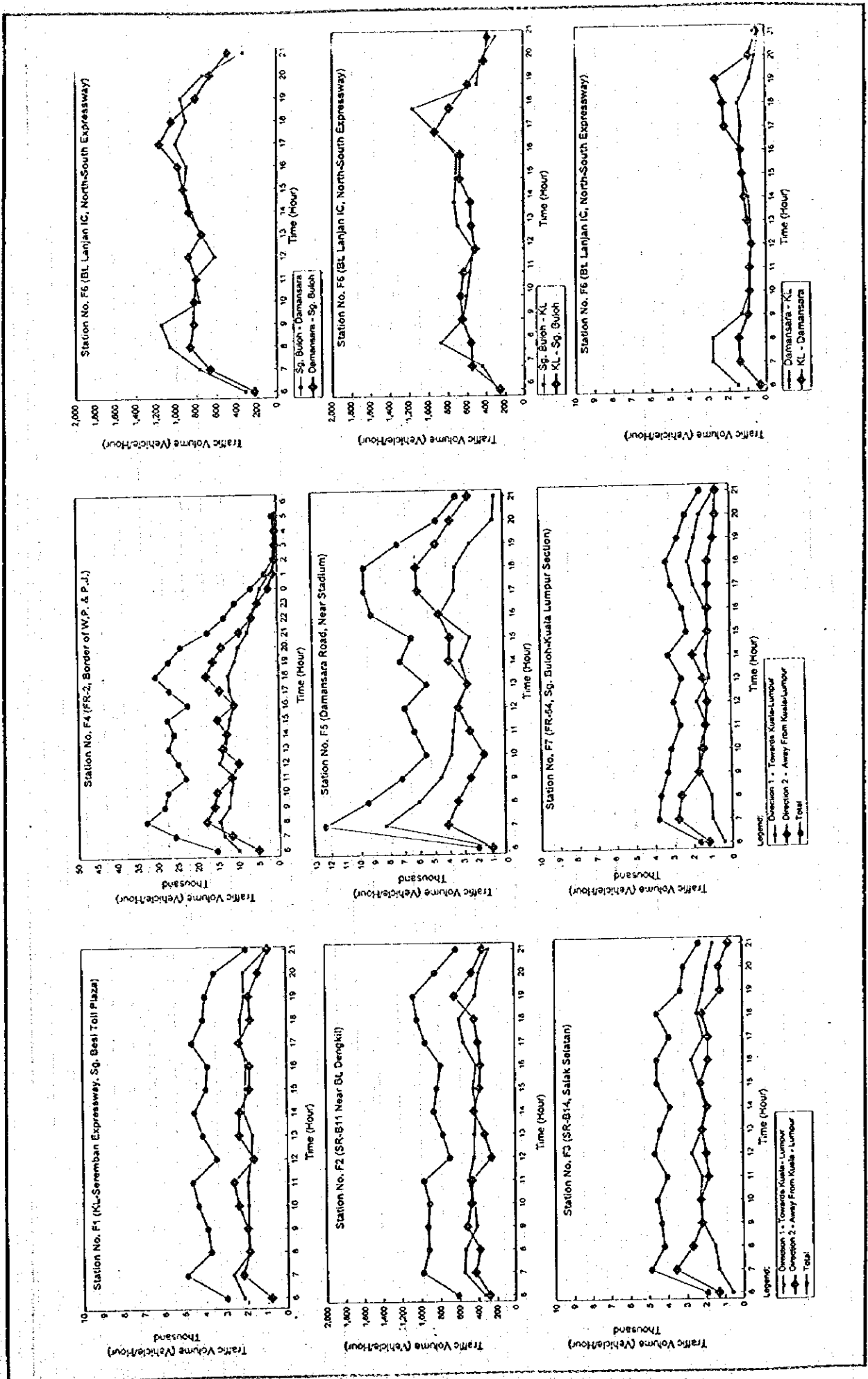


Figure 1-3 : Hourly Traffic Volumes at Survey Stations

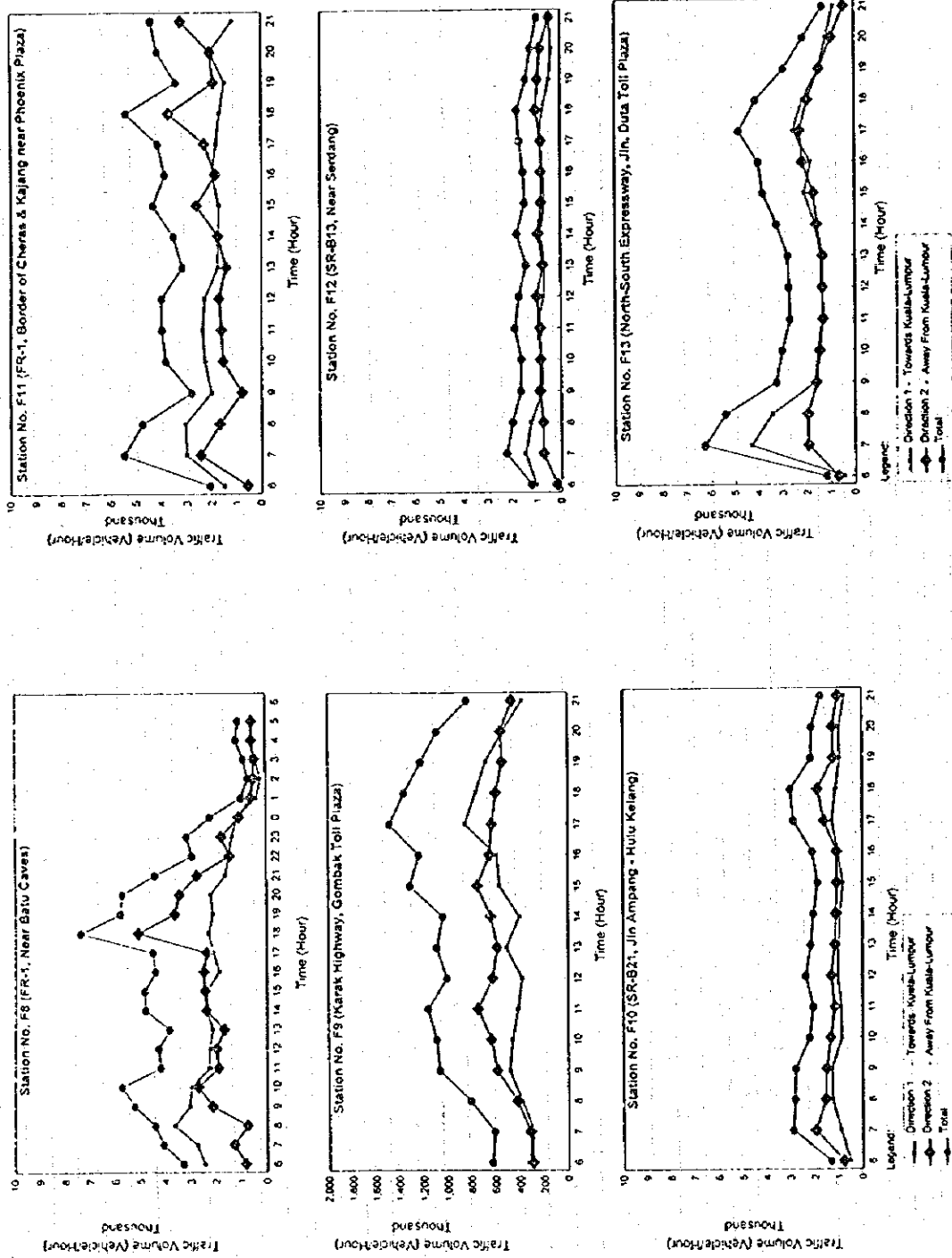


Figure 1-4 : Hourly Traffic Volumes at Survey Stations

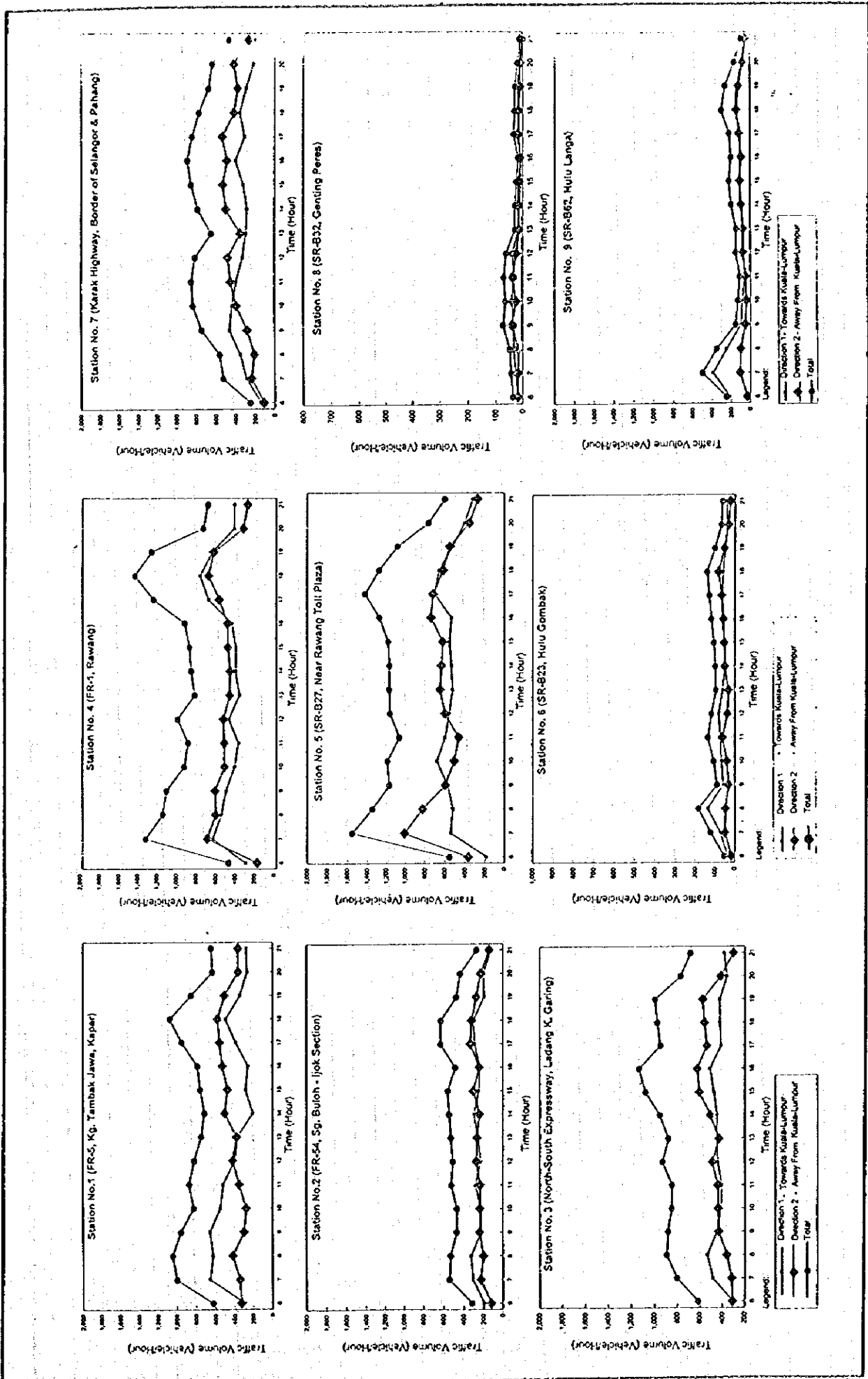


Figure 1-5 : Hourly Traffic Volumes at Survey Stations

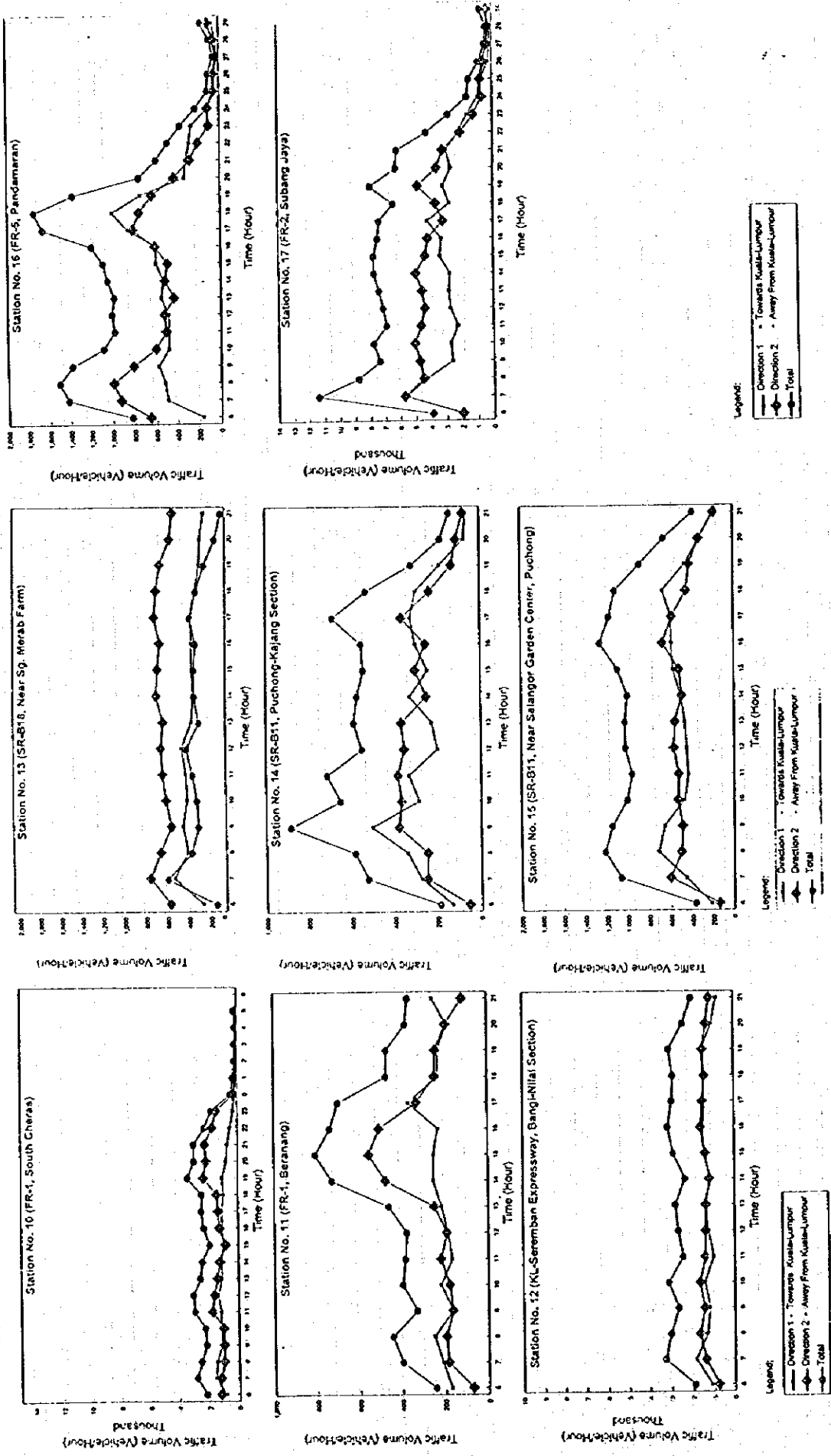


Figure 1-6 : Hourly Traffic Volumes at Survey Stations

1.6 ROADSIDE INTERVIEW SURVEY

1.6.1 Purpose

Roadside Interview Survey (RIS) is one of the origin-destination surveys which enables to collect necessary data for preparing origin-destination matrices and also provide other information about the vehicle trips. This survey was conducted at 10 stations. Traffic Count Survey was also conducted together with RIS. The locations of the survey stations were chosen in such a way that the vehicles moving in and out from the screen lines would be covered.

1.6.2 Selection of the Survey Stations

The survey stations were selected on the major important roads with higher traffic volumes on the cordon line of Kuala Lumpur and Klang Valley region. The locations of RIS stations are shown in the Figure 1-1.

1.6.3 Methodology

This survey was conducted for 16 hours from 6:00 A.M. to 10:00 P.M. The questionnaire form used for the interview of the driver contained various information such as vehicle type, form of ownership, origin, destination, trip purpose, commodity type, loading condition and capacity in case of lorry. A sample of questionnaire forms used in the survey are shown in Figure 1-3.

1.6.4 Result of RIS

After completion of the roadside interview of drivers, the origin and destination are coded according to the zone codes followed in this study. The zoning is done in consistency with the HNDP zoning. The data from RIS were expanded by each vehicle type on the basis of Traffic Count Survey data. The sampling rate of RIS at each survey station for the 3 vehicle groups are shown in Table 1-3.

Table 1-3 : Sampling Rate of the Roadside Interview Survey

Station No.	Manual Counting 24 Hrs Volume				No. Of Vehicles Interviewed				Sampling Rate of RIS (%)			
	P.Car	Lorry	Bus	Total	P.Car	Lorry	Bus	Total	P.Car	Lorry	Bus	Total
F1	73,193	10,544	1,841	85,578	1,875	1,546	162	3,583	2.6%	14.7%	8.8%	4.2%
F9	16,768	3,414	636	20,818	4,135	688	119	4,942	24.7%	20.2%	18.7%	23.7%
F13	67,571	7,508	1,256	76,335	2,391	1,190	218	3,799	3.5%	15.8%	17.4%	5.0%
2	6,693	2,721	263	9,677	1,724	812	41	2,577	25.8%	29.8%	15.6%	26.6%
4	13,630	4,906	475	19,011	1,985	740	46	2,771	14.6%	15.1%	9.7%	14.6%
5	18,323	6,955	372	25,650	2,649	934	42	3,625	14.5%	13.4%	11.3%	14.1%
9	3,462	785	18	4,265	1,889	240	2	2,131	54.6%	30.6%	11.1%	50.0%
10	40,629	5,422	899	46,950	3,894	651	31	4,576	9.6%	12.0%	3.4%	9.7%
15	11,666	6,930	17	18,813	2,514	1,289	1	3,804	21.2%	18.6%	5.9%	20.2%
16	15,216	4,525	525	20,266	3,136	592	56	3,784	20.6%	13.1%	10.7%	18.7%
											Average	18.7%

Origin-destination matrices were prepared for each of the 3 vehicle groups and total trips which are given in Technical Volume Chapter 4. The RIS data also being analyzed to find travel characteristics and various information on vehicle trips.

1.7 TRAVEL SPEED SURVEY

1.7.1 Purpose

Travel Speed Survey enables to determine the level of service of the road by knowing the average travel speed of passenger car. A test car method was adopted in this Study to carry out Travel Speed Survey on 10 routes which include expressway, federal roads, state roads and urban roads. Start point, end point and various check points in between were set along each route and the distances for all such points were measured by odometer and noted.

1.7.2 Selection of the Survey Routes

The survey was conducted on the expressway, highway, federal road and urban roads which are subjected to high traffic volume.

1.7.3 Methodology

The survey was conducted by the floating car method in which a driver drives the test car in an average speed of the main stream traffic. This survey was conducted for 3 time periods morning peak, off peak and evening peak. One car from the start point and another car from the end point were started simultaneously to travel to the opposite end point in a speed to maintain the flow with the main stream traffic. The travel time for every check point and delays were recorded on record sheet.

1.7.4 Result of the Travel Speed Survey

The data from the survey were analyzed and the average speed for each section between two check points for the entire route were calculated. Average travel speed for each survey route for the morning peak, off peak and evening peak are given in Table 1-4. The average travel speed for each route and the sections between check point are shown in Figure 1-3.

Table 1-4 : Summary of Travel Speed Survey

Route No	Name	Start Point	End Point	Average Speed (Km/Hr)		
				MP	OP	EP
1	North South Expressway	Jalan Duta Toll Plaza	Rawang Toll Plaza	79.1	80.8	77.3
		Rawang Toll Plaza	Jalan Duta Toll Plaza	81.7	82.6	74.6
2	Federal Road 1	Bank Negara	Rawang	55.1	57.4	52.7
		Rawang	Bank Negara	43.0	57.6	54.0
3	KL - Karak Highway	Jalan Sultan Ismail	Gombak/Bentong Border	51.4	50.0	45.7
		Gombak/Bentong Border	Jalan Sultan Ismail	49.1	50.6	44.6
4	MRR II	Jalan Ampang	BatuCaves	35.6	38.6	34.7
		BatuCaves	Jalan Ampang	38.5	40.0	29.1
5	Jalan Ampang	Jalan Sultan Ismail	Jalan Bukit Belachan	15.3	26.8	18.8
		Jalan Bukit Belachan	Jalan Sultan Ismail	19.0	23.4	15.5
6	Bank Negara - Puchong (Jln Klang & State Road BII)	Bank Negara	Puchong Batu Dua Belas	22.6	36.4	23.0
		Puchong Batu Dua Belas	Bank Negara	24.0	32.4	36.7
7	Puchong - Kajang (State Road B II)	Puchong	Kajang	61.4	69.6	60.7
		Kajang	Puchong	68.6	69.9	62.3
8	KL - Seremban Expressway	Bank Negara	Kajang	47.4	47.5	42.7
		Kajang	Bank Negara	33.2	58.6	39.4
9	Federal Road 1	Bank Negara	Kajang	46.5	41.0	28.1
		Kajang	Bank Negara	30.3	41.4	38.9
10	State Road B52 & B62	Cheras	Ampang	48.2	48.9	46.5
		Ampang	Cheras	47.9	47.3	48.2

Note :- MP - Morning Peak Period
 OP - Off Peak Period
 EP - Evening Peak Period

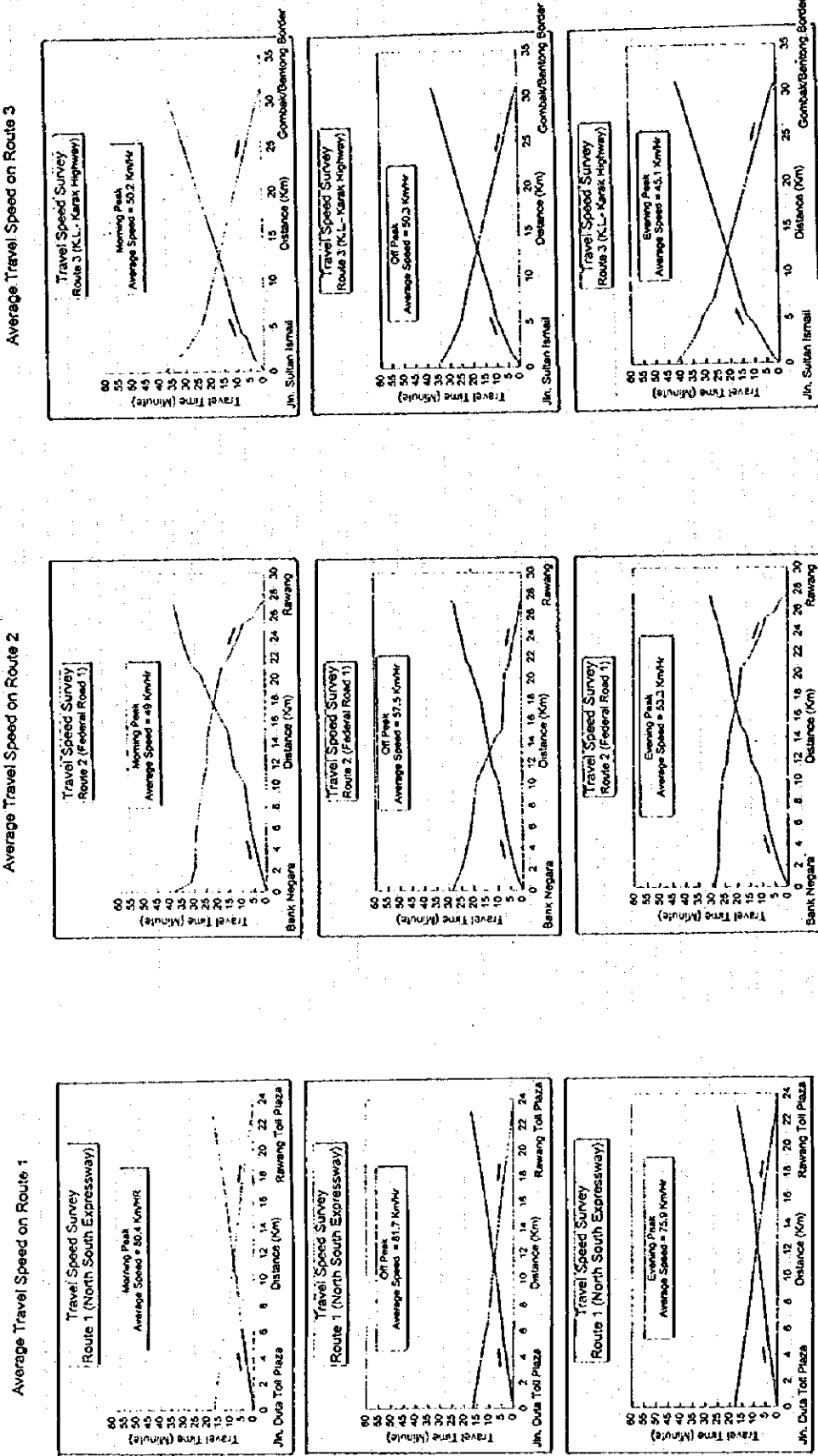
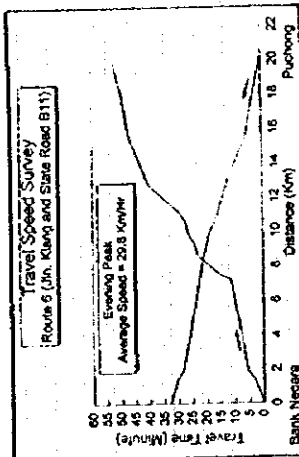
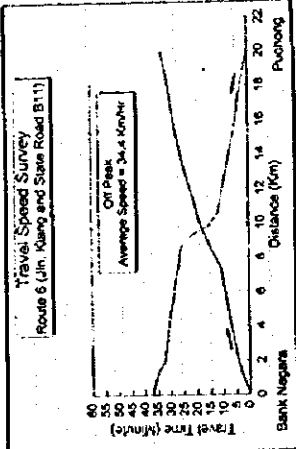
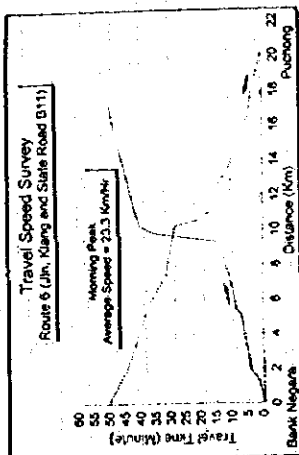
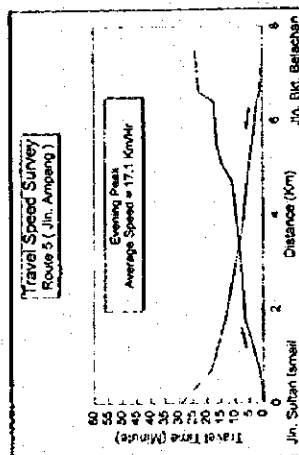
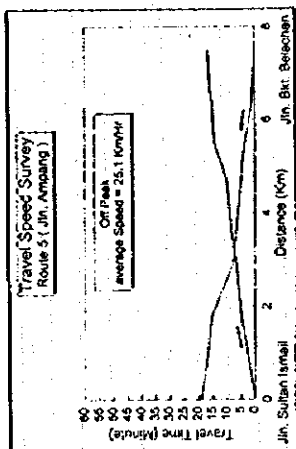
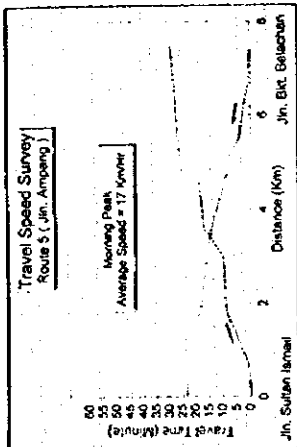


Figure 1-8 : Result of Travel Speed Survey for Each Route and Sections

Average Travel Speed on Route 6



Average Travel Speed on Route 5



Average Travel Speed on Route 4

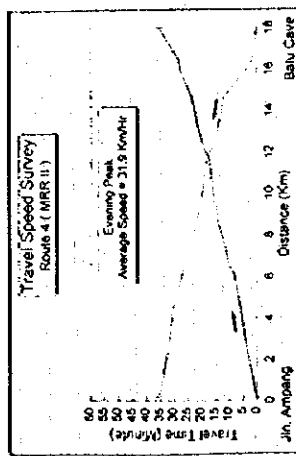
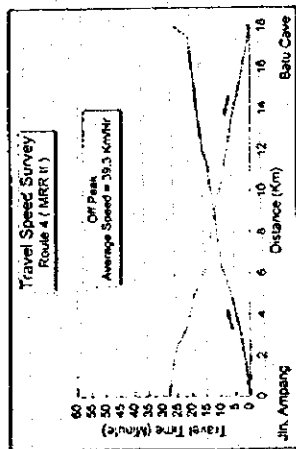
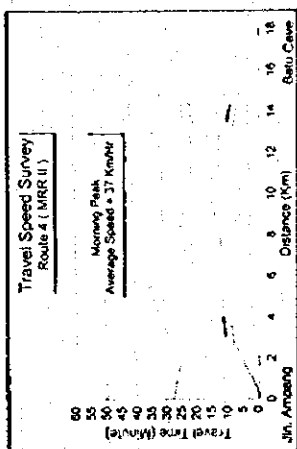
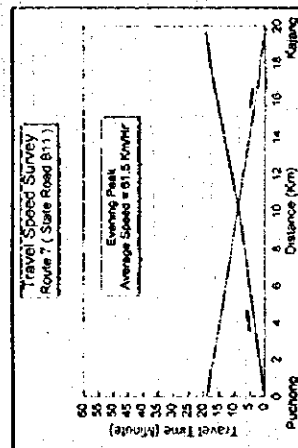
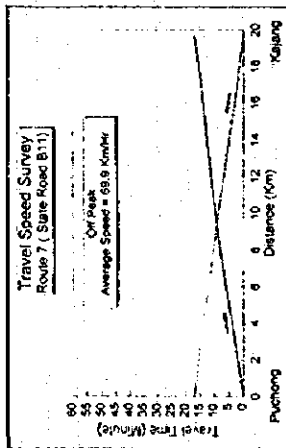
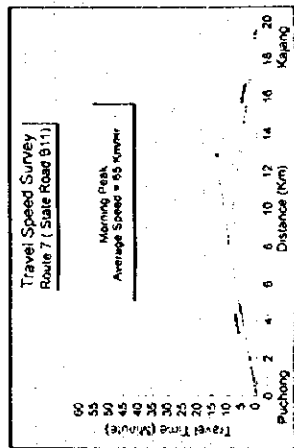


Figure 1-9 : Result of Travel Speed Survey for Each Route and Sections

Average Travel Speed On Route 7



Average Travel Speed on Route 8

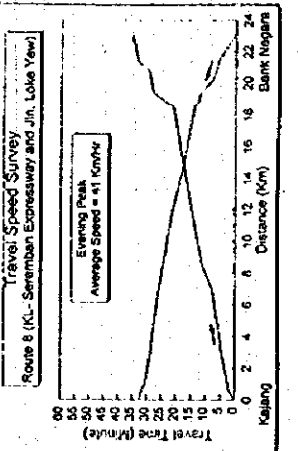
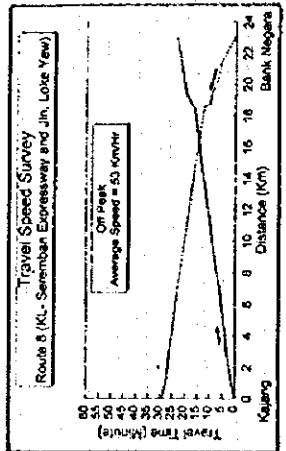
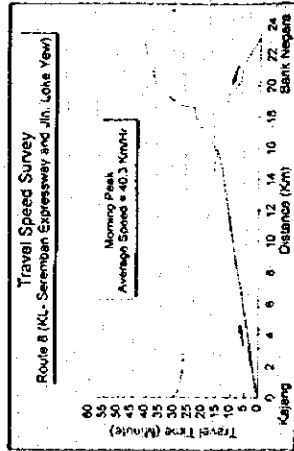
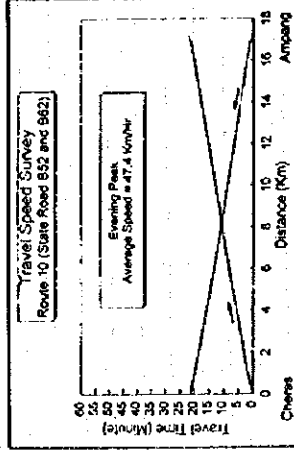
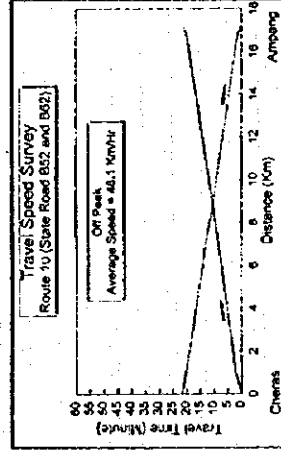
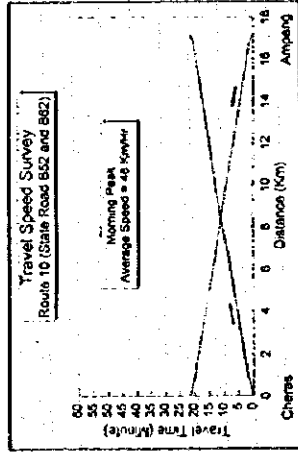


Figure 1-10 : Result of Travel Speed Survey for Each Route and Section

Average Travel Speed on Route 10



Average Travel Speed on Route 9

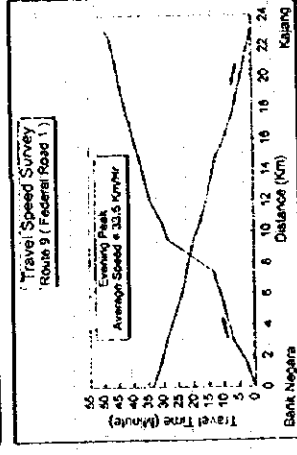
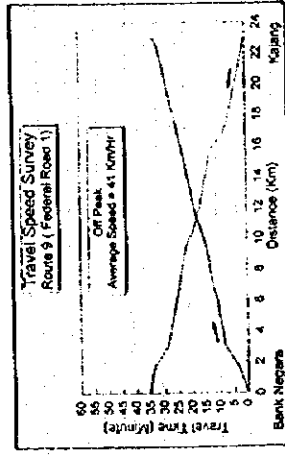
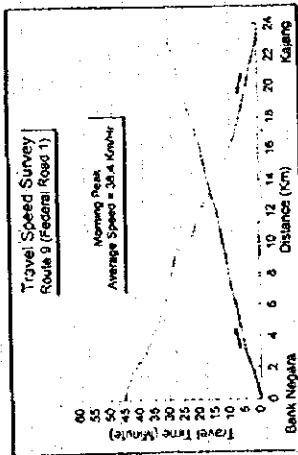


Figure 1-11 : Result of Travel Speed Survey for Each Route and Sections

Technical Volume

Chapter 2

SOCIO-ECONOMIC STUDY

CHAPTER 2 SOCIO - ECONOMIC STUDY

2.1 Review of Development Plans

Prior to making a forecast of socio-economic indicators, it is imperative to review the current policies that have an effect on the Study Area.

Result of discussion in this Clause provide necessity for clarifying the Study Team's Socio-Economic Development Philosophy / Concept in the Study Area which will be presented in the coming Clause, and are utilized to forecast the Indicators by Mukim until the year 2020.

Among the plans/ policies reviewed are:-

A. National Plans

- 1) National Development Policy (NDP)
- 2) Second Outline Perspective Plan (OPP2)
- 3) Sixth Malaysia Plan
- 4) Mid Term Review of the Sixth Plan
- 5) National Urbanization Strategies-Economic Perspective - policy paper
- 6) Functional Urban Hierarchy for National Development - policy paper

B. State Level Plans

- 7) Selangor State Development Strategy - policy paper
- 8) Selangor State Industrial Action Plan
- 9) Klang Valley Perspective Plan (Review) 1988
- 10) Kuala Lumpur Draft Structure Plan
- 11) The expansion and growth in the Federal Territory : A Master Plan for Kuala Lumpur Development in the next century

C. District Level Plans

- 12) Bangi Draft Structure Plan
- 13) Draft Klang Structure Plan
- 14) Draft Structure Plan for Petaling and Part of Klang
- 15) Structure Plan for Kuala Langat/ Sepang (Report of Survey)
- 16) Bentong Structure Plan (Report of Survey)
- 17) Balang Padang District Development Plan

D. Project Level Plans

- 18) Kuala Lumpur International Airport
- 19) Putra Jaya Master Plan

The socio-economic development plans mentioned above were prepared at different time frames and as such it is difficult to establish an objective basis for comparison.

Some of the district level plan, such as the Structure Plan for Kuala Lumpur, Bangi, Klang, were prepared in the early eighties and need review.

Accurate base line figures are also a problem with several of the plans. Plans that coincided with the availability of census data had the advantage of accurate base line data, as compared to plans that were prepared during the inter census period, which had to make use of estimates for base line values.

The non-availability of comprehensive information, particularly on economic indicators such as employment and GDP at the local levels, was also a serious constraint to planning. Hence, while economic data was generally good at national and state levels, they were grossly inadequate at local levels. This naturally puts the sector projection and target of the local level plans into question.

The absence of a Comprehensive Development Plan for Selangor also makes it difficult to establish sectoral target distribution by district. As such, each structure/ district development plan tends to have an independent development target.

Inconsistencies between development goal and objectives of the plans is also another problem. While National Plans call for balanced regional development, economic forces tend to concentrate development in the growth centers along the West Coast. It was only in the mid term review of the 6th Malaysian Plan that growing disparities between developed and undeveloped states was actually recognized.

Vision 2020, which was formulated in 1990, will be used as a basis for the formulation of future strategies till 2020. The OPP2 and NDP are applicable for this decade (1990-2000) which will comprise both the 6th and 7th Malaysian Plan.

The Selangor State Development Strategy will apply for the period of 1995-2005, when the State is expected to achieve developed status. The Klang Valley Perspective Plan (Review) will also end by year 2000. There is, therefore, a dire need to prepare a Strategic Development Plan for the whole of Selangor.

Most of the Structure Plans are prepared over a period of 15-20 years. The earlier plans prepared in the 80's will end by 2005, while the more recent plans will apply till 2010. There are very few for development plans leading to 2020.

The major points which are useful in the evaluation of the development trend in the Study Area are summarized below.

(i) Vision 2020 :

Vision 2020 was set as a political target to achieve developed nation status by 2020. The concept of development is taken in its totality to include economic, social, moral and spiritual spheres. This long term vision is translated into 10 year National Development Policies which are in the 5 year Malaysian Plans. While no quantitative targets are spell out in Vision 2020, the Study Team will set its own parameters for establishing quantitative targets for the Study Area.

(ii) The National Development Policy and the OPP2 (1991-2000)

Both the NDP and the Outline Perspective Plan are based upon the premise of Vision 2020. The NDP is a sequel to the New Economic Policy, which embodies the development principle of "GROWTH WITH EQUITY". This principle will be applied over the 10 year time frame : 1991-2000.

This policy generally stresses the expansion of the economy, while pursuing the

equity objectives of restructuring society and eradicating hard core poverty.

The economy is targeted to grow at 7% p.a. with manufacturing to spearhead the growth at 10.5% p.a. From the context of regional development, OPP2 recognizes that developed states will continue to benefit more than less developed states as Selangor and Penang will grow much faster than the national average.

(iii) Sixth Malaysian Plan (1991-1995) and Prognosis of the 7th Plan :

The Sixth Plan is a Growth Plan seizing on the opportunities offered in the post recession period. The Government recognized the need to improve efficiency and the competitiveness of the economy by encouraging private sector participation. Two unique aspects of this plan were :

- (a) Develop industrial specialization by location
- (b) Formulate a National Urbanization Policy

The Industrial Estate Master Plan Study was completed during this period and positive attempts have been made to formulate A National Spatial Plan and National Urbanization Policy. The current Urbanization Level (1991) was 51%, and it is expected to reach 70% by 2020.

The growth Strategies adopted in the Sixth plan led to a GDP growth of 8.1% (1991-1993), which was much higher than planned. The ensuing problems related to rapid growth were inflationary pressure, infrastructure bottleneck, labour shortages and increasing disparities between developed and undeveloped states.

As a counter-active measure ensuring regional balance, the mid term review proposed

- 1) The East-West Road linkage between Perak and Terengganu
- 2) Establishment of the Kuantan-Port Klang Industrial Corridor

Effective strategies towards these proposals are still on the drawing board. It is recognized however, that one of the prerequisites of an Industrial Corridor is the availability of effective and fast transportation linkage. There is currently a proposal to build a new Expressway linking Kuala Lumpur to Kuantan.

A plan for an Industrial Corridor in the East Coast may be premature, but may capture the growth impulses of Pacific Rim Countries.

It is likely that growth strategies of the Sixth Plan and privatization policies will be continued in the 7th plan. It is also believed that the growth will lead to increasing polarization to the west coast states.

(iv) Development Strategy for Selangor

Selangor has embarked on an ambitious plan of becoming a developed state by 2005. The population is targeted to increase to 3.25 million by 2000 and 3.86 million by 2005.

GDP/capita is expected to increase from RM9,000 to RM18,000 (2000) and RM26,000 (2005) (1990 prices). This is to be achieved by establishing a functional hierarchy of towns, improvement of the physical infrastructure, conservation of

natural resources and development outside the Klang Valley. The principal growth sector is expected to be manufacturing.

The policy to encourage development outside the Klang Valley is consistent with the recommendations of the Klang Valley Perspective Plan (Review) 1988.

Some of the major projects identified in this strategy include :-

- 1) The KLIA in Sepang
- 2) West Port in Pulau Indah
- 3) South Klang Valley Expressway
- 4) Putra Jaya Development at Perang Besar
- 5) Airport City at Salak Tinggi
- 6) New Port at Pulau Carey
- 7) Marine Port at Kapar

Other major projects identified in Ulu Selangor include :

- 1) PKNS Industrial Estate (500 acres)
- 2) Furniture Complex at Ulu Yam
- 3) Housing Development at Lembah Beringin (6,000 acres)
- 4) Bukit Beruntung New Town (4,000 acres)
- 5) Felda Sungai Buaya (3,000 acres)
- 6) Second National Car Project Site (1,600 acres)

Development Projects identified in Gombak are :

- 1) International Islamic University
- 2) New Prison
- 3) Selayang New Town
- 4) LRT Phase I and II
- 4) Electric Rail Line

With the increasing cost of development in the Klang Valley, it is an opportune time to spread development to the surrounding districts. However, the main prerequisite will be building up the necessary infrastructure in anticipation of this growth.

(v) Previous Strategic Plans at Regional Level

A series of strategic plans were prepared at the regional level.

These include :

- 1) Klang Valley Perspective Plan (1984)
- 2) Klang Valley Perspective Plan Review (1988)
- 3) Selangor Industrial Action Plan (1988)

All these plans were prepared without the availability of the 1991 Census Data.

The Klang Valley Perspective Plan (1984) identified 5 major growth centers in Selangor outside Kuala Lumpur. These included :

- 1) Klang

- 2) Shah Alam
- 3) Petaling Jaya
- 4) Selayang New Town
- 5) Bangi New Town

The Perspective Plan Review of 1988 observed that while the growth performance of the established centers like Petaling Jaya and Klang were commendable, the growth of the New Towns was dismal. Hence the objective of the Review of 1988 was to promote the development of Shah Alam, Bangi and Selayang as self contained townships.

Except for the population target set in the Kuala Lumpur Structure Plan, the review also downgraded the forecast for all centers. For example, Kuang was reduced from 60,000 to 2721 by 2000. Consequently, the population target for the Klang Valley in 2000 was reduced from 4.76 million to 4.45 million.

Notwithstanding the downgrading of targets the original strategy still applies. However, centers which will require further growth incentives are Bandar Baru Selayang, Kuang, Bangi and Semenyih.

It is, however, believed that many of these centers will benefit from the completion of the North-South expressway, the continued spillover from Kuala Lumpur and the developments within the KLIA Region.

Another variation are the urban development strategy in the Klang Valley is the likelihood of Ampang become a major growth center. Pressure for this proposal would arise with the creation of the new Municipality for Ampang Jaya.

The Selangor State Industrial Action Plan was done in the late eighties, during the period of the recession. The focus of development strategies was to concentrate industrial development in the Klang Valley for the short term. The long term strategy, however, was to spread industrial development along transportation axis to:

- 1) Gombak - Balang Kali (Hulu Selangor)
- 2) Klang - Kuala Selangor
- 3) Kuala Langat - Sepang

These trends are now being observed. With the completion of the North-South Expressway, there is pressure to develop industrial land in Gombak and Hulu Selangor. The Kuala Langat - Sepang corridor is also strategized in the Structure Plans. The coastal industrial corridor (Klang - Kuala Selangor) will require the completion of the Coastal Highway.

(vi) Review of existing Structure Plans/District Development Plans

A number of Structure and District Development Plans were reviewed :

- 1) Kuala Lumpur Structure Plan (1980)
- 2) Bangi Structure Plan (1985)
- 3) Klang Structure Plan (1985)
- 4) Petaling District Structure Plan (1990)
- 5) Kuala Langat - Putra Jaya - Sepang Structure Plan (Report of Survey) 1995
- 6) Bentong Structure Plan (Report of Survey) 1994
- 7) Batang Padang District Development Plan (1993)

The Kuala Lumpur Structure Plan, prepared in 1980, made use of estimate figures as the census figure were not available. The Bangi, Klang and Petaling Structure Plan Studies had to make use of 1980 census as base line figures. Only the later plans such as the Kuala Langat, Bentong and Balang Padang studies had the advantage of using the 1991 Preliminary Count.

Under the circumstances, one can expect several of the targets to be off the mark. For example, the Structure Plan Study of Petaling estimates the base line population (1991) to be 810,000 for the Study Area, whereas the actual population was only 630,000. Similarly with Kuala Lumpur, where the base line figures were higher than actual numbers. While the Kuala Lumpur Structure Plan has advocated the concentrated dispersal strategy to the four new Growth Centers of Damansara, Wangsa Maju, Bandar Tun Razak and Bukit Jalil, the expected take off is yet to be realized. It is believed that concerted efforts are now being taken to develop these growth centers during the remaining plan period.

With the shift of air transportation to Sepang and administrative functions to Putra Jaya, City Hall has embarked on a policy to transform Kuala Lumpur to an international convention, business and trade center. With most of the land in Kuala Lumpur already developed, we expect the rate of population growth to reduce significantly after year 2000.

The Bangi Structure Plan, prepared in 1984, only covers the mukim of Kajang, Semenyih and Beranang in Hulu Langat. The Bangi - Kajang urbanized area was projected to reach 125,000 by 1990 and 180,400 by 2000. However, the total population in the mukim of Kajang in 1991 was only 107,941. Notwithstanding, it is believed that the target could be achieved with the growth impetus from Putra Jaya. From the strategic point of view, the spacial strategies as applied in the Structure Plan will be adopted with amendments to the conceptual alignment of the South Klang Valley Expressway. There was of course no provision in the Structure Plan for the Kuala Lumpur Outer Ring Road. It is necessary that the corridor is established as soon as possible. One option is to use the proposed Bangi-Semenyih link identified in the Structure Plan.

The Klang Structure Plan Study of 1984 covered the mukims of Klang and Kapar. The targets recommended in the Structure Plan are feasible. The population target for 1990 was 416,000, whereas the actual census for 1991 was 406,832. The targets for 2020 are 576,000 and 677,000 by 2005.

The spatial development strategy will also be adopted with the added provision to link the Shah Alam Expressway with the South Klang Valley Expressway.

The Petaling Structure Plan of 1990 did not have the advantage of the 1991 census figures. As such, the base line population for 1990 was much higher than actual figures. The spatial strategy has identified Shah Alam as the State Capital and Kelana Jaya and PJ as subregional centers with three new district centers at Sungai Buluh, Bandar USJ and Subang Jaya. New areas for housing development have been identified in the mukims of Sungai Buluh and Petaling. The proposed Shah Alam Expressway is also expected to open up housing land in the mukim of Klang.

The Kuala Langat - Sepang Structure Plans of 1995 had the advantage of using the census figures of 1991. The district of Sepang is expected to grow at an unprecedented rate of 12.1% between 1991-2010. The population is expected to increase from 184,349 in 1991 to 676,526 in 2010. The massive projects in the district will include the KLIA, Putra Jaya and Airport City at Salak Tinggi.

While the objective of the Structure Plan is to have a balanced integrated development of Sepang and Kuala Langat, the latter is expected to grow at only 2.1 % between 1991-2020. The spatial strategy, however, provides the following development focus for the district. Banting, Batu Laut and Telok Merbau will be developed as subregional centers. The main industrial focus will be in the Banting - Telok Panglima Garang Area. Batu Laut will be developed as a Port to complement Pulau Indah/Lumut, while Telok Merbau will be the focus of Hi-Tech Industries. The District Center will also be shifted from Banting to Pulau Carey. The sectoral target for Sepang will be adopted by the group, while those for Kuala Langat may need to be reviewed. The group will also adopt the spatial strategy as recommended in the study.

The Bentong Structure Plan was prepared in 1994. The population is expected to grow at a relatively rapid rate of 4.2% between 1991-2010 from 84,047 (1991) to 186,340 (2010). Contrary to the target, the recommended strategy is to allow development to follow the existing trend. Bentong, however, is expected to benefit from the industrial spillover from Kuala Lumpur, the completion of the second tunnel to Karak and the planned development of the Kuantan - Kuala Lumpur Expressway. This will bring tangible benefits to Bentong. One of the significant strategies that may have an impact on the KLORR Study is the recommendation to link Ulu Langat to Karak and Janda Baik as an alternative to the Karak Expressway. This proposal will be reviewed by the Study Team.

The Batang Padang District Development Plan recommends a low growth of 1.5% between 1991-2000 from 156,514 (1991) to 178,506 (2000). Industrial development is mainly focused in Tanjung Malim (Ulu Bernam Timur), Tapah - Bidor Stretch (Batang Padang - Bidor) and at Chenderiang. The Study Team will adopt the spatial strategy as recommended in the Study and will review the impact of the proposed Bukit Fraser -Cameron Highlands road to the Study Area.

(vii) Other Districts within the Study Area

Development plans are being prepared for the following districts:-

- 1) Kuala Selangor
- 2) Sabak Bernam
- 3) Hulu Selangor
- 4) Gombak
- 5) Hulu Langat
- 6) Seremban

The Kuala Selangor Structure Plan Study and the Bernam Valley Study, which will include Sabak Bernam and Hulu Selangor, has just been commissioned. The Seremban District Structure Plan has also just started. District Development Plans were prepared by the Klang Valley Planning Secretariat for Gombak and Hulu Langat. Basically, these plans conform to the Klang Valley Perspective Plan Review of 1988. The principal projects identified in this area in the Selangor State Development Strategy will be incorporated into the Groups Development Strategy Framework. This structure plan for Hulu Langat, Gombak and Ampang Jaya is currently being prepared. As for Seremban, the strategies identified in KLIA Master Plan Report will be incorporated.

2.2 Requirements for Establishing the Socio-Economic Development Plan in the Study Area and Ways of the Requirements within the Study Area

Nine (9) requirements for Establishing in the Socio-Economic Development Plan in the Study Area are induced from forecast and analysis on:

- Future Environment for Existence of Human -being,
- World wide Socio-Economic Situations until around 2050's,
- Roles of the Study Area (Selangor State and KL) for Attaining the Malaysia Development Goal, and
- Evaluation on Present and Future Situation of Balance between the Socio-Economic Development and Natural Resources in the Study Area.

The above mentioned forecast and analysis have been drafted, but unfortunately not printed in the Technical Report.

The requirements as well as the National Economic Development Strategies/Policies are reflected in the Socio-Economic Development Plan in the Study Area and Distribution and Allocation of the Socio-Economic Activities within the Study Area.

2.2.1 Ways of Reflection of the Requirements in the Socio-Economic Framework

A. As to the policy/strategy on the Development

The Requirement A1 represents the policy/strategy on the Development, and it is indirectly reflected in the Macro Socio-Economic Framework. Concrete contents of the policy/strategy will be presented as the Development Conditions, and Functions and Facilities to be enhanced which will be described hereinafter. The Requirement A1 is :

Requirement A 1:

Social and Economy, especially Economy, in the Area Should be developed so as to keep the existing Balance in Value Judgement of the Malaysia among the Region in the country as much and long as possible.

B. As to the future economic growth rate in the Study Area

The Requirement C3 is directly reflected in the Framework, The Requirement C3 is :

Requirement C3 :

Economy in the Area has to be planned to grow just as a rate which the Nation requires to the Area.

C. As to the upper limitation on the scale of the Socio-Economic development.

The Requirement C1 is supposed to be indirectly reflected in the Framework through the SCEC in the Area can not be numeral. The requirement C1 is:

Requirement C1 :

Scale of the Economy Development in the Area has to be under, but is recommended to utilize up to, the Annual Supplement/Re-Production Capacity o Natural Resources of the local Ecology Cycle (SCEC) in the Area.

D. As to the function and facilities to be enhanced in the Study Area.

The requirement B is reflected in the Framework in the following ways;

- (1) Reflected directly by taking positively into account enhancement of production functions of Manufacturing Industries and Agriculture in the Framework and the three (3) National Projects (Putra Jaya KLIA, PERODUA)
- (2) Reflected indirectly by taking implicitly into consideration enhancement of function and facilities of//for Foreign Affairs, Science and Technology and Recreation. The requirement B is :

Requirement B :

The Following Function and Facilities have to be enhanced in future in the Area:

- i) Production Function, especially Industries and Agriculture,
- ii) Functions and Facilities of in the National Policies
- iii) Functions and Facilities of//for Foreign Affairs,
- iv) Facilities for Science and Technology Developments, and
- v) Recreation Facilities.

2.2.2 Ways of the reflection of the Requirements in the Distribution and Allocation of Socio-Economic Activities within the Study Area.

The following Requirement relate to the distribution and allocation of the Socio-Economic Activities within the Study Area. The distribution and allocation are realized through :

- Realization of the (3) National Projects,
 - Carrying Capacities of GDP's of Agriculture and Manufacturing Industries, and Population by Mukim, and
 - Way of Distribution and Allocation of overflowed portion of the GDP's and Population to/from Origin and Destination Mukim concerned.
- A. Requirements which are reflected in the realization of the National Projects. A part of the Requirement B-I) in directly reflected in KLIA and PERODUA Projects. The Requirement B-ii) is fully and directly reflected in Putra Jaya Projects.
- B. Requirements which are reflected in the estimation of the Carrying Capacities.

The following Requirements are classified in to the following cases which are different depending on the objects of the Distribution and Allocations, ways of the reflection of the Requirements (directly or indirectly) and degree of application of the Requirements as criteria for evaluation on the estimates.

Case B-1: The following Requirements are reflected as one of Criteria for estimation of Carrying Capacities of the GDP's of Agriculture and Manufacturing Industries and Population by Mukim. The Criterion is that it is better, the smaller the gaps in the estimates carrying Capacities become among Mukim concerned, if the estimated satisfy other condition. Unfortunately, the criterion are not numeral.

Requirement A-1 and Requirements A2 the Requirements A2 is :

Requirements A2 :

Society and Economy in the Area should be developed so as to avoid burden on the Natural Environment in the Area as much as possible.

Case B-2 : Basically as same as the Case B-1. However degree of application of the following Requirements as the criterion for the estimates is higher than the one in the Case B-1.

Requirements A4 :

Economic and Social Activities in the Area should be scattered as widely as possible, but to the extent that efficiency of the Activities is not damaged as deeply, so as that a rough closed System of the Activities can be kept with an area with width of the existing one or two Districts.

Case B-3: Basically as same as the Case B-1. However, this refers to only the Carrying Capacities of the GDP of Manufacturing Industries by Mukim and the degree of application of the following Requirements is as higher as the one in the Case B-2.

Requirements A5 :

Industries have better to be spread/distributed as widely as possible in the Area. However, the following factors must be taken into account in the distribution :

- i) Advantage of raising raw material by District and Mukim,
- ii) Economy of Scale of the Industries concerned, and
- iii) Whole Industrial Structure.

Case B-4 : Basically as same as the Case B-1. However, this case refers to only the carrying Capacities of the Population by Mukim and the degree of application of the following Requirements is as high as the one in the Case B-2.

Requirements A3 :

Population has better to be spread as widely as possible so as to keep the Population Density as uniform as possible within the Area.

Case B-5 : The following Requirements is numeral and adopted as one of explanatory variables of the carrying Capacities of the Population by Mukim (See Appendix VII-7).

Requirements C2 :

The "Green" should be maintained as much as and uniformly as possible within the Area.

C. Requirements which are reflected in the distribution and allocation of the Overflowed Portion from/to the Original and Destination Mukim.

Case C-1 : The following Requirements are reflected as one of Criteria for the Distribution and Allocation of the Overflowed GDP's of Agriculture and Manufacturing Industries and Population by Mukim. The Criterion is that it si better the relatively small the gaps in the GDP's and Population after the Distribution and Allocation become compared with the corresponding carrying Capacities, among Mukim concerned, if they satisfy other conditions. Unfortunately, the criterion are not numeral.

Requirements A1 and Requirements A2.

Case C-2 : Basically as same as the Case C-1. However, degree of application of the following Requirements as the Criterion is higher than the one in the Case C-1.

Requirements A4.

Case C-3 : Basically as same as the Case C-1. However this case refers to only the Distribution and Allocation of the Overflowed GDP's of Manufacturing Industries by Mukim, and the degree of application of the following Requirements is as higher as the one in the Case C-2.

Requirements A5.

Case C-4 : Basically as same as the Case C-1. However, the case refers to only the Distribution and Allocation of the Overflowed Population and the degree of application of the following Requirements is higher as the one in case C-2.

Requirements A3.

2.3 EXAMINATION OF MACRO-SOCIO ECONOMIC FRAMEWORK

2.3.1 Forecast of Socio-Economic Framework of Selangor State and Kuala Lumpur

2.3.1.1 The Forecasting Process of the Framework

The Forecasting process of the GDP and Employment on Working Place Basis by industry of origin and by state, and population, labour forces and employment on Residential Place Basis of Selangor State and Kuala Lumpur is depicted in Figure B-1. The following explanation is added to the main points of the forecasting process:

From the requirements of the Socio-Economic Development Plan and the National Economic Development Plan, Growth Rates of total GDP to be attained until the year 2020 and the Industries to be enhanced by State are Induced. When the Growth Rates of GDP by Industry and by State are forecasted, they are directly forecasted by referring to their past elasticity to the total GDP, on conditions that the summed-up total is equal to one which is forecasted using the given Growth Rates of total the GDP.

Completion of the "Putra Jaya" Project will effect on distribution of GDP and Employment on Working Place Basis of the Services Industry between the two States. The Project will also affect other industries as well, such as the service industry. However, there is no data/information for estimating the effects, which result in neglect of this analysis.

The future total Population by State will be affected not only by future economic activities but also by other factors in the State. Those caused by the latter factors can not be estimated, due to lack of related fundamental data and difficulty of estimation. Accordingly, only the parts caused by the former factor, i.e. the future economic activities of the States, is taken into consideration.

Employment on Working Place Basis by Industry are forecasted using the Employment by Industry in 1995 and changing rates of Industry in the future. The changing rates of industry are calculated based in the corresponding Growth Rate of GDP and Improvement Rate of Labour Productivity of the Industry concerned.

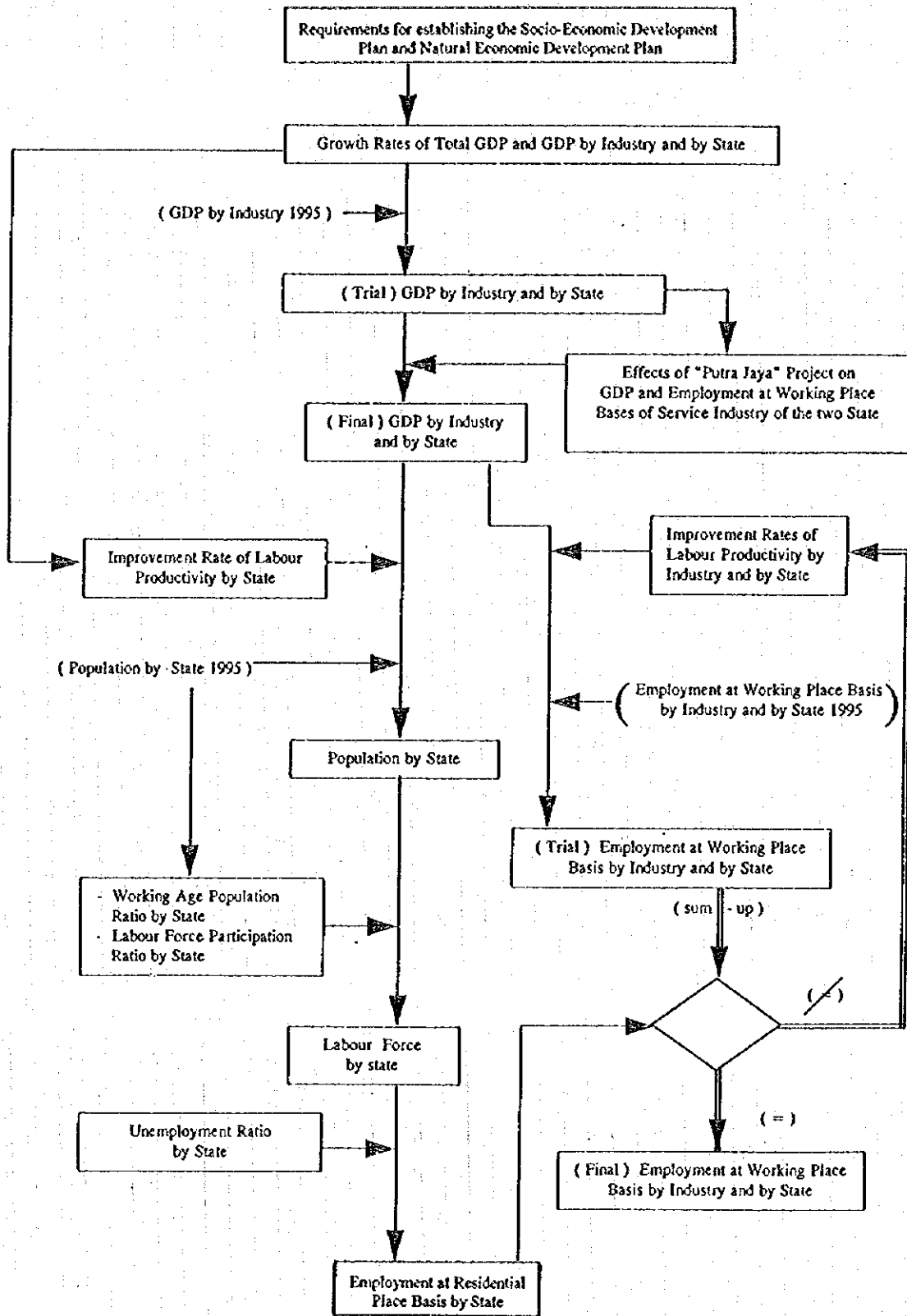


Figure 2-1 : Forecasting Process of GDP and Employment on Working Place Basis by Industry and by State and Population, Labour Force and Employment on Residential Place Basis of Selangor State and Kuala Lumpur

2.3.1.2 Forecasts of the Socio-Economic Framework of Selangor State and Kuala Lumpur until the year 2020.

Two (2) sets of forecast of the GDP, Employment at Working Place Basis and Population at State level which are made in compliance with the forecasting process shown in the previous Figure 2-1 are presented hereinafter. The two sets are prepared for the Economic Evaluation of the Plan in the coming Chapter 12. The set which is presented in the Main Report is named as "Base Case" and "Alternative".

Table 2-1 : Forecasts of the total GDP for Selangor State and Kuala Lumpur, 1995-2020

1) Total GDP

(Unit : Million RM, at 1978 prices)

		1995	2000	2010	2020
Base Case	Selangor State	24,275	37,694	76,255	131,751
	Kuala Lumpur	15,595	22,703	38,780	60,895
Alternative	Selangor State	24,275	39,095	80,576	158,506
	Kuala Lumpur	15,595	22,814	39,141	60,784

2) Annual Average Growth Rates

(Unit : % / annum)

		1995 - 2000	2000 - 2010	2010 - 2020	1995 - 2020
Base Case	Selangor State	9.0	7.3	5.6	7.0
	Kuala Lumpur	7.8	5.5	4.6	5.6
Alternative	Selangor State	10.0	7.5	7.0	7.8
	Kuala Lumpur	8.0	5.5	4.5	5.6

Table 2-2 : Forecast of the Total Population* of Selangor State and Kuala Lumpur, 1995 - 2020

1) Total Population

(Unit : 1000 Employees)

		1995	2000	2010	2020
Base Case	Selangor State	2,698,220	3,282,800	4,708,010	5,937,440
	Kuala Lumpur	1,329,300	1,590,560	2,021,630	2,408,490
Alternative	Selangor State	2,698,220	3,404,820	4,974,800	7,141,940
	Kuala Lumpur	1,329,300	1,605,370	2,040,460	2,404,140

2) Annual Average Increasing Rates

(Unit : % / annum)

		1995 - 2000	2000 - 2010	2010 - 2020	1995 - 2020
Base Case	Selangor State	4.0	3.7	2.3	3.2
	Kuala Lumpur	3.7	2.4	1.8	2.4
Alternative	Selangor State	4.8	3.9	3.7	4.0
	Kuala Lumpur	3.8	2.4	1.7	2.4

Note : *) - This is required to realize the future Economic Growth in Selangor State and Kuala Lumpur
 - In Appendix VI-2, forecasting methodology and assumptions are presented.

Table 2-3 : Forecasts of Total Employment on Working Place Basis in Selangor State and Kuala Lumpur, 1995 - 2020

1) Employment at Working Place Base

(Unit : 1000 Employees)

		1995	2000	2010	2020
Base Case	Selangor State	929.4	1,130.8	1,640.0	2,089.9
	Kuala Lumpur	683.9	818.3	1,040.1	1,239.1
Alternative	Selangor State	929.4	1,251.1	2,002.0	2,769.2
	Kuala Lumpur	683.9	828.8	969.5	1,028.6

2) Annual Average Increasing Rates

(Unit : % / annum)

		1995 - 2000	2000 - 2010	2010 - 2020	1995 - 2020
Base Case	Selangor State	4.0	3.8	2.5	3.3
	Kuala Lumpur	3.7	2.4	1.8	2.4
Alternative	Selangor State	6.1	4.8	3.3	4.5
	Kuala Lumpur	3.9	1.6	0.6	1.6

Note : * After adjustment through which the total Employment on Working Place Basis of the two States becomes equal to the total Employment on Residential Area Basis of the two States. As results, these is an estimation error of about one percent between the area and those which are calculated based on the total GDP and Improvement rates of Labour Productivity.

Table 2-4 : Forecasts of the GDP by Industry of Origin of Selangor State and Kuala Lumpur, 1995 - 2020

BASE CASE

<Selangor State>

(Unit : Million RM at 1978 prices, %/annum)

	1995	2000	2010	2020	Average Annual Changing Rate			
					1995 2000	2000 2010	2010 2020	1995 2020
Agriculture, Livestock, Forestry & Fishery	1,169	1,492	2,430	3,959	5.0	5.0	5.0	5.0
Mining & Quarry	280	231	231	231	+3.8	0	0	+0.8
Manufacturing	13,966	21,935	43,214	76,418	9.4	7.0	5.9	7.0
Construction	676	1,170	2,288	3,842	11.6	6.9	5.3	7.2
Transport, Storage, Communication, Utility	2,689	4,264	8,924	15,802	9.7	7.7	5.9	7.3
Wholesale, Retail, Hotel & Restaurant	2,453	3,890	7,869	13,569	9.7	7.3	5.6	7.1
FIREBS	1,275	2,022	4,232	7,494	9.7	7.7	5.9	7.3
Government service & Other service	1,769	2,690	7,067	10,438	8.7	10.1	4.0	7.4
Total	24,277	37,694	76,255	131,751	9.2	7.3	5.6	7.0

< Kuala Lumpur >

	1995	2000	2010	2020	Average Annual Changing Rate			
					1995 2000	2000 2010	2010 2020	1995 2020
Agriculture, Livestock, Forestry & Fishery	0	0	0	0	0	0	0	0
Mining & Quarry	16	14	14	14	+2.3	0	0	+0.5
Manufacturing	2,665	3,399	5,199	6,839	5.0	4.3	2.8	3.8
Construction	799	1,206	2,114	3,159	8.6	5.8	4.1	5.7
Transport, Storage, Communication, Utility	1,450	2,149	3,996	6,325	8.2	6.4	4.7	6.1
Wholesale, Retail, Hotel & Restaurant	4,289	6,539	12,743	21,156	8.8	6.9	5.2	6.6
FIREBS	3,648	5,562	10,839	17,995	8.8	6.9	5.2	6.6
Government service & Other service	2,728	3,900	4,003	5,620	7.4	0.3	3.5	2.9
Total	15,595	22,769	38,908	61,108	7.8	5.5	4.6	5.6

Note * 1 : Including the effects of the "Putra Jaya" Project on the GDP of Government and Other Services, See Appendix VI-1.

Table 2-5 : Forecasts of the GDP by Industry of Origin of Selangor State and Kuala Lumpur, 1995 - 2020

ALTERNATIVE

<Selangor State>

(Unit : Million RM at 1978 prices, %/annum)

	1995	2000	2010	2020	Average Annual Changing Rate			
					1995 2000	2000 2010	2010 2020	1995 2020
Agriculture, Livestock, Forestry & Fishery	1,169	1,572	3,394	7,327	6.1	8.0	8.0	7.6
Mining & Quarry	280	231	231	231	-3.8	0	0	-0.8
Manufacturing	13,966	22,749	44,830	89,341	10.2	7.0	7.1	7.7
Construction	676	1,139	2,414	4,447	11.0	7.8	6.3	7.8
Transport, Storage, Communication, Utility	2,689	4,430	9,454	19,215	10.5	7.9	7.0	8.2
Wholesale, Retail, Hotel & Restaurant	2,453	4,041	8,329	16,384	10.5	7.5	7.4	7.9
FIREBS	1,275	2,148	4,584	9,317	11.0	7.9	7.4	8.3
Government service & Other service	1,769	2,785	7,340	12,244	9.5	10.2	5.3	8.0
Total	24,277	39,095	80,576	158,506	10.0	7.5	7.0	7.8

< Kuala Lumpur >

	1995	2000	2010	2020	Average Annual Changing Rate			
					1995 2000	2000 2010	2010 2020	1995 2020
Agriculture, Livestock, Forestry & Fishery	0	0	0	0	0	0	0	0
Mining & Quarry	16	14	14	14	-9.3	0	0	-0.5
Manufacturing	2,665	3,476	5,398	7,096	5.5	4.5	2.8	4.0
Construction	799	1,218	2,081	3,110	8.8	5.5	4.1	5.6
Transport, Storage, Communication, Utility	1,450	2,170	4,030	6,379	8.4	6.4	4.7	6.1
Wholesale, Retail, Hotel & Restaurant	4,289	6,539	12,743	21,156	8.8	-6.9	5.2	6.6
FIREBS	3,648	5,562	10,839	17,995	8.8	6.9	5.2	6.6
Government service & Other service	2,728	3,935	4,036	5,034	7.6	0.3	2.2	2.5
Total	15,595	22,914	39,141	60,784	8.0	5.5	4.5	5.6

Table 2-6 : Forecasts of Employment on Working Place Basis by Industry of Origin at State Level*, 1995 - 2020

BASE CASE

(Unit : 1000 Employees)

<Selangor State>

	1995	2000	2010	2020	Average Annual Changing Rate			
					1995 2000	2000 2010	2010 2020	1995 2020
Agriculture, Livestock, Forestry & Fishery	65.1	64.9	75.7	89.1	0.1	1.6	1.6	1.3
Mining & Quarry	1.3	0.8	0.8	0.8	9.3	0	0	1.9
Manufacturing	423.5	523.9	702.8	951.1	4.3	3.0	3.1	3.3
Construction	61.7	78.9	106.2	132.7	5.0	3.0	2.3	3.1
Transport, Storage, Communication, Utility	63.6	72.3	91.4	118.0	2.6	2.4	2.6	2.5
Wholesale, Retail, Hotel & Restaurant	141.9	162.6	215.3	270.9	2.8	2.9	2.3	2.6
FIREBS	27.5	32.0	42.6	55.5	3.1	2.9	2.7	2.8
Government service & Other service	144.7	195.4	405.0	471.8	6.2	7.6	1.5	4.8
Total	929.3	1,130.8	1,639.8	2089.9	4.0	3.8	2.4	3.3

< Kuala Lumpur >

	1995	2000	2010	2020	Average Annual Changing Rate			
					1995 2000	2000 2010	2010 2020	1995 2020
Agriculture, Livestock, Forestry & Fishery	0	0	0	0	0	0	0	0
Mining & Quarry	0.1	0.1	0.1	0.1	0	0	0	0
Manufacturing	94.9	101.9	118.3	119.2	1.4	1.5	0.1	0.9
Construction	71.5	87.9	125.9	143.3	4.2	3.7	1.3	2.8
Transport, Storage, Communication, Utility	29.9	34.7	53.3	64.9	3.0	4.4	2.0	3.1
Wholesale, Retail, Hotel & Restaurant	228.0	267.1	429.1	542.5	3.2	4.9	2.4	3.5
FIREBS	46.1	55.6	94.0	126.1	3.8	5.4	3.0	4.1
Government service & Other service	213.4	271.0	219.4	243.0	4.9	2.1	1.0	0.5
Total	683.8	818.3	1,040.1	1,239.1	3.7	2.5	1.8	2.5

Note * : $E_{i,t+1} = E_{i,t} \times (1 + gi,t)^t / (1 + ei,t)^t$ $E_{i,t+1}$: Employment on a Working Place Basis of Industry in year $t + 1$ gi,t : GDP Growth Rate of Industry for period $t - t + 1$

Table 2-7 : Forecasts of Employment on a Working Place Basis by Industry of Origin at State Level*, 1995 - 2020

ALTERNATIVE

(Unit : 1000 Employees)

<Selangor State>

	1995	2000	2010	2020	Average Annual Changing Rate			
					1995 2000	2000 2010	2010 2020	1995 2020
Agriculture, Livestock, Forestry & Fishery	65.2	68.4	104.7	157.2	1.0	4.3	4.1	3.6
Mining & Quarry	1.3	0.8	0.8	0.8	9.3	0	0	0.9
Manufacturing	423.5	586.9	876.9	1239.9	6.7	4.1	3.5	4.4
Construction	61.7	85.4	134.7	172.5	6.7	4.7	2.5	4.2
Transport, Storage, Communication, Utility	63.6	77.9	112.3	154.2	4.1	3.7	3.2	3.6
Wholesale, Retail, Hotel & Restaurant	141.9	193.2	296.6	413.6	6.4	4.4	3.4	4.4
FIREBS	27.5	36.6	55.4	77.5	5.9	4.2	3.4	4.2
Government service & Other service	144.7	202.3	420.6	553.5	6.9	7.6	2.8	5.5
Total	929.3	1,251.1	2,202.6	2769.2	6.1	4.8	3.3	4.5

< Kuala Lumpur >

	1995	2000	2010	2020	Average Annual Changing Rate			
					1995 2000	2000 2010	2010 2020	1995 2020
Agriculture, Livestock, Forestry & Fishery	0	0	0	0	0	0	0	0
Mining & Quarry	0.1	0.1	0.1	0.1	0	0	0	0
Manufacturing	94.9	105.2	123.9	110.0	2.1	1.6	1.2	0.6
Construction	71.5	89.6	113.9	118.4	4.6	2.4	0.4	2.0
Transport, Storage, Communication, Utility	29.9	35.1	46.2	51.8	3.3	2.8	1.2	2.2
Wholesale, Retail, Hotel & Restaurant	228.0	269.8	387.4	442.9	3.4	3.7	1.3	2.7
FIREBS	46.1	55.6	76.8	87.8	3.8	3.3	1.3	2.6
Government service & Other service	213.4	273.4	221.2	217.6	5.1	2.1	0.2	0.1
Total	683.9	828.8	969.5	1028.6	3.9	1.6	0.6	1.6

e_i, t : Improvement Rate of Labour Productivity of Industry I for period $t - t + 1$

**Table 2-8 : Improvement Rates of (Value Added) Labour Productivity by Industry of Origin* in Selangor State and Kuala Lumpur, 1995-2020
BASE CASE**

	Selangor State				Kuala Lumpur			
	1995-2000	2000-2010	2010-2020	1995-2020	1995-2000	2000-2010	2010-2020	1995-2020
Agriculture, Livestock, Forestry & Fishery	5.1	3.4	3.3	3.7	0	0	0	0
Mining & Quarry	5.9	0	0	1.2	5.9	0	0	1.2
Manufacturing	6.2	3.9	2.8	3.7	3.5	2.8	2.7	2.9
Construction	6.2	5.2	3.3	4.8	5.0	1.9	2.7	2.8
Transport, Storage Communication, Utility	6.9	5.2	3.3	4.8	5.8	1.9	2.7	2.8
Wholesale, Retail, Hotel & Restaurant	6.7	4.4	3.3	4.4	5.2	2.0	2.8	2.9
FIREBS	6.4	4.7	3.2	4.4	4.8	1.4	2.2	2.4
Government service & Others services	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Average	5.0	3.4	3.2	3.6	4.0	2.9	2.8	3.1

**Table 2-9 : Improvement Rates of (Value Added) Labour Productivity by Industry of Origin in Selangor State and Kuala Lumpur, 1995-2020
ALTERNATIVE**

	Selangor State				Kuala Lumpur			
	1995-2000	2000-2010	2010-2020	1995-2020	1995-2000	2000-2010	2010-2020	1995-2020
Agriculture, Livestock, Forestry & Fishery	5.1	3.5	3.7	3.9	0	0	0	0
Mining & Quarry	5.9	0	0	1.2	5.9	0	0	0
Manufacturing	3.3	2.8	4.0	3.2	3.3	2.8	4.0	3.4
Construction	4.0	3.0	3.7	3.5	4.0	3.0	3.7	3.5
Transport, Storage Communication, Utility	6.1	4.0	4.0	4.4	5.0	3.5	3.5	3.8
Wholesale, Retail, Hotel & Restaurant	5.0	3.0	3.5	3.4	5.2	3.1	3.8	3.8
FIREBS	4.8	3.5	3.8	3.9	4.8	3.5	3.8	3.9
Government service & Others services	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Average * 1	3.7	2.6	3.6	3.2	3.9	3.9	4.4	3.9

Table 2-10 : Forecasts of Population, Labour Forces and Employment on Residential Place Basis of Selangor State and Kuala Lumpur, 1995-2020 (Case 1)

(Unit : Person)

			(1) Population	(2) Labour Forecast	Employment at Residential Area Basis	(2) / (1) *1 %	Employment Ratio (%)
Base Case	Selangor State	1995	2,698,220	1,085,280	1,054,890	340.2	2.8
		2000	3,282,800	1,319,690	1,282,740	40.2	2.8
		2010	4,708,010	1,892,220	1,839,240	40.2	2.8
		2020	5,937,440	2,386,850	2,320,020	40.2	2.8
	Kuala Lumpur	1995	1,329,300	572,410	556,380	343.1	2.8
		2000	1,590,560	685,530	666,340	43.1	2.8
		2010	2,021,630	871,320	846,930	43.1	2.8
		2020	2,408,490	1,038,060	1,008,990	43.1	2.8
Alternative	Selangor State	1995	2,698,220	1,084,680	1,054,310	340.2	2.8
		2000	3,404,820	1,433,430	1,393,290	41.2	2.8
		2010	4,974,800	2,149,110	2,088,940	43.2	2.8
		2020	7,141,940	2,871,060	2,790,670	40.2	2.8
	Kuala Lumpur	1995	1,329,300	572,930	556,890	343.1	2.8
		2000	1,605,370	706,360	686,580	44.0	2.8
		2010	2,040,460	908,000	882,580	44.5	2.8
		2020	2,404,140	1,036,180	1,007,170	43.1	2.8

- Note :
- * 1- The ratio is a product of the Ratio of Working Age Population to the total Population and Labour Force Participation Ratio.
 - * 2- The following phenomenon on the Ratio are supposed : Up to year 2010, the Ratio will increase mainly because of a rise of the Women's Labour Force Participation Ratio which is induced by small-families. After 2010, high level by of per-capita income realized in the period will reduce this, resulting in a decrease in the Women's Labour Force Participation Ratio.
 - * 3- Though the ratio will change in future, the change is not taken into consideration in this forecast.

2.3.2 Forecasts of the Socio - Economic Framework of Districts in Neighbouring States

2.3.2.1 Forecast Process of the Framework

Forecasting process of GDP Employment on Working Place Basis by Industry of Origin and by the District and Population, Labour Forces and Employment on Residential Place Basis by the District in the neighboring States is shown in Figure 2-2.

Unlike the case of Selangor State and Kuala Lumpur, there is no information/ data on the Socio - Economic Growth Rates and so on to be attained until the year 2020. Hence, the future Industrial Structures are assumed to be decided based on the present ones (1995) and the Growth Rates of GDP by Industry in Selangor State and Kuala Lumpur for the period of 1995-2020. The forecasting methodology of Employment on Working Place Basis, Population, Labour Forces and Employment on Residential Place Basis is almost same as the one applied in the case of Selangor State and Kuala Lumpur.

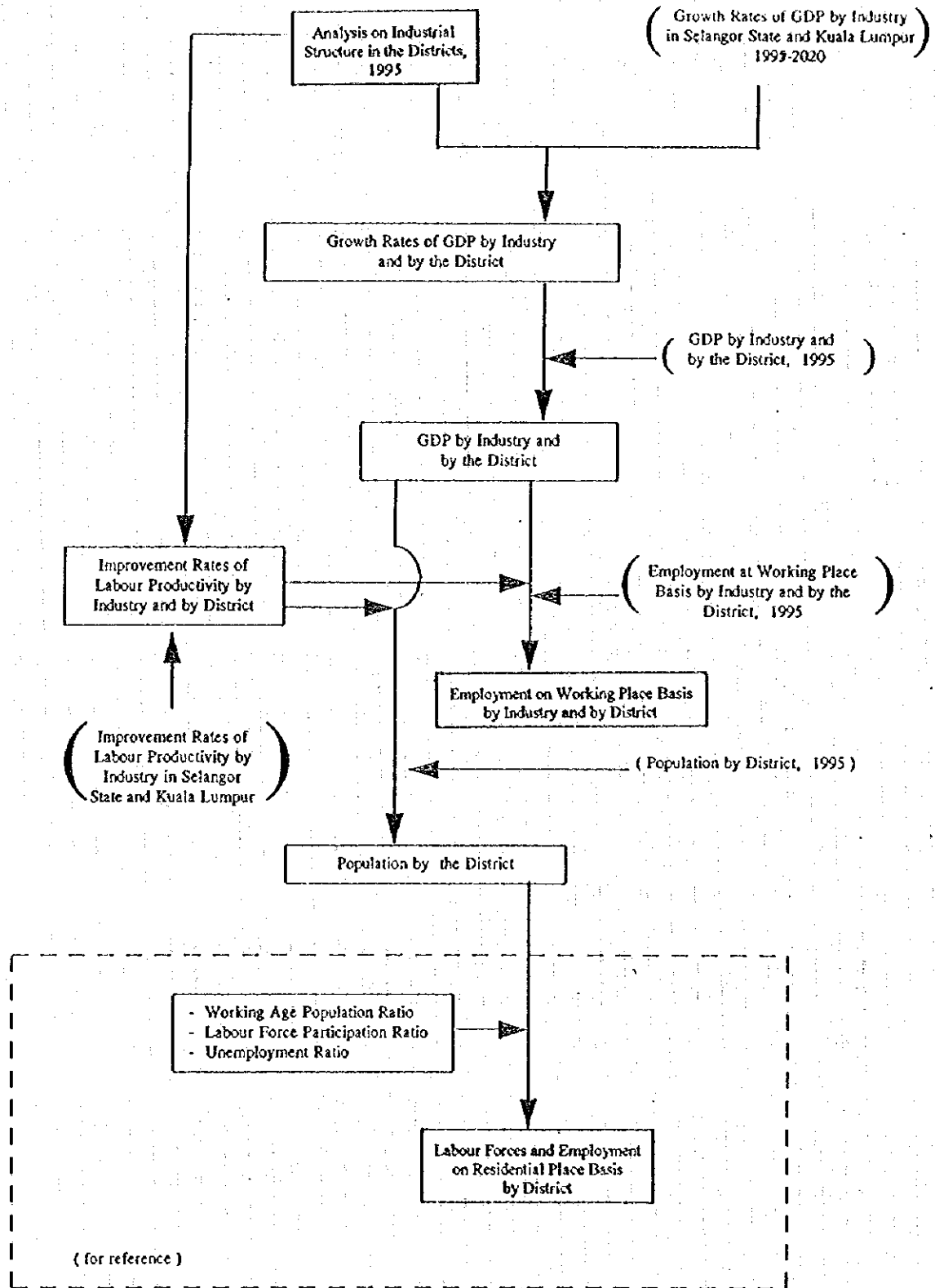


Figure 2-2 : Forecasting Process of GDP and Employment by Industry of Origin and Population, Labour Force and Employment on a Residential Area Basis at the District in the Neighbouring States

2.3.2.2 Forecasts of the Socio-economic Frameworks of the Districts in the Neighbouring States until the year 2020. -Base Case and Alternative-

Forecasts of the Indicators are made in compliance with the forecasting process shown in the previous Figure 2-2, which are presented hereinafter.

Table 2-11 : Forecasts of the total GDP for Districts in Neighbouring States, 1995-2020
BASE CASE & ALTERNATIVE

1. Total GDP before adjustment by Imputed Bank Services Charge and Import Duty

(Unit: Million RM, at 1978 prices)

		1995	2000	2010	2020
Base Case	Seremban	2,644.3	3,594.3	6,689.8	12,549.9
	Batang Padang	982.1	1,256.8	2,084.3	3,502.3
	Bentong	618.8	778.6	1,243.8	2,011.1
Alternative	Seremban	2,644.3	3,662.6	7,106.4	13,919.9
	Batang Padang	982.1	1,275.7	2,312.8	4,300.9
	Bentong	618.8	780.1	1,249.9	2,025.6

2. Average Annual Growth Rates

(Unit: % annum)

		1995 - 2000	2000 - 2010	2010 - 2020	1995 - 2020
Base Case	Seremban	6.3	6.4	6.5	6.4
	Batang Padang	5.1	5.2	5.3	5.2
	Bentong	4.7	4.8	4.9	4.8
Alternative	Seremban	6.7	6.9	7.0	6.9
	Batang Padang	5.4	6.1	6.4	6.1
	Bentong	4.7	4.8	4.9	4.9

Table 2-12 : Forecasts of Total Employment on Working Place Basis at Districts in Neighbouring States, 1995 - 2020

1. Total Employment on Working Place Basis

(Unit: Employee)

		1995	2000	2010	2020
Base Case	Seremban	102,800	116,760	151,550	197,980
	Batang Padang	44,480	49,390	60,510	74,690
	Bentong	30,290	32,370	37,380	43,810
Alternative	Seremban	102,800	120,160	166,320	233,560
	Batang Padang	44,480	48,940	66,540	90,550
	Bentong	30,290	32,240	36,930	44,400

2. Annual Average Changing Rates

(Unit: % annum)

		1995 - 2000	2000 - 2010	2010 - 2020	1995 - 2020
Base Case	Seremban	2.6	2.6	2.7	2.7
	Batang Padang	2.1	2.1	2.1	2.1
	Bentong	1.3	1.4	1.6	1.5
Alternative	Seremban				
	Batang Padang				
	Bentong				

Table 2-13 : Forecasts of Total Population of Districts in Neighbouring States, 1995-2020

1. Total Population

(Unit: Person)

		1995	2000	2010	2020
Base Case	Seremban	289,490	328,130	424,670	553,980
	Batang Padang	169,420	186,120	227,450	281,640
	Bentong	88,2850	95,040	109,740	128,240
Alternative	Seremban	289,490	339,240	971,160	662,600
	Batang Padang	169,420	188,910	252,390	345,860
	Bentong	88,850	95,230	110,280	129,170

2. Annual Average Changing Rates

(Unit: % annum)

		1995 - 2000	2000 - 2010	2010 - 2020	1995 - 2020
Base Case	Seremban	2.5	2.6	2.6	2.6
	Batang Padang	1.9	2.0	2.2	2.1
	Bentong	1.4	1.4	1.6	1.5
Alternative	Seremban	3.2	3.3	3.5	3.4
	Batang Padang	2.2	2.9	3.2	2.9
	Bentong	1.4	1.5	1.6	1.5

Note : * - These are Population, which are mainly required to realize the future Economic Growth at the Districts in the Neighbouring States.

The following Annual Average Improvement Rates of Labour Productivity are adopted

Seremban : 3.7 % / annum, 1995 - 2020

Batang Padang : 3.1 % / annum, 1995 - 2020

Bentong : 3.3 % / annum, 1995 - 2020

Table 2-14 : Forecasts of Population, Labour Force and Employment on Residential Place Basis of Districts in Neighbouring States, 1995-2020

			① Population	② Labour Force	Employment on Residential Place Basis	②/① %	Unemployment Ratio (%)
Base Case	Seremban	199	289,490	117,250	113,870	40.5	2.9
		5	328,130	132,890	129,040	40.5	2.9
		200	424,670	171,990	167,000	40.5	2.9
		0	553,980	224,360	217,860	40.5	2.9
		201					
	0						
	202						
	0						
	Batang Padang	199	169,420	63,550	61,350	37.5	3.5
		5	186,120	69,800	67,350	37.5	3.5
		200	227,450	85,290	82,310	37.5	3.5
		0	281,640	105,620	101,920	37.5	3.5
201							
0							
202							
0							
Bentong	199	88,850	32,160	31,000	36.2	3.6	
	5	95,040	34,400	33,170	36.2	3.6	
	200	109,740	39,730	38,300	36.2	3.6	
	0	128,240	46,420	44,750	36.2	3.6	
	201						
0							
202							
0							
Alternative	Seremban	199	289,490	117,250	113,870	40.5	2.9
		5	339,240	137,390	133,410	40.5	2.9
		200	471,160	190,820	185,290	40.5	2.9
		0	662,600	268,350	260,570	40.5	2.9
		201					
	0						
	202						
	0						
	Batang Padang	199	169,420	63,550	61,350	37.5	3.5
		5	188,910	70,840	68,360	37.5	3.5
		200	252,390	94,650	91,330	37.5	3.5
		0	345,860	129,700	125,160	37.5	3.5
201							
0							
202							
0							
Bentong	199	88,850	32,160	31,000	36.2	3.6	
	5	95,230	34,470	33,230	36.2	3.6	
	200	110,280	39,920	38,480	36.2	3.6	
	0	129,170	46,760	45,080	36.2	3.6	
	201						
0							
202							
0							

Table 2-15 : Forecasts of GDP by Industry of Origin of Districts in the Neighbouring State, 1995-2020

BASE CASE

(Unit : Million RM at 1978 prices, %/ annum)

< Seremban, Negeri Sembilan >

	1995	2000	2010	2020	Annual Average Growth Rate 1995-2020
Agriculture, Livestock Forestry & Fishery	181.8	215.9	304.6	429.6	3.5 *1
Mining & Quarry	39.4	42.0	47.8	54.4	1.3 *1
Manufacturing	1,469.3	2,060.8	4,053.8	7,974.5	7.0 *2
Construction	75.5	105.8	208.3	409.8	7.0 *1
Service Industries	878.3	1,169.8	2,075.3	3,681.6	5.9 *3
Total	2,644.3	3,594.3	6,689.8	12,549.9	6.4

< Batang Padang, Perak >

	1995	2000	2010	2020	Annual Average Growth Rates 1995-2020
Agriculture, Livestock Forestry & Fishery	277.3	353.9	576.5	939.0	5.0 *2
Mining & Quarry	119.0	126.9	144.4	164.4	1.3 *1
Manufacturing	29.3	35.3	51.3	74.4	3.8 *3
Construction	42.5	56.1	97.6	169.9	5.7 *3
Service Industries	514.0	684.6	1,214.5	2,154.6	5.9 *3
Total	982.1	1,256.8	2,084.3	3,502.3	5.2

< Bentong, Pahang >

	1995	2000	2010	2020	Annual Average Growth Rates 1995-2020
Agriculture, Livestock Forestry & Fishery	190.1	225.8	318.5	449.3	3.5 *1
Mining & Quarry	4.6	4.9	5.6	6.4	1.3 *1
Manufacturing	132.3	159.4	231.5	336.1	3.8 *3
Construction	22.3	29.4	51.2	89.2	5.7 *3
Service Industries	269.6	359.1	637.0	1,130.1	5.9 *3
Total	618.8	778.6	1,243.8	2,011.1	4.8

Table 2-15 : Forecast of GDP by Industry of Origin of Districts in the Neighbouring States 1995-2020 (Continued)

ALTERNATIVE

(Unit : Million RM at 1978 prices, %/ annum)

< Seremban, Negeri Sembilan >

	1995	2000	2010	2020	Annual Average Growth Rate 1995-2020
Agriculture, Livestock Forestry & Fishery	181.8	215.9	304.6	429.6	3.5 *1
Mining & Quarry	39.4	42.0	47.8	54.4	1.3 *1
Manufacturing	1,469.3	2,129.1	4,470.4	9,386.5	7.7 *2
Construction	75.5	105.8	208.3	409.8	7.0 *3
Service Industries	878.3	1,169.8	2,075.3	3,681.6	5.9 *3
Total	2,644.3	3,662.6	7,106.4	13,961.9	6.9

< Batang Padang, Perak >

	1995	2000	2010	2020	Annual Average Growth Rates 1995-2020
Agriculture, Livestock Forestry & Fishery	277.3	372.8	804.9	1,737.8	7.6 *4
Mining & Quarry	119.0	126.9	144.4	164.4	1.3 *1
Manufacturing	29.3	35.6	52.8	78.1	4.0 *3
Construction	42.5	55.8	96.2	166.0	5.6 *3
Service Industries	514.0	684.6	1,214.5	2,154.6	5.9 *3
Total	982.1	1,275.7	2,312.8	4,300.9	6.1

< Bentong, Pahang >

	1995	2000	2010	2020	Annual Average Growth Rates 1995-2020
Agriculture, Livestock Forestry & Fishery	190.1	225.8	318.5	449.3	3.5 *1
Mining & Quarry	4.6	4.9	5.6	6.4	1.3 *1
Manufacturing	132.3	161.0	238.3	352.7	4.0 *3
Construction	22.3	29.3	50.5	87.1	5.6 *3
Service Industries	269.6	359.1	637.0	1,130.1	5.9 *3
Total	618.8	780.1	1,249.9	2,025.6	4.9

- Note
- * 1 : Annual average Growth Rates in Malaysia, 1990-2000, OPP2
 - * 2 : Annual average Growth Rates in Selangor State, 1995-2020, Consultant's forecasts.
 - * 3 : Annual average growth Rates in Kuala Lumpur, 1995-2020, Consultant's forecasts.
 - * 4 : Same as in * 2 above, but the ones by the period are applied

Table 2-16 : Forecasts of Employment on a Working Place Basis by Industry of Origin at Districts in Neighbouring State, 1995-2020

BASE CASE

(Unit: Employees, %/ annum)

< Seremban, Negeri Sembilan >

	1995	2000	2010	2020	Improvement Rate of Labour Productivity 1995-2020
Agriculture, Livestock Forestry & Fishery	10,160	10,060	9,870	9,680	3.7 *1
Mining & Quarry	120	120	120	120	1.2 *1
Manufacturing	45,100	52,750	72,150	98,700	3.7 *1
Construction	6,890	7,940	10,560	14,030	4.0 *1
Service Industries	40,530	45,890	58,850	75,450	3.3 *2
Total	102,800	116,760	151,550	197,980	3.7

< Batang Padang, Perak >

	1995	2000	2010	2020	Improvement Rate of Labour Productivity 1995-2020
Agriculture, Livestock Forestry & Fishery	15,490	16,640	18,670	21,150	3.7 *1
Mining & Quarry	550	550	560	560	1.2 *1
Manufacturing	850	890	970	1,060	2.9 *2
Construction	3,870	4,450	5,870	7,760	2.8 *2
Service Industries	23,720	26,860	34,440	44,160	3.3 *2
Total	44,480	49,390	60,510	74,690	3.1

< Bentong, Pahang >

	1995	2000	2010	2020	Improvement Rate of Labour Productivity 1995-2020
Agriculture, Livestock Forestry & Fishery	10,620	10,520	10,320	10,120	3.7 *1
Mining & Quarry	20	20	20	20	1.2 *1
Manufacturing	5,180	5,410	5,900	6,440	2.9 *2
Construction	2,030	2,330	3,080	4,070	2.8 *2
Service Industries	12,440	14,090	18,060	23,160	3.3 *2
Total	30,290	32,370	37,380	43,810	3.3 *2

Table 2-17 : Forecasts of Employment on a Working Place Basis by Industry of Origin at Districts in Neighbouring State, 1995-2020 (Continued)

ALTERNATIVE

< Seremban, Negeri Sembilan >

(Unit: Employees, %/ annum)

	1995	2000	2010	2020	Improvement Rate of Labour Productivity 1995-2020
Agriculture, Livestock Forestry & Fishery	10,160	9,960	9,560	9,230	3.9 *1
Mining & Quarry	120	120	120	120	1.2 *1
Manufacturing	45,100	55,830	85,550	131,090	3.2 *1
Construction	6,890	8,130	11,350	15,820	3.5 *1
Service Industries	40,530	46,120	59,710	77,300	3.3 *2
Total	102,800	120,160	166,320	233,560	3.4

< Balang Padang, Perak >

	1995	2000	2010	2020	Improvement Rate of Labour Productivity 1995-2020
Agriculture, Livestock Forestry & Fishery	15,490	16,240	24,860	27,320	3.9 *1
Mining & Quarry	550	550	560	560	1.2 *1
Manufacturing	850	880	950	1,030	3.2 *1
Construction	3,870	4,280	5,230	6,400	3.2 *1
Service Industries	23,720	26,990	34,940	45,240	3.2 *2
Total	44,480	48,940	66,540	90,550	3.1

< Bentong, Pahang >

	1995	2000	2010	2020	Improvement Rate of Labour Productivity 1995-2020
Agriculture, Livestock Forestry & Fishery	10,620	10,420	10,020	9,640	3.7 *1
Mining & Quarry	20	20	20	20	1.2 *1
Manufacturing	5,180	5,390	5,280	6,280	3.2 *1
Construction	2,030	2,250	2,740	4,730	3.5 *1
Service Industries	12,440	14,160	18,330	23,730	3.2 *2
Total	30,290	32,240	36,930	44,400	3.3

$$E_{i,m} = \text{GDP}_{i,t+m} / \text{GDP}_t \times 1 / (1+e_i)^m \times E_t$$

$E_{i,t+m}$: Employment at Working Place Basis of Industry I in year $(t+m)$

$\text{GDP}_{i,t+m}$: GDP of Industry I in year $(t+m)$

e_i : Annual average Improvement Rate of (Value Added) Labour Productivity of Industry I for period 1995 - 2020

Note *1 : Ones in Selangor State, 1995-2020, Consultant's forecasts.

*2 : Ones in Kuala Lumpur, 1995 - 2020, Consultant's forecasts

2.4 Forecasting Process of the Socio-Economic Framework by Mukim

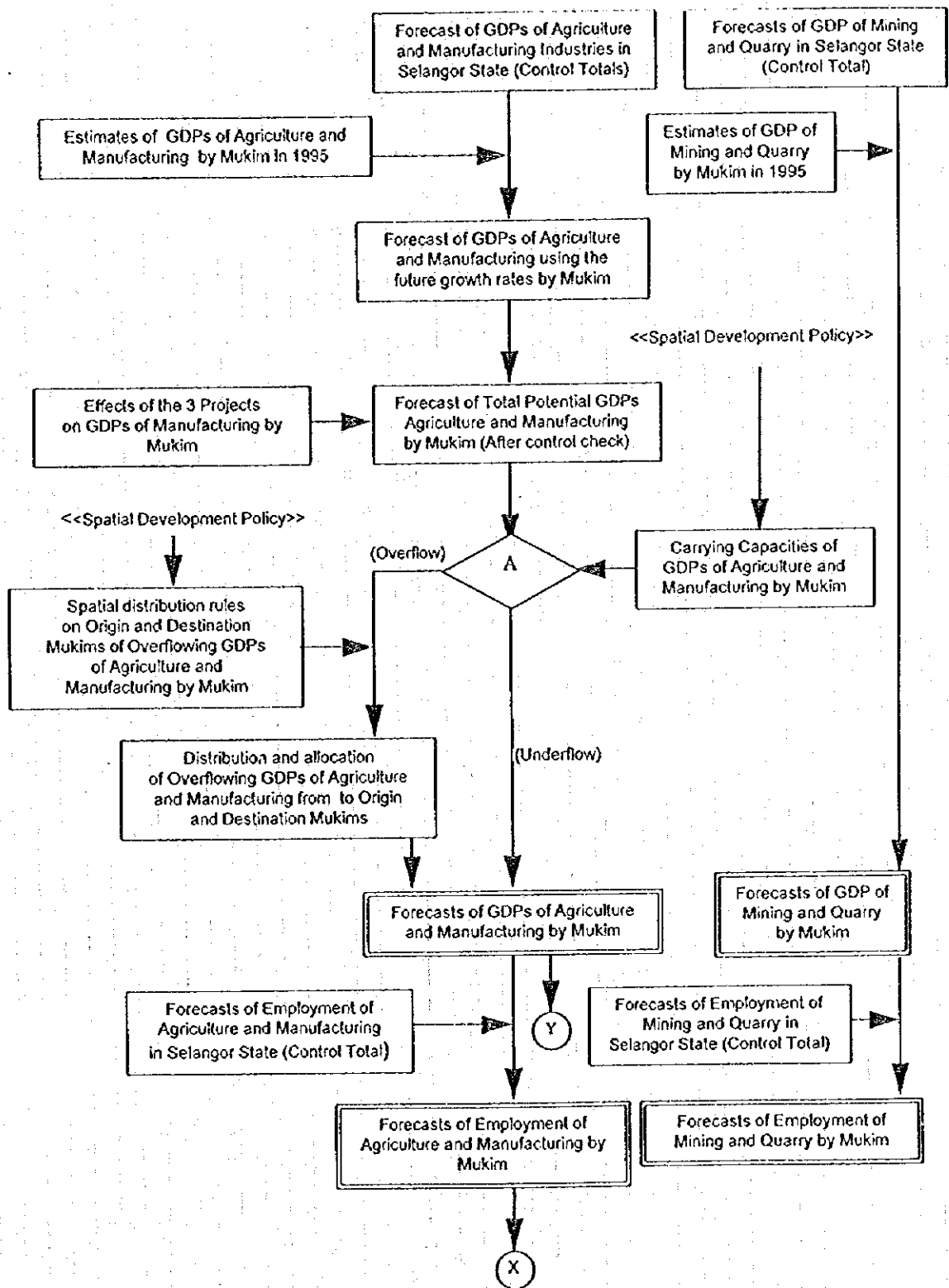


Figure 2-3 : Forecast of GDP and Employment on Working Place Basis of Agriculture, Live stocks, Forestry, Fishery, Mining and Quarry and Manufacturing Industries by Mukim

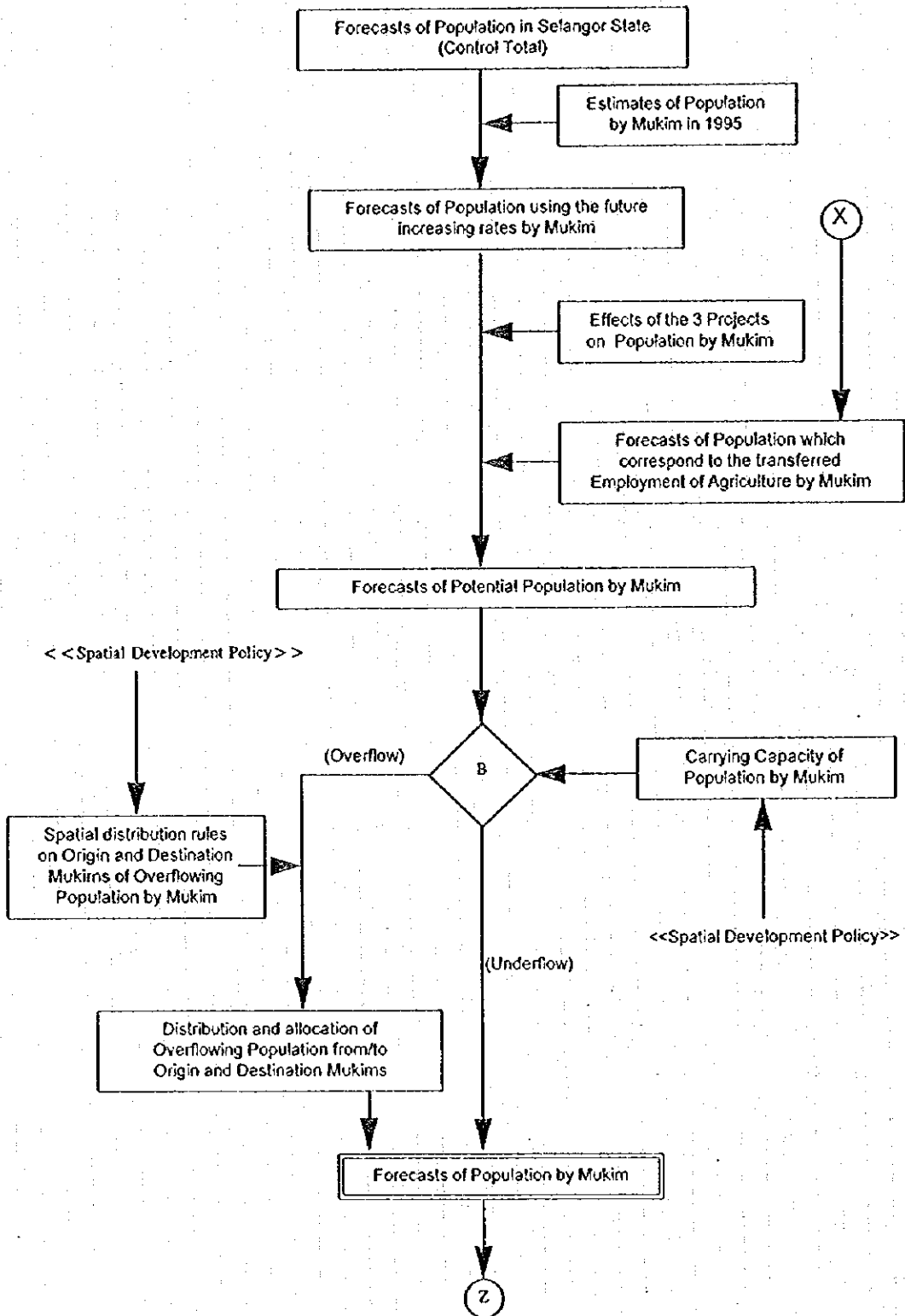


Figure 2-4 : Forecast of Population

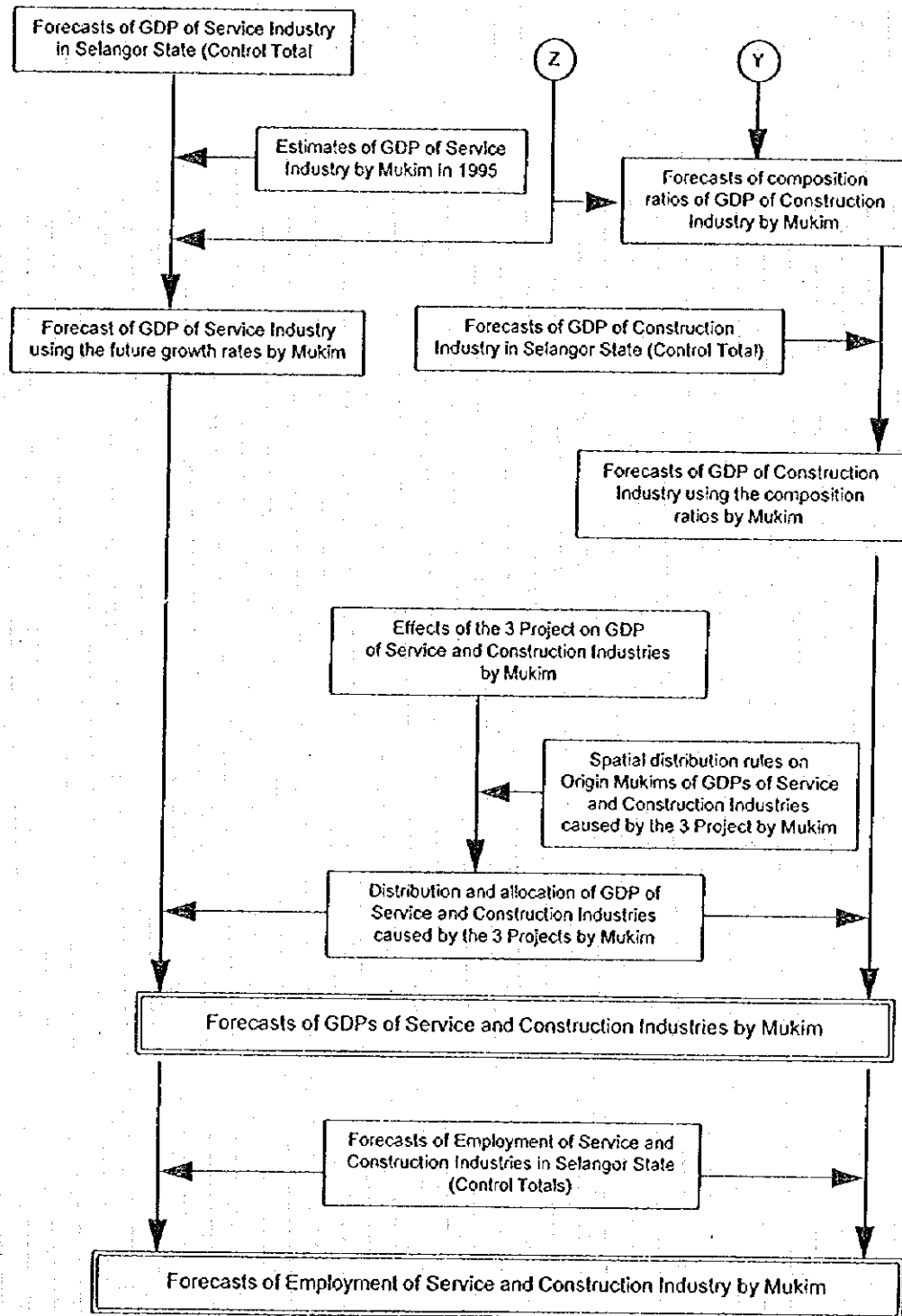


Figure 2-5 : Forecasts of GDPs and Employment of Service and Construction Industries by Mukim