

GOVERNMENT OF MALAYSIA

NATIONAL WATER RESOURCES
STUDY, MALAYSIA

SECTORAL REPORT

VOL. 1

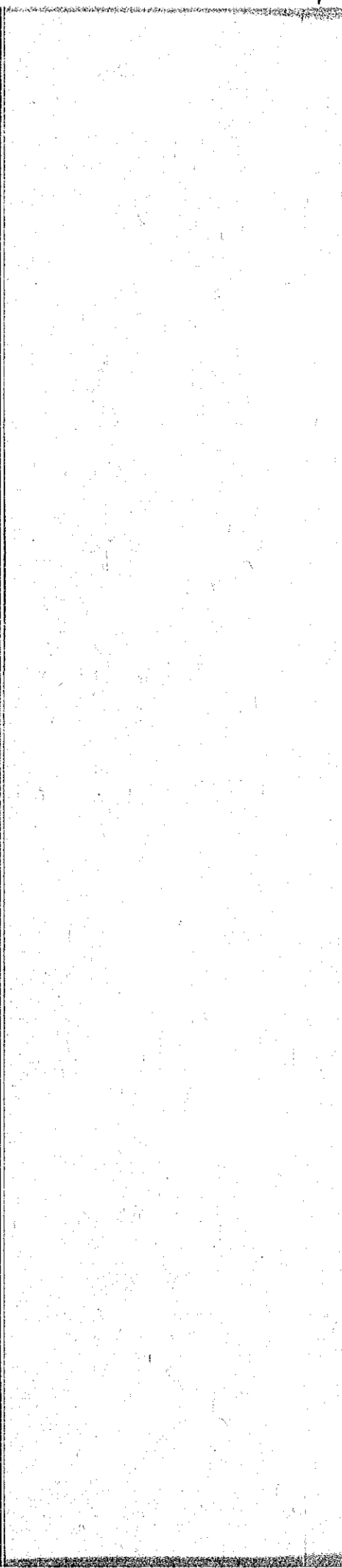
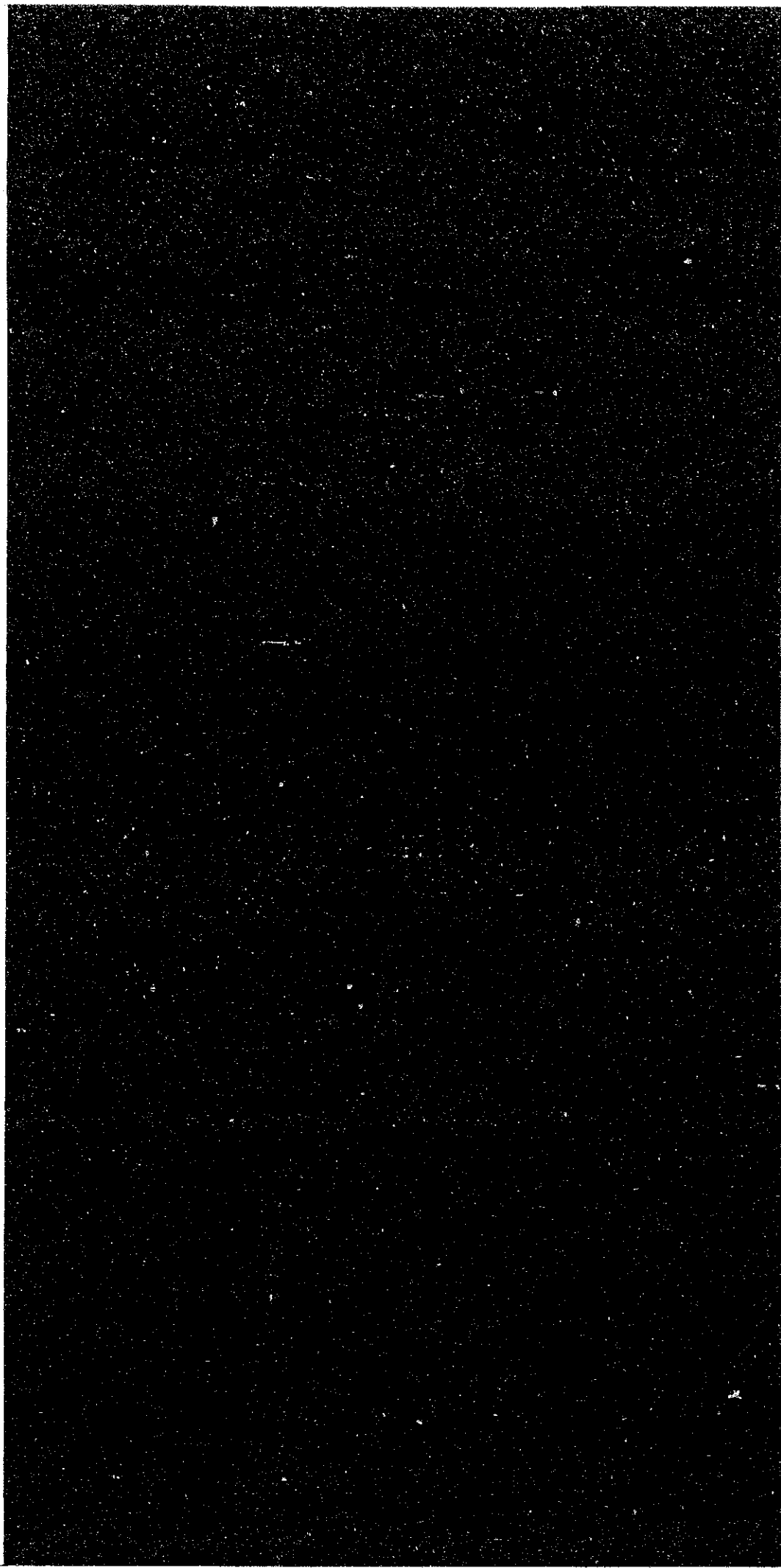
SOCIO-ECONOMY

OCTOBER 1982

JAPAN INTERNATIONAL COOPERATION AGENCY

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SECTORAL REPORT

VOL. 1

SOCIO-ECONOMY

OCTOBER 1982

JAPAN INTERNATIONAL COOPERATION AGENCY

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- Vol. 1. MASTER ACTION PLAN
- Vol. 2. WATER RESOURCES DEVELOPMENT AND USE PLAN

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ABBREVIATIONS

(1) Plan

FMP	:	First Malaysia Plan
SMP	:	Second Malaysia Plan
TMP	:	Third Malaysia Plan
4MP	:	Fourth Malaysia Plan
5MP	:	Fifth Malaysia Plan
6MP	:	Sixth Malaysia Plan
7MP	:	Seventh Malaysia Plan
IADP	:	Integrated Area Development Project
KEJORA	:	Johor Tenggara Regional Master Plan
NEP	:	New Economic Policy
NLDP	:	The National Livestock Development Programs
OPP	:	Outline Perspective Plan
SRDP	:	State and Rural Development Project, GOM
TCRS	:	Trengganu Coastal Region Study

(2) Domestic Organization

DID	:	Drainage and Irrigation Department
DOA	:	Department of Agriculture
DOE	:	Division of Environment
DOF	:	Department of Forestry
DOFS	:	Department of Fishery
DOM	:	Department of Mines
DOS	:	Department of Statistics
EPU	:	Economic Planning Unit
FAMA	:	Federal Agricultural Marketing Authority
FELCRA	:	Federal Land Consolidation and Rehabilitation Authority
FELDA	:	Federal Land Development Authority
ICU	:	Implementation and Coordination Unit
JPT	:	Drainage and Irrigation Department
MARDI	:	Malaysian Agricultural Research and Development Institute
MIDA	:	Malaysian Industrial Development Authority

MLRD : Ministry of Land and Regional Development
MMS : Malaysian Meteorological Service
MOA : Ministry of Agriculture
MOF : Ministry of Finance
MOH : Ministry of Health
MOPI : Ministry of Primary Industries
MRRDB : Malaysia Rubber Research and Development Board
NDPC : National Development Planning Committee
NEB (LLN) : National Electricity Board
PORIM : Palm Oil Research Institute of Malaysia
PWD (JKR) : Public Works Department
RDA : Regional Development Authority
RISDA : Rubber Industry Small-holders Development Authority
RRIM : Rubber Research Institute of Malaysia
SEB : Sabah Electricity Board
SEBC : State Economic Development Corporation
S(E)PU : State (Economic) Planning Unit
SESCO : Sarawak Electricity Supply Corporation
UDA : Urban Development Authority

(3) International or Foreign Organization

ADAA : Australian Development Assistance Agency
ADB : Asian Development Bank
ASCE : American Society of Civil Engineers
FAO : Food and Agriculture Organization of the United Nations
IBRD : International Bank for Reconstruction and Development
ILO : International Labour Organization
IMF : International Monetary Fund
IRRI : International Rice Research Institute
JICA : Japan International Cooperation Agency
JSCE : Japan Society of Civil Engineers
MOC : Ministry of Construction, Japan
OECD : Organization for Economic Cooperation and Development
OECF : Overseas Economic Cooperation Fund, Japan
UK : United Kingdom
UNDP : United Nations Development Program

UNSF : United Nations Special Fund
US or USA: United States of America
US/AID : United States Agency for International Development
USBR : United States Bureau of Reclamation; former name of
United States Water Resources and Power Service
WHO : World Health Organization
WMO : World Meteorological Organization

(4) Others

B : Benefit
C : Cost
CIF : Cost, Insurance and Freight
D&I : Domestic and Industrial
EIRR : Economic Internal Rate of Return
Eq. : Equation
Fig. : Figure
FIRR : Financial Internal Rate of Return
FOB : Free on Board
GDP : Gross Domestic Product
GNP : Gross National Product
NO : Number of Establishments of Manufacturing Sector
Ref. : Reference
SITC : Standard International Trade Classification
SS : Suspended Solid

1. INTRODUCTION

1.1 Objectives of the Study

The socio-economic study mainly aims at projecting population, gross domestic product (GDP), per capita GDP and gross value of manufacturing output in the years of 1985, 1990, 1995 and 2000, as the basic framework for the other sectoral studies. Present socio-economic framework and other principal indicators are simultaneously mentioned in this sectoral study.

1.2 Coverage of the Study

Chapter 2 describes to the present socio-economic framework of Malaysia. The following items, at national and state levels, are included in the description:

- (1) population,
- (2) GDP and GRP,
- (3) external trade,
- (4) employment, and
- (5) prices.

National economic development plans and the public development expenditure are presented in Chapter 3 and Chapter 7, respectively.

Population, GDP, Gross Regional Product (GRP) and gross value of output in manufacturing sector were projected for the years of 1985, 1990, 1995 and 2000 in Chapters 4, 5 and 6, respectively.

1.3 Basic Principles for the Projection

The socio-economic framework was projected for the following two cases, based on the planned values of the Fourth Malaysia Plan (4MP) and the Outline Perspective Plan (OPP) to achieve the New Economic Policy (NEP) with the target year of 1990. The latest figures of 1980 population were provided by the 1980 Preliminary Field Count Summary of DOS.

Case 1: Achievement of 4MP/OPP target by 1990 thereafter assuming a growth rate of 7.5% from 1990 to 2000.

Case 2: Achievement of the target set in Case 1 in 2000 delaying by about five years.

The detailed definition will be mentioned in Section 5.1.

1.4 Limitation of the Study

The present socio-economic study neither covers all aspects of socio-economy of Malaysia nor includes any proposal for socio-economic planning but aims to provide the other relevant sectoral Studies such as shown in the following Section 1.5 with the basic data and information.

It should be noted that the figures herein presented and their relationships are only for the use of working out a national plan for the development and use of water resources from the national viewpoint. A further study will be needed for more detailed water resources planning.

1.5 Application of Projected Values

The projected values of socio-economy will mainly be used as the basic data for the following works:

- (1) forecast of D&I water demand,
- (2) estimation of flood damage,
- (3) forecast of the number of domestic and foreign tourists, and
- (4) economic analysis of proposed plans.

2. PRESENT CONDITION OF SOCIO-ECONOMY IN MALAYSIA

2.1 Geographical Features

Malaysia covers an area of 330,080 km², comprising Peninsular Malaysia, Sabah and Sarawak. The States of Sabah and Sarawak occupy the north-western part of Borneo Island. These two States are located at about 643 km away from Peninsular Malaysia separated by the South China Sea. Peninsular Malaysia, bordered on the north by Thailand, covers 131,930 km², while Sabah covers 73,700 km² and Sarawak 124,450 km².

2.2 Administrative Division

Malaysia consists of the States of Perlis, Kedah, Pulau Pinang, Perak, Selangor, Negeri Sembilan, Melaka, Johor, Pahang, Trengganu and Kelantan in Peninsular Malaysia, and Sabah and Sarawak in Borneo.

In Peninsular Malaysia, each State is divided into several Districts as shown in Table 1 and Fig. 1. In case of Sabah and Sarawak, however, the larger administrative division is found i.e. the Division. Sabah is composed of five Divisions; West Coast, Kudat, Interior, Sandakan and Tawau. Sarawak has seven Divisions; those are First, Second, Third, Fourth, Fifth, Sixth and Seventh Divisions. Each Division is further divided into some Districts. District is the minimal administrative unit within the State, not only in Peninsular Malaysia but in Sabah and Sarawak. Administrative units in Sabah and Sarawak are as shown in Tables 2 and 3 and Fig. 2.

The Federal Territory has been established under the Constitution, surrounded by the State of Selangor. In the process of projection, the Federal Territory was treated as a district of Selangor because of the difficulty of distinction of available data from the State of Selangor.

2.3 Population

At present, two series of data source for population in 1980 are available in Malaysia. One is that by 4MP, estimated by EPU (Ref. 5). Another is shown in the Population Census (Ref. 20) prepared by DOS. Figures of 4MP are higher than those of DOS. In this Study, population in 4MP was adopted as basic data not only for the description of actual situation but also for the projection of the other key indicators.

Population of whole Malaysia was $14,261 \times 10^3$ in 1980. The population size had grown at 2.84% per annum from the figure in 1970 which was recorded to be $10,777 \times 10^3$. In 1980, population of Peninsular Malaysia was $11,849 \times 10^3$, while Sabah had the population of $1,098 \times 10^3$ and Sarawak had $1,314 \times 10^3$. Of these three regions, Sabah indicated a significant population growth from 1970 to 1980. Table 4 shows these conditions.

Population density in whole Malaysia changed from 33 to 43 persons/km² during the above-mentioned period. Although the population growth of Sabah and Sarawak was higher than that of Peninsular Malaysia, these two States have been still sparsely populated as shown in Table 5.

Population distribution between urban and rural areas and ethnic composition in Peninsular Malaysia are as shown in Table 6. As shown in Table 6, Malay, Chinese and Indian are the major ethnic groups of Peninsular Malaysia, and urban population of Malay has been increasing. On the other hand, the other indigenous people command the majority in Sabah and Sarawak. Kadazan, Bajau and Murut in Sabah, and Iban, Land Dayak and Melanau in Sarawak constitute the indigenous people.

2.4 GDP and GRP

The scale and characteristics of GDP or GRP in Malaysia are mentioned below and are shown in Tables 7 and 8. Figures are shown at factor cost in 1970 constant prices.

(1) Whole Malaysia

GDP of Malaysia was M\$25,376 x 10⁶ in 1980. The annual growth rate during the period from 1971 to 1980 was 8.1% on an average. Per capita GDP grew to M\$1,779 in 1980 with the growth rate of 5.1% per annum during the same period. Manufacturing sector occupied the share of 21.2% in GDP, while 22.9% of GDP was contributed by agriculture sector.

(2) Peninsular Malaysia

In 1980, GRP of Peninsular Malaysia was M\$21,706 x 10⁶. From 1971 to 1980, average annual growth rate was 8.0%. Per capita GRP of Peninsular Malaysia became M\$1,832 with the growth rate of 5.2% per annum. Manufacturing sector contributed to GRP by 23.8% and agricultural sector 20.7%.

(3) Sabah

GRP of the State of Sabah was M\$1,944 x 10⁶ in 1980, growing annually at high rate of 9.7% since 1971. Per capita GRP in the same year was M\$1,771 being nearly equal to the national average. The average annual growth rate of per capita GRP was 4.2% from 1971 to 1980. Share of value added of manufacturing sector was 2.3% of GRP, while that of agriculture was 44.3% in 1980.

(4) Sarawak

GRP was recorded to be M\$1,726 x 10⁶ in 1980. From 1971 to 1980, GRP grew at average annual growth rate of 7.7% in Sarawak. Per capita GRP in 1980 was M\$1,313 with the growth rate of 4.6% per annum since 1971. Manufacturing sector had the share of 9.8% and agriculture 26.8% of GRP.

2.5 External Trade

Table 9 indicates the trend of trade balance of whole Malaysia from 1970 to 1980. The economy of Malaysia is essentially export oriented with the export sector contributing largely to GNP of the nation. In spite of depression of economic development in these years, the amount of exports grew at an average annual increase of about 18% during the period from 1970 to 1980. For each year, the amount of exports exceeded that of imports.

In 1980, the exports of Malaysia totalled M\$28,073 x 10⁶. Major export commodities comprised crude petroleum, manufactured goods, rubber, sawlogs, tin and palm oil as shown in Table 10. Traditionally, rubber and tin were important export commodities for Malaysia. However, along the strategy of diversification and expansion of export base, these two commodities declined their share in the past decade. On the contrary, round and sawn timber, palm oil, crude petroleum, and manufactured and processed products registered remarkable growth in export items. Sabah and Sarawak contributes to the exports of Malaysia, mainly with round timber and crude petroleum.

Imports of Malaysia amounted to M\$23,430 x 10⁶ in 1980. Major imported commodities were machinery and transport equipment, manufactured goods, food, beverages and tobacco as shown in Table 10.

Being supported by the above-mentioned trade balance, the balance of payments of Malaysia has been kept in the favourable conditions since Independence. The structure of balance of payments is also characterized by a heavy reliance on the export sector.

2.6 Employment

(1) Whole Malaysia

Labour force was 5,380 x 10³ in whole Malaysia, and unemployment rate was 5.3% in 1980. Total employed labour was estimated at 5,094 x 10³. Employment by sector was the highest in agriculture, forestry and fishery sector with 2,067 x 10³, corresponding to 40.6% of all the sectors, while that of manufacturing sector was only 803 x 10³. Labour force and employment are as shown in Tables 11, 14 and 17.

(2) Peninsular Malaysia

Labour force was 4,512 x 10³ which corresponded to 38.1% of total population in 1980. Employed labour of Peninsular Malaysia was 4,264 x 10³ for the same year. Unemployment rate in 1980 was thus 5.5% of the labour force. Service sector had the highest share of the employment with 1,649 x 10³. The second was agriculture, forestry and fishery sector. Unemployment rate has fairly improved recently. Data on labour force and employment are shown in Tables 12, 15 and 18.

(3) Sabah and Sarawak

Labour force in Sabah and Sarawak was 868×10^3 for the year 1980. Out of these, 830×10^3 were employed resulting in the unemployment rate of 4.4% in these two States. The highest share of employment was to be seen in agriculture, forestry and fishery sector, which corresponded to 63.6% of the whole sectors. Data on labour force and employment are shown in Tables 13, 16 and 19.

2.7 Consumer Price

In 1981, consumer price increase was much higher in Sabah and Sarawak than in Peninsular Malaysia. Annual growth rates of consumer price index were 11.5% in Sabah and 11.4% in Sarawak, while 9.6% of rise against the previous year was recorded in Peninsular Malaysia as shown in Table 20.

3. NATIONAL ECONOMIC DEVELOPMENT PLAN

3.1 New Economic Policy

New Economic Policy (NEP) was enunciated in the Mid-Term Review of the Second Malaysia Plan, 1971 to 1975, in order to promote national unity through eradicating poverty irrespective to race and restructuring society to eliminate the identification of race with economic functions.

3.2 Outline Perspective Plan

Outline Perspective Plan (OPP) was initiated in 1971 to achieve the goals of NEP in 1990. Major progress in the first decade from 1971 to 1980 and the target for the second decade from 1981 to 1990 may be summarized hereunder.

3.2.1 Progress in the first decade of OPP (1971 to 80)

Considerable progress has been made in the field of employment generation and poverty eradication being supported by the rapid economic growth. However, there has been a shortfall in the attainment of the restructuring target.

Despite the emergence of the adverse trends such as inflation and rising costs of energy, Malaysia recorded a strong economic performance, the continued rapid growth and a substantial improvement in welfare of the people.

3.2.2 Development strategies in the second decade of OPP (1981 to 90)

Macroeconomic strategies during 1980s are not only to accomplish the long-term targets of NEP, but also to compensate for past shortfalls such as the lower achievement of the restructuring target in certain areas. Development strategies and prospects of major leading sectors for the second decade of OPP are summarized below.

(1) Development in agricultural sector

Rubber will benefit considerably from the expected increase in energy costs which make synthetic rubber less competitive. And the new land for rubber is planned to be opened and the productivity improvement efforts will be strengthened.

Export prices of palm oil are expected to fall when the prospective increases in the world supply of oils and fats are considered. While it is expected that the market share of palm oil in total oils and fats would decline, Malaysia is expected to be capable of securing increases in the share of world palm oil market.

National Forestry Policy, adopted in 1978, will be implemented for the conservation, management and development of the forest resources on a systematic basis in order to avoid depletion of the forest resources.

The policy of self-sufficiency in the rice production will be maintained through increase in the yield of existing paddy crop as well as expansion of paddy cultivation area.

(2) Development in manufacturing sector

Output of this sector is projected to grow at a rapid rate of growth through the export expansion and import substitution strategies. The Government will emphasize the processing of primary commodities as a part of its strategy to encourage the growth of resource-based industries to meet the demand for the domestic market and for export.

Necessary steps will be taken to develop new manufactured export activities based on Malaysia's comparative advantage with less man-power required.

Improvement of living standards and rapid economic growth will bring about the demand increase for consumptive goods, capital and international goods and construction materials.

With the establishment of Heavy Industries Corporation Malaysia Berhad, heavy industrial production will be accelerated.

(3) Development in mining sector

The slow growth in 1980s will be derived from the depletion in alluvial tin bearing deposits as well as slowdown in the rate of production of crude petroleum.

The prospects for the development of the natural gas industry to meet domestic and export needs will be bright. Natural gas from offshore fields in Trengganu, Sabah and Sarawak will be used for the generation of electricity and to produce liquified petroleum gas (LPG). In addition, the domestic refining capacity will be significantly enhanced with the establishment of oil refineries in Melaka and Trengganu.

(4) Regional development

In accordance with the goals of NEP, regional development during 1980s will continue to be directed towards reducing the socio-economic disparities among regions by encouraging the promotion policy to the less developed regions.

Major strategies of regional development are shown in each state.

Kedah/Perlis

- (a) improvement of productivity in agricultural sector,
- (b) completion of Chankat Jering-Alor Setar-Jitra highway linked to the regional commercial center at Pulau Pinang, and

- (c) increase in agricultural productivity by Muda II and Titi Tinggi projects.

Pulau Pinang

- (a) increase of high-technology industries,
- (b) strengthening the role of this state as the regional growth center for northern Peninsular Malaysia, and
- (c) completion of Penang bridge to improve economic linkages with the mainland.

Perak

- (a) new land development program to increase agricultural production.

Selangor and the Federal Territory

- (a) lowering the growth of production than the last decade because of the diversification policy of industrial growth throughout the country, and
- (b) concentration of government and commercial services and facilities in the Federal Territory and strengthening the manufacturing and related tertiary sectors in Kelang valley.

Negeri Sembilan

- (a) maximization of agricultural production, and
- (b) expansion of industrial and services sectors benefitted from the state's proximity to the major urban centers of Selangor and the Federal Territory.

Melaka

- (a) facilities improvement of existing industrial estates,
- (b) attraction of a larger number of labour-intensive industries,
- (c) commercial operation of an oil refinery, and
- (d) implementation of integrated agricultural development project.

Johor

- (a) implementation of the Johor Barat Integrated Agricultural Development project,
- (b) establishment of industrial estates at Tampoi and Larkim, and Pasir Gudang, and

- (c) completion of Port Pasir Gudang.

Pahang

- (a) increase in agricultural production from new land development program,
- (b) increase in timber extraction,
- (c) expansion of manufacturing sector,
- (d) full operation of Kuantan port, and
- (e) completion of Kuala Lumpur-Karak and Kuantan-Segamat highways and improvement of the Kuantan-Dungun road.

Trengganu

- (a) petroleum and gas production,
- (b) increase in industrial and agricultural output,
- (c) establishment of resource-based and heavy industries,
- (d) land development and logging activities, and
- (e) completion of Jerangau-Jabon highway to Dungun, Paka and Chukai.

Kelantan

- (a) increase in productivity in existing agricultural areas,
- (b) exploitation of resources,
- (c) completion of the Kuala Krai-Gua Musang-Kuala Lipis-Bentong highway and the East-West-highway, and
- (d) establishment of resource-based industries.

Sabah

- (a) development of vast natural resources by new land development program, timber, petroleum and copper production, and
- (b) establishment of more resource-based, export-oriented industries, mainly composed of oil refining and processing of cocoa beans.

Sarawak

- (a) implementation of new land development programs, and

- (b) establishment of resource-based and heavy industries including petro-chemical and liquified natural gas.

3.3 Fourth Malaysia Plan (4MP)

The economy will undergo further expansion and diversification during 4MP period.

The current international instability foreseen to continue until at least the initial years of 4MP will have direct impact on the country's economic development. International situation would improve during the mid-period of 4MP and exports are expected to perform better. Characteristics and strategies of sectoral development are summarized as follows for the leading sectors.

(1) Agriculture, forestry and fishing sector

- (a) slower growth of the major commodities such as rubber and palm oil,
- (b) declining of the sawlog output by the National Forest Policy in Peninsular Malaysia and the conservation policy of Sabah and Sarawak,
- (c) continuation of the encouragement of the dominant tree crops at present,
- (d) production promotion of cocoa, pepper, tobacco, vegetables and fruits,
- (e) expansion of rubber output by the Government's Dynamic Production Policy through replanting and opening the new planted area,
- (f) development of new land and replanting program for oil palm, and
- (g) continuation of self-sufficiency policy in paddy production.

(2) Mining sector

- (a) increase of crude petroleum output from 280×10^3 barrels/d in 1980 to 363×10^3 barrels/d in 1985,
- (b) bright prospects of LNG including 6×10^6 tonnes by Bintulu LNG project, and
- (c) decrease of tin production and copper output because of the limited availability of existing resources.

(3) Manufacturing sector

- (a) stimulus of expansion of the manufacturing sector from both external and domestic demand,
- (b) strengthening of the export-oriented industries such as timber products, electronics, textiles and rubber products,
- (c) promotion of the agro-based industries including processing of cocoa and palm oil, production of specific rubber products and high value timber-based products,
- (d) import-substitution policy including the production of processed food, intermediate goods such as oils and fats, industrial chemicals, chemical products and cement, and
- (e) encouragement of capital-intensive industries such as aluminium, cement and steel by the Heavy Industries Corporation Malaysia Berhad.

4. POPULATION PROJECTION

4.1 Basic Data and Assumption

Basic data for the population projection are as follows:

- (1) 4MP (Ref. 5) and data provided by EPU (Ref. 21),
- (2) Population Census for the years of 1970 and 1980 (Refs. 6 & 20), and
- (3) regional study reports (Refs. 22 to 25).

Population of whole Malaysia and that by each State were projected based on the data available in 4MP and also on the information derived from EPU. Population by each District was projected first based on the "Preliminary Field Count Summary" of 1980 Population Census made by DOS and was later adjusted to the State population projected in 4MP by multiplying the differential ratios which were obtained from the State populations prepared by DOS based on 1970 and 1980 Population Censuses divided by the State populations of 1970 and 1980 prepared in 4MP. This adjustment was required due to the fact that the population projection by each District was not available in 4MP. The comparison of population figures of 4MP and DOS is presented in Table 21. In projecting the District population, the boundaries of each District were taken based on those adopted in 1980 Population Census and the District boundaries in 1970 were adjusted, as required, to those adopted in 1980 Population Census. In projecting the urban population in such city/towns as Kota Kinabalu and Labuan in Sabah and Kuching and Bintulu in Sarawak, their urban boundaries were assumed to expand due to the rapid urbanization and/or large scale industrial development; the details are stated in the following subsection 4.2.3 (3).

4.2 Projection Procedure and Methodology

4.2.1 Projection of population in whole Malaysia

The nation population estimated and projected in 4MP for the years of 1980, 1985 and 1990 was adopted and the population for the year of 2000 provided by EPU was also adopted. The population in 1995 was obtained by interpolation of the projected population of 1990 and 2000. The interpolation was made individually for Peninsula, Sabah and Sarawak based on respective average annual growth rates between 1990 and 2000.

4.2.2 Projection of population by State

The state population estimated and projected in 4MP for the years of 1980, 1985 and 1990 was adopted. In projecting the state population for the years of 1995 and 2000, a binomial function was assumed. Namely, the population of each state was assumed to be related to the nation population by the equation of:

$$Y = aX^2 + bX + c$$

where, Y: Population in a State
X: Population in whole Malaysia

As an exception, for Pulau Pinang State, the equation of $Y = a + b \cdot X^c$ was applied to project its population because it was found to be more fitted than the equation of $Y = aX^2 + bX + c$. The values of coefficients a, b and c were determined for each state based on the population figures in 1980, 1985 and 1990.

4.2.3 Projection of urban population

Urban population was projected based upon the following assumption which was led by historical trend of urbanization phenomena.

(1) Projection method of urbanization ratio in whole Malaysia

The urbanization ratio is herein defined to be the ratio of the urban population to the total population. For the whole Malaysia, a linear relationship was assumed between per capita GDP and the urbanization ratio as shown in the following equation:

$$Y = aX + b$$

where, Y: Urbanization ratio in whole Malaysia
X: Per capita GDP

The values of coefficients a and b were calculated from the values of Y and X shown in 4MP for 1970 and 1980. The resulted urbanization ratios are shown in the following (4) in this sub-section.

(2) Projection method of first approximation of population in each city/town

The ratio of the population in a city/town to the population in the state to which the city/town belongs is herein called the population share of the city/town.

The phenomena are classified into the following three areal groups:

Group 1: Town, in which population share has increased between 1970 and 1980.

$$Y = 1 - 1/(aX + b)$$

where, Y: Share of population in a town to total of State
X: Population in State

The values of coefficients a and b were estimated by Y and X in 1970 and 1980 (Refs. 5 to 7 and 20).

Group 2: Town, in which population share to total of State has decreased between 1970 and 1980.

$$Y = 1/(aX + b)$$

The values of coefficients a and b were estimated by the data as shown in Group 1.

Group 3: Town, in which population share to total of State was constant between 1970 and 1980.

Future share of population of a town to total of the State was estimated to be equal to the share of population of a town to total of State in 1980 (= Share of population of a town to total of State in 1970)

(3) Basic assumption for new urban area

Urban boundaries of the following city/towns were assumed to expand in the future to surrounding area from the present boundary. The expanded area is herein called as "Greater urban area".

- (a) Greater urban area of Kota Kinabalu: Kota Kinabalu town, Menggatal and Inanam in the District of Kota Kinabalu, and Kasigui, Donggongan and Putatan in the District of Penampang (Ref. 22).
- (b) Greater urban area of Labuan: Labuan town and Ranca Ranca Peninsula (Ref. 23).
- (c) Greater urban area of Kuching: the area is shown in Fig. 3 (Ref. 24).
- (d) Greater urban area of Bintulu: the area is shown in Fig. 4 (Ref. 25).

(4) Work procedure

All the gazetted towns with population of more than 3,000 in 1980 Population Census were picked up as shown in Tables 23 through 34. The population projection (First Approximation) was carried out through 2000 based on the formula shown in Section 4.2.3 (2). Those towns whose population in 2000 was projected to exceed 10,000 were identified and defined as city/towns in this Study.

Urbanization ratios for Case 1 and Case 2 were projected for the years of 1985, 1990, 1995 and 2000 based on the per capita GDP in each corresponding year of each Case according to the formula shown in Section 4.2.3 (1).

Urbanization ratio derived from the above-mentioned First Approximation was adjusted to those derived through the procedure mentioned in sub-section 4.2.3 (1) by multiplying the coefficients shown below:

	1980	1985	1990	1995	2000
Urbanization Ratio					
First Approx. (A)	0.359	0.390	0.419	0.448	0.477
Case 1 (B)	0.359	0.388	0.432	0.486	0.556
Case 2 (C)	0.359	0.384	0.409	0.433	0.461
Coefficient					
For Case 1 (B/A)	1.000	0.995	1.030	1.084	1.167
For Case 2 (C/A)	1.000	0.985	0.975	0.966	0.967

4.2.4 Projection of rural population

Rural population was defined in this Study as the population living in other area than city/town area. The rural population was projected based on the same formula as adopted for the projection of urban population stated in sub-section 4.2.3 (2), but Y and X stand for as follows:

Y: Share of population of a District rural area to the State rural population, and

X: Total population of the State rural area.

The values of coefficients a and b were derived based on the historical Y and X in 1970 and 1980 Population Censuses. This formula assumed that the rural population trend experienced during the period from 1970 to 1980 would continue through the year 2000.

The future rural population of each District was derived by the share derived above multiplied by the projected State rural population.

4.2.5 Projection of District population

District population was derived by aggregating the District urban population projected in Section 4.2.3 and the District rural population projected in 4.2.4.

4.3 Projected Population

4.3.1 Projected population of whole Malaysia

The projected population of whole Malaysia is as shown in Table 22. The total population of Malaysia was projected to increase from 14.3×10^6 in 1980 to 22.1×10^6 in 2000 with an average growth rate of 2.2% per annum in this 20 years. The said growth rate in the Peninsula was estimated at 2.0% per annum and those in Sabah and Sarawak were estimated at the same rate of 3.2% per annum, respectively.

4.3.2 Projected population of State

The projected population of 12 States is as shown in Table 22. The States of Kedah and Perlis were aggregated for the convenience for planning in this Study. In the year of 2000, the population of Selangor was estimated to reach 4.8×10^6 increasing with a growth rate of 3.2% per annum in the period from 1980 to 2000; followed by Johor of 2.5×10^6 and Perak of 2.1×10^6 in the Peninsula.

4.3.3 Projected population of District

The projected population of each District with the breakdown of city/town and rural populations is as shown in Tables 35 through 60 for Case 1 and for Case 2.

In case of Pahang, the planned 20 new towns with the planned population of more than 10,000 in 2000 were incorporated in the urban population.

When focussed to Case 1 projection, the average growth rate in urban area of Pahang during the period from 1980 to 2000 was estimated at as high as 6.6% per annum followed by those of Sabah of 6.4% per annum and Sarawak of 6.0% per annum. While in the rural area in Trengganu, the population was estimated to decrease in the same period with an average rate of -2.3% per annum; the urban growth in Trengganu was estimated at 5.5% per annum. The slight decrease in rural population was estimated also in Negeri Sembilan of -0.5% per annum, Pahang and Perak of -0.4% per annum in the same period.

4.3.4 Projected population by river Basin

According to the river Basin division defined in this Study, the projected District population was rearranged into the Basin population as shown in Tables 61 to 76. In the above Tables, the Basin population is broken down into city/town population and rural population. No city/town is divided into plural Basins but some district rural population are divided into a number of Basins according to their topographical conditions.

5. GDP PROJECTION

5.1 Basic Data and Assumption

GDP and GRP by State were projected for the following two cases, taking into consideration the planned value of 4MP/OPP.

Case 1: 4MP target in 1985 and OPP target in 1990 were assumed to be achieved as initially planned. For the period from 1990 to 2000, a GDP growth rate of 7.5% which is 0.5% less than that initially set for the period from 1980 to 1990 was assumed based on the latest information.

Case 2: The GDP growth rates were assumed at 7% for 1980 to 1985, 6% for 1985 to 1990 and 5% for 1990 to 2000 taking into consideration the recent worldwide depression. As the result, the attainment of GDP in Case 1 in 2000 was assumed to be delayed in Case 2 by about five years.

Basic principles of GDP projection for both cases are shown as follows, where r denotes GDP growth rate per annum:

	1980	1985	1990	1995	2000
Case 1	by 4MP	by 4MP	by OPP	$r = 7.5\%$ (1990 - 2000)	
Case 2	by 4MP	$r = 7.0\%$ (1980 - 85)	$r = 6.0\%$ (1985 - 90)	$r = 5.0\%$ (1990 - 2000)	

Average annual growth rate between 1990 and 2000 for Case 1 corresponds to that similar to those of the rapidly growing countries including Singapore and Korea in recent years.

Those of Case 2 were set taking into consideration the recent economic environment of Malaysia for 1980 - 1985 and the maximum growth of the advanced countries under the continuous economic depression for 1985 - 1990 and for 1990 - 2000.

5.2 Projection Methodology of GDP and GRP

5.2.1 Projection of GDP of whole Malaysia

Projection procedure of GDP and GRP is shown below:

Case 1: 1980, 1985 and 1990: Planned value by 4MP and OPP
 1995 and 2000 : Projected value at annual growth rate of 7.5%

Case 2: 1980: Planned value by 4MP
 1985: Projected value at annual growth rate of 7.0%

1990: Projected value at annual growth rate of 6.0%
2000: Projected value at annual growth rate of 5.0%

5.2.2 Projection of GRP by State

Per capita GRP by State was assumed to be related to per capita GDP of the whole nation by the following equation:

$$Y = X + a/X + b/X^2 + c/X^3$$

where, Y: Per capita GRP by State
X: Per capita GDP of whole nation

The values of coefficients a, b and c were determined for each State based on the values of X and Y projected in 4MP and OPP for the years of 1980, 1985 and 1990. The above function implies that the per capita GRP by State will converge to the per capita GDP of whole nation in the long run. The GRP of each State was obtained by the projected per capita GRP of each State multiplied by the projected population of each State.

5.3 Projected GDP and GRP

The result of projection is as shown in Tables 77 to 80.

5.3.1 GDP of whole Malaysia

GDP of whole Malaysia in 1990 was estimated at M\$54,860 x 10⁶ by Case 1 and at M\$47,628 x 10⁶ by Case 2. In 2000, GDP was estimated at M\$113,068 x 10⁶ by Case 1 and at M\$77,585 x 10⁶ by Case 2.

Average annual growth rate during 1980 and 1985 was estimated to be 7.6% by Case 1 and 7.0% by Case 2; that for 1990 to 2000 at 7.5% by Case 1 and 5.0% by Case 2.

5.3.2 GRP by State

GRP in 2000 by Case 1 was estimated at M\$92,962 x 10⁶ in Peninsular Malaysia, at M\$9,704 x 10⁶ in Sabah and at M\$10,401 x 10⁶ in Sarawak; that of Case 2 at M\$64,578 in Peninsular Malaysia, at M\$6,492 x 10⁶ in Sabah and at M\$6,515 x 10⁶ in Sarawak.

In Peninsular Malaysia, GRP of Selangor in Case 1 was estimated at M\$29,459 x 10⁶ in 2000, corresponding to 26.1% of whole Malaysia. That of Case 2 was estimated at M\$22,127 x 10⁶, which is 28.5% of whole Malaysia. GRP of Johor and Perak are still high, and the remarkable growth of the low-income States was estimated because of the diversion effect of socio-economic development to the depressed area under the Government's policy.

5.3.3 Per capita GDP and GRP

Per capita GDP of 2000 was estimated to be M\$5,126 in whole Malaysia by Case 1 and M\$3,518 by Case 2. The State with the highest per capita GRP is Pulau Pinang at M\$6,156 by Case 1 and Selangor at M\$4,566 by Case 2. The State with the lowest per capita GRP is Sarawak at M\$4,191 by Case 1 and Kedah/Perlis at M\$2,549 by Case 2. Income disparity among the States was estimated to be narrowed by accelerating the growth of the less-developed States under the Government policy.

6. PROJECTION OF GROSS VALUE OF OUTPUT IN MANUFACTURING SECTOR

6.1 Basic Data and Assumption

Basic data for the projection of gross value of output in manufacturing sector were obtained from the followings:

- (1) 4MP,
- (2) Survey of Manufacturing Industries, Peninsular Malaysia, 1974, Vol. I DOS, Survey of Manufacturing Industries, Sabah, 1974, DOS, and Survey of Manufacturing Industries, Sarawak, 1974, DOS (Refs. 32 to 34),
- (3) Survey of Manufacturing Industries by DOS, 1978, Sarawak (Ref. 35),
- (4) Directory of Approved Companies in Production, 1979, MIDA (whole Malaysia) (Ref. 58),
- (5) planned production provided by MIDA for Peninsular Malaysia, 1981,
- (6) planned production provided by the Heavy Industries Corporation of Malaysia Bhd. and Project Investment Unit of Sabah and the Bintulu Development Authority of Sarawak, 1981 (Refs. 61 to 63), and
- (7) Economic Report 1980/81, MOF (Ref. 54).

Projection was basically proceeded based upon the 4MP/OPP figures in the Peninsula. In Sabah and Sarawak, projection depends upon the actual economic structure in 1974, 1978 and 1979 shown in the above-mentioned references, because of a lack of the planned figure by 4MP/OPP.

Classification of commodity group in manufacturing sector shown in the next page was adopted for the projection of industrial water demand. The correspondence with the classification adopted by DOS is also shown in the next page.

Commodity Group in This Study	Commodity Group Adopted by DOS
1. Food Group	Food, beverage and tobacco
2. Textiles Group	Textiles, wearing apparel, leather and footwear
3. Wood Group	Wood, furniture, fixture and wood and cork products
4. Paper Group	Paper and paper products
5. Publishing Group	Printing publishing and allied industries
6. Chemical Group	Chemicals, petroleum refineries, plastic products
7. Rubber Group	Rubber products
8. Non Metal Group	Pottery, china, earthenware, glass products, non-metallic mineral products
9. Basic Metal Group	Iron, steel and non-ferrous metal basic products
10. Machinery Group	Fabricated metal, machinery, electrical and transport equipment
11. Others	Other manufacturing industries

6.2 Projection Methodology

6.2.1 Projection of value added (VA) of manufacturing sector by State

In projecting VA of manufacturing sector, the share of VA of manufacturing sector to GRP of each State was first projected according to the following formula:

$$Y = 50 + a/X^2 + b/X^3 + c/X^4$$

where, Y: Share of VA of manufacturing sector to GRP of each State
X: Per capita GRP of each State

The above formula assumes that the share of VA of manufacturing sector has a functional relationship with per capita GRP. The constant of 50% was derived through trial and error computation aiming that the share of VA of manufacturing sector in GDP in 2000 will fall in the range of 32% to 33%, which was estimated to be the ceiling share according to the historical and planned share by 4MP and OPP.

Based on thus projected share, VA of manufacturing sector of each State was projected by GRP of each State multiplied by the above-mentioned share of VA of manufacturing sector of each State. The projection was made for Case 1 and for Case 2 in which State GRP value varies by each case. The projected value is shown in Tables 81 to 84.

6.2.2 Projection of VA of manufacturing sector by State by commodity group

VA of manufacturing sector of a State was further broken down into 11 commodity groups by VA of manufacturing sector of a State multiplied by the share of 11 commodity groups which were estimated by the following procedures. VA of manufacturing sector of each State as projected in Section 6.2.1 and shown in Tables 81 to 84 was assumed to include the large scale industrial development projects.

- (a) clarification of the future development plan of large scale industries including petro-chemical products and basic metals (Step 1),
- (b) estimation of VA of manufacturing sector by State based upon the historical trend without the large scale industrial development (Step 2),
- (c) projection of share of 11 commodity groups in manufacturing sector by State based upon the historical trend without the large scale industrial development (Step 3),
- (d) projection of VA of manufacturing sector of each State without the large scale industrial development (Step 4),
- (e) estimation of the aggregated total of the projected value by historical trend and the value added by the large scale industrial development (Step 5),
- (f) adjustment of the projected value added by taking into consideration the availability of water source (Step 6).

(1) Step 1

Development plan is as shown in Table 85. These projects were planned by the Heavy Industries Corporation of Malaysia Bhd, the Project Investment Unit of Sabah, and the Bintulu Development Authority of Sarawak. Stagewise achievement ratio of the planned production target was assumed to be as follows in both cases:

	1985	1990	1995	2000
Case 1	15%	50%	100%	100%
Case 2	15%	35%	60%	100%

(2) Step 2

VA of manufacturing sector of each State without large scale industries was obtained by VA of manufacturing sector of each State deducted by VA produced by the large scale industrial development estimated in Step 1.

(3) Step 3

The share of 11 commodity groups in the manufacturing sector of each State was projected according to the following procedures:

(A) Peninsular Malaysia

First, the share of 11 commodity group of manufacturing sector in 1980 and 1985 was estimated by following procedures:

- (a) Considering the big share (12.4% to the total) in 1980 of "Other manufactures" which was presented in 4MP (p. 294), it was intended to breakdown this share into some commodity groups by utilizing the 1974 Industrial Survey in which the share of "Other manufactures" was 0.3% to the total. First, based on the commodity shares in 1975 and their growth rates for the period of 1971 - 1980 shown in 4MP (p. 294), the estimated share in 1974 was obtained. By comparing this estimated shares with those obtained from the 1974 Industrial Survey, the estimated share of "Other manufactures" for 1974 was distributed to the commodity groups by the ratio of 1974 estimated share to that obtained by 1974 Industrial Survey. Through this procedures, the share of "Other manufactures" in 1974 was lessened to that indicated in 1974 Industrial Survey. Thereafter, by applying the growth rate of each commodity share for 1971 - 1980 available in 4MP (p. 294), the commodity share in 1980 was obtained.
- (b) Based on thus estimated commodity share in 1980, the share in 1985 was obtained by applying the growth rate of each commodity group for 1981 - 1985 available in 4MP (p. 252).

The estimated share of 11 commodity groups in 1980 and 1985 is presented in Table 86.

Secondly, the share of 11 commodity groups of manufacturing sector after 1985 was projected by applying the following formula.

If the share of a commodity group in 1985 is greater than that in 1980:

$$Y = 1 - 1/(aX + b)$$

If the share of a commodity group in 1985 is less than that in 1980:

$$Y = 1/(aX + b)$$

where, Y: Share of a commodity group to total VA of manufacturing sector in Peninsular Malaysia in the years of 1990, 1995 and 2000

X: Total VA of manufacturing sector in Peninsular Malaysia projected for the years of 1990, 1995 and 2000 shown in Tables 81 and 83

If the share of a commodity group in 1985 is equal to that in 1980, the share of the commodity group after 1985 was assumed to be equal to those in 1980 and 1985.

The projected share by 11 commodity groups of manufacturing sector in whole Peninsular Malaysia for the years from 1980 to 2000 is shown in Tables 87 and 88.

Finally, the share of 11 commodity groups of manufacturing sector of Peninsular Malaysia in each year projected in Tables 87 and 88 was broken down into those of each State in the Peninsula through converging computation by "Frater Method". As a result of this computation, the share of 11 commodity groups by 10 States of the Peninsula was derived for each year from 1980 through 2000.

It is noted that the new large scale industrial development was not considered in deriving the above share of 11 commodity groups of manufacturing sector in the Peninsular; it was considered in the following Step 5.

(B) Sabah

For the estimation of share by 11 commodity groups of manufacturing sector in Sabah, only the Survey of Industries carried out in 1974 (Ref. 33) was availed. Therefore, in estimating the share by 11 commodity groups, the data on number of establishment available for 1974 in the above survey and for 1979 in the Directory of approved Companies in Production as of 1979 prepared by MIDA (Ref. 58) were utilized. The share of VA by 11 commodity groups in 1979 was estimated by the said share in 1974 multiplied by the increase in the number of establishment between 1974 and 1979. The above share estimated for 1979 was assumed to be unchanged for future and applied for the years from 1980 to 2000.

It is noted that the new large scale industrial development was not considered in deriving the above share of 11 commodity groups of manufacturing sector in Sabah; it was considered in the following Step 5.

(C) Sarawak

The share of 11 commodity groups to total VA of manufacturing sector in Sarawak was available for 1978 in Survey of Manufacturing Industries, Sarawak prepared by DOS (Ref. 35). The

above share in 1978 was applied for the years from 1980 to 2000 assuming that there will be no structural change in the share of commodity group of manufacturing sector in Sarawak.

It is noted that the new large scale industrial development was not considered in deriving the above share of 11 commodity groups of manufacturing sector in Sarawak; it was considered in the following Step 5.

(4) Step 4

The projected VA by 11 commodity groups of manufacturing sector in each State was derived by the total VA of manufacturing sector multiplied by the share of 11 commodity groups projected in Step 3 for each State and for each year from 1980 to 2000.

It is noted that the projected VA of manufacturing sector by 11 commodity groups by each State does not include the new large scale industrial development projects.

(5) Step 5

VA of manufacturing sector by 11 commodity groups by each State was finally derived by aggregating VA of new large scale industries projected in Step 1 and VA of manufacturing sector excluding the new large scale industries projected in Step 4 for each commodity group and for each State.

(6) Step 6

Based on the projected VA of manufacturing sector of each State, the future requirement of industrial water was tentatively estimated by each State. After aggregating the industrial water demand and domestic water demand, the future total water requirement was checked with the availability of water through water balance study by each State. Then, in four States of Johor, Negeri Sembilan, Pulau Pinang and Selangor, it was found that the future water requirement could not be met in these States even after trans-basin diversion plans were considered.

Therefore, the following modification through decreasing VA of water consumptive industries such as Paper and Chemicals was made to the original VA of manufacturing sector which was derived by Step 1 through Step 5.

- (a) VA of Paper Group in Johor, Pulau Pinang and Selangor States was assumed to keep constant at the VA of 1985 level through year 2000.
- (b) VA of Chemical Group in Johor, Negeri Sembilan and Selangor States was also assumed to keep constant at the VA of 1985 level through year 2000.

- (c) The decreased VA portion of Paper and Chemical Groups were transferred to other commodity groups with major portion to Machinery Group which requires comparatively less industrial water.
- (d) Through the above procedures, the VA of manufacturing sector of each State for 1985 and 1990 indicated in 4MP was kept unchanged. Only modification is that the composition of VA by commodity group of manufacturing sector in whole Malaysia which was initially estimated for the years of 1990 and thereafter based on 4MP was changed to some extent.

As the result, the future water requirements in the States of Johor, Negeri Sembilan, Pulau Pinang and Selangor were planned to be met by the water resources in each State. Through the above modification, the initially planned VA of manufacturing sector can be attained by less consumption of industrial water.

The projected VA of manufacturing sector by each commodity group by each State for the years from 1980 to 2000 is as shown in Tables 89 to 97.

6.2.3 Projection of gross value of output in manufacturing sector

The gross value of output in manufacturing sector was projected by VA in manufacturing sector projected in Section 6.2.2 divided by VA ratio which is defined as the ratio of VA to gross value of output in manufacturing sector.

VA ratio was assumed to be 30% in manufacturing sector in whole Malaysia taking into consideration the experience of Japan and Korea as well as Peninsular Malaysia.

VA ratio by commodity group in 1974 was adopted for all the years and adjusted by the control total of 30% in total manufacturing sector as mentioned above.

Basic data for the decision of VA ratio are as shown in Tables 98 to 100 and Fig. 5.

6.3 Projected VA by State by Commodity Group

6.3.1 VA of manufacturing sector

(1) Present conditions

VA of manufacturing sector in 1980 was M\$5,374 x 10⁶ in whole Malaysia, which was 21.1% of GDP. This value of Selangor was M\$2,462 x 10⁶, corresponding to 45.8% of whole Malaysia.

(2) Projected value

VA of manufacturing sector in 2000 was estimated to be M\$36,386 x 10⁶ for Case 1 and M\$22,223 x 10⁶ for Case 2 in whole Malaysia. The shares to GDP are 32.2% for Case 1 and 28.6% for Case 2, which is higher than those of 1980. Substantial contribution of manufacturing sector was estimated to be raised by the Government promotion policy including the encouragement of export-oriented industries and resource-based industries.

The value of Selangor in 2000 was estimated to be M\$11,506 x 10⁶ for Case 1, corresponding 31.6% of whole Malaysia and M\$8,397 x 10⁶ for Case 2, which is 37.8% of whole Malaysia. Industrial development will be diversified from Selangor to the other States by the promotion policy of the less-developed States.

6.3.2 VA of manufacturing sector by State by commodity group

(1) Present conditions

VA of manufacturing sector was the highest at M\$1,253 x 10⁶ by machinery group and M\$1,188 x 10⁶ by food group in 1980. Total value of these two groups amounts to be M\$2,441 x 10⁶, corresponding to 45% of whole commodity groups.

The highest VA was M\$690 x 10⁶ of machinery group in Selangor followed by M\$578 x 10⁶ of food group in Selangor and M\$340 x 10⁶ of machinery group in Pulau Pinang.

(2) Projected value

VA of manufacturing sector for Case 1 is extremely high in 2000 in machinery group at M\$12,995 x 10⁶, corresponding to 35.7% of whole commodity groups. In Case 2, it becomes M\$7,741 x 10⁶ in 2000, which corresponds to 34.8%. Instead of food group, publishing group is the second highest at M\$4,419 x 10⁶ in Case 1.

In Case 1, the highest VA in 2000 is M\$5,893 x 10⁶ of machinery group in Selangor, and then M\$2,914 x 10⁶ of publishing group in Selangor, M\$2,437 x 10⁶ of Johor and M\$1,969 x 10⁶ of Pulau Pinang in machinery group.

In Case 2, the highest VA in 2000 is M\$4,148 x 10⁶ of machinery group in Selangor, followed by M\$1,653 x 10⁶ of publishing group in Selangor and M\$1,286 x 10⁶ of machinery group in Pulau Pinang.

6.4 Projected Gross Value of Output in Manufacturing Sector by State by Commodity Group

The projected value is as shown in Tables 101 to 109.

(1) Present conditions

Gross value of output in manufacturing sector in 1980 was M\$17,913 x 10⁶ in whole Malaysia. The highest output was produced by food group at M\$5,647 x 10⁶ and by Selangor at M\$8,268 x 10⁶. Output of food group in Selangor was the highest at M\$2,747 x 10⁶, followed by machinery in Selangor at M\$1,891 x 10⁶.

(2) Projected value

Total value of output in whole Malaysia is M\$114,334 x 10⁶ for Case 1 and M\$71,489 x 10⁶ for Case 2 in 2000. The highest value among commodity groups is at M\$37,187 x 10⁶ for Case 1 and M\$22,004 x 10⁶ for Case 2 in machinery group. And the highest value among states is at M\$32,584 x 10⁶ for Case 1 and M\$24,948 x 10⁶ for Case 2 in Selangor. Petro-chemical group is the second highest group of output in 2000 in Case 1.

Gross value of output is high in machinery, and publishing groups in Selangor, machinery in Pulau Pinang and Johor. And in Sarawak, output by petro-chemical is relatively high at M\$4,731 x 10⁶ for Case 1 and M\$2,039 x 10⁶ for Case 2.

7. PUBLIC DEVELOPMENT EXPENDITURE

7.1 Public Development Expenditure in Whole Malaysia

Public development expenditure was planned M\$39,330 x 10⁶ in whole Malaysia for the period of 4MP.

Public development expenditure for water resources development was planned M\$4,309 x 10⁶ in whole Malaysia for 4MP period. Share of the water resources development expenditure is 11.0% in 4MP to total value of public development expenditure in whole Malaysia.

Expenditure by sub-sector of water resources development is as follows during 4MP period in whole Malaysia:

Drainage and irrigation	M\$860 x 10 ⁶
Electricity	M\$1,640 x 10 ⁶
Rural electrification	M\$523 x 10 ⁶
Water supply	M\$1,086 x 10 ⁶
<u>Sewerage</u>	<u>M\$200 x 10⁶</u>
Total	M\$4,309 x 10 ⁶

Share of electricity is the highest, which is 38.2% including thermal power. That of drainage and irrigation corresponds to 20.0% and that of water supply is 25.2%.

Public development expenditures are as shown in Tables 110 to 116.

7.2 Public Development Expenditure in Peninsular Malaysia, Sabah and Sarawak

Public development expenditure by Federal funds in 4MP is planned to be M\$34,969 x 10⁶ for Peninsular Malaysia, M\$1,846 x 10⁶ for Sabah and M\$2,515 x 10⁶ for Sarawak. Sabah has its own State fund other than the Federal fund corresponding to M\$1,230 x 10⁶ during 4MP period.

Public development expenditure by Federal funds for water resources development is planned by 4MP to be M\$3,177 x 10⁶ for Peninsular Malaysia, M\$471 x 10⁶ for Sabah, and M\$661 x 10⁶ for Sarawak during 4MP period.

During 4MP, expenditure for electricity in Sabah and Sarawak is M\$700 x 10⁶, which corresponds to 61.8% of water resources development of these states, while that of Peninsular Malaysia is M\$940 x 10⁶ which is 29.6% of water resources development of the Peninsular.

That share of drainage irrigation and sewerage is much higher in the Peninsula than that in Sabah and Sarawak.

In Peninsular Malaysia, investment for rural electrification is highly encouraged compared to that in Sabah and Sarawak.

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