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**THE GOVERNMENT OF MALAYSIA**

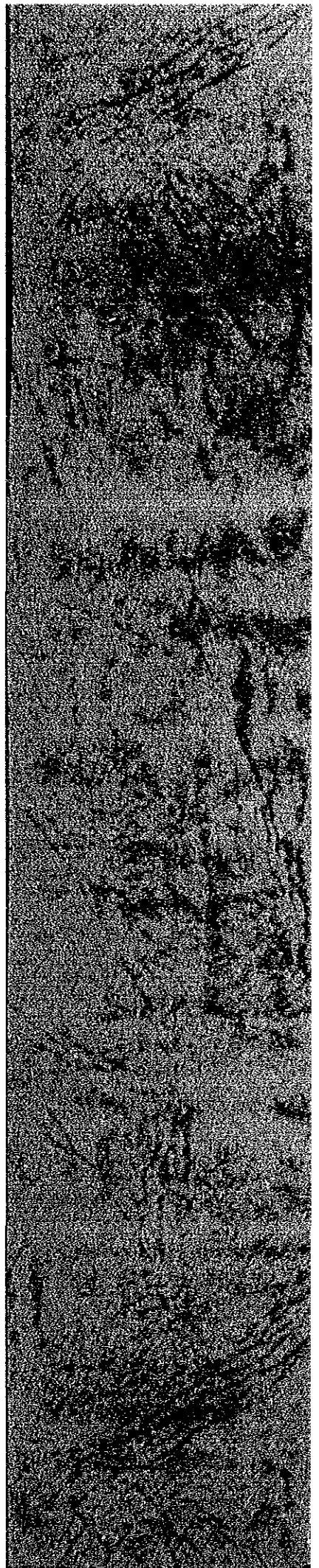
***REGIONAL STUDY ON  
THE INTEGRATED DEVELOPMENT OF  
SOUTH TERENGGANU***

**VOLUME 1  
MAIN REPORT**

**AUGUST 1985**

**JAPAN INTERNATIONAL COOPERATION AGENCY**

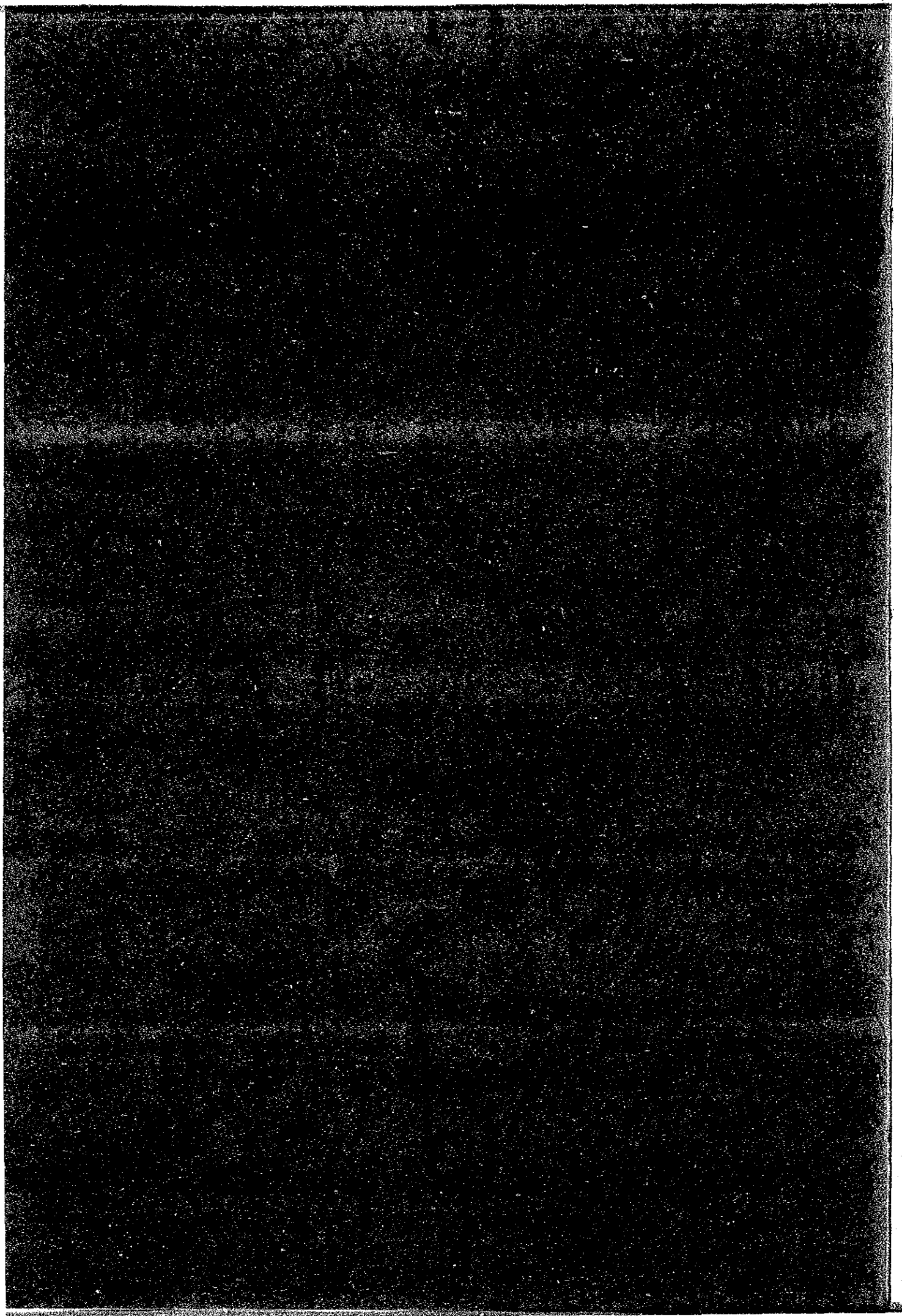
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***REGIONAL STUDY ON  
THE INTEGRATED DEVELOPMENT OF  
SOUTH TERENGGANU***

**VOLUME 1  
MAIN REPORT**

**AUGUST 1985**

**JAPAN INTERNATIONAL COOPERATION AGENCY**

国際協力事業団	
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## PREFACE

It is with great pleasure that I present this report entitled "Regional Study on the Integrated Development of South Terengganu" to the Government of Malaysia.

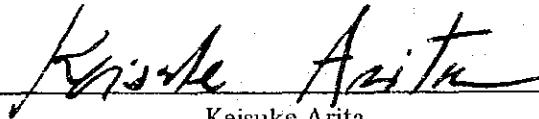
This report embodies the result of a survey which was carried out in the South Terengganu Area, the State of Terengganu from January, 1984 to May, 1985 by the Japanese survey team commissioned by the Japan International Cooperation Agency following the request of the Government of Malaysia to the Government of Japan.

The survey team, headed by Mr. Teruhiko Horie, had a series of close discussion on the project with the officials concerned of the Government of Malaysia and conducted a wide scope of field survey and data analyses.

I hope that this report will be useful as a basic reference for development of the region.

I wish to express my deep appreciation to the officials concerned of the Government of Malaysia for their close cooperation extended to the survey team.

August, 1985



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Keisuke Arita

President

JAPAN INTERNATIONAL COOPERATION AGENCY





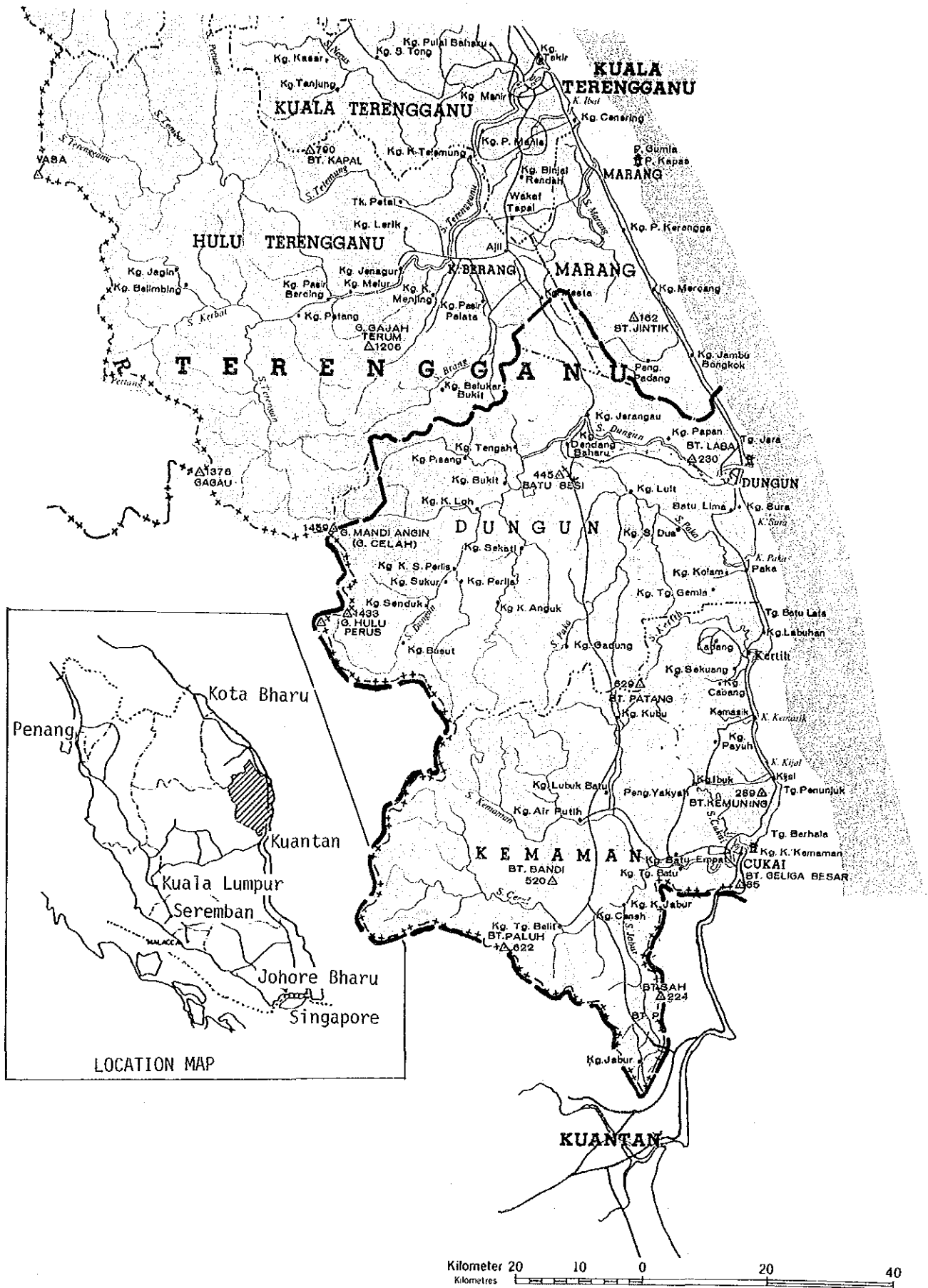
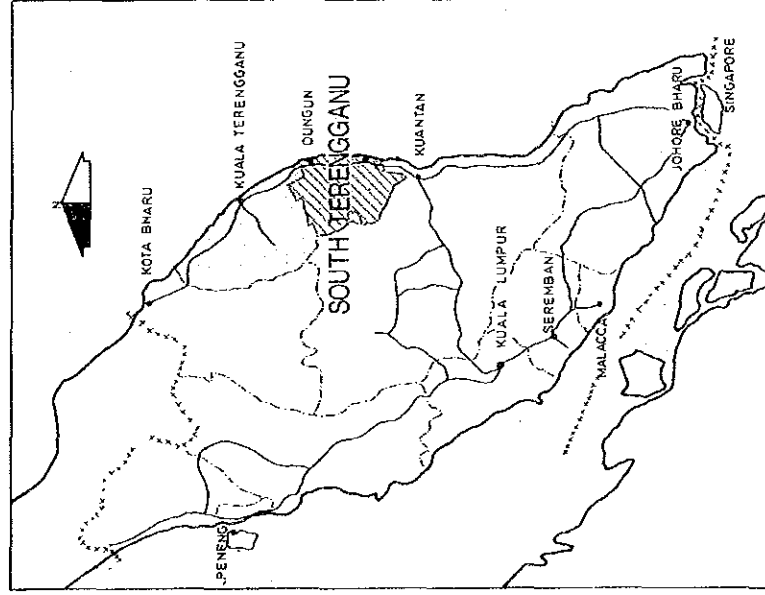


Fig. 1.1 LOCATION MAP OF THE STUDY AREA



LOCATION MAP

**LEGEND**

- TRANSPORTATION**
- INTER-REGIONAL MAJOR ROAD
  - REGIONAL MAJOR ROAD
  - REGIONAL ROAD
  - RAILWAY AND STATION
  - RAILWAY FUTURE EXTENSION

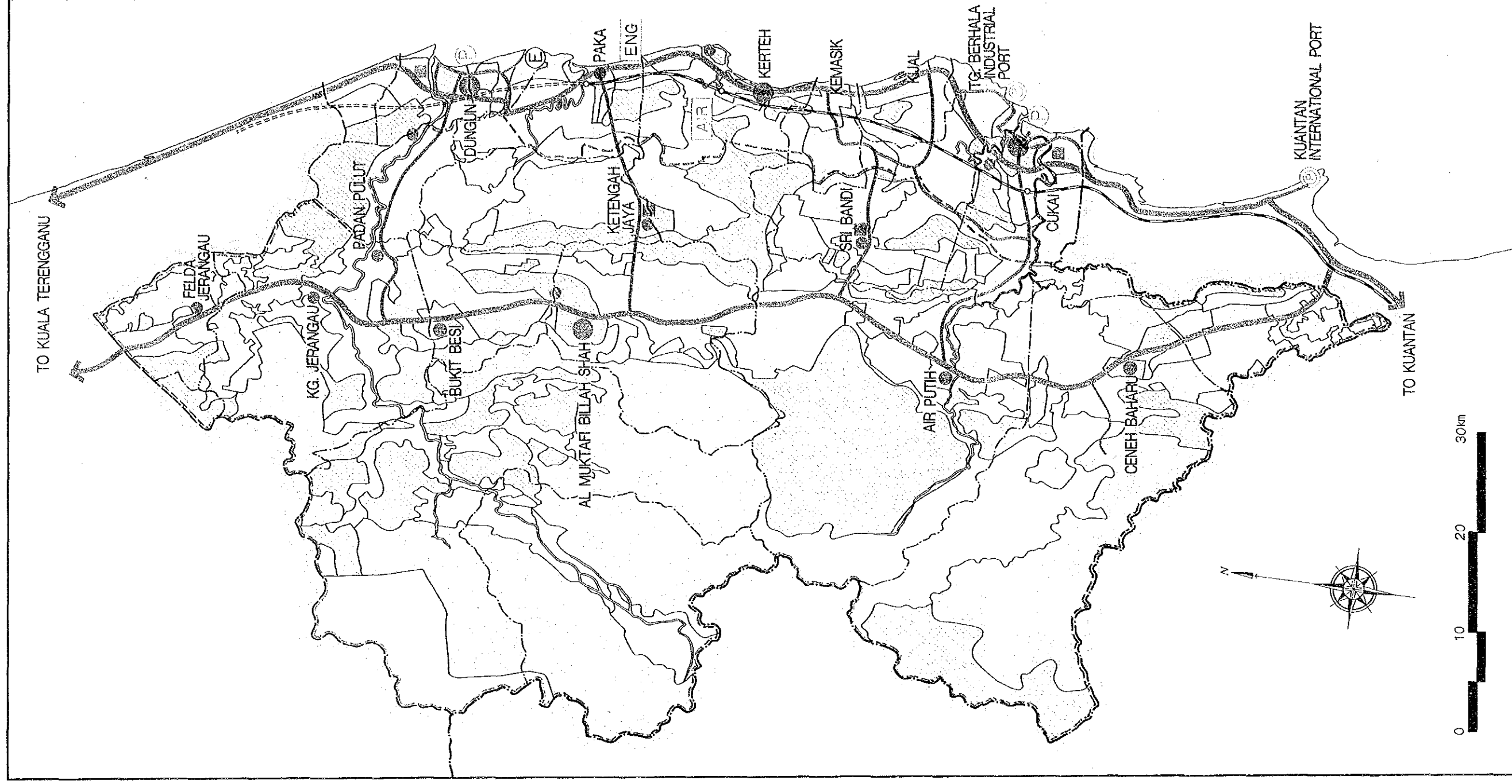
- LANDUSE**
- AGRICULTURAL DEVELOPED AREA
  - AGRICULTURAL DEVELOPING AREA
  - AGRICULTURAL FUTURE DEVELOPMENT AREA
  - TIMBER COMPLEX
  - FOREST RESERVATION
  - NEW TOWNSHIP
  - MINING/QUARRY DEPOSIT
  - URBANIZATION AREA
  - URBAN PLANNING AREA
  - INDUSTRIAL AREA
  - PRESERVATION/OPEN SPACE

- SETTLEMENT/FACILITIES**
- SUB-REGIONAL CENTRE
  - SUB-DISTRICT CENTRE
  - PORT
  - INTERNATIONAL PORT
  - AIRPORT
  - INDUSTRIAL ESTATE
  - HIGH EDUCATIONAL
  - RECREATIONAL
  - ENERGY CENTRE

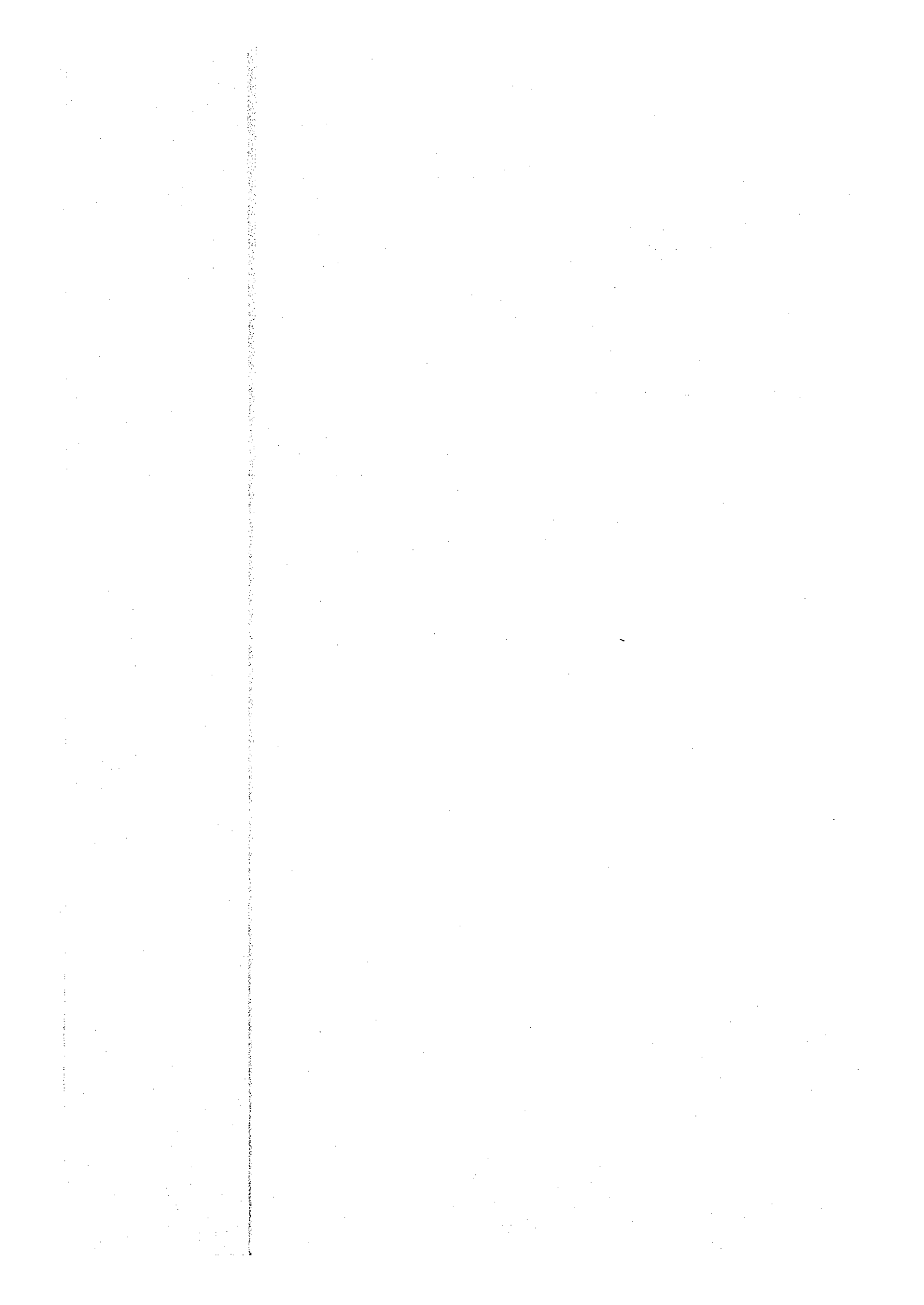
- BOUNDARY**
- STATE BOUNDARY
  - SOUTH TERENGGANU SUB-REGION AREA
  - DISTRICT BOUNDARY
  - SUB-DISTRICT (MUKIM) BOUNDARY
  - KETENGGAH AREA

REGIONAL STUDY ON THE INTEGRATED DEVELOPMENT OF SOUTH TERENGGANU, August 1985

THE GOVERNMENT OF MALAYSIA/JAPAN INTERNATIONAL COOPERATION AGENCY



**SUB-REGIONAL DEVELOPMENT PLAN  
IN SOUTH TERENGGANU**



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## GLOSSARY

### 1. Organisations

ASEAN	–	Association of South East Asian Nations
AIST	–	American Institute of Steel Industries
DCA	–	Department of Civil Aviation
DID	–	Drainage and Irrigation Department
DOA	–	Department of Agriculture
DOE	–	Department of Environment
EPMI	–	Esso Production Malaysia Inc.
EPU	–	Economic Planning Unit, Prime Minister's Department
FAMA	–	Federal Agricultural Marketing Authority
FAO	–	Food and Agriculture Organisation (United Nations)
FELCRA	–	Federal Land Consolidation and Rehabilitation Authority
FELDA	–	Federal Land Development Authority
FIMA	–	Food Industries of Malaysia Sdn. Bhd.
HICOM	–	Heavy Industry Corporation of Malaysia
HPU	–	Highway Planning Unit
IKM	–	Institut Kemahiran MARA
ITI	–	Industrial Training Institute
ITM	–	Institut Teknologi MARA
JICA	–	Japan International Cooperation Agency
JKPB	–	Committee on Planning and Building
JKR	–	Jabatan Kerja Raya
JPJ	–	Jabatan Pengangkutan Jalan
KETENGAH	–	Lembaga Kemajuan Terengganu Tengah
LLN	–	Lembaga Letrik Negara
MARA	–	Majlis Amanah Rakyat
MARDI	–	Malaysian Agricultural Research and Development Institution
MIDA	–	Malaysian Industrial Development Authority
MOA	–	Ministry of Agriculture
NICS	–	Newly Industrialized Countries
PERMINT	–	Permint Plywood Sdn. Bhd.
PESAKA	–	Pesaka Terengganu Berhad.
PETRONAS	–	Petroleum National Berhad

PORIM	–	Palm Oil Research Institute of Malaysia
RISDA	–	Rubber Industry Smallholders Development Authority
SDO	–	State Development Office
SEDC	–	State Economic Development Corporation
SEPU	–	State Economic Planning Unit
SGI	–	Sabah Gas Industries
SJKR	–	Jabatan Kerja Raya Terengganu
SQ	–	Singapore Airline
TCPD	–	Town and Country Planning Department
TDC	–	Malaysia Tourist Development Corporation
TDMB	–	Terengganu Development Management Berhad.
THDA	–	Terengganu Handicraft Development Authority

## 2. Studies

- NWRSM: National Water Resources Study, Malaysia, 1982, Government of Malaysia and JICA.
- SCTWR: Water Resources Development For Domestic And Industrial Water Uses In The South Terengganu Region, 1981, EPU and Binnie Dan Rakan (M), SMEC and SGV-Kassim Chunsdan Bhd. (South Coastal Terengganu Water Resources)
- TCRS: Terengganu Coastal Region Study, 1980, Australian Development Assistance Bureau, The Government of Malaysia And The State Government of Terengganu.
- TMPS: Terengganu Master Plan Study, 1983, The Government of Malaysia, The State Government of Terengganu and SYSPLAN.

## 3. General

ABS	–	Acrylonitrile Butadiene Styrene
B-B	–	Butene and Butadiene
BOD	–	Biochemical Oxygen Demand
BPD	–	Barrels per Day
BSD	–	Barrels Stream per Day
CBD	–	Central Business District
Cu.m/y	–	Cubic Meters Per Year
DBH	–	Diameter at Breast Height
DCB	–	Dried Cocoa Bean

DR	–	Direct Reduction
DRC	–	Direct Rubber Content
DWT	–	Dead Weight Ton
EEZ	–	Exclusive Economic Zone
EL	–	Elevation
FFB	–	Fresh Fruit Bunch (Oil Palm)
FMP	–	Fourth Malaysia Plan
GDP	–	Gross Domestic Product
GNP	–	Gross National Product
GPD	–	Gallon Per Day
GRP	–	Gross Regional Product
ha	–	Hectare
HSC	–	High School Certificate
HDPE	–	High Density Polyethylene
J-J	–	Jabor-Jerangau
JKKK	–	Village Development Committee
KV	–	Kilovolt
KW	–	Kilowatt
KWH	–	Kilowatt Hour
LCE	–	Lower Certificate of Education
LCN	–	Load Classification Number
LDPE	–	Low Density Polyethylene
LFPR	–	Labour Force Participation Ratio
LNG	–	Liquefied Natural Gas
LPG	–	Liquefied Propane Gas
MB	–	Thousand Barrels Per Day
MCE	–	Malaysian Certificate of Education
mgd	–	Million Gallons per Day
Mg/l	–	Miligrams per liter
MM	–	Million (10 <sup>6</sup> )
MMB	–	Million (10 <sup>6</sup> ) Barrels, Per Day
MMSCFD	–	Million (10 <sup>6</sup> ) Standard Cubic Feet Per Day
MPTD	–	Metric Ton per Day
m/s	–	Milestone
MTPA	–	Metric Ton Per Annum
MTR	–	Mid-Term Review of Fourth Malaysia Plan
M\$	–	Malaysian Ringgit



MVA	–	Mega Volt Ampere
MW	–	Megawatt
NASP	–	National Airport System Plan
NEP	–	New Economic Policy
NPV	–	Net Present Value
COIP	–	Oil Originally in Place
PP	–	Polypropylene
PVC	–	Polyvinyl Chloride
ROI	–	Return on Investment
RSS	–	Ribbed Smoked Sheet (Rubber)
SAN	–	Styrene Acrylonitrile
SCFD	–	Standard Cubic Feet Per Day
SMR	–	Standard Malaysian Rubber
SMS	–	Selective Management System (Forestry)
SS	–	Suspended Solids
T	–	Ton
TCF	–	Trillion (10 <sup>12</sup> ) Cubic Feet
TCOT	–	Terenggamu Crude Oil Terminal
TMP	–	Third Malaysia Plan
T/Y	–	Tons Per Year
USS	–	Unsmoked Sheet (Rubber)
VCM	–	Vinyl Chloride Monomer
WQR	–	Water Quality Regions

# PART I

---

## DEVELOPMENT STRATEGIES AND SCENARIOS





## 1.1 INTRODUCTION

Economic Planning Unit of the Government of Malaysia and Japan International Cooperation Agency (JICA) agreed to the Scope of Work of this study known as the "Regional Study on the Intergrated Development of South Terengganu" on April 19, 1982. Between this date and the commencement of Phase I study in Malaysia on January 8, 1984, there was a change in the tittle of the study and prefeasibility studies for priority projects added to the content of the study.

Phase I study, which was aimed at identification of the existing status, was completed at the end of March, 1984. The study identified the need for the presentation of a sub-regional structure plan which integrates the urbanized development of the coastal area with the KETENGAH development. During this Phase I Study, the Malaysian Government requested that the study on the following three sectors are key factors and the draft should be completed earlier, hopefully by the end of July, 1984.

- 1) Identification of projects/activities related to the petrochemical sub-sector.
- 2) Identification of other potential industrial estates and the establishment of industrial policies therefore.
- 3) Study on the outline of an urban structural plan for Dungun and Cukai.

These requests were based on an understanding that several on-going and or accomplished projects in the Study Area during the period between the time of agreement upon the Scope of Work and the arrival of the JICA Study Team would give a considerable impact onto the Area. During that period, the Terengganu Master Plan Study became available in November 1983. Furthermore, industrial core projects such as oil refining, gas processing, steel mill, etc. were under construction in the coastal strip of South Terengganu.

JICA agreed to incorporate these requests in the Phase II study by presenting an interim report before the end of August, 1984. Priority in this Phase II Study is now given to the sub-regional structure plan and micro-level studies in the three sectors requested by the Government of Malaysia. Macro-level studies in other sectors are carried out as these are considered necessary to have consistency with the sub-regional concept. This study plan for Phase II was agreed at a joint meeting of the Steering Committee and the JICA team on June 9, 1984.

## 1.2 OBJECTIVES

Consistent with the growth and distribution policy of the Government of Malaysia, the objectives of the study are:

- 1) To prepare a sub-regional master plan for the integrated and balanced socio-economic and physical development of the South Terengganu region, taking into account the existing plans and programmes including the Terengganu Master Plan Study;
- 2) To identify priority projects; and
- 3) To prepare prefeasibility studies for priority projects.

This study has been prepared for the Sub-Regional Study for the Integrated Development of South Terengganu within the context of the Terengganu Master Plan Study and as a result the rationale for the objectives and strategies have been reflected herein.

### 1.3 THE STUDY AREA

The study area is situated at the southern part of Terengganu, covering the whole KETENGAH area and the adjacent coastal strip area. In the boundary of administration, the study area covers the districts of Dungun and Kemaman and a small eastern part of Hulu Terengganu district. It covers approximately 5,370 km<sup>2</sup>, corresponding to 1/3 of the whole Terengganu State.

### 1.4 COMPOSITION OF THE REPORT

This study consists of the following volumes.

Volume 1	Main Report
Volume 2	Prefearibility for the Drainage of Cukai Town Area
Volume 3	Study on Agriculture Research and Development
Volume 4	Prefeasibility Study for Petrochemical Complex
Volume 5	Technical Papers I
Volume 6	Technical Papers II

In the Main Report, Part I presents Development Strategies and Scenarios, which comprises those chapters covering the subjects of Objectives, Regional Background and Development Scenarios.

Part II presents the development plans. In this part, Chapter 4 presents the study methodology and Chapter 5 summarizes the economic activities of the study area and the forecast for 2000. Chapter 6 presents the physical and spatial setting and Chapter 7 indicates the structure plan of this sub-region.

Part III comprises two chapters showing the selected projects and programmes for each sector in Chapter 8 and the priority projects for the earliest actions in Chapter 9.

Technical papers I (Volume 5) and II (Volume 6) will be divided into chapters as follows:

Technical Papers I, Chapter	1	Socio-Economic Framework
	2	Manpower
	3	Human Resource Development
	4	Industrial Development
	5	Steel Subsector
	6	Agriculture and Forestry
	7	Fisheries
	8	Tourism
Technical Papers II, Chapter	9	Urban Development
	10	Transportation
	11	Flood Control and Drainage
	12	Environment

Volumes 2 and 4 are for the Prefeasibility Studies:

- The Drainage of Cukai Town Area
- Petrochemical complex

Volume 3 is for the following subject:

- Agricultural Research and Development



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**CHAPTER 2 NATIONAL AND REGIONAL CONTEXTS****2.1 SOCIO-ECONOMIC BACKGROUND****2.1.1 Human Resources**

Malaysia has rather small population, about 14 million in 1980 and a low population density, 86.8 persons/km<sup>2</sup> in the Peninsular, in comparison with the surrounding countries. This small population and low density results in a small domestic market for products, shortage of labour force, high per capita cost for the development of infrastructure and other issues.

The population in Malaysia is characterized by plural ethnic groups. Malay or Bumiputera comprises about 59%, while Chinese and Indian make up 40%, with the balance 1% by other ethnic groups.

The population of Terengganu only comprises 3.9% of the national total or 4.7% of the Peninsular total. The Malays or Bumiputeras dominate the state population with 94.4%, the highest in Malaysia. The composition of Bumiputera in the study area shows a slightly lower figure of 90.6% in 1980.

National average population growth in 1981 is 2.5%. The rate has constantly been decreasing since the 1960s. The change in birth rate is gradually bringing in a structural change in age-population distribution. The percentage of fifteen year-olds and below is on the decrease and those over fifteen years is on the increase for the past two decades. This has resulted in a rapid increase in the labour force.

The ratio of the population in the state below the working age of 15 years is 42.5% which is also much higher than the national average (39.5% in the country and 39.0% in the Peninsular). As for the transmigration status, Terengganu is one of those states whose migration ratio is low. Also there was a slight tendency for a net outflow of population (0.6% of the inflow) to the other states during the 1970s.

**2.1.2 Urbanization**

The urbanization of Malaysia is relatively high compared with the other Asian countries. However, the dominance of the metropolitan area is not so conspicuous as they are in other countries, except for the concentration in Kelang Valley area. The concentration of industries in the urbanized area is significant, especially in Kuala Lumpur/Petaling Jaya, Georgetown/Butterworth, Ipoh and Johor Bharu. In Terengganu, industrial plant locations are still embryonic.

According to the data in Population Census 1980 of the Statistics Department, the urbanization ratio in Terengganu shows a slightly higher figure of 42.9%, compared to 37.2% in the Peninsular Malaysia average. However, the socio-economic indicators



such as electricity consumption, number of telephone lines and car ownership per households indicate that the State has not risen to the national average. Value added from secondary or tertiary industry per urban population is also low, especially compared with the previously mentioned four highly urbanized areas. The urban areas within Terengganu do not have the role of a regional industrial growth centre.

A number of new towns are planned throughout Malaysia, especially in the Regional Development Authority areas, to develop a high standard of living environment. The population in such 36 new towns is planned to be about ninety thousand by 1985, and only thirty percent of the target has been achieved by 1983. In KETENGAH in the Study Area, eight new towns are planned (six are already inhabited) with the forecast urban total population of more than 58,000 in 2000. Present population in those towns is less than 15% of the targeted figure.

### 2.1.3 Economic Activities

The development of the Malaysian economy has long been based on the export of primary commodities such as tin, rubber, palm oil, crude oil and other items. In order to diversify the economy, efforts have been concentrated to the growth of manufacturing industries. Industrialization policies of the Malaysian economy have been based on two categories, i.e. export oriented industries including the labour intensive and foot loose industry and those for import substitution. Most of these are located and developed in the west coast region.

The economy of the Terengganu State had so far not been supported by major export commodities, due to the less developed natural resources. However, iron ore mining ended in 1970. Since then, the major exports to other areas have been palm oil, rubber, fishery and forestry products. As a result, agriculture and forestry industries shared the major part of the output. Income level of the State has been lower than the national average, although its growth has been high in recent years.

Since the introduction of the New Economic Policy which aimed at the improvement of income disparity among regional and ethnic groups, various development projects have been undertaken in economically depressed areas. The South Terengganu area is selected as one of the areas to have an integrated development. In this context, KETENGAH was established in 1973 to coordinate the development within the South Terengganu area. Land development schemes are also undertaken by other governmental agencies, such as FELDA and FELCRA in the area.

The development of the agriculture sector in KETENGAH area, together with the discovery and production of crude oil off the coast of Terengganu will be the cause of change to the economic structure in the State. Intensive development for paddy, tobacco and other commercial and export orientated crops in Besut and introduction and establishment of new manufacturing industries in Kuala Terengganu also contributes to the economic development of the State.

Industrialization and urbanization in the southern area are now showing a rapid progress. When the production and processing of natural gas starts, the industries within the area will show the most rapid growth in Malaysia.

## 2.2 NATIONAL POLICIES FOR REGIONAL DEVELOPMENT

The Terengganu Master Plan Study (TMPS) discusses about development policies in great detail from the viewpoint of the Federal and State objectives and strategies. The basic policies and strategies established by the Master Plan are applicable to the Study Area. The regional strategies are described herein.

The New Economic Policy (NEP) establishes the National Development Objectives. The objectives have been prepared to attain national unity and prosperity levels to achieve the following two objectives:

- to eradicate poverty irrespective of race, and
- restructuring society to eliminate the identification of race with economic function.

Based on the national context, objectives to attain the regional development by the year 1990 have been defined in TMPS as follows:

- 1) Rapidly create large scale job opportunities to achieve full employment by 1990;
- 2) Upgrade productivity and increase the income of the low productivity rural and urban subsectors;
- 3) Enlarge the opportunities of upward occupational mobility to upgrade productivity;
- 4) Reduce inter-ethnic and inter-regional income inequality;
- 5) Modernize rural settlements and improve the living conditions of the urban poor;
- 6) Create an active Bumiputera commercial and industrial communities to achieve at least a 30 percent target of economic ownership by 1990;
- 7) Restructure sectoral and occupational employment patterns to reflect the national racial composition by 1990; and
- 8) Expand the physical and social infrastructure to support the attainment of the above objectives.

In order to realize the objectives of the New Economic Policy the Federal Government has established the following major policies for regional development.

- 1) Steering the location of the future expansion of economic activities in the primary, secondary and tertiary sectors into the lagging states and country-side;
- 2) Utilization of in-situ development via an integrated approach to raise the productivity of depressed regions;
- 3) Exploitation of natural resources for development;

- 4) A regional industrialization policy package which includes the required infrastructure facilities and fiscal incentives; and
- 5) Utilization of growth centres and growth corridor strategy for regional development.

### 2.3 DEVELOPMENT STRATEGIES OF TERENGGANU MASTER PLAN

The growth strategies established by the State of Terengganu are as follows:

- 1) Developing and improving basic infrastructure;
- 2) Opening up of new land development areas;
- 3) Developing and improving the amenities and services in various town; and
- 4) Creating new opportunities for entrepreneurs in the commercial and industrial sectors in the State.

Based on the above strategies, the Terengganu Master Plan Study (TMPS) issued in December 1983 has decided to raise the State GRP per capita to the level of the national average by adopting a Medium Growth Strategy as shown in Table 2.1.

Table 2.1 Sectoral GRP Growth in the Terengganu Master Plan

Sector	GRP Output (M\$ million)		
	1980	1990	2000
Agriculture, Forestry and Fishery	258.2 (30.4)*	441.0 (26.4)	718.3 (21.0)
Mining and Quarrying	235.0 (27.6)	462.3 (27.6)	753.0 (22.0)
Manufacturing	51.9 (6.1)	134.6 (8.0)	477.5 (14.0)
Construction	29.1 (3.4)	117.7 (7.0)	455.9 (13.3)
Services	275.5 (32.5)	517.2 (30.9)	1,017.4 (29.7)
GRP at Purchaser's Value** (M\$ million)	874.4	1,720.1	3,512.3
Per Capita GRP	1,617.5	2,384.1	3,776.7

Notes: \* Percentage distributions are in parentheses.

\*\* GRP at purchaser's value = total actual GRP – imputed bank services + import duties.

Source: Terengganu Master Plan Study, 1983 (in 1970 price)

This means that an annual growth rate of 7 percent between 1980 and 1990 and 7.4 percent between 1990 and 2000 will have to be targeted.

The adoption of the Medium Growth Strategy signifies that the economy will restructure itself from the dependence on primary industries to increase the share of manufacturing industries. The annual average rate of increase is proposed at 10 – 15 percent p.a. between 1980 and 2000 for both manufacturing and construction industries.

Population in the State is forecast at 930,000 in 2000 from 542,000 in 1980. The average growth is 2.8% p.a. during these years.

The Master Plan states that the overall development strategy will require an intensive industrial development and restructuring of the rural economy through the following policies and administrations. (Chapter 5, Vol. I of TMPS)

- 1) To build up a sound industrial base for future expansion of capital and technologically advanced industries through the development of small and medium scale industries during the present decade.
- 2) To restructure the rural economy through:
  - the planting of high value-added crops and vegetables;
  - the reorganizing of farm sizes coordinated by a Land Agency or with mini-estate management;
  - the integration of poultry, livestock, sericulture, or aquaculture with padi and/or other crops;
  - the introduction of new rural development and opportunities, coupled with organized labour outmigration to other more productive sectors;
  - the introduction of agro-based industries;
  - the expansion of Ketengah-typed land development schemes to support rehabilitation and resettlement programmes; and
  - the expansion and improvement of training, credit, marketing, and other supportive infrastructures and facilities.

## **2.4 IMPLICATIONS OF DEVELOPMENT STRATEGIES IN THE STUDY AREA**

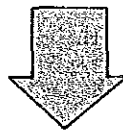
Reviewing the existing plans and strategies through the National and State levels, an organization of policies for regional development can be identified as shown in the chart of Fig. 2.1.

Basically the development strategies for the Study Area should be in the stream of these contexts which imply the following significances and requirements for this study:

- 1) The integrated development plan to be proposed by the Study has to suggest ways of maximization of resources utilization existing in the area and of an optimum distribution system;
- 2) It is strongly required that ongoing projects and seeds for further development are incorporated into an entirety of regional economy through an integrated development policy; and
- 3) An optimum human settlement system should be realized by social and physical infrastructure developments as well as by a resettlement promotion policy in terms especially of labour force distribution.

**AIMS**

- 1) Activation of regional economic activities
- 2) Up-grading of income level and equity of income distribution
- 3) Creation of job opportunities



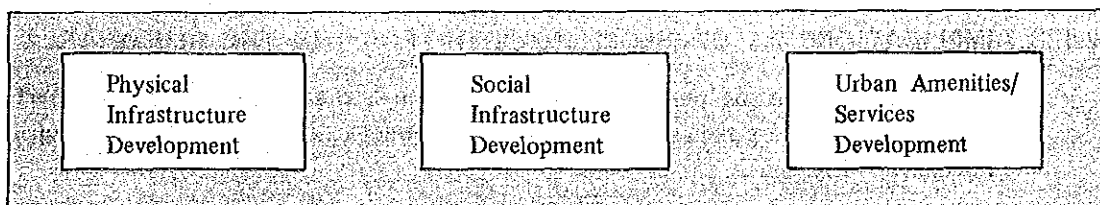
(Breakdown)

**POLICIES**

- |                              |   |
|------------------------------|---|
| Agricultural Sector:         | <ol style="list-style-type: none"> <li>a) Intensive land development</li> <li>b) Exploration of resources</li> <li>c) Up-grading of productivity</li> </ol>   |
| Manufacturing Sector:        | <ol style="list-style-type: none"> <li>a) Increase of employments</li> <li>b) Inducement of agro-based industry</li> <li>c) Strengthening of industrial basis of small and medium scale industry</li> <li>d) Development of technology and capital resources</li> </ol> |
| Commercial & Service Sector: | <ol style="list-style-type: none"> <li>a) Encouragement of entrepreneurship</li> <li>b) Enlargement of absorption capacity of employment</li> </ol>   |



(Supporting)



**Fig. 2.1 SYSTEM OF NATIONAL AND REGIONAL STRATEGIES/POLICIES FOR REGIONAL DEVELOPMENT**

### 3.1 POTENTIAL OUTLOOK

The consideration of scenarios towards forthcoming economic development indicates several notable seeds for development which can be identified as potential factors as follows:

In terms of regional economy, the South Terengganu has been playing a forward leading role in the economy of the Terengganu State due to two kinds of effects, caused by KETENGAH and the oil and natural gas base developments.

In the inland KETENGAH area, there have been developing land schemes since 1973 based on the new land development strategy of the Federal Government. Areas alienated for agricultural estates have been developed and approximately 90% of the designated areas have already been cleared and planted by tree crops. Especially it seems to be a notable potential that a production and shipment system of oil palm including extraction plants has been established.

On the other hand, in the coastal strip area there are a number of on-going projects such as petroleum refinery, gas separation plant, steel billet mill, power plant and distribution lines. These are expected to become an industrial core to establish a sound regional economic system.

On the premise that the coastal strip will be selected to be the core of the regional economic growth pole, the development in the coastal strip will play an important role for the realization of the Medium Growth Strategy of the Terengganu State (to achieve the growth objective of attaining the national average GDP per capita by year 2000). However, these developments have not reached the level which attracts private enterprises to come from other parts of the country or from foreign countries. Development and improvement efforts should be continued further in the coming years.

Among the characteristic features of the economy of the Study Area, several issues are confirmed as key factors in the search for the development scenarios:

- 1) Regarding the policy for maximization of resource utilization toward industrialization, crucial issues are:
  - How and to what extent up-grading of productivities of oil palm and rubber including their processing industries can be achieved; and
  - How the value-added can be produced in the forestry sector although the capacity of forestry production has reached a maximum level.

- 2) As a trigger of intentional industrialization, possibilities of development of petrochemical downstream industries and of a series of steel processing industries development centreing on the steel billet mill factory which starts production in 1985 seem to be an influential matter to achievement of the economic growth target.
- 3) It is very significant how to overcome socio-economic as well as physical constraints and handicaps existing in the Study Area such as:
  - Shortage of a skilled labour force to support the planned industrial development;
  - Geographical conditions giving rise to occasional flood problems;
  - Location remote from large markets; and
  - Lower attractiveness of towns/settlement centres to induce active private entrepreneurs.

In terms of regional economic growth potential, the result of examination by the Study Team shows that if a full operation of ongoing projects and sufficient effort to maximize the existing resources are undertaken in line with the proposed programmes along with overcoming the existing constraints, it will be possible that the average growth rate of GRP will achieve 8.4 percent per annum continuously during the years 1983 to 2000, and that about 304 thousand population will be accommodated by the economic activities in 2000, compared with 160.7 thousand in 1983.

### 3.2 ALTERNATIVES

The sub-regional economic growth may be realized in the short term by depending largely on the contribution from such primary industries as palm oil and rubber production, crude oil and gas production and their associated primary processing operations. However, perpetual growth can be sustained in the long run by depending not only on those industries, but also by the introduction of new industries.

Therefore, it is a basic strategy to encourage the primary industries up to the maximum level and based on this, the need is to promote the establishment of leading manufacturing industries capable of generating a large regional product and of triggering peripheral industrial growth.

The industrial development scenario applicable to the State of Terengganu is considered first. The three possible alternatives regarding the spatial allocation of industries as well as industrial development itself within the State are given as follows:

- 1) Alternative 1: Guided formation of strategic growth poles with concentrated location of manufacturing industries.

Pre-designated strategic growth core is to be sited with the intentionally guided introduction of new firms centreing on strategic industries, such as petrochemical or steel mill down stream complexes. An intensive development programme of one core after another in an order of priority should be prepared. An intensive development effort on one core is continued so as to produce economy of agglomeration until it reaches a stage capable of sustaining autonomous growth.

Growing industries can also become a growth pole. Finally several such poles will be developed within the State.

The concentration will be cost efficient including the investment on infrastructure, whilst it may also cause congestion and environmental deterioration if not controlled.

- 2) Alternative 2: Equitable industrial development of sub-regions within the State through dispersed location of manufacturing establishments.

The strategy does not designate specific sub-regions or core areas of development with any assigned priority, rather it intends to achieve equitable growth among the sub-regions within the State. This strategy requires a longer period to reach the targeted growth goals and the economy of agglomeration is unlikely to be expected due to dispersion.

- 3) Alternative 3: Spatial allocation of industries in accordance with their types.

The strategy is particularly concerned with the types of industries in their spatial allocation. The types of industries largely fall into two categories; those of resource-based whose manufacturing plants are to be located at the nearest site where resources are available and those of non-resource based whose manufacturing plants are not always located in accordance with resource availability.

Resource-based industries include manufacture of some types of foods, wood and wood products, palm oil mill, primary processing of gas and crude oil and so on. These manufacturing plants should be located over the region depending on input availability.

Non resource-based industries include manufactures of textiles, apparels, paper products, plastic products, fabricated metal products, non-electrical machinery, electrical machinery, consumer electric appliances, transport equipment and so on. The location of those industries should be guided into strategic locations in a priority order until they reach a certain degree of agglomeration. An emphasis should be placed on the integration of these two industrial types as well as the both inland and the coastal areas in a combined manner.

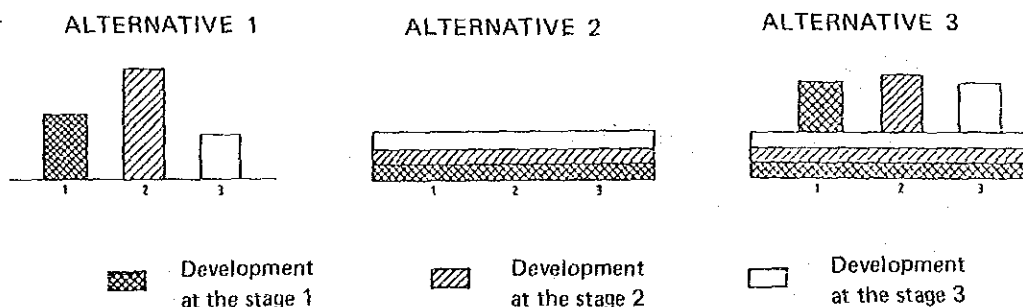


Fig. 3.1 INDUSTRIAL DEVELOPMENT STRATEGIES SPATIAL/ALLOCATION OF INDUSTRIES



The outcome of implementing the industrial allocation strategy in accordance with the selected locations together with the resource availability, say, Alternative 3 may be the result of the mixture of the Alternative 1 and 2. Application of the appropriate strategy requires thoughtful considerations and evaluations from several viewpoints: Alternative 1 is quite suitable to make the invested capital more effective with an aim to realize rapid economic growth. Alternative 2 seems to match with a policy that an equitable economic development should be achieved in the region, however it would be difficult to attract additional private investors in dispersed manner under the existing situation with several constraints such as insufficient labour force and deficiency of infrastructures to support all the industrial activities.

Alternative 3 is basically the strategy to aim at a balanced economic growth with combining both strategies of Alternatives 1 and 2, and its concept is not out of the range of the industrialization policy over the whole State region. This might result a lower growth in the industrialization than the Alternative 1, and higher than the Alternative 2. However, it will generate development of resource related industries in other sub-regions simultaneously and will diversify the industrial activities. The industrial development strategy of Alternative 3 is applicable in the study area, based on this understanding.

### **3.3 POLICY FORMATION OF INTEGRATED DEVELOPMENT SCENARIO**

As mentioned in the preceding section, an emphasis for sub-regional development in the Study Area should be placed on the integration between the agro-based industries encouraged in the KETENGAH area and the induced industries to be fostered in the coastal strip area. This is an indispensable condition for achieving the targeted scenario mentioned in the preceding section.

In order to realize the integration, a thoughtful formulation of policies is necessary to be built in the following manner:

- 1) It should be recognized that the relationship between the KETENGAH and the coastal strip areas should be strengthened in harmony after the industrial development on the coastal strip. In this regard, emphasis is placed firstly that the KETENGAH area should be developed under its own programme in the future as well with making efforts to sustain a larger and stable amount of agricultural products, especially tree crops so as to diversify the agro-based industries in the KETENGAH area. Secondly upon accomplishment of the diversified agricultural productive system, the industrial and urban development programmes in the coastal strip area will be more meaningful for activating the regional economy.

Consideration is also necessary to positively promote a settling population. In this regard, the development of new settlement centres is given priority to encourage daily service functions.

- 2) From aspect of settlement patterns, core towns to support concentrated industrialization and urbanization are required to be developed/encouraged. Especially, the potential towns located in the coastal strip area such as Dungun, Kerteh and Cukai should be simultaneously strengthened in their urban functions so as to establish a growth corridor as an interrelated urban consolidation. Industrial developments are to be strategically placed in relation with these potential towns along with fostering the existing seeds for industrialization.
- 3) From a regional planning point of view, a proper settlement hierarchy system must be established to make the regional socio-economic activities more efficient as well as to provide all the residents with equitable services. This hierarchy system comprises the centres and their responsible hinterland areas, and good accessibility from the hinterland area to the centre should be maintained in terms of transportation and social service networks. Regional integration will be realized by establishment of this system at socio-economic level as illustratively shown in Fig. 3.2.
- 4) Spatially the town/centres located intermediately between the inland KETENGAH areas. In this regard, the new townships of Ketengah Jaya and Sri Bandi have a locational advantage to develop some intermediate industries such as goods-distribution and value-added processing industries based on forest and agro-products, to combine the inland and the coastal industries.
- 5) A transport network system with good accessibility to international as well as domestic markets should be structured as a whole, so as to incorporate the economy of the South Terengganu sub-region into the national and international industrial systems.

In this regard, the Port of Kuantan will function as an important infrastructure and the planned railway system to link with major markets, if its efficiency is expectable enough, is likely to become an important transportation mode substitution for the road transport.

- 6) Attention should be paid to management of the landuse and the land arrangement in both the inland agricultural and forestry areas and the coastal growth corridor area. The severe flood problem, especially, should be minimized as soon as possible in order to secure an effective regional socio-economic activities.

The above policies for regional integrated development are mutually related as shown in Fig. 3.3 and the spatial setting is conceptionally shown in Fig. 3.4.

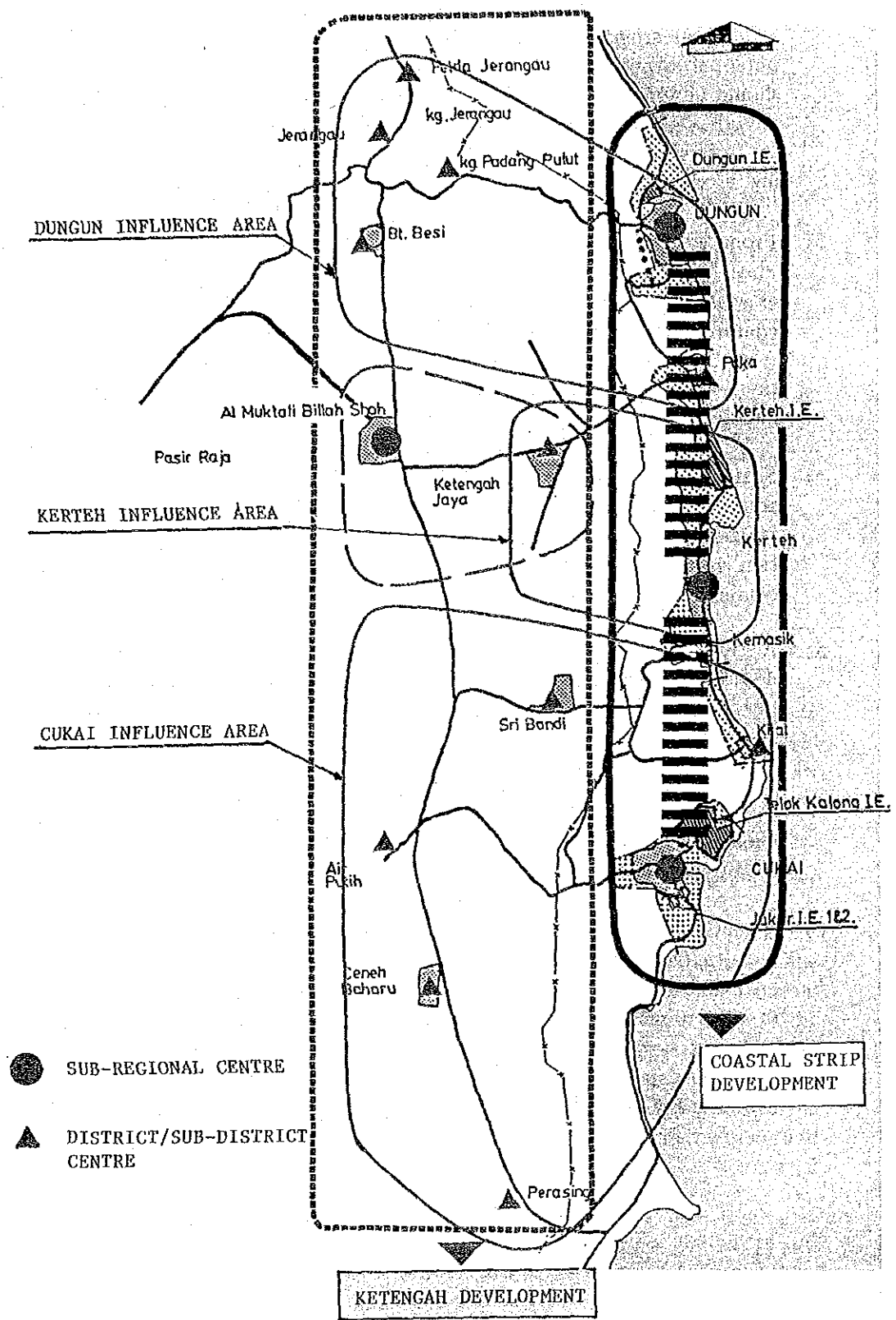


Fig. 3.2 SUB-REGIONAL DEVELOPMENT SYSTEM

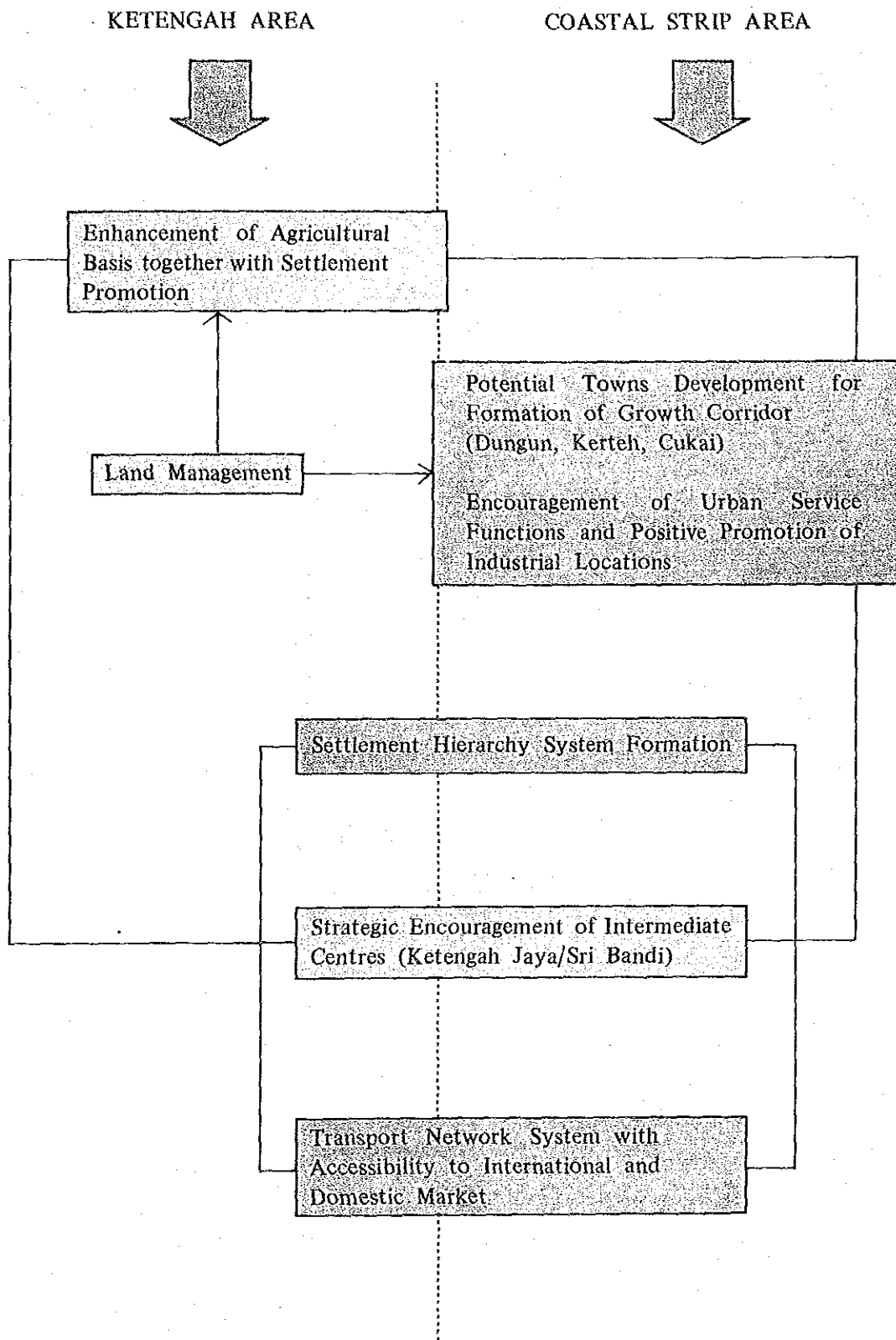


Fig. 3.3 POLICIES FOR INTEGRATED DEVELOPMENT

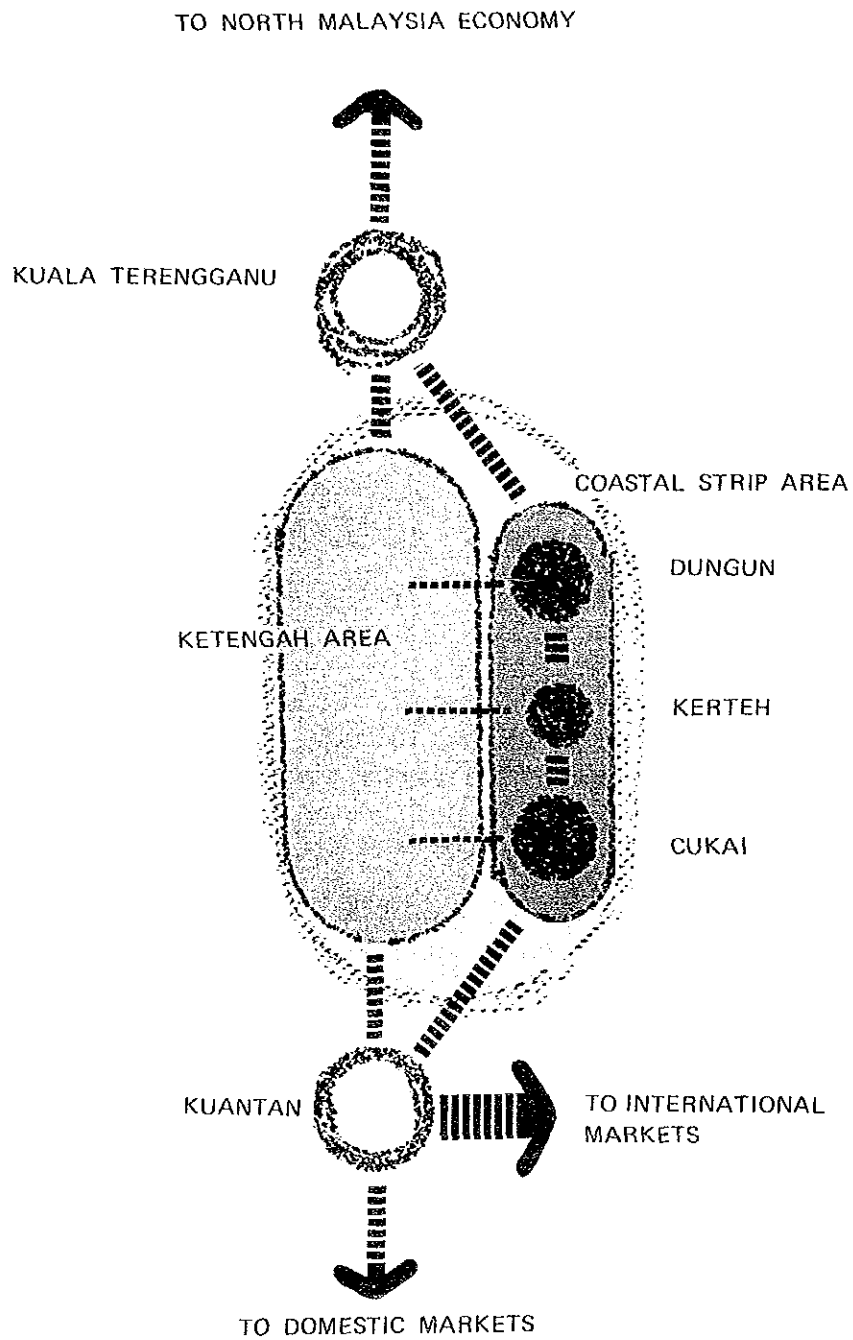
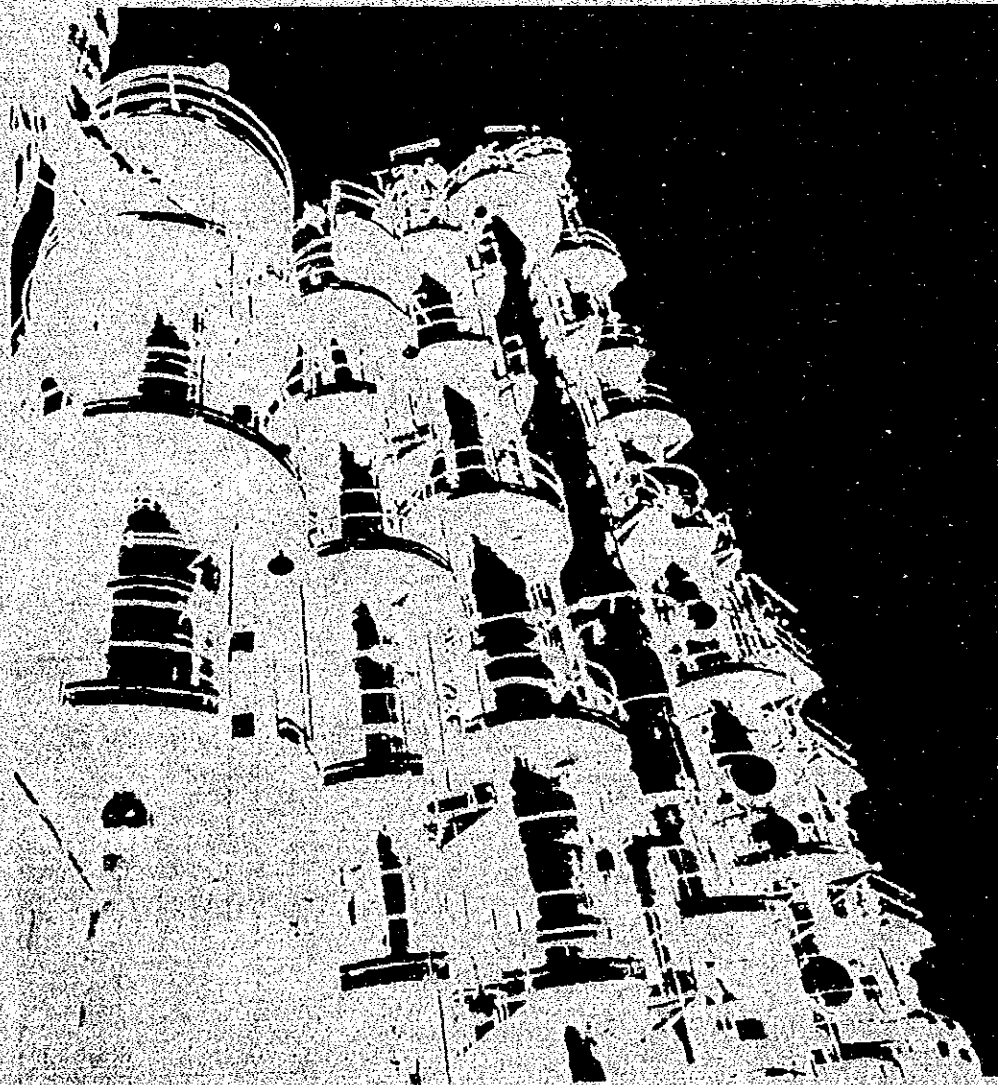


Fig. 3.4 SPATIAL SETTING OF SOUTH TERENGGANU SUB-REGION

# PART II

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## DEVELOPMENT PLANS





#### 4.1 IDENTIFICATION OF MAIN THEMES

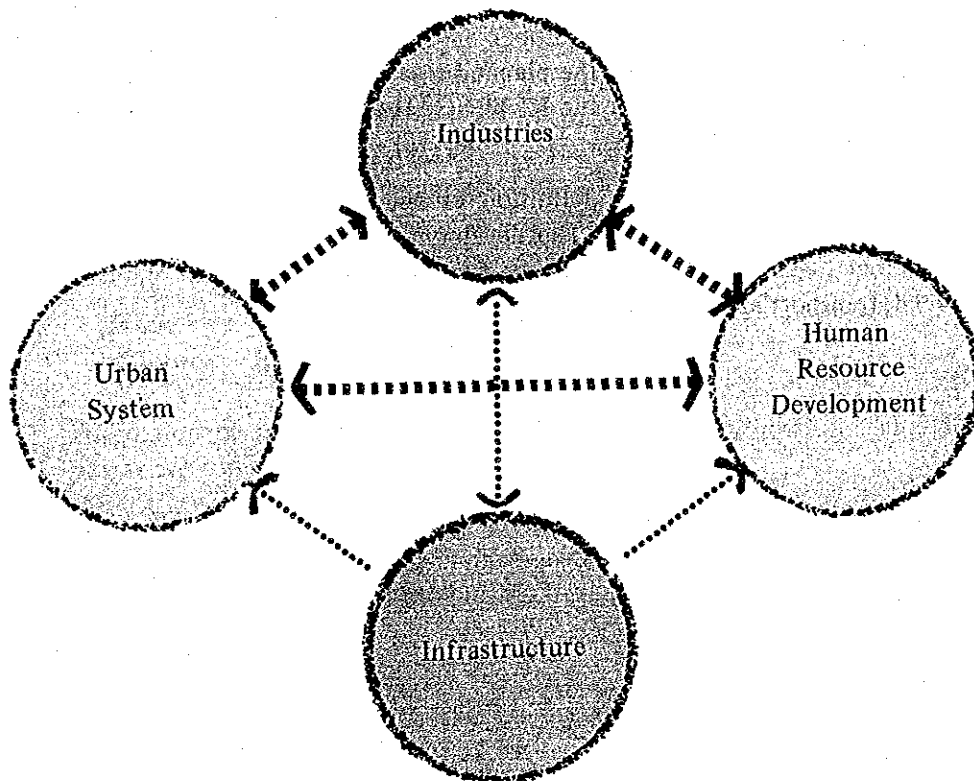
In order to propose a sub-regional development plan for the area of South Terengganu, the study is concentrated on four main themes:

- Industrial Development
- Urban Development
- Human Resource Development
- Physical Infrastructure Development including Flood Control and Drainage Systems.

The above themes are identified in line with the development scenario discussed in the preceding chapter.

In the growth of modern society, the development of a physical infrastructure is a pre-requisite. Particularly on the coastal strip, mitigation of flood damage is urgently required since it disrupts urban activities and the transportation systems.

##### A Concept; Relations Among the Main Themes





## 4.2 SOCIO-ECONOMIC SETTING

In order to indicate an overall prospect of the Study Area, socio-economic growth projection as a basis for development planning is carefully examined by consideration of the potential with which the Study Area is endowed, as well as the New Economic Policy and other plans.

A number of assumptions are necessary for a socio-economic forecast. Some are related to political factors and some are derived from planning expectations to promote the projects. Accordingly the framework proposed in the Study is recognized as a target for development.

The examination of economic growth is based on analysis of the inter-relationship of Gross Regional Product components, on the assumption that the strategic industrial development programme is to be intentionally promoted. This being achieved by increasing industrial production including the downstream industries related with petrochemical and steel productions.

## 4.3 SPATIAL SETTING

The spatial context of the South Terengganu sub-region is composed of the following elements:

- The KETENGAH area;
- The coastal strip area; and
- Relationship between the above two areas.

The KETENGAH area has been undergoing development for more than ten years for the cultivation of oil palm, rubber and cocoa. Currently estate development has reached more than 80% of the planned area although part of the trees in estates are still premature. Practically the KETENGAH area development is proceeding in accordance with the plan.

In the coastal strip, a clear definition of the development plan is not in the Terengganu Master Plan Study. The development plan of the coastal strip will be formulated together with a number of functions including urban, industrial, commercial, transport and other services.

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 CHAPTER 5 SOCIO-ECONOMIC FRAMEWORK

## 5.1 POPULATION AND EMPLOYMENT

## 5.1.1 Population

According to the Population Census, 1980, the population in the Study Area accounted for about 126 thousand, equivalent to 23% of the State population. The average growth rate in the Study Area during the 1970s was 2.6% per annum, which is slightly higher than the national average of 2.4% per annum and lower than the State average of 2.9% per annum as shown in Table 5.1.

It can be seen from this table that the population density of 23.5 persons per km<sup>2</sup> in the Study Area is well below that of the Peninsular average of 86.8 persons per km<sup>2</sup>.

This implies that human settlement potential should be strengthened in the Study Area, because the sparse settlement can weaken the basis for economic development.

Table 5.1 Population and Density in 1970 and 1980

	Population in '000			Popula- Density/ tion km <sup>2</sup>	
	1970	1980	Growth p.a.	1970	1980
Malaysia	11,104	13,745	2.4	33.7	41.7
Peninsula	9,405	11,427	2.2	71.5	86.8
Terengganu	406	542	2.9	33.7	41.7
The Study Area	100	126	2.6	18.6	23.5

Source : Population census 1970 and 1980

Population of the Study Area in 1983 is estimated as shown in Table 5.2. Several points are noted as follows:

First, the population of 17,986 in Cukai town area within Kemaman District is almost one half that of 36,454 in Dungun town area. This is mainly due to the difference in demarcation of the urban area.

Table 5.2 Population within the Area, 1983

(Unit: persons)

District	KETENGAH			Coastal Area		Total
	Town Area	Other Settlements	Other Villages	Urban*	Rural*	
Hulu Terengganu	—	4,695	5,117	—	—	9,812
Dungun	12,596	940	7,307	36,454	16,634	73,931
Kemaman	13,955	6,100	8,755	17,986	30,102	76,997
Total	26,551	11,735	21,179	54,440	46,835	160,740
		59,465		101,305		160,740

Source: Study team, based on the Quarterly Report of KETENGAH, 1983, Village Survey of District Offices 1983 and Population Census of 1980.

Notes: \* Defined by Statistics Dept. in the Census of 1980

The population in Cukai including its surrounding area may have already reached thirty thousand. The town population within the KETENGAH area is the total in the new towns and the other twelve major settlements, being shown in Quarterly Report of KETENGAH.

The population within the area was approximately 102,400 in 1970 and 126,200 in 1980, based on the Population Census. Both in 1970 and 1980, the share of the population in the coastal areas was about 71%, which reduced to 63% in 1983. This can be attributed mainly to the remarkable growth in the KETENGAH area. According to the KETENGAH estimate, the population in the KETENGAH area was 44,389 in 1980 and 60,801 in 1983 (this increase is taken into the estimated figures of the increase in the study area from 1980 to '83 by the study team).

Population increase in the coastal strip in the Kemaman District is also notable. This is mainly due to the increase in construction workers employed for the heavy investment in the steel mill, gas and oil related sectors. Some workers are living at the site camps and temporary townships.

The population within the traditional villages is gradually decreasing, some are almost abandoned. However, migration from the traditional villages to the KETENGAH new towns is below expectation.

There will be a continuous inflow of population from other areas to the Study Area. Job opportunities which will be created by a number of development projects will attract people. Some of these people will require a high living standard in the township area. It can be assumed that the population in traditional villages in the coastal areas will be absorbed more and more by the expanding coastal town areas. The population growth within the KETENGAH area will be relatively moderate.

The projected population up to the year of 2000 is shown in Table 5.3. Population within the area is based on the assumption that only job creation will bring about the increase of population. Increased population will naturally affect the expansion of total market scale for both consumption and investment. Thus, the projection of future population is directly related with the economic framework studied in the Section 5.4, Future Economic Structure.

An overall annual average growth rate of 3.8% is forecast for these 17 years taking into account the regional economic growth expected. This growth rate of 3.8% is larger than the rate by which the Terengganu State population increased during the 1970s and remarkably higher than the projected growth rate at the national level of around 2% per annum. The population will be about 304 thousand in 2000, compared with 160.7 thousand in 1983.

Table 5.3 Projected Population within the Area

	(Unit: thousand)					
	1983	1985	1990	1995	2000	AGR (%) 1984 – 2000
Coastal Area	101.3	115.1	143.5	169.6	211.8	4.4
of which Urban Areas	54.4	64.1	83.8	101.6	131.3	5.3
KETENGAH Area	59.4	66.6	78.0	85.1	92.5	2.6
of which Town Area	26.6	33.3	43.5	50.5	58.7	4.8
<b>Total</b>	<b>160.7</b>	<b>181.5</b>	<b>221.5</b>	<b>254.7</b>	<b>304.3</b>	<b>3.8</b>
Dungun (incl. a part of Hulu Terengganu) District	38.7	88.2	95.6	98.2	124.6	2.4
Kemaman District	77.0	93.3	125.9	156.5	179.7	5.1
<b>Total</b>	<b>160.7</b>	<b>181.5</b>	<b>221.5</b>	<b>254.7</b>	<b>304.3</b>	<b>3.8</b>

Source: Study Team

Note: AGR means "average growth rate per annum".

### 5.1.2 Employment and Manpower

Table 5.4 shows the number of employees in the study area in 1983, which indicates that the KETENGAH area provides approximately 17,000 job opportunities and the coastal area sustains 31,000 jobs. In the estate system of KETENGAH area, some employees are contract or foreign workers. According to KETENGAH, there is shortfall of about 3,200 in estate employment and 200 vacancies in other sectors in 1983. The vacancies are filled by part-time working wives and family members.

In the coastal area, demand for skilled and unskilled workers comes particularly from the manufacturing and construction sectors. Indigenous Terengganu people fill only part of these opportunities because the labour required by those sectors is qualitatively different from their own conditions. Unfortunately the exact figures of unemployment and under-employment are not identifiable.

Table 5.4 Estimated Number of Employees within the Area, 1983

(Unit: persons)

	KETENGAH AREA	COASTAL REGION	TOTAL
Estate Agriculture	11,718	—	} 18,227
Traditional Agriculture & Forestry	3,544	2,965	
Fishery	—	3,114	3,114
Mining & Manufacturing	1,147	4,457	5,604
Construction	—	3,366	3,366
Transport, Storage & Communication	—	1,421	1,421
Trade, Hotels & Restaurants	184	5,282	5,466
Government Services	371	8,220	8,591
Other Services	—	2,441	2,441
Total	16,964	31,266	48,230

Source: Study Team

Job opportunities in the future are forecast in Table 5.5. The employment demands in each sub-sector is projected by using the same method as the value added analysis studied in Section 5.4, Future Economic Structure. A shift from the traditional sector to the modern sector is also assumed.

An average of 4.0% p.a. growth as a whole is foreseen in the study area. While all sectors show increase in the employed persons, however, change in percent shares are foreseen during this period. The sectors of manufacturing, construction, transportation and trade-restaurants will increase their shares, while the sectors of government and service and agriculture will decrease. These changes indicate that the restructure/diversification of the economy will proceed as a result of the targeted industrialization.

The total number in the labour force supplied from the Study Area will mostly equal the number of these forecasted employments. However, there will be shortages in the labour force, particularly with skills and educational background within the study area, judging from the demand for labour and the supply of new entries into the labour market.

Table 5.5 Projected Employment by Sector

(Unit: persons)

	1983	1985	1990	1995	2000	AGR (%) 1983-2000
Agriculture, Fishery & and Forestry	21,341 (44.3)	21,770 (39.7)	23,370 (34.8)	24,600 (31.8)	25,140 (26.8)	1.0
Mining, Quarrying & Manufacturing	5,604 (11.6)	8,600 (15.7)	13,790 (20.5)	17,670 (22.8)	25,090 (26.8)	9.2
Construction	3,366 (7.0)	4,220 (7.7)	5,530 (8.2)	6,860 (8.9)	8,729 (9.3)	9.2
Transportation & Communication	1,421 (2.9)	2,030 (3.7)	3,100 (4.6)	3,970 (5.1)	5,530 (5.9)	8.3
Trade, Hotels & Restaurants	5,466 (11.3)	5,996 (10.9)	7,545 (11.3)	8,947 (11.5)	10,887 (11.6)	4.1
Government, Utility & Other Services	11,032 (22.9)	12,210 (22.3)	13,830 (20.6)	15,370 (19.9)	18,370 (19.6)	3.0
Total	48,230 (100.0)	54,826 (100.0)	67,165 (100.0)	77,417 (100.0)	93,746 (100.0)	4.0

Source: Study Team

Note: Percentages are shown by the figures in parentheses.  
AGR means "average growth rate per annum".

The imbalance will become significant in the manufacturing industries and the estate sector where the demand is expected to increase in large numbers. This shortage should be met by immigrants from other regions of the country where there will be surpluses.

In the short run, in order to encourage incomers from other regions, it is necessary to offer higher wages and better living amenities and comfortable urban facilities. Measures designed to ease up on the conditions for granting scholarships for the returned Terengganu will also be effective. In agriculture, foreign labour forces could be utilized under proper control for the estate sector.

In the long term, there will be a need of improvements in education and the vocational training system within the State to cope with the increasing demand. It is necessary to establish facilities for technical and professional training at various levels, education and technical research and development. Efforts to increase the productivity by mechanization in the estate work should not be neglected. Sectors which rely on relatively cheap labour cannot maintain their competitiveness unless a proper rationalization programme is implemented and the working environment becomes attractive with improved payments.

## 5.2 ECONOMIC ACTIVITIES

### 5.2.1 Existing Economic Structure

Economic activities within the area are categorized into three forms; petro-gas related sectors, KETENGAH agricultural and forest sectors, and other traditional sectors.

Oil and gas related industries and its support sectors, the basis of which was established by the landing of off-shore production in 1983, will become the most dominant part of the sub-regional economy from both output value and value added. Creation of job opportunities in these sectors has been small since they are not labour intensive in general.

At present, industrial activities within the area are relatively under-developed. Manufacturing industries to process primary commodities produced within the area are the main activity. Most of the oil palm is processed locally. Interrelationships among the industries are almost non-existent. Even the supporting services such as transportation, are not specialized to handle certain commodities.

Production of primary commodities such as rubber, palm oil and timber are mainly managed under the estate system including the FELDA scheme. These sectors absorb the dominant part of the labour force.

There are the so-called traditional sector, mostly consisting of small-holders, fishermen and petty traders. This sector provides a number of job opportunities, although production or value added is small. People engaged in this sector are being involved with market economy through production of commercial crops. Some of the padi fields, which once produced rice to the local market, are already abandoned due to their low yields and low incidence of double cropping.

The dependency on external economy/market is strong in general. Most of the primary commodities are transported to other states in Malaysia or directly shipped to the foreign markets. Almost all crude oil, refined palm oil and, latex (SMR), and some of the sawn timber are the major products being shipped abroad. Fish, timber, and crude palm oil are transported to other states within Peninsular Malaysia.

On the other hand, most of the food stuffs for local consumption and industrial products necessary for plant construction, intermediate inputs and household materials are coming from outside areas.

Macro economic indicators in 1983 are shown in Tables 5.6 and 5.7. In terms of Gross Regional Product, the following characteristics are implied by Table 5.6.

- 1) The industrial structure in the Study Area is characterized by the remarkably dominant activities of the mining and quarrying sector and by comparatively recessive activities in the sectors of transport, finance and insurance and other services in terms of the share composition, compared with the industry of the whole Terengganu State.

- 2) Other than crude petroleum production, agriculture constitutes the most important part (26%) of the gross regional product.
- 3) The relatively low level of development of the private sector is implied by the fact that government service comprises a major portion of the tertiary sector.
- 4) Per capita GRP, excluding the contribution from the gas and petroleum sector is higher than the State average, which can be largely attributed to large volume products of the agriculture and forestry sectors derived from the development in the KETENGAH area.

Observing the structure of Gross Regional Expenditure from Table 5.7, it can be said that particularly private consumption and capital formation are comparatively stagnant despite that exports to other areas is predominant in the Terengganu State. Activation and mobilization of the private sector is an important issue for strengthening of the sub-regional economy.

Table 5.6 Gross Regional Product of the Study Area, 1983

Unit: M\$ million in 1970 prices

Sector	Study Area <sup>1)</sup>		Terengganu <sup>2)</sup>	
Agriculture, Fishery and Forestry	133.7	(26.3)	315.1	(29.6)
Mining and Quarrying	269.3	(52.9)	281.0	(26.4)
Manufacturing	23.7	(4.7)	65.4	(6.1)
Construction	16.2	(3.2)	49.7	(4.7)
Transport, Storage and Communication	6.5	(1.3)	37.8	(3.6)
Trade, Hotels and Restaurants	10.4	(2.0)	58.0	(5.4)
Finance, Insurance, Real Estate	14.9	(2.9)	68.0	(6.4)
Government Services	26.6	(5.2)	157.6	(14.8)
Other Services	7.7	(1.5)	32.3	(3.0)
<b>Total</b>	<b>509.0</b>	<b>(100.0)</b>	<b>1,064.8</b>	<b>(100.0)</b>
<b>Per Capita GRP</b>	<b>3,167</b> <b>[1,512]<sup>3)</sup></b>		<b>1,965</b> <b>[1,474]<sup>3)</sup></b>	

Notes: The figures in parentheses show percentage share.

- Source:
- 1) Estimated by the study team.
  - 2) Mid-term Review of FMP.
  - 3) Including the petroleum oil products.



Table 5.7 Gross Regional Expenditure, 1983

UNIT: M\$ million in 1970 prices

	Study Area (A)	Terengganu (B)	Share or Differential (A)/(B)
GRP at Producers' Value	509.0	1,065	0.48
GRP at Purchasers' Value (GRE)	515.1	1,083	0.48
Private Consumption	134.8	479	0.28
Government Consumption	43.6	258	0.17
Fixed Capital Formation, Private	44.3	136	0.33
Fixed Capital Formation, Government	98.1	245	0.40
Export to Other Areas	375.5	533	0.70
Import from Other Areas	-180.4	-568	0.32
Household Income	169.1	525	0.32

Source: Estimated by the Study Team

### 5.2.2 Income

Income can be divided into two categories; household and corporate.

The major part of household income is spent locally; used for the purchase of daily consumptive goods and services such as foods, fuels and transportation and of durable capital goods such as cars and housing. This expenditure generates further economic circulation.

Household income within the study area is estimated to be 32.8% of the GRE of 1983 which is equivalent to M\$88 per capita per month at 1970 prices. Meanwhile, the corresponding State figures are 48.5% and M\$81, respectively. The average per capita household income of the area is mostly at the same level as the average of the Terengganu State.

Surveys and census for the household income have been undertaken in 1970, 1976, 1979 and 1982. Table 5.8 shows the changes between these years. It is noted that the comparative position in per capita household income of the Terengganu State to the Peninsular has gradually improved; it was at the level of 64% in 1970 but went up to 70% in 1982.

Table 5.8 Monthly Household Income

(Unit: M\$ in current prices)

	Peninsular Malaysia		Terengganu	
	/house	/capita	/house	/capita
1970	246	50 (100)	153	32 (64)
1976	513	101 (100)	319	63 (62)
1979	693	136 (100)	365	86 (63)
1982	665	128 (100)	441	90 (70)

Notes: ( ) show the percentage

Source: Post Enumeration Survey, 1970  
 Agricultural Census, 1976  
 Household Survey, 1979  
 Household Well-Being Survey, 1982

Table 5.9 and Fig. 5.1 show the distribution pattern of household income levels and the differential between households in urban and rural areas. The average household income in rural area is at the level of 64% of that in urban area of the State of Terengganu in 1979. It is understood that most of the families in the traditional village still cannot earn more than M\$200 per month which is recognized as the poverty level. Estate workers are paid more, but they usually have no facilities for additional "dusun" products in kind such as fruits or vegetables. Only the FELDA settlers involved in the well established schemes can earn income above the poverty level. Management/ professional staff, skilled workers and those who have capital assets can earn substantial revenues, however the number is small.

Table 5.9 Household Income in Terengganu: 1976 and 1979

Income Classes (M\$)	1979 2)			1976 1)	
	Urban	Rural	Total (%)	Income Class (M\$)	Total
- 99	2,989	7,692	10,681 (10.3)	- 61	11,410
100 - 149	3,627	10,791	14,418 (13.9)	62 - 122	18,613
150 - 299	11,880	22,762	34,642 (33.5)	123 - 182	17,098
300 - 599 (1)	13,550	14,858	28,408 (27.5)	183 - 243	14,027
600 - 999	5,119	2,892	8,011 (7.7)	244 - 350	14,955
1,000 -	4,530	1,696	6,226 (6.0)	351 - 750	18,658
Unknown	563	541	1,104 (1.1)	751 - 999	2,848
				1,000 - 1,999	2,973
				2,000 -	1,200
<b>Total</b>	<b>42,258</b>	<b>61,232</b>	<b>103,490 (100%)</b>	<b>Total</b>	<b>101,786</b>
<b>Average (M\$)</b> <b>(Differential)</b>	<b>464</b> <b>(100)</b>	<b>298</b> <b>(0.64)</b>	<b>365</b> <b>(0.79)</b>	<b>-</b>	<b>319</b>

Source: 1) State Economic Planning Unit through TMPS.  
2) State Economic Planning Unit, provisional figures.

Note: (1) Poverty line is M\$300 in 1979 prices.

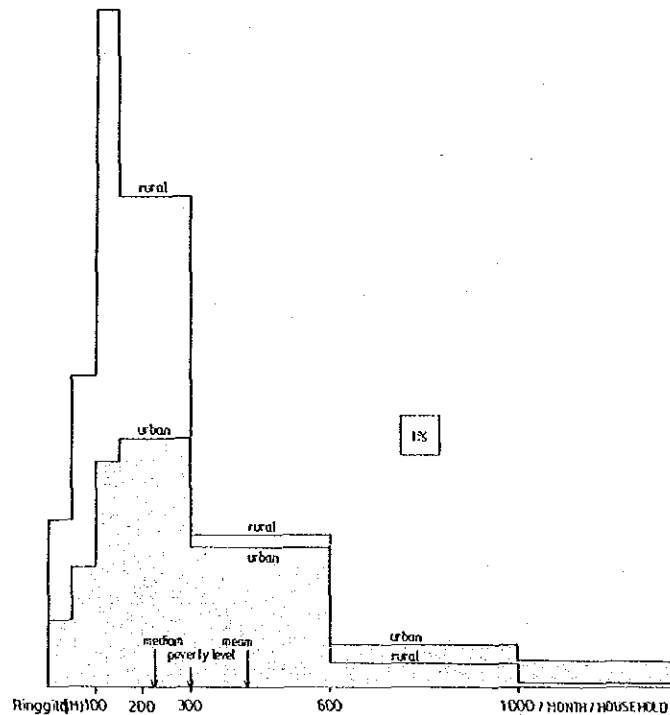


Fig. 5.1 INCOME DISTRIBUTION IN TEREGGANU 1979

The development of agriculture in the KETENGAH area and urbanization and industries in the coastal strip will contribute to increase the average income by generating a larger number of jobs, i.e. FELDA settlers, professional staff and some urban dwellers who earn more than M\$200 per capita per month.

Percent distribution of household income in the state is calculated by using Table 5.9. The poverty line in current prices of 1979 is M\$300, which is adjusted the poverty line of M\$180 of 1970 to that of 1979 by using the consumers price indexes. Table 5.9 and Fig. 5.1 show that 57.7% of the families in the state are under the poverty level in 1979.

It is assumed in the study area that 57.7% of the families are under the poverty line in 1983 if the same percentage is applied. Those under the poverty line are 18,200 families in the study area.

For the estimate of distribution in 2,000, the conditions in estimating the household income of 1983 are not altered and only the economy is assumed to grow as studied in the economic framework. The result shows that 14.1% of the families in the area will be under the poverty line.

	1983	2000
Household income in GRP of the area (M\$ mil)*	169.1	733.8
Per capita (M\$)* household income	88	201
Families under the poverty line	18,200 (57.7%)	8,600 (14.1%)

\* in 1970 prices.

### 5.3 DEVELOPMENT POTENTIAL

#### 5.3.1 Primary Resources

The economic base in the area in the 1960s was supported by fishery, forestry, and agriculture by small-holders and the mining of iron ore at Bukit Basi.

Along with closing down of the iron ore mine early in the 1970s, the regional economic growth base started to weaken. The KETENGAH integrated regional development programme had been timely formed and entered into operation by this time. Before the full production of agriculture in the KETENGAH area the regional economy firstly enjoyed the impact from the construction sector especially for land, settlement and infrastructural developments. Logging and sawmilling operations emerged for the large-scale jungle clearance work.

Exploitation of offshore oil since the early 1980s brought the establishment of hydrocarbon industries in the area. Investment by the government to improve the industrial environments became larger because of the revenues from the oil royalties.

There is little land left for extensive land development in the agricultural sector. The proposed development in the KETENGAH area has already reached the final stage in terms of the land still available, although a comparatively small forest area at Pasir Raja is untapped and is planned for future agricultural development. Existing crop trees planted mostly in the late 1970s have gradually matured, and much more production from tree crops can be expected in near future.

Some of the rubber trees held by the small holders are under untapped and are in an abandoned condition, because the stagnant trend in the world market/price has discouraged an increase in output.

Reserves of forest resources will be maintained under a selective felling programme in the KETENGAH area. A reduction in the volume of log yield compared to the past years is anticipated in the future because of the decrease in land clearance work.

There are a number of natural resources to be utilized for further economic development within the area. Mineral resources such as tin, iron ore, tungsten and other metal ores are known to exist.

### **5.3.2 Socio-Economic Surroundings**

The labour force has already run into shortages in some parts of the area due to maldistribution of labour force. The future labour supply shortages may be overcome when transmigration is administratively and intentionally encouraged. Shortage of skilled workers and management staff required by the targeted industrialization can also be predicted.

Funds for the regional development, considering the ambitious development plan, will not be satisfied from the limited State financial resources. Consolidated federal funds and private funds throughout Malaysia or foreign countries will have to be intensively introduced.

The size of the regional market is still too small to make the proposed industrial production more realistic. Industrial agglomeration which can attract a wide variety of investors is not sufficient. The existing programme and on-going projects of the transportation system should be used to enhance the basic infrastructure to enlarge the size of market by linking to the domestic and international market areas.

In conclusion, a possibility for the socio-economic restructure and development within the area depends on the use of resources which are coming on-stream. Financial resources can also be obtained from various sources to drive the regional economy. However, the availability of technological and manpower resources in the area is, compared with the other established areas, rather crucial.

It is questionable that the on-going national projects alone can attract further investments and bring continuous and self sustained development to the area. In addition, measures must be taken to ensure that the benefits of economic development can be enjoyed by the residents in the area without widening inequality in the income.