



Ministry of Public Works  
Republic of Indonesia

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# The Study on the Integrated Regional Development Plan for the Southern Part of Sumatra

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Final Report

Vol. 1  
Executive Summary

March 1993

Japan International Cooperation Agency



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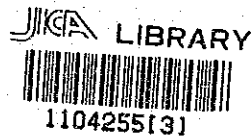
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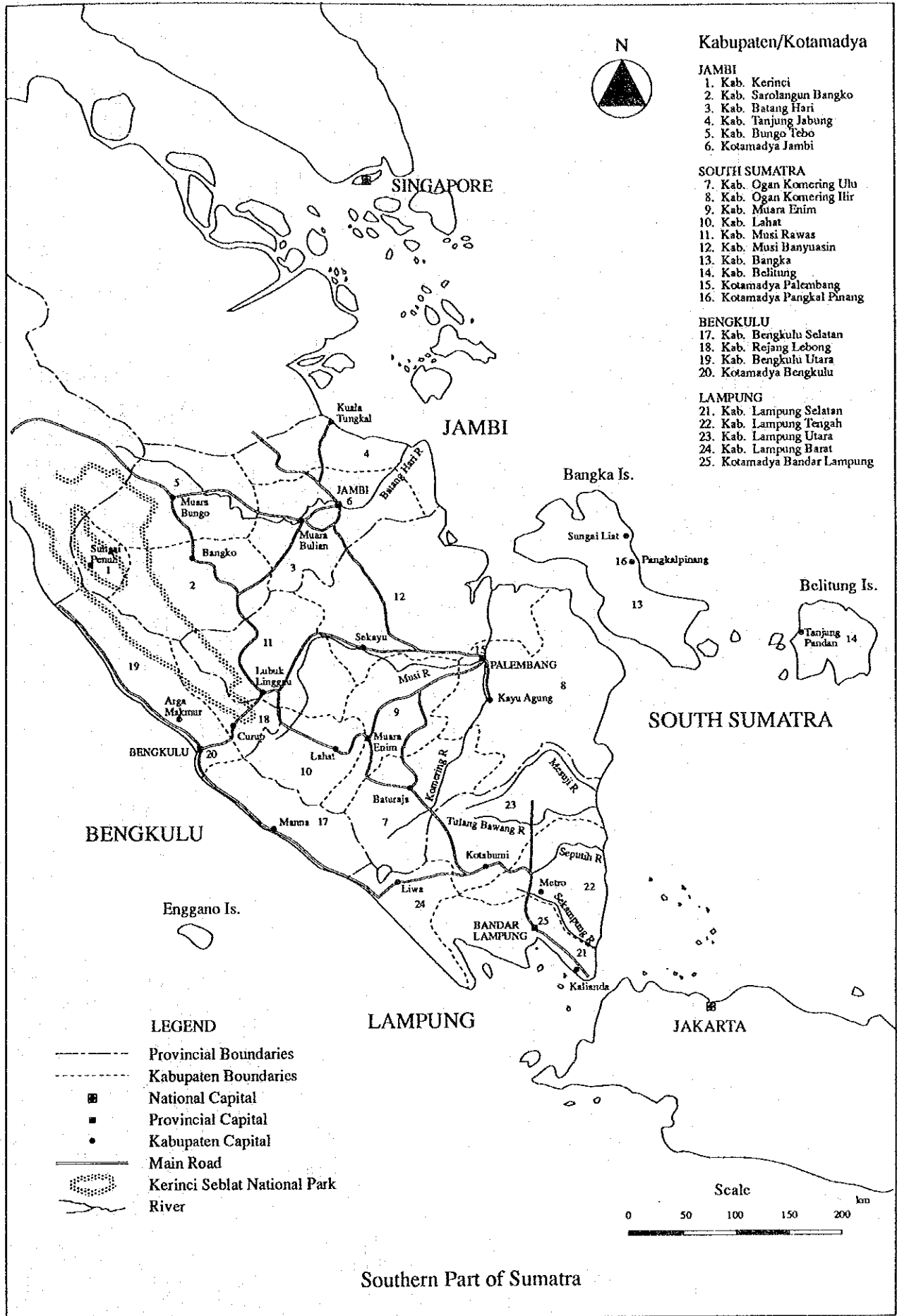
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## PREFACE

In response to a request from the Government of the Republic of Indonesia, the Government of Japan decided to conduct a study on the Integrated Regional Development Plan for the Southern Part of Sumatra and entrusted the study to the Japan International Cooperation Agency (JICA).

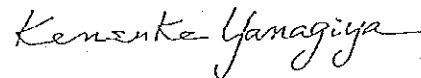
JICA sent to Indonesia a study team headed by Dr. Kunio Takase, Executive Director, International Development Center of Japan, composed of members from the International Development Center of Japan and the Nippon Koei Co., Ltd., 4 times between June, 1991 and December, 1992.

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

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

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

March, 1993



Kensuke Yanagiya  
President  
Japan International Cooperation Agency







## INTEGRATED REGIONAL DEVELOPMENT PLAN FOR THE SOUTHERN PART OF SUMATRA



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### PREFACE

The Study on the Integrated Regional Development Plan for the Southern Part of Sumatra (LTA-129) was commenced in March 1991 and has just completed in March 1993, in accordance with the Scope of Work signed in November 1990 between the Ministry of Public Works, Government of Indonesia, and the Japan International Cooperation Agency (JICA).

The Study covers southern Sumatra (the Region), that is, four provinces of Jambi, South Sumatra, Bengkulu and Lampung. Its main objectives have been to: i) formulate a 20-year long-term development plan for the Region; ii) identify priority areas and projects; and iii) strengthen the planning capability of Indonesian counterpart personnel. A joint team of the International Development Center of Japan (IDCJ) and the Nippon Koei Co., Ltd. was entrusted by JICA to carry out the Study. This Study is actually a sequel to a similar study for the northern part of Sumatra (LTA-78), whose IDEP (Integrated Development Program) approach has been adopted again in this Study to formulate a 20-year plan for the Region. Prior experience with LTA-78 has helped the JICA Team further improve various aspects of the Study. For example, the IDEPs are now organized in a way easier to implement; workshops with major sectors and in IDEP-site Kabupaten/Kotamadya were held; and counterpart collaboration has been strengthened. The Team, consisting of 17 experts of various fields, have worked two years to finally submit the draft final report to the Indonesian government on 4 December 1992.

The final Fifth Workshop was subsequently held at BAPPENAS, Jakarta, on 17 December 1992, where the participants noted the effectiveness of integrating both the Northern and the Southern Sumatra Plans (LTA-78 and LTA-129) to accelerate the transformation of the Sumatra island as an integral part of a Pacific rim economic axis. They also agreed that: i) the Report will be fully utilized as a guideline for provincial planning and budgeting particularly in the course of Repelita VI preparation; ii) the Report does not imply any official commitment nor are the projects proposed in the Study exhaustive or definitive; iii) the new deepwater seaports require a more comprehensive study; and iv) the Indonesian Government would act towards the materialization of the result following the normal government procedures led by BAPPENAS. Comments received at the Workshop have been duly incorporated into the four volumes of this Final Report.

With their vast potentiality, both northern and southern Sumatra seem on the right track recently, emerging as pioneers on the national development front. Many of the IDEPs and the projects recommended in the Studies have already been undertaken by various donors and private investors both domestic and international. The two regions' pace of transformation has been even accelerating and their bright destinations are in clear sight. It is our greatest pleasure to witness this whole process of regional development on the one hand and, on the other, to have been of some assistance in strengthening the government structure for regional planning whose basis is now much more consolidated than five years ago when LTA-78 began.

In concluding, I, on behalf of the JICA Team, would like to express my gratitude for the wholehearted support given by the two Governments, JICA, major donor agencies, and all the people concerned.

19 March 1993

Kunio TAKASE  
Team Leader



## ACKNOWLEDGMENTS

A large number of people have assisted the JICA Team in carrying out its mission. This is particularly so with the stages which were devoted to extensive field trips. Provincial BAPPEDA staff helped arrange the Team's complicated itineraries and joined Team members to the field. Government officials, both provincial and central, generously provided information and data while sometimes leading field visits themselves. Bupati and Camat welcomed the Team heartily. Impromptu interviews with farmers, shopkeepers, fishermen or even speed boat operators were always valuable with firsthand knowledge of the everyday life. Private companies and market traders willingly allowed the members to glimpse their operation. All told, the Team's acknowledgment must go to hundreds of those people. Without their assistance, this Report could have never come into being. The Team would like to thank them all with the deepest appreciation. Following are those to whom the Team are the most indebted:

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## Glossary/Abbreviations

Adat	Social custom; the cultural traditions and social organisation of a particular ethnic group
Adat Law	Social custom as applied to public resolution of disputes, using agreed, non-official judicial mechanisms
ADB	Asian Development Bank
AFRD	Agency for Forestry Research and Development
Alim Ulama	Islamic religious teachers
APBN	Anggaran Pendapatan dan Belanja Negara (Planned/Actual National Budget)
APBD	Anggaran Pendapatan dan Belanja Daerah (Planned/Actual Regional Budget)
AWB	Asian Wetland Bureau
BAKOSURTANAL	Badan Koordinasi Survei dan Pemetaan Nasional (National Coordinating Body for Surveys and Mapping)
Bandaria	Community (sub-desa) groups of the Peminggir people in Lampung
Bandes	Bantuan Desa (National funds allocated to village development)
Bangda	Direktorat Jenderal Pembangunan Daerah (Directorate General Regional Development, Ministry of Home Affairs)
BAPEDAL	Badan Pengendalian Dampak Lingkungan (Environmental Impact Control Agency)
Bappeda	Badan Perencanaan Pembangunan Daerah (Regional Development Planning Board)
Bappenas	Badan Perencanaan Pembangunan Nasional (National Development Planning Board)
BDL	Bandar Lampung
Bilateral	Kinship is traced through both the mother's and the father's line
Biotrop	Institute for Studies and Research in Tropical Biology (set up by SEAMEO-Southeast Asian Ministers of Education Organizations)
BKLH	Provincial Office for Population and Environment
BKPM	Badan Koordinasi Penanaman Modal (National Investment Coordinating Board)
BKPMD	Badan Koordinasi Penanaman Modal Daerah (Regional Investment Coordinating Board)

BPK	Balai Penelitian Kehutanan (Forest Research Institute)
BPN	National Land Board
BPS	Biro Pusat Statistik (Central Bureau of Statistics)
Bugis, Buginese	A seafaring ethnic group from South Sulawesi
Bupati	Regent, head of a Kabupaten (Regency)
Buway	Clan group of the Pubian people in Lampung
Camat	Head of a Kecamatan (Subdistrict)
Cerdik Pandai	Educated leaders in Minangkabau society
Cipta Karya	Directorate General of Human Settlements, Ministry of Public Works
CITES	Convention on International Trade in Endangered Species
Clan	A group of people claiming common descent from an ancestor (often mythical), with members being traced either through the mother's or the father's line
Damar	Resin from forest tree species
Departemen Sosial	Social Welfare Department
Depati	Head of a Marga (also called Pasirah)
Desa	Village, usually in rural areas (see also Kelurahan)
Dewan Marga	Council of advisors to the Pasirah under the Marga system
DGFU	Director General of Forest Utilization
Dikeresayoko	Serawai term for system of assistance to kin who suffer misfortune such as illness
Dinas	Sectoral departments of the local government
Dinas Kehutanan	Provincial Forestry Service
DIP	Daftar Isian Proyek (Project Budget)
Dusun	Hamlet; subdivision within a village
EIA	Environmental Impact Analysis
FAO	The Food and Agriculture Organization of the United Nations
GBHN	Garis-garis Besan Haluan Negara (Guidelines of State Policy)
GOI	Government of Indonesia
Gotong-royong	Forms of community co-operative working together
Hak Milik	The right to own land

Hak Pakai	The right to utilise land
Hak Ulayat	The right of members of an adapt community to utilise land which is claimed by the adat community
Harta Tubang	The inherited property (usually rice-lands, fishponds and house) passed down through the female line under Semendo adat
HPH	Hak Penggunaan Hutan (Forest Utilisation Concessions, for example logging companies)
HTI	Hutan Tanaman Industry (Industrial Timber Estate)
IDEP	Integrated Development Program
IMR	Infant Mortality Rate
IMU	IDEP Management Unit
Inhutani	A state-owned company in forestry
Inpres	Instruksi Presiden or funds allocated by national government in grant form for expenditure in the Regions
ITTO	International Tropical Timber Organization
Jala	Fishing net, a symbol of Semendo clan unity
Jenang	Malay middleman in trade with the Kubu (Suku Anak Dalam)
JICA	Japan International Cooperation Agency
Kabupaten	Regency or District; Second level of Regional Government (Level 2)
Kanwil	Regional Vertical Office
Kanwil Kehutanan	Regional Forestry Office
Kebun	Tree crop gardens or plantations
Kecamatan	Sub-district; third level of Regional Government (Level 3)
Kelurahan	Village, usually located in urban area (See also Desa)
Kepala Desa	Head of a Village (Desa)
KLH	Menteri Negara Kependudukan dan Lingkungan Hidup (Ministry of Population and Environment)
Kolonisatie	Transmigration program from Java to Outer Islands in Dutch Colonial Period
Komering	An ethnic group based in the South of South Sumatra
Kotamadya	Municipality; Second Level of Regional Government (Level 2)
KSDA	Regional Office for Conservation of Natural Resources, Ministry of Forestry

Kubu	A traditionally forest dwelling group located in South Sumatra and Jambi. They prefer to be called Suku Anak Dalam
KUD	Koperasi Unit Desa (Village Co-operative Unit)
Ladang	Dry-land cultivated field
Lebak Lebung	Swampy or seasonally inundated land
Lembaga Pemangku Adat	Consultative institution to advise on adat
Lineage	Descendants in one line (mother's or father's line) from a specified ancestor through a set number of generations
LKMD	Lembaga Ketahanan Masyarakat Desa (Village Self-Reliance Organisation)
LMD	Lembaga Musyawarah Desa (Village Consultative Council)
LPSM	Lembaga Pembinaan Swadaya Masyarakat (Indonesian Non-Government Organisation)
LSCI	Local Steering Committee for IDEP
LSM	Lembaga Swadaya Masyarakat (Indonesian Non-Government Organisation)
Lurah	Head of a Kelurahan
Madrasah	Islamic religious School
Marga	Lowest unit of local government in the Region until 1979, originally meant a kin-related, genealogical group
Matrilineal	Kin relationships are traced through the female line
Melangun	Kubu word meaning to shift the place of residence after a disaster such as illness or death
Meraje	Uncle who advises the eldest girl in Semendo adat
MOF	Ministry of Forestry
MUBA	Musi Banyuasin
MURA	Musi Rawas
Musyawaharah	Process of consultative decision-making
Neolocal	Married couple establish an independent household
NES	Nucleus Estate Small Holder (see PIR)
NFI	National Forest Inventory
Ngresayo	Serawai term for co-operative house building between kin group



Ninik-mamak	Group of male adat leaders in Minangkabau tradition; usually elders of lineage groups
NSCI	National Steering Committee for IDEP
NTFP	Non-Timber Forest Products
OECF	Overseas Economic Cooperation Fund
OKI	Ogan Komering Ilir
OKU	Ogan Komering Ulu
Pasang Surut	Tidal, also tidal swamp cultivation of rice
Pasemah	An ethnic group centred in the upland areas of Lahat
Pasirah	Head of a Marga
Patrilineal	Kin relationships are traced through the male line
PBB	Pajak Bumi Dan Bangunan (Tax on Land and Buildings)
Pedanda	Balinese Hindu priest
Pemangkat Pasirah	Marga officials assisting the Pasirah
Pemerintah Daerah	Local Government or Regional Government
Peminggir	An ethnic group from Lampung
Penggawo	Leader of a hamlet under the Marga system
Perum Perhutani	A state-owned company responsible for the forests on Java
PH	Direktorat Jenderal Pengusahaan Hutan (Directorate General of Forest Utilization)
PHPA	Direktorat Jenderal Perlindungan Hutan dan Pelestarian Alam (Directorate General of Forest Protection and Nature Conservation)
PIR	Perkebunan Inti Rakyat (Smallholder nucleus estates)
PKK	Pendidikan Kesejahteraan Keluarga, a women's organisation operating at village level and focussing on family welfare
PODES	Potensi Desa (Village Potential), a data source for village level information provided by the Village Head
Pola Dasar	Basic Policy
Posyandu	Village health aid posts staffed by volunteers
PPLH/PSL	Environmental Study Centre (university-based)
Pubian	An ethnic group from Lampung
Puskesmas	Community health centre at Kecamatan level

Rejang	An ethnic group originating in Kabupaten Rejang Lebong, Bengkulu
Repelita	Rencana Pembangunan Lima Tahun (Five-Year Development Plan)
Repelitada	Rencana Pembangunan Lima Tahun Daerah (Five-Year Regional Development Plan)
RePPPProT	Regional Physical Planning Programme for Transmigration
RRL	Direktorat Jenderal Reboisasi dan Rehabilitasi Lahan (Directorate General of Reforestation and Land Rehabilitation)
RSTRP	Rencana Struktur Tata Ruang Propinsi (Provincial Spatial Structural Plan)
Sakernas	Survei Angkatan Kerja Nasional (National Labour Force Survey)
Sekwilda	Sekretaris Wilayah Daerah (Secretary to Governor or Bupati)
Semendo	An ethnic group originating in Kabupaten Muara Enim, South Sumatra, and spreading into Lampung and Bengkulu
Serawai	An ethnic group located mainly in Kabupaten Bengkulu Selatan
Suku Anak Dalam	Children of the Interior (Inside the Forest). This is the name the Kubu people prefer to be called.
SUPAS	Intercensal Survey
Tambak	Fishpond
Tanah Bengkok	Rice lands, the income of which is used by incumbent village officials during their term of office
Tanah Negara Bebas	A category of State land
TGHK	Tata Guna Hutan Kesepakatan (Forest Land-Use by Concensus)
Tk I, Tk II	Level of government (Level I: Province, Level II: Kabupaten/Kotamadya)
TPI	Tebang Pilih Indonesia (Indonesian Selective Cutting System)
TPTI	Tebang Pilih Tanam Indonesia (Indonesian Selective Cutting and Planting System)
Trans Bandep	Transmigrasi Bantuan Departemen (Transmigration to increase the population of sparsely populated, existing villages)
Translok	Transmigrasi Lokal, or transmigration within provinces
Tunggu Tubang	The eldest girl who inherits the family wealth in Semendo adapt
Ulama	See Alim Ulama
UNDP	United Nations Development Programme
UNSRI	Universitas Sriwijaya (University of Sriwijaya, Palembang)

<b>Uxorilocal</b>	<b>Husband resides with the wife and her kin on marriage</b>
<b>Virilocal</b>	<b>A married couple resides with the husband's kin group</b>
<b>WALHI</b>	<b>Indonesian Environmental National Forum</b>
<b>Walikota</b>	<b>Head of a Kotamadya</b>
<b>Warung</b>	<b>Small shop or stall</b>
<b>WB</b>	<b>World Bank</b>
<b>Wedana</b>	<b>Head of a Javanese Kewedanaan (District) administrative unit (no longer in existence)</b>
<b>WWF</b>	<b>World Wide Fund for Nature</b>



THE STUDY ON THE INTEGRATED REGIONAL DEVELOPMENT PLAN  
FOR THE SOUTHERN PART OF SUMATRA

(LTA-129)

FINAL REPORT

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## **1. THE STUDY**

### **1.1 BACKGROUND**

The Japan International Cooperation Agency (JICA), in close cooperation with the authorities concerned of the Government of Indonesia, successfully conducted the Study on the Integrated Regional Development Plan for the Northern Part of Sumatra (LTA-78) in 1988-1990. The Government of Indonesia subsequently in May 1989 requested the Government of Japan to implement another study which would cover the southern part of Sumatra, thereby setting the whole of Sumatra under one consistent plan.

In response to the request, the Government of Japan in July 1989 agreed to conduct the Study on the Integrated Regional Development Plan for the Southern Part of Sumatra (hereinafter referred to as the Study) as a technical cooperation project code-named LTA-129. According to the agreement, the Study has been undertaken by JICA in close cooperation with the Directorate General of Human Settlements (DGCK), the Ministry of Public Works, and other central and provincial government agencies concerned.

After the Scope of Work for the Study was signed on 7 November 1990, JICA entrusted the Study to the International Development Center of Japan (IDCJ), which jointly with the Nippon Koei Co., Ltd. (NK) formed a study team consisting of 17 experts. Following the Terms of Reference, the Team started its work in March 1991 and finished in March 1993.

### **1.2 COVERAGE AND OBJECTIVES**

The Study covers the southern part of Sumatra (Region), that is, four provinces of Jambi, South Sumatra, Bengkulu and Lampung. Its objectives are to:

- (1) formulate a 20-year long-term development plan (1990-2010) for the Region;
- (2) identify priority areas and projects; and
- (3) strengthen the planning capability of Indonesian counterpart personnel.

### **1.3 APPROACH**

Two basic approaches are adopted in this Study. One is "combining national and local development initiatives" to achieve regional development both in top-down and bottom-up ways (Diagram 1). The other is the "Integrated Development Program (IDEP)" approach where some priority areas are focused. (See Section 9 below.)

### **1.4 STUDY'S RELATIONSHIPS WITH OTHER PLANS**

The Study's relationships with other official plans are shown in Diagram 2. It is based on Repelita V (Fifth Five-Year Development Plan) and Repelitada V (Provincial Repelita V), which are in turn based on GBHN (Guidelines of State Policy) and Pola Dasar (Basic Policy) respectively. RSTRP (Provincial Spatial Structural Plan) is both an input to the Study and supported by the Study with its preparation. The Study's output will be used in formulating next Repelita VI and Repelitada VI.

### **1.5 STUDY ORGANIZATION**

To facilitate the Study's implementation, two committees are organized, one on the Indonesian side and the other on the Japanese side. The Steering Committee, on the Indonesian side, consists of the Ministry of Public Works, BAPPENAS and the Ministry of Home Affairs, and is chaired by BAPPENAS. The Advisory Committee is set up by JICA to provide the Team with advice on study implementation.

Diagram 1 Combining National and Local Development Initiatives

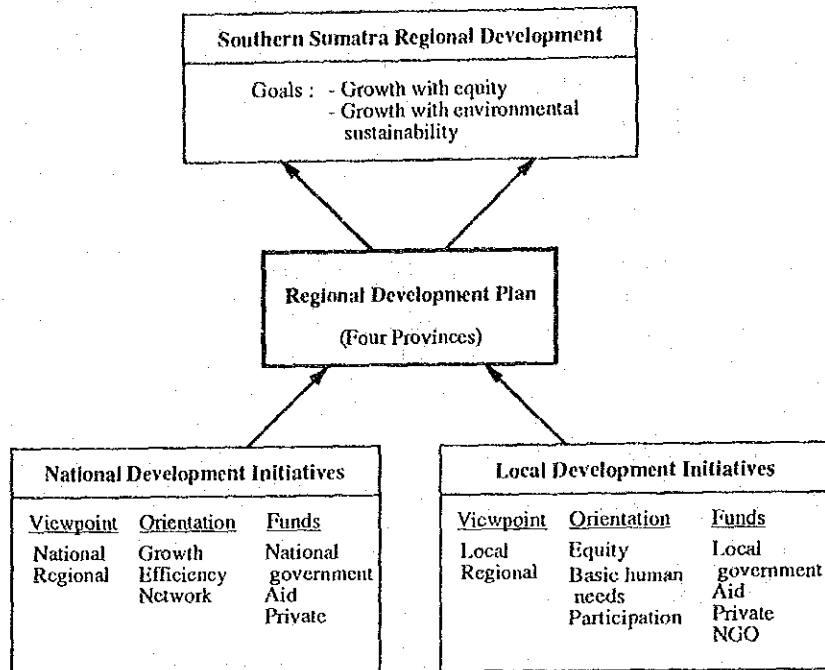
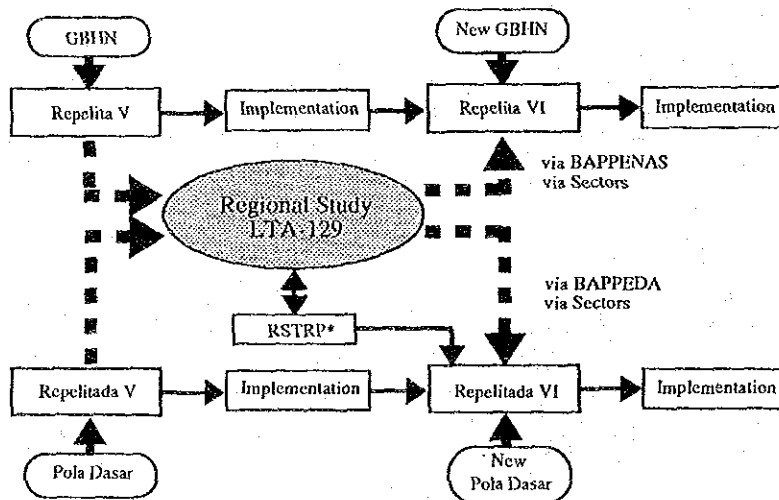


Diagram 2 Study's Relationships with Other Plans



\* Provincial Spatial Structural Plan, authorized in October 1992 by law (UU No.24 Tahun 1992).



1.6



**TIME FRAME**

Diagram 3 shows the overall time frame of the Study.

Diagram 3 Time Frame of the Study

Month/Year	Stage	Work	Report	Workshop	Mini-Workshop	Counterpart Study*
Mar/91	Analysis of Present Situation and Development Potentials	Mar/91	Inception Report (Mar/92)	21/Jun/91	Jun/91	
Aug/91		Jun/91	Progress Report I (Aug/91)	23/Aug/91	Jul/91 Aug/91	
Nov/91	Establishment of Objectives, Framework and Strategies	Sep/91				
		Oct/91	Progress Report II (Dec/91)		Oct-Nov/91	Oct/91 (1)**
Jan/92	Formulation of Regional Development Plan	Jan/92	Interim Report (Feb/92)	27/Jan/92	Jan/92	
Scp/92	Formulation of IDEPs and Preliminary Study of High-Priority Projects	Jun/92				Mar/92 (1)**
		Sep/92	Progress Report III (Sep/92)	2/Sep/92 7/Sep/92	Jul/92 Sep/92	
Mar/93	Preparation of Final Report	Nov/92	Draft Final Report (Nov/92)			Oct/92 (2)**
		Dec/92	Final Report (Mar/93)	17/Dec/92		Nov/92

 Work in Indonesia  
 Work in Japan

 Workshop/Mini-Workshop  
 Pre-Workshop Meeting

\* 3 weeks/tour  
\*\* Participants

## 2. NATIONAL SETTING

### 2.1 INTERNATIONAL ENVIRONMENT

Asia is the fastest growing region in the world (6.6% GDP growth annually during the past quarter century, compared with 4.5% for the developing countries as a whole). The region's growth, however, has somewhat slowed down due mainly to the recession in the U.S. and Japan, two major trade partners. With their newly acquired economic strength, Asian countries have been pondering over the formation of a regional trade group or zone of their own within the open economy framework worldwide. Such a regional arrangement would greatly benefit Indonesia, which is enjoying dynamic development through a successful structural transformation.

### 2.2 INDONESIA'S RECENT ECONOMIC PERFORMANCES

Macroeconomic performances of Indonesia in recent years are generally good. GDP with oil/gas grew 7.5, 7.4 and 6.0% annually in 1989, 90 and 91, respectively. Export is basically shifting towards non-oil/gas commodities and a respectable trade surplus has been maintained despite a sharp increase in import. Private investment (foreign and domestic) rose phenomenally during 1986-90, more than tenfold increase, in response to a series of deregulation packages. The trend has since been cooled down after mid-1990 when the government introduced a set of monetary and fiscal policies aiming to stabilize the balance of payments situation and fend off inflationary pressure. Under the new policies, the government rescheduled or postponed several huge projects and imposed an annual ceiling on offshore commercial borrowing. Those policies will continue for some years ahead even though they will adversely affect the national economy in the short run. The decision, however, is considered appropriate and essential to safeguard the national interests and development in the long run. When the country's economic situation improves and the world economy recovers, Indonesia's outlook will certainly rebound from the current subdued one.

### 2.3 TARGETS OF REPELITA V AND INTERIM ACHIEVEMENTS

Current Repelita V (1988/89-1993/94) intends to accomplish the structural transformation of the Indonesian economy, leading it towards a more diversified, efficient and dynamic one which is capable of self-sustaining development envisaged in forthcoming Repelita VI, the first Five-Year Plan of the Second Long-Term Development Plan (1994/95--2018/19). The Plan aims to achieve a balanced economic structure with special emphasis on the agricultural sector (self-sufficiency in foodstuffs and promotion of diversification) and on the industrial sector (promotion of export-oriented commodities, absorption of labor force, and processing agricultural products). To achieve the objectives of structural transformation and labor force absorption, the national economy is planned to grow at 5% annually. The actual figure up to 1990/91 was 7.5%. Some main targets as well as their interim achievements are shown in Diagram 4. Generally, the Plan's achievements are satisfactory.

### 2.4 URGENT ISSUES

Recent developments in Indonesia have highlighted a few issues as being the most serious or urgent. **Poverty** has become an even more pressing problem as the nation sets its course for the new era of prosperity. Poverty alleviation is strongly called for and the government in 1987 initiated a program known as the Integrated Area Development Program or PKT. The issue of **employment** is stressed in Repelita V because of the rapidly growing labor force. To absorb about 12 million new job seekers during the five years, the Plan advocates industrial diversification and rapid expansion of private enterprises. **The environment** is another priority issue in Repelita V. The most common and serious concern stems from how to manage and sustain forest resources. **Provincial spatial planning** is a new approach in Indonesian planning practice. A 15-year Provincial Spatial Structural Plan has been prepared for each province, whose legal footing is set on a new law enacted in October 1992.

Diagram 4 Main Targets of Repelita V and Interim Achievements

Item	Target				Realization				
	1988/89	1989/90	1990/91	1993/94	Annual Growth Rate (%)	1988/89	1989/90	1990/91	Annual Growth Rate (%)
<b>1. GDP (%)</b>									
Agriculture	23.2			21.6	3.6	21.2	20.5	19.6	3.2
Mining/Quarrying	15.9			12.6	0.4	15.9	15.6	15.2	5.1
Manufacturing	14.4			16.9	8.5	18.2	18.5	19.3	10.7
Non-oil/gas	(9.6)			(12.3)	(10.0)	(13.6)	(14.1)	(14.9)	(12.3)
Oil/gas	(4.8)			(4.6)	(4.2)	(4.6)	(4.3)	(4.4)	(5.9)
Construction	5.6			5.8	6.0	5.3	5.5	5.8	13.0
Trade	15.9			16.7	6.0	15.7	16.0	16.2	9.1
Transport	5.7			6.0	6.4	5.2	5.4	5.5	10.8
Others	19.3			20.4	6.1	18.5	18.6	18.4	7.1
Total	100.0			100.0	5.0	100.0	100.0	100.0	7.5
<b>2. Balance of Payments (US\$ bil)</b>									
Current Account	-1.9	-2.4	-2.2	-0.5		-1.9	-1.6	-3.5	
Exports	18.7	20.3	22.6	31.9		19.8	23.8	27.8	
Non-oil/gas	11.2	13.0	15.1	23.2		12.2	14.5	15.4	
Oil/gas	7.5	7.3	7.5	8.7		7.6	9.3	12.4	
Imports	-13.8	-15.3	-17.1	-24.3		-14.3	-17.4	-22.6	
Services	-6.8	-7.4	-7.7	-8.1		-7.4	-8.1	-8.7	
Official Inflow	5.1	6.4	6.3	5.8		6.6	5.5	5.1	
Debt Repayment	-3.9	-4.1	-4.4	-4.4		-3.8	-3.7	-4.2	
<b>3. Government Finance (Rp tril)</b>									
Domestic Revenues						9.5	11.3	10.8	
Oil/gas	8.9	7.9	9.1	11.8		13.5	17.5	20.8	
Non-oil/gas	12.9	17.4	20.3	37.1		23.0	28.7	31.6	
Total	21.8	25.2	29.4	48.9		20.7	24.3	26.6	
Routine Expenditures	20.1	23.4	24.8	30.0		2.3	4.4	4.9	
Public Savings	1.7	1.8	4.6	18.9		10.0	9.4	11.3	
Foreign Aid	7.2	11.3	11.6	12.7		12.3	13.8	16.2	
Development Funds	8.9	13.1	16.2	31.6					

Sources: BAPPENAS, Repelita V  
 BPS, National Income of Indonesia 1984-89  
 BPS, National Income of Indonesia 1985-90 (Provisional)  
 Bank Indonesia, Annual Report 1989/1990

Notes: (1) GDP is measured on the calendar year basis.  
 (2) Debt repayment shows only the principal.  
 (3) Government finance of 1990/91 in the realization column exhibits annual budget.

### 3. THE REGION

#### 3.1 WHY SOUTHERN SUMATRA?

The southern Sumatra Region was selected as a subject mainly because of:

- (1) its high potentials, particularly its proximity to Java;
- (2) changing patterns of socio-economic ties within the Region;
- (3) the urgent need to review past developments to prepare for the future; and
- (4) lack of a long-term plan consistent with the plans for the two neighboring regions, northern Sumatra and west Java.

#### 3.2 PHYSICAL AND HISTORICAL BACKGROUND

The southern part of Sumatra extends about 700 km long (1°s - 6°s). Its land area totals 218,000 km<sup>2</sup>, accounting for 46% of the island of Sumatra and 11% of the national land. Population in 1990 was 15 million, 42% of the Sumatran total and 9% of the national total of about 180 million. Some key indicators are summarized in Diagram 5.

Geologically, the Region can be divided into six distinct zones (Diagram 6): (1) western coastal strip, (2) mountain zone or highlands in the Barisan range, (3) piedmont zone or eastern slopes, (4) penneplains, (5) eastern lowlands, and (6) islands (Enggano, Bangka, Belitung, etc.). This zoning is highly relevant to the development planning of the Region.

The Region is characterized by social diversity (over 40 traditional ethnic groups). Most rural people traditionally lived in self-sufficient, decentralized villages governed according to *adat* (customary law). The 1979 law replaced *adat*-based old systems of local governance with a new administrative structure, but *adat* has survived in custom and ceremony, though weakened generally.

Traditionally, settlement followed a linear pattern along the waterways which allowed the movement of people and goods. The trading centers of Jambi and Palembang were strategically located on the Batang Hari and Musi waterways respectively, allowing access to both the hinterland and sea. Under Dutch colonialism remote lands started being opened for commodity extraction and transmigration, and this trend continued and was consolidated in the post-Independence period, making the Region the largest recipient of transmigrants and spontaneous migrants from Java and Bali.

#### 3.3 REGIONAL ECONOMY

As Diagram 7 shows, the Region's economy is predominantly agricultural, both in terms of production (27% of GDP) and employment (73%). However, the economy is also characterized by the presence of oil and gas (only in Jambi and South Sumatra, though), which contribute about 17% of total GDP (with oil/gas) originating from the Region. The oil/gas sector is very significant in South Sumatra, by far the largest provincial economy among the four, where 24% of the provincial total GDP is accounted for by the sector. Manufacturing is no minor activity in the Region (17% of GDP). Large- and medium-scale establishments are mostly located in and near the provincial capitals or on the major rivers. The recent investment boom is a phenomenon largely confined to Java, but nonetheless new industrial investments are coming to the Region lately. Export is also active. In 1988, the Region exported US\$1.5 billion, which accounted for 7.5% of the national total (compared with 4.8% in 1984). The provincial targets in Repelita V are summarized in Diagram 8.

#### 3.4 PROVINCIAL ECONOMIES

Seen provincially, **Jambi's** mainstay is agriculture, including forestry. Oil production, though small compared with South Sumatra's, is not insignificant in the province,

Diagram 5 Key Indicators of the Southern Part of Sumatra

Province	Land Area (km <sup>2</sup> )	Population 1990 (x1,000)	Annual Growth Rate 1980-90 (%)	Population Density 1990	GDP* 1989 (Rp bil)	GDP* per Capita 1989 (Rp mil)
	/1/	/2/	/3/	/4/	/5/	/6/
Jambi	53,436	2,016	3.4	38	1,352	0.69
South Sumatra	109,254	6,277	3.1	57	5,575	0.92
Bengkulu	19,789	1,179	4.4	60	682	0.60
Lampung	35,377	6,006	2.7	170	2,839	0.48
Region	217,856	15,478	3.0	71	10,448	0.70
INDONESIA	1,919,317	179,322	2.0	92	141,488	0.80

Note: \* GDP without oil/gas in the current prices.

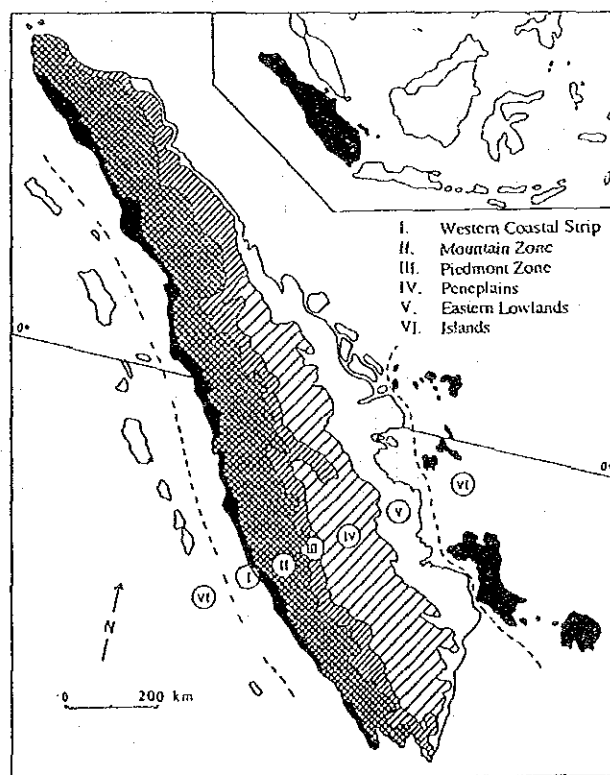
Sources: /1/ Dalam Angka 1989 of each province; BPS, Statistik Indonesia 1991, Table 1.1.

/2/ /3/ BPS, Penduduk Indonesia: Hasil Sensus Penduduk 1990, Tables 2.4 and 2.5.

/4/ Calculated from /1/ and /2/.

/5/ /6/ Provincial Income 1989 of each province; BPS, National Income of Indonesia 1984-89.

Diagram 6 Six Natural Zones in Sumatra



Source: Adopted from Ulrich Scholz, The Natural Regions of Sumatra and Their Agricultural Production Pattern (1983), vol. 1. p. 3.

Diagram 7 Some Indicators of the Regional Economy

Province	Sector	GDP without Oil/Gas			GDP with Oil/Gas			Employment 1990 (x1,000)
		1983 (Rp bil)	1989 (Rp bil)	Annual Growth Rate (%)	1983 (Rp bil)	1989 (Rp bil)	Annual Growth Rate (%)	
Jambi	Agriculture	202	274	5.2	202	274	5.2	584
	Mining	2	2	-6.3	59	182	20.8	6
	Manufacturing	41	111	18.3	41	111	18.3	27
	Services	229	320	5.7	229	320	5.7	158
	Total	475	707	6.9	531	888	8.9	775
South Sumatra	Agriculture	674	885	4.6	674	885	4.6	1,559
	Mining	188	284	7.1	829	1,098	4.8	79
	Manufacturing	443	706	8.1	685	1,047	7.3	126
	Services	1,250	1,803	6.3	1,250	1,803	6.3	599
	Total	2,555	3,678	6.3	3,438	4,833	5.8	2,364
Bengkulu	Agriculture	123	170	5.5	123	170	5.5	353
	Mining	2	25	58.9	2	25	58.9	1
	Manufacturing	4	12	18.5	4	12	18.5	9
	Services	131	214	8.5	131	214	8.5	88
	Total	261	422	8.4	261	422	8.4	450
Lampung	Agriculture	476	796	9.0	476	796	9.0	1,798
	Mining	3	3	1.4	3	3	1.4	8
	Manufacturing	94	198	13.2	94	198	13.2	73
	Services	492	779	8.0	492	779	8.0	433
	Total	1,065	1,777	8.9	1,065	1,777	8.9	2,312
Region	Agriculture	1,475	2,125	6.3	1,475	2,125	6.3	4,295
	Mining	195	315	8.3	892	1,309	6.6	94
	Manufacturing	582	1,027	9.9	824	1,369	8.8	235
	Services	2,103	3,116	6.8	2,103	3,116	6.8	1,278
	Total	4,355	6,584	7.1	5,294	7,920	6.9	5,901
INDONESIA	Agriculture	17,696	21,996	3.7	17,696	21,996	3.7	41,284
	Mining	1,004	1,427	6.0	16,107	16,818	0.7	435
	Manufacturing	7,666	15,181	12.1	9,896	19,836	12.3	7,014
	Services	33,976	48,873	6.2	33,976	48,873	6.2	24,347
	Total	60,343	87,477	6.4	77,676	107,523	5.5	73,081

Notes: GDP in 1983 constant prices.

Employment figures exclude oil/gas-related industries in mining and manufacturing.

Sources: For GDP: BPS, Provincial Income 1983-1989 of each province; BPS, National Income of Indonesia 1983-1988; BPS, National Income of Indonesia 1984-1989.

For employment: Team's estimates.

Diagram 8 Repelita V Targets: GDP without Oil/Gas Annual Growth Rates 1989/90-93/94

Sector	Annual Growth Rates (%)					
	Jambi	South Sumatra	Bengkulu	Lampung	Region	INDONESIA
Agriculture	3.8	3.02	5.5	5.5	4.3	3.6
Mining and Quarrying	0.51)	7.50	10.4	8.0	7.8	0.41)
Manufacturing Industries	10.7	6.19	8.6	12.5	8.0	8.51)
Electricity, Gas and Water Supply	6.62)	5.40	5.22)	10.1	6.8	6.12)
Construction	6.4	4.60	6.0	6.1	5.1	6.0
Trade, Restaurant and Hotel	6.0	5.50	6.8	6.2	5.7	6.0
Transport and Communication	6.0	4.90	7.7	7.1	6.1	6.4
Banking and Other Financial Intermediaries	6.62)	-	5.22)	6.0	5.2	6.12)
Banking, Insurance and Other Services		5.30				
Ownership of Dwelling		3.02				
Public Administration and Services	6.62)	-	5.22)	7.2	5.7	6.12)
Public Administration and Defense		4.60				
Services		2.62				
Total	5.71)	5.00	6.0	6.6	5.6	5.01)

Notes: 1) includes oil and gas.

2) combined as "Others."

Sources: Jambi, South Sumatra and Lampung from each Provincial Repelita V.

Bengkulu from Repelita V, vol. IV.

Indonesia from Repelita V.

Region's figures are calculated by the Team using 1988 GDP data and above rates.



accounting for 20% of its GDP. Another characteristic is the relatively large share of manufacturing (13%) which is dominated by fast-growing wood-related industries.

**South Sumatra** has the largest, most diversified economy. It accounts for 61% of the Region's oil/gas GDP (or 56% of non-oil/gas GDP). The manufacturing sector there is well established, creating 20% of the provincial GDP. A variety of mining operations exist (oil, tin, coal, etc.) while agriculture maintains a respectable size.

**Bengkulu**, on the other hand, is the smallest, with agriculture (chiefly smallholder food crops) being the dominant sector. Although coal mines exist in the province, their contribution is relatively small. The scale of manufacturing is also very limited.

**Lampung** is characterized by the dominance of agriculture (45% of GDP) which is still growing unusually fast (9% yearly 1983-89). The province, however, has good prospects of industrial development because of its closeness to Java. In fact, the manufacturing sector too is rapidly expanding (13% yearly 1983-89), mostly in agroindustry.

### 3.5 ECONOMIC LINKAGE

The Region is situated between Jakarta and Medan, two major growth centers of Indonesia. The Region, however, has traditionally maintained closer links to Java than to the northern part of Sumatra. This is particularly the case with Lampung. Similarly, Bangka and Belitung islands off South Sumatra are more oriented to Jakarta than their own province. Relation with northern Sumatra has been almost negligible (exception: historically strong linkage between Jambi and Padang, West Sumatra) but the "growth triangle" is emerging as potential markets for various commodities produced in the Region.

### 3.6 INFRASTRUCTURE

Viewed nationally, the Region has comparatively better developed systems of infrastructure. This is especially the case with the road network. Other transport means are also relatively advanced (a railway system, daily flight services to Jakarta, etc.). Sea transport, however, poses a serious problem especially to the eastern coastal areas, where existing major ports are all river ports susceptible to sedimentation and water level fluctuation. Some infrastructures, on the other hand, remains quite insufficient. Among other things, telecommunications and electricity are grossly undersupplied.

### 3.7 POTENTIALS AND CONSTRAINTS

Diagram 9 summarizes the Region's main development potentials and constraints.

Diagram 9 Potentials and Constraints of the Region's Development

Potential	Constraint
(1) Locational advantage (between Jakarta and Medan)	(1) Weak interprovincial economic linkage
(2) Abundant land water	(2) Large income disparities
(3) Abundant mineral/energy resources	(3) Environmental disruptions and degradations
(4) Export-oriented agricultural commodities	(4) Lack of supportive infrastructure
(5) Relatively better basic infrastructures	(5) Inadequate human resources
(6) Proximity to the "Growth Triangle"	(6) Weak administrative foundation
(7) Tourism attractions	(7) Lack of technology and skills

## 4. ROLES, GOALS AND OBJECTIVES

### 4.1 ROLES OF THE REGION IN THE NATIONAL DEVELOPMENT

The Region is expected to play following roles in the national development:

- (1) Lead national development together with Java and Northern Sumatra while strengthening interprovincial economic linkages;
- (2) Expand export taking advantage of proximity to the "growth triangle" and neighboring countries; and
- (3) Protect its natural environment as a national asset while promoting environmentally sustainable development.

### 4.2 GOALS

The Development Trilogy summarizes Indonesia's national development goals as:

- (1) Equitable distribution of income
- (2) Economic growth
- (3) National stability

The Development Trilogy basically applies to the Region as well. However, in view of the Region's potentials and roles, emphasis must be on growth in its long-term plan. Thus, the Region's goals are identified as:

- (1) Growth with equity
- (2) Growth with environmental sustainability

### 4.3 OBJECTIVES

Concrete objectives for the Region to achieve by 2010 are as follows:

(1) Integrate itself into the Java-Sumatra axis. The Region must become the truly integral part of the Java-Sumatra axis to achieve dynamic and efficient economic growth through the integration into national and international economies.

(2) Increase value added and create employment. "Growth" must mean an increase in, first, value added and, second, employment. The Region's economy must diversify its structure to provide jobs for the rapidly increasing labor force.

(3) Reduce disparities within the Region. Large disparities already exist within the Region both spatially and sectorally. Those disparities should be reduced in the long run to achieve more equitable distribution of benefit.

(4) Establish environmental management systems. The Region must step up its effort to sustain its natural resource base and prevent environmental degradation. Emphasis must be placed on "management" -- conservation and development -- rather than mere "conservation."

### 4.4 TARGETS

Specific target values are set for three macroeconomic indicators as shown in Diagram 10.

Diagram 10 Summary of the Regional Development Plan 1990-2010

<b>Region's Roles</b>	<ol style="list-style-type: none"> <li>1) Lead national development together with Java and Northern Sumatra and distribute the benefits of development equitably within the Region and also to other parts of Indonesia while strengthening interprovincial economic linkages</li> <li>2) Expand export of, particularly, natural resource-based commodities and products taking advantage of proximity to the "growth triangle" and neighboring countries</li> <li>3) Protect its natural environment as a national asset while promoting environmentally sustainable development</li> </ol>																														
<b>Goals</b>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding-right: 10px;">Nation:</td> <td>1) Equity</td> <td>2) Growth</td> <td>3) Stability</td> </tr> <tr> <td style="padding-right: 10px;">Region:</td> <td>1) Growth with equity</td> <td colspan="2">2) Growth with environmental sustainability</td> </tr> </table>	Nation:	1) Equity	2) Growth	3) Stability	Region:	1) Growth with equity	2) Growth with environmental sustainability																							
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## 5. FUTURE DIRECTION AND SPATIAL STRATEGY

### 5.1 FUTURE DIRECTION

Three alternative directions appear highly plausible considering the Region's endowments, constraints and existing economic conditions (Diagram 11):

- Direction 1** Resource-Base-for-Java Economy
- Direction 2** Agriculturally Specialized Economy
- Direction 3** Agriculture-Industry Linked Economy

Direction 1 is a *laissez faire* projection which extrapolates an already burgeoning trend to its extreme. Direction 2 is a version in which agriculture, the Region's greatest comparative advantage, is brought to maturity. Direction 3 explores the possibility of agriculture-based industrialization, whose scale is very limited as yet. From those three possible directions, **Direction 3** is chosen particularly with respect to the following criteria:

- (1) achieving high enough growth;
- (2) achieving more equitable and more harmonious regional development; and
- (3) overall efforts necessary to carry out the Direction successfully.

### 5.2 SPATIAL STRATEGY

In forming the agriculture-industry linked economy as desired, the Region faces a unique question which stems from its geographical characteristics: how to link agriculture to industry where agriculture is best developed in the interior while industry is concentrated in some major cities along the coast? Currently in the Region, agriculture and industry are separate not only in interindustrial terms but also physically over space. This spatial separation must be overcome if linkages between agriculture and industry are to be firmly established. A spatial strategy is thus called for to specifically tackle this problem. Three alternative spatial strategies may be relevant (Diagram 12). They are:

- Spatial Strategy 1** East Coast Axis (Bring agriculture to industry)
- Spatial Strategy 2** Interior Axis (Bring industry to agriculture)
- Spatial Strategy 3** Dual Axes

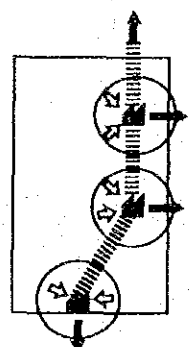
Spatial Strategy 1 takes advantage of the industrial centers already existing in the major cities on the east coast axis. To supply raw materials to agriculturally based industries there, agricultural production, estate crops in particular, will be increased in surrounding, largely swampy areas. Spatial Strategy 2, by contrast, focuses on the interior axis where smallholder agriculture is historically well developed. Manufacturers will be induced to operate in this zone processing locally grown crops. Spatial Strategy 3 is a hybrid of the above two alternatives, trying to make the most of the given structure. According to this, agro-based industries are promoted in the major coastal cities while agriculture is modernized in the interior to make possible stable supply of quality raw materials. From among those three alternatives, the Team chooses **Spatial Strategy 3 -- Dual Axes --** after a comparison of their benefit and cost in very broad terms.

Diagram 11 Three Directions

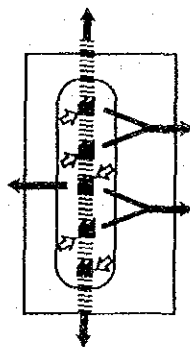
Characteristic	Direction 1	Direction 2	Direction 3
	Resource-Base-for-Java Economy	Agriculturally Specialized Economy	Agriculture-Industry Linked Economy
Essence	Laissez faire projection of the recent trend	The Region's greatest advantage is brought to maturity	Agriculture-based industrialization is pursued
Pattern of interregional linkages			

Diagram 12 Three Alternative Spatial Strategies

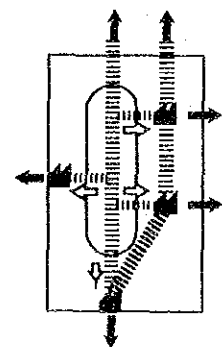
Spatial Strategy 1:  
East Coast Axis  
(Bring agriculture to industry)



Spatial Strategy 2:  
Interior Axis  
(Bring industry to agriculture)



Spatial Strategy 3:  
Dual Axes



- Industry
- Agriculture
- Raw materials
- Products
- Artery road

## 6. MACROECONOMIC FRAMEWORK

### 6.1 GDP

GDP without oil/gas (or non-oil/gas GDP) is used throughout this Study as the basic macroeconomic indicator, and sometimes referred to simply as GDP (because oil/gas revenues belong to the central government and have little impact on the provincial economies). National GDP growth over 1990-2010 is projected in three alternatives:

- Framework 1** Low (or minimum) growth of 5% annually
- Framework 2** High (or maximum) growth of 8% annually
- Framework 3** Moderate growth of 6% annually

Considering various factors to affect the nation's future path, the Team has chosen **Framework 3** - 6% growth - as the most appropriate projection.

The Region's GDP is then forecast to grow 7.8% annually over the 20 years. With this rapid growth, the Region's share in national GDP will increase from 7.6% in 1990 to 10.7% in 2010. The high growth rate is necessitated chiefly to achieve the first target of catching up with the nation in terms of per capita GDP by 2010. Provincial breakdowns are then forecast accordingly (Diagram 13).

### 6.2 POPULATION

With long-term projections on national population given, the Team has forecast provincial population up to 2010 as shown in Diagram 14. In line with the national trend, growth rates in the four provinces will decline steadily, though remaining higher than the national figures reflecting continued migration from Java and higher birth rates. Over 1990-2010, the Region's population will grow at an annual average of 2.42% while Indonesia's rate will be 1.32%. As a result, the Region's population will increase from 15 million (9% of national total) in 1990 to 25 million (11%) in 2010.

### 6.3 PER CAPITA GDP

Closing the per capita GDP gap with the nation (88% at present) is one of the three targets specified for the Region. This target will be met in 2010 when the Region attains Rp.1.3 million (in 1983 constant prices) GDP per capita, a three-fold rise from the current Rp.0.46 million level. By then interprovincial disparities will become narrower as well largely because of Lampung's higher-than-average growth helping the province catch up with South Sumatra.

### 6.4 ECONOMICALLY ACTIVE POPULATION AND EMPLOYMENT

Economically active population is projected to grow 3.7% a year on average throughout the 1990-2010 period, more than doubling from 6 to 12 million. Their proportion to the whole population will increase from 39% to 50%. Of the 6 million new labor force, about 53% will be absorbed in the agricultural sector while 10% in manufacturing. To this sector, the 0.6 million new jobs actually means 3.6-fold increase in their employment over the 20 years, a quite respectable achievement.

### 6.5 REQUIRED INVESTMENT

Total investment required to attain the projected GDP levels is estimated using the concept of ICOR. The result is Rp.135 trillion for the Region over the 20 years (in 1990 prices). This represents 25% of GDP to be generated during the same period. The resultant average ICOR for the Region is 3.3. The above framework is summarized in Diagram 15.

Diagram 13 Three Alternative GDP Frameworks

GDP without Oil/Gas

Province	(1983 constant prices)						
	Framework 1 (National GDP 5% growth)			Framework 2 (National GDP 8% growth)		Framework 3 (National GDP 6% growth)	
	GDP 1990 (Rp. bil)	GDP 2010 (Rp. bil)	A.G.R.(%) 1990-2010	GDP 2010 (Rp. bil)	A.G.R.(%) 1990-2010	GDP 2010 (Rp. bil)	A.G.R.(%) 1990-2010
Jambi	756	3,177	7.4	5,588	10.5	3,809	8.4
South Sumatra	4,004	12,868	6.0	22,513	9.0	15,518	7.0
Bengkulu	454	1,775	7.1	3,117	10.1	2,138	8.1
Lampung	1,938	9,050	8.0	15,838	11.1	10,927	9.0
Region	7,153	26,870	6.8	47,056	9.9	32,392	7.8
Nation	94,346	250,313	5.0	439,527	8.0	303,164	6.0

Note: A.G.R. denotes annual growth rate.

Diagram 14 Population Framework

Province	Population (x1,000)					Annual Growth Rate (%)				
	1990-1995		1995-2000		2000-2010	1990-1995		1995-2000		2000-2010
	1990	1995	2000	2005	2010	1995	2000	2005	2010	1990-2010
Jambi	2,016	2,369	2,727	3,079	3,435	3.28	2.85	2.46	2.21	2.70
South Sumatra	6,277	7,294	8,309	9,287	10,254	3.05	2.64	2.25	2.00	2.48
Bengkulu	1,179	1,411	1,618	1,817	2,018	3.65	2.78	2.35	2.12	2.72
Lampung	6,006	6,825	7,613	8,410	9,253	2.59	2.21	2.01	1.93	2.18
Southern Sumatra	15,478	17,899	20,267	22,593	24,960	2.95	2.52	2.20	2.01	2.42
Northern Sumatra	20,977	23,676	26,488	29,360	32,352	2.45	2.27	2.08	1.96	2.19
Sumatra	36,455	41,575	46,755	51,953	57,312	2.66	2.38	2.13	1.98	2.29
Indonesia	179,322	194,516	208,828	221,552	233,315	1.64	1.43	1.19	1.04	1.32

Diagram 15 Summary of the Macroeconomic Framework for Southern Sumatra

	Southern Sumatra		Indonesia	
	1990	2010	1990	2010
Population (million)	15.5 (8.6%)	25.0 (10.7%)	179.3 (100%)	233.3 (100%)
Population growth (%)		2.42		1.32
GDP (without oil/gas) (Rp trillion, 1983 prices)	7.2 (7.6%)	32.4 (10.7%)	94.3 (100%)	303.1 (100%)
GDP growth (%)		7.8		6.0
GDP per capita (without oil/gas) (Rp million, 1983 prices)	0.46	1.30	0.53	1.30
Total required investment (Rp trillion, 1990 prices)		135 (7.6 per year, 24.6% of GDP)		--

## 7. SPATIAL FRAMEWORK

### 7.1 ELEMENTS OF SPATIAL FRAMEWORK

Spatial Framework here specifically describes the distribution patterns over space of some major planning elements which have significant implications to the Region's plan. Those are also major components being dealt with in the Provincial Spatial Structural Plans (RSTRP). The spatial framework here is meant to be consistent with the Plans.

(1) Land Use and Conservation Areas. Most conservation areas exist in the Barisan range while some huge natural reserves are located on the eastern coast. One notable implication of this is that a large part of Bengkulu's land does not allow any new development to take place on it.

(2) Population and Settlement. When the pattern of population distribution over the Region is studied, two observations are possible on this: first, generally, the distribution is skew toward south; and, second, east-west distribution is rather even (Diagram 16). The distribution pattern of urban centers and their size reveals lack of strong intermediate (medium-size) cities in the interior which should act as the core of sub-provincial local economies with interprovincial influences.

(3) Transmigration Sites. Transmigration sites have important implications to the Region's future structure. Diagram 17 shows future transmigration sites which are presently waiting for implementation, together with those sites which are already settled.

(4) Transportation Networks. The trans-Sumatra highway is the most prominent road in the Region. Several east-west roads connect major cities to the highway. Currently, the eastern trans-Sumatra highway is under study whereas major improvements are in progress on the west coast road. One railway system exists in South Sumatra and Lampung, mainly for coal transportation.

(5) Irrigation Schemes. Large irrigation schemes (larger than 1,000 ha) are mostly located in and along the Barisan range while a few major ones concentrate in Lampung. Jambi has only two such large schemes. By contrast swamp reclamation areas (also larger than 1,000 ha) are naturally located on the eastern coast particularly along the two major river systems, Batang Hari in Jambi and Musi in South Sumatra.

(6) Telecommunication Networks. A map of the system of telecommunications as existing and planned reveals a rather surprising fact: telecommunications services are highly limited to urban centers such that even those settlements along the trans-Sumatra microwave line have no access to the system.

(7) Electricity Transmission Networks. Currently, most power plants in the Region are separate without interconnection. A Region-wide network of transmission lines is planned by PLN to connect them.



Diagram 16 Population Distribution by Kabupaten/Kotamadya

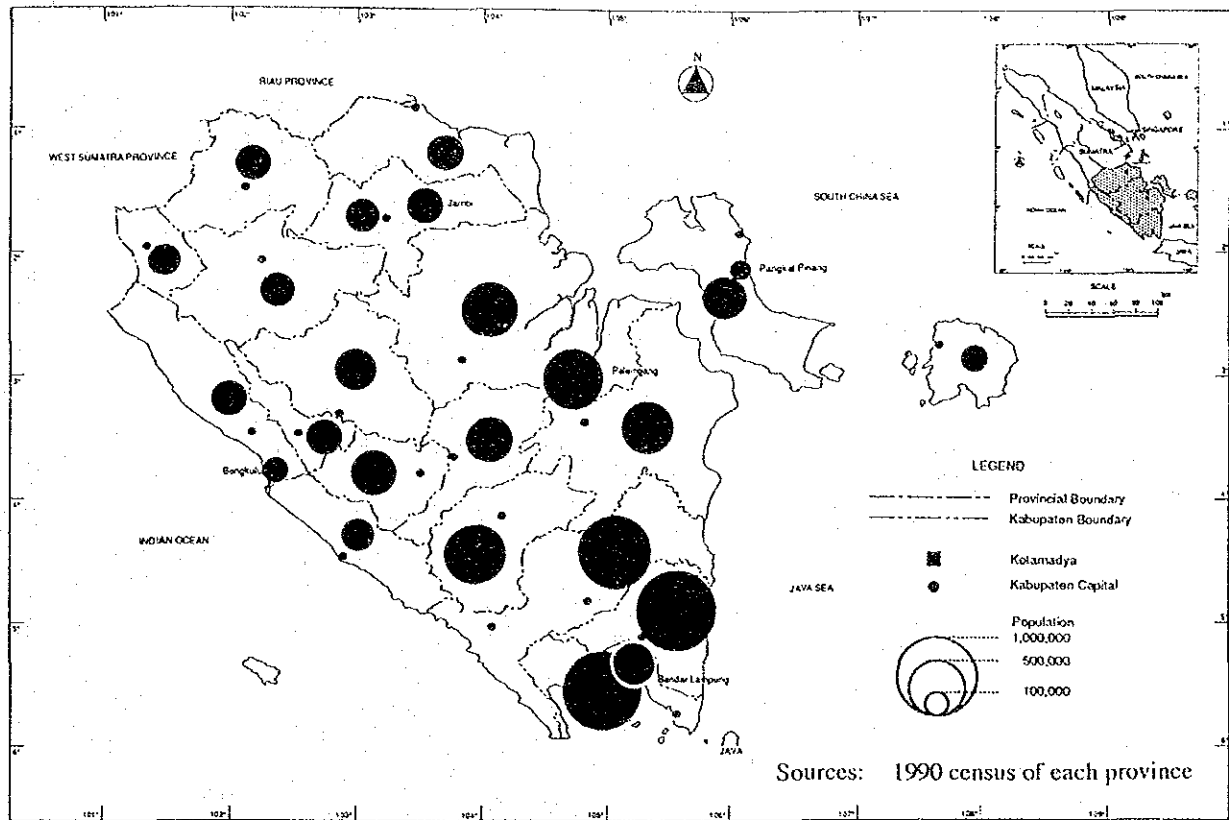
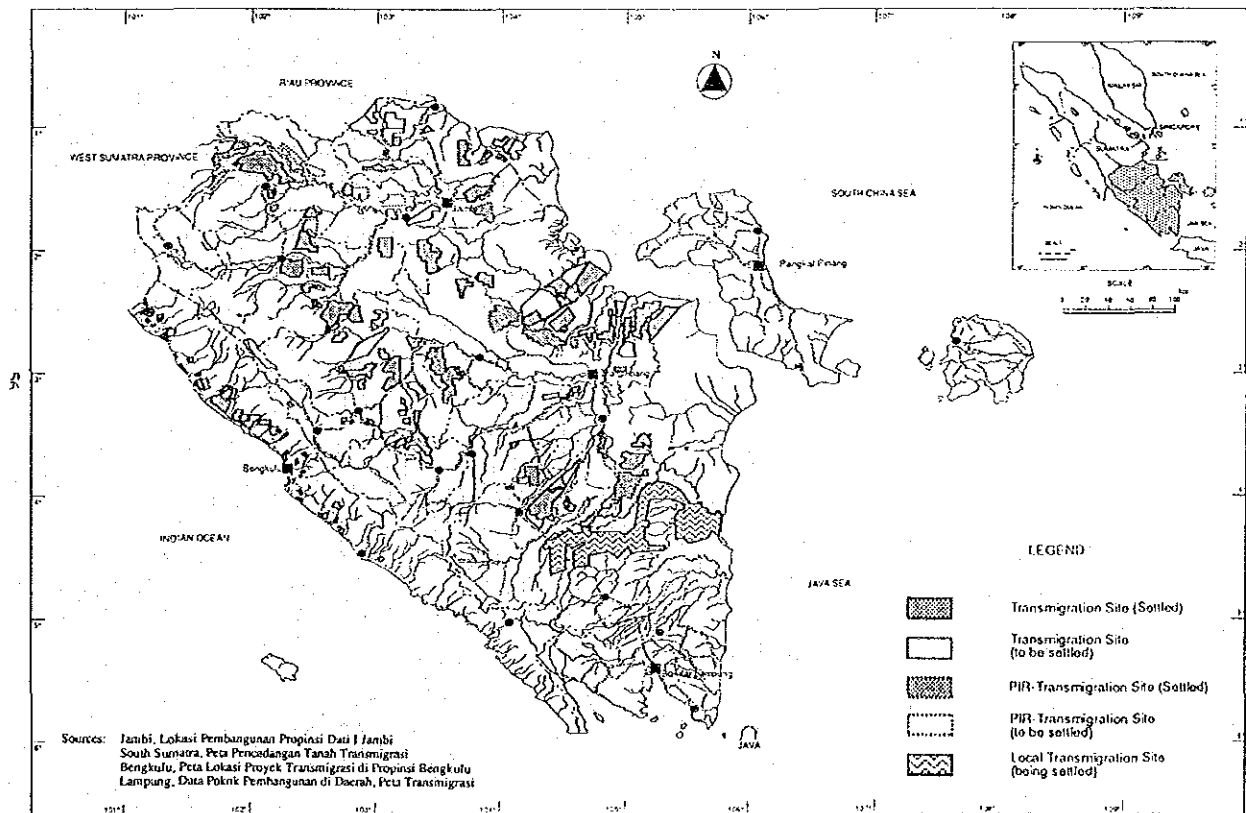


Diagram 17 Transmigration Sites



## 8. DEVELOPMENT CONCEPT

### 8.1 SCHEMATIC CONCEPT

Diagram 18 schematically depicts the overall development concept of the Region, integrating the Region's roles, goals, objectives, future direction and spatial strategy. Designated as the core of the concept is the so-called "Sumatra Gateway Triangle," an area extending from Bandar Lampung northward to Baturaja and Palembang, where agro-industries will actively be promoted.

### 8.2 ROLES OF THE PROVINCES

Based on the Region's development concept, the four provinces' individual roles are specified within the overall framework of the Region's roles (Diagram 19).

Diagram 18 Schematic Concept of Development

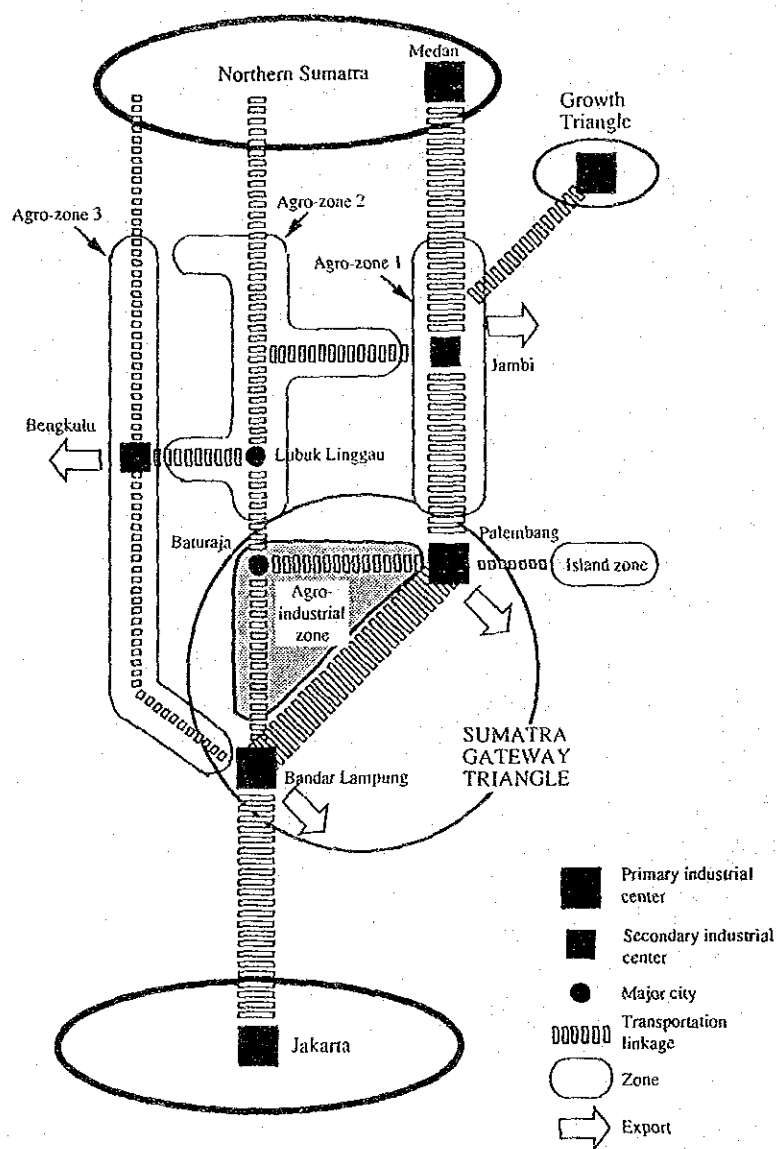


Diagram 19 Roles of the Individual Provinces

---

Jambi

- 1) **Agro-zone 1:** agricultural base for the "growth triangle"
- 2) **Agro-zone 2:** agricultural base for the "Sumatra gateway triangle"
- 3) **Jambi:** secondary agro-industrial center
- 4) **Connection point** to Northern Sumatra
- 5) **Principal caretaker** of Kerinci Seblat National Park and Batang Hari river
- 6) **Recipient** of transmigrants

South Sumatra

- 1) **Palembang:** economic and communication hub of the Region
- 2) **Palembang:** primary all-round industrial center
- 3) **Agro-industrial zone:** part of the "Sumatra gateway triangle"
- 4) **Agro-zone 2:** agricultural base for the "Sumatra gateway triangle"
- 5) **Island zone:** major tourist destination
- 6) **Energy base** which is sustainable

Bengkulu

- 1) **Agro-zone 2:** agricultural base for the "Sumatra gateway triangle"
- 2) **Agro-zone 3:** agricultural (particularly, fishery) base for Java
- 3) **Bengkulu:** secondary agro-industrial center
- 4) **Bengkulu:** outlet on the western side
- 5) **Connection point** to Northern Sumatra
- 6) **Center** for environmental management and research

Lampung

- 1) **Sumatra's access point** to Java
  - 2) **Bandar Lampung:** primary agro-industrial center
  - 3) **Agro-industrial zone:** part of the "Sumatra gateway triangle" and agricultural base for Java
  - 4) **Agro-zone 3:** agricultural base for the "Sumatra gateway triangle" and for Java
  - 5) **Major tourist destination** which is environmentally conscious
-

## 9. IDEP APPROACH

### 9.1 IDEP (INTEGRATED DEVELOPMENT PROGRAM)

This Study adopts the Integrated Development Program (IDEP) as its basic approach to regional planning. IDEP is a multisectoral program designed for a priority area (usually kabupaten/kotamadya-size). There are four reasons to adopt this approach:

- (1) to use limited resources efficiently and effectively;
- (2) to coordinate various types and sectors of projects in one area;
- (3) to give a chance to sectorally low- but locally high-priority projects; and
- (4) to strengthen local government's initiatives.

### 9.2 SELECTION OF IDEP SITES

IDEP sites have been selected through the following process.

- |        |  |
|--------|--|
| Step 1 | Drawing the development concept for the Region (Diagram 18)  |
| Step 2 | Specifying individual roles of the four provinces  |
| Step 3 | Systematic review of each kabupaten/kotamadya's direction of development   |
| Step 4 | Priority assessment of kabupaten/kotamadya   |
| Step 5 | Selection of a few prospective sites considering both regional strategic requirements and priority areas identified at Step 4. |

### 9.3 IDEP SITES

Six sites have been selected for IDEP formulation. They are listed in Diagram 20 together with their central strategic themes. Diagram 21 shows their locations. Diagram 22 lists some indicators of those sites.

Diagram 20 Six IDEP Sites and Their Strategic Themes

Site	Province	Strategic Theme
Tanjung Jabung	Jambi	How to achieve growth in harmony with the nature while taking advantage of the Growth Triangle
Palembang	South Sumatra	How to advance industrialization while improving the less privileged communities
Musi Rawas/Lahat	South Sumatra	How to promote horticulture and agroindustry while strengthening the urban centers
Bengkulu Selatan	Bengkulu	How to lay the solid ground for development while breaking up isolation
Lampung Utara	Lampung	How to best utilize the potential land while assisting farmers and new settlers
Bandar Lampung/ Lampung Selatan	Lampung	How to fully develop high-potential economic sectors while better organizing itself as the Gateway to Sumatra

Diagram 21 IDEP Sites

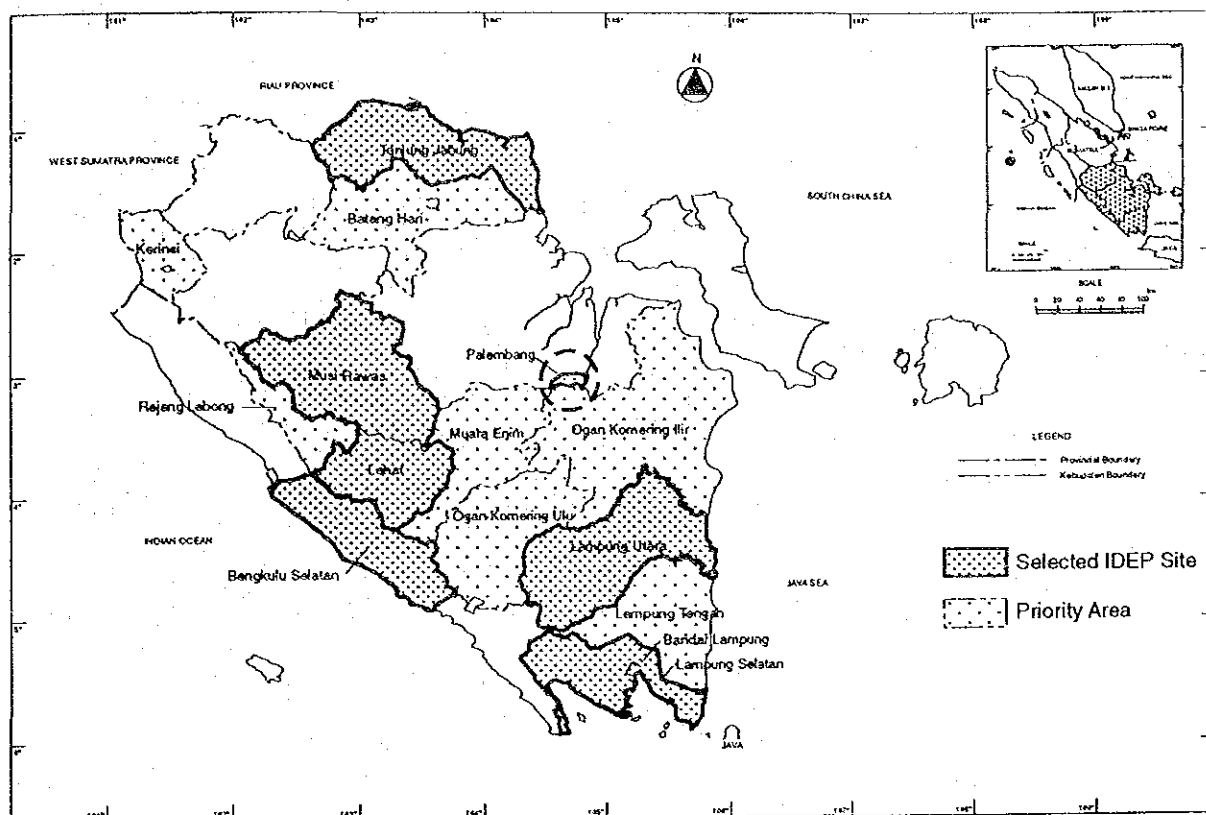


Diagram 22 IDEP Site Profiles

IDEP Site	Land Area (km <sup>2</sup> )	Population (1990)	Population Density (1990)	GDP (non oil/gas, Rp bil., 1990)	Ratio of Poor Desa (% , 1990)	Tentative Cost (\$ million)
Tanjung Jabung	10,200 (19.1)	361,403 (17.9)	35 (38)	128 (17.0)	12.4 (18.2)	378.4
Palembang	224 (0.2)	1,141,036 (18.2)	5,094 (57)	1,345 (33.6)	11.1 (26.5)	470.7
Musi Rawas/ Lahat	25,547 (23.4)	1,113,792 (17.7)	44 (57)	464 (11.6)	6.5 (26.5)	830.9
Bengkulu Selatan	5,949 (30.1)	298,214 (25.3)	50 (60)	102 (22.5)	3.7 (6.1)	969.1
Lampung Utara	14,418 (40.8)	1,335,435 (22.2)	93 (170)	359 (18.5)	20.3 (16.4)	607.8
Bandar Lampung/ Lampung Selatan	6,818 (19.3)	2,461,746 (41.0)	361 (170)	921 (47.5)	10.7 (16.4)	1,788.7
IDEP Total (% to Region)	63,156 (29.0)	6,711,626 (43.4)	-- --	3,319 (46.4)	-- --	5,045.6
IDEP Average (Regional Average)	10,526 --	1,118,604 --	106 (71)	553 --	10.4 (19.0)	

Note: In parentheses are % of provincial total or provincial average.

10. TANJUNG JABUNG IDEP

Diagram 23 Tanjung Jabung IDEP

Region's Objectives	IDEP's Objectives	Subprogram	Key Projects
Java-Sumatra Axis	Agro-fisery for Growth Triangle	Coastal zone	1 Coastal Fisheries Management
			2 Muara Sabak Seaport Development
			3 Mangrove Forest Management
	Sasustainable Swamp	Lowlands swamp zone	4 Smallholder Estate Crops Developmet
			5 Integrated Swamp Development*
			6 Swamp Road to Muara Sabak Sea Port
Growth and Employment	Transportation Linkage	Hilly zone	7 Smallholder Estate Crops Developmet
			8 Large Scale Estate Development
			9 Pelabuhan Dagang-Pumatang Lumut Road
Equity	Isolated Area	Urban zone	10 Kuala Tungkal Seaport Improvement
Environment	Poverty Alleviation	Institutional support	11 Establishment of IDEP Management Unit

Note: \*, On-going

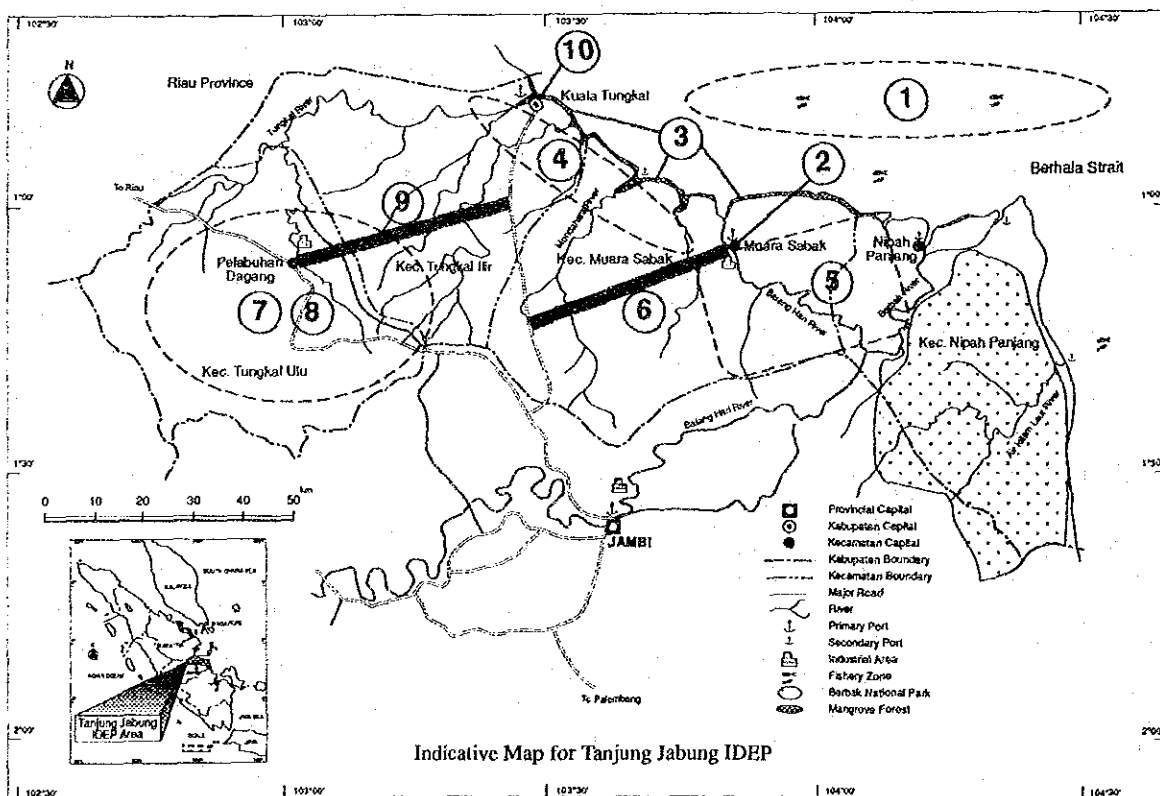





Diagram 24 Phasing of IDEP Projects: Tanjung Jabung IDEP

Sub-program	Project 1)		Phasing 2)											Tentative Cost 3) (US\$ mil)									
	No.	Title	Repelita VI			Repelita VII			Repelita VIII - IX														
			'94	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04		'05	'06	'07	'08	'09	'10	'11	'12	'13
Coastal Zone	<b>1</b>	<b>Coastal Fisheries Management</b>																					9.0
		Brackish Water Shrimp Culture																					24.0
		Muara Sabak Medium Scale Industry																					15.4
		Rural Water Supply for the Eastern Coast																					3.7
	<b>2</b>	<b>Muara Sabak Seaport Development</b>																					72.2
		Sungai Itik-Sungai Cemara Road Project																					2.0
		Kabupaten Local Roads																					1.5
		Direct Road Jambi City-Muara Sabak																					18.5
	<b>3</b>	<b>Mangrove Forest Management</b>																					2.7
	Sub-total																					149.0	
Lowland Swamp Zone	<b>4</b>	<b>Smallholder Estate Crops</b>																				4.4	
		Swamp Fishery Development Project																					22.0
		Berbak National Park Tourism																					5.0
		Batang Hari Integrated Basin Development																					5.2
		Tungkal River Basin Irrigation																					12.0
	<b>5</b>	<b>Integrated Swamp Development</b>																					34.5
		Kabupaten Local Roads																					1.5
<b>6</b>	<b>Swampland Road to Muara Sabak</b>																					5.0	
	Sub-total																					89.6	
Hilly Zone	<b>7</b>	<b>Smallholder Estate Crops</b>																				4.5	
	<b>8</b>	<b>Large Scale Estate Development</b>																				80.5	
		NES-Type Beef Cattle Farming																				2.5	
		Pelabuhan Dagang Medium Scale Industry																				15.4	
	<b>9</b>	<b>S.Bengkai(P.Dagang)-P.Lumut Road</b>																				1.7	
		Kabupaten Local Roads																				2.0	
		Rural Telecommunication System																				1.0	
	Rural Development Project																				6.0		
	Sub-total																					113.6	
Urban Zone	<b>10</b>	<b>Kuala Tungkal Seaport Improvement</b>																				20.5	
		Kuala Tungkal-Jambi Road Project																				2.5	
		Secondary Cities Urban Development																				1.4	
	Sub-total																					24.4	
Institutional Support	<b>11</b>	<b>IDEP Management Unit</b>																				1.8	
	Sub-total																					1.8	
												Total	378.4										

Notes: 1) In bold letters are the key projects.

2)  Pre-implementation study/plan-making

 Implementation

 On-going

3) Some cost estimates only cover study components and do not include construction costs.

# 11. PALEMBANG IDEP

Diagram 25 Palembang IDEP

Region's Objectives	IDEP's Objectives	Subprogram	Key Projects		
Java-- Sumatra Axis	Industrial Development	Industrial Base	1 Development of Industrial Estates 2 Vocational Training Centers 3 Investment Promotion		
		Utilities	4 Gas-Fired Thermal Power Plant		
		Transportation	5 Sultan Badarudin II Airport Upgrading 6 Seaport Improvement 7 Outer Ring Road		
		Growth and Employment	Services Center	8 Expansion of Exchange System 9 Expansion of Outside Plant	
			Distribution Center	Water Resources	10 M/P for Urban Drainage/Sewerage Treatment
				Tourism	11 Old Quarter Rehabilitation and Conservation
		Equity	Kampung Development	12 Kampung Development Program	
Environment	Urban Community Development	Agricultural Produce Marketing	13 Development of Cold Storage Facilities		
		Institutional Support	14 Establishment of IDEP Management Unit		

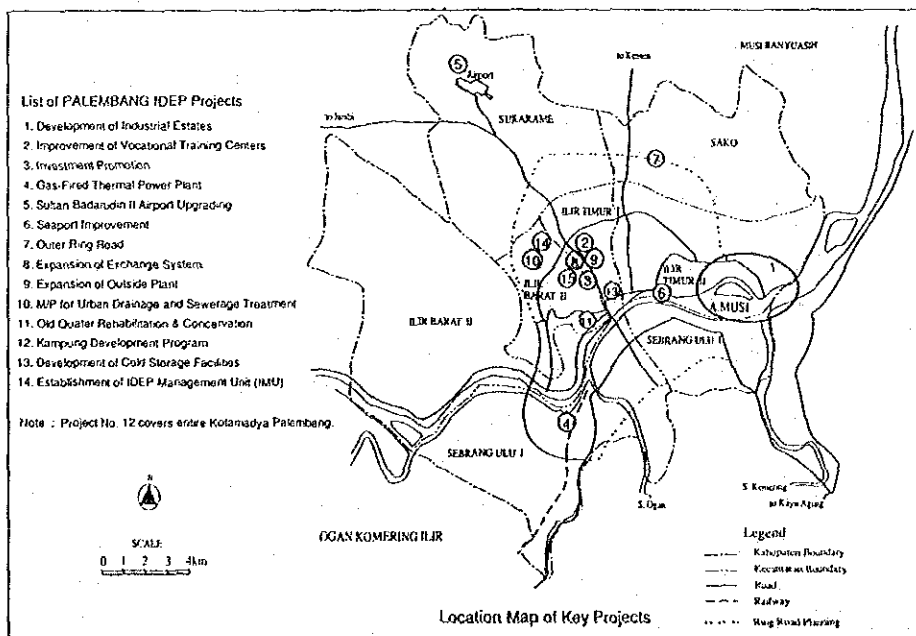






Diagram 26 Phasing of IDEP Projects: Palembang IDEP

Sub-program	Project 1)		Phasing 2)											Tentative Cost 3) (US\$ mil)										
	No.	Title	Repelita VI			Repelita VII			Repelita VIII - IX															
			'94	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04		'05	'06	'07	'08	'09	'10	'11	'12	'13	
Establishment of Industrial Base	<b>1</b>	<b>Industrial Estates</b>																						14.0
		Institutes of R & D in Industry																						1.0
	<b>2</b>	<b>Vocational Training Centers</b>																						1.6
	<b>3</b>	<b>Investment Promotion</b>																						3.0
		Various Private Investments																						23.2
		Sub-total																						42.8
Utilities Development	<b>4</b>	<b>Gas-fired Thermal Power Plant</b>																						150.8
		City Gas Delivery System																						38.6
		Integrated Energy Center																						1.5
		Sub-total																						190.9
Upgrading of Transportation Services	<b>5</b>	<b>Sultan Badarudin II Airport</b>																						53.3
		Commuter Docks Improvement																						0.5
	<b>6</b>	<b>Seaport Improvements</b>																						30.0
	<b>7</b>	<b>Outer Ring Road</b>																						4.5
		Sub-total																						88.3
Improvement of Telecommunication System	<b>8</b>	<b>Expansion of Exchange System</b>																						50.0
	<b>9</b>	<b>Expansion of Outside Plant</b>																						77.0
		Diffusion of OPMC																						0.1
		Maintenance Center																						0.3
		Software Center Development																						0.3
		CIA System Development																						0.2
		Demand Forecast System																						0.3
	Sub-total																							128.2
Water Resources Development	<b>10</b>	<b>Drainage/Sewerage Treatment</b>																						3.7
		F/S for Palembang Water Supply																						4.6
		F/S for Banyuasin Floodway																						1.5
		Sub-total																						9.8
Tourism Promotion	<b>11</b>	<b>Old Quarter Rehabilitation</b>																						4.5
		Sriwijaya Archeological Park Museum																						3.3
		Sriwijaya Festival Promotion																						0.5
		Sub-total																						8.3
Kampung Development	<b>12</b>	<b>Kampung Development Program</b>																						0.1
		Sub-total																						0.1
Agriculture Produce Marketing	<b>13</b>	<b>Cold Storage Facilities</b>																						0.2
		Improvement of Slaughter Facilities																						0.3
		Sub-total																						0.5
Institutional Support	<b>14</b>	<b>IDEP Management Unit</b>																						1.8
		Sub-total																						1.8
		<b>Total</b>																						470.7

Notes: 1) In bold letters are the key projects.

2)  Pre-implementation study/plan-making

 Implementation

 On-going

3) Some cost estimates only cover study components and do not include construction costs.

12. MUSI RAWAS/LAHAT IDEP

Diagram 27 Musi Rawas/Lahat IDEP

Region's Objectives	IDEP's Objectives	Subprograms	Key Projects
Java-Sumatra Axis	Local Food Security and Surplus Paddy	Water Resources Development	1 Rehabilitation and Expansion of Irrigation Schemes 2 On-Farm Land Development
	Inland Collection and Distribution Center	Market-Oriented Agricultural Development	3 High Altitude Horticulture Development 4 Freshwater Giant Prawn Culture Development
Growth and Employment	Resource-Based Industrial Development	Agroindustry Development	5 Starch (or Modified Starch) from Cassava 6 Furniture or Modules of Furniture 7 Rubber Processing
Equity	Conservation of Environment	Mining & Energy Development	8 Boring Exploration in Musi Rawas Coal Field
	Poverty Alleviation	Forest Conservation and Sustainable Forestry	9 Rehabilitation of Critical Watersheds 10 Industrial Forest Plantation*
Environment	Supportive Infrastructure Development	Infrastructure Development	11 Rural Development Program
		Institutional Support	12 Establishment of IDEP Management Unit

\* Partly on-going

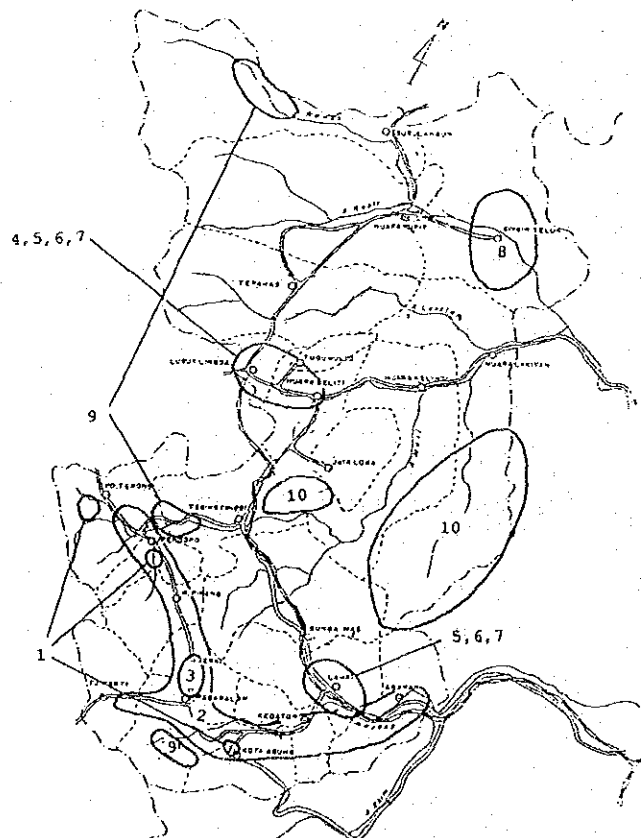




Diagram 28 Phasing of IDEP Projects: Musi Rawas/Lahat IDEP

Sub-program	Project 1)		Phasing 2)													Tentative Cost 3) (US\$ mil)								
	No.	Title	Repelita VI			Repelita VII			Repelita VIII - IX															
			'94	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06		'07	'08	'09	'10	'11	'12	'13	
Water Resources Development	1	<b>Rehabilitation of Irrigation</b>																						9.6
	2	<b>On-Farm Land Development</b>																						9.7
		Upper Musi River Basin Water Resources																						149.2
		Sub-total																						168.5
Market-oriented Agricultural Development	3	<b>High Altitude Horticulture</b>																						9.6
	4	<b>Freshwater Giant Prawn Culture</b>																						5.3
		Smallholder Tree Crop Marketing																						2.4
		Large Scale Estate Development																						200.0
		Upland Cropping Systems Development																						1.8
		Commercial Poultry Farms																						0.4
		Sub-total																						219.5
Agroindustry Development	5	<b>Starch/Modified Starch</b>																						0.2
	6	<b>Furniture/Furniture Modules</b>																						2.5
	7	<b>Rubber Processing</b>																						0.2
		Poultry/Fish Feeds																						0.3
		Dehydration of Vegetables																						1.4
		Frozen Vegetables and Prawns																						1.4
		Pickles of Vegetables																						0.1
		Canning of Vegetables																						1.5
		Particle Board																						2.5
		Fiber Board																						2.5
	Wood Wool Cement Board																						2.5	
	Sub-total																						15.1	
Mining and Energy Development	8	<b>Boring Exploration in Coal Field</b>																						2.3
		Lematang-4 Hydropower																						369.8
	Subprogram Total																							372.1
Forest Conservation and Sustainable Forestry	9	<b>Rehab. of Critical Watersheds</b>																						0.4
	10	<b>Industrial Forest Plantation</b>																						10.2
		Integrated Social Forestry																						0.8
		Sub-total																						11.4
Infrastructure Development	11	<b>Rural Development Program</b>																						9.9
		Spatial Plan (Lahat)																						0.1
		Secondary Cities Urban Dev. (Lahat)																						4.0
		Integrated Urban Infra. Dev. (L. Linggau)																						4.0
		Road Safety Improvement																						3.0
		Mangun Jaya - Muara Beliti Road																						8.3
		Sarolangun-Sekayu-Betung Trunk Road																						11.2
		Lubuk Linggau Airfield Improvement																						2.0
		Sub-total																						42.5
Institutional Support	12	<b>IDEP Management Unit</b>																						1.8
		Sub-total																						1.8
		<b>IDEP Total</b>																						830.9

Notes: 1) In bold letters are the key projects.

2)  Pre-implementation study/plan-making

 Implementation

 On-going

3) Some cost estimates only cover study components and do not include construction costs.

13. BENGKULU SELATAN IDEP

Diagram 29 Bengkulu Selatan IDEP

Region's Objectives	IDEP's Objectives	Subprogram	Key Projects
Java-- Sumatra Axis  Growth and Employment  Equity  Environment	Integration into Regional Economy  Increased Productivity  Conservation/ Sustainable Exploitation	Agriculture	1 On-Farm Land Development 2 Development of Smallholder Estate Crops
		Fishery	3 Fishing Village Community Development
		Water Resources	4 Peninjauan Integrated Swampland Development
		Transportation	5 Cross Mountain Road Tg Inan--Ujan Mas
		Energy	6 Manna-1 Hydropower Development Project
		Urban/ Environment	7 Management of Protection Forest
		Institutional Support	8 Establishment of IDEP Management Unit

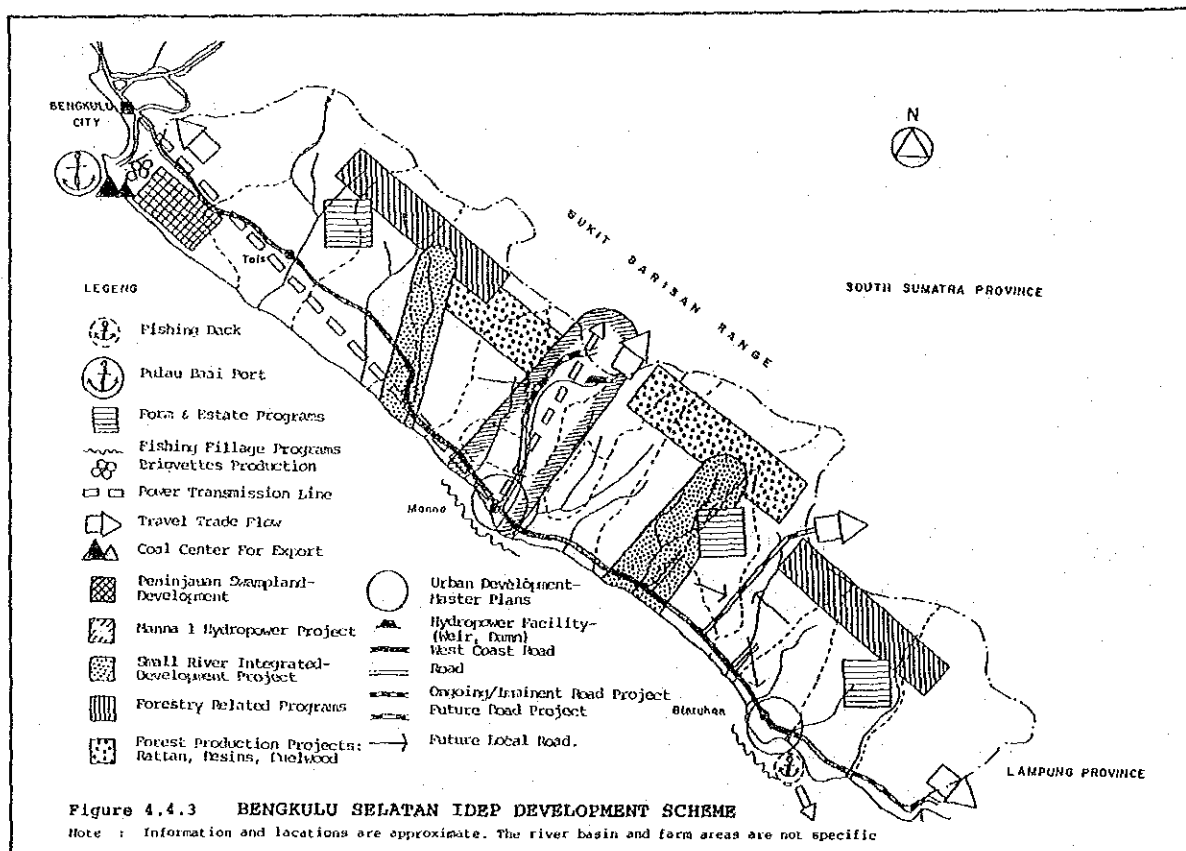
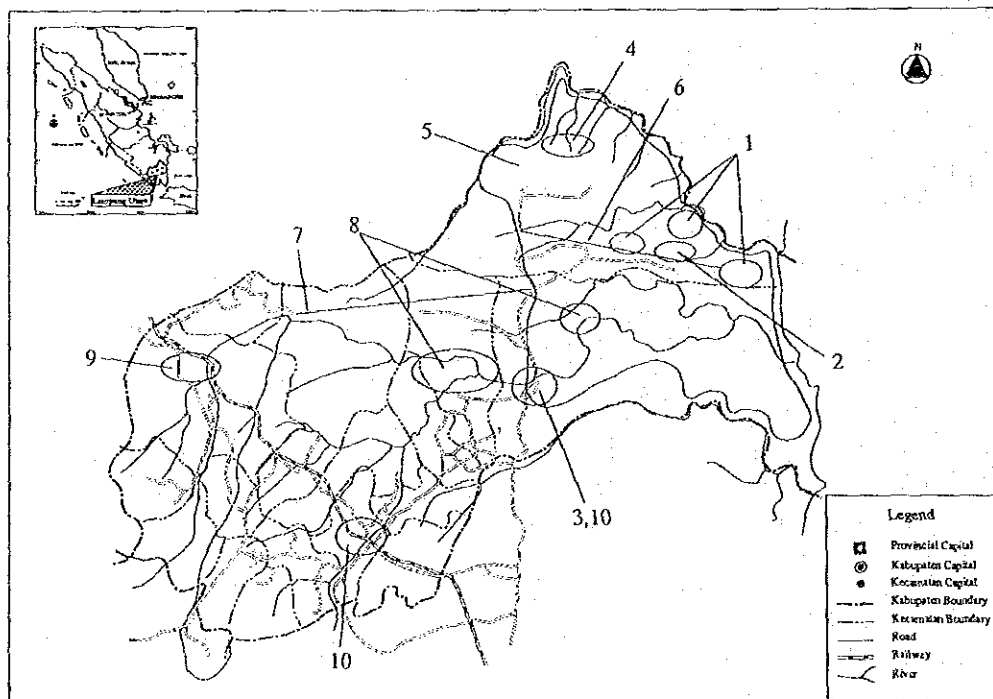




Diagram 31 Lampung Utara IDEP

Region's Objectives	IDEP's Objectives	Subprogram	Key Projects
Java-Sumatra Axis	Development of Potential Resources	Agriculture	1 Development of Smallholder Estate Crops 2 Large Scale Estate Development
		Agro-industry	3 Starch (or Modified Starch) from Cassava
	Sustainable Development of Swamp Areas	Irrigation Development	4 Way Mesuji and Way Agung Irrigation Development 5 Tulang Bawang River Basin Irrigation
Environment		6 Sustainable Development of Swamp Areas	
Growth and Employment	Improvement of Transportation Network	Transportation	7 Sp. Sinar Asahan-Rawajitu East-West Road 8 Pakuan Ratu-Sp. Tulang Bawang Road
Equity		Fisheries	9 Swamp Fishery Development Project
	Environment	Participatory Rural Development	10 Participatory Rural Development Program
Reduction of Disparities		Urban Development	11 Secondary Cities Urban Development Project for Kota Bumi and Menggala
		Institutional Support	12 Establishment of IDEP Management Unit





15. BANDAR LAMPUNG/LAMPUNG SELATAN IDEP

Diagram 33 Bandar Lampung/Lampung Selatan IDEP

Region's Objectives	IDEP's Objectives	Subprogram	Key Projects
Java-- Sumatra Axis	High- Potential Economic Sectors	Industry	1 Development of Industrial Estates 2 Investment Promotion 3 Vocational Training Centers
		Tourism	4 Krakatau Tourism Development 5 Merak Belantung Beach Resort Development*
		Fisheries	6 Brackishwater Shrimp Culture Industrialization 7 Fisheries Education and Training
Growth and Employment	Gateway Functions	Gateway City	8 Master Plan for Bandar Lampung
		Gateway Transportation	9 Eastern Sumatra Highway 10 Outer Bypass around Bandar Lampung 11 Krui--Biha--Bengkunat--Sanggi Road
Equity	Environment	Water	12 Water Allocation Study for Way Sekampung 13 Bandar Lampung Sewage Treatment 14 Flood Control and Sabo Project
		Energy	15 Way Semangka Hydropower Development
Environment	Human Resources	Forest Conservation/ Agricultural Diversification	16 Rural Development Program for Conservation and Agricultural Diversification
		Institutional Support	17 Establishment of IDEP Management Unit Support

\* On-going

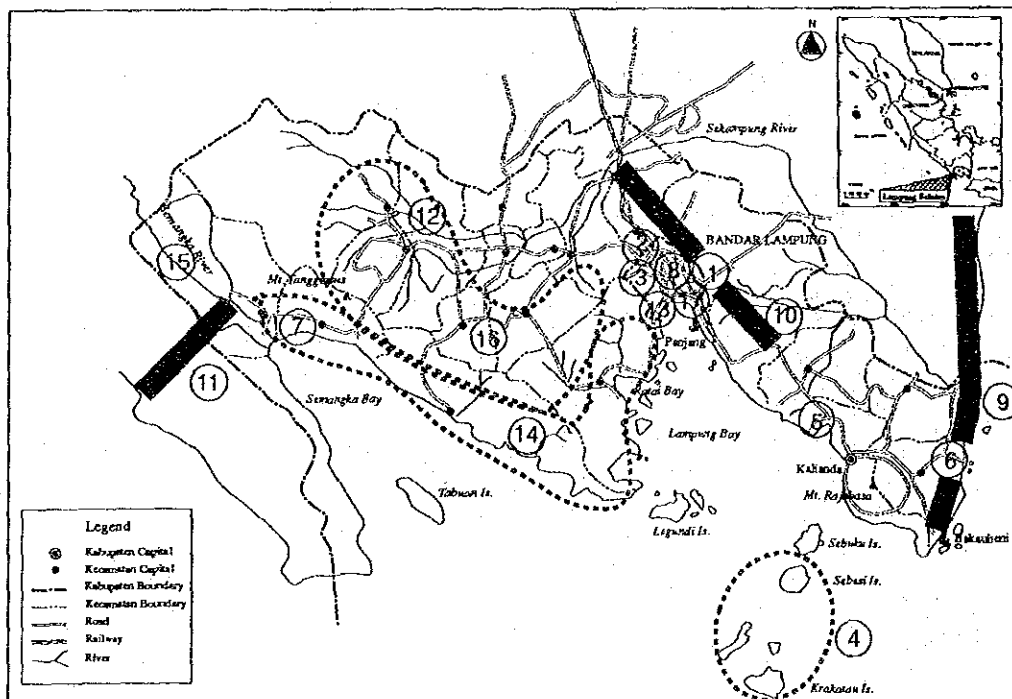





Diagram 34 Phasing of IDEP Projects: Bandar Lampung/Lampung Selatan IDEP

Sub-program	Project 1)		Phasing 2)											Tentative Cost 3) (US\$ mil)									
	No.	Title	Repelita VI			Repelita VII			Repelita VIII - IX														
			94	95	96	97	98	99	00	01	02	03	04		05	06	07	08	09	10	11	12	13
Industry	1	<b>Industrial Estate</b>	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	10.0
	2	<b>Investment Promotion</b>	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	3.0
	3	<b>Vocational Training Centers</b>	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	3.0
		Institutes of R&D in Industry	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	1.0
		Various Private Investments	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	5.0
Tourism	4	<b>Krakatau Tourism Development</b>	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	3.7
	5	<b>Merak Belantung Beach Resort</b>	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	10.0
		Bandar Lampung Waterfront	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	4.2
		Krakatau Festival Promotion	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	0.5
		Tourism Training Program	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	0.3
Fisheries	6	<b>Brackishwater Shrimp Culture</b>	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	20.4
	7	<b>Fisheries Education and Training</b>	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	5.6
		Mariculture Development Project	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	4.3
		KUD-Based Fish Processing/Marketing	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	1.2
Gateway City	8	<b>Master Plan for Bandar Lampung</b>	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	1.5
		KIP (Bandar Lampung)	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	0.5
		Spatial Plan (Bakauheni)	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	0.5
		IUIDP (Bakauheni)	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	0.8
		Cold Storage Facilities	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	0.2
		Slaughter Facilities/Cold Storage	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	0.3
		Expansion of Exchange System	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	50.0
		Expansion of Outside Plant	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	77.0
		Terrestrial Transmission System	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	200.0
		Rural Telecommunication System	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	7.0
Gateway Transportation	9	<b>Eastern Sumatra Highway</b>	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	92.0
	10	<b>Outer Bypass Bandar Lampung</b>	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	7.0
	11	<b>Krui-Sanggi Road</b>	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	10.0
		Branti Airport Upgrade	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	13.0
		Bakauheni Rail Access Line	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	70.0
		Bandar Lampung City Rail Bypass Line	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	21.0
		Ferry Terminal Expansion (Bakauheni)	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	21.4
		Port Improvement (Panjang)	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	110.0
		Facilities for Nontraditional Seacraft	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	0.3
		Sanggi-Suwah-Kotabesi Valley Road	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	7.0
		Coastal Road P. Cermin-K. Agung	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	15.0
		Rajabasa Bus Terminal Expansion	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	0.2
Water	12	<b>Water Allocation Study</b>	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	1.1
	13	<b>Bandar Lampung Sewage</b>	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	2.5
	14	<b>Flood Control and Sabo Project</b>	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	25.5
		Batutegi Dam/Reservoir	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	310.0
		Water Supply for Bandar Lampung	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	3.6
		Institutional Management PDAM	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	0.5
Energy	15	<b>Way Semangka Hydropower</b>	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	511.0
		Geothermal Survey (Kalianda)	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	4.0
		Geothermal Power (Ulubelu)	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	4.0
		Power System Interconnection	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	138.0
Forest Conservation/ Agricultural Diversification	16	<b>Rural Development Program</b>	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	4.0
		On-Farm Land Development	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	3.2
		Upland Cropping Systems	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	1.8
Institutional Support	17	<b>IDEP Management Unit (IMU)</b>	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	██	1.8
		<b>IDEP Total</b>																					<b>1,788.7</b>

Notes: 1) In bold letters are the key projects.

2)  Pre-implementation study/plan-making

 Implementation

 On-going

3) Some cost estimates only cover study components and do not include construction costs.

## 16. IDEP IMPLEMENTATION

### 16.1 PRINCIPLES

To ensure the effective implementation of the IDEPs, following principles are proposed:

(1) **Principle 1** Implementation by the local government

The IDEP should be implemented by the local government with assistance of and under guidance from the central government.

(2) **Principle 2** Strong integration and coordination

Integration and coordination among the various sectors, agencies and levels of government concerned should be strengthened.

(3) **Principle 3** Strengthening manpower and institutional capability

Capability of local government institutions and staff should be enhanced.

(4) **Principle 4** Strengthening financial capability

The local government's capability to mobilize their resources and optimize the use of funds should be strengthened. The system of regional development financing should be improved to sustain the local expenditure for the IDEP.

### 16.2 INSTITUTIONAL ARRANGEMENTS

Diagram 35 depicts the proposed institutional arrangements for the IDEP implementation. There is no proposal of establishing a new special agency in the whole structure. The Team considers it more appropriate and practical to strengthen the existing institutions, subject to appropriate modifications of the government regulations.

**National Steering Committee for IDEP** is a high-level intersectoral committee chaired by BAPPENAS and composed of ministries and agencies concerned, provincial BAPPEDA and donor representatives. This committee provides overall policy guidance, coordinates sectoral initiatives, supervises implementation, evaluates progress and results, and promotes measures to enhance institutional and financial capability of the local governments involved.

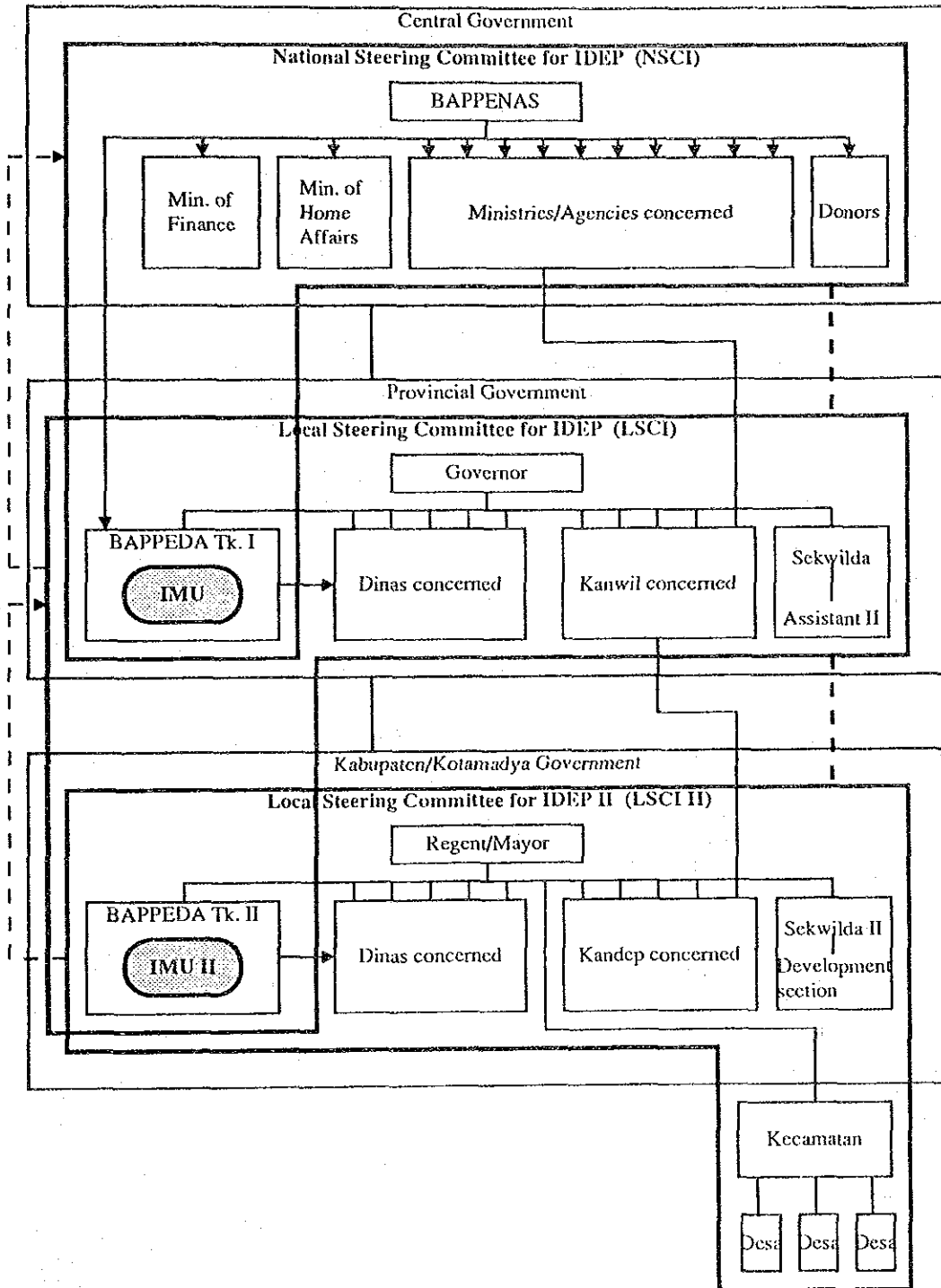
**Local Steering Committee for IDEP** is set up in the province concerned. To be represented there are BAPPEDA Tk.I, Assistant II to Sekwilda, dinas/kanwil concerned and BAPPEDA Tk.II of the IDEP site kabupaten/kotamadya. Chaired by Governor, this committee basically functions to coordinate IDEP implementation at the provincial level.

**IDEP Management Unit (IMU)** is a division to be created in BAPPEDA Tk.I. IMU manages and coordinates an IDEP activities on a day-to-day basis. One expatriate expert should be positioned in IMU.

**Local Steering Committee for IDEP II** is the kabupaten/kotamadya version of the Steering Committee, chaired by Bupati/Walikota and represented by BAPPEDA Tk.II, development section in Sekwilda II, dinas/kandep concerned and kecamatan/desa of the IDEP site.

**IDEP Management Unit II (IMU II)** is also established in BAPPEDA Tk.II to carry out the same functions as IMU at the kabupaten/kotamadya level.

Diagram 35 Institutional Arrangements for IDEP



- Notes:
- denotes direct lines of authority
  - denotes coordinative linkages
  - ◻ denotes each steering committee
  - denotes linkages among NSCI, LSCI and LSCI II
  - > denotes feedback linkages
  - IMU (II) denotes IDEP Management Unit (II)

Within each level of the governments, positions or links of ministries/agencies do not necessarily mean the rank of authority/hierarchy.

## 17. SECTORAL STRATEGIES

The Study covers the following ten sectors:

- (1) Agriculture
- (2) fisheries
- (3) Industry
- (4) Mining/Energy
- (5) Tourism
- (6) Water resources
- (7) Transportation
- (8) Telecommunication
- (9) Urban and Rural Development
- (10) Land Use/Forestry/Environment

Each sector has developed its own long-term concept given and within the overall development concept for the Region. In the sections which follow, those sectoral plans are summarized one by one with the general format of (1) Current conditions, (2) Development concept, and (3) Strategy. Diagram 36 concisely lists the sectoral strategies in a further simplified form.

Diagram 36 Setoral Strategies

<b>Agriculture</b>	<ol style="list-style-type: none"><li>(1) Disseminate more intensive or mixed cropping systems on wetland</li><li>(2) Expand/upgrade large irrigation schemes and prudently promote incremental development of tidal and non-tidal swampland</li><li>(3) Support market-induced diversification</li><li>(4) Continue the smallholder tree crop development programs</li><li>(5) Develop large-scale estates</li><li>(6) Further promote commercial livestock farms, commercial farms and agro-industries</li></ol>
<b>Fisheries</b>	<ol style="list-style-type: none"><li>(1) Sound management of marine fish resources in the eastern waters.</li><li>(2) Promote the west coast as a main fish supply base</li><li>(3) Fully utilize freshwater fish resources</li><li>(4) Strengthen KUD to organize processing and marketing</li></ol>
<b>Industry</b>	<ol style="list-style-type: none"><li>(1) Identify prospective industrial centers or "cores"</li><li>(2) Conduct a detailed survey on what kinds of natural resources are processed to what degree with what types of technologies</li><li>(3) Investigate the scope and availability of potential natural resources</li><li>(4) Devise concrete ways to raise the level of processing</li><li>(5) Develop/improve industrial estates</li><li>(6) Upgrade the institutes for research and development (R&amp;D)</li><li>(7) Improve vocational training centers</li><li>(8) Establish a market information center in cooperation with BPEN and KADIN</li><li>(9) Improve the related systems such as IIS and institutional finance</li><li>(10) Promote various inter-industrial linkages</li><li>(11) Promote private investment</li><li>(12) Organize a public agency in charge of the above activities</li></ol>
<b>Mining/Energy</b>	<ol style="list-style-type: none"><li>(1) Continue exploration of new mineral deposits</li><li>(2) Rationalize and renovate tin mining operations</li></ol>

- (3) Increase power generation by coal-fired, hydro, geothermal, etc. power plants to supply electricity to the Region and outside
  - (4) Extend the power transmission network to decrease isolated and captive power generation
  - (5) Develop appropriate systems for coal transportation
- Tourism**
- (1) Improve infrastructure, particularly air, water and land transportation
  - (2) Concentrate development on prime destinations while linking them to form circuits and enabling optional tours
  - (3) *Conserve natural and cultural resources while fostering local cultural heritage and establishing local identity*
  - (4) Attract private investments offering appropriate incentives
  - (5) Raise the level of personnel in the local tourism industry
  - (6) Step up the public relation activities and provide more information to prospective tourists
- Water Resources**
- (1) Implement urban water supply and sewage treatment together
  - (2) Put priority on rural water supply in the east coast swamps
  - (3) Urgently implement flood control, sabo and drainage measueres in some locations
  - (4) Apply a basinwide approach to the Batang Hari river
  - (5) Further promote irrigation combining agricultural development
  - (6) *Limit swamp development basically to the existing land*
  - (7) Implement ongoing or committed hydropower schemes
- Transportation**
- (1) Better transport the bulk commodities
  - (2) Prepare for containerization
  - (3) Improve/construct seaports on the east coast
  - (4) Manage coal transport
  - (5) Clarify the long-term roles of rail transport
  - (6) Develop Palembang as an air hub
- Telecommunication**
- (1) Eliminate the application backlog especially in major cities
  - (2) Extend telecommunication services to rural areas
  - (3) Expand transmission systems with optic fiber cables
  - (4) Raise quality of service
- Urban and Rural Development**
- (1) Continue urban development particularly in strategic centers, promoting the new IUDP approach
  - (2) Strengthen service functions of medium- and small-size centers as well as rural centers, and particularly define a clear functional hierarchy for those along the trans-Sumatra highway
  - (3) Take integrated actions to promote rural development, while stressing urban-rural linkage and decentralization/participation
- Land Use/Forestry/ Environment**
- (1) Make forest inventory
  - (2) Give incentives to the concessionaires to promote sustainable forest management
  - (3) Reduce logging residues
  - (4) Promote industrial forest plantations
  - (5) Support small-scale industries using forest products
  - (6) Remove constraints on environmental conservation
  - (7) Assist forest-dwelling communities to participate in sustainable forest management
-

## 18. AGRICULTURE

### 18.1 CURRENT CONDITIONS

Diagram 37 shows the patterns of major agricultural land use. **Traditional estate crops** (rubber, coffee, coconut, clove, oil palm, pepper) characterize the Region's agriculture in terms of planted area (2.4 million ha, 1989). The smallholder dominates this sector with the large-scale estate accounting for only 7% of the area above. However, approved land concessions to large-scale estates already totals 1.4 million ha, indicating the subsector's high potential to grow. By contrast, **wetland development** (1 million ha, 1989) is rather limited. Paddy cropping is less intensive than in Java or northern Sumatra with a significantly lower yield than the national average (3.5 tons per ha vs. 4.4 tons per ha). Though it achieved self-sufficiency in rice in the mid-1980s, the Region has yet to secure a stable and sizable surplus. Production of **secondary food crops** (palawija) is rather limited, aiming largely at local consumption. Lampung is an exception in this respect, growing most of the Region's outputs of maize, soybean and cassava to supply local agro-industries and outside markets. **Horticultural crops** (vegetables, fruits) are also mainly for local markets, though some high altitude areas along the Barisan range have very good potentials. The **livestock/poultry** subsector is generally underdeveloped as indicated by per capita consumption lower than the standard requirements.

### 18.2 POTENTIALS AND CONSTRAINTS

The existing agricultural land could produce more through intensification and diversification. This is especially the case with the wetland areas where irrigation is inadequate or poorly maintained and with the smallholder tree crop subsector characterized by low inputs and low yields. If proper conservation measures are taken, high altitude areas are also promising with good demand expected for palawija and horticultural crops. Constraints hampering the improvements include inadequate institutional supports available to small farmers (extension services, input supply, rural credit, etc.) on the production side and their inadequate market access on the sales side, typically such difficulties as poor transportation, lack of market information and the ineffective marketing system. Need for extensification is also clear just to keep with growing population and rising per capita consumption. According to a RePPProT report (1988), the Region has a total of 620,000 ha new land usable especially for the transmigration program. The figure of available land for general agricultural development should therefore be much higher than this estimate.

### 18.3 DEVELOPMENT CONCEPT AND STRATEGY

The Region's agricultural sector must increase and diversify its production. There are three reasons for this: First, the sector must feed the growing regional population with rising per capita income. Second, more demand is expected from outside as the Region becomes more integrated with other regions. Third, expansion of non-oil/gas export is a national imperative. To meet this objective, the development will evolve from the narrow meandering alluvial belts along the rivers to low-lying coastal plains and rolling/undulating plains between the rivers. Major areas of growth are indicated on Diagram 38. In more specific terms, agricultural development must focus on the following aspects:

- (1) disseminate more intensive or mixed cropping systems on wetland;
- (2) expand/upgrade large irrigation schemes and prudently promote incremental development of tidal and non-tidal swampland;
- (3) support market-induced diversification;
- (4) continue the smallholder tree crop development programs;
- (5) develop large-scale estates; and
- (6) further promote commercial livestock farms, commercial farms and agro-industries.

Diagram 37 Major Agricultural Land Use

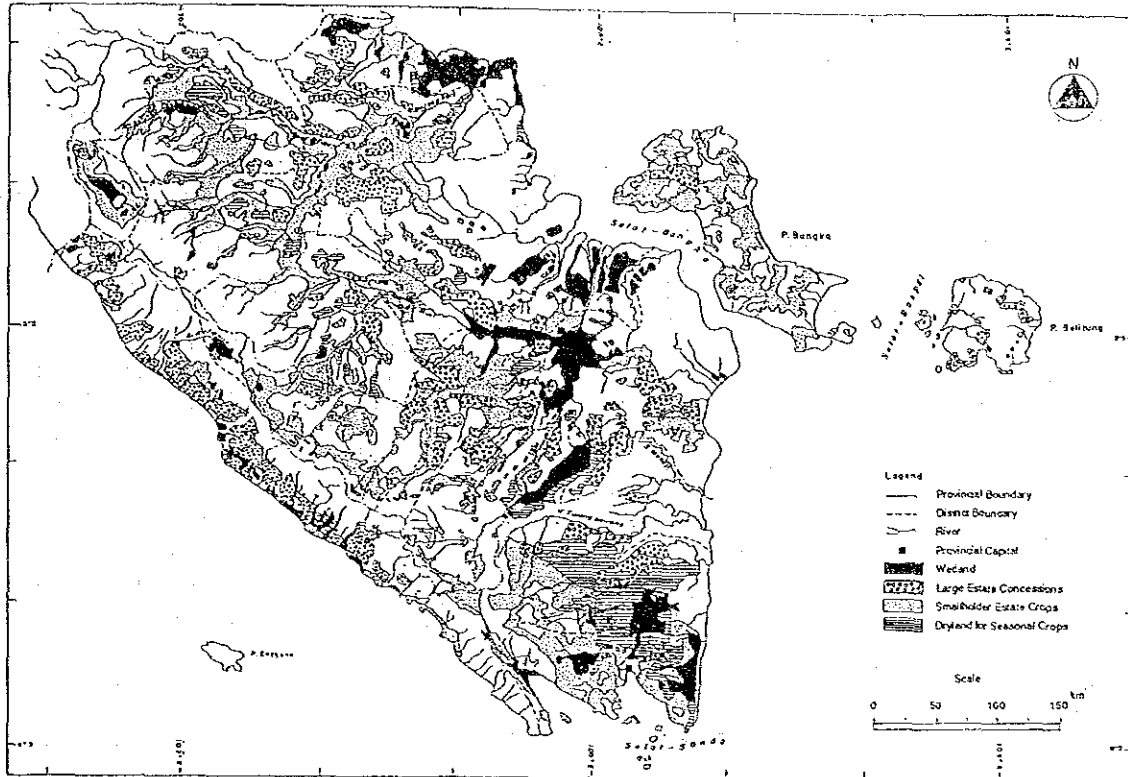
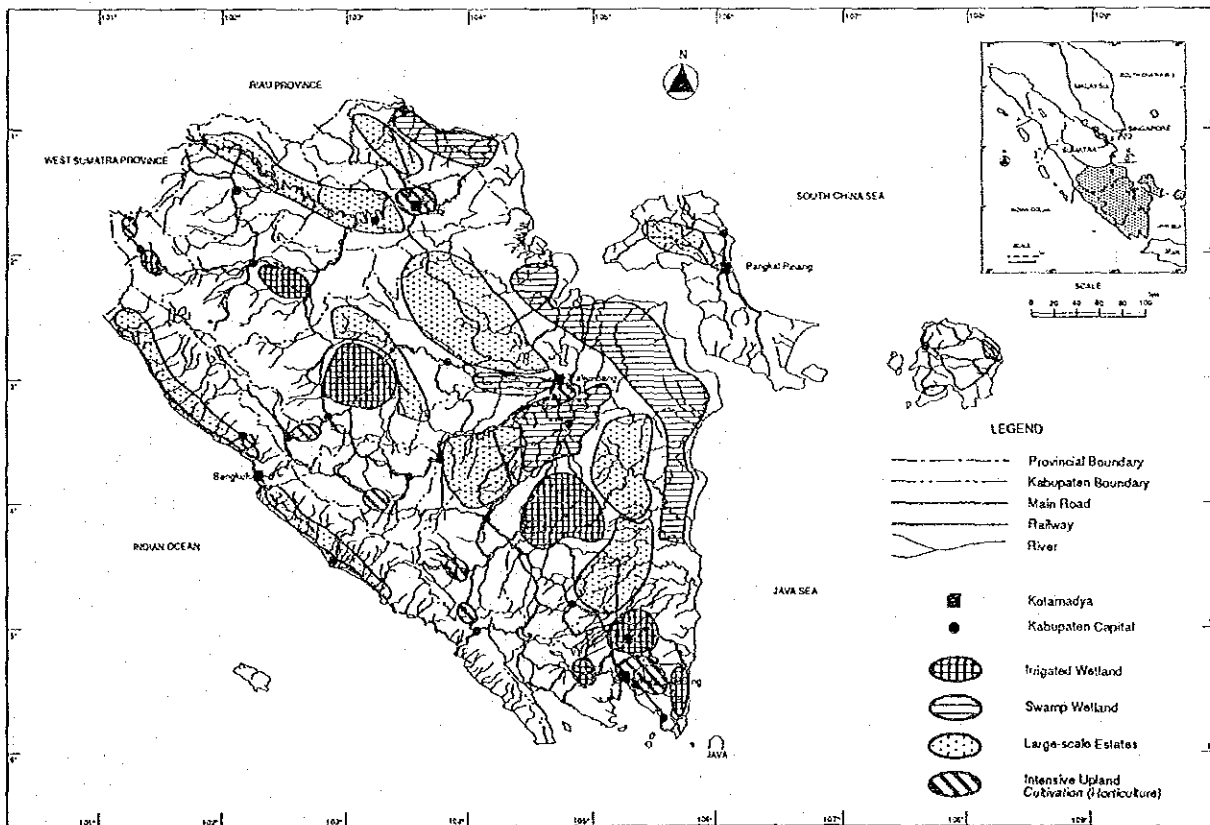


Diagram 38 Major Areas of Growth



## 19. FISHERIES

### 19.1 CURRENT CONDITIONS

Fish production in the Region totaled 270,000 tons (1990), which accounted for 31% of Sumatran total and 8% of national total. The sector grew rather rapidly at 6% a year between 1981 and 1989. The production is largely aimed at domestic consumption; export is almost negligible (2,300 tons in 1990). **Marine fishery** is by far the largest subsector, accounting for 73% of total production. Fisheries are located mostly in the eastern waters (Jambi; Bangka and Belitung Islands). Fishing practice on the west coast, by contrast, is extremely underdeveloped despite abundant fish stock offshore. About 20% of the fish production originated from **inland fisheries**, which represent an important protein source for the interior inhabitants. The rest of the production was accounted for by the **aquacultural** subsector whose level of development remains low compared with that of northern Sumatra. Nonetheless, recent developments have been rapid particularly in the Bangka Island and on the east coast of Lampung. In the absence of private fish landing bases in most parts, **public fish landing centers** (PPIs) play a more substantial role than found elsewhere. Associated with the PPI, **KUD** (fishermen's cooperative) is also active in a few locations. Most PPIs, however, suffer from sedimentation and lack of an ice plant. Other **major constraints** are: weakness in processing and marketing; resource depression in the Malacca Straits; limited hatchery production capacity; limited capacity of traditional fishing techniques; inadequate fishing village environment; and inadequate water supply systems for aquaculture ponds.

### 19.2 DEVELOPMENT CONCEPT

Fish production in the Region must increase steadily, first, to keep pace with the growing population and, second, to serve as a major fish supply base for Java. Assuming annual per capita fish consumption in 2010 at 19 kg (currently, 16.2 kg) and a drastic 10% increase in the market share at Jakarta, the Team has projected total fish demand in 2010 at 640,000 tons (Diagram 39). This demand will be met by the subsectors as specified in Diagram 40. Achieving these targets requires (1) that the initialized resources in the western waters be rapidly exploited; (2) that marine fish catch from the east coast be gradually increased; and (3) that aquaculture be expanded.

### 19.3 STRATEGY

Specific Strategy to materialize the development concept is as follows:

(1) Sound management of marine fish resources in the eastern waters. In the east coast particularly of Jambi, over-fishing has become evident in the near shore (2-3 miles from the coast line) whereas some resources remain untouched in the 12-mile territorial waters. Thus, new fishing grounds should be created further offshore by installing artificial reefs and fish aggregating devices while small fishermen should be encouraged into aquaculture.

(2) Promotion of the west coast as a main fish supply base. To fully exploit rich fish resources (tuna, in particular) in the Indian Ocean, fishing bases appropriate for offshore fishing operation should be established on the west coast while enlarging fishing capability by introducing larger vessels and outboard motors.

(3) Full utilization of freshwater fish resources. Inland waters are declining in productivity due mainly to the lowering water level. It is necessary to control water level and quality by means of civil works as well as supply fish fry to keep the stock level.

(4) Strengthening of KUD to organize processing and marketing. KUD has a larger role to play in the Region because smallscale fishermen generally are not organized around privately-owned fish landing bases. They therefore face a common problem of how to market their catch. KUD should take the lead in processing and marketing hereby diversifying the products while improving their market access.



Diagram 39 Fish Demand Projection

(1) Region's Consumption

Province	Required Volume (1,000 mt)				
	1990	1995	2000	2005	2010
Jambi	28.8	37.9	46.4	55.4	65.3
South Sumatra	116.6	116.7	141.3	167.2	194.8
Bengkulu	17.9	22.6	27.5	32.7	38.3
Lampung	87.4	109.2	129.4	151.4	175.8
Region Total	250.8	286.4	344.6	406.7	474.2

(2) Export

Destination	Required Volume (1,000 mt)				
	1990	1995	2000	2005	2010
Java (incl. export from Jakarta)	25.0	40.3	64.8	104.4	168.2
Direct export	2.3	3.7	6.0	9.6	15.5
Total	27.3	44.0	70.8	114.0	183.7

(3) Total

	Required Volume (1,000 mt)				
	1990	1995	2000	2005	2010
Total Demand	278.1	330.4	415.4	520.7	657.9
Import from N. Sumatra	10.0	11.9	13.9	15.9	17.7
Balance	268.1	318.5	401.5	504.8	640.2

Notes:

- \*1/ Per capita fish consumption is assumed to increase from 16.2 kg in 1990, to 16 kg, 17 kg, 18 kg and 19 kg in 1995, 2000, 2005 and 2010 respectively (The fish consumption during first 5 years will increase only be the effect of population growth.)
- \*2/ Population increase is based on the Teams's projection.
- \*3/ Fish supply to other regions is assumed to increase at an annual rate of 10%.
- \*4/ Import volume from Northern Sumatra is based on the projection given in the Final Report of the LTA-78 Study for Northern Sumatra (March 1990, JICA).

Diagram 40 Fish Production Targets

	Target Volume (1,000 mt)				
	1990	1995	2000	2005	2010
Marine (east)	181	202	227	245	265
Marine (west)	14	30	70	136	202
Inland fishery	53	53	70	89	108
Aquaculture	19	26	34	49	64
Grand Total	267	311	391	519	639

## 20. INDUSTRY

### 20.1 CURRENT CONDITIONS

The Region's industrial sector is characterized as follows:

(1) Resource-oriented. More than 90% of gross output originates from three highly resource-oriented product groups: food, wood products and chemicals (including crumb rubber).

(2) Export-oriented. Around 70% of industrial gross output from the Region is exported.

(3) Low value added. Average value added ratio was 25% while national average was 34% (1988).

(4) Abundant, cheap but low-skilled labor.

(5) Insufficient infrastructure. The Region appears less attractive in this respect to prospective investors.

(6) Low land price. Land is still amply available at low prices, an advantage.

(7) Proximity to Java. Another major advantage.

(8) Proximity to Singapore. Access to the international market is easy.

### 20.2 DEVELOPMENT CONCEPT

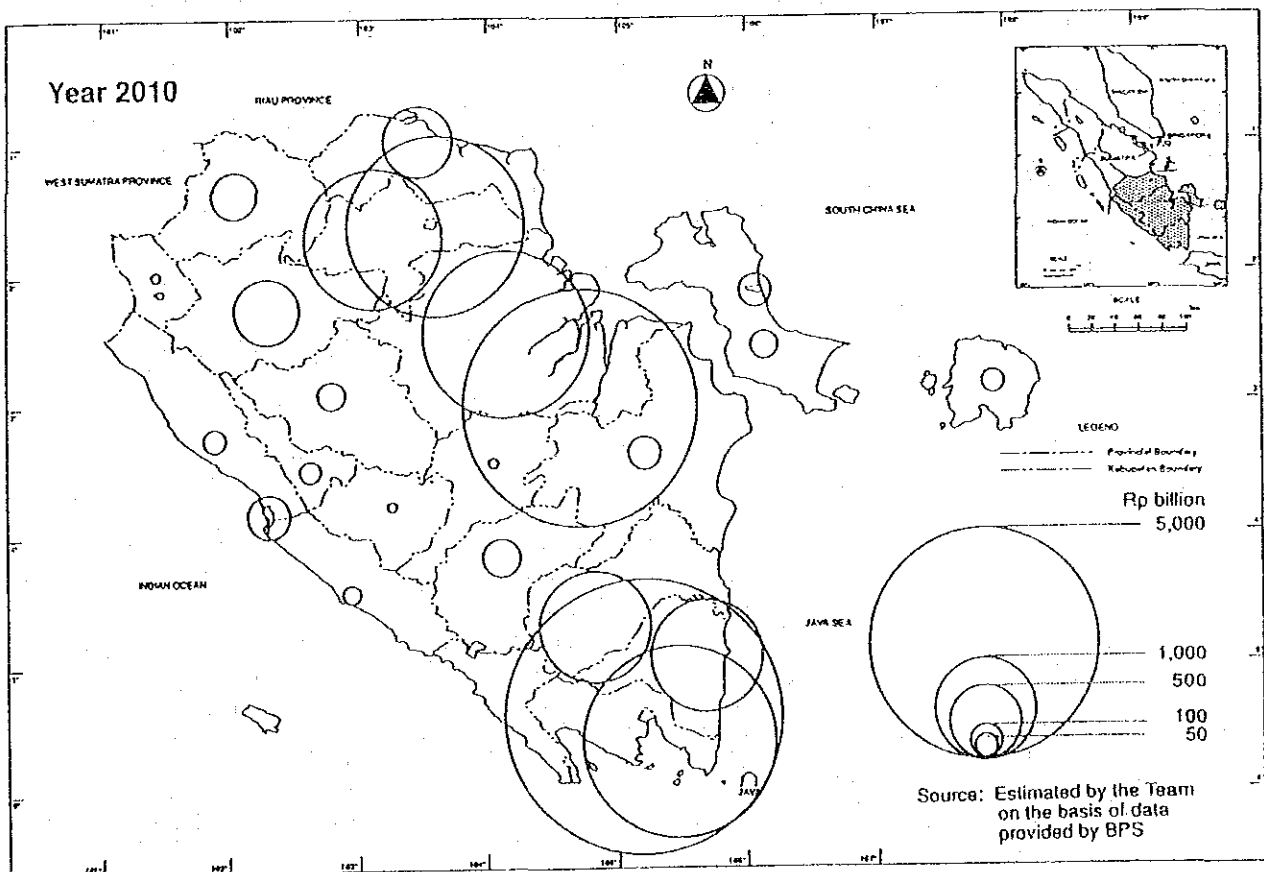
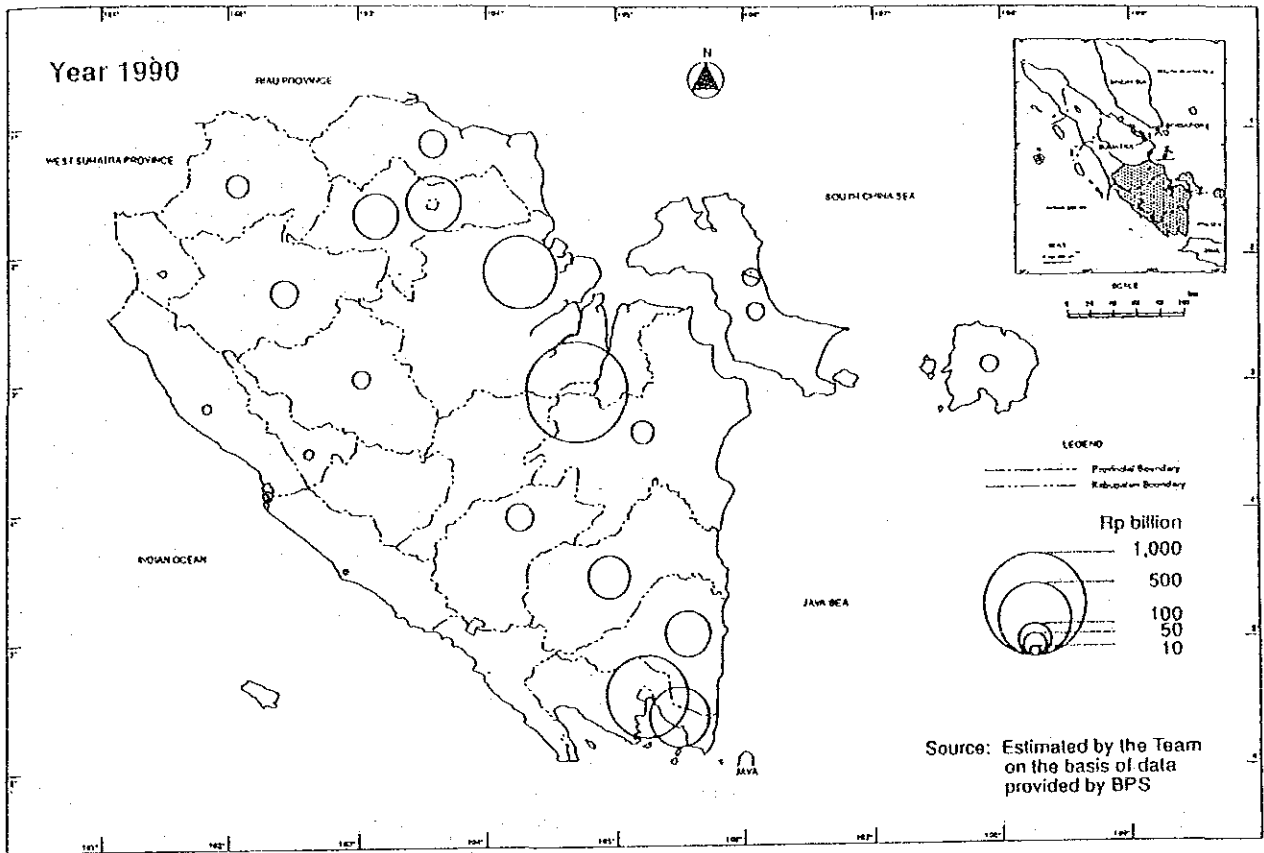
Industrial development in the Region should evolve around resource-oriented (agro-based, in particular) secondary processing industries. They should also be export substituting industries, processing locally available natural resources and adding more value on the products. To accelerate the speed of such development, foreign as well as domestic investors should be lured into the Region to provide capital, technologies and market access. The public sector has a lot to facilitate this whole process. It should not only initiate such investment promotion efforts, but in addition provide fundamentals for industrial development: better infrastructure, better human resources, and industrial common sense like industrial standards and quality control. Diagram 41 compares industrial gross output in 1990 and 2010.

### 20.3 STRATEGY

The following set of actions are recommended for the Region:

- (1) Identify prospective industrial centers or "cores" in each province;
- (2) Conduct a detailed survey on what kinds of natural resources are processed to what degree with what types of technologies;
- (3) Investigate the scope of potential natural resources and estimate their available volume;
- (4) Devise concrete ways to raise the level of processing;
- (5) Develop/improve industrial estates;
- (6) Upgrade the institutes for research and development (R&D) in industry;
- (7) Improve vocational training centers;
- (8) Establish a market information center in cooperation with BPEN and KADIN;
- (9) Improve the related systems such as IIS and institutional finance;
- (10) Promote various inter-industrial linkages;
- (11) Promote private investment; and
- (12) Organize a public agency in charge of the above activities.

Diagram 41 Industrial Development Prospect



## 21. MINING/ENERGY

### 21.1 CURRENT CONDITIONS

Major Mineral resources currently produced are: oil, gas (Jambi); oil, gas coal, tin (South Sumatra); coal, gold, silver (Bengkulu); coal, gold, silver (Lampung). South Sumatra has particularly good endowments and the province is a prominent producer of oil (6% of 1990 national production), gas (8%), coal (40%) and tin (80%). The expansion of coal production in the past decade has been phenomenal, skyrocketing from 161,000 tons (1980) to 4.2 million tons (1990). This trend will be further maintained considering coal's strategic importance in the wake of the expected shift in Indonesia's status to an oil-importing country. Various non-metallic minerals also exist, some of which are commercially mined in relatively small-scale operations.

Keeping pace with the national trend, petroleum fuel consumption is rapidly rising in the Region due mainly to increased transportation use. Power supply is characterized by high portions of captive (non-PLN) generation and by the continued dominance of diesel power generation in the PLN system. This situation is a direct consequence of the Region's rudimentary level of system interconnection. Currently, only two major transmission line systems exist: Tanjung Enim-Palembang and Tes-Bengkulu. Rural electrification is also very limited compared with urban areas. Per capita consumption remains low (about 1/18 of the Region's average) though the electrification rate varies considerably among kabupaten.

### 21.2 DEVELOPMENT CONCEPT

Viability of mineral extraction much depends on the deposit quality as well as current technological levels. Highly prospective new deposits include: coal, gold, tin (Jambi); coal, oil, gas, gold (South Sumatra); coal, oil, limestone (Bengkulu); gold, coal (Lampung).

Demand for commercial energy is projected to increase 3.4 times over the 20 years. Per capita consumption will also rise from 1.9 BOE to 5.1 BOE.

Increase in power demand (for PLN) is estimated to be far more rapid. During the same period, it will expand more than tenfold, from 970 GWh (1990) to 10,600 GWh (2010), chiefly because of industrial development. Accordingly, installed capacity should also go up from 525 MW to 4,300 MW. This suggests that under the current facility development plan by PLN, the supply and demand balance will soon become tight even before 2000.

In view of the fast growing demand for energy and electricity nationwide, it is urgently needed for the Region to increase energy production through intensification and diversification. Exploration of new reserves of oil, gas and coal is under way and some locations appear highly promising. Hydropower and geothermal development also has good prospects but requires detailed evaluation study. Meanwhile, the power systems should be interconnected regionwide and, possibly, further to Java.

### 21.3 STRATEGY

In the mining sector, exploration of new deposits should be continued. To address the problem of declining tin production, it is necessary to rationalize and renovate tin mining operations. The foremost problem of the energy sector is how to meet the growing demand particularly for electricity. Various energy sources should be developed urgently (gas-thermal power plant in Palembang; coal-fired power plants in Jambi, South Sumatra and Lampung; hydropower and geothermal developments where potential exists) while system interconnection should be stepped up (Diagrams 42 and 43). One strategic consideration is how to haul coal from the prospective mines to their destinations. Bengkulu coal is largely for export, and some measures to support this drive are in need.

Diagram 42 Schematic View for Energy Resources Development

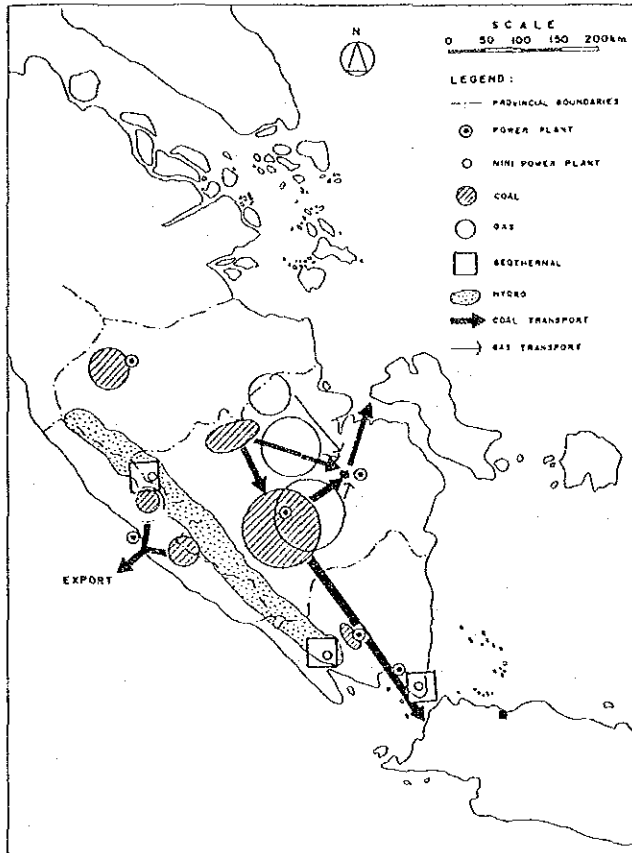
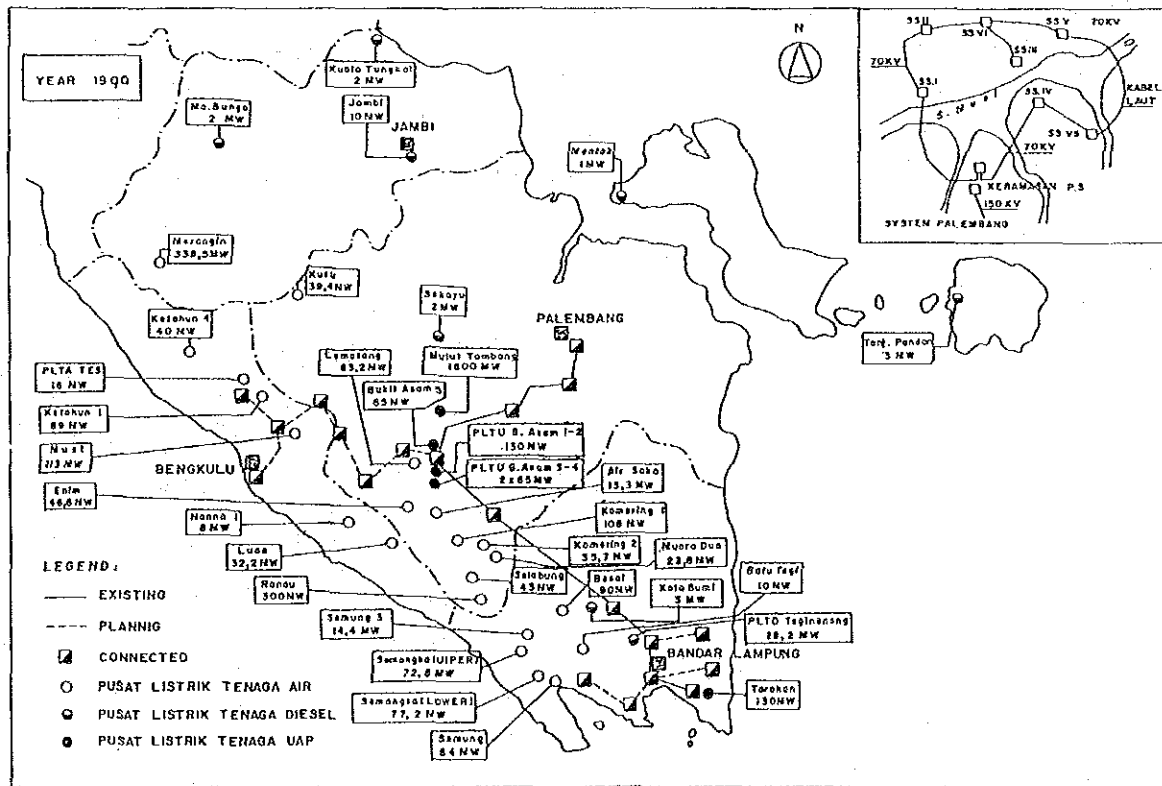


Diagram 43 Power System Interconnection



## 22. TOURISM

### 22.1 CURRENT CONDITIONS

Tourism has been flourishing in ASEAN countries recently. Among them, Indonesia is rather lagging behind the others but nonetheless its growth in tourist arrivals is impressive: 28% annually during 1986-90 (ASEAN average, 18%). Its three major traditional markets are Singapore (23%), Japan (12%) and Australia (8%), but smaller markets like the U.S. and the Netherlands are growing fast thereby diversifying tourists' origins. In Indonesia three major foreign tourist destinations are Bali, Jakarta and North Sumatra. The southern part of Sumatra remains an obscure destination (about 1% of national total in August 1990). If the Region is not well known to foreign visitors, it seems somewhat more attractive to domestic tourists, whose number is increasing at 16% a year.

The distribution of tourism objects is shown on Diagram 44. The Region has rather a wide range of potential attractions, among which major ones are as follows: **Kerinci Seblat National Park** (Jambi) stretches on the Barisan range, covering a total of 15,000 km<sup>2</sup> land. Main attractions are diverse fauna and flora, scenic views of mountains and a lake, and tea plantations on the slopes. **Berbak National Park** (Jambi), newly designated in 1992, is a natural reserve on lowland swamps along the east coast. Its ecological values are of international recognition. **Bangka and Belitung Islands** (South Sumatra) have very good potentials for marine resort development with white sand beaches and clean sea. **Rafflesia** reserves (Bengkulu) represent another internationally unique attraction. Currently, however, few visitors come over to see this world's largest flower. **Tabot Festival** (Bengkulu) is a local ceremonial event with long tradition and recent nationwide attention. **Krakatau Island** (Lampung) is a world famous volcano, which should be the representative of the Region's tourism development. **Way Kambas National Park** (Lampung) is a well established destination. The Elephant Training Centre located in the Park is one of its main attractions with 70,000 visitors a year.

### 22.2 DEVELOPMENT CONCEPT

The Region has those particular advantages in tourism development, which should be ardently exploited:

- (1) Lampung and the Islands of Bangka and Belitung are all located within one-day trip distance from Jakarta;
- (2) Some spillover or multiplier effects can be expected from two major tourism zones in the neighborhood, West Java and West Sumatra;
- (3) Potential markets of Singapore, Malaysia and Batam are within easy reach; and
- (4) Attractions are so diverse.

### 22.3 STRATEGY

Generally, tourism development must be extremely cautious not to kill the goose that lays the golden eggs. Its strategy must therefore stress conservation of natural and cultural resources, on the one hand, and of cultural heritage and regional identity on the other.

- (1) Improve infrastructure, particularly air, water and land transportation;
- (2) Concentrate development on prime destinations while linking them to form circuits and enabling optional tours (Diagram 45);
- (3) Conserve natural and cultural resources while fostering local cultural heritage and establishing local identity;
- (4) Attract private investments offering appropriate incentives;
- (5) Raise the level of personnel in the local tourism industry; and
- (6) Step up the public relation activities and provide more information to prospective tourists.

Diagram 44 Tourism Resources

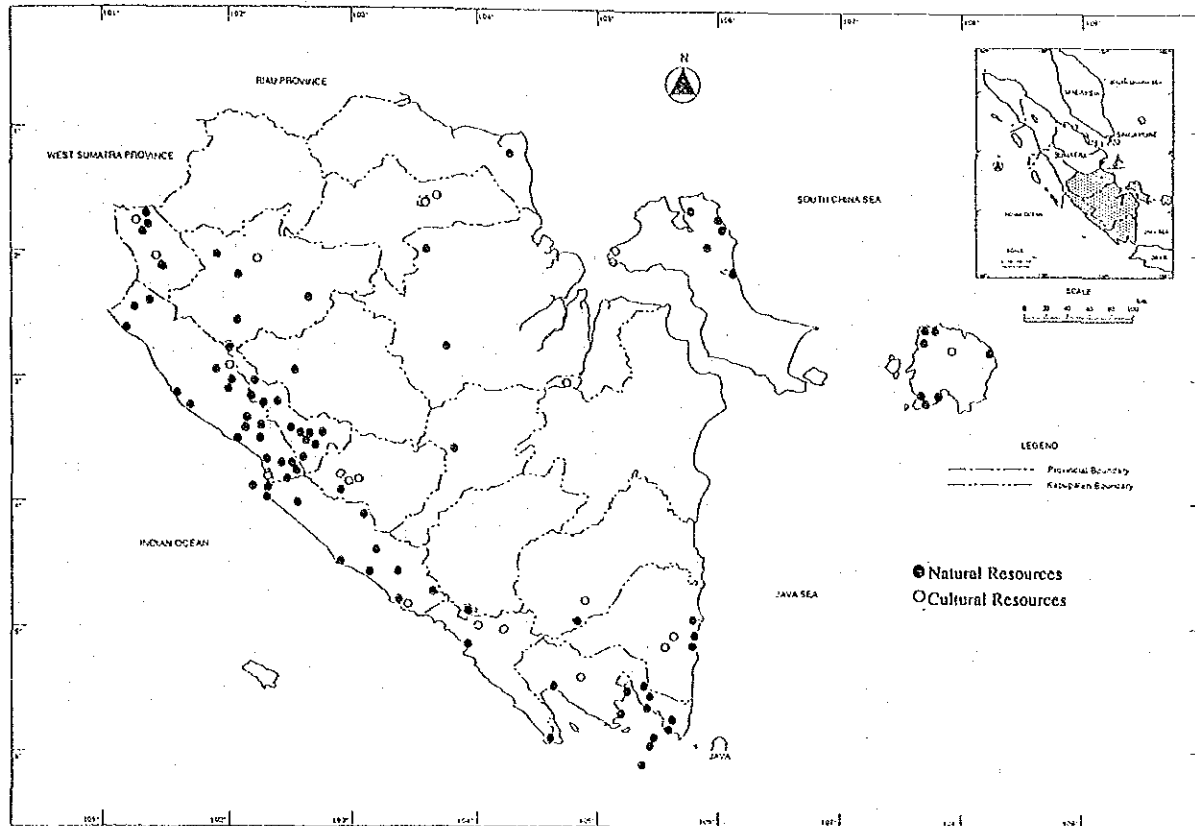
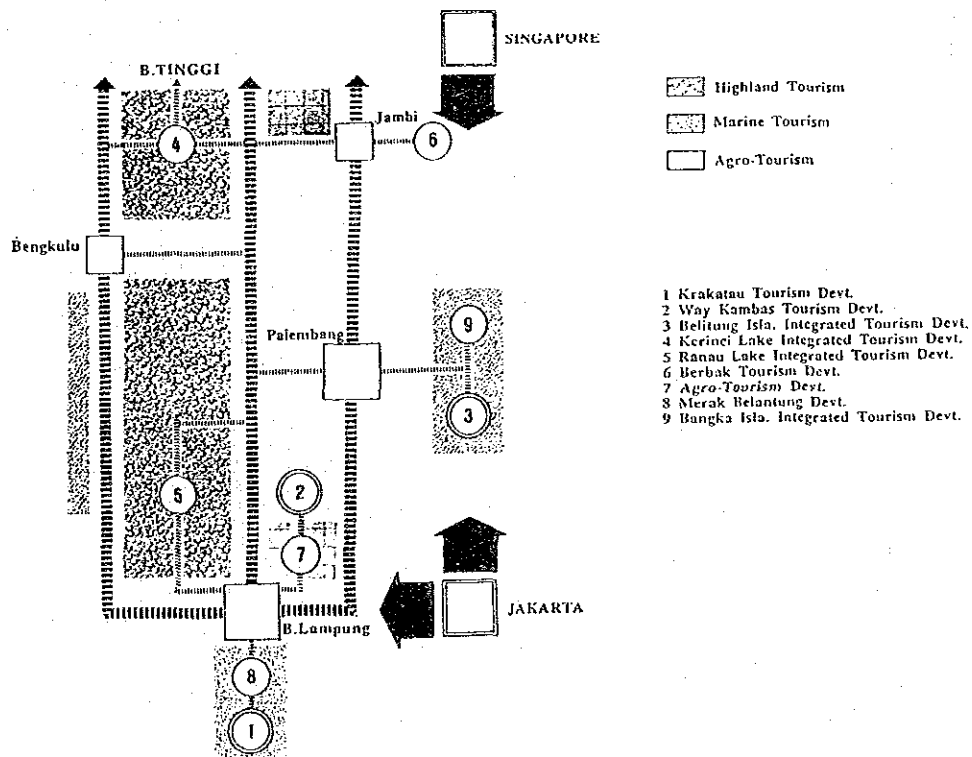


Diagram 45 Structure of Tourism Development and Layout of Major Projects



## 23. WATER RESOURCES

### 23.1 CURRENT CONDITIONS

The Region is endowed with abundant water resources, thanks to the ample rainfall (estimated mean annual rainfall: 2,800 mm). The Region can be divided into 91 watersheds, the largest of which is the Batang Hari River basin (49,100 km<sup>2</sup>). **Water supply service** is still limited in coverage (8% of population) though the service ratio is generally higher in major cities. Local residents' preference for untreated water remains strong while rampant leakage prevents the systems from efficient operation. **Flooding** is not unusual in the Region particularly in the lowland. Residents have traditionally well adapted their lives to this condition, but recent developments have turned some urban areas vulnerable to inundation. Sometimes very violent floods occur on the skirts of the Barisan range particularly when combined with rock sedimentation. Urgent measures are needed in this respect. As shown in Diagram 46, large-scale **irrigation development** in the Region has so far concentrated in Lampung, which is now a rice supply base for the nation. Medium-and small-scale schemes also exist mainly on both sides of the Barisan range. **Swamp reclamation**, coupled with transmigration, has been very active on the east coast of Jambi and South Sumatra, where most of the Region's 8 million ha tidal and non-tidal swamps exist. To raise productivity and the living standards in the isolated settlements there, it is necessary to provide basic infrastructure like roads and telecommunications. **Hydropower development** is rather limited in the Region. Currently, the Tes-1 hydropower station located in Bengkulu (installed capacity: 16 MW) is the only one already in operation; two others (Besai-1, Musi-1) are under detailed design. Previous studies have identified 28 potential sites (total installed capacity: 1,440 MW), some of which appear very promising.

### 23.2 DEVELOPMENT CONCEPT

Diagram 47 depicts the general concept. The **water supply** subsector should place priority on the expansion of the supply systems in the provincial capital cities. They have their own long-term master plan, except Jambi, and it should be priority to carry out them according to the suggested schedules. As to **flooding**, there are two distinct types requiring different approaches: floods with debris flow (mountain slopes) and floods with sedimentation (lowland cities). The first type should be tackled with small-scale measures for debris flow control (check dams, etc.), soil erosion control and river dyking. The second type necessitates an integrated basin-wide approach in which various measures are taken simultaneously in the upstream as well as in the inundation-prone lowland areas. **Irrigation and swamp reclamation** should be selectively continued to maintain national rice self-sufficiency. Though irrigation generally ensures higher land productivity and stable production that is less susceptible to the climate, it requires investment 10 to 20 times more than swamp reclamation does. Swamp paddy farming, however, has its own problems (bad quality groundwater, among others) and, therefore, it is recommended to focus on improving the existing reclamation areas. **Hydropower development** will follow the basic PLN policy: supply the base load with the coal-fired plants in Bukit Asam while hydropower stations in the Barisan range take care of the additional load at the peak.

### 23.3 STRATEGY

Urban water supply and sewage treatment should be implemented together. Rural water supply in the east coast swamps is priority. Flood control, sabo and drainage measures are urgently needed for Jambi, Kerinci, Palembang and Lampung Selatan. The basin-wide approach should be applied to the Batang Hari river. Irrigation schemes, ongoing and identified, should be promoted further, but their integration into broad agricultural development is recommended to raise the per capita income level. Swamp development should basically be confined to improving the existing land. Exceptions are three schemes in Bengkulu. Hydropower schemes which are ongoing or committed should be further brought to the implementation stage.