

3.2 FISHERIES

3.2.1 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 contract, 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.

3.2.2 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 (Table 3.2.1). This demand will be met by the subsectors as specified in Table 3.2.2. 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.

3.2.3 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

Table 3.2.1 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).

Table 3.2.2 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

Table 3.2.3 Project Long List (Fisheries)

No.	Project Title	Location	Suggested Type of Implementation	Description	Priority
Batang Hari River Basin Fisheries Development Project					M
B-1	Batang Hari River Basin Stock Assessment Survey	Batang Hari (Jambi)	T	- Fish stock assessment (to be included in the comprehensive master plan study)	
B-2	Oxbow Lakes Fishery Development	Batang Hari (Jambi)	F	- Lake rehabilitation - Restocking of fry - Fish cage culture	
Coastal Fisheries Management Project					H
B-3	Coastal Fishery Resource Inventory Management and Enhancement	Tanjung Jabung (Jambi)	T	- Preparation of data base inventory - Preparation of resource management model	
B-4	Artificial Reef Development	Tanjung Jabung (Jambi)	F	- Creation of new fishing grounds and sanctuary areas - Development of appropriate fishing gears	
B-5	Aquaculture Demonstration Farms	Alang-alang, Nipahpanjang, Air Hitam, Kualatunkal (Jambi)	P	- Establishment of model shrimp/fish farms - Shellfish culture experiment	
KUD-Based Fish Processing and Marketing Promotion Project					L
B-6	Pilot-scale Fish Processing Units	Kerinci/Bungo Tebo (Jambi) Pangkalpinang (South Sumatra) Kodya Bengkulu (Bengkulu) Lampung Tengah (Lampung)	F	- Establishment of pilot-scale fish processing units	
B-7	KUD-based Fish Marketing Promotion	Bangka (South Sumatra) Lampung Selatan (Lampung)	F	- Establishment of ice plant and storage - Supply of marketing equipment	

Notes:

Suggested Type of Implementation indicates:

R: Government self-financed ("Rupiah project")

T: requires technical assistance

F: requires financial assistance

I: private investment

Priority is indicated as:

H: high M: medium L: low

Shaded projects are IDEP components. Bold letter projects are prefeasibility projects.

No.	Project Title	Location	Suggested Type of Implementation	Description	Priority
Brackishwater Shrimp Culture Industrialization Project					M
B-8	Brackishwater Shrimp Culture Industrialization	Bangka (South Sumatra) Tanjung Jabung (Jambi) Lampung Tengah/Selatan (Lampung)	I, F	<ul style="list-style-type: none"> - Promotion of brackishwater shrimp farming industry (NES scheme) - Rehabilitation of the existing traditional tambak (promotion of KUD-based tambak management) - Expansion of shrimp hatchery in Kallanda - Construction of shrimp hatchery in Pulau Berhala 	
Freshwater Giant Prawn Culture Development Project					M
B-9	Freshwater Giant Prawn Culture Development	Musi Rawas/Lahat/O.K.U. (South Sumatra)	I or F	<ul style="list-style-type: none"> - Promotion of freshwater giant prawn farming 	
B-10	Freshwater Giant Prawn Hatchery and Feed Plant	Bengkulu	I or F	<ul style="list-style-type: none"> - Establishment of freshwater giant prawn hatchery 	
Fishing Village Community Development Project					L
B-11	Fishing Boats Motorization	Bengkulu Lampung Barat	F	<ul style="list-style-type: none"> - Supply of outboard engines and maintenance service 	
B-12	Fishing Village Community Development	Ipuh, Manna (Bengkulu)	F	<ul style="list-style-type: none"> - Establishment of fishermen's centers: KUD office, auction hall, workshop, meeting room, fuel storage, ice plant storage, etc. - Coastal line protection from sea erosion 	
Offshore Fisheries Development Project in Western Waters					H
B-13	Purse Seine Fishery Development	Pulau Baai (Bengkulu)	I	<ul style="list-style-type: none"> - Construction of 10-20 G/T Purse Seiners - Establishment of ice plant and storage - Training of fishermen 	
B-14	Krui Fish Landing Center (PPI)	Krui (Lampung)	F	<ul style="list-style-type: none"> - Establishment of new fish landing center including basic onshore facilities; auction hall, slipway, workshop, office, meeting hall, etc. 	
B-15	Small-Scale Tuna Fishery Development	Krui (Lampung) Pulau Baai (Bengkulu)	I	<ul style="list-style-type: none"> - Construction of 10-20 G/T tuna long-line fishing boats - Establishment of ice plant and storage - Training of fishermen 	

No.	Project Title	Location	Suggested Type of Implementation	Description	Priority
B-16	Fish Aggregating Device	Pulau Bani, Manna (Bengkulu) Kotaagung, Krui (Lampung)	F	- Installation of FAD	
Mariculture Development Project					L
B-17	Mariculture Development	Lampung	F	- Improvement of seed distribution network - Supply of culture materials - Coral reef rehabilitation - Pilot-scale caragenan processing plant	
Swamp Fishery Development Project					L
B-18	Swamp Fishery Development	Musi Banyuasin, O.K.I. (South Sumatra) Lampung Utara (Lampung) Tanjung Jabung (Jambi)	T, F	- Strengthening of activities and facilities related to research, demonstration, extension services for swamp fishery - Restocking of fry - Fish cage/pen/pond culture - Swamp fishery management	
Freshwater Aquaculture Infrastructure Improvement Project					L
B-19	Freshwater Fish Hatchery Technical Development	South Sumatra Jambi Lampung	T	- Technical guidance for seed production of high-value species - Improvement of hatching equipment	
B-20	Aquaculture Water Supply Stabilization	South Sumatra Jambi Lampung	T, F	- Improvement of sub-canal system	
Fisheries Education and Training Project					M
B-21	Upgrading of KUD's Management Capability	Whole Region	T, R	- Promotion of friendship association between Indonesian and Japanese fishery cooperative societies - Provision of local scholarship program at desa level	
B-22	Fisheries Senior High School (SPP Perikanan)	Kota Agung (Lampung)	F	- Establishment of SPP for creation of appropriate human resources for fisheries development in the southern part of Sumatra	

market their catch. KUD should take the lead in processing and marketing hereby diversifying the products while improving their market access.

3.3 INDUSTRY

3.3.1 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.

3.3.2 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. Figure 3.3.1 compares industrial gross output in 1990 and 2010.

3.3.3 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;

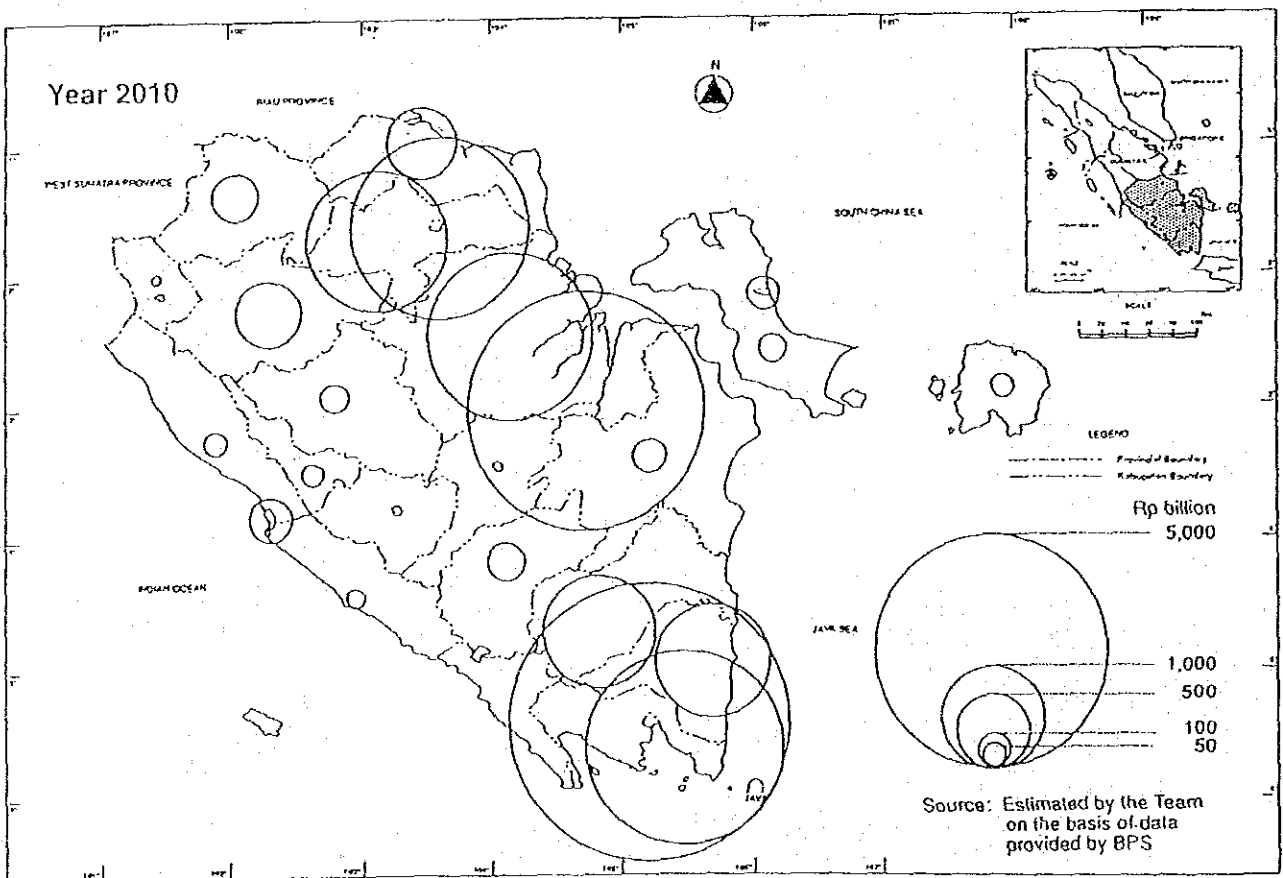
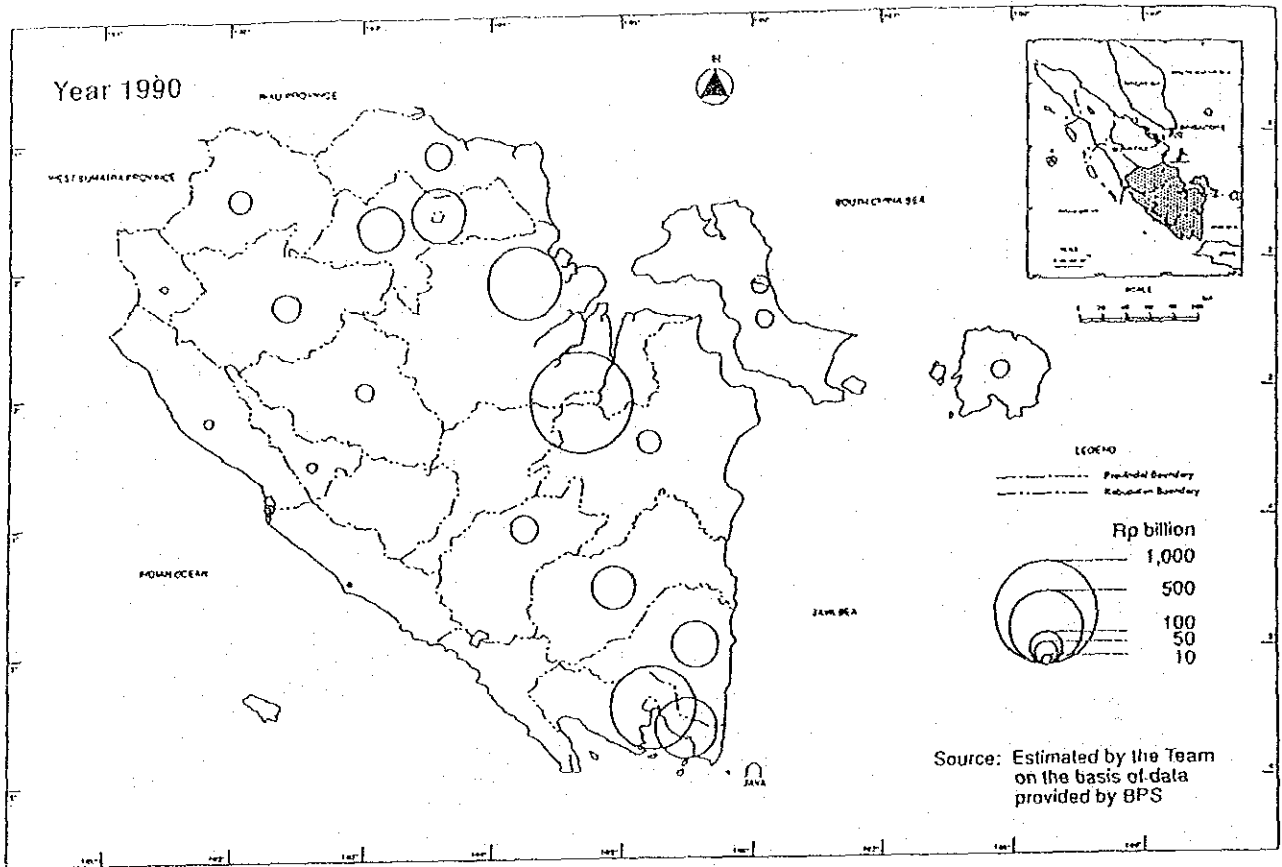


Figure 3.3.1 Industrial Development Prospect

Table 3.3.1 Project Long List (Industry)

No.	Project Title	Location	Suggested Type of Implementation	Description	Priority
Public Sector					
C-1	Survey of Present Processing Situation	All provinces	T	- Cooperation with KADIN and industrial associations	M
C-2	Investigation of Natural Resources	All provinces	T	- Basic step for "resource-oriented processing industry"	H
C-3	Investigation of Improving Processing	All provinces	T	- Dispatch a study team to neighbouring countries	M
C-4	Development of Industrial Estates	Lampung South Sumatra	F	- Intensive development of infrastructure in limited area	H
C-5	Upgrading of Institutes of R & D in Industry	South Sumatra, Lampung	F	- Modernization and upgrading of equipment and buildings	H
C-6	Improvement of Vocational Training Centers	All provinces	T, F	- Strengthening the function of BLK and KLK	H
C-7	Establishment of Market Information Center	All provinces	T	- Cooperation with BPEN and KADIN	M
C-8	Improvement of IIS and Institutional Financing	Nation	T	- Improvement of related systems	H
C-9	Promotion of Establishing Linkages	All provinces	T	- Areal, inter-industrial and within industry linkage	M
C-10	Investment Promotion	All provinces	T	- Both for domestic and foreign investors	H
C-11	Organizing the Public Agency	All provinces	T	- Banded operation of BKPMDS of four provinces	M
Private Sector					
C-12	Meat Processing	Lampung	I	- Supply processed products to Java and the "Growth Triangle"	L

- Notes:
- 1) Suggested Type of Implementation indicates:
R: Government self-financed ("Rupiah project")
T: requires technical assistance
F: requires financial assistance
I: private investment
 - 2) In "Description" M denotes that the project was already listed in "Location of Basic Industry of Indonesia (July, 1988)," by Ministry of Industry
 - 3) Priority is indicated as:
H: high M: medium L: low
 - 4) Shaded projects are IDEP components. Bold letter projects are prefeasibility projects.

No.	Project Title	Location	Suggested Type of Implementation	Description	Priority
C-13	Starch (or Modified Starch) from Cassava	Lampung, South Sumatra	I	- More value added	H
C-14	Coconut Oil Processing	Jambi, South Sumatra	I	- Utilization of coconuts	H
C-15	Frozen Tuna and Shrimps	South Sumatra	I	- M. 3,194 ton/year (3 enterprises)	On-going (private)
C-16	Canning of Fruits, Vegetables and Fishes	All provinces	I	- Best preserving way - Seasonal demand/supply gap	L
C-17	Dehydration of Vegetables (onion, carrot, ginger, peas, etc.)	All provinces	T	- Technologies to be introduced	L
C-18	Frozen Vegetables and Fruits (ex. "edamame")	All provinces	I	- High price goods bearing air fare	L
C-19	Instant Coffee/Cocoa	All provinces	I	- Robusta is good for instant coffee	L
C-20	Mushroom Fed on Saw-Dust	All provinces	I	- Utilization of waste saw-dust	M
C-21	Banana Chips	All provinces	I	- Preserved food	L
C-22	Pickles of Cucumber, Ginger, etc.	All provinces	I	- Preserved food to be exported	L
C-23	Sumatra Tea Bag	All provinces	I	- For souvenir	L
C-24	Iodine from Sea-Weed	Bengkulu, Lampung	I	- Feasibility study is necessary	L
C-25	Dried Sea-Weed	Bengkulu, Lampung	I	- Feasibility study is necessary	L
C-26	Sesame Oil	Mountainous areas	I	- Possibility of growing sesame should be studied at first	L
C-27	Soybean Oil	All provinces	I	- Feasibility study is necessary	L
C-28	Peanuts Oil/ Peanuts Butter	All provinces	I	- Feasibility study is necessary	L
C-29	Craft Manufacturing	All provinces	I	- By small and cottage industry	L
C-30	Consumer Goods Manufacturing	All provinces	I	- By regional enterprises	L
C-31	Wood Wool Cement Board	All provinces	I	- Joint with cement from Baturaja	M

No.	Project Title	Location	Suggested Type of Implementation	Description	Priority
C-32	Fiber Board	All provinces	I	- Utilization of by-products	M
C-33	Particle Board	All provinces	I	- Utilization of by-products/ waste	M
C-34	Furniture or Modules of Furniture	All provinces	I	- More value added	M
C-35	Pulp and Paper Manufacturing	Jambi, South Sumatra, Lampung	I	- Utilization of wood resources	L
C-36	Rubber Processing	Lampung	I	- M. Gloves 12 mil.pcs/yr	On-going (private)
C-37	Rubber Processing (Molds, Die-Cuttings, Balls etc.)	All provinces	I	- More value added	M
C-38	Urea Fertilizer	Palembang	I	- M. P.T.Pusri 570,000 ton/yr	On-going (private)
C-39	Purified Terephthalic Acid	Palembang	I	- M. P.T.Pertamina 75,000 ton/yr	On-going (private)
C-40	Polypropylene	Palembang	I	- M. P.T.Megaguna etc. 125,000 ton/yr	On-going (private)
C-41	Formaldehyde Resin	Palembang	I	- M. P.T.Uforin Prajcn Adhesive 45,000 ton/yr	On-going (private)
C-42	Acrylonitrile Butadiene Styrene	Palembang	I	- M. P.T.Bentala Agung Perdana 3,600 ton/yr	On-going (private)
C-43	Glutamic Acid/Monosodium Glutamate	Lampung	I	- M. P.T.Mono Sari Glutama 18,000 ton/yr each	On-going (private)
C-44	Wooven Bags for Sugar, etc.	Lampung	I	- Made of PP film	L
C-45	Building Materials	South Sumatra	I	- Ceramics, bricks, etc.	L
C-46	Non-Ferrous Metal Processing	All provinces	I	- Handicrafts	L
C-47	Light Engineering	All provinces	I	- By regional enterprises	L
C-48	Poultry/Fish Feeds	South Sumatra	I	- Utilization of by-products	L

- (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.

3.4 MINING/ENERGY

3.4.1 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.

3.4.2 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.

3.4.3 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

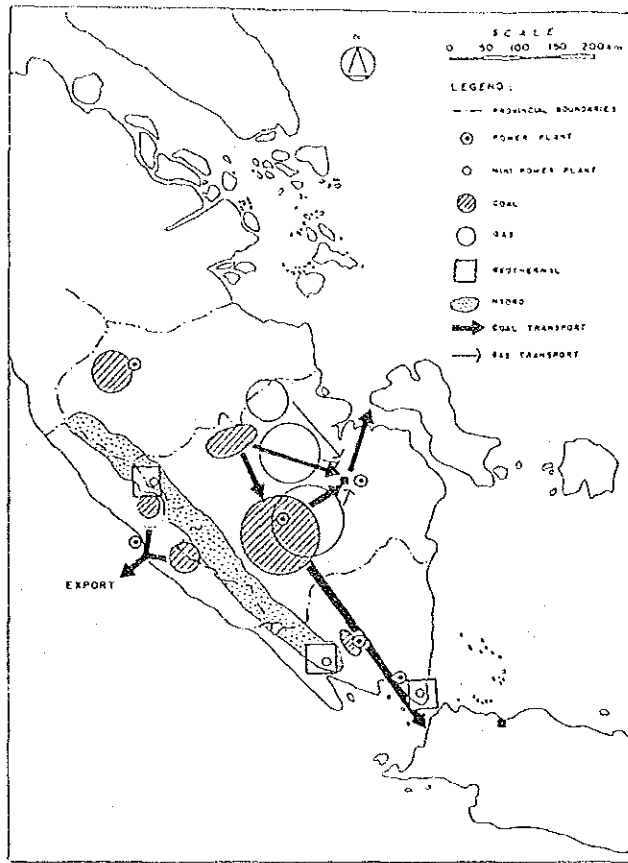


Figure 3.4.1 Schematic View for Energy Resources Development

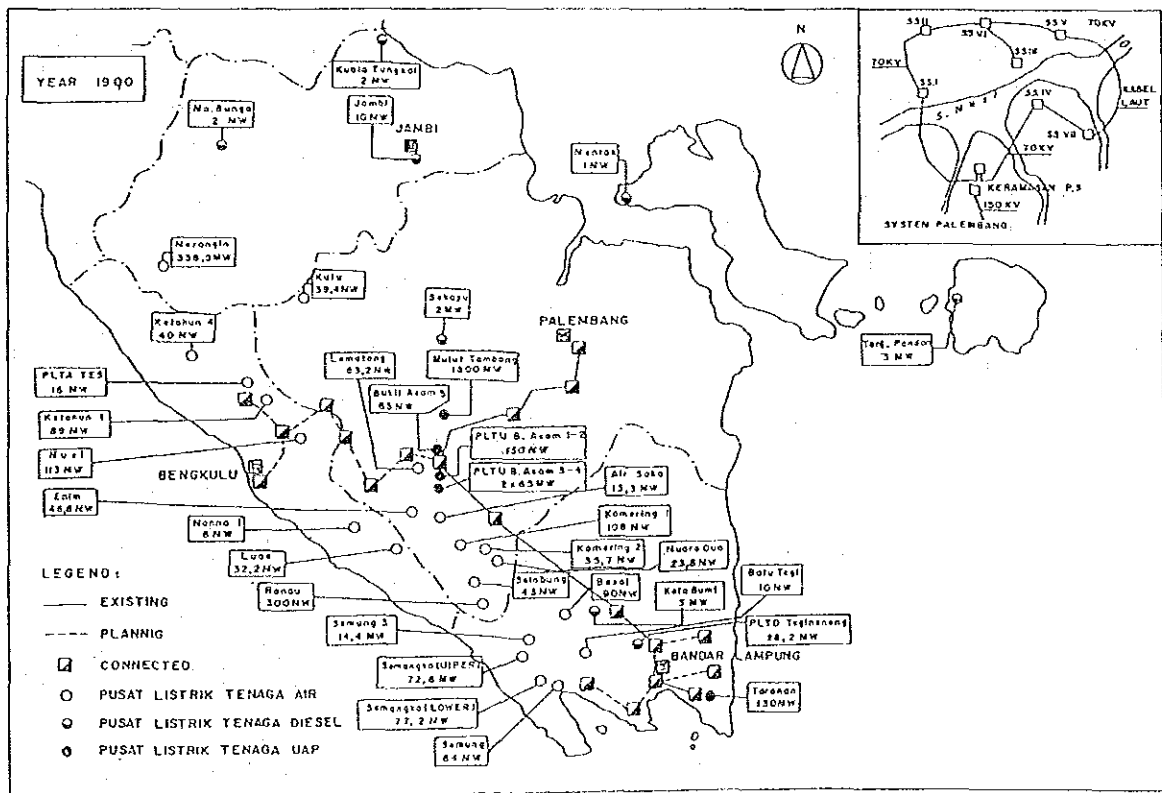


Figure 3.4.2 Power System Interconnection

Table 3.4.1 Project Long List (Mining/Energy)

No.	Project Title	Location	Suggested Type of Implementation	Description	Priority
D-1	Coal-Fired Thermal Power Plant	Muara Bungo (Jambi)	T, F	- F/S including coal supply from Rantau Pandan - Detailed design of power plant and system interconnection	M
D-2	Boring Exploration in Rantau Pandan Coal Field	Muara Bungo (Jambi)	T, F	- Boring exploration and coal analysis - Estimation of coal reserve	M
D-3	Gas-Fired Thermal Power Plant	Kramasan (Palembang)	T, F	- F/S on the rehabilitation of the existing units and the new construction of gas combined cycle power plant - Detailed design and construction of power plant	H
D-4	City Gas Delivery System	Palembang	T	- F/S and detailed design	M
D-5	Integrated Energy Center	Palembang	T, F	- F/S and detailed design	L
D-6	Technical Renovation of Tin Mining	Bangka, Belitung	T	- F/S - Improvement planning - Industrial adjustment planning	L
D-7	Exploration of Rare Earth Metals	Bangka, Belitung	T	- Detailed exploration of rare earth metals associated with the secondary tin deposit - Systematical analysis	M
D-8	Mine Mouth Coal-Fired Thermal Power Plant	Tanjung Enim (South Sumatra)	T, F	- F/S on-going (JICA)	H
D-9	Coal Development in Muara Tiga Besar and N.W. Banko Fields	Kab. Muara Enim (South Sumatra)	I	- Mine development on-going (PT. Bukit Asam)	H
D-10	Coal Gasification Plant	Kab. Muara Enim (South Sumatra)	T, F	- Effective utilization of Banko coal - Engineering study including a test - Construction of a plant	M

Notes:

Suggested Type of Implementation indicates:

R: Government self-financed ("Rupiah project")

T: requires technical assistance

F: requires financial assistance

I: private investment

Priority is indicated as:

H: high M: medium L: low

Shaded projects are IDEP components. Bold letter projects are prefeasibility projects.

No.	Project Title	Location	Suggested Type of Implementation	Description	Priority
D-11	Boring Exploration in Musi Rawas Coal Field	Kab. Musi Rawas (South Sumatra)	T, F	- Boring exploration and coal analysis - Estimation of coal reserve	M
D-12	Effective Utilization of Overburden Clay Layer	Tanjung Enim (South Sumatra)	T	- F/S on the effective utilization of overburden clay layer of coal mining area	L
D-13	Boring Exploration around Tanjung Enim	South Sumatra	I	- Boring exploration - Detailed estimation of coal reserve	M
D-14	Mining School	Palembang	T	- F/S and detailed design	L
D-15	Coal Center	Pulau Baai (Bengkulu)	T, F	- F/S - Detailed design and construction	M
D-16	Briquettes Promotion Project	Pulau Baai (Bengkulu)	T, F	- F/S and demonstration test - Construction of commercial plant	H
D-17	Coal-Fired Thermal Power Plant	Bengkulu (Bengkulu)	T, F	- F/S - Coal utilization of Bengkulu province	M
D-18	Geothermal Survey around Tes	Tes (Bengkulu)	T	- F/S including boring exploration	L
D-19	Geothermal Survey around Kalianda	Kalianda (Lampung)	T	- F/S including boring exploration	L
D-20	Geothermal Power Development around Ulubelu	Ulubelu (Lampung)	T, F	- F/S including pilot boring - Project engineering and implementation	H
D-21	Way Semangka Hydro-Power Development	Way Semangka (Lampung)		- See 6 Water Resources	H
D-22	Coal-Fired Thermal Power Plant	Kotabumi (Lampung)	T	- F/S on thermal power plant of FBC type	M
D-23	Power System Interconnection	Four provinces	T, F	- Extension of power system - Planned and partly on-going	H
D-24	Sumatra-Java Power System Interconnection	Tanjung Enim--Tarahan--Java	T, F	- F/S on-going (JICA)	H
D-25	Master Plan for Coal Development	Four provinces	T	- M/P for coal development strategy in the southern part of Sumatra	H

Lampung; hydropower and geothermal developments where potential exists) while system interconnection should be stepped up (Figures 3.4.1 and 3.4.2). 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.

3.5 TOURISM

3.5.1 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 Figure 3.5.1. 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 km² 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.

3.5.2 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.

3.5.3 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 (Figure 3.5.2);

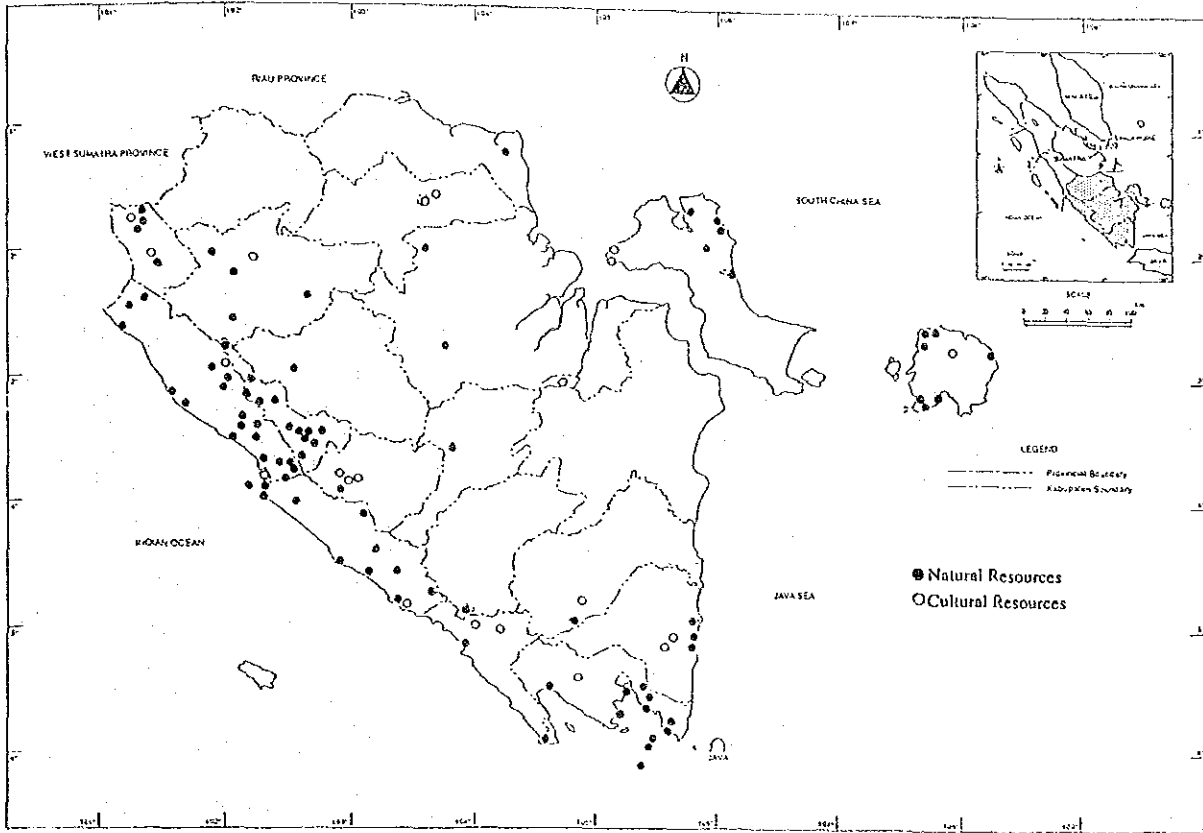


Figure 3.5.1 Tourism Resources

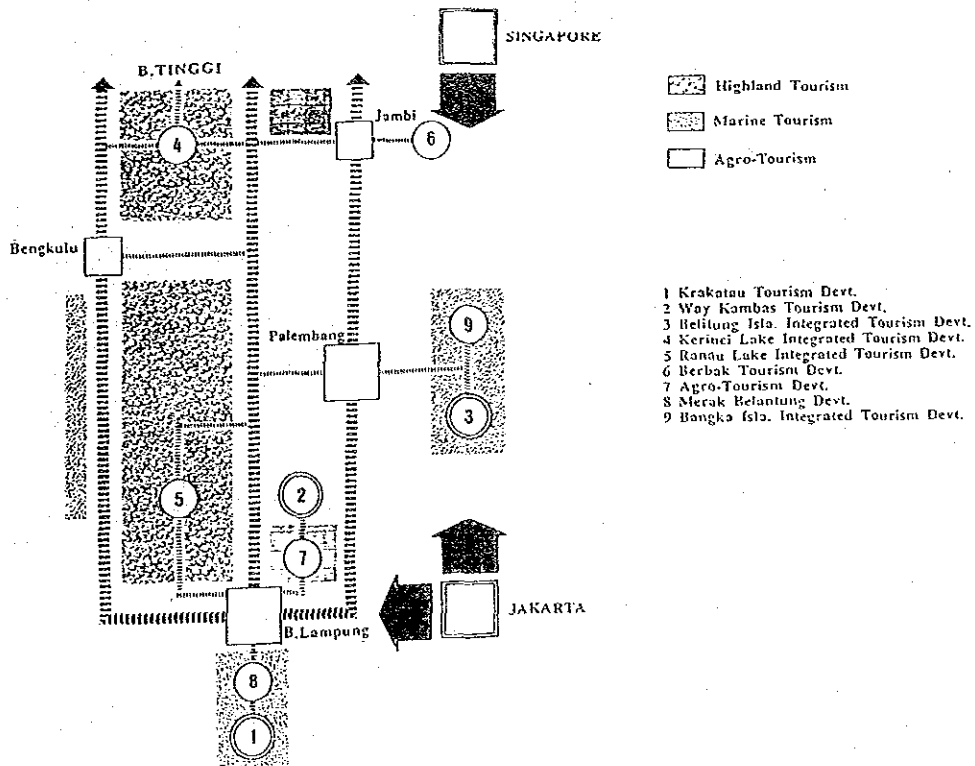


Figure 3.5.2 Structure of Tourism Development and Layout of Major Projects

Table 3.5.1 Project Long List (Tourism)

No.	Project Title	Location	Suggested Type of Implementation	Description	Priority
JAMBI					
E-1	Muara Jambi Archacological Park Development	Jambi	F, T	- Excavation and conservation of the ancient ruins - River transportation and cruise development	L
E-2	Integrated Tourism Development of Kerinci Lake	Sungai Penuh	R, T, I	- Tourism related infrastructure and facility development - Agro-tourism development - Natural environmental conservation and recreational use - Tourism master plan study	M
E-3	Kubu Anthropological Tourism Development	Bukit Dua Belas	T, I	- Anthropological and eco-tourism development - Natural and ecological conservation - Tourism-related facility development - Historical monument conservation	L
E-4	Berbak National Park Tourism Development	Tanjung Jabung	T, I	- Natural environment conservation - Tourism-related infrastructure and facility development - Tourism master plan study	M
E-5	Batang Asai National Boat Race Promotion	Batang Asai, Jambi	I	- Events combined with boat race and eco-tourism - Publicity concerning the race	L
SOUTH SUMATRA					
E-6	Old Quarter Rehabilitation and Conservation	Palembang	F, T, I	- Living condition improvement - Housing rehabilitation - Beautification of townscape - Tourism facility development - Infrastructure improvement	L
E-7	Sriwijaya Archacological Park-Museum Development	Palembang	R, T	- Development of park-museum with recreational attraction	L

Notes:

Suggested Type of Implementation indicates:

R: Government self-financed ("Rupiah project")

T: requires technical assistance

F: requires financial assistance

I: private investment

Priority is indicated as:

H: high M: medium L: low

Shaded projects are IDEP components. Bold letter projects are prefeasibility projects.

No.	Project Title	Location	Suggested Type of Implementation	Description	Priority
E-8	Bangka Island Tourism Development	Bangka	F, T, I	- Tourism master plan study - Tourism related infrastructure and facility development - Promotion of private investment	M
E-9	Belitung Island Tourism Development	Belitung	F, T, I	- Master plan study - Tourism related infrastructure and facility development - Promotion of private investment	H
E-10	Bayunglincir Tourism Development	Bayung Lincir	T, I	- Eco-tourism development and promotion - Tourism facility development	L
E-11	Sriwijaya Festival Promotion	South Sumatra	R, I	- Events in Sriwijaya - Archaeological Park/Museum - Publicity of the festival	L
BENGKULU					
E-12	Old Quarter Rehabilitation and Conservation	Bengkulu	T, I	- Commercial/housing facility rehabilitation and conservation - Infrastructure improvement	L
E-13	Rafflesia Reserve and Institute Establishment	Tabah Penanjung	R, T	- Rafflesia reserve park and study institute establishment - Information system improvement	L
E-14	Taman Hutan Raya National Park Development		R, T, I	- Natural environment conservation - Tourism facility development	L
E-15	Promotion of Tabot Festival	Bengkulu	R, I	- Events related to religious ceremony - Publicity of the ceremony	L
LAMPUNG					
E-16	Krakatau Tourism Development	Krakatau Natural Reserve Sebesi Island	T, I	- Tourism related infrastructure and facility development on Sebesi Island	H
E-17	Merak Belantung Beach Resort Development	Merak Belantung	I	- Tourism facility development	Ongoing (KTDC)
E-18	Way Kambas National Park Tourism Development	Way Kambas	T, I	- Eco-tourism development - Tourist facility development - National park facility improvement	H
E-19	Krui Beach Resort Development	Krui	R, I	- Tourism-related infrastructure and facility development	L

No.	Project Title	Location	Suggested Type of Implementation	Description	Priority
E-20	Agro-Tourism Development	Bergen	I	- Tourism use of agricultural (rubber and oil palm) plantations - Promotion of agro-tourism	M
E-21	Bandar Lampung Waterfront and Tourism Facility Development	Bandar Lampung	I	- Tourism facility development - Waterfront development	M
E-22	Krakatau Festival Promotion	Lampung	I	- Events combined with Krakatau tourism	L
INTERPROVINCE					
E-23	Tourism/Tourism Related Industry Training Program	Four provinces	R, T, I	- Training program and facility of the government and private sector	M
E-24	Integrated Tourism Development of Ranau Lake	South Sumatra Bengkulu Lampung	R, T, I	- Tourism facility development and improvement - Natural environment conservation and recreational use	L
E-25	Bukit Barisan Anthropological/Cultural Tourism Development	South Sumatra Bengkulu Lampung	R, T, I	- Tourism facility development and improvement - Natural environment conservation and recreational use - Lahat archaeological monument conservation	L
E-26	Promotion of Southern Sumatra Region Tourism		R, T, I	- Promotion and events combining the four provinces' tourism activities	M

- (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.

3.6 WATER RESOURCES

3.6.1 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 km²). **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 Figure 3.6.1, 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.

3.6.2 Development Concept

Figure 3.6.2 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.

3.6.3 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

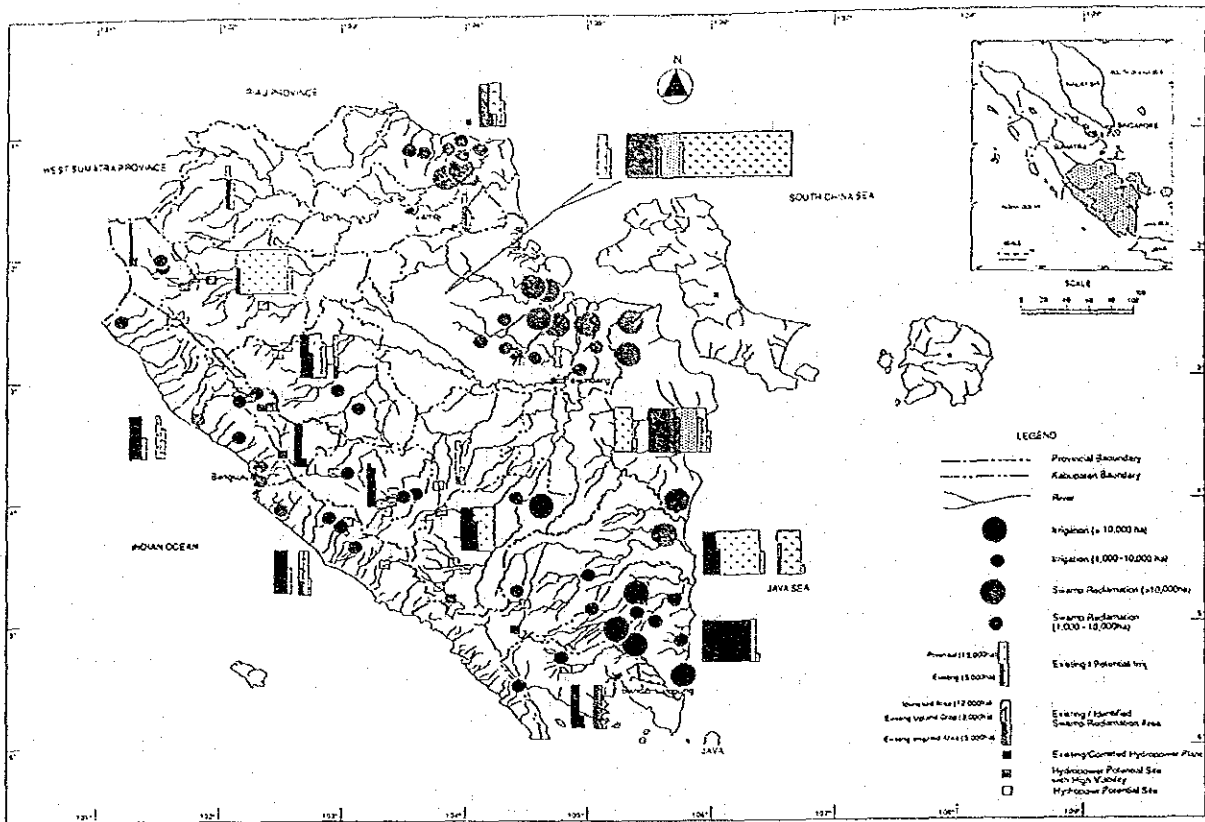


Figure 3.6.1 Current Condition and Development Potential of Irrigation, Swamp and Hydropower

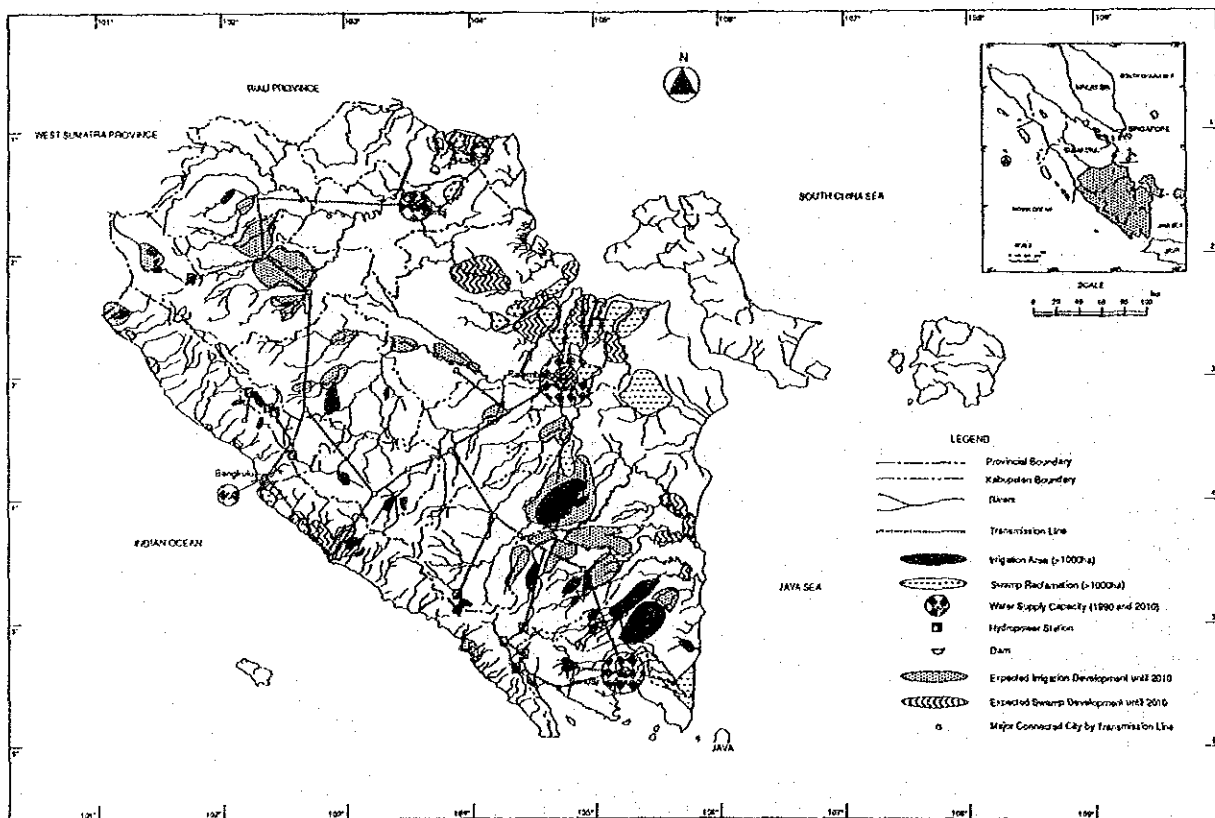


Figure 3.6.2 Prospect of Water Resources Development

Table 3.6.1 Project Long List (Water Resources)

No.	Project Title	Location	Suggested Type of Implementation	Description	Priority
F-1	Batang Hari Integrated Basin Development Plan	Jambi and West Sumatra Provinces	T	- Basin-wide water resources development plan with priority ranking for development - Basin-wide flood control plan considering the basin spatial plan, structural measures and non-structural measures - Basin-wide sediment control plan together with basin conservation plan	H
F-2	Master Plan for Jambi Water Supply and Sewerage System	Jambi City	T	- Long term water supply plan - Long term sewerage treatment plan - Institutional set-up combined water supply agency with sewerage treatment agency - See also 9 Urban and Rural Development	L
F-3	Batang Sangkir and Lake Kerinci Basins Flood and Sediment Control Project	Kerinci	T	- Formation of basin-wide flood control plan - Select urgent works for implementation	M
F-4	Feasibility Study of Batang Tabir Irrigation Development	Sarolangun Bangko	T	- New irrigation scheme with 50,000 ha, identified by ADCA Study in 1989	L
F-5	Tungkal River Irrigation Development Project	Tanjung Jabung	T,I	- Improvement of the existing rainfed paddy field with an area of 15,000 ha	L
F-6	Detailed Design of Merangin-2 Hydropower Plant	Kerinci	F	- Reservoir type with 340MW of installed capacity	L
F-7	Feasibility Study of Merangin-5 Hydropower Plant	Sarolangun Bangko	T	- Run-of river type with 24MW of installed capacity	L
F-8	Integrated Swamp Development Project	Tanjung Jabung	T	- Drainage canal work with gated structures - Water supply for drinking, industrial and inland-fishery	On-going (IBRD)

Notes: Suggested Type of Implementation indicates:
 R: Government self-financed ("Rupiah project")
 T: requires technical assistance
 F: requires financial assistance
 I: private investment
 Priority is indicated as:
 H: high M: medium L: low
 Shaded projects are IDEP components. Bold letter projects are prefeasibility projects.

No.	Project Title	Location	Suggested Type of Implementation	Description	Priority
F-9	Master Plan for Palembang Urban Drainage and Sewerage Treatment System	Palembang City	T	- Long term drainage system expansion plan - Detail assessment of the combination between urban drainage and sewerage treatment systems - Pre F/S for Banyuasin flood way for smooth drainage for Palembang city - See also 9 Urban and Rural Development	M
F-10	Feasibility Study for Palembang Water Supply	Palembang City	F	- Plan formulation for water supply for Palembang City, including water treatment plant and distribution network plan targeting water demand after 1995	L
F-11	Implementation of Upper Komering Irrigation Project	Ogan Komering Ulu	F	- New irrigation scheme with 42,155ha, currently under construction	On-going (OECE)
F-12	Lower Komering Integrated Agriculture Development Project	Ogan Komering Ilir	T	- New irrigation scheme with 28,470ha, identified as second priority in MRBS in 1989	H
F-13	Feasibility Study for Air Malus Irrigation Development Project	Musi Rawas	T	- New irrigation scheme with 1,500ha, identified as first priority in MRBS in 1989	M
F-14	Upper Musi River Basin Water Resources Development Project	Musi Banyuasin, Musi Rawas, Lahat	T	- Selecting priority schemes for irrigation development and carrying out feasibility study among the identified potential schemes with a total area of 280,000 ha	M
F-15	Rehabilitation and Expansion of Irrigation Schemes in Kabupaten Lahat	Lahat	T, F	- Air Mulak 2,207 ha - Air Keruh 1,531 ha - Lintan Kanan 3,509 ha - Identified as quick yielding schemes in MRBS in 1989	H
F-16	Feasibility Study for Lematang-4 Hydropower Development Project	Lahat	T	- Hydropower development with an installed capacity of 83MW and high dam	L
F-17	Feasibility Study for Sekayu Irrigation Project	Musi Banyuasin	T	- New irrigation scheme with 13,000ha, identified as second priority in MRBS in 1989	L
F-18	Feasibility Study for Banyuasin Floodway	Palembang City and Musi Banyuasin	T	- River diversion planning of Musi River for flood mitigation of Palembang City	L
F-19	Detailed Design for Ranau Hydropower Plant	Ogan Komering Ulu	F	- Lake outlet type with 60MW of installed capacity	L
F-20	Pumped Irrigation Pilot Project for Air Sugihan Swamp Reclamation Area	Musi Banyuasin	F, T	- Pilot project to research upgrading production efficiency for swamp paddy field	L
F-21	Swamp Improvement Project for Air Limau and Air Sugihan	Musi Banyuasin	F	- Agricultural infrastructure improvement for the existing transmigration area	L

No.	Project Title	Location	Suggested Type of Implementation	Description	Priority
F-22	Master Plan for Bengkulu Sewerage Treatment	Bengkulu City	T	- Long term sewerage treatment plan - Institutional set-up combined water supply agency with sewerage treatment agency - See also 9 Urban and Rural Development	L
F-23	Muko-Muko Kanan Irrigation Development Project	Bengkulu Utara	F	- New irrigation scheme at the existing transmigran area with 4,919 ha of command area	M
F-24	D/D and Implementation of Air Selagan Irrigation Scheme	Bengkulu Utara	F	- New irrigation scheme with 4,200 ha, identified by JICA	L
F-25	Construction of Musi-1 Hydropower Plant	Rejang Lebong	F	- Run-of-river type with 111MW of installed capacity	On-going (OECF)
F-26	Detailed Design of Kutahun-1 Hydropower Plant	Rejang Lebong	F	- Run-of-river type with 84MW of installed capacity	L
F-27	Feasibility Study for Tes-2 Hydropower Plant	Rejang Lebong	T	- Run-of-river type with 17MW of installed capacity	L
F-28	Manna-1 Hydropower Development Project	Bengkulu Selatan	F	- Trans-basin scheme with 77.2 MW of the installed capacity - Construction of transmission line between Bengkulu-Manna-Pagar Alam is included	M
F-29	Peninjauan Swamp Land Development Project	Bengkulu Selatan	T	- Drainage canal work with gated structure for non-rice crops development	H
F-30	Water Allocation Study for Way Sekampung River Basin	Lampung Selatan, Bandar Lampung	T	- Consideration of the optimum usage of Batutegei dam and reservoir - Review of water allocation among irrigation, municipal and industrial water - Installation of basin-wide water management system	H
F-31	Master Plan for Bandar Lampung Sewerage Treatment System	Bandar Lampung City	T	- Long term sewerage treatment plan - Institutional set-up combined water supply agency with sewerage treatment agency - See also 9 Urban and Rural Development	M
F-32	Implementation of Batutegei Multi-Purpose Dam and Reservoir Project	Lampung Selatan	T,F	- D/D and construction of Batutegei dam and reservoir - Installation of reservoir management system for multi-objective reservoir operation	On-going (OECF)
F-33	Implementation of Way Rarem Irrigation Project	Lampung Utara	F	- New irrigation scheme with 27,000ha, currently under construction	On-going (OECF)

No.	Project Title	Location	Suggested Type of Implementation	Description	Priority
F-34	Tulang Bawang River Basin Irrigation Development Project	Lampung Utara	T, F	<ul style="list-style-type: none"> 4 schemes of new irrigation development selected as the first priority project in MSI-TLB M/P Study in 1989 - Way Pedada: 13,550 ha - Bumi Abung: 8,225 ha - Way Bahuga/Saka: 12,600ha - Quick yielding schemes: 19,200 ha 	H
F-35	Way Mesuji and Way Agung Irrigation Development Project	Lampung Utara	T, F	<ul style="list-style-type: none"> New irrigation scheme with 20,980ha, identified in MSI-TLB M/P Study in 1989 	M
F-36	Lampung Selatan Flood Control and Sabo Project	Lampung Selatan	T	<ul style="list-style-type: none"> Formulation of basin-wide flood control and sabo plan Select urgent works for implementation 	M
F-37	Way Semangka Hydropower Development Project	Lampung Selatan Lampung Barat	T	<ul style="list-style-type: none"> Feasibility study for the identified three hydropower schemes with a total power generation capacity of 210 MW 	H
F-38	Construction of Besai-1 Hydropower Plant	Lampung Utara	F	<ul style="list-style-type: none"> Run-of-river type with 90 MW of installed capacity 	On-going (OECP)
F-39	Integrated Small Rivers Development Project	Bengkulu Selatan Lampung Barat	T, F	<ul style="list-style-type: none"> Installation of hydrological observation system Identify small scale irrigation potential sites with economic analysis Identify micro-hydropower potential sites for rural electrification Identify river improvement and sabo dam sites 	M
F-40	Rural Water Supply for the Eastern Coastal Swamp Area	Tanjung Jabung, Batanghari, Musi Banyuasin and Ogan Komering Ilir	F, T	<ul style="list-style-type: none"> Research groundwater quality Identify the adequate potable water resources for each village Select the priority area for rural water supply project 	H
F-41	Institutional Management Study for PDAM in Provincial Capital Cities	Jambi, Palembang, Bengkulu and Bandar Lampung cities	T	<ul style="list-style-type: none"> Analysis of present capability in the view of financial, staffing and technical aspects and so on Preparation further PDAM figures for system expansion, strengthen maintenance system, and tariff system 	L

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.

3.7 TRANSPORTATION

3.7.1 Current Conditions

The transportation systems in the Region exhibit the historical pattern of separate and unintegrated development of agriculture and industries in the different provinces. The reliance on links with Java, primarily with the Jakarta area, is predominant while links with neighboring provinces tend to be weak by comparison. The transportation networks tend to be centered around the provincial capital cities all of which have ports providing sea access to Java and abroad. The Barisan range represents a major natural obstacle that effectively isolated the west coast of the island from the main transportation networks and resources located in the Region.

The most significant event in the transportation history in the Region is the completion in 1984 of the Trans-Sumatra Highway, nearly 2,700 km in length, which unites the island from north to south. It is the longest such route in the country and it is instrumental in the development of linkages between formerly independent regions. Its full benefits for the different provinces will take years to be realized as it undergoes successive improvement programs. Figure 3.7.1 shows the current transportation systems.

3.7.2 Development Concept and Key Issues

Five spatial types of functional linkages or traffic flows have been defined with respect to the Region, and these are illustrated in Figure 3.7.2. Strategic issues to be addressed are as follows:

(1) The importance of bulk commodities. Commodities such as palm oil, rubber, lumber, oil products, and coal will continue to dominate cargo flows. Who should plan and pay for the infrastructure required for them?

(2) Containerization. What should Sumatra do to prepare for containerization?

(3) A new seaport on the east coast. The Region needs cheap and quick shipping for interisland and international trade. Is a new general cargo seaport the best way to achieve this, and if so, where and how soon should it be built?

(4) Coal transport. What is the best way to ship coal, whose volume will grow substantially.

(5) The Weakness of Perumka (state railway company). Does rail have a larger future role in the Region's transportation system?

(6) Palembang as an air hub. Is the Region really suffering from a lack of internal air service, and if so, should Palembang's airport be developed to handle a hub operation?

3.7.3 Strategy

A strategy for the long term strengthening of transportation in the Region has been defined to reflect the Plan's intended development model (an open economy focused on agro-industrialization). It calls for the development of five critical transport linkages: between

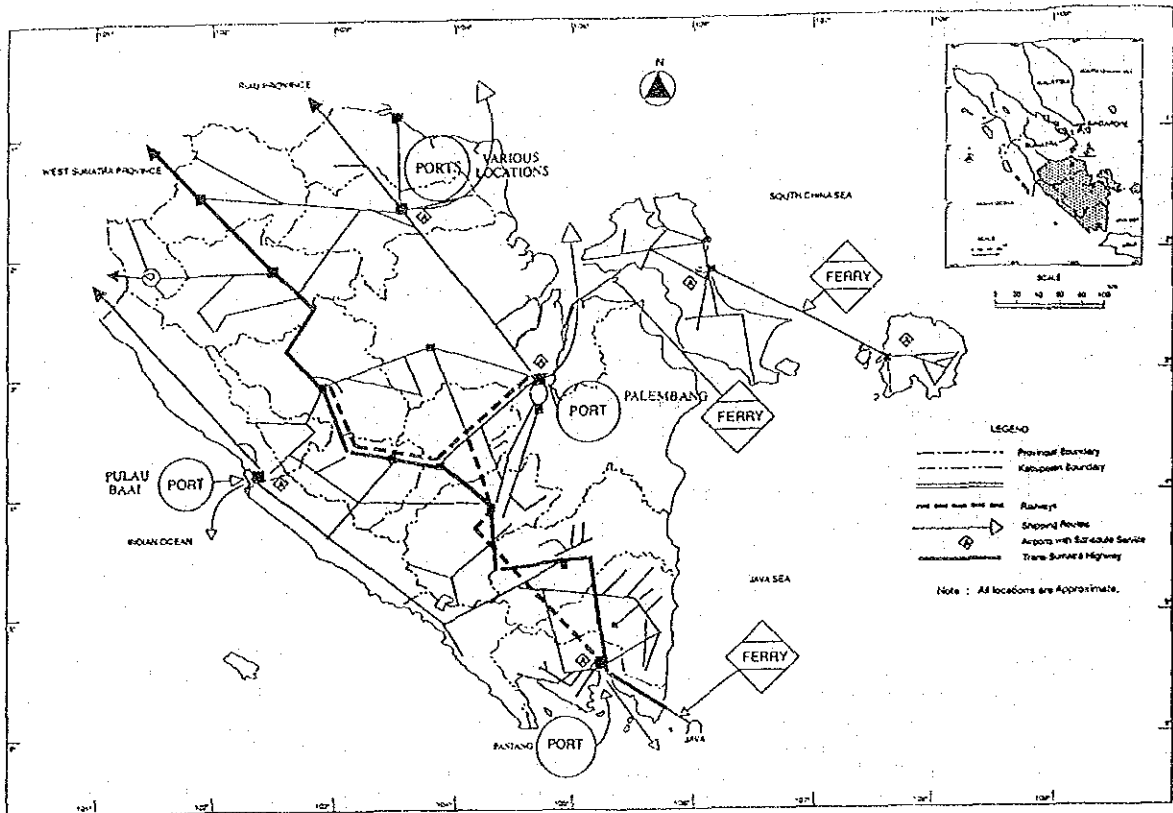


Figure 3.7.1 Existing Transport Infrastructure--1992

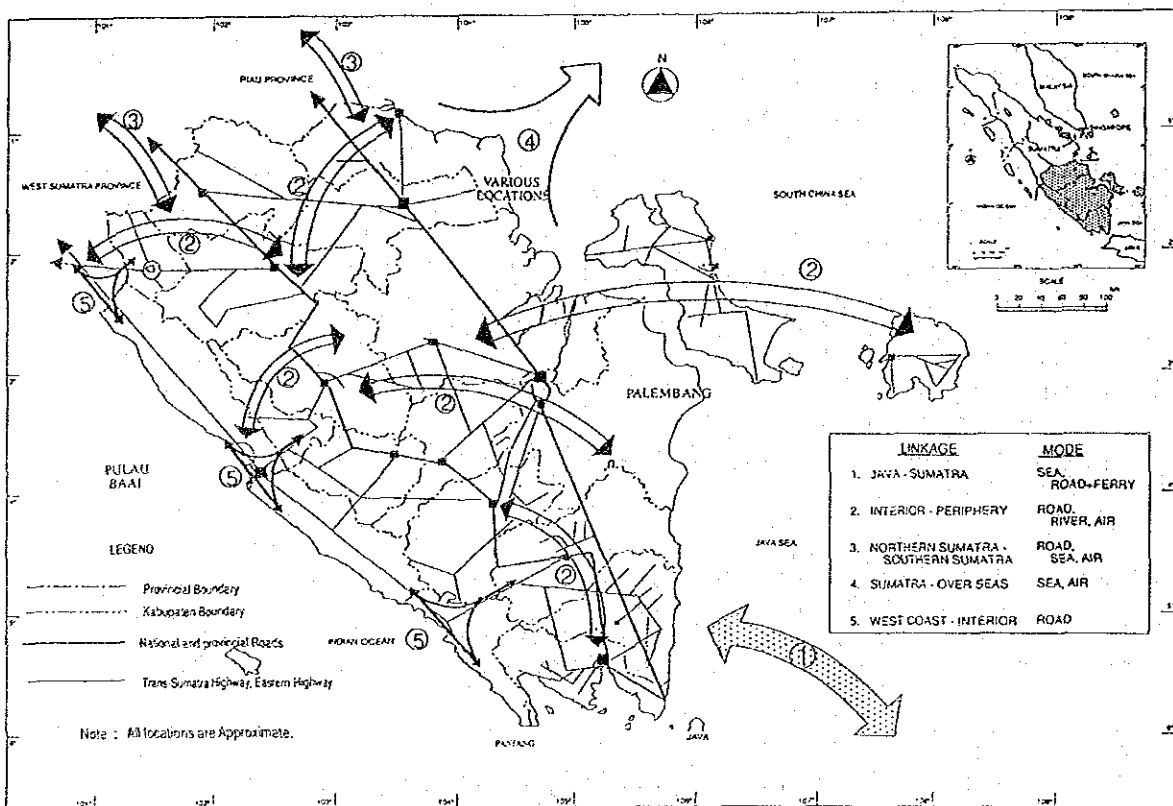


Figure 3.7.2 Transport Linkages for Development

Table 3.7.1 Project Long List (Transportation)

No.	Project Title	Location	Suggested Type of Implementation	Description	Priority
Airports					
G-1	Sultan Thaha Airport Upgrade	Jambi City	R, F	Runway expansion and navigational improvements for B737/MD80 capability	M
G-2	Depati Parbo Airfield Improvement	Lake Kerinci, Jambi	R	General upgrading for pioneer/public service operations	L
G-3	Sultan Badarudin II Airport Upgrade	Palembang	F	General expansion for A300/MD11 capability, improved navigational capability	H
G-4	Airport Upgrade	Pangkal Pinang	R, F	Runway expansion and navigational improvements for B737/MD80 capability	L
G-5	Airport Upgrade	Tanjung Pandan	R, F	Runway expansion and navigational improvements for B737/MD80 capability	L
G-6	Lubuklinggau Airfield Improvement	Lubuklinggau	R	General upgrading for pioneer/public service operations (new airstrip partially complete)	L
G-7	Padang Kemiling Airport Upgrade	Bengkulu City	R, F	Runway expansion and navigational improvements for B737/MD80 capability	M
G-8	Pioneer Airfield Development	Enggano Island, Mukomuko Bengkulu	R	General upgrading for pioneer/public service operations	L
G-9	Branti Airport Upgrade	Lampung Selatan	R, F	Runway expansion and navigational improvements for B737/MD80 capability	M
Railroads					
G-10	Rail Line to West Sumatra	South Sumatra, Jambi, West Sumatra	F, I	Linking of Southern and Western Sumatra rail networks	L

Notes:

Suggested Type of Implementation indicates:

R: Government self-financed ("Rupiah project")

T: requires technical assistance

F: requires financial assistance

I: private investment

Priority is indicated as:

H: high M: medium L: low

Shaded projects are IDEP components. Bold letter projects are prefeasibility projects.

No.	Project Title	Location	Suggested Type of Implementation	Description	Priority
G-11	Rail Line to Riau, North Sumatra	South Sumatra, Jambi, Riau, North Sumatra	F, I	Linking of Southern and Northern Sumatra rail networks	L
G-12	New Palembang-Lampung Trunk Line	South Sumatra, Lampung	F, I	New main line linking future South Sumatra port, Palembang, Bandar Lampung and Bakauheni; wide gauge, modern technology	L
G-13	Bakauheni Rail Access Line	Lampung	F, I	Extension of main line from Bandar Lampung to Bakauheni ferry terminal	M
G-14	Bandar Lampung City Rail Bypass Line	Bandar Lampung	F, I	Relocation of main line from city center to periphery	M
G-15	Rail Line to Bengkulu City	Bengkulu	F, I	Extension of western line to link Bengkulu to Palembang and Bandar Lampung	L
<u>Inland Water/Ferry</u>					
G-16	Commuter Docks Improvement (Jambi)	Jambi City	F	Construction of solid river taxi docks on both banks for safer operation in all seasons	L
G-17	River Port Improvements (Jambi)	Jambi City	F	Replacement of small scale docks with solid structures suitable for fluctuating depth conditions	M
G-18	Riverbank Stabilization for Navigable Rivers	Various rivers Jambi, South Sumatra, Lampung	F	Stabilization and anti-erosion measures for Batanghari, Musi, Mesuji and Tulang Bawang rivers	L
G-19	Commuter Docks Improvement (Palembang)	Palembang vicinity	F	Construction and improvement of commuter docks in Musi, Ogan and Komering Rivers	L
G-20	Ferry Landing Improvement (Palembang)	Palembang	F	Improvement of ferry terminal	H
G-21	New Ferry Landing (Muntok)	Muntok, South Sumatra	F	Construction of ferry terminal to replace Kayuarang facility	H
G-22	New Ferry Landing (Bangka, Belitung)	Bangka, Belitung South Sumatra	F	Construction of ferry terminal and access road	M
G-23	Ferry Facilities (Enggano)	Enggano, Bengkulu	F, I	Construction of ferry landings at Enggano, Bengkulu	L
G-24	Ferry Terminal Expansion (Bakauheni)	Bakauheni	F, I	Facilities diversification with new berths, trucking terminal	H

No.	Project Title	Location	Suggested Type of Implementation	Description	Priority
Seaports					
G-25	Deep Sea Port Construction (Batang Hari River in Jambi)	Muara Sabak	F, T	Construction of a river port for sea transportation along the Batang Hari River in Jambi province	H
G-26	Deep Sea Port Construction (Jambi)	Sungai Rimau	F, T	Construction of a deep sea port on the east coast of Jambi province	M
G-27	Seaport Improvements (Jambi)	Kuala Tungkal	F	Short-term improvements to physical facilities at Kuala Tungkal in Jambi province	H
G-28	Container Wharf Construction (Jambi)	Talang Duku	F	Construction of a small container wharf at Talang Duku in Jambi province	M
G-29	Deep Sea Port Construction (South Sumatra)	Tanjung Api Api	F, T	Construction of a deep sea port in South Sumatra province	M
G-30	Seaport Improvements (South Sumatra)	Palembang	F	Short-term improvements to physical facilities at Palembang in South Sumatra province	H
G-31	Seaport Construction (Bangka)	Mantong, Bangka	F	Construction of dock for feeder service to Java, Batam, Singapore	M
G-32	Port Containerization Facilities (Pulau Baai)	Pulau Baai Port, Bengkulu	F, I	Installation of container handling equipment	L
G-33	New Port Construction (Enggano)	Enggano, Bengkulu	F	Transfer of all port facilities to superior east coast location	L
G-34	Port Improvement (Mukomuko)	Mukomuko, Bengkulu	F	Improvement of facilities for fishing, light commercial use	L
G-35	Port Improvement (Krui)	Krui, Lampung	F	Improvement of facilities for ferry link to Enggano	L
G-36	Port Improvement (Panjang)	Panjang, Lampung	F, I	Expansion of berth capacity, containerization facilities, bulk handling facilities per master plan	H
G-37	Facilities for Nontraditional Seacraft	Panjang, Teluk Betung	F, I	Construction of landing facilities for hovercraft, hydrofoil and speedboat operations	L

No.	Project Title	Location	Suggested Type of Implementation	Description	Priority
Roads*					
MULTI PROVINCE					
G-38	Completion of the Eastern Sumatra Highway		T, F	Upgrading of all segments to 9 meter width, 10 ton ESA for heavy vehicles	H
G-39	Muaramandaras (Jambi)-Ketenong (Bengkulu) Road through Kerinci Seblat National Park		F	Reclassify (provincial road), improve	L
JAMBI PROVINCE					
western					
G-40	Bangko-Sungai Penuh-Tapan through Kerinci Seblat National Park		F	Reclassify (national road), improve	H
G-41	Sarolangun Bangko Kecamatan Local Roads Improvement		F	For benefit of local agriculture and Kerinci Seblat National Park	L
central					
G-42	Kotabaru (West Sumatra)-Muaratebo Provincial Road		F	Bridge construction and replacement, road improvement	M
G-43	Muarabungo-Jambi City Road		F	Upgrading for heavy vehicles	M
G-44	Lower Batanghari Kecamatan Local Roads		F	Improvement and expansion of network	M
eastern					
G-45	Sungai Bengkal-Merlung-Pematang Lumut Road		F	Reclassify (provincial road), improve	M
G-46	Tanjung Jabung Kabupaten Local Roads		F	Improvement and expansion of network	M
G-47	Swampland Road to Muara Sabak Port Town		F	Construction and improvement of existing roads	M
G-48	Direct Road Jambi City-Muara Sabak Port Town		F	Construction of a new road	M
G-49	Outer Ring Road for Jambi City		F	Phased completion	L
SOUTH SUMATRA PROVINCE					
western/southern					
G-50	Safety Improvement Program for Mountain and Riverside Routes, Railroad Crossings		T, F	Disaster prevention projects against erosion, landslides, substandard railroad crossings	H

* Reclassification refers to administrative status, i.e., national, provincial or local. Upgrading refers to physical road betterment to a higher standard resulting in greater strength or average speed.

No.	Project Title	Location	Suggested Type of Implementation	Description	Priority
G-51	Baturaja-Danau Ranau Road		F	Upgrading for heavy vehicles (partial improvement in progress)	L
G-52	Sarolangun-Sekayu-Botung East-West Trunk Road		F	Upgrading for heavy vehicles Reclassify (national) (partial improvement in progress)	M
central/eastern					
G-53	Mangun Jaya-Muara Beliti Road		F	Improvement of road and bridges	L
G-54	Sekayu-Belimbing Road		F	Improvement of road and bridges	L
G-55	Outer Ring Road for Palembang (northern section)		F	Phased completion	H
G-56	Muarakuang-Tulungselapan Road		F	Reclassify (provincial) and improve	L
G-57	Local Roads Development in Central and Eastern Province		F	Selective construction and improvement, inclusion of non-status (oil, plantation) roads in public network	L
Pulau Belitung					
G-58	Tanjungpandan-Kp Baru-Simpang Empat Road		F	Reclassify (provincial), improve	M
BENGKULU PROVINCE					
G-59	West Coast Road Improvement Program		F	Realignment per coastal erosion threat, disaster prevention Reclassify (national)	M
G-60	Bengkulu City-Ipuh Inland Route		F	Reclassify (provincial) and improve	L
G-61	Local Road Networks Improvement in Upper Mukomuko, Lower Mukomuko and Ketahun Kecamatan		F	Selective construction and improvement	L
G-62	Gateway Highway South Sumatra-Bengkulu City (Kepahiang-Bengkulu Existing Road)		T, F	Reconstruction of 15 km mountainous part of road	H
G-63	Local Roads Network Improvement in Pino, Manna and Three Kaur Kecamatan		F	Selective construction and improvement	L
G-64	Cross Mountain Road Tanjung Iman-Muara Saung-Ujan Mas (South Sumatra)		F	Reclassify (provincial), improve	L
G-65	National and Provincial Mountain Roads Improvement Program		T, F	Disaster prevention and safety improvements	L

No.	Project Title	Location	Suggested Type of Implementation	Description	Priority
LAMPUNG PROVINCE					
G-66	Safety Improvement Program for Mountain and Riverside Routes, Railroad Crossings		T, F	Disaster prevention projects against erosion, landslides, substandard railroad crossings	L
western					
G-67	Kru-Biha-Bengkunat-Sanggi Road (West Coast Road)		F	Construction as national route for west coast road	M
G-68	Sanggi-Suwoh-Kotabesi Valley Road		F	Upgrading, reclassify (provincial)	L
G-69	Kota Batu-Lombok (Danau Ranau) Road		F	Reclassify (provincial) and improve	L
G-70	Local Roads Improvement Program in Pesisir Selatan		F	Selective construction and improvement in plantation, tourism areas	L
upper province					
G-71	Pakuan Ratu-Sp. Tulang Bawang Road		F	Construction as provincial road	L
G-72	Pakuan Ratu-Negara Ratu Road		F	Reclassify (provincial) and improve	L
G-73	Simpang Sinar Asahan-Rawajitu East-West Swampland Road		F	Upgrading, reclassify (provincial)	L
G-74	Selected Transmigration and Private Roads Improvement Program for Network Development		F	Reclassify (provincial) and improve for inclusion in public network	L
G-75	Rawajitu/Teladas to Sepuluh Surabaya Swampland Road		F	Construction as provincial road	L
lower province					
G-76	Outer Bypass around Bandar Lampung		F	Arterial road, phased completion	H
G-77	Twin Bay Coastal Road Padang Cermin-Kiluan-Putihdoh-Kotaagung		F	Reclassify (provincial) and improve	L
G-78	Rajabasa Regional Bus Terminal Expansion (Tanjung Karang)		F	Upgrading and expansion of existing terminal facilities	L