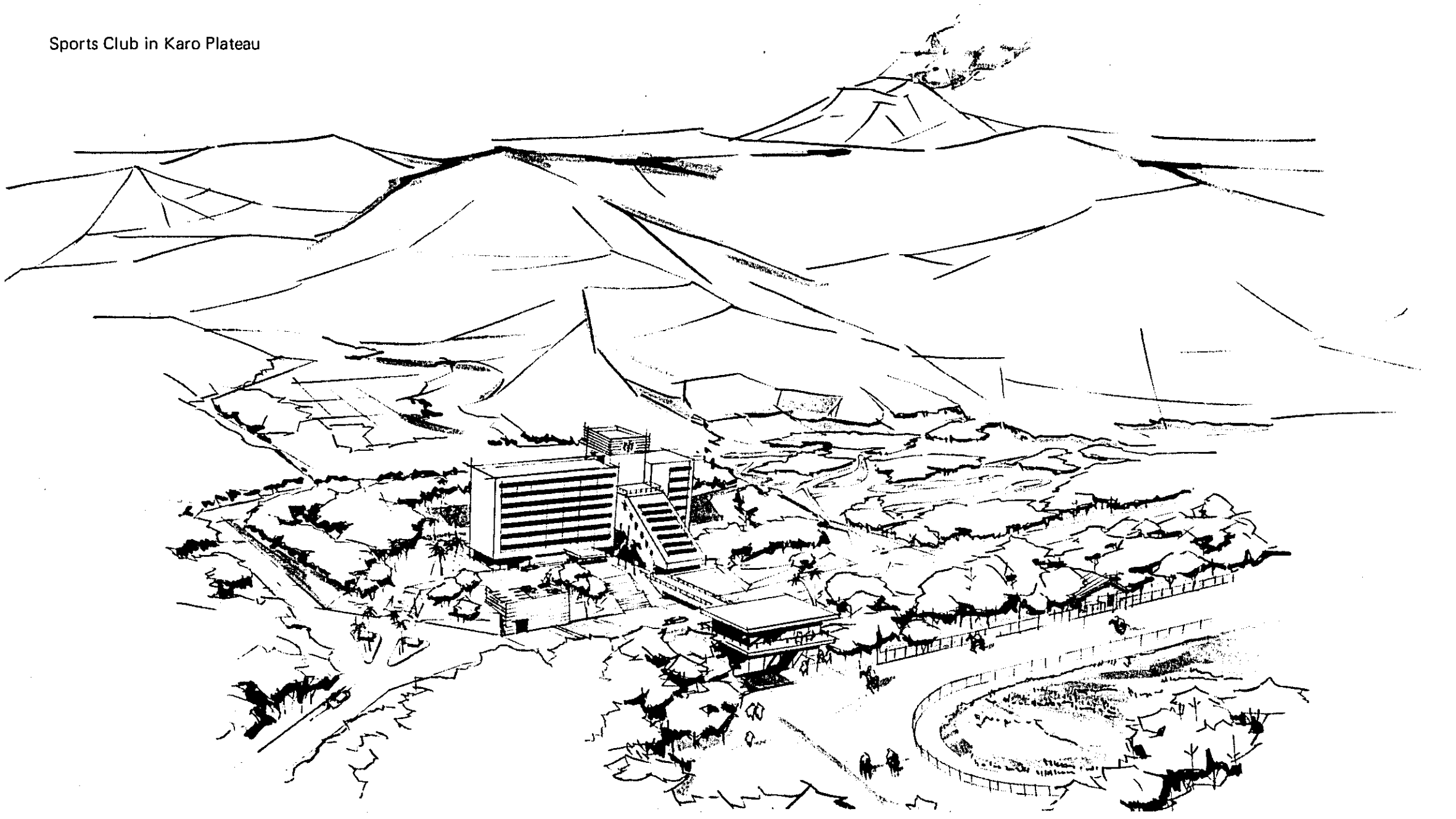
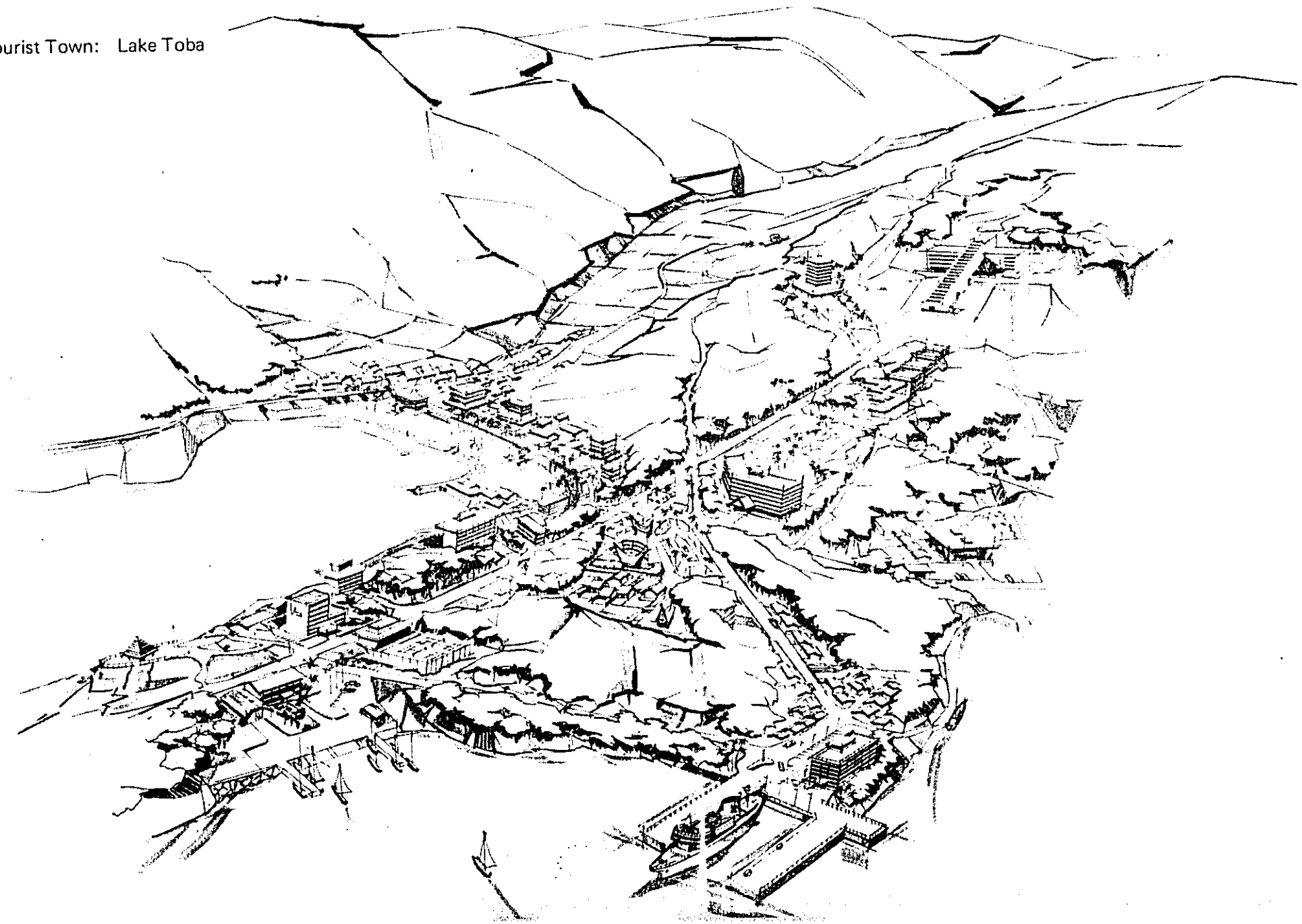
6

PAPER 6: TOURISM FACILITIES

Sports Club in Karo Plateau



Parapat Tourist Town: Lake Toba



1. Tourist Facilities Inventry

Tourist facilities in the broadest sense includes everything from basic infrastructure all the way through detailed facilities. The tourist facility required in the both provinces will be spread over a wide range. This proposal planned a number of tour routs and 5 types of area which have 5 types of function each other to provide well organized and comfortable tours.

Tourist Facilities Requirements

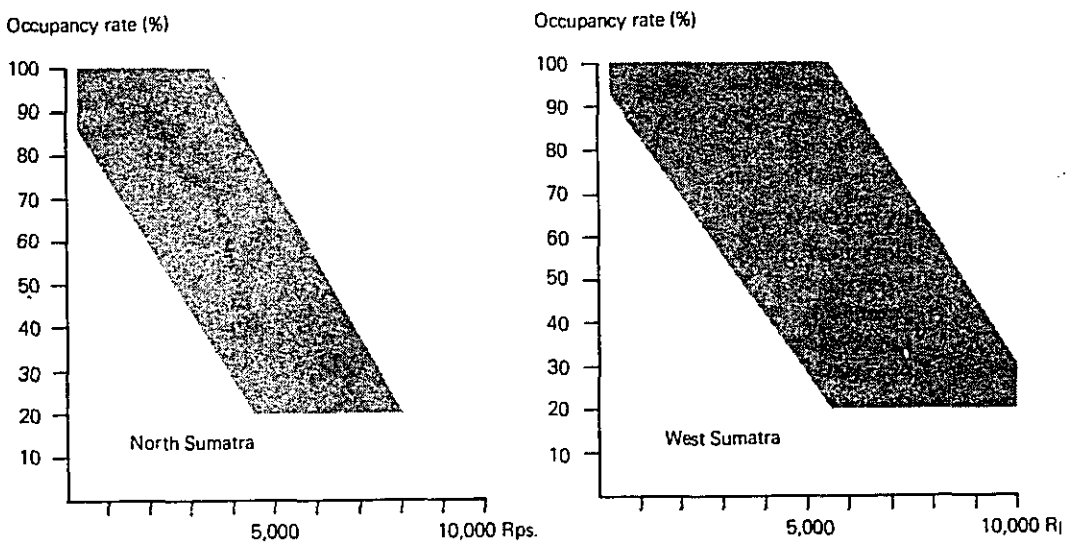
	Gateway city	Tourist town	Tourist village	Tourist assets	Tourism area	Development body
Transportation and telecommunications						
Airport	□	□				Public
Harbour	□	□	□			Public/Private
Train station	□	□	□			Public
Bus terminal	□	□	□			Public
Bus stop	□	□	□	□		Public
Car parking	□	□	□	□		Pubric/Private
Telecommunication system	□	□	□			Public
Traffic sign	□	□	□	□	□	Public
Lake transportation		□	□	□		Private
Tourism industries						
Accommodation	□	□	□			Private/Public
Travel agency office	□	□				Private
Airline branch office	□	□				Private
Baggage cloak facility	□	□	□	□		Private
Souvenir shop	□	□	□	□	□	Private
Amusement facility	□	□	□	□	□	Private/Public
Safety and sanitary						
Fire station	□	□	□			Public
Police station	□	□	□			Public
Street light	□	□	□	□		Public
Land slide prevention				□		Public
Fire alarm		□	□	□		Public
General hospital	□					Public
Clinic		□	□			Private/Public
Sewerage system	□	□	□			Public
Refuse disposal	□	□	□	□		Public
Water supply system	□	□	□			Public
Dustbin	□	□	□	□	□	Public
Toilet		□	□	□		Public
Communal facilities						
General tourism information center	□	□				Public
Primary material distribution center	□	□				Public
Tour guide office	□	□	□			Private
Information board		□	□	□	□	Public/Private
Sightseeing sign		□	□	□	□	Public
Park and garden		□	□	□		Public/Private
Roadside plantation	□	□	□			Public
Footpath		□	□	□	□	Public
Other facilities						
Tourism association office	□	□				Private
Bank and exchange counter	□	□	□			Public/Private
Restaurant and bar	□	□	□			Private
Snack stand				□		Private
Sports goodshop	□	□	□			Private
Repair shop		□	□			Private
Pharmacy	□	□	□			Private
Residence for employee		□	□			Public
Public facility for residence		□	□			Public

2. Tourist Accommodations

Current Status of Tourist Accommodations

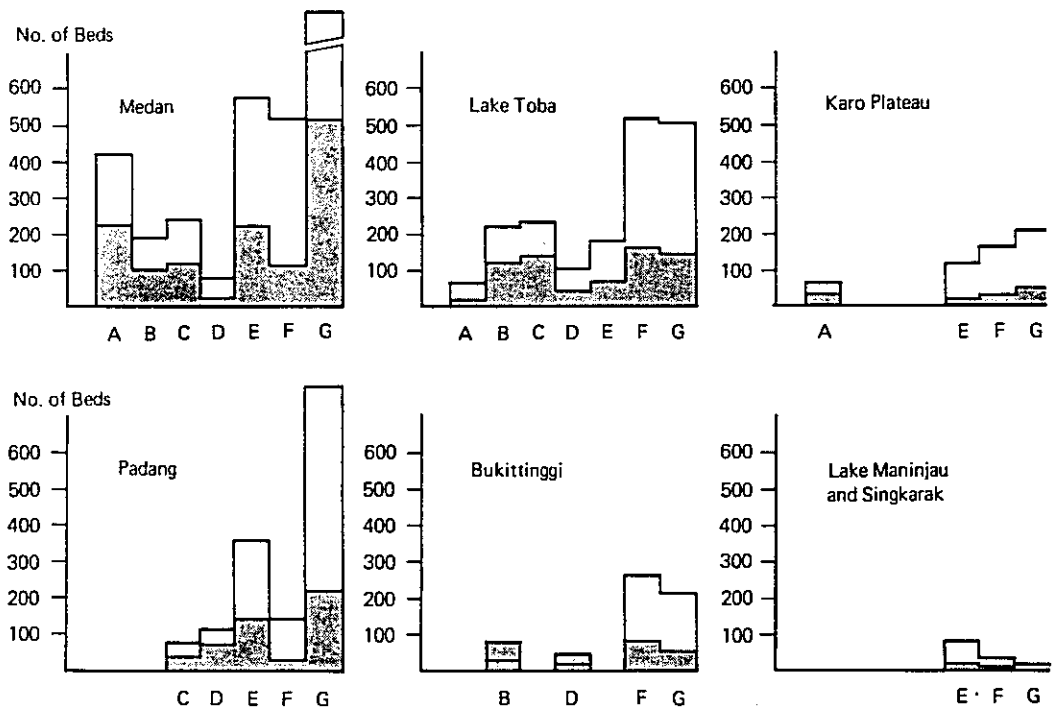
Accommodation is the most readily available in North Sumatra and West Sumatra, each of which having three places where the accommodation is particularly concentrated. Medan and Padang are capital of these respective Provinces, so that accommodation is abundantly available in these two cities. Approximately 70% of the customers making use of the accommodation in these two towns consists of business travellers. In areas other than the two cities, approximately 70% of the users are holiday tourists, thereby showing a contrary ratio. The regional tourism offices classifies the existing accommodation into seven categories. These in classes A and B have more than 50 rooms asking for a tariff of over Rp.6,000 (including tax and service charges. All the tariff quotations hereafter shall include tax and service charges.) These are called "hotels", and in this case about 50% of the visitors are foreigners. The accommodation classified under classes C and D are those having 20 to 50 rooms and charge tariff of Rp.3,000 up to Rp.6,000. The accommodation in classes E, F and G are called the "bungalow or wisma" having less than 20 rooms each. The tariff charged by this class of accommodation is less than Rp.1,500, and about 90% of the visitors are domestic tourists.

Tariff and Occupancy Rate by Domestic Tourists (Figure-1)



The following illustration shows the existing amount of accommodation on a class-wise basis. At the same time, this figure demonstrates the current status of utilization by the visitors. (The shaded portion of the illustration shows the average per-day bed occupancy.)

Accommodation Stock by Each Development Area (Figure-2)



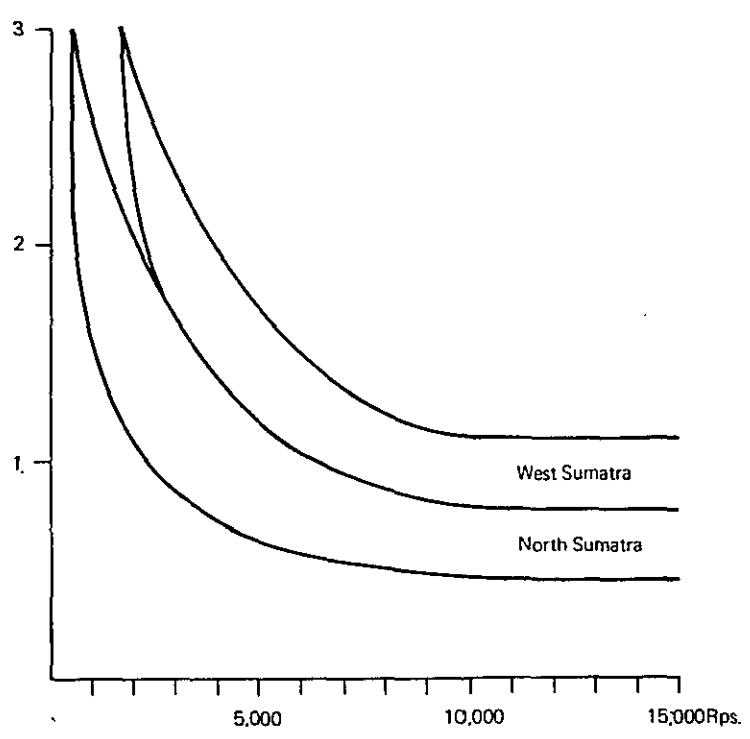
According to the results of the recent survey, the bed occupancy in the accommodation of classes E, F, and G in these Provinces never exceeds 35%. This fact clearly shows that the number of the accommodation falling under classes E, F, and G is too excessive. On the other hand, the accommodation of classes A and B are constantly maintaining a bed occupancy rate of more than 50%, thereby showing a sound status of management. At present, the demand for classes A and B accommodation is high. Therefore, if it is assumed that the number of visitors will grow steadily year after year, it is likely that accommodation shortage will be felt in the near future. The current population of Sumatra Island alone exceeds 20 million. The Indonesian domestic sightseeing tourism will obviously increase along with the improvements of income and with the increase of the spare time on the part of the Indonesian nationals in the future. This forecast also signifies that the demand for classes E, F, and G accommodation will steadily grow.

The classes A and B accommodation in these Provinces in many cases operate 20 to 50 rooms as a basic unit of management operation. This scale seems to be adequate for accommodating tourist groups each consisting of 30 persons at the most. It should be noted here that the size of management of this size cannot yield the scale merit, thereby being compelled to quote a comparatively high tariff. Holiday tourists want to receive various services to feel justification of the tariff they must pay. The level of the tariff quoted by the hotels of classes A and B accommodation in these two Provinces is in the high-middle class among the neighbouring countries. This obviously shows that the tariff of classes A and B accommodation hotels of these Provinces is on a higher side.

Various countries in the world today are embodying the scale merit by installing hotel-chain systems. The unit scale of management consisting of 20 to 50 rooms will not be able to gain the scale merit by itself.

The occupancy rate of classes E, F, and G accommodation shows a low level of approximately 30%. Unreasonably numerous establishment of classes E, F, and G accommodation resulted in such a low occupancy rate. In many cases, the scale of management of these types of accommodation is limited to approximately ten rooms. This scale of operation is considered here to be more suitable for the local investors, and at the same time is deemed to be one of the most welcome side-business for the farmers. The operation is not profitable; however, the labour cost is pressed on a low level by introducing family labour force. In some cases, the restaurant operation is totally omitted or completely separated from the accommodation for the purpose of maintaining the economic viability of the management.

Tariff - Rooms/Employee (Figure-3)



It is natural that the fund for modernizing the facilities or promoting the sale is not reserved. According to hearings held in these Provinces, it was noted that the desire for accommodation expansion is shown most strongly by the managers of classes E, F, and G accommodation. The implementation of such a project, however, seems almost impossible.

The accommodation of this class usually lacks guest-handling ability. The management usually has no particular connection with travel agencies. Visitors usually come to know the existence of such accommodation through tourism pamphlets or information given by travel guides.

The following is the description of the management of the hotel. First, the hotel chain or the hotel itself, which has its own chain organization operates the Danau Toba International Hotel, a branch in Parapat, North Sumatra. There are also three hotels in Medan under the management of the government owned NATOR (P.T. National Hotels and Tourist Corporation). Many of hotel investors which are small scale, have side-businesses such as agriculture or some types of service business. This fact indicates that the hotel business is not sufficient to provide a steady income.

The accommodation industry in West and North Sumatra has not matured as same as development process of overall tourism industry. As the conclusion of the study the following indicated above the fact.

- Inexperience in the international competition
- Lack of variety in accommodations caused by inflexibility in domestic tour demand.

At the implementation of the master plan, it is the way to lead success that will be lay stress above the two points.

Tourist Accommodation Plan

(1) Classification of Tourist Accommodations

As pointed out in the last paragraph of the previous item, the fundamental policy for the accommodation plan is a relative grade-up of the accommodations and their variety. Grade-up will become a powerful weapon in terms of becoming international competition, which will occur at some point, in the process as the tourist site to grow-up to an international tourist site. Details of the grade-up should include personal services and preparation of physical facilities. In this plan, the standard of the SA class accommodation is taken as a model for the accommodation of the classes below the SA class.

At the same time, the need for versality in accommodations is due to the appearance of varied purposes of tours and of varied types of tourists. Special consideration must be given to youth hostels. Youth hostels will surely be used by young people from other countries as well as those living in the country. The advertisement effect of such young tourists is important for Sumatra in terms of long range prospects for expansion of the tourist industry.

The accommodation facility can be classified into following classes.

- Class SA: To offer services and facilities top class international level. This class is not existing in Sumatra. This will become a core to form Sumatra as an international tourist resort.
- Class A: To offer services and facilities of international standard level.
- Class B: To provide economical and comfortable accommodation, suitable for long stay.
- Class C: To provide every of necessary accommodation facilities available at low cost. Youth hostel, public accommodation facility and campsite belong to this class. This class is indispensable for promotion of domestic tourism.

(2) Tourist Accommodation Supply

The future accommodation demand was taken as previously described. It is reasonable to exclude from the amount of tourist accommodation supply, that do not match the policy of the master plan. As a result, the amount planned is substructed the natural increase of the existing accommodation from total demanding.

As a result, the accommodations, which must be constructed in the respective tourism development areas, are as shown below.

Period		Accommodation class				Total
		SA	A	B	C	
1981 - 85	North Sumatra	150	265	304	348	1,067
	West Sumatra	45	50	95	-	190
1986 - 90	North Sumatra	215	283	223	214	935
	West Sumatra	60	86	174	42	362
1991 - 95	North Sumatra	-	80	401	299	780
	West Sumatra	-	20	40	28	88
Total	North Sumatra	365	628	928	861	2,782
	West Sumatra	105	156	309	70	640

Breakdown of Tourist Accommodation Supply Program by Areas

(unit:rooms)

(1) Karo Plateau

Development areas		Accommodation class SA	A	B	C
North Karo: Sibolangit	1985	-	-	50	-
	1990	-	55	-	-
	1995	-	-	40	-
North Karo: Semangat	1985	-	-	-	-
	1990	-	-	-	-
	1995	-	-	-	56
Brastagi: Rural area	1985	-	90	100	74
	1990	-	-	-	-
	1995	-	35	140	69
Brastagi: Karo Country Club	1985	-	-	-	-
	1990	100	100	-	-
	1995	-	-	-	-
Lake Kawar	1985	-	-	-	-
	1990	-	-	-	40
	1995	-	-	20	15
Total	1985	-	90	150	74
	1990	100	155	-	40
	1995	-	35	200	140

(2) Lake Toba Area

Development areas		Accommodation class SA	A	B	C
Tongging	1985	-	-	40	30
	1990	-	50	40	44
	1995	-	15	60	49
Parapat	1985	150	115	34	154
	1990	60	38	113	90
	1995	-	-	31	75
Samosir Island: North	1985	-	10	20	90
	1990	-	10	20	40
	1995	-	10	60	35
Samosir Island: Central	1985	-	-	-	-
	1990	55	30	50	-
	1995	-	-	50	165
Total	1985	150	125	94	274
	1990	115	128	223	174
	1995	-	25	201	324

(3) *Minang Highlands*

Development areas		Accommodation class SA	A	B	C
Bukittinggi: urban area	1985	45	40	55	-
	1990	-	-	-	-
	1995	-	-	-	-
Bukittinggi: rural area	1985	-	-	-	-
	1990	60	86	174	-
	1995	-	-	-	-
Lake Maninjau: lakeside	1985	-	10	40	-
	1990	-	-	-	-
	1995	-	-	-	-
Lake Maninjau: Embunpagi	1985	-	-	-	-
	1990	-	-	-	42
	1995	-	10	20	28
Lake Singkarak	1985	-	-	-	-
	1990	-	-	-	-
	1995	-	-	20	-
Total	1985	45	50	95	-
	1990	60	86	174	42
	1995	-	10	40	28

(3) Tourist Accommodation Types

The accommodation is classified into 2 types, one is a high-storied type, the other, cottage type. The reasons why the high-storied type is employed are:

- When the land is limited
- When the land coat is high
- When much importance is attached to the PR effect resulting from the appearance of the building
- When the maintenance expense including personnel expense is high

On the contrary, the reasons why the cottage type is employed are:

- When a future additional construction is scheduled
- When it purposes for use by families

In the site preparation plan, 2 types of the component ratio should be determined taking into consideration the conditions of the location. 2 types of accommodation might be planned as following table.

Class	Type	Floor space index (%)	Site area/ room (m^2)	Landuse Component (%) Building	Garden	Amusement	Others
SA	High-storied	80	100	12	50	19	19
SA	Cottage	30	300	27	55	11	7
A	High-storied	100	80	20	34	23	23
A	Cottage	50	300	27	44	18	11
B	High-storied	100	50	20	35	23	20
B	Cottage	50	200	35	35	15	15
C	High-storied	100	50	20	64	-	16

High storied buildings have been realized recently by diffusion of elevators and establishment of the fire escape system. It is dangerous to construct the high-storied buildings planlessly in the area with the above-mentioned conditions not established yet.

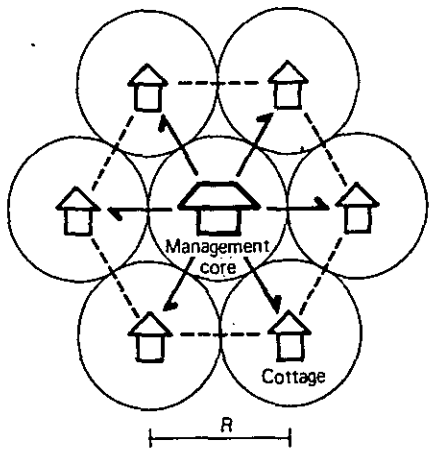
The measures such as fire escape, which concern with lives of the customers require the organization for fire escape as well as facilities and equipment installed in the building itself. This organization must be provided with fire laders and fire engines to be ready for fire protection. The construction of the high-storied building in a place where such an organization cannot be available should not be approved. It is in urgent need to establish the construction standard and the institution of political instruction to make conform the standard. The above is the minimum point, to which attention must be paid for the construction of the high-storied building.

The scale of the cottage type accommodation cannot be larger. Spacing between the rooms must be taken sufficiently for keeping privacy of customers. This is the different point from the high-storied accommodation, which keeps privacy by means of walls. And, when the number of rooms is increased and the site is widened, the distance between the guest room and the service core is extended. This means deterioration of the business efficiency as well as quality of servicing. As a result, the scale of the cottage type accommodation is determined by the limit of the distance for servicing and the distance between rooms.

Taking sufficient distance between rooms for keeping privacy of customers and assuming that the time required to reach the guest room from the service core is 2 minutes, the scale with 250 rooms is the limit of the cottage type accommodation. The actual limit of the scale becomes less than 250 rooms, taking the geological condition into consideration.

Criteria	Alternatives	
Time required to reach bedroom (minute)	1	2
Distance to bedroom (m)	67	133
Number of rooms	54	250
Site area per room (m^2)	250	180

Site Model of Cottage (Figure-4)



(4) Management for Tourist Accommodations

The accommodation is classified into 4. One of the purposes of the classification is to give versatility to the tariff. The visitor select an accommodation suitable for his budget, and he will surely request the accommodation for service equivalent to the charge paid. Naturally, the scale of business differs depending on classification and the table below shows the condition of business.

Assumption of the Management

Class	Room area (m^2)	Room charge ($)	Bed occupancy rate (%)	Benefit rate (%)
SA	80	29.0	60	18
A	80	13.3	60	17
B	60	7.2	50	15
C	60	3.1	30	15

Initially Invested Capital

Class	Construction cost (US$)	Land cost	Initial cost of business	Total
SA	70,000	3,600	210	73,810
A	35,000	800	105	35,905
B	15,000	240	45	15,285
C	5,000	180	15	5,195

Annual Balance of Income and Expenditure

(unit:US$)

	SA	A	B	C
Fixed expenses				
Interset, debt	3,500 (24.5)	1,700 (21.6)	665 (18.7)	252 (20.0)
Personal expense	1,750 (12.2)	1,430 (18.2)	864 (24.3)	315 (24.5)
Sundry expense	1,400 (9.8)	700 (8.9)	300 (8.5)	100 (7.9)
Insurance, fixed asset tax	2,100 (14.7)	1,050 (13.4)	450 (12.7)	150 (11.8)
Variable expense				
Sundry expense	1,143 (8.0)	629 (8.0)	284 (8.0)	102 (8.0)
Food and beverage cost	1,400 (9.8)	771 (9.8)	347 (9.8)	125 (9.8)
Light and fuel cost	429 (3.0)	236 (3.0)	106 (3.0)	38 (3.0)
Tax, profit, etc.	2,568 (18.0)	1,348 (17.1)	532 (15.0)	191 (15.0)
Annual earnings	14,290	7,864	3,548	1,273

In the business analysis, the present accommodation tariffs in West Sumatra, North Sumatra and the ASEAN countries were refered to, for the estimation of the tariff. Especially for the classes SA, A, the tariffs cannot be determined higher than those in the ASEAN countries because such classes are mainly requested by foreigners; this way of thinking is based on the strategy of the tourism planning.

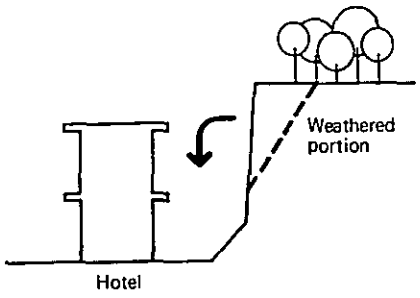
Expenditure of the customers in the accommodation reaches at least approx. 1.5 times the tariff including food and beverage charges. The loan interest determines the investment environment. The interest rate adopted by BAPIEND is roughly classified into 2 - 12% and 15%. The interest rate of 15% is applied for the loan amounting less than 2 million Rp. For new installation of an accommodation, in almost of the cases, the interest rate of 12% and more than 5 years of the loan period are termed.

In the analysis of the business, all the capital is assumed to be the loan from financing institutes. The personnel expense includes the cost for education, food or welfare of employees as well as salary. As a result, in the class with the largest personnel expense, the personnel expense becomes 1.8 times the salary.

(5) Location Criteria

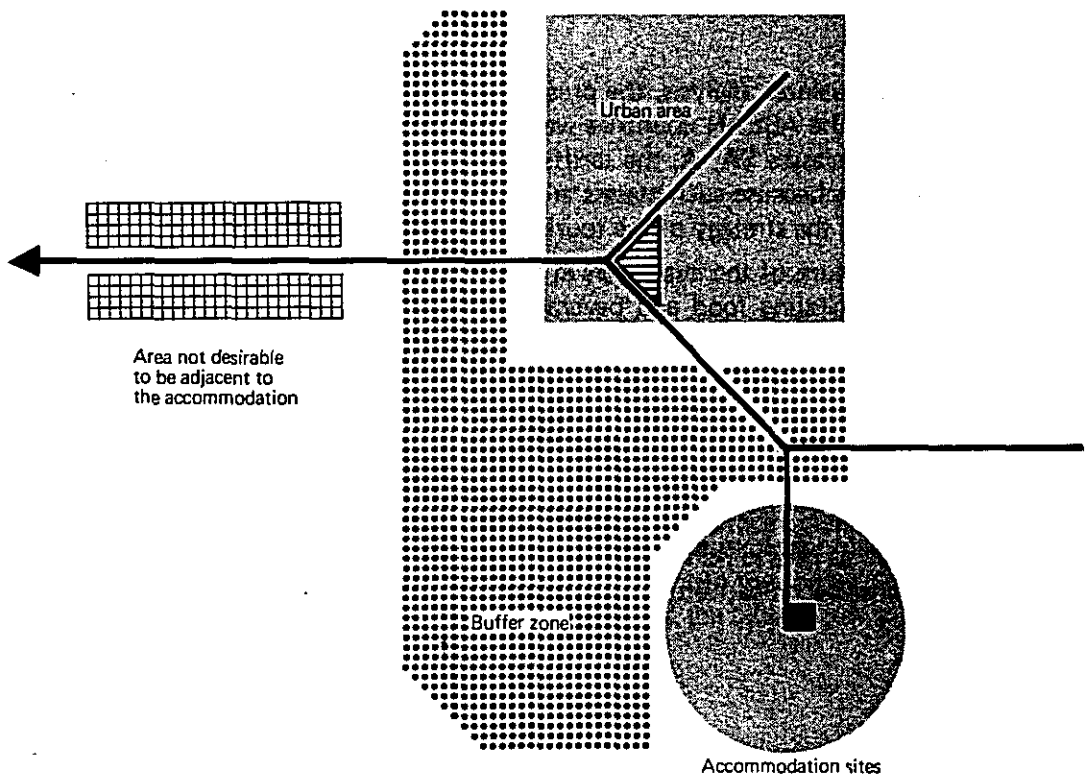
Topography, geology and land use must be taken into consideration when selecting the location of the accommodation site. As to topography, *a flat ground is desirable except* special cases. One of the reason for the above is an increase of the site preparation cost, *and the other is the insufficient personal servicing.* The location, which must be avoided from the point of view of the geological conditions is the terrace topographic environs, which are often seen in the local site in both provinces. Almost of the surface geography of the planned area is the tuff soil. The weathered part of this soil becomes fragile and the side slope of the sharply slanted land is apt to be collapsed.

Selecting the Location by Topography and Geology (Figure-5)

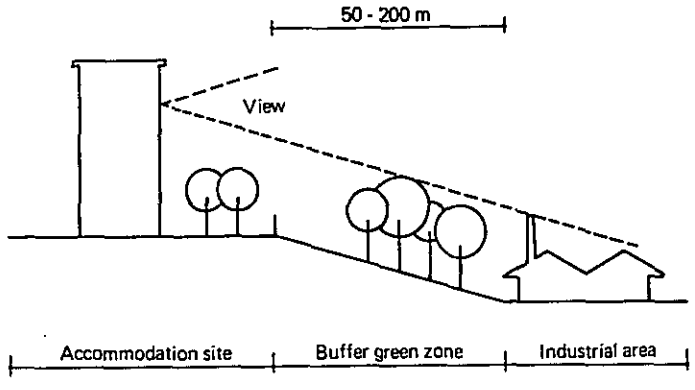


The area, the surrounding of which is an industrial area or used for the public facilities, where people gathers and breaks up at one time, is not adequate for a resort hotel. It is also desirable that accommodation site are adjacent to trunk road. Such facilities may generate undesirable environmental harms including noise, vibration or Landscape, etc. It is desirable that there is a buffer zone such as forest, etc. between the hotel site and such facilities, if possible. When there is no such buffer zone, it is possible to compensate it by regulating the land use. The existing factories must be shifted or a green buffer zone must be provided between the hotel site and facilities.

Site Plan Model (Figure-6)

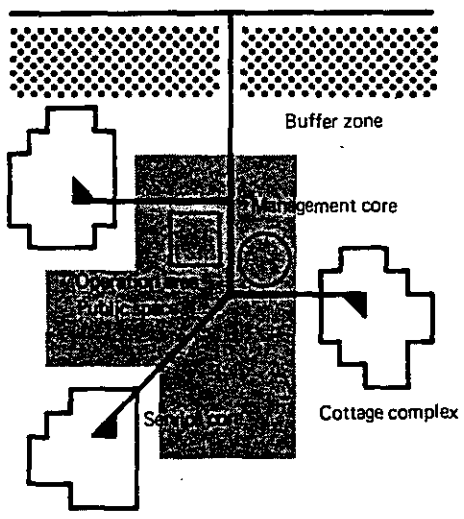


Function of Buffer Green (Figure-7)

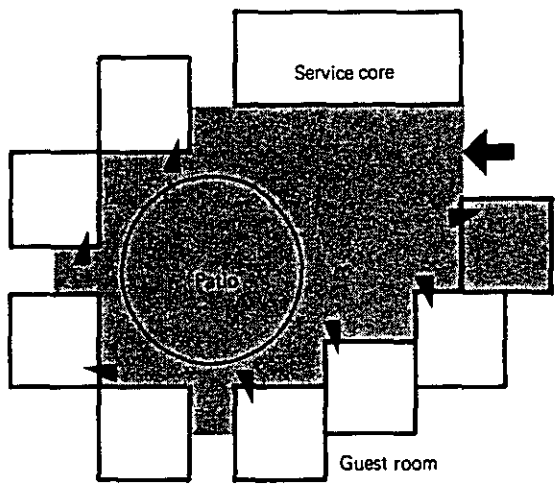


An extremely wide land is not required for the buffer zone. By taking a fairly wide area for a buffer zone, the accommodation site is separated far from the town. In such a plan, the tourists may often be confined inside the accommodation site and the contact with the external world is shut up. In such a way, direct advantages by the advancement of a hotel to the local society cannot be expected. The distance necessary for buffer is considered to be 200 m max.

Site Plan of Cottage



Model Plan of Cottage Type (Figure-8)



(6) Recommendations for Accommodation Plan

In order to achieve an accurate understanding of the implementation schedule for the Master Plan which will lead the way toward successful development of the tourist industry. The hotel industry and the organization that will support the tourism industry must be concerned not only construction of the accommodation, but several kind of subjects. The essential points of the subjects are described below.

Measures for SA and A class accommodation to bring up these accommodation to internationally competitive level.

- Improvement of sales point.
  (Diversification of menu, folk and cultural show, selection of location etc.)
- Consideration of accommodation scale for introducing package tour.
- Introduction of foreign hotel capital in the initial stage of development.

Measures for upgrading hotel industry.

- Vocational training of workers who will be needed in large number in future.
- Examination of various types of standards on such matters as sanitary, emergency equipment, architectural design, environment, etc.

Measures for participation of small-scale capital and for sound operation and maintenance.

- Cost down introducing consortium system.
- Introduction and strengthening of sales promotion through a referal chain system focussing on medium and small capital.

Measures for the promotion of domestic tour activities.

- Entrusting youth hostel and public accommodation to private body.
- Vocational training of leading workers, such as training of tourist instructors etc.

3. Service Facility

It can be forecasted that the tourist assets and tourist facilities will not meet the total day time of the tourists, which will surely increase in future. In particular, a study will point out the absolute shortage of facilities at the tourist site. Toilets, information boards, dust-bins and pleasant access roads are an essential and basic part of any comfortable tourist site. Every tourist looks forward to a comfortable and pleasant tour, and these types of facilities ensure this sense of comfort.

It goes without saying that maintenance of these facilities is as important as the actual construction work. Hench, if the maintenance is inadequate, these functions stop and investment quickly meaningless. The cost for such maintenance work and operation work must be take into account from the initial stage of the Master Plan.

There are two type of facilities, which will occur naturally as the number of visitors increases and other facilities, which must be expressly established. The former are mainly private facilities and the latter, public facilities. Public facilities must be prepared to handle an estimated minimum despite the actual number of visitors, the place regarded as a tourism site.

The fundamental facilities shown below must be expanded in accordance with the increase in the number of visitor.

- Parking:	0.05 m^2 /person
- Bus terminal:	0.32 m^2 /person
- Police box:	1 spot/1,000 persons
- Fire station:	1 spot/1,000 persons
- Accommodation site:	50 - 500 m^2 /room
- Tourism information office:	1 spot/1,000 persons
- Retail store and service:	30 shops/1,000 persons
- Restaurant and bar:	33 seats/1,000 persons
- Post office:	1 spot/1,000 persons

On the other hand, the quantity of facilities, which are constructed to be features at the tourist site must be determined in detail for that particular area. Since such facilities can be the selling-point of the tourist sites themselves, the selection of the location and determination of the quantity required are determined by each project.

The facilities which will be a feature at the tourist sites are as follows.

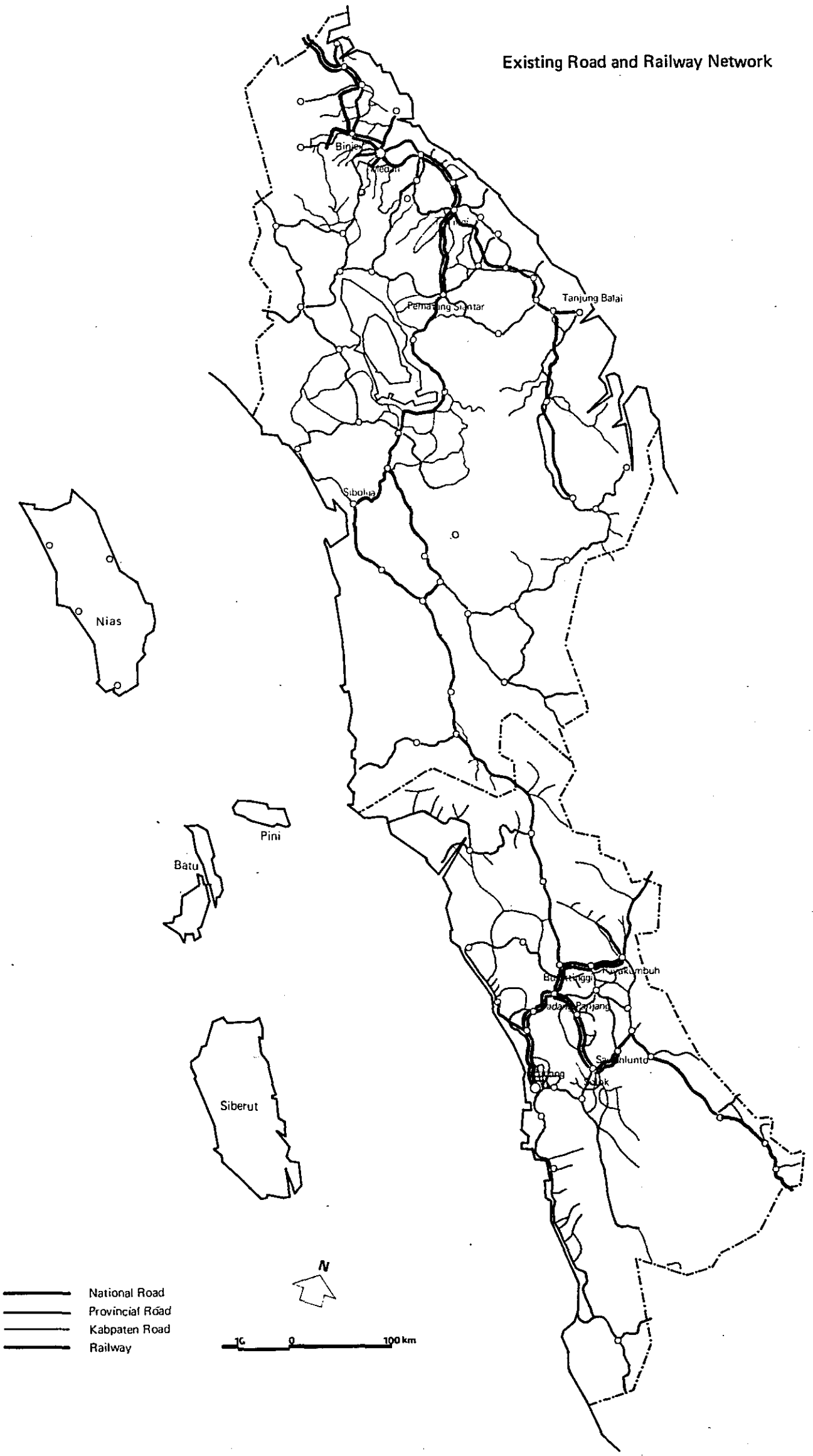
- Various sports facilities and entertainment facilities
- Pleasant park, roads, side streets and observatories
- Cultural assets

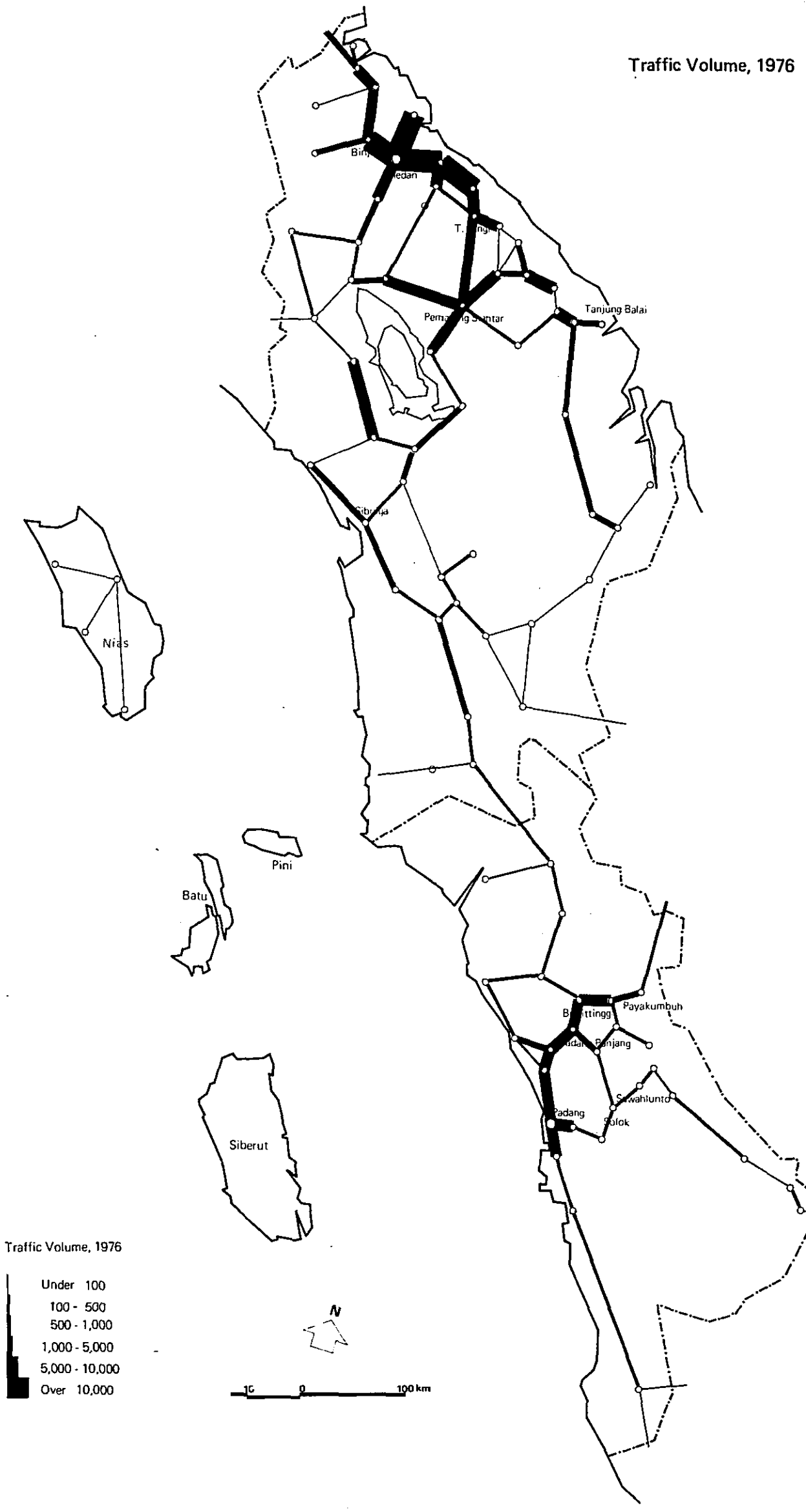
The toilets, rest facilities, guide post and dust bins, etc. must be installed at the places where tourists will visit, regardless the number of visitors. These are the basic facilities of the tourist sites. The sphere of activities of the visitors on foot will not exceed a radius of 500 m at most, since the site will not be familiar to them. For that reason, the installation of the basic facilities at the tourist site is to be within 500 m of the circumference of the tourist towns, tourist villages or tourism assets. The installation point of the basic facilities should be near sub-trunks or foot paths.

7

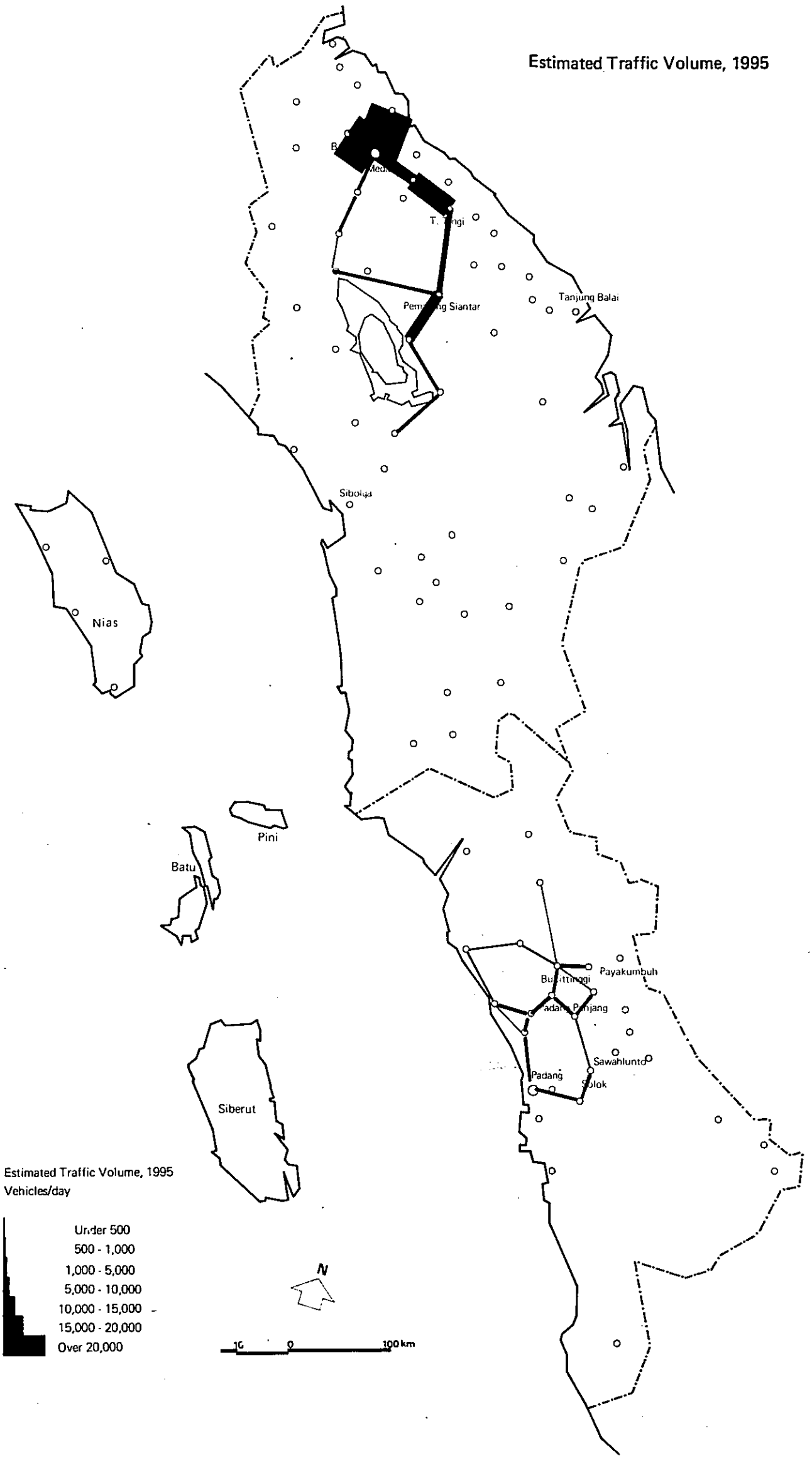
PEPER 7. NETWORK AND INFRASTRUCTURE PLAN

Existing Road and Railway Network




Traffic Volume, 1976
Tanjung Balai
Nias
Pini
Batu
Siberut
Payakumbuh
Panjang
Padang
Solok
Sawahlunto
Traffic Volume, 1976
Under 100
100 - 500
500 - 1,000
1,000 - 5,000
5,000 - 10,000
Over 10,000
N
100 km

Estimated Traffic Volume, 1995



Estimated Traffic Volume, 1995
Vehicles/day

- Under 500
- 500 - 1,000
- 1,000 - 5,000
- 5,000 - 10,000
- 10,000 - 15,000
- 15,000 - 20,000
- Over 20,000

1. Transportation Network

Present Conditions

(1) Air Transportation

The Polonia Airport located 4 km to the south of Medan City is the gateway to the tourism area of the North Sumatra Province. The total number of flights operated at Polonia Airport each week as of May 1977 was 93 flights comprising 68 domestic flights and 25 international flights. The Tabing Airport located 9 km to the north of Padang City is the gateway to the tourism area of the West Sumatra Province. At Tabing Airport, 41 flights were operated on the domestic lines.

Number of Flights at Polonia Airport (Table-1)

	Destination	Number of flights
Domestic	Jakarta	25
	Palembang	2
	Padang	7
	Pakanbaru	7
	Banda Ache	7
	Krueno Mane	12
	Seunagan-Banda Ache-Sabang	2
	Seunagan	1
	Sibolga	1
	G. Sitoli	4
	Subtotal	68
International	Singapore	18
	Penang - Kuala Lumpur	4
	Penang	3
	Subtotal	25
Total		93

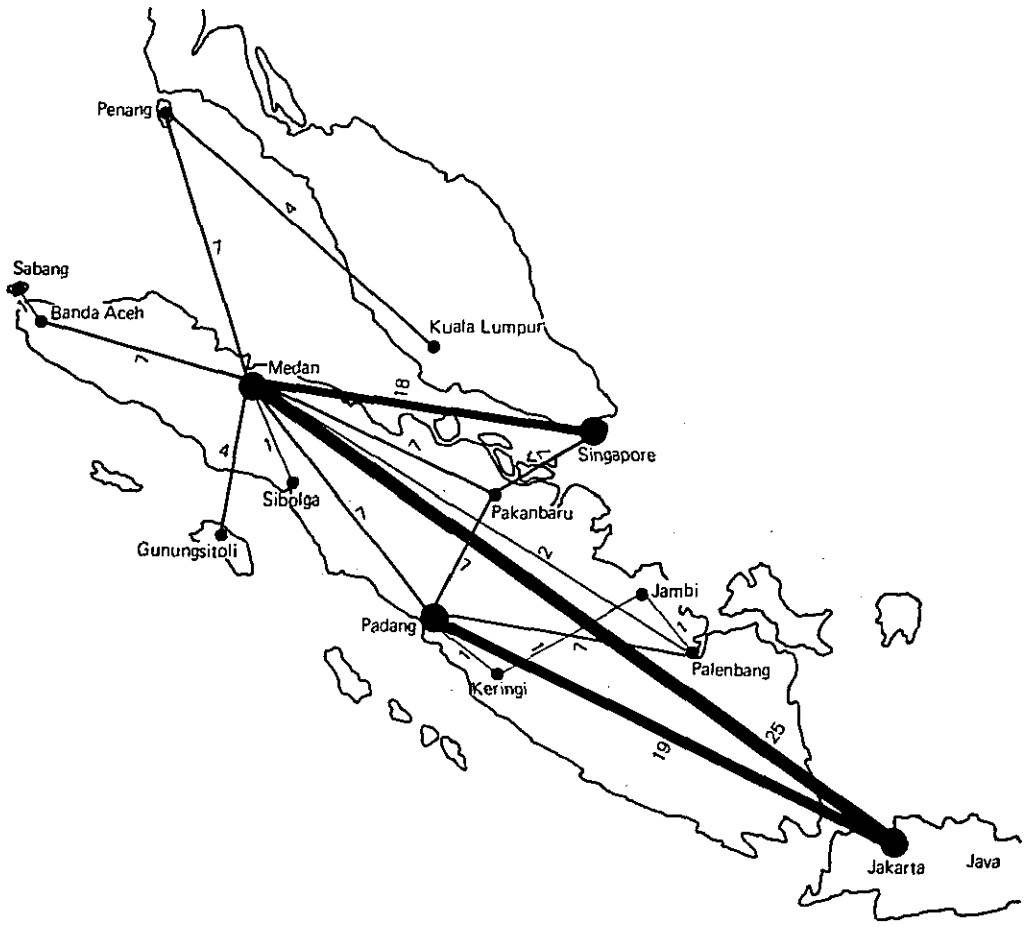
Source: Airport Authority of Polonia, as of May 1977

Number of Flights at Tabing Airport (Table-2)

	Destination	Number of flights
Domestic	Jakarta	19
	Medan	7
	Palembang	7
	Kerinci - Jambi - Palembang	1
	Pakanbaru - Singapore	7
Total		41

Source: Airport Authority of Tabking, as of May 1977

Air Network (Figure-1)



Figures in parenthese show the number of flights per week

The number of passengers transported was 443, 504 at Polonia Airport and 124,433 at Tabing Airport in 1976. The number of passengers arriving at and departing from both airports is increasing year by year. The rate of growth at Polonia Airport in 1976 was 26.5% against the number of passengers for 1975, and this was much larger than the growth rate of 19.7% of the Tabing Airport. At Polonia airport, the growth rate of domestic passengers is far greater than that of the international passengers.

Domestic and International Air Traffic at Polonia Airport (Table-3)

Year		Number of flights			Number of passengers				Growth Rate(%)
		Arrival	Departure	Total	Arrival	Departure	Transit	Total	
1969	Domestic	2,540	2,482	5,022	45,202	45,225	-	90,427	
	International	-	-	-	-	-	-	-	
	Total	2,540	2,482	5,022	45,202	45,225	-	90,427	-
1970	Domestic	2,770	2,751	5,521	58,777	61,198	-	119,975	
	International	-	-	-	-	-	-	-	
	Total	2,770	2,751	5,521	58,777	61,198	-	119,975	32.7
1971	Domestic	2,327	2,331	4,658	71,168	73,716	61	144,945	
	International	-	-	-	-	-	-	-	
	Total	2,327	2,331	4,658	71,168	73,716	61	144,945	20.8
1972	Domestic	2,375	2,280	4,655	80,984	74,189	296	155,469	
	International	170	193	363	7,411	9,140	21	16,572	
	Total	2,545	2,473	5,018	88,395	83,329	317	172,041	18.7
1973	Domestic	3,594	3,631	7,225	70,275	72,458	1,355	144,088	
	International	1,304	1,255	2,559	33,699	32,793	978	67,470	
	Total	4,898	4,886	9,784	103,974	105,251	2,333	211,558	23.0
1974	Domestic	6,356	6,367	12,723	99,303	97,592	3,412	200,307	
	International	1,510	1,501	3,011	39,504	43,687	354	83,545	
	Total	7,866	7,868	15,734	138,807	141,279	3,766	283,852	34.2
1975	Domestic	7,032	6,978	14,010	123,882	124,455	6,485	254,822	
	International	1,342	1,334	2,676	44,394	51,501	-	95,895	
	Total	8,374	8,312	16,686	168,276	175,956	6,485	350,717	23.6
1976	Domestic	6,765	6,758	13,523	159,966	162,560	7,762	330,288	
	International	1,334	1,348	2,682	56,201	57,015	-	113,216	
	Total	8,099	8,106	16,205	216,167	219,575	7,762	443,504	26.5

Sources: 1969 - 73 Statistik Pengangkutan Udara
1974 Buku Statistik Tahunan, Sumatera Utara
1975, 76 Statistik Pelabuhan Udara

Number of Passengers at Tabing Airport (Table-4)

Year	Arrival	Departure	Transit	Total	Growth Rate(%)
1970	26,092	27,997	3,889	57,978	-
1971	21,677	19,812	7,015	48,504	- 16.3
1972	22,336	22,611	4,518	49,465	2.1
1973	32,117	32,838	1,831	66,786	35.0
1974	39,621	42,976	1,662	84,259	26.2
1975	51,267	52,660	-	103,927	23.3
1976	61,916	62,517	-	124,433	19.7

Source: Tabing Airport Authority

(2) Sea and Lake Transportation

The Belawan Port is located at about 26 km to the north of Medan City, and is connected with such cities on foreign service routes as Singapore, Penang, Kuala Lumpur, Jakarta of the Java Island, Sibolga, Padang, Nias Island, etc. of the Sumatra Island. The Teluk Bayur port is located at about 12 km to the south of Padang City, and is connected with Jakarta, Belawan, etc.

Number of Passengers at Belawan Port (Table-5)

Year	Arrival	Departure	Total	Growth Rate(%)
1966	26,629	26,994	53,573	-
1967	34,902	34,359	69,261	29.3
1968	24,373	19,461	43,834	- 36.7
1969	36,271	25,838	62,109	41.7
1970	37,764	36,764	74,528	20.0
1971	31,569	26,341	57,910	- 22.3
1972	43,486	43,676	87,162	50.5
1973	53,523	56,611	110,134	26.4
1974	96,530	100,326	196,856	78.7
1975	50,539	44,510	95,045	- 51.7

Source: Belawan Port Administrator

Number of Passengers at Teluk Bayur Port (Table-6)

Year	Arrival	Departure	Total	Growth Rate (%)
1969	37,366	33,228	70,594	-
1970	39,591	39,290	78,881	11.7
1971	30,372	30,811	61,183	- 22.4
1972	30,594	32,567	63,161	3.2
1973	14,048	37,416	51,464	- 18.5
1974	34,125	34,115	68,240	32.6
1975	20,799	20,911	41,710	- 38.8

Source: Sumatera Barat Dalam Angka

As shown in the above tables, the number of passengers using these two ports is decreasing year by year, and it seems that this trend will continue hereafter. Such a trend probably is due to the improvement and extension of highway network, an increase in the number of automobiles, frequent operation of automobiles which allows free choice of the time of departure and arrival, less travelling time by air, and the moderate fare of air transportation against that of sea trip in consideration of the short travelling time and the long distances covered, for this reason, it could be said that there is no necessity of extending the facilities for the passengers in both ports.

On Lake Toba, there are several small ports which are the bases the lake transportation using the surface of Lake Toba, and routes joining the respective bases to exist. The annual volumes at the main ports are as shown in the table below, the largest transport volume was that of Balige, which was 274,177 persons in 1976.

Number of Passengers on Lake Toba (Table-7)

Ports	1973	1974	1975	1976
Tiga Raja	143,393	257,672	214,878	133,492
Haranggaol	154,322	300,512	267,621	155,928
Tigaras	26,366	92,309	110,797	64,847
Balige	154,639	213,578	229,163	274,177
Porsea	23,296	29,475	35,975	30,169
Pangururan	27,491	65,071	42,749	96,452
Ajibata	-	-	-	74,401

Source: Kepala Inspeksi VII Lalu Lintas Dan Angkutan Sungai, Danau Dan Ferry Sumut-Aceh

(3) Railway

The number of passengers is as shown in Table 8. In both North and West Sumatra Provinces, that shows a tendency to decrease annually. The railway is mainly for freight transportation. There are no railway services to tourist resorts. Since the development of new lines or the reinforcement of transport capacity are not considered at present, it seems the use of the railway for sightseeing purposes would be difficult.

The exception is the section between Anai Valley and Padang Panjang in the West Sumatra Province, where the steam locomotive runs through an area of natural spectacular sights having many valleys and waterfalls. There is a possibility of promoting the so-called "SL tourism."

Number of Passengers and Cargo (Table-8)

	North Sumatra		West Sumatra	
Year	Passenger	Cargo (t)	Passenger	Cargo (t)
1969			1,490,000	184,000
1970			1,270,000	194,000
1971			1,493,000	215,000
1972			810,000	205,000
1973			876,594	186,279
1974	1,113,455	649,854	927,985	208,468
1975	750,403	611,089	645,222	290,161
1976	643,200	617,466		

Sources: Perusahaan Jalan Kereta Api
Sumatera Barat Dalam Angka, 1975

(4) Road

In both North and West Sumatra Provinces, there exists network of roads which belongs to the categories of national, provincial and sub-provincial road. In the North Sumatra Province, road network is as shown in Table-9. National roads are 793 km, provincial roads are 2,418 km and sub-provincial roads are 3,851 km. National roads are in normal or good condition, but 56% of the provincial roads are damaged roads. The rate of pavement is 100% for the national road and 53.4% for the provincial road. Roads joining the tourist resorts are the national road 175 km long running between Medan and Parapat, the provincial road 66 km long running between Medan and Brastagi, and the provincial road 105 km long running between Brastagi and Pematang Siantar.

Existing Condition of Roads and Bridges in North Sumatra (Table-9)

	National Road		Provincial Road	
Road Condition (km)				
Good	348.57		466.352	
Sufficient	418.44		610.587	
Bad	26.44		666.131	
Very Bad	-		684.887	
Total	793.45		2,427.957	
Road Class (km)				
I	134.70		17.260	
II	400.75		612.900	
III	258.00		1,797.797	
Total	793.45		2,427.957	
Road Surface (km)				
Pavement	793.45	(100%)	1,297.207	(53.4%)
Non-Pavement	-		1,130.750	(46.6%)
Total	793.45	(100%)	2,427.957	(100%)
Bridge Condition (m)				
Good	4,473.84		5,448.00	
Sufficient	207.46		4,718.70	
Bad	784.70		-	
Very Bad	709.00		3,603.30	
Total	6,175.00		13,770.00	

Source: Statistical Year Book, North Sumatra

In the West Sumatra Province, road network is as shown in Table-10. National roads are 644 km, provincial road are 1,017 km. National roads and provincial road are in normal or good condition, but the rate of pavement is 92.4% for the national road and 37.9% for the provincial road.

Existing Condition of Roads and Bridges in West Sumatra (Table-10)

	National Road		Provincial Road	
Road Condition (km)				
Good	484.0		379.1	
Sufficient	159.9		537.7	
Bad	-		100.5	
Total	643.9		1,017.3	
Road Class (km)				
III	563.0		520.1	
IIIA	48.0		430.7	
IV	32.9		66.5	
Total	643.9		1,017.3	
Road Surface (km)				
Pavement	594.7	(92.4%)	385.6	(37.9%)
Non-Pavement	49.2	(7.6%)	631.7	(62.1%)
Total	643.9	(100%)	1,017.3	(100%)
Bridge Condition (m)				
Good	2,637.17		3,617.70	
Sufficient	697.30		3,110.25	
Bad	-		528.50	
Very Bad	133.00		555.00	
Total	3,467.47		7,811.70	

Source: Sumatera Barat Dalam Angka, 1975

(5) Registered Vehicles

The number of vehicles registered in the North Sumatra Province was 168,412 vehicles in 1975, or a half of the number of vehicles registered in the whole Sumatra Island, while that of the West Sumatra Province in the same year was 29,895 vehicles, or about 18% of that of the North Sumatra Province.

Classified by the kind of vehicle, about two-third of the total number of vehicles is occupied by the motor cycle in both provinces. Since more motor cycle will become the cause of the traffic congestion, it is necessary to use every discretion in dealing with the motor cycle within the tourism area.

The yearly changes in the number of registered vehicles show that the number of registered vehicles tends to increase in both provinces. The number has increased to twice in four year. It seems that this tendency will continue hereafter.

Number of Vehicles (Table-11)

	Car	Bus	Truck	Motor cycle	Total	Growth rate (%)
North Sumatra						
1971	21,903	2,976	8,922	52,138	85,939	-
1972	25,150	3,394	10,255	62,266	101,065	17.6
1973	30,137	3,945	11,974	78,173	124,229	22.9
1974	33,653	4,325	13,338	96,369	147,685	18.9
1975	36,173	4,582	14,060	113,597	168,412	14.0
West Sumatra						
1971	3,120	1,196	3,132	6,653	14,101	-
1972	3,342	1,258	3,322	8,067	15,989	13.4
1973	3,360	1,264	3,421	9,089	17,134	7.1
1974	4,145	1,353	3,799	14,728	24,025	40.2
1975	4,599	1,510	4,020	19,766	29,895	24.4
Sumatra						
1971	43,494	8,406	30,904	96,597	179,401	-
1972	47,947	10,181	33,435	112,165	203,728	13.6
1973	55,397	11,137	36,288	141,403	244,225	19.9
1974	57,332	10,519	36,083	179,617	283,551	16.6
1975	62,871	11,175	39,066	221,539	334,651	18.0
Indonesia						
1971	259,292	22,797	115,082	528,079	925,240	-
1972	277,210	26,488	131,175	615,220	1,050,093	24.3
1973	306,713	30,036	143,252	714,333	1,194,334	13.7
1974	337,789	31,439	166,457	944,733	1,480,418	24.0
1975	383,061	35,103	196,416	1,191,771	1,806,351	22.0

Source: Statistik Kendaran Bermotor Dan Panjang Jalan

(6) Traffic Volume

In the North and West Sumatra Provinces, the traffic volumes are as shown in Figure below. In the North Sumatra Province, the largest traffic volume is the section between Medan and Belawan. The average daily traffic volume is 9,688 vehicles. Next is the section running between Medan and Binjei recording 9,382 vehicles per day. In both sections, it is necessary to increase the lane because will be in want of capacity in the near future. As the section between Medan and Parapat is the trunk road of this province, the traffic volume is 1,900 - 6,000 vehicles/day. It is about 1,000 - 1,100 vehicles per day on the section between Medan and Brastagi. The section between Brastagi and Pem. Siantar is 300 - 1,400 vehicles per day. In all sections, the traffic volume is not large at present, and the roads have sufficient capacity.

In the West Sumatra Province the traffic volume of the section running between Padang and Bukittinggi is 1,000 - 1,600 vehicles per day. The traffic volume of other sections is less than 1,000 vehicles per day, and all the roads have sufficient capacity.

Estimation of the Future Traffic Volume

As it was difficult to estimate the future traffic volume from the past trends, the estimation was made, using the growth rate of the number of resistered vehicles.

(1) Estimation of the Future Registered Vehicles

The number of vehicles in the North and West Sumatra Provinces tends to increase year by year. According to the estimation of the future numbers of vehicles made on the basis of the analysis of regression, the number of vehicles in 1995 will come to 2.69 times and 2.21 times of 1976 figures in the North Sumatra Province and the West Sumatra Province respectively.

Number of Vehicles in Past and Future (Table-12)

	North Sumatra		West Sumatra	
	No. of vehicles	*Growth rate*	*No. of vehicles*	*Growth rate*
1971	33,801		7,448	
1972	38,799		7,922	
1973	46,056		8,045	
1974	51,316		9,297	
1975	54,815		10,129	
1976	61,321	1,000	10,589	1,000
1985	110,411	1,801	16,653	1,573
1995	164,956	2,690	23,390	2,209

Source: Team elaborate

(2) *Estimation of the Future Traffic Volume*

$$\text{Traffic Volume in 1985} = \text{Traffic Volume in 1976} \times \frac{\text{Number of registered vehicles in 1985}}{\text{Number of registered vehicles in 1976}}$$

$$\text{Traffic Volume in 1995} = \text{Traffic Volume in 1976} \times \frac{\text{Number of registered vehicles in 1995}}{\text{Number of registered vehicles in 1976}}$$

Pem. Siantar—Parapat sections each having two lanes at present will fall short of capacity in the future. According to the Highway Five-year Rolling Program, these sections are included in the improvement program. Therefore, it would be advisable to change these sections into the four-lanes road. The estimated values for the West Sumatra Province show that all sections with two lanes will not run short of capacity in the future.

Future Traffic Volume of North Sumatra (Table-13)

(Vehicles/day)

Routes	1976	1985	1995
Medan — Binjei	9,382	16,891	25,238
Medan — Belawan	9,688	17,448	26,061
Medan — Lubukpakam	5,277	9,504	14,195
Lubukpakam — T. Tinggi	5,989	10,786	16,110
T. Tinggi — Pem. Siantar	1,934	3,483	5,202
Pem. Siantar — Parapat	4,637	8,351	12,474
Parapat — Porsea	418	753	1,124
Porsea — Siborongborong	563	1,014	1,514
Siborongborong — Brastagi	1,093	1,968	2,940
Brastagi — Kabanjahe	998	1,797	2,685
Kabanjahe — Merek	279	502	751
Pem. Siantar — Merek	1,393	2,509	3,747

Future Traffic Volume of West Sumatra (Table-14)

Routes	1976	1985	1995
Padang – Alb. Alung	1,572	2,473	3,473
Alb. Alung – Sisincin	1,526	2,400	3,370
Sisincin – Pd. Panjang	1,017	1,599	2,247
Pd. Panjang – Bukittinggi	1,070	1,683	2,364
Bukittinggi – Bonjol	158	249	349
Bukitting – Baso	1,550	2,438	3,424
Baso – Payakumbuh	740	1,164	1,635
Alb. Alung – Pariaman	90	142	199
Pariaman – Tiku	289	455	638
Bukittinggi – Tiku	259	407	572
Sisincin – Pariaman	692	1,089	1,529
Pd. Panjang – Batupuh	799	1,257	1,765
Batupuh – Solok	329	505	709
Lb. Serasih – Solok	491	772	1,085
Padang – Lb. Serasih	2,082	4,110	4,599
Baso – Bt. Sangkar	109	171	241
Batupuh – Bt. Sangkar	498	783	1,100

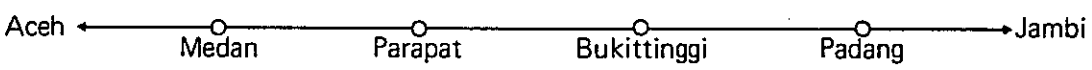
Transportation Network Plan

(1) Network Hierarchy

In approaching the subject of transportation network from a tourism point of view, the network is classified into the following hierarchy.

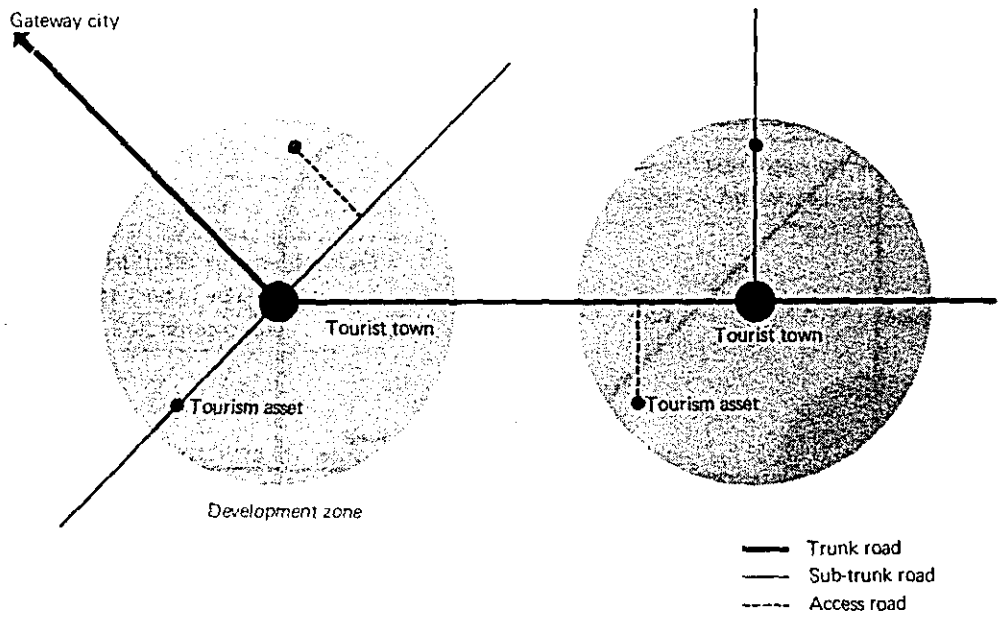
Hierarchy-1: To find out from the standpoint of all-out plan and land planning how to harmonize the transportation network systems. That is to say, air network, for instance, ought to harmonize with national air transportation policy. Improvement of airport for the Polonia and Tabing airports, in Medan and Padang, respectively, is very significant because the two airports constitute the gateway city for entering the countries to foreign and domestic tourists. In the like manner, the Trans Sumatra Highway plays an important role in the road network. The Highway is not only the main Highway connecting North and West Sumatra, but is a land trunk line running through Sumatra and is connected to other provinces.

Trans Sumatra Highway



Hierarchy-2: It is necessary to plan the transportation network between territories after having classified the order of the network. For instance, the road between tourist towns, such as Brastagi, Parapat, Bukittinggi is constructed as trunk road, then, tourists assets shall be linked by a subtrunk road or access road to a tourist town.

Road Network Between Tourism Regions (Gigure-2)



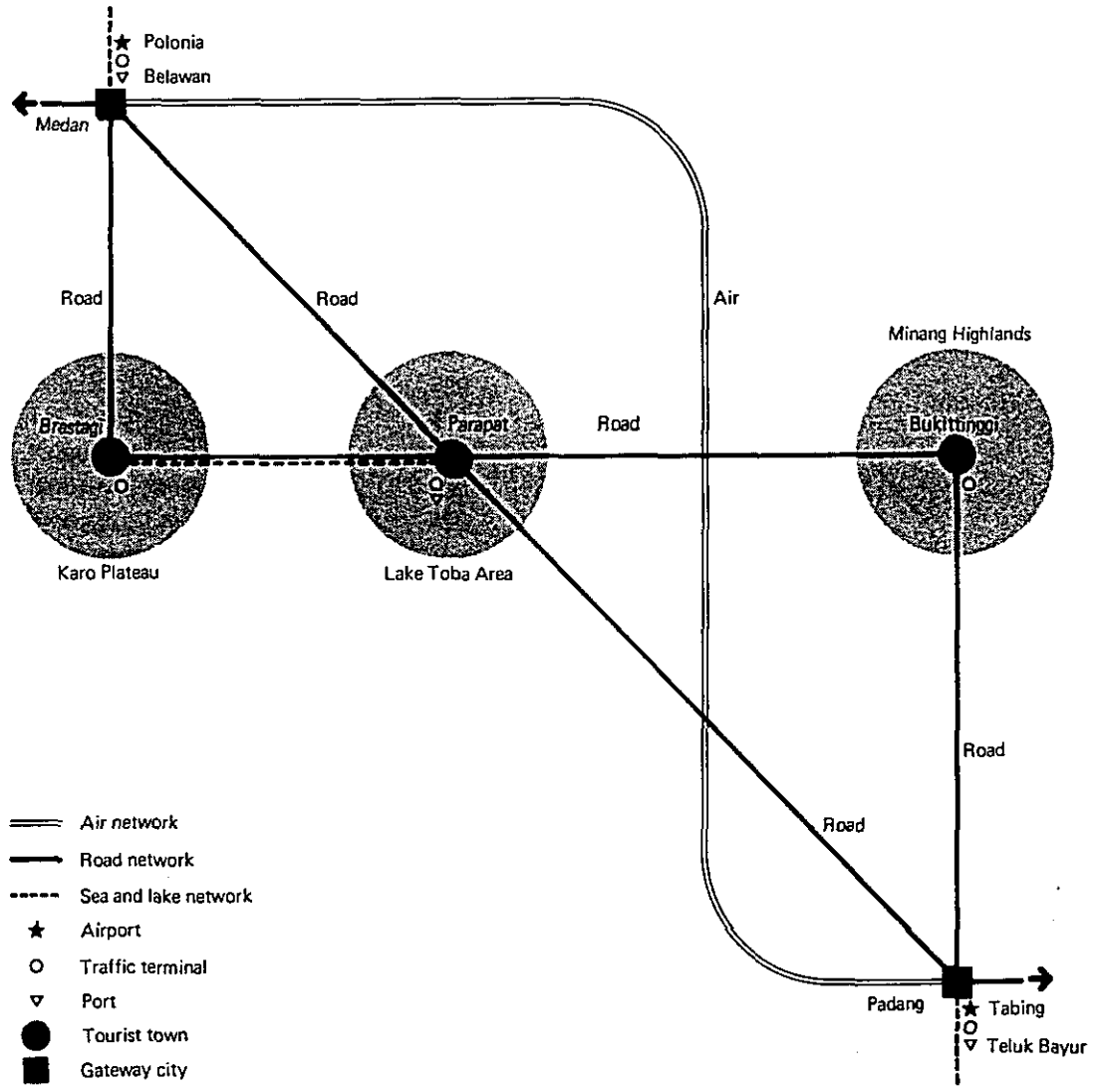
Hierarchy-3: The transportation network system within a tourist town contains the so called questions existing in an urban design area. For instance, various arrangements need be provided such as the plans with consideration on dividing a road for pedestrians and vehicles, or for service road and ordinary road, respectively, and lay-out for parking area, plaza, and streets.

(2) Network Plan

In considering the transportation network to connect the tourism regions in the North Sumatra Province and West Sumatra Province, it will be easier to do that the network shall be considered according to the types of tourists as the transportation facilities they employ are different by the type of tourists.

Foreign and Interregion: Both Medan City and Padang City are the gateway cities for most foreign and domestic tourists. The gateway ports for the tourists arriving by airplane are Polonia airport and Tabing airport, while, Belawan port and Teluk Bayur port are the gateway ports for those who arrive by ocean vessels. The network connecting the gateway cities and tourism regions are mainly roads. It is conceivable, however, that the network to connect Karo Plateau area and Lake Toba area can include boats plying on Lake Toba in addition to a road. The network to connect North Sumatra Province to West Sumatra Province seems to be covered mostly by airplanes, yet, it is also conceivable that Trans Sumatra Highway may be used as a part of the tour to link the two Provinces.

Transportation Network Plan (Figure-3)

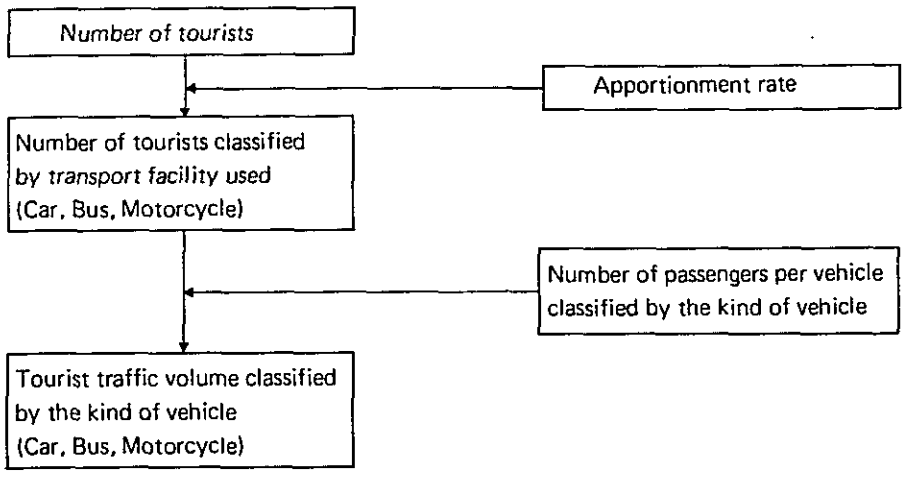


Local Daytrip: All of the local tourists and daytrippers will go on roads to reach various tourism regions. In their cases, the road network used by them will be from National road to Provincial road and even to sub provincial roads as the starting points of them are scattered in various places. The existing tourist towns and tourism assets shall be connected by roads, however, access roads will have to be constructed for the new tourism assets to be constructed newly in the future.

(3) Tourist Traffic Volume

The tourist traffic volume to be distributed in the network is an indispensable factor for approach to road plans and traffic facility plans pertaining to each tourist town and tourism asset. The traffic volume can be estimated as follows. Obtain the number of tourists who enter each tourist town through reference to the market analysis and tourist distribution plan.

Distribute the number of the tourists obtained as above to each traffic facility so that how many tourists employ what traffic facility will be estimated. Thus the total tourist trafffic volume will be estimated from the number of tourists that employ each type traffic facility. The flowchart giving the details of obtaining the tourist traffic volume is shown in figure below.



Apportionment rate of each traffic facility and number of tourists per vehicle were estimated as follows making use of statistics and the results of the traffic volumes survey conducted by the survey team:

Apportionment Rate of Traffic Facility and Number of Tourists per Vehicle (Table-15)

	Appointment rate (%)	Passengers per vehicle
Foreign and Interregion		
Bus	80	30
Car	20	4
Local and day trip		
Bus	65	30
Car	30	5
Motorcycle	5	1.5

For all the above, the tourist traffic volume on the road network in the wide area is summarized as shown in figure below.

Estimated Tourist Traffic Volume per Day, 1995 (Table-16)

	Bus	Car	Motorcycle
Medan – Brastagi			
Foreign	9	16	-
Interregion	21	40	-
Local	17	46	26
Day trip	175	484	268
Total	222	586	294
Medan – Parapat			
Foreign	8	15	-
Interregion	21	38	-
Local	14	38	21
Day trip	134	372	207
Total	177	463	228
Brastagi – Parapat			
Foreign	5	9	-
Interregion	9	16	-
Local	-	-	-
Day trip	-	-	-
Total	14	25	-
Parapat – Bukittinggi			
Foreign	1	1	-
Interregion	1	2	-
Local	-	-	-
Day trip	-	-	-
Total	2	3	-
Padang – Bukittinggi			
Foreign	7	13	-
Interregion	15	27	-
Local	7	18	10
Day trip	142	392	218
Total	171	450	228

2. Transportation Facility

Airport

(1) Present Condition

The Province of North Sumatra has the Polonia Airport in Medan city while the Province of West Sumatra has the Tabing Airport in Padang city. These airports are being maintained and operated by the Airport Authority of the Ministry of Transportation, Communications and Tourism. The runway of the Polonia Airport is 2,445 m long suitable for B-737 and DC-9 aircrafts. The length of the runway of the Tabing Airport is 1,850 suitable for DC-9 and F-28 aircrafts. Both airports are not equipped with the instrument landing system.

Present Condition of Airports (Table-17)

	Polonia Airport	Tabing Airport
Location	4 km southwest of Medan	9 km north of Padang
Ranway		
Length	2,445 m	1,850 m
Width	45 m	45 m
Surface	Asphalt Concrete	P.C. Concrete
Elevation	8.2 m	2.0 m
Direction	05 - 23	16 - 34
Taxiway	23 m	30 m
Available aircraft	DC-9, B-737, F-28	DC-9, F-28
Loading apron	6 Spots for DC-9, F-28	2 Spots for DC-9, F-28
	1 Spot for STOL	1 Spot for STOL
	27,500 m^2	7,000 m^2
Terminal building	Wooden	Wooden
	1,700 m^2	1,100 m^2
Parking space	2,000 m^2	1,200 m^2
Aircraft maintenance facilities		
Line maintenance	Available	Available
Periodic check	Non-available	Non-available
Overhaul	Non-available	Non-available
Service installation		
Fuel supply	By tank lorry	By tank lorry
Power	Available	Non-available
Compressed air	Available	Non-available
Meal service	Available	Available
Fire service	Available	Available
Mauigation aids		
A.L.S.	Available	Available
N.D.B.	Available	Available
V.O.R.	Available	Available
D.M.D.	Available	Available
I.L.S.	Non-available	Non-available
A.S.R.	Non-available	Non-available

Source: Airport Authority in Medan and Padang

(2) Airport Improvement Plan

The number of passengers (both the arriving and leaving) Polonia and Tabing airports can accommodate in a year were calculated to be about 1.4 million persons and about 0.35 million persons, respectively. This calculation was made with consideration of the constructed state of main facilities and machine models. The figure below shows the illustrated forecasting calculation of the passenger demand for the both airports conducted according to the following three methods:

Forecast Calculation Method

- The number of actual passengers in the past is analyzed in regression in time series.
- The number of passengers is estimated from the correlation formula found from the population and number of passengers of the two provinces.
- The number of passengers is estimated from the correlation formula found from the real income and number of passengers of the two provinces.

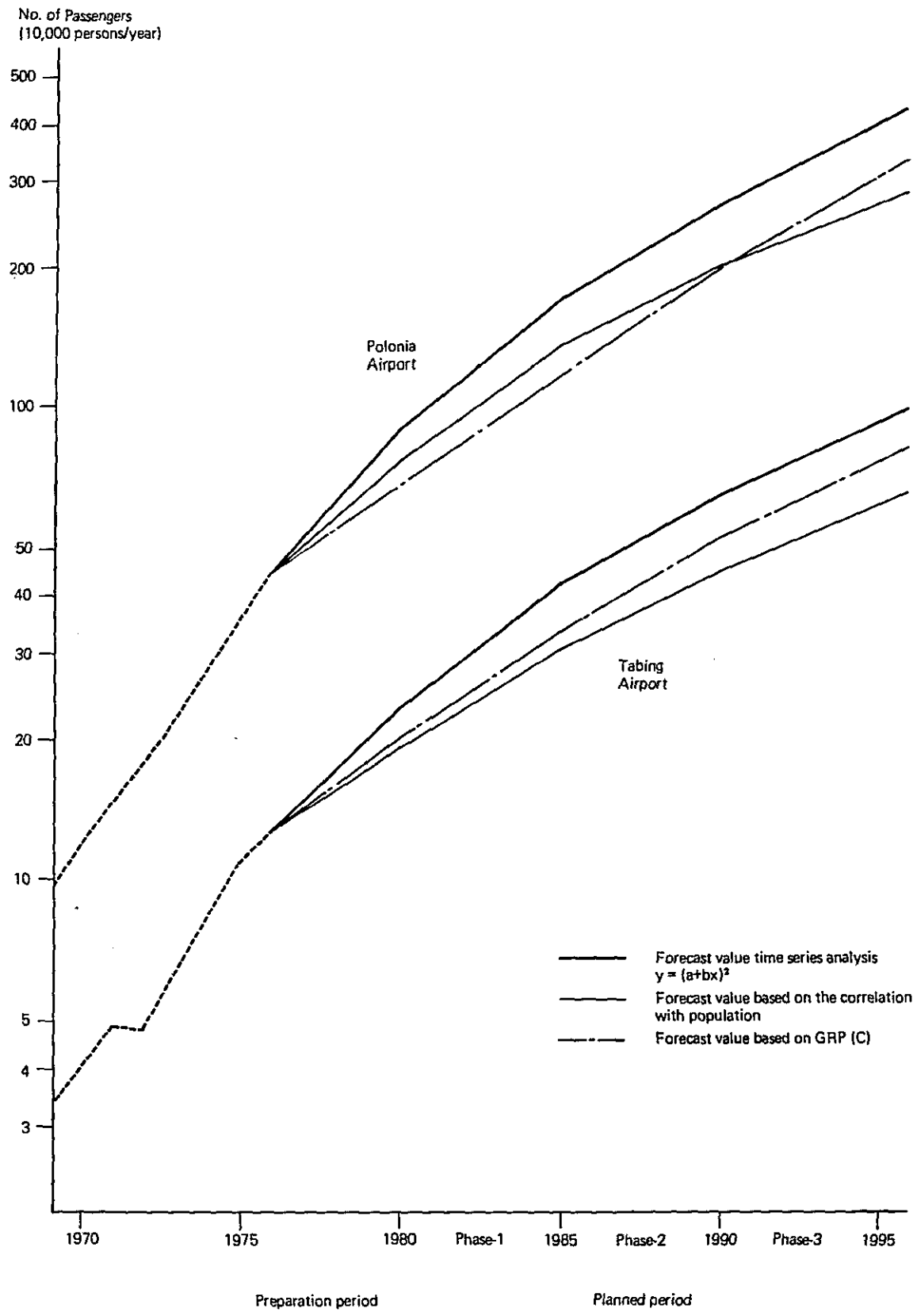
Forecast Calculation Value of Passenger Demand (Table-18)

(unit:1,000 persons/year)

	1976	1980	1985	1990	1995
Polonia (1)	454	900	1,700	2,700	4,000
(2)	-	800	1,300	2,000	2,800
Tabing (1)	125	230	420	660	950
(2)	-	200	310	450	620

Note: The values in the upper line are calculated on the basis of (1) method, while, in the lower line are based on (2) method

Forecast on Number of Passengers at the Airport (Figure-4)



As shown in the figure above, the passenger demand of the both airports is estimated to exceed the number of passengers that could be accommodated by the both airports between 1983 and 1986. In this connection, the main airport facilities that are expected to be necessary are calculated in trial as follows according to the passenger demand forecast for the future time in 1985, 1990 and 1995.

Polonia Airport Improvement Plan (Table-19)

	1976	1985	1990	1995
Planned number of passengers	454	1,700	2,700	4,000
(1,000 persons/year)	Achieved result	1,300	2,000	2,800
Maximum aricraft model	DC-9 class	B-727 class	L-1011 class	L-1011 class
planned	Achieved result	B-727 class	B-727 ~ L-1011 class	L-1011 class
Peak number of landing and	49	72	93	120
taking off times per day	Achieved result	56	73	88
Runway (Lm x Wm)	2,445 x 45	2,445 x 45	3,000 x 60	3,000 x 60
	Existing condition	2,445 x 45	3,000 x 60	3,000 x 60
Parallel taxiway	None	Better it is made available	Necessary	Necessary
	Existing condition	Unnecessary	Better it is made available	Necessary
Loading apron	DC-9 class STOL 4 berth	5 berth 24,250 m^2	6 berth 43,100 m^2	7 berth 48,200 m^2
		4 berth 19,150 m^2	5 berth 39,250 m^2	5 berth 39,250 m^2
Terminal building	Wooden bldg. 2,300 m^2	Rc 10,000 m^2	Rc 15,500 m^2	Rc 20,000 m^2
	Existing condition	7,500 m^2	11,500 m^2	14,500 m^2
Parking space	2,000 m^2	13,000 m^2	20,500 m^2	27,000 m^2
		10,000 m^2	15,500 m^2	19,000 m^2

Tabing Airport Improvement Plan (Table-20)

		1976	1985	1990	1995
Planned number of passengers (1,000 persons/year)		125	420	660	950
	Achieved result		310	450	620
Maximum aircraft model planned		DC-9 class	DC-9 class	DC-9 class	B-727 class
	Achieved result		DC-9 class	DC-9 class	DC-9 class
Peak number of landing and taking off times per day		8	27	43	47
	Achieved result		19	28	40
Runway (Lm x Wm)		1,850 x 45	2,000 x 60	2,000 x 60	2,000 x 60
	Existing condition		2,000 x 60	2,000 x 60	2,000 x 60
Rarallel taxiway		None	Unnecessary	Unnecessary	Unnecessary
	Existing condition		Unnecessary	Unnecessary	Unnecessary
Loading apron		DC-9 class 2 berth	3 berth 10,950 m^2	4 berth 16,050 m^2	4 berth 16,050 m^2
	Existing condition		2 berth 8,950 m^2	3 berth 10,950 m^2	3 berth 10,950 m^2
Terminal building		Wooden bldg. 870 m^2	RC 4,000 m^2	RC 5,000 m^2	RC 6,500 m^2
	Existing condition		3,000 m^2	3,500 m^2	4,000 m^2
Parking space		1,000 m^2	5,500 m^2	7,000 m^2	8,500 m^2
	Existing condition		4,000 m^2	4,500 m^2	5,500 m^2

Note: The values in the upper line are the passenger demand based on the regression analysis in time series. The values in the lower line are the values calculated on the basis of the passenger demand obtained from the correlation formula from the population.

The runway of Polonia Airport in Medan is planned to be extended to 3,000 meters by 1990, according to the exist of the improvement plan. The Airlines companies in the neighboring countries MAS and SQ, for instance, are introducing jumbo airliners such as DC-10 or B-747.

Medan City is the center of politics, economy, and culture in the North Sumatra Province, is geographically close to Singapore and Malaysia, and is a city strong in international colour having Belawan, the only foreign trade port in the North Sumatra Province, as its sea port. Therefore, it is highly desirable that its airport has a runway 3,000 m long as soon as possible to permit landing and taking off of jumbo aircrafts. A parallel induction runway will be necessary for Polonia Airport when the peak number of landing and taking off times per day exceeds 80 times. Both the airports should improve their facilities in the order of runway, apron, and their terminal buildings with parking area for motorcars.

The climate of the both airport is a mild tropical climate with a little wind and almost no mist at all. Therefore, instrumental landing is a minor requirement for the present, yet, they should be equipped with instrumental landing device in order to attain safety operation in pace with increasing use of large size aircraft especially in rainy season.

Road

(1) Present Conditions

In the North Sumatra Province, national road runs between Medan and Parapat via Tebing Tinggi and Pematang Siantar and runs futher south into the West Sumatra Province. The road is well paved, and the section between Tebing Tinggi and Pematang Siantar runs through extensive and large-scale rubber and oil palm plantations. Pematang Siantar is a large city next to Medan producing rubber, palm oil, coffee, tobacco, etc., and the road running between Medan and Pematang Siantar is being used as an economic road for transporting such products, and is forming a trunk road in this province.

The section between Pematang Siantar and Parapat partly runs through oil palm plantation, but it rises to an elevation of about 1,000 m and then runs toward Lake Toba. The road width is slightly smaller and is about 5 m.

The elevation gradually increases in the section between Medan and Karo Plateau (EL. 1,400 m). The slope gets steaper from Sibolangit; the road gets narrower and the alignment gets bad. Karo Plateau produces vegetables, fruits and flowers, and these are exported to Singapore and Malaysia through the Belawan Port. These agricaltural products are shipped on trucks as night, and its road forms an economic route.

Between Brastagi and Pematang Siantar provincial road runs through the Karo Plateau, and it passes through the plantation near Pematang Siantar. The road is flat without much ups and downs, but the pavement is not very good.

Next is about the condition of roads in the tourism assets. The tour road has been constructed under the supervision of the Kab., office in Samosir Island, but the road is narrow (5 - 6m) and is mostly unpaved. There are two roads between Parapat and Tigaras. One is the road which runs via Pematang Siantar, and the other is the kabupaten road running along the slope on the eastern shore of Lake Toba. Though the kabupaten road is shorter, the road is mostly unpaved and narrow, and the alignment is poor. However, it is possible to use this road as a park way by improving it since the road runs through the mid-slope and has an unobstructed view of the surface of the lake and the Samosir Island.

The roads to the tourism assets south of Parapat are good as they are national roads. However, the roads from the national roads to the tourism assets are unpaved, and the alignment is not good.

The Lingga Village and Lake Kawar are the tourism assets cetering around Brastagi, but the maintenance of the access roads is poor.

In the West Sumatra Province, the road joining the tourism assets of Bukittinggi and Padang is a well paved national road. The section of the road between Anai Valley and Padang Panjang runs along the valleys. There are places on this section of road where the alignment is bad and the slope steep.

The section of the road running between Bukittinggi and Payakumbuh is a well paved national road loading to the Riau Province. The section of the road between Padang Panjang and Lake Singkarak is a good road running through the peddy fields along the lake and the railway. A part of the section running between Padang and Solok is being improved as the Trans Sumatra Highway. The section of the road between Bukittinggi and Lake Maninjau (partly used as national road) is 3 to 4.5m wide and the pavement is poor. The section from the observation platform of Lake Maninjau to the share of the lake has precipices 750m high. Moreover, there are 44 sharp curves, and this poses the problem of safety of driving. And then, most of the access roads loading to the tourism assets are narrow and unpaved.

(2) Development Plan

The main necessary facilities for the land transportation system are trunk roads connecting each tourism region, access roads leading to each tourism asset, and parking areas within each tourism asset.

Trunk Road

The present state of the paved trunk roads is satisfactory without any particular problem as further improvements will be rate under "Highway Five-year Rolling Programme." One affair requiring attention is the fact that the existing two car line passage road in sections such as between Medan and Parapat, Medan and Belawan, and, Medan and Binjei should better be enlarged to have four car line passages. It is also desirable that the improvements should include such an improvement that the scenery along these highways be also improved not only the pavement conditions and the alignment. Following are the roads that are not covered by "Highway Five-year Rolling Programme" and yet requiring improvements:

Lake side road *L = 40 km* *W = 7.0 m*

The new road to be constructed will connect Brastagi and the Lake Kawar, and runs southern foot of Mt. Shibayak. This road will be a sight-seeing road running through a tableland and will be a cause for developing the skirt area of the Mt. Shibayak.

Brastagi to Lake Kawar (Karo Skyline) L = 18 km W = 7.0 m

Access Road

For construction of access roads, it is necessary to what way of connections be made between turnk line or sub-trunk lines and each tourism asset. Wherever there are existing roads, only an improving plan including improvement of the along-side scenery will be sufficient. Where there is no existing roads, access roads will have to be newly constructed. The access road project pertaining to each tourism region is as follows:

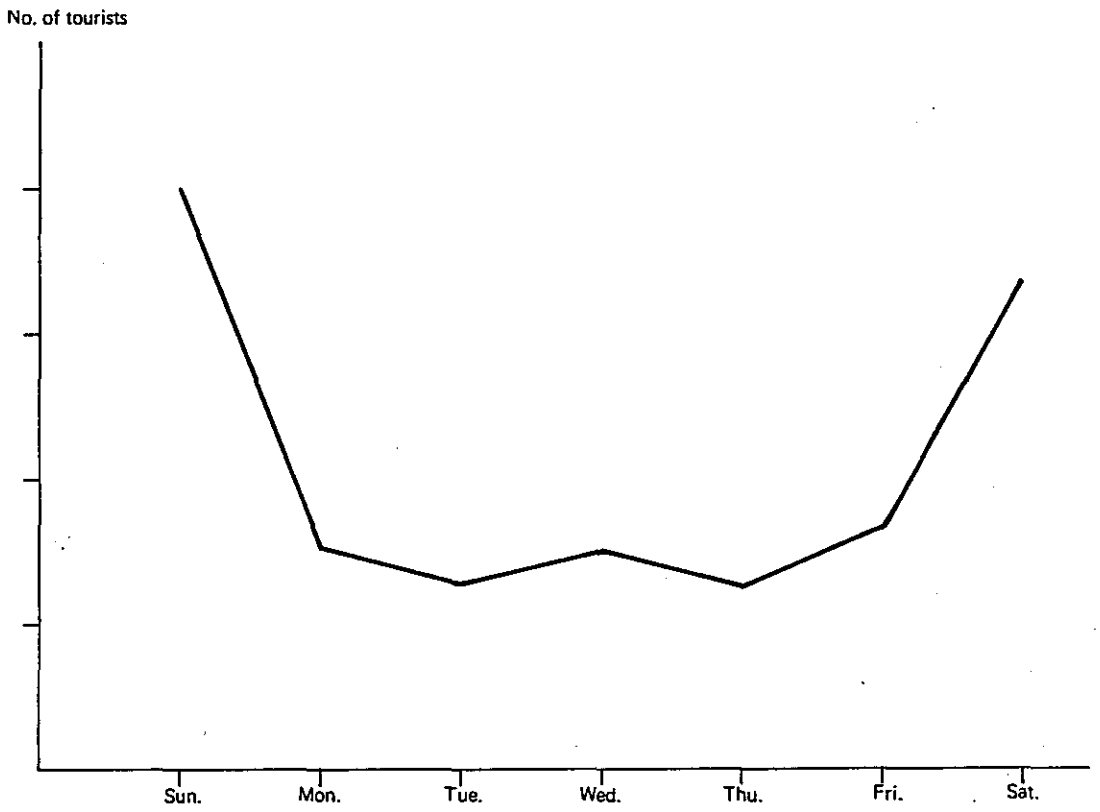
	Target (spots)	Length (m)
Karo Plateau	7	7,300
Lake Toba	11	14,400
Minang Highlands	10	5,900

Parking Area

For construction of parking areas in each tourism asset, it is necessary that the area having sufficient parking space coping with the number of entering tourists be arranged.

It is necessary in this connection, that the space sufficient for the peak number of entering tourists; however, as shown in Figure-11, the peak per week only comes on one or two days with about four time volume of ordinary days. Therefore, it is recommended that the parking area has sufficient space for the peak number of entering tourists, then, necessary construction as a parking area be constructed in a space sufficient for the tourists entering on ordinary days and additional construction may be expanded in accordance with the conditions being actually utilized. Otherwise, it will be uneconomical to completely equip the parking area up to full number of peak entrance volume.

Difference of the Number of Entering Tourists by the Day of a Week (Figure-5)



Bus Terminal

Entrance of a large number of tourists is expected in the tourist towns at Parapat, Brastagi, Bukittinggi. For maintaining undisturbed bus transportation in the towns, bus terminals will have to be constructed. The bus terminal should have an effective lay-out for arriving and starting zones for the number of bus and for a plaza which assures security of tourists in general. The necessary bus terminal area coping with the number of entering tourists of each tourist town is given in the following:

Bus, Taxi and Rent Car

Adequate equipping with necessary transportation facilities for tourists purpose is also a necessary consideration. Establishment of bus network, which will be utilized by a greater part of tourists in various types of tourists, and complete preparation of taxi and rent cars are necessary. In studying the bus network, attention should be paid to the following:

- The most important route are to cover Medan–Brastagi, Medan–Parapat, and Padang–Bukittinggi.
- In the Brastagi–Parapat road, the part form Pem. Siantar to along side the lake shall be central part to be consolidated.
- Approach to consolidation of the long distance route; Medan–Parapat–Bukittinggi–Padang, should be conducted.

Taxi and rent car provide more convenience in larger radius of action than bus does and offers much more diversity in sightseeing enjoyments. Therefore, these are one must and should be prepared to fully meet the requirements at their business offices based at key Points where the tourists will stay.

It is, therefore, necessary to arrange a transportation network on the lake coping with the activities of the tourists. It is necessary that a boat having higher speed than the existing boat is made to go into mission to ply on the lake about 50 km distant between Parapat and Tongging. At the same time, transportation by a larger boat should be arranged between Parapat and Central Samosir to accommodate more number of tourists.

To transportation methods are available for the course between Parapat and North Samosir. One covers Parapat–Central Samosir course with boat and the remaining course between Central Samosir and North Samosir is covered by land transportation. The covers with a boat the entire course between Parapat and North Samosir. On these grounds, going into commission of high velocity "Speed boat," and of larger sightseeing boat, and construction of harbour facility becomes necessary.

Employing the speed boats into commission plays a highly important role in providing tourists with unique recreation activities on top of reducing the transportation time. Therefore, their early employment is very desirable.

In the first stage, speed boat be employed between Parapat and Tongging and larger sightseeing boat be employed between Parapat and Central Samosir. In the next stage, speed boat be employed between Parapat and Tongging via North Samosir coping with the development and construction of North Samosir. Explanation on a basic plan for on-a-lake transportation network as above comes to an end. However, the weight of boat transportation among the entire transportation to a tourism asset around the Lake Toba can be expected to increase. For this reason, it is necessary that on-a-lake transportation network be appropriately established coping with the progress of tourism asset development.

It is also necessary to appropriately establish on-a-lake transportation network on the Lake Maninjau and to construct necessary harbour facilities there. As the main purpose for visiting the Lake Maninjau is for sightseeing, a round trip route centering on Maninjau port shall be considered. For this purpose, two middle size boats 100 t for accommodating 200 tourists each and construction of Maninjau harbour are necessary.

On the other hand, the Lake Singkarak is more suited to be a place for recreation related with water such as angling or playing on waterside. Therefore, no large scale on-a-lake transportation network is considered necessary.

Servicing Facilities

Equipping the trunk roads with rest stations for the tourists and with servicing facilities for repairing or maintaining cars is recommended. These servicing facilities shall be equipped with gasoline supplying station, car-maintenance facility, parking area, lavatory, sales shop, restaurant, etc. in a complete condition, collectively. The servicing facilities are recommended to be equipped with the following locations:

Medan–Parapat	at four points
Medan–Brastagi	at one point
Kabanjahe–Pem. Siantar	at two points
Padang–Bukittinggi	at two points
Bukittinggi–Solok	at one point
Padang–Solok	at one point

Railway

In both North Sumatra Province and West Sumatra Province, railway transportation is centered on cargo transportation, therefore, no railway up to tourism assets is constructed. Use of railway for sight seeing purpose in the future cannot be expected as there is at present no plan to be materialized towards new railway development or reinforcing necessary transportation factors. One exception, however, is seen in the railway between Anai Valley and Padang Panjang comprising a number of fine scenery including valley and waterfalls. It may be possible to enjoy the so called "Steam Locomotive Tour" therefore tourists when passenger cars are arranged satisfactorily and station buildings are renewed or improved accordingly. For this purpose, the following are necessary to be worked out.

About six passenger cars are adequately prepared. A new station should be established at Anai Valley, then the Padan Panjang station building should be renewed. If possible, extension of the sightseeing S.L. course up to Bukittinggi not only between Anai Valley and Padang Panjang is very desirable.

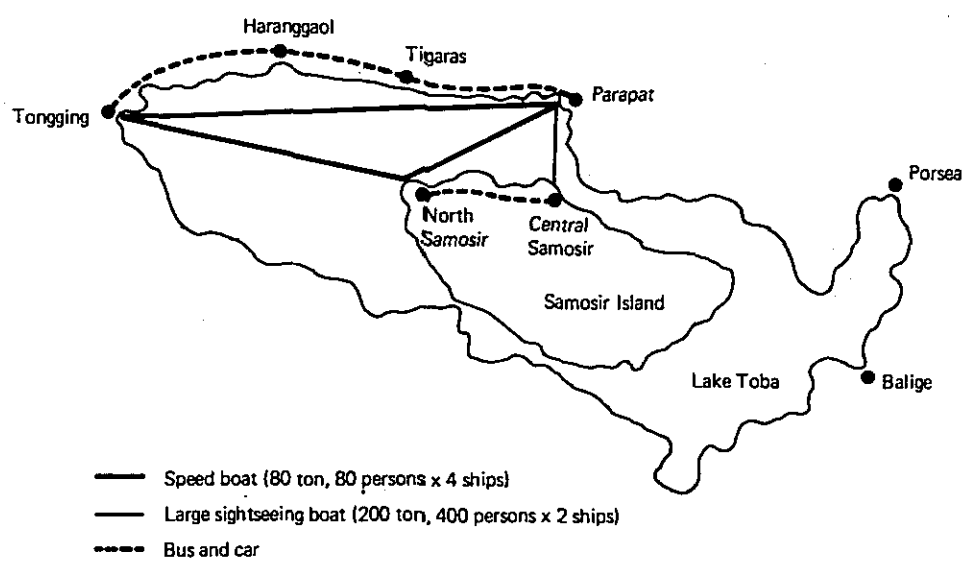
Lake Transportation Facility

The following table is the estimated tourist flow around the Lake Toba in 1995, according to the Tourist distribution plan.

(unit:persons/day)

	Parapat–Tongging	Parapat–North Samosir	Parapat–Central Samosir
Foreign tourist	88	129	280
Interregion tourist	159	241	581
Local tourist	-	36	93
Day tripper	-	248	773
Total	247	654	1,727

Lake Transportation Network (Figure-6)



3. Public Utility

Water Supply

The existing state of waterworks in North Sumatra Province and West Sumatra Province is shown in the following table.

Existing State of Waterworks (Table-21)

	Brastagi	Kabanjahe	Parapat	Bukittinggi
Population	11,200	26,000	-	64,000
Population supplied by waterworks	8,500	14,000	-	-
Popular use rate (%)	76	54	-	-
Supply capacity (m^3/day)	1,800	3,000	3,000	6,000
Supply amount (m^3/day)	1,200	2,200	800	4,200
Effective rate (%)	66	73	27	70
Average supply amount (l/person.day)	141	157	-	-
Number of consumers	1,000	1,500	440	2,137

Source: Perusahaan Daerah Air Minum in Medan, Parapat, Padang and Bukittinggi.

Water from springs and wells are used as the water source in Brastagi and Kabanjahe. Spring water is the water source in Parapat and Bukittinggi. The water from these sources cannot be used as drinking water as it is not subjected to purifying processes. The first necessity for the waterworks in these areas is to develop water sources including construction of purification plant, then, to complete water distribution piping network. As the effect of existing water quality administration is poor and lacks reliability, intensified and improved administration for the water quality is highly recommended. Completion of waterworks is indispensable for both tourists and local inhabitants. It is highly recommended that waterworks construction plan covering the tourist towns in Brastagi, Parapat, Bukittinggi areas, into which a large number of tourists are expected to enter, shall be so executed that the amount of water demanded both by the tourists and near-by inhabitants can be sufficed thereby. Estimation of the amount of water demanded in 1995 is as follows:

Planning Standards (Table-22)

	Standards (l/day)	Planned population
Brastagi		
Residents	150	11,200
Lodgers	200	1,700
Visitors	30	3,100
Parapat		
Residents	150	8,800
Lodgers	250	2,700
Visitors	40	4,400
Bukittinggi		
Residents	150	72,100
Lodgers	200	1,500
Visitors	30	2,500

Required Amount of Water Supply in 1995 (Table-23)

(unit:m^3/day)

	Total requirement	Existing	Amount of be added before 1995
Brastagi	1,480	1,200	300
Parapat	1,737	800	1,000
Bukittinggi	8,952	4,200	4,800

Refuse Disposal

Collection and disposal of waste materials in North Sumatra Province and West Sumatra Province is undertaken in an organized operation as a public works for main cities and towns. Trucks are used for the collection work. There are often such unpleasant cases that some of the waste are left dropped or spilled out during loading or some of temporarily placed waste are neglected long causing bad smell. Disposing of the waste is done by taking them all to suburbs for either dumping and burying underground or open burning, a primitive disposing method anyhow. It is likely, therefore, that complaints by near-by inhabitants is always made against proliferation of flies and bad smell. Establishing a proper measures for disposal of waste materials is an important prerequisite for developing tourism industry and for improving the local environment sanitation as well as for welfare of the inhabitants. Therefore, it is earnestly required that the waste collecting method be improved in addition to erection of modern cleaning plant for the waste materials. Erection of the cleaning plants is quite necessary in Brastagi, Parapat and Bukittinggi, into which a large number of tourists is expected.

The total amount of the waste materials to be produced by both tourists and inhabitants in a Tourist Town as shown in the following table shall be refered to as the data for determining the scale of the waste cleaning plant.

The amount of waste materials to be produced by each person in a day was reckoned to be 0.7 kg for use in table below.

(unit: t/day)

	Residents	Lodgers	Visitors	Total
Brastagi	11	2	2	15
Parapat	9	2	3	14
Bukittinggi	72	1	2	75

Sewage

None of the so-called sewage system equipped with culvert piping and disposing works yet exists in both North Sumatra Province and West Sumatra Province. Only a small sewage network in the central part (400 ha or about 3% of the entire municipality of 5,100 ha) of Medan in North Sumatra Province exists for draining rainwater and daily household drain water, which are freely discharged to a river without undertaking any treatment. In the two Provinces, the household sanitary sewage such as from kitchen, bathroom, and clothes washing, is freely discharged to a river directly via an open aqueduct generally. Night soils is generally disposed of by a septic tank. This disposing method of night soils by a septic tank is a method suitable for their living mode and the climate of the area and is not only effective but hygienic. So long as the mode of making use of the land is not changed on a large scale, no necessity is likely to exist in completing a modern sewage in a hurry as one factor of infrastructure.

Nevertheless, it is quite necessary to complete a sewage system at the key concentration development point in Parapat in order to limit to minimum the pollution of the Lake Toba. Outline of this project is as follows:

- Draining system: Separation draining (Rainwater and sewage)
- Treatment method: Secondary treatment of activated sludge process
- Draining area: 40 ha
- Population under the coverage:

Residents	12,500	persons
Lodgers	2,700	"
Visitors	4,400	"
Total	19,600	"

- Original unit amount of the sewage: 300 l/person/day
- Maximum sewage amount per day: 5,880 m^3 /day

Electricity

The existing state of power supply in both North and West Sumatra Provinces is shown in the following:

Existing State of Power Supply (Table-24)

	Brastagi and Kabanjahe	Parapat	Bukittinggi
Power plant capacity (kW)	1,250	610	8,800
Peak demand (kW)	800	360	3,000
Electric energy generated (kWh/month)	358,900	75,000	855,300
Future development plan	Increase by 250kW in 1977	Increase by 275kW in 1978	Increase by 2,400kW in 1980 Increase by 3,500kW in 1981

Source: Perusahaan Umum Listrik Negara Wilayah II and III.

Diesel engines or gas turbin engines are generally used as the motive power for generators. In Bukittinggi, however, hydraulic power generation is employed for power supply. The demand for electric energy in 1995 is estimated as follows by rough calculation:

Planning Standards (w/persons) (Table-25)

	Standards	Planned population
Brastagi		
Residents	60	16,000
Lodgers	300	1,700
Parapat		
Residents	60	12,500
Lodgers	300	2,700
Bukittinggi		
Residents	60	103,000
Lodgers	300	1,500

Peak Demand (kW) (Table-26)

	Residents	Lodgers	Total
Brastagi	960	510	1,470
Parapat	750	810	1,560
Bukittinggi	6,180	450	6,630

The supply/demand balance at the time of peak demand as computed from the above is as follows:

Supply/demand Balance in 1995 (kW) (Table-27)

	Demand	Supply	Total
Brastagi	1,470	1,500	+ 30
Parapat	1,560	885	- 675
Bukittinggi	6,630	14,700	+ 8,070

According to the Asahan Project valid at this moment, utility purpose power supply is scheduled to amount to as follows:

- 25,000 kw in 1982, 35,000 kw in 1983, 45,000 kw in 1984, and 50,000 kw in 1985 onwards

Although no power supply allocation has yet been determined, no power shortage would result at all when the power from Asahan Project was allocated to Brastagi and Parapat.

Telecommunication

The present employment of communication equipment in the main cities and towns in North and West Sumatra Provinces is shown in the following table below:

Existing State of Telecommunications (Table-28)

	Number of subscriber telephone (Telephones)	Population (Persons)	Number of telephones per population (Telephones/100 persons)	Telex
Medan	16,691	721,000	2.3	-
Padang	3,504	223,000	1.6	-
Bukittinggi	1,061	72,000	1.5	-
Jakarta	88,624	5,800,000	1.5	980
Dempasar	2,881	451,000	0.6	-
Yogyakarta	3,123	372,000	0.8	-

The communication service in favor of tourists is necessary not only for tourist town but also for tourist assets. Not to speak of available telephones in a Hotel, handy public telephones should also be made available through exertion of proper efforts. Telex system will also become necessary in Brastagi, Parapat and Bukittinggi.

8

PAPER 8: INSTITUTION, PROMOTION AND IMPLEMENTATION

1. Institution

Need for Institutional Arrangements

Since this Master Plan has the following points which characteristically differ from the other master plans which already have been implemented in Indonesia, it necessitates institutional arrangements respond to the traits of this plan.

- It will cover large development area.
- It aims at the combined tourism development of North and West Sumatra Provinces.
- It aims at the tourism development as an effective measure for regional development.
- It undertakes development that carefully regards the conservation of the nature and the social environment, society and culture.

The government policy and its strategy for the tourism development may be expressed as follows. The government will directly implement the development of tourism resources and facilities as well as the related infrastructure and thus form up the frame of the tourism region. At the same time, it will strategically promote the tourism industry and related activities in the initial stages by providing incentives to make the industries be stable, and accordingly will raise the supply standard of tourism services. Thus, while the development of a tourism region will be pursued, the government will derive tourism revenue from the related tourism industries.

Needed institutional arrangements for forming the above mentioned mechanism are summarized in the following categories.

- Institutional arrangement for a core organization to assume the coordination, management and control of the tourism development.
- Institutional arrangements related to the promotion of tourism market.
- Institutional arrangements related to the supply of tourism products and services.
- Institutional arrangements related to the preservation and promotion of folk culture and entertainment.
- Institutional arrangements related to the national park and conservation of nature.
- Institutional arrangements related to research and studies.
- Institutional arrangements related to vocational training.

Organization for Coordination, Management and Control of the Development

(1) *Organizational Function*

In order that this plan may be enforced in a systematic and effective manner, it is extremely necessary to form a powerful core organization that provides the function of coordination, management and control of the development. It behooves it to undertake completely the following items, having several tens of projects spread over each sector as its target.

Determination of Policies to be Executed and Aims Needed in Policy Execution

Based on the basic policy of the Nation or of the Directorate General of Tourism, the determination of various necessary aims and policies to be implemented upon execution of *this master plan is an indispensable function. Concretely speaking, this function is used in* the following matters.

- To set financial, social, and economic guidelines for ongoing development.
- To initiate, review, and coordinate policies and priorities.
- To approve development plans and formulate programmes for each sector and phase of *the master plan.*
- To measure the budget.
- To resolve conflicts that probably arise between the organization and the central government, provincial governments, or other bodies.

This high-level decisions should be undertaken appropriately by the board and/or steering *committee of the core system.*

Execution of Work Needed in Implementation of Master Plan

It is necessary to execute the decided aims and policies to as well as to undertake various concrete plans and proposals that serve as a basis for various aims and policies. The following functions must be enacted as functions implementation.

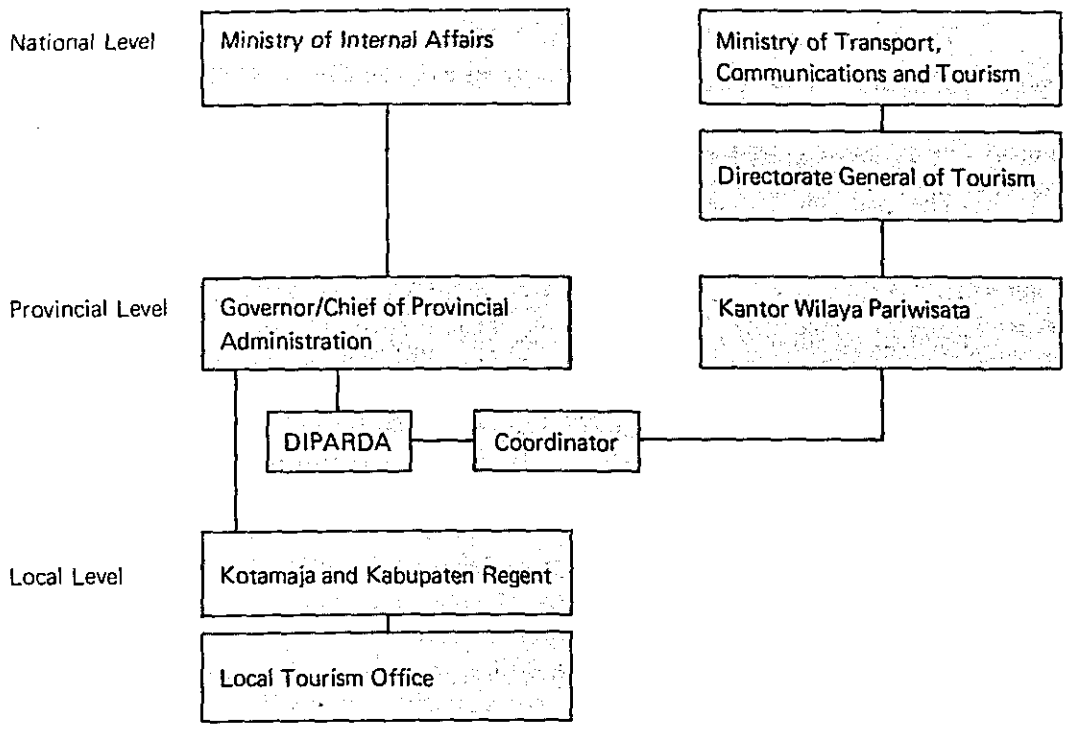
- Secretarial tasks: Public relations, coordination of provincial departments and other agencies.
- Planning tasks: Approval, control and monitoring of development. Coordination of social and community facilities. Project proposals for the institutional arrangement of development concerns. Consultation for lower-level organs of execution.
- Development tasks: Development of hotels and lodging sites, arranging and developing tourism resources and facilities (consultation and supervision of lower-level organs of execution or direct implementation of the above).
- Research and studies tasks: *Compilation of various statistics related to tourism develop*ment, basic surveys on tourism development, studies on various development.
- Financial tasks: Budget treatment of each development project and monitoring of expenditures of each project.

(2) Recent Improvement of Organizational for Tourism Administration

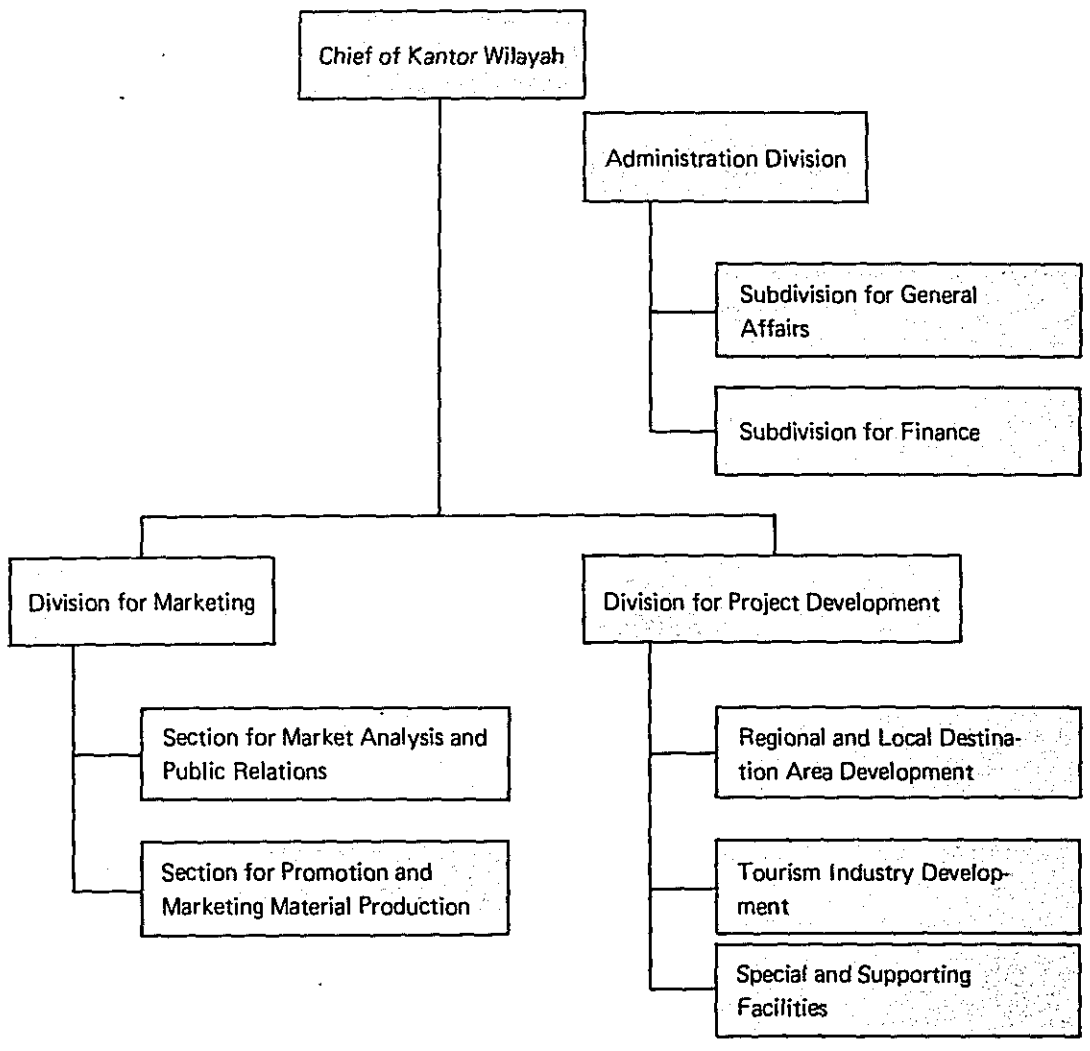
The Ministry of Transportation, Communication and Tourism presently is preparing an improvement of *the governmental tourism organization, scheduled to be enacted* April 1st, 1978. In order to coordinate the policies and operations both of the Directorate General of Tourism and of provincial governments, "Kantor Wilayah *Pariwisata" (KANWIL) will be* established as the branch of the Directorate General of Tourism in the major tourism provinces. Whilst, the provincial tourism organizations of which *namings were not united are* standardized essentially in "Dinas Pariwisata Daerah" (DIPARDA). Moreover, the KANWIL and DIPARDA will be headed by a person who will be selected and appointed by DGT. Thus, a formal government tourism administration system, that links on a national scale both center and province, is established for the first time and can be considered to be great progress. Originally therein, there was only allowed a relationship restricted ordinarily to technical problems between the Directorate General of Tourism and province's bureau of tourism.

Even though the regulation exists for framework of the new government tourism administration system, it seems that the function as a core organ of this master plan cannot be fulfilled under the present conditions because the development area extends over two provinces. Figures 1 and 2 respectively show the structure of the new government tourism-related organization and the organization chart of Kantor Wilayah Pariwisata.

Structure of the New Government Tourism-related System (Figure-1)



Organizational Structure of Representative Office of DGT (Figure-2)



Considering the afore-mentioned new organizational arrangements (KANWIL system), several alternative plans of the Governmental institution for the coordination, administration and control of the tourism development in the subject two provinces were conceived and comparison was made. Finally, it has come to the conclusion that one of the alternative plans which corresponds to the plan that is currently under consideration by DGT is the best suitable plan. It is because this alternative institutional plan fulfills the following four necessary conditions: namely,

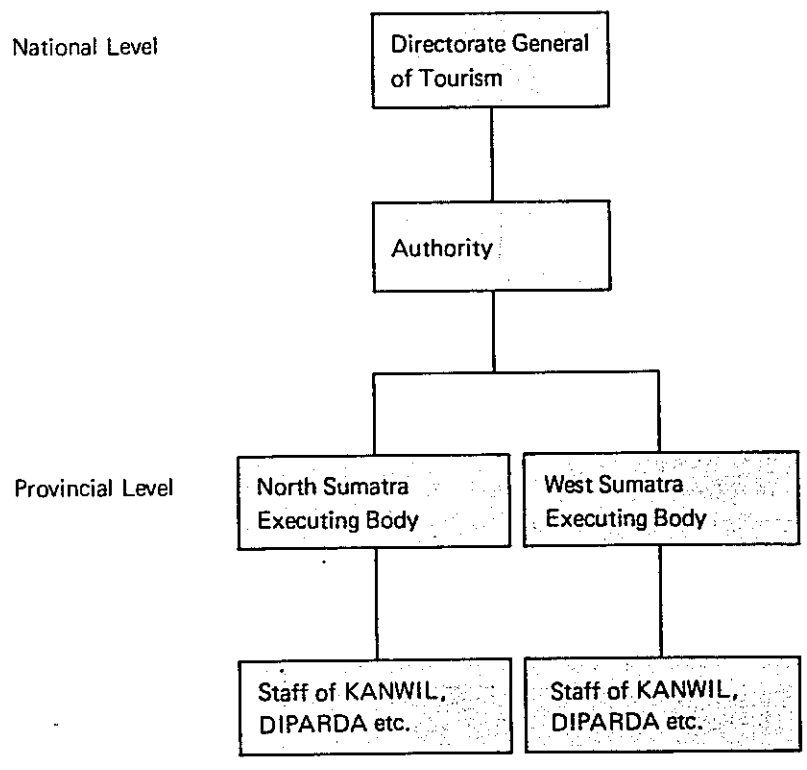
- The plan must reflect fully the DGT's policies,
- The plan must make possible the combined tourism development of North and West Sumatra Provinces,
- The plan must let function new organization of DIPARDA with KANWIL,
- The plan must make possible to implement the comprehensive tourism development which extends over many sectors.

The core organization is referred tentatively to as the "Authority for Tourism Development of North and West Sumatra Provinces" (the Authority). The organizational chart is shown on Figure 3. The Authority will consist of the high responsible personnel from every concerned ministries and organizations. Chairman of the Authority will be the top personnel of DGT. The Authority will, based on the fundamental policy of the Government, determine the policies and measures necessary for the implementation of the master plan and coordinate the development of the both provinces.

Under the Authority, the "Executive Body of Tourism Development of North Sumatra Province" and the "Executive Body of Tourism Development of West Sumatra Province" the Executive Bodies will be established respectively in the North and West Sumatra provinces. Chairmen of the Executive Bodies will be the governors of the both provinces. The Executive Bodies will execute the policies and measures determined by the Authority.

The Executive Bodies will have the "Staff" under their administration. The staff will involve not only the DIPARDA and KANWIL but also the members from all of the concerned organization like the public works, custom, immigration, public health and so forth.

New Organization for North and West Sumatra Tourism Development (Figure-3)



2. Promotion

Market Promotion

(1) It cannot be over-stressed that the assurance of a tourist arrivals, especially foreigners, is the principal point determining the success of this plan. It is most important strategically that target countries are carefully selected and that promotion activities are concentrated on potential countries, based on a systematic market analysis. Promotion will be undertaken chiefly abroad.

When foreign promotion is undertaken separately or jointly by both provinces for familiarizing people with the area's name, such promotion rather lacks appeal for the time being. Hence, it is strategically desirable of salable in the present case for the DGT to push as one promotional component of the "Indonesian tourism." It is preferable that the final responsibility for the market promotion related to this plan should rest in the department of market development of the DGT. The region in this case should cooperate positively, supplementing activities of the DGT. Cooperation will occur in the following cases.

- Submission of information and materials needed in the compilation of promotion materials. Provision of conveniences and cooperation in activities for selecting tourism materials in the region.
- In case a program is put together for foreigners connected with tourism and mass communications to observe the area, a system for receiving them should be organised.
- Dispatchment of a folklore team for foreign tourism promotion.
- Creation of local events.

There remains a problem of policy whether the government should solely push promotion or do so in cooperation with the private sector. It is commonly assumed in principle that cooperative efforts at promotion are more effective.

(2) Promotion expenses are born overwhelmingly in part by the budgets of national tourism organizations of each country. In the case of Indonesia, however, when we observe the amount of expense entailed until now, (as seen below), we can clearly say that 0.6 to 1.3 dollars expense per tourist is insufficient. In the case of Japan, for example, promotional expense of 8.7 dollars per foreign tourist arrivals has been spent.

Year	Foreign tourist arrivals (1) (1,000)	DGT promotion budget (2) (Million Rps.)	(2)/(1) (US$)
1971	179	55	0.74
1972	221	120	1.31
1973	270	62.5	0.56
1974	313	75	0.58
1975	366	120	0.79
1976	400	180	1.80

Source; DGT

In order to further promotion, promotional expenditure basically must be raised. Thus, we shall try first to investigate here the amount of allowance for promotional expenses vis-a-vis this plan.

- Assume that promotional expense per foreign tourist arrival in 1980 will be one dollar.
- Allowance for promotional expense in 1981 and thereafter is compared with the amount of expenditure for individual foreign tourist. The computed results are listed as follows. It it reasonable to consider a standard of four dollars per arrival (2 percent to tourist expenditure) in 1995.

1980	US$1.0
85	1.8
90	2.8
95	4.0

(3) Bearing in mind the above allowance for promotional expenses and considering a strategic distribution, it is important to have an outlay, in order to realize actual expenses. Because actual strategic distribution at the present time is too risky, it should not be undertaken, but basically it would be good to consider the following strategy.

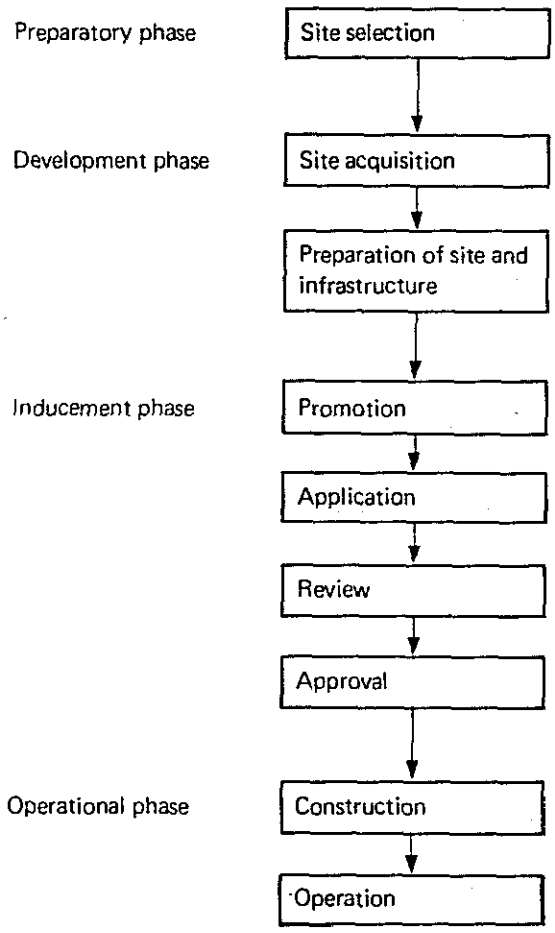
- To further long-term foreign promotion, foreign offices must be increased form the present three of Frankfurt, San Francisco and Tokyo. These new offices should be opened in suitable locations in potential countries, such as appropriate ASEAN countries, and European countries, after investigation of their effects.
- In relation to this plan, it is necessary to build a strong image of "Sumatran tourism" in the international tourism market by promoting a sales pitch of "Sumatran tourism", once having planned the timing for completion of a core area - for example. At this time, deeply impressive events should be created in the region for tourists. In terms of strategic development, the period of 1985 to 1990 appears appropriate for these intensified promotion.

Development of a Hotel Base

(1) The sequence of the activities involved in this development of a hotel base can be divided into four different phases - namely the preparatory phase, the development phase, the inducement phase and the operational phase, as shown in Figure 4. In order to implement the development project under an integrated system, it would be most desirable to create a single agency which can undertake all the activities of the four phases. Different phases, of course, may be assigned to separate agencies, but in such a case the phases managed by different agencies would have to be coordinated fully through close consultation between the organs involved to insure that the final result will be as satisfactory as if a single agency had handled all operations.

(2) In the preparatory phase, it is necessary, first of all, to arrange the development agency or agencies described above. In this connection, the reader is referred to section 2, "Formation of Core Organization." The main activities of the preparatory phase are site selection and the preparation for execution of the plan. It is important that both during and after the site selection process, measures be devised for freezing the price of the property involved to discourage real estate speculation.

Sequence of Operation in Development of a Hotel Base (Figure-4)



(3) In practice, the development phase, the inducement phase and the operational phase are implemented concurrently. This is because the introduction of hotels will require a considerable length of time so that the development of the site may be implemented in two to three stages depending on the demand. A particularly important requirement during the development phase is that the supply of utilities, the preparation of water supply and sewage facilities, the construction of feeder roads, and the preparation of employee housing be completed in time for the construction of the hotel itself. For this reason, the Ministry of Public Works and other agencies concerned should coordinate their activities.

(4) Intensive promotional efforts will be necessary to induce hotels to participate. It is strategically recommended that the promotion targets be oriented initially to internationally known, first-class hotels, because the inclusion of these hotels would create considerable secondary advantages, such as a significant upgrading in the reputation of the tourism area and a greater number of visitors as a result of promotional efforts by the hotels themselves. With regard to foreign investors who would require information on the local investment climate, it will be necessary to prepare materials covering such subjects as foreign investment regulations, various applicable incentives, and future prospects for the tourism industry as well as the local investment climate. This brochure would be distributed through foreign embassies in Jakarta, Indonesian embassies abroad, and overseas offices of the DGT among other outlets.

(5) It is, at the same time, important that investment by the local small and medium entrepreneurs be promoted. It is possible that many small and medium entrepreneurs would find it difficult to invest individually, so that it would be desirable for those responsible for site development to promote cooperative enterprises among these business through appropriate guidance and, thus, enable them to participate financially.

(6) In order to induce hotels to participate, it may be necessary to grant direct financial incentives in some appropriate form to hotel entrepreneurers who will construct on the site. It is important that such rates --e.g., utility charges, rent for employee housing, and lease rates for the site--be determined with a great deal of care, incorporating not only the method of merely covering the costs but also a method of actively inducing related businesses to participate.

(7) It will be necessary to establish tenancy standards to insure an orderly development. The following two items necessarily must be considered in terms of the tenancy standards.

- Establishing hotel standards, sanitary standards, and safety standards and making adherence thereto one of the conditions of tenancy or lease.
- Establishing tenancy standards which reflect a standpoint of promoting prosperity for the local small and medium entrepreneurs.

(8) Operating expenses relating to the development of a hotel base are included in the operating expenses of the core organization. It would seem appropriate to allot about 50 percent of this total to hotel development operations.

Investment Incentives

(1) It is necessary to prepare various investment incentives in order to encourage the participation of tourism industries. Investment incentives may be broadly categorized as follows.

- Arrangement of available land and infrastructure, subsidies lease rates and charge for utilities.
- Extension of loan and credit systems to facilitate fund procurement, along with reduction of capital costs.
- Exemption and/or education of import duties on imported machinery, equipment and raw materials.
- Exemption and/or education of corporate income tax, real estate tax, and property tax.
- Accelerated depreciation system.
- Loss deferment system.

(2) It is, of course, not easy to find answers to such questions as how much should such incentives alleviate the financial burden on the businesses, or how much of the cost of these incentives the Government should bear. A very general guideline, however, may be presented in terms of the following figures. These figures represent preliminary investment incentives equivalent to 30 percent of corporate income taxes drawn from the profits of the tourism industries, profits which are calculated from estimated expenditures by foreign tourists.

	1980-96 Aggregate		Annual Average	
	($M)	(Rps. M)	($1,000)	(Rps. M)
Hotels	1.5	622.5	93.75	38.9
Catering businesses	1.3	539.5	81.25	33.7
Travel agents and related enterprises	0.8	332.0	50.0	20.8
Handicraft industries	1.0	415.0	62.5	25.9
Total	4.6	1,909.0	287.5	119.3

(3) Tax incentives, which primarily involve the country's financial and taxation system, are to a large measure defined within the scope of foreign investment and domestic investment laws and regulations. Any modification of these laws and regulations would be implemented at the initiative of the B.K.P.M., which is to say under the jurisdiction of a government agency other than the Directorate General of Tourism. It is, therefore, important that the DGT first of all undertake to convince the concerned branches of the government that the arrangement of investment incentives in the tourism sector is indeed essential, and that the development of international tourism would yield significant economic and social benefits.

In the provinces of North and West Sumatra, where the government is placing high priority on the development of tourism, it is believed that there is a relatively greater possibility for financial incentives to be implemented in the form of measures introduced by the provincial governments.

It would seem that there is great potential for consolidation and expansion of investment incentives utilized by the provincial governments. It is desirable that there be both a local tax reduction and the creation of a credit system directed for use by the provincial development banks.

(4) Effective adaptation of investment incentives should be undertaken, using the hotel industry as a target. Because additional investment naturally is needed for meeting hotel, sanitary, and fire standards, it is most important to consider that the higher the attainment of required standards the more special privileges are granted. The credit system uses a method of two or more types in its interest rate. Among all incentives, two or three types of categories are established to be used.

(5) Travel Agents and Related Enterprises

One way to insure an enjoyable journey for the incoming arrivals would be the improvement of the means of transport. In this region where inland transportation requires rather long time, the expansion and consolidation of transportation service with luxury-class tourist buses would be significant. Since the purchase of luxury-class tourist buses would be a considerable burden on travel agents, it would seem proper to devise some measures for alleviating this burden. The improvement of transportation services should probably include the fostering of taxi entrepreneurers for the convenience of tourists.

It, however, is believed that the participation of small investors and local small businesses in the transportation sector would create undesirable effects.

(6) Handicraft Industries

Once sector associated closely with the development of tourism is the handicraft industries. While both provinces in question prossess the potential for producing items salable as souvenirs and gifts for tourists, activities in this sector still remain at a slow pace. In some areas, non-reproducible antiques and second-hand items even assume more display space than other products in souvenir shops. It is noted that several handicraft centers have been opened in West Sumatra for tourists, but it would seem that, lacking an effective marketing system, this industry is not progressing as well as could be expected.

A great deal of importance, therefore, may be attached to the promotion of this sector, which will advance the participation of local small enterprises in the development project and, at the same time, respond to the diverse needs of tourists.

While it is not essential for the tourism sector to take the initiative in this matter which is primarily the task of the industrial sector, it would be desirable for those involved in the tourism sector to cooperate, for instance, either by surveying the tourists' shopping needs add supplying this information or by recommending the construction of suitable handicraft markets.

While financing and tax incentives are among the most orthodox ways to promote the prosperity of handicraft industries, this sector can be expected to show a significant improvement, if assistance from the Department of Industry could be obtained in the form of instructions in manufacturing techniques or help in expanding distribution channels. These measures would indeed seem necessary.

Promotion and Preservation of Historical Remains, Folklore and Folk Performances

In principle, the Ministry of Culture and Education is responsible for the promotion and preservation of remains (ruins), folklore and folk performances. It is necessary vis-a-vis these remains, to take such measures as preliminary investigation and excavation, appraisal, repair and restoration, preservation, disaster prevention, and security, as well as determining the method of display while weighing the balance between educational effects and preservation.

Folk culture and folk performances presently are everyday realities of the indigenous people and are not spoiled yet by commercialization and modernization accompanying tourism.

In order to futher promote this folk culture and folk performances, it will be necessary to form a public organization like the "Folklore and Folk Performance Promotion Agency" and also build cultural centers where such can be performed or displayed.

This plan proposes to organize a "Folk Performance Promotion Agency" and build a "Culture Center" in the provinces of both North and West Sumatra, with the understanding that these projects are to be undertaken by the Ministry of Culture and Education.

The problems that will arise in relation to the tourism development plan are the rules and procedures that must be followed when the remains (ruins) and folklore are used as objects of tourism. For instance:

- Remains, historic buildings and other cultural materials and artifacts

  With respect to remains, their eligibility as objects of tourism must be cleared first under joint review by the official tourism and cultural authorities concerned. The tourism authorities will assess the remains or ruins on the premise that they are to be turned into objects of tourism, while the Ministry of Culture and Education will evaluate the same from the viewpoint that they are national properties. When a consensus is not reached, the opinion of the Ministry of Culture and Education should prevail.

  When a decision is reached for the remains or ruins to become objects of tourism, then they will be transferred to the jurisdiction of the tourism authorities.

  With regard to cultural materials and artifacts; it will be appropriate to set up a folklore museum department within the Folk Culture Center to be responsible for the collection, alignment, recording, preservation, and display of cultural materials.

- Folk Performances

  The utmost care and prudence are called for when folk performances are made the objects of tourism, for they often become plagued by the so-called "commercialization of tourism." A practical solution would be to regard the promotion of tourism-related activities or performing companies as activities basically conflicting with the preservation of traditional folk performances; thus, while measures should be taken to accelerate tourism on the one hand, efforts should be made to encourage the preservation of tradition on the other hand.

  When a particular performance is selected for promoting tourism by the consensus and coordination between the tourism and cultural authorities, it seems appropriate to promote the performance by subsidize payments to the performing groups. Assuming that the rate of such subsidies will quadruple the current rate paid by the Tourism Office of North Sumatra, the required amount for the coming 16 year period is estimated to be around 0.2 million dollars or 83 million rupiahs (an annual average of 12,500 dollars or 5.2 million rupiahs).

Personnel Training of the Tourism Industry

(1) The training of personnel engaged in the tourism industry is important from the standpoint both of spreading the benefits of tourism development to as many people as possible in the region as well as of improving the image of tourist regions. The hospitality and professional skill of those engaged in the tourism industry are indispensable when tourists enter the area.

This plan proposes to establish a training center for employees of the tourism industry in both North and West Sumatra provinces. It is desirable to have these training centers for employees of the tourism industries placed under the jurisdiction of the Directorate General of Tourism and operated by the central government. This is considered necessary both to attain and maintain a certain requisite level of training and to handle the situation when operation is assisted by a foreign technical cooperation program.

The scale of the training center tentatively would be estimated to be around 500 trainees for North Sumatra. The scale of the center in West Sumatra will be around 150 trainees, if it is to accommodate employees in the core areas only, but, form an operational standpoint, a slightly larger scale is preferable in order to handle employees from outside the core areas too.

(2) Estimation of the Number of Trainees

Number of Persons Required in the Core Area

	Karo	Toba	Minang	Total
1980	1,045	1,756	742	3,543
1985	1,497	2,618	1,149	5,264
1990	2,002	3,618	1,533	7,153
1995	2,453	4,748	2,071	9,272

Manpower Forecast in View of Replacements

	1980	1995	Additional jobs	Replacements	Yearly average
Karo	1,045	2,453	1,408	1,638	203
Toba	1,756	4,748	2,992	3,481	432
Minang	742	2,071	1,329	1,546	192
Total	3,543	9,272	5,729	6,665	826

Note: replacement/additional jobs = 1,163 (UNDP/ILO Survey)

Number of Trainees

	Yearly average
Karo	162
Toba	345
Minang	153
Total	600

Note: 80 percent of above table (It is assumed that personnel of related utilities are excluded from these numbers)

(3) In preparing the course curiculum, it is important to grasp thoroughly the needs of the hotel management and other tourism-related trades which will begin to emerge. It will also be worthwhile to consider adding a course such as "folk performances" to the curiculum so that, instead of being a mere hotel school, its can boast a special feature.

In any event, the following are the necessary basic courses: namely. Service course, Kitchen course, Front office course, Floor course, Administrative course, Foreign language, and Tourism.

Manpower Requirements by Job Classification

Accounting and Administration	8.4%
Reception and Front office	10.0
Housekeeping	23.6
Restaurant and Bar	20.6
Kitchen	13.2
Purchasing office and Storeroom	3.1
Maintenance	4.8
Others	7.4
Tourism	8.9

Source: UNDP and ILO surveys for 1974-79)

(4) Administration of Training Centers

The cost of administration will naturally vary according to the number of courses and course contents covered by each center. In the case of a training center for 500 trainees, a tentative approximation assumes a 30 man staff and 75,000 dollars annual administration cost - including payroll, teaching materials, and overhead.

Assuming that this amount will be financed by tuition, annual charge per trainee would be 62,250 rupiahs or 150 dollars. This amount would be a significantly heavy burden on the hotels and tourism-related industries in the area. For reference, assuming that 660 employees for the combined two provinces will be at end the training center every year, beginning from 1980, and that the total cost of training will be borne by the employer enterprises, the annual incremental expenditure for payroll and training is estimated to rise above what it would be without such formal training by 39 percent for 1980, 26 percent for 1985, 19 percent for 1990, and 15 percent for 1994.

The results of survey in Medan indicate, local tourism operators have little interest in personnel development and are unlikely to bear the previously stated financial burden. Accordingly, some sort of measure must be taken to enhance the utilization of training centers.

First, a careful study is required to decide the amount of tuition at the training center, particularly in the initial stages. It is appropriate to set both tuition at a level that is easy for employers to bear and the resulting administrative deficit to be directly borne by the national government.

On the other hand, to oversome a lack of understanding and indifference on the part of the enterprises toward the need for personnel development, it will be worthwhile to consider compulsory measures such as obliging employee training by regulations or by demanding that training charges be born by the hotel and other tourism business association.

(5) Foreign Technological Cooperation

The utilization of a foreign assistance program for the establishment and administration employee training centers of the tourism industry deserves consideration, as there have been precedents in Bandung and Bali.

Whether such foreign technical cooperation can materialize in the case of training centers in North and West Sumatra needs further study. It seems worthwhile to investigate this.

By so doing, the following expenses will be incurred. Nevertheless, because most of them will be born by the country that provides the technical assistance, the incremental burden on the Indonesian side can be considered negligible.

Cases	Period	Estimated cost (US$1,000)
North or West Sumatra (either one)	3 years	810
Both North and West Sumatra	3 years	1,620

Note: Specialists dispatched: 9

3. Implementation

Concerned Institutional Organization

Under this master planning, many items of projects and undertakings have been proposed, and suitable timings of implementation of each item indicated. These items consist of those of different natures, scales, and timings of implementation, and they will have to be implemented by various organizations according to the nature, scale, function, and timing of activities. Possible cases of implementation will be classified into four categories.

Category-1 will include items which will be implemented directly by the Directorate General of Tourism through available administrative organization including the KANWIL and DIPARDA. This category will include, for example, promotion and propagation of activities, and establishment and management of training centers of the tourism workers.

Category-2 will include items which will be implemented indirectly by DGT through institutional executing organizations to be established by DGT and act on behalf of DGT. As for the particulars of such executing organization, arguments are given in the relevant chapter. This category will include such items, for example, as the developments of tourist towns at Brastagi, Parapat and Bukittinggi.

Category-3 will include items which will be implemented by other ministries or governmental organizations. Items of this category are of the public works nature, and the outcomes are those to be useful partly for the general public purposes and partly for the tourism purpose. This category will include, for example, improvements or extensions of air ports and roads, or preservation of folklore.

The items to be included in the said Categories 1, 2 and 3 require public investments. Contrary to such items, there are items which require private investments. These items are categorized in the Category-4 and will include, for example, hotels, restaurants, souvenir shops, etc.

The investments for the items of Category-1 will not have great share to the total public investment, whereas the investments for the items of categories 2 and 3 will predominate the total public investment.

Implementation Procedure

The items of categories 2 and 3 will predominate the public investment, but such items will be implemented by other institutional organizations than DGT. For the timely implementations, however, it is required for DGT to make necessary preparatory works towards proper implementations by other organizations.

The items of categories 2 and 3 will have to be incorporated in the plans which have higher hierarchy like the five year plans (Pelita III, IV and V) and the integrated regional development plan of Area A that encompasses four provinces such as Aceh, North Sumatra, West Sumatra and Riau.

Through said higher hierarchy plans, each item will be incorporated in the development plans of respective organizations.

For the Category-2 items, DGT will determine the function, system and staff of the executing organization. After such organizations are established, DGT will monitor the progress, and administrate and control indirectly the activities of such organizations. After completions of the items, DGT will also control indirectly the operation, maintenance and administration of each item through the executing organizations which would shift their function to the operation and maintenance activities after the completion of items.

For the Category-4 items which are to be implemented under private investments, DGT or its executing organization will firstly sound the motivations and demands of the potential investors and, based on the results, to carry out adequate promotion for the realization of the development. DGT or its executing organization will then monitor and control the overall progress for balanced and accorded development to the progress of development by the public investment as well as to the growth of demand. During the implementation, DGT or its executing organization will monitor, control or give guidance to the private investors for the purpose of smooth progress and timely completion of outcomes.

For the Category-1 items which are to be undertaken directly by DGT, program and budgets will be incorporated in the DGT's regular yearly program of activities.

Timing of Implementation

Among the items proposed in this master planning, (1) some items are required to be implemented in the next five year plan (Pelita III) period, (2) some items in the further five year plans (Pelita IV and V) period, and (3) some items immediately in the remaining years of current five year plan (Pelita II). These items may be referred to as the immediate items (as indicated 3 above), the urgent items (as indicated 1 above), and the future items (as indicated 2 above). As a matter of course, there are some items of which implementations will extend over more than two of the periods, and they mostly consist of such items as to be initiated early and continued long.

The urgent items needs to be incorporated in the next five year plan. For these items, DGT will make efforts so that these items could be incorporated duly in the next five year plan. Especially for the urgent items which belong to the Category-3 (to be undertaken by other organizations than DGT), DGT will make efforts through ad-hoc committees, meetings and occasional persuation, to let the other organizations to comprehend the necessities of such items to the tourism and to include the budgets thereof in the other organizations' future plans.

When the DGT's efforts are successful and necessary items are included in the future plans of DGT or other organizations, the implementations of such items will be carried out properly by the concerned organizations. However, the outcomes of these implementation activities will be put into being not at the beginning of the next five year plan but a couple or a year after the beginning, and such outcomes will be the earliest ones to be implemented under the urgent items. Nevertheless, it is a fundamental requirement to raise up the growth rate of the tourist influx from present onward. Therefore, some items will have to be taken up as the immediate items and commenced in as early stage as possible.

For the purpose to furnish a reference for DGT when it prepares its own development schedule, the examples have been prepared on the following pages. Examples deal with the physical projects in the three core areas, Karo Plateau, Lake Toba Area and Minang Highlands, and are exclusive of main transportation network, institutional organization or conservation of nature. Principles of schedule for Phase-1 (Urgent items to be implemented in Pelita III period) are argued as follows:

- To materialize the accommodation to fulfill the demand by 1885 including the implementation of three tourism towns at Berastagi, Parapat and Bukittinggi.
- To improve the existing tourism assets which have higher potentials to attract tourists.
- To improve main tourism roads.

The physical projects not included in the Phase-1 are dealt with in the Phases 2 and 3 as the future items. Hence, the actual schedules to be prepared by DGT in the future will be so deviced as to give full consideration to the rolling conditions of the future like the policy, principles and strategy as well as the demand.

Immediate Undertakings

Some items will have to be taken up as the immediate undertakings for the prime purpose of raising up the growth rate of tourist inflow to the subject provinces especially to the West Sumatra in the immediate future during which no outcome of the development activities are yet expected.

In general except for a few cases, the capacities of the existing accommodations, facilities and infrastructures have surplus to some extent as against current size of demands. Hence, it is considered that such capacities will be able to cope with higher growth rate of demand than the past for a future few years. Then, it will be essential to raise up the occupancy rates or utility rates of such capacities in the immediate future years.

It is conceived that such effect to raise up the growth rate will be brought about mostly by an intensive tourism promotion mainly by propagation. Such promotion will be made directly by DGT through existing administrative channels as well as by the travel agents and air companies to which necessary information will be issued by DGT. Information will be propagated through various mass media.

As a nature of propagation, efforts will be concentrated in the early stage and continued constantly in the later stages. North and West Sumatra Provinces as a tourism region are not well known as yet in the possible market countries, hence a considerable amount of budget will have to be allotted for propagation. Also weighting to West Sumatra will be considered duly because the West Sumatra has been known a less than the North Sumatra. Propagation will include more practical information than what can be seen, so that receivers of information could even determine the schedule and budget of their trips.

Propagation abroad will be put stress to the possible market countries which could possibly generate more visitors to the subject region. Possible market countries in the near future will be almost same as the current high potential countries. They are ASEAN countries especially Malaysia and Singapore, EC countries especially Germany and France, Oceanian countries as Australia and New Zealand, USA and Japan. West Sumatra will be due to receive more tourists from Malaysia because of kinship.

In parallel with the promotion by propagation, up-grading of existing tourism condition will be started without delay. Many of the existing tourism conditions could be up-graded without great procedures and budgets. Services in the hotels and availability of variety of food will be improved towards the international standards. Transportation from gate cities to the core areas will be improved by providing more regular, frequent and comfortable bus services. Sanitary conditions in the core area will be improved. Arrangements to reduce air tariff will be considered by introducing the round trip system so that tourists who visit both provinces could be encouraged.

On the other hand, activities to collect and compile tourism statistic data will be improved. Adequate methods, procedures and systems will be adopted and activities will be started as soon as possible. Data to be collected and compiled will cover such items as; number of direct and indirect inbounds both in foreign and interregional domestic tourist components, number of local tourists, number of day-trippers, night stays in hotels and similar accommodation, purpose of visits, means of transportation, expenditures, states of satisfaction and so forth.

It is an urgent requirement to prepare a favourable environment for private investors. As mentioned in the relevant chapter, necessary arrangements for improvement of investment incentive system will be started at the earliest time.

Urgent Undertakings

Each of the proposed physical projects and undertakings will, in general, require normal procedures of implementation consisting of investigation, survey, planning, design, cost estimation, justification, construction, operation and maintenance.

For the Category-2 items (to be implemented under indirect control of DGT), respective executing organization to each project will be required as mentioned in the relevant chapter. Each of such organizations will become the substance body of developing each project to act on behalf of DGT.

For the implementation of these main projects of Category-2, therefore, both of the institutions and implementation procedures will be required.

Projects which are highly important, large in scale and time-taking in various aspects are the three tourism towns located at Brastagi, Parapat and Bukittinggi. They need full procedure of implementation and respective institutions, and each of the areas need to be studied duly even in the preliminary stage before entering into the implementation stage. DGT will act as a main body of preparatory works of these project, and will commence such works in due timings.

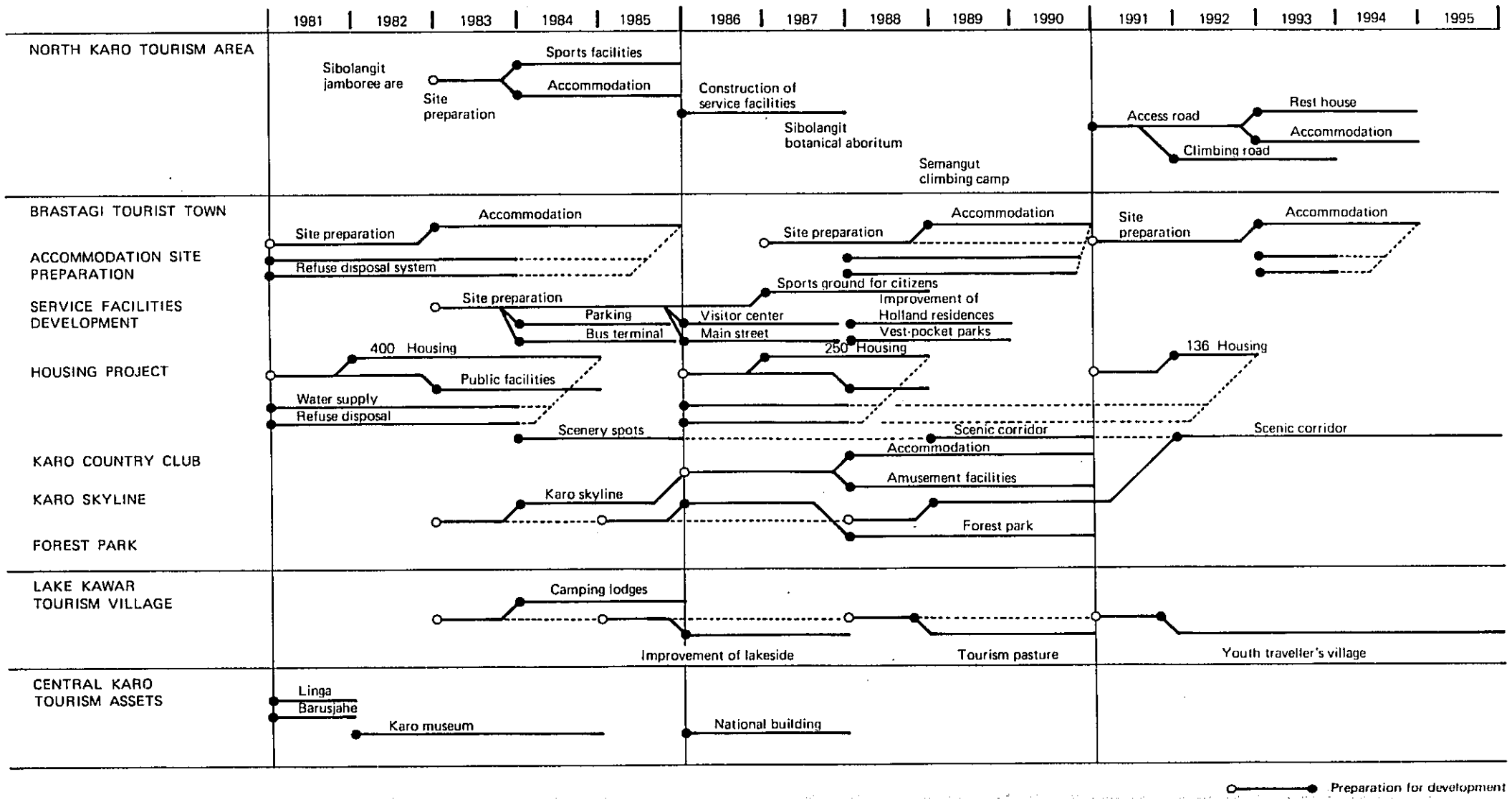
For the study of the above-mentioned three areas, precise maps in adequately large scale are needed. Such maps will be prepared within adequate period considering the future development schedule. Such maps could be prepared independently or included in the scope of study works.

It is proposed in this master planning to establish the national recreational park which comprises of the Lake Toba and its surrounding areas, and two quasi national recreational parks in Karo Plateau and Minang Highlands. In view of the implication of ecology and nature conservation to the tourism development and activities, it is needed that these parks will be realized within a possible shortest time. In this connection, DGT will start to take initiative of necessary administrative arrangements by the Government soonest, so that the areas will be studied and delineated and that the areas will be designated as the national recreational parks.

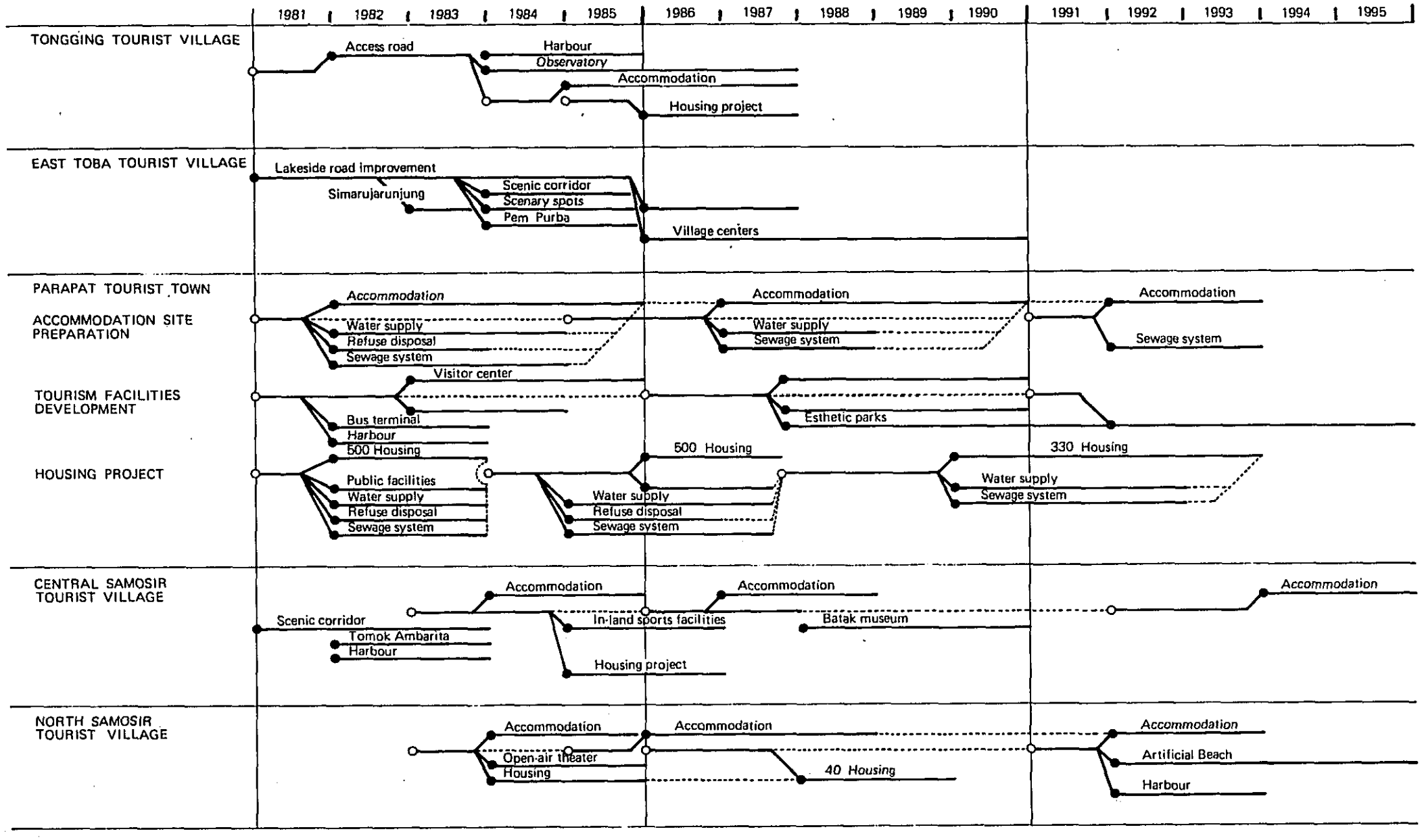
It is suggested under this master planning that the Medan Polonia Airport and the Padang Tabing Airport will require extension of facilities in rather near future for the reasons that the existing facilities will run short some time towards the end of next five year plan period, and that both or either of these airports may be required to accommodate the landing of larger aircrafts which may be used for regular or chartered flights. DGT will take initiative to start immediately the survey and studies by which timing and scale of such extension works will be determined.

It is also urgent to start necessary arrangements for the establishment of training institutes. For the purpose to increase immediately skilled man-power before the establishments of training institutes, tentative training course is urgently required to be organized and operated by DIPARDA. DGT is to assist DIPARDA to provide qualified trainers and in subsidizing the initial working capital.

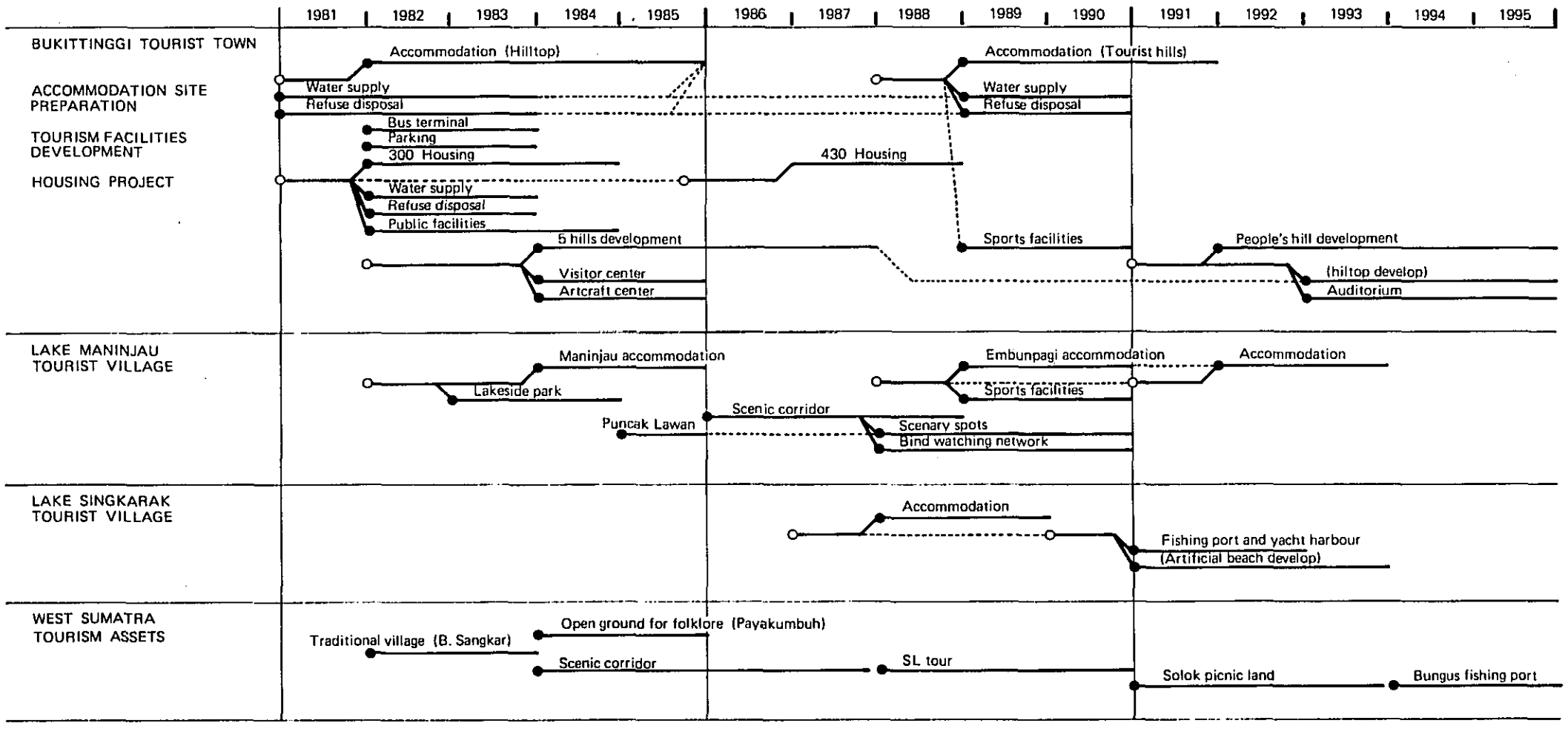
Implementation Schedule: Karo Plateau (Figure-5)



Implementation Schedule: Lake Toba Area (Figure-6)



Implementation Schedule: Minang Highlands (figure-7)



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PAPER 9: ECONOMIC AND FINANCIAL ANALYSIS

1. Economic Analysis

General

For effective achievement of tourism development, various intersectoral requirements are to be incorporated. This Master Plan involves social and physical infrastructure developments which sustain the development in tourism sector. They include: improvement of transportation networks such as airports; roads; utilities development in the core area such as water supply, sewage and refuse disposal; community complex for tourism employees; nature conservation; promotion of culture preservation; restoration of villages in the core area; recreational facilities for local people. Those developments are of a nature of inter-complementary or interdependent between tourism sectors and other sectors. They will benefit not only tourism sector but also other sectors and contribute to give great impacts to the socio-economic development of the regions. In other words, they could not be sustained by the tourism sector only but should be justified incorporating with the integrated regional development plan.

Such being the case, the economic feasibility of the Master Plan can not be judged only from the viewpoint of the tourism sector. It must be appraised in detail in connection with an integrated regional development framework which is expected to be established in near future. Thus, the current economic analysis in the master plan phase had to be limited to demonstrating the various socio-economic effects to be accrued from the implementation of the Master Plan. The socio-economic effects to be derived will concern with the followings:

- income effects
- investment inducing effects
- balance of payment
- employment
- enhancement of trade and related industries
- accelleration of improvement of infrastructure
- impacts on nature conservation
- encouragement for preservation of traditional culture

From the economic viewpoint, one of most remarkable effects is to encourage the economic activities through the activation of mobility due to the development proposed in the Master Plan. Establishment and improvement of tourism environment by public investment will enable the increase of tourist arrivals and eventually stimulate the consumption demand induced by the income increment due to the increase of tourist expenditures. Generated demands may induce the related private investments and, as a consequent, produce additional income. Activation of human mobility will cause activation of commodity mobility and it will stimulate the enhancement of related industries.

Income Effects

One of the biggest effects of the development will be the increment of regional and national income.

Primary source of incomes due to the development is the increment of tourist expenditures. The increment values, which is obtained by deducting the possible tourist expenditures without development from the gross receipts from the tourists with the development plan, are shown in table below.

Increment of Tourist Expenditures (Core Areas)

(million Rps.)

	North Sumatra			West Sumatra		
	Foreign	Domestic*	Total	Foreign	Domestic*	Total
1980	-	-	-	-	-	-
81	227	127	354	58	30	88
82	478	275	753	121	62	183
83	754	439	1,193	194	98	292
84	1,057	629	1,686	280	140	420
85	1,977	1,315	3,292	501	295	796
86	2,271	1,586	3,857	591	363	954
87	2,590	1,900	4,490	689	435	1,124
88	2,864	2,274	5,138	796	517	1,313
89	3,284	2,639	5,923	915	614	1,529
90	4,460	4,070	8,530	1,237	949	2,186
91	4,783	4,664	9,447	1,359	1,098	2,457
92	5,133	5,312	10,445	1,478	1,272	2,750
93	5,478	6,054	11,532	1,607	1,469	3,076
94	5,850	6,886	12,736	1,753	1,683	3,436
95	7,377	9,964	17,341	2,211	2,472	4,683
96	7,377	9,964	17,341	2,211	2,472	4,683

Note: * expenditures of domestic tourists from the other provinces

From the viewpoint of national economy, incremental income will be generated from the expenditures of foreign tourists and from the public investment concerned with the Master Plan. From the regional economic viewpoint, the expenditures of inter-regional domestic tourists as well as foreign tourists and the public investment in the region will be the primary source of the income effects. In addition, income increase will be produced from related private investments which will be induced by the consumption demands generated by the income increment due to tourist expenditures.

Net income effects are provided after deduction of leakages from the country or the region. Import components is to be deducted from the national income increment owing to the development. On a regional level, imports from abroad and the other regions of Indonesia and national taxes imposed by the central government are also leakages from the generated income in the region. Hence, every effort must be taken to minimize leakage components in order to maximize net income to the country and the region. In this connection, encouragement of local industries, especially food processing industries and cottage industries to supply the auxially materials for the tourism investment and operation.

Income effects will be consist of direct income effects and indirect ones. The former is derived from tourist expenditures, the related private investments induced therefrom, and the proposed public investments. Indirect income effects will be derived from the results of the process that direct income increment will induce the additional investments and will produce increment income.

Direct and indirect income effects to be expected from the implementation of the Master Plan are estimated as shown in table below.

Generated Income

(million Rps.)

	Regional				National	
	Direct effects		Indirect effects			
	North	West	North	West	Direct effects	Indirect effects
1980	2,736	1,230	2,735	615	9,146	26,523
81	3,963	1,751	1,315	256	8,615	2,873
82	5,342	1,770	1,290	72	10,518	1,725
83	6,041	2,004	700	90	11,251	1,934
84	6,182	1,788	822	110	10,633	2,177
85	12,776	3,203	5,902	564	18,191	17,518
86	11,791	2,915	687	0	19,134	4,602
87	14,015	3,364	1,152	0	22,959	9,224
88	14,254	3,692	675	135	21,732	1,748
89	15,719	4,095	1,142	187	23,062	3,506
90	21,778	5,548	8,307	1,009	20,575	12,406
91	19,268	5,022	0	0	20,232	0
92	21,307	5,675	0	40	22,289	0
93	23,015	6,270	1,295	217	22,776	1,841
94	25,161	6911	1,597	302	23,895	2,815
95	37,770	10,201	15,445	2,034	21,584	17,426
Total	241,118	65,439	43,064	5,631	286,592	106,318

Investment Inducing Effects

As mentioned in the above, income increase caused by tourist expenditures will induce related private investment with acceleration effects. Not only incomes belonging to the region but also incomes leaked from the region will induce private investments in the region where such incomes fall. It may be possible that input materials required for such investments will be procured from North Sumatra or West Sumatra. In such case, a part of the leaked incomes might be returned back to the origin of income generation.

Source of directly induced investment will only be direct income increase due to tourist expenditures. Indirect investment effects will be caused, in addition, by multiplied incomes derived from the proposed public investments.

Accumulated amount of private investments which is expected to be induced due to the implementation of the Master Plan are estimated at as follows:

	Indirect	Direct (million Rps.)
Regional	19,482	21,767
National	73,598	5,752

Balance of Payment

Foreign exchange earnings are one of the important aims of the tourism development in Indonesia. It is reported that the gross foreign exchange receipts from tourists could be positioned in the fifth order of the export ranking of Indonesia, in 1975.

Although foreign tourist arrivals generated by the proposed development will not be remarkable comparing with those of Bali and Java, the gross direct foreign exchange inflows will amount at 471 million US$ in total for thirty years.

However, at the same time, the outflows of foreign exchange will be a considerable amount. In the course of construction, foreign exchange will be needed for some of materials, equipment and foreign contractors. During operation and maintenance stage, imported consumables and foreign management will also require foreign exchange.

On the assumption that the self-supplying capacity would be unchanged throughout the development period, propensity to import is estimated for each component of public and private investments, O & M costs of public and private facilities. According to this assumption, direct foreign exchange outflows are estimated at 182 million US$ for thirty years.

Thus, net foreign exchange earnings directly due to the proposed development is estimated at 289 million US$ in total for thirty years. Yearly balance of payment is shown in table below.

Balance of Payment

(million US$)

	Gross inflow	Outflow	Net earnings
1980	0	44	- 44
81	6	43	- 37
82	13	48	- 35
83	22	50	- 28
84	31	52	- 21
85	59	83	- 24
86	68	90	- 22
87	78	99	- 21
88	88	98	- 10
89	101	101	0
90	136	58	78
91	147	63	84
92	158	70	88
93	170	73	97
94	182	67	115
95	230	60	170
1996-2009	3,220	840	2,380
Total	4,709	1,939	2,770

In addition to the above, indirect foreign exchange earnings will be expected in the course of the linkage effects of the development. The development of related industries may contribute to increase net earnings of foreign exchange or to save the foreign exchange outflow. However, such indirect balance of payment is to be estimated within a framework of the coming integrated regional development study.

Employment Effects

It is estimated that 6,530 of additional job opportunities will be provided to operate and maintain the service facilities such as hotels, recreational facilities, transportation facilities to be established according to the Master Plan. On the other hand, the annual requirement of man-power for the construction works envisaged by the master plan is estimated at 2.2 million man/day on an annual average and 3.7 million man/day in a peak year. Further, a certain number of skilled and unskilled personnels will be required for the operation of various institutions proposed to be set up in the Master Plan.

In addition to the above direct employment effects, this plan will provide indirectly job opportunities through income generating process mentioned in the above section. As the job opportunities calculated in the above correspond to the direct income from the investment, operation and maintenance of the plan, the rest of the generated income after deducting the portion of investment costs and O & M costs is considered to be the source of indirect job creation. It is expected that a considerable number of job opportunities will be created indirectly on a long term basis.

The unemployment rate in two provinces is reportedly 10 to 15 percent and, in future, increase of disguised unemployment is foreseen due to the relative decrease of growth in agricultural sector. In this context, the impact of this master plan will be important.

Other Effects

In addition to the main effects mentioned in the above, the following effects are considered to be important, although they are non-quantifiable or intangible.

(1) Acceleration of Development of Regional Infrastructure

Tourism development proposed in this master plan is sustained by the development of social infrastructures, utilities and transportation, as well as that of tourism industry itself. These social overhead capitals are not the burden only for the tourism sector, but partly for the other sectors to be benefited by such social infrastructures. If the income increment came from tourism sector will prove the financial autonomy of the investment in the tourism sector itself and some surplus will remain, a part of the investment cost of such social infrastructure requirement can be borne by the tourism sector.

Trigger effects of the tourism development to contribute the social development is to be paid much attention. For example, improvement of Polonia and Tabing airports will be necessary in the future to make economic mobility active in relation with the activation of human mobility. And if the requirements for such improvement are strongly argued from the standpoint of the tourism development, it will be quite effective for the acceleration of the infrastructure development.

(2) Enhancement of Economic Mobility and Related Industries

Activation of tourist mobility will enhance the economic mobilities in the region such as commodity distribution, and then encourage related industries to fulfil the related demands.

One of the biggest effects will be in the agricultural industries, food production itself and food processing industries. For example, production of rice and vegetables in Karo Highland is expected to be enhanced due to the increase of tourists. Other related industries, which are to be enhanced by the tourism development, may include handicraft industries for souvenirs, cottage industries for construction materials, manufacturing and service industries for transportation means and so forth.

(3) Income Distribution

The economies of the subject regions are mostly sustained by the agriculture. However, in a long-term viewpoint, diversification of industrial activities are required. In this context, and considering the favourable endowment of tourism resources in the region, development of tourism sector will contribute to the diversification of income source of the region.

Tourism development in the area, where the tourism potential is relatively advantageous than the potential in agricultural productivity, is justifiable in view of the effective allocation of land resources and regional income redistribution.

Further, job opportunities created by the implementation of the Master Plan are expected to be granted to the indigenous people in the region. This effect also contribute to the distribution of income to the region. In this relation, consideration is to be made to train well the people of the region in order to supply employees within the region as much as possible.

(4) Nature Conservation Effects

The study area involves precious natural environment to be conserved such as the watershed of Lake Toba and original forests in West Sumatra. This Master Plan pays much attention to the nature conservation in relation with the idea of national recreational park, as mentioned in the other part of the report.

Considering the absence of the integrated development plan which should clarify the area to be conserved, the tourism development in this Master Plan prepared in a macroscopic viewpoint of nature conservation will give an effective impact to the future land use in the region.

(5) Nation's Unity

Activation of human mobility due to the tourism development will enhance the mutual understandings between regions and consequently contribute to the better consciousness of the people for the nation's unity. In this context, inter-regional tour by students are especially recommendable to be encouraged.

As a conclusion, the tourism development proposed in this Master Plan will be important from the socio-economic viewpoint, if considered various effects mentioned above, not only quantifiable ones but also non-quantifiable or intangible effects. However, it must be noted that the economic feasibility of individual projects involved in the master plan is to be further studied in detail before their implementations.

2. Outline of Financial Analysis

Nature of Master Plan

Services connected with tourism assets and accommodation and similar services are not all there is to tourism services, for they must also include various kinds of social services to be truly worth of the name. In other words, tourism services are a synthesis of many services, and at a stage where social overhead capital is still inadequately provided, tourism development planning that aims at providing such a synthesis of services has a strong nature of "comprehensive development".

This being the case, the North and West Sumatra Tourism Development Master Plan represents not only tourism development planning per se, but also encompasses industrial and social development and environmental conservation planning.

Master Plan and Financial Analysis

The purpose of the current analysis is to ascertain the financial feasibility of the public investment proposed in the Master Plan from the standpoint of the government.

Ordinarily, the financial feasibility of a project is discussed in terms of the expenditures it entails and the revenues it brings. In the present case, however, considering the nature of the Master Plan of consisting of a number of "interdependent" projects as described above, analysis of its financial feasibility can best be accomplished by means of a comprehensive approach rather than by trying to arrive at an overall analysis as the sum of separate analyses of the individual projects.

Secondly, by its very nature, the Master Plan requires that the great amount of investment be made by the government, both central and regional. Accordingly, its financial feasibility must be considered in terms of the relationship between the government expenditures it will entail and the tax revenues that it can be expected to produce.

Thirdly, such an evaluation has to cover a longer period than is usually the case, and the rate of discount for determining present value must be low.

3. Financial Analysis Models

Three kinds of models are involved here: (1) income generation models, (2) tax revenue models, and (3) government income/expenditure models, one for the central government and one for the regional government, in each case considering the fact that the public investment that the Master Plan envisions will have to be undertaken by government.

Models for Income Generation in the Region

There will be two sources of income generation within the region covered by the Master Plan: tourist expenditures and government expenditures entailed by the plan.

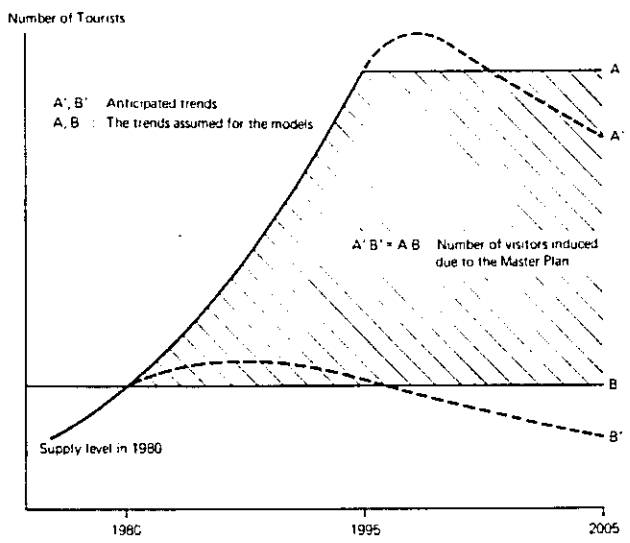
(1) Income Generated Within the Region by Tourist Expenditures

Both international and inter-regional tourists will account for tourist expenditures within the region covered by the plan. Expenditures by local tourists and excursionists do not represent new income generation within the region. Furthermore, it will not be considered what new income might be generated within the region by those who, as a result of implementation of the Master Plan, opt for travel within the region where they would otherwise have gone abroad or to other parts of the country, for it can be considered negligible.

Another distriction that must be made is between gross income within the region from international and inter-regional tourist expenditures and the net income from such expenditures that can be considered to be induced as a result of implementation of the Master Plan.

Hence the need is to estimate the number of additional international and inter-regional tourists that will come to the area as a result of implementation of the Master Plan.

Considering present supply capacity and the trend with respect to such tourists, surplus demand can be expected after 1980. Accordingly, if supply capacity is not increased as envisioned by the Master Plan, such phenomena adverse to attraction of visitors from outside the area as a rise in hotel rates, congestion of social services, sprawl, and blight of the natural environment will arise. And as a result, there will be a rapid deterioration of the quality of the whole synthesis of tourism services. Furthermore, the natural rise in the number of visitors will eventually level off and then give way to a downward trend. Thinking in terms of a 25-30 year period, one can therefore consider any natural increase after 1980 to be cancelled out by the natural decline thereafter, such a simplification making it possible to consider the number of visitors to the region in excess of the expected number for 1980 to have been induced by implementation of the Master Plan. The same reasoning can be applied for the period after 1995, the year by which implementation of the Master Plan is to be completed. This reasoning is graphically illustrated in figure below.



A rise in per capita income due to economic growth has three effects on tourism: a greater number of tourists, longer trips, and a larger daily expenditure per person. All of these effects have been taken into account in estimating net tourism income, i.e., that induced through implementation of the Master Plan. For the purpose of simplification, however, the daily expenditure per person is considered to jump at 5-year intervals instead of rising gradually as it will, of course, actually do.

Not all of the net income estimated in this manner, however, will be income within the region. Some of it will go to other countries and other parts of Indonesia to pay for imports and goods and services brought in from other regions, and some of it will go to the government in taxes. These portions therefore have to be subtracted from the net income.

This adjusted net income, i.e., the income from international and inter-regional tourist expenditures in the region induced through implementation of the Master Plan less the portions of it that will go to the government and to other parts of the country and abroad, will induce tourism-related private investment. Furthermore, income within the region will further increase as tourism-related private investment representing procurement within the area, i.e., less that corresponding to imports and procurement from other parts of the country, and tourism income absorbed within the region are subjected to a multiplier effect. This increase in income will be a direct result of implementation of the Master Plan.

This direct increase in income in the region will then induce private investment in general, which will in turn increase income still more through the multiplier effect. Since this additional income will have arisen in the economic cycle of the region, it will be referred to as an indirect increase in income due to implementation of the Master Plan.

The symbols to be employed in the model are defined as follows:

Symbols

$H_j^i(t)$: Net tourism income

$R_j^i(t)$: Tourism income within the area

$I_j^{i,s}(t)$: *Tourism-related private investment*

$Y_j^{i,s}(t)$: Direct increase in income due to additional tourist expenditure

$\tilde{I}_j^s(t)$: General induced investment due to additional tourist expenditures (variables marked with the symbol $\sim$ all represent an indirect effect)

$\tilde{Y}_j^s(t)$: Indirect increase in income in the area due to additional tourist expenditures

$Y_j^T(t)$: Total increase in income in the area due to additional tourist expenditures

i : $i = 1$ *International tourists*
$i = 2$ Interregional tourists

j : $j = 1$ North Sumatra
$j = 2$ West Sumatra

m_1^i : Propensity of import of hotel-related consumer goods
$(m_1^1 = 0.3, \quad m_1^2 = 0.15)$

m_2 : Propensity of purchase of consumer goods from other parts of the country (= 0.15)

$\hat{t}$: Taxes relating to tourism income (= 0.1)

α_T^i : Tourism-related private investment inducement
$(\alpha_T^1 = 2.4, \quad \alpha_T^2 = 2.0)$

β_L : Multiplier in area (= 2.5)

m_3 : Tourism-related private investment overseas procurement coefficient (= 0.4)

m_4 : Coefficient of procurement in other parts of the country for tourism-related private investment (= 0.15)

$\tilde{\alpha}_j$: General investment inducement coefficient

$$(\tilde{\alpha}_1 = 0.6,\ \tilde{\alpha}_2 = 0.35)$$

m_{5j} : General investment overseas procurement coefficient

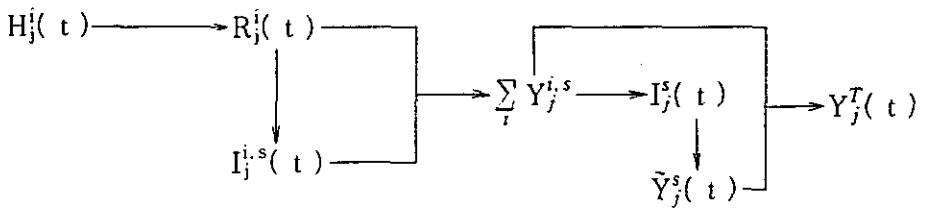
$$(m_{51} = 0.3,\ m_{52} = 0.25)$$

m_{6j} : Coefficient of procurement in other parts of the country for general investment

$$(m_{61} = 0.2,\ m_{62} = 0.22)$$

t : time

Flow Chart



$$R_j^i(t) = (1-m_2)\ (1-m_1^i-\hat{t})H_j^i(t)$$

$$I_j^{i\cdot s}(t) = \delta\cdot\alpha_T^i[R_j^i(t) - \overset{*}{R}{}_j^i(t-1)]$$

$$\text{if } R_j^i(t) > \overset{*}{R}{}_j^i(t-1) \longrightarrow \delta = 1$$

$$\text{if } \quad " \quad < \quad " \quad \longrightarrow \delta = 0$$

In the following, this will be indicated by the symbol δ

$\overset{*}{R}{}_j^i(t-1)$ stands for the highest level of R_j^i in the period (t-1).

In the following, this will be indicated by the symbol *

$$Y_j^{i\cdot s}(t) = \beta_L[(1-m_3-m_4)I_j^i(t) + R_j^i(t)]$$

$$\tilde{I}_j^s(t) = \delta\cdot\tilde{\alpha}_j[\sum_i (Y_j^i(t) - \overset{*}{Y}{}_j^i(t-1)]$$

$$\tilde{Y}_j^s(t) = \beta_L(1-m_{5j}-m_{6j})\tilde{I}_j^s(t)$$

$$Y_j^T(t) = \sum_i Y_j^{i\cdot s}(t) + \tilde{Y}_j^s(t)$$

(2) Income Generated Within the Region by Government Expenditures

There will be two kinds of income-generating government expenditures within the region relating to implementation of the Master Plan: public investment expenditures and operation and maintenance costs.

By subtracting imports and procurement from other parts of the country from the sum of such public investment expenditures and operation and maintenance costs, we get the increase in income in the region resulting from government expenditures in the region relating to implementation of the Master Plan. Moreover, this increase in income will be further increased by the multiplier effect just as in the case of the income increase resulting directly from tourist expenditures.

Symbols

$G_j(t)$: Public investment

$Z_j(t)$: Public investment corresponding to procurement within the area

$OMC_j(t)$: Operation and maintenance costs

$OM_j(t)$: Operation and maintenance costs corresponding to procurement within the area

$Y_j^g(t)$: Additional income within the area resulting directly from government expenditures relating to implementation of the Master Plan

$\tilde{Y}_j^g(t)$: Additional income within the area resulting indirectly from government expenditures relating to implementation of the Master Plan

$\bar{I}_j^g(t)$: General investment induced by government expenditures relating to implementation of the Master Plan

$Y_j^G(t)$: Total additional income within the area resulting from government expenditures relating to implementation of the Master Plan

m_{7j} : Overseas procurement coefficient of public investment

$(m_{71} = 0.2, \quad m_{72} = 0.3)$

m_{8j} : Coefficient of procurement in other parts of the country of public investment

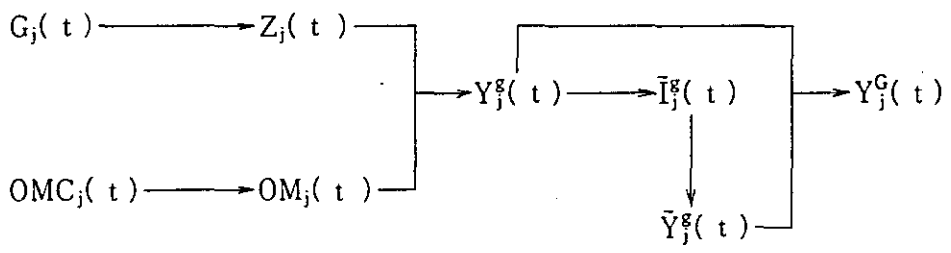
$(m_{81} = 0.4, \quad m_{82} = 0.35)$

m_9 : Overseas leakage coefficient of operation and maintenance costs

$(m_9 = 0.05)$

m_{10} : Coefficient of leakage to other parts of the country for operation and maintenance costs

Flow Chart



$$Z_j(t) = (1-m_{7j}-m_{8j})G_j(t)$$

$$OM_j(t) = (1-m_9 = m_{10})OMC_j(t)$$

$$Y_j^g(t) = \beta_L(Z_j(t)+OM_j(t))$$

$$\tilde{I}_j^g(t) = \delta\cdot\tilde{\alpha}_j(Y_j^g(t)-Y_j^{g*}(t-1)$$

$$\tilde{Y}_j^g(t) = \beta_L(1-m_{5j}-m_{6j})\tilde{I}_j^g(t)$$

$$Y_j^G(t) = Y_j^g(t)+Y_j^g(t)$$

Models for Income Generated Nationwide

Income generated nationwide as a result of implementation of the Master Plan will fall under two categories: that generated by an additional inflow of international tourists and that generated by government expenditures relating to such implementation.

(1) Income Generated by Additional International Tourists

Since it is not likely that there will be any appreciable diversion of overseas trips by Indonesians to Sumatra as a result of implementation of the Master Plan and since any increase in visitors to the region from other parts of the country would only represent a decrease in visits to other regions, the only relevant category of income here is that generated by the additional number of international tourists that will come to the area as a result of implementation of the Master Plan.

If imports and taxes are subtracted from tourism income generated by international tourists, we get the amount of income generated by them that is circulated in the country. This income induces tourism-related investment, thereby increasing income still further. Besides such directly generated additional income, there is also, of course, additional income that is generated indirectly in the economic cycle.

The model for this case and the symbols used in it are as follows, the flow chart having been dispensed with since it is the same as in the case of income generated within the area by additional international and interregional tourist expenditures resulting from implementation of the Master Plan.

Symbols

$H_D(t)$: Net income from international tourists

$R_D(t)$: Additional tourism income from the national point of view

$I_D^S(t)$: Additional tourism-related private investment from the national point of view

$Y_D^S(t)$: Income directly generated from the national point of view by additional international tourist expenditures

$\tilde{I}_D^S(t)$: General investment induced from the national point of view by additional international tourist expenditures

$\tilde{Y}_D^S(t)$: Income indirectly generated from the national point of view by additional international tourist expenditures

$Y_D^T(t)$: Total income generated from the national point of view by additional international tourist expenditures

$\alpha_D^{IT}(t)$: Coefficient of inducement of private investment related to international tourism (= 2.7)

β_D : Multiplier in the domestic economy (= 2.9)

α_D : Coefficient of inducement of general investment in the domestic economy (= 1.0)

$m_{3.D}$: Overseas procurement coefficient of private investment related to international tourism (= 0.5)

$m_{5.D}$: Overseas procurement coefficient of general investment (= 0.3)

D : Domestic

Model

$$H_D(t) = \sum_j H_j^I(t)$$

$$R_D(t) = (1-m_j^I-\hat{t})H_D(t)$$

$$I_D^S(t) = \delta \cdot \alpha_D^{IT}(R_D(t)-\overset{*}{R}_D(t-1))$$

$$Y_D^S(t) = \beta_D[R_D(t)+(1-m_{3.D})I_D^S(t)]$$

$$\tilde{I}_D^S(t) = \delta \cdot \alpha_D(Y_D^S(t)-\overset{*}{Y}_D^S(t-1))$$

$$\tilde{Y}_D^S(t) = \beta_D(1-m_{5.D})\tilde{I}_D^S(t)$$

$$Y_D^T(t) = Y_D^S(t)+\tilde{Y}_D^S(t)$$

(2) Income Generated in the National Economy by Government Expenditures Relating to Implementation of the Master Plan

The only difference between this case and that of income generated within the area by government expenditures relating to implementation of the Master Plan is that in this case procurement from other parts of the country need not be subtracted. The sumbols and the flow chart, too, are the same except for the fact that he letter "D" replaces the letter "j".

Model

$$Z_D(t) = (1-m_{7.D})\sum_j G(t) \qquad (m_{7.D} = 0.3)$$

$$OM_D(t) = (1-m_9)\sum_j OMC_j(t)$$

$$\tilde{Y}_D^g(t) = \beta_D(Z_D(t)+OMC_j(t))$$

$$\tilde{I}_D^g(t) = \delta \cdot \alpha_D(Y_D^g(t)-\overset{*}{Y}_D^g(t-1))$$

$$\tilde{Y}_D^g(t) = \beta_D(1-m_{5.D})\tilde{I}_D^g(t)$$

$$Y_D^G(t) = Y_D^g(t)+\tilde{Y}_D^g(t)$$

Tax Revenue Model

Except for the oil company corporation tax, the Indonesian tax structure consists almost entirely of indirect taxes. To make matters simpler, we will therefore ignore direct taxes since it would not make much difference in the model anyway if they were included.

It will also be useful to consider two categories of indirect taxes: those relating to tourism and those that are of a general nature.

There are three categories of taxes that we must consider: (1) those levied by the North and West Sumatra provincial governments, (2) those levied in those two provinces by the Central Government, and (3) those levied by the Central Government nationwide (the second category included).

Furthermore, the revenue from indirect taxes of a general nature will have to be classified into that pertaining to income generated indirectly as a result of it.

The model and the symbols used in it are as follows.

Symbols

$T_{j.L}(t)$: Taxes levied by the North and West Sumatra provincial governments

$T_{j.N}(t)$: Taxes levied in North and West Sumatra by the Central Government

$T_N(t)$: Taxes levied by the Central Government nationwide

$\hat{t}_L$: Local tax rate on tourism (= 0.05)

$\hat{t}_N$: National tax rate on tourism (= 0.05)

t_L : Average local tax rate (= 0.05)

t_N : Average national tax rate (= 0.1)

Model

$$T_{j.L}(t) = \hat{t}_L \sum_i H_j^i(t) + t_L(Y_j^T(t) + Y_j^G(t)$$

$$T_{j.N}(t) = \hat{t}_N \sum_i H_j^i(t) + t_N(Y_j^T(t) + Y_j^G(t))$$

$$T_N(t) = \hat{t}_N \sum_i \sum_j H_j^i(t) + t_N(Y_D^T(t) + Y_D^G(t))$$

Classification of Tax Revenues

		General indirect taxes	
	Tourism related taxes	Revenue from taxed on income generated directly as a result of Master Plan implementation	Revenue from taxes on income generated indirectly as a result of Master Plan implementation
$T_{j.L}$	$\hat{t}_L \sum_i H_j^i$	$t_L(Y_j^S + Y_j^g)$	$t_L(\tilde{Y}_j^S + \tilde{Y}_j^g)$
$T_{j.N}$	$\hat{t}_N \sum_i H_j^i$	$t_N(Y_j^S + Y_j^g)$	$t_N(\tilde{Y}_j^S + \tilde{Y}_j^g)$
T_N	$\hat{t}_N \sum_i \sum_j H_j^i$	$t_N(Y_D^S + Y_D^g)$	$t_N(\tilde{Y}_D^S + \tilde{Y}_D^g)$

Model for Analysis of Government Revenue and Expenditures

Our purpose here is to devise a model to serve as a measure of the financial feasibility of the Master Plan. As already noted in the introduction, such financial feasibility must be considered in terms of the government expenditures that will be entailed in terms of both public investment and operation and maintenance costs and the tax revenues that can be expected as a result of implementation of the plan.

In this analysis we will follow the usual practice in cost-benefit analyses of calculating the present values of future revenue and expenditures on the basis of a particular discount rate.

Furthermore, although an effort has been made by means of computer work to include a large amount of primary material in the financial analysis in order to arrive at a model covering as many cases as possible, it goes without saying that many of the less important cases need not be considered when evaluating the results.

The criteria for classification of the different cases are as follows.

- Since the Master Plan covers two provinces, there must be three government revenue and expenditure analyses: one for North Sumatra, one for West Sumatra, and one for the whole area.
- There must be one analysis for projects involving first priority investment, i.e., investment absolutely necessary to the tourism development of the area, and another for all projects set forth in the Master Plan, including those with relatively low complementarity with tourism development and the nonimplementation of which would have little effect on the number of visitors. Needless to say, the same two classifications hold for operation and maintenance costs.
- Government revenue must first be divided into two categories: that directly generated by implementation of the Master Plan and that indirectly generated by it. Next, it is useful for the purpose of discussing reflux rates, subsidy policy, and the relationship between development and recurrent costs to consider separately all of the tax revenues, both national and local, levied in the two provinces, on the one hand, and all taxes levied throughout the country on the other.
- Five different discount rates have been taken into account considering the diversity of possible sources of government funds: 3%, 5%, 8.5%, 12%, and 15%.
- In order to consider how the comparison between the present values of future government revenue and expenditures will vary according to the period of time involved, we have taken four different time spans into account: 15 years (up till 1995), 20 years, 25 years, and 30 years.

The method employed in our model for comparison of the present values of future government revenue and expenditures is the same employed in the usual cost-benefit analysis. In the model below we have given only the case of tax revenues directly generated in the area as a result of implementation of the Master Plan.

Model

(i) Expenditures

$$PVGE^{r}_{j.h}(t) = \frac{G^{r}_{j}(t) + OMC^{r}_{j}(t)}{(1+\rho_{n})^{t}}$$

PVGE : Present Value of Government Expenditures
ρ : Discount rate
γ : Priority $\gamma = 1, 2$
j : Region $j = 1, 2$
h : Discount rate $h = 1, 2, \ldots, 5$
t : Period $t = 15, 20, 25, 30$

(ii) Revenue

$$PVGR^{r}_{j.h}(t) = \frac{(\hat{t}_{L}+\hat{t}_{N}) \sum_{i} H^{i}_{j}(t) + (t_{L}+t_{N})\ (Y^{S}_{j}(t) + Y^{g.r}_{j}(t))}{(1+\rho_{h})^{t}}$$

PVGR : Present Value of Directly Generated Government Revenue

(iii) Ratio of Revenue to Expenditures $W^{r}_{j.h}(t) = PVGR^{r}_{j.h}(t) / PVGE^{r}_{j.h}(t)$

If $W_{j.}(t) = 1$, the Master Plan is financial feasible for the particular area and conditions involved.

4. Financial Evalution

The purpose here is twofold. First, it has to be determined whether or not the Master Plan is financially feasible. Then, if it is not, consider possible policies regarding subsidies have to be considered.

Financial feasibility will be judged, in the current model, whether or not the ratio, denoted as "W", of present value of government revenue and expenditures is over one. Since, as it was already noted, not all of the cases considered in the government revenue expenditures analysis model are really necessary for judging financial feasibility, those that are not important for the evaluation can be dispensed with in order to reduce the complexity of the matter. The following are criteria for determining which of the cases are indispensable.

(1) Region

North and West Sumatra are not integrated in terms of either tourism or their economies, and that is why we have not devised an accumulative interdependent model for them. Instead, the two provinces should be considered separately for the purpose of financial analysis.

(2) Government Revenue

Indirectly generated income, although generated in the final analysis as the result of implementation of the Master Plan, is nevertheless the direct result of economic activity in other sectors. Moreover, the Master Plan is a functional plan, and only in the integrated planning stage does indirectly generated income come into play in relation to it. Therefore indirectly generated income is only of secondary importance in any evaluation of the financial feasibility of the Master Plan.

In regard to tax revenues, too, considerations can be limited to local and national taxes levied in the two provinces since the emphasis of the Master Plan is on their economies and not on the national economy. National tax revenues generated elsewhere in the country as a result of implementation of the Master Plan should be considered more in terms meeting recurrent expenditures than in terms of coping development expenditures. Limiting considerations of government revenues in this way will make the financial analysis more conservative, as is usually the case. Moreover, if one considers the fact that real estate tax revenues will increase because of the rise in land prices that can be expected as a result of implementation of the Master Plan, we are all the more justified in this approach.

(3) Period

An average life expectancy of approximately 25 years has been assumed for first priority projects. Considering the considerable public investment relating to social development that the Master Plan also envisions, the average project life expectancy for the plan as a whole should be about 30 years since the life expectancy of social development related public investment projects is of course considerably longer.

(4) Discount Rate

In order to cover a variety of possibilities, five different discount rates were considered in the government revenue and expenditures analysis. Considering the fact, however, that the source of funds for implementation of the Master Plan will necessarily be tax revenues, only the 5% and 8.5% rates need be given serious consideration here.

The table below gives the ratios of present values of future government revenue to future government expenditures, both relating to implementation of the Master Plan, for the cases deemed most relevant to the evaluation of the Plan's financial feasibility in the light of these considerations.

Ratios of Present Values of Future Government Revenue to Future Government Expenditures

	Discount rate	W(25)	W(30)
North Sumatra			
First priority projects	0.05	2.302	2.659
	0.085	1.840	2.027
All projects	0.05	1.199	1.374
	0.085	0.968	1.016
West Sumatra			
First priority projects	0.05	1.756	2.028
	0.085	1.363	1.500
All projects	0.05	0.976	1.116
	0.085	0.782	0.855

From these values the following conclusions can be drawn with respect to financial feasibility:

- In the case of North Sumatra, the Master Plan is financially feasible with respect to all of of projects even with a discount rate of 8.5%.
- In the case of West Sumatra, the Master Plan is not financially feasible with respect to all of the projects with a discount rate of 8.5%, but feasible with respect to the first priority projects with a discount rate of 8.5%.

In other words, from a financial point of view, all of the projects are feasible in North Sumatra, whereas only the first priority projects are feasible in West Sumatra.

This leaves two possibilities for West Sumatra:

- To go ahead only with first priority projects for the time being, deferring the others to a later date.
- To subsidize the financially unfeasible projects from the standpoint of narrowing the economic gap between the two provinces or of achieving national social service minimums so that they can be implemented from the outstart along with the first priority projects.

The choice is up to the Indonesian Government as this is a policy matter outside of our competence.

The above discussion, however, lumps the Central Government and the provincial governments together, whereas in actual fact there is a distinction between national projects and local projects in the Master Plan, the tentative division of public investment between them being as follows:

	National Project	Provincial Project
North Sumatra	53%	47%
West Sumatra	58%	42%

Note: These relative proportions are practically the same when first priority projects alone are considered as when all projects are considered.

Assuming that there is little difference between the figures in this table and those for the relative project costs in terms of present value, local and national tax revenues in terms of cost can be calculated from the ratio of the present values of future government revenue and expenditures and the breakdown of approximately 32% to 68% between local and national tax revenues. If the cost of local projects exceeds local tax revenues, the difference will have to be made up by means of subsidies from the Central Government.

The following table is based on these considerations.

Region	Priority	Discount rate	LGE (A)	CGE (B)	t = 25 LGR (C)	t = 25 CGR (D)	t = 25 Surplus to local gov't (C-A)	t = 25 Subsidies (A-C)	t = 25 Reflux rate of taxes to central gov't B+(A-C) / D	t = 25 Surplus to central gov't D-B-(A-C)	t = 30 LGR (C)	t = 30 CGR (D)	t = 30 Surplus to local gov't (C-A)	t = 30 Subsidies (A-C)	t = 30 Reflux rate of taxes to central gov't B+(A-C) / D	t = 30 Surplus to central gov't D-B-(A-C)
North Sumatra	First priority projects	5%	47	53												
		8.5%	47	53												
	All projects	5%	47	53							42	89	- 5	5	65%	31
		8.5%	47	53							32	68	- 15	15	100%	0
West Sumatra	First priority projects	5%	42	58	53	87	11	0	67%	29	52	111	10	0	52%	53
		8.5%	42	58	35	67	- 7	7	97%	2	38	82	- 4	4	76%	20
	All projects	5%	42	58	35	57	- 7	7	114%	- 8	34	72	- 8	8	88%	6
		8.5%	42	58	23	49	- 19	19	124%	- 28	26	54	- 16	16	137%	- 20

Note: (1) The figures in this table are indexes in terms of cost as expresed in present values. In order to arrive at the absolute figures at present values (millions of Rps.), one should multiply the total discounted cost of the relevant projects in each case by the corresponding figures in this table divided by 100.

(2) LGE: Local Government's Expenditures
LGR: Local Government's Revenue
CGE: Central Government's Expenditures
CGR: Central Government's Revenue

For instance, one can see from the table that in West Sumatra subsidies corresponding to the figure "7" (see note on how to read the figures) will be necessary in order to implement only first priority projects with a discount rate of 8.5% and a period of 25 years. Even in such a case, the Central Government will come out with a surplus. The subsidy figures for carrying out all of the projects with a period of 30 years and discount rates of 5% and 8.5% are "8" and "16", respectively, the corresponding Central Government surpluses being "6" and "-20". Considering the fact, however, that the Central Government has tax revenues from other parts of the country as well, it would nevertheless be possible for it to undertake all of the projects in West Sumatra envisioned by the Master Plan even with a discount rate of 8.5%.

Appendix to Financial Analysis

Explanation of Coefficients Used in the Models

Since the coefficients have a large bearing on the values that result from the models, something should be said as to how they were determined.

The coefficients that we have used fall under two categories: those that had already been set in the physical planning and those that had to be set by us for the purpose of the financial feasibility analysis.

The coefficients borrowed from the physical planning are the coefficients of procurement overseas and procurement in other parts of the country for tourism-related private investment and for public investment and the coefficients of leakage overseas and leakage to other parts of the country for operation and maintenance costs. They are not very flexible considering that they were set on the basis of what was considered to be absolutely necessary in terms of imports and purchases from other parts of the country for implementation of the Master Plan. It should be noted, however, that the values of the coefficients of procurement overseas and procurement in other parts of the country for public investment are not the same in the two provinces.

The concerns here, therefore, will be mainly with the most important of the coefficients that we have set for the purpose of the financial feasibility analysis. It is to be kept in mind, moreover, that there has been a lack decisive data on which to base the value assigned.

(1) Coefficient of Propensity to Import of Hotel-related Consumer Goods

This propensity depends on the level of daily expenditure for hotel accommodation per tourist, that of international tourists being rather high on the average. We have therefore assigned a value of 0.3 for international tourists and a value of 0.15 for inter-regional tourists.

(2) Coefficient of Propensity to Purchase Consumer Goods in Other Parts of the Country

Both North and West Sumatra bring in consumer goods from other parts of the island and other islands of the republic. From Table IX, "Statistic Indonesia 1972/73," p. 282, we got a value of 0.1 for the coefficient of trade of major consumer goods with other islands. For other consumer goods we assumed a considerably lower figure of 0.05. As for the coefficient of trade with other parts of Sumatra, we have assumed a value of 0.15 since the fact that agriculture is the main industry would lead one to suppose that it is not as high as it otherwise might be considering geographical proximity. Since the trade coefficient also covers goods sent to other parts of the country, we have assumed a coefficient of propensity to bring in consumer goods from other parts of the country of 0.15 for West Sumatra on the assumption that inter-regional trade is balanced.

(3) Tax Rate on Income From Tourism

Tourist expenditures can be classified into two broad categories: (1) hotel accommodation and (2) transportation and other expenses. We have assumed that the two account for equal portions of total tourist expenditures. With a hotel tax rate of 10% and an assumed tax rate of 10% again on transportation and other tourism-related income, including the airport tax, we get an overall value of 10% for the tax rate on income from tourism. Moreover, we have assumed that the Central Government and the provincial governments each get 50% of such tax revenues.

(4) Coefficient of Inducement of Tourism-related Private Investment

This coefficient has been estimated as follows from the total amount of tourism-related private investment indicated in the physical planning using an acceleration model and taking into account such things as the number of visitors in each category, hotel income ascribable to tourist inflow, and the hotel operation rate.

$$\sum_j \sum_t I_j^{i \cdot s}(t) = \delta \cdot \alpha_T^i \sum_j \sum_t [R_j^i(t) - R_j^{i*}(t-1)]$$

$$= \alpha_T^i \sum_j [R_j^i(1995) - R_j^i(1980)]$$

$$\alpha_T^i = 2.4, \quad \alpha_T^1 = 2.4, \quad \alpha_T^2 = 2.0$$

It should be added that a coefficient of inducement of private investment relating to international tourism of 2.7 has been assumed for the country as whole on the basis of the coefficient above for North Sumatra and (2.4) and the coefficient of procurement in other parts of the country for tourism-related private investment (0.15).

(5) Multiplier in the local economy: β_L

In the absence of local data, we have assumed that North Sumatra and West Sumatra together represent average provinces in terms of these propensities (though North Sumatra is no doubt above average and West Sumatra below average) and assigned them the same values as for the country as a whole as given in "Statistik Indonesia," pp. 254-255 and P. 434 (a marginal consumption propensity of 0.8 and an import propensity of 0.05 for consumer goods). The propensity to bring in goods from other parts of the country has already been set at 0.15. These values give a multiplier of 2.5, which compares with 2.9 for the multiplier in the entire domestic economy in the case of which investment goods are included in the import propensity. A high value for the multiplier will mean greater income and larger tax revenues, but if it is too high, it could be inflationary.

Note: $\beta_L = 1$ / (marginal propensity to consume - propensity to import from other regions of Indonesia - propensity to import from abroad)

(6) Coefficient of inducement of investment in general

The values for this coefficient have been estimated from BAPPENAS, "Rough Estimation of Capital Efficiency by Region According to Relative Comparison, 1968-72," Table A-14, that for North Sumatra being 0.6 and that for West Sumatra 0.35. Furthermore, the figure for the country as a whole has been estimated at 1.0 on the basis of "Statistik Indonesia, 1972/73," pp. 434-435.

The reasons why such low values have been assigned to this coefficient are the large share of agriculture in the industrial structure of the two provinces, the existence of disguised unemployment, and the low rate of operation in industry that is a feature of developing countries in general, and the difference in values between the two provinces is due to a difference in stage of development.

Model Input Data

(1) Time-sequence Data on Different Categories of Tourism Income Generated as a Result of Implementation of Master Plan

This details given in the section of Economic Analysis.

(2) Time-sequence Data on Public Investment and Operation and Maintenance Costs by Region and Category of Projects Included

This data has been compiled as follows in Table-1 for use in the financial and economic analyses.

Output of Models

(1) Tax Revenue and Structure

The following Table-2 gives the tax revenue and structure by region category of projects included, and type of tax as will be generated as a result of implementation of the Master Plan.

(2) Ratio of Present Values of Future Government Revenue and Expenditures

The following Table-3 gives the ratio for each of the cases included in the government revenue and expenditures analysis models.

Government Expenditures (Table-1)

(million US$)

		North Sumatra				West Sumatra			
		Priority Projects		All Projects		Priority Projects		All Projects	
	Year	Inv't	O & M	Inv't	O & M	Inv't	O & M	Inv't	O & M
1	1980	4.527	0.018	6.507	0.040	2.754	0.018	3.345	0.018
2	81	2.546	1.082	3.922	1.156	1.472	0.678	2.061	0.731
3	82	2.597	1.096	5.591	1.170	0.776	0.691	1.669	0.745
4	83	2.552	1.112	5.546	1.186	0.855	0.699	1.748	0.769
5	84	2.572	0.318	5.584	0.394	0.868	0.202	1.772	0.288
6	85	5.744	0.397	9.085	0.613	1.959	0.139	2.532	0.296
7	86	6.907	0.411	10.679	0.642	1.967	0.201	2.540	0.305
8	87	7.993	0.430	13.384	0.676	2.121	0.215	2.998	0.320
9	88	6.400	0.491	11.359	0.753	2.134	0.219	3.011	0.340
10	89	6.444	0.509	11.416	0.788	2.127	0.226	3.013	0.363
11	90	4.593	0.526	5.316	1.108	1.018	0.153	1.591	0.306
12	91	5.491	0.382	6.214	0.964	1.032	0.156	1.605	0.310
13	92	4.676	0.415	7.015	0.997	1.191	0.158	2.068	0.313
14	93	4.254	0.430	6.593	1.012	1.209	0.161	2.086	0.332
15	94	4.316	0.438	6.670	1.024	1.245	0.165	2.132	0.353
16	95		0.400		0.945		0.138		0.342
17	96		0.400		0.945		0.138		0.342
18	97		0.400		0.945		0.138		0.342
19	98		0.400		0.945		0.138		0.342
20	99		0.400		0.945		0.138		0.342
21	2000		0.400		0.945		0.138		0.342
22	1		0.400		0.945		0.138		0.342
23	2		0.400		0.945		0.138		0.342
24	3		0.400		0.945		0.138		0.342
25	4		0.400		0.945		0.138		0.342
26	5		0.400		0.945		0.138		0.342
27	6		0.400		0.945		0.138		0.342
28	7		0.400		0.945		0.138		0.342
29	8		0.400		0.945		0.138		0.342
30	9		0.400		0.945		0.138		0.342
	Total	71.612		114.881		22.728		34.171	

Tax Revenue and Structure (Table-2a)

(PRIORITY PROJECTS)

F-5

** NORTH SUMATRA

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
I.TAX REVENUE GENERATION																	
1)LOCAL TAX (DT1)	184	239	296	327	724	694	802	855	966	1474	1395	1513	1653	1820	2731	2148	2148
2)NAT.L TAX FROM N.SMATRA (DT2)	350	441	532	570	1284	1195	1380	1453	1637	2522	2317	2504	2729	3003	4595	3430	3430
II.TAX STRUCTURE																	
2) / 1)	1.902	1.845	1.797	1.743	1.773	1.722	1.721	1.699	1.695	1.711	1.661	1.655	1.651	1.650	1.683	1.597	1.597

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009		
I.TAX REVENUE GENERATION														
1)LOCAL TAX (DT1)	2148	2148	2148	2148	2148	2148	2148	2148	2148	2148	2148	2148	TOTAL =	45745
2)NAT.L TAX FROM N.SMATRA (DT2)	3430	3430	3430	3430	3430	3430	3430	3430	3430	3430	3430	3430	TOTAL =	74532
II.TAX STRUCTURE														
2) / 1)	1.597	1.597	1.597	1.597	1.597	1.597	1.597	1.597	1.597	1.597	1.597	1.597		

Tax Revenue and Structure (Table-2b)

(PRIORITY PROJECTS)

** WEST SUMATRA

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
I.TAX REVENUE GENERATION																	
1)LOCAL TAX (DT1)	78	78	95	89	182	178	203	228	258	369	356	398	443	492	734	578	578
2)NAT.L TAX FROM N.SMATRA (DT2)	153	148	176	158	324	308	350	391	441	628	589	658	733	813	1235	922	922
II.TAX STRUCTURE																	
2) / 1)	1.962	1.897	1.853	1.775	1.780	1.730	1.724	1.715	1.709	1.702	1.654	1.653	1.655	1.652	1.683	1.595	1.595

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009		
I.TAX REVENUE GENERATION														
1)LOCAL TAX (DT1)	578	578	578	578	578	578	578	578	578	578	578	578	TOTAL =	12273
2)NAT.L TAX FROM N.SMATRA (DT2)	922	922	922	922	922	922	922	922	922	922	922	922	TOTAL =	20013
II.TAX STRUCTURE														
2) / 1)	1.595	1.595	1.595	1.595	1.595	1.595	1.595	1.595	1.595	1.595	1.595	1.595		

Tax Revenue and Structure (Table 2c)

(PRIORITY PROJECTS)

F-5

** NATIONAL LEVEL

I.TAX REVENUE GENERATION	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NATIONAL TAX (DT3)	687	721	819	784	1612	1704	1943	1901	2078	2392	2417	2506	2623	2809	3175	2829	2829

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	
NATIONAL TAX (DT3)	2829	2829	2829	2829	2829	2829	2829	2829	2829	2829	2829	2829	TOTAL = 135554

II.TAX STRUCTURE	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
(DT3)/SUMMATION (DT1) + (DT2)	0.898	0.796	0.745	0.685	0.641	0.717	0.710	0.649	0.629	0.479	0.519	0.494	0.472	0.458	0.342	0.400	0.400

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
(DT3)/SUMMATION (DT1) + (DT2)	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400

Tax Revenue and Structure · (Table-3a)

(ALL PROJECTS)

** NORTH SUMATRA

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
I.TAX REVENUE GENERATION																	
1)LOCAL TAX (DT1)	215	304	361	393	803	782	925	969	1082	1515	1435	1587	1727	1894	2755	2172	2172
2)NAT,L TAX FROM N.SMATRA (DT2)	414	571	663	702	1442	1371	1626	1682	1868	2604	2399	2652	2878	3152	4644	3478	3478
II.TAX STRUCTURE																	
2) / 1)	1.926	1.878	1.837	1.786	1.796	1.753	1.758	1.736	1.726	1.719	1.672	1.671	1.666	1.664	1.686	1.601	1.601

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009		
I.TAX REVENUE GENERATION														
1)LOCAL TAX (DT1)	2172	2172	2172	2172	2172	2172	2172	2172	2172	2172	2172	2172	TOTAL =	47155
2)NAT,L TAX FROM N.SMATRA (DT2)	3478	3478	3478	3478	3478	3478	3478	3478	3478	3478	3478	3478	TOTAL =	77360
II.TAX STRUCTURE														
2) / 1)	1.601	1.601	1.601	1.601	1.601	1.601	1.601	1.601	1.601	1.601	1.601	1.601		

Tax Revenue and Structure (Table-3b)

(ALL PROJECTS)

F-5

** WEST SUMATRA

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
I.TAX REVENUE GENERATION																	
1)LOCAL TAX (DT1)	91	97	114	110	199	193	224	250	281	386	373	421	467	517	744	587	587
2)NAT'L TAX FROM N.SMATRA (DT2)	179	186	215	199	360	339	392	434	485	664	625	705	780	862	1254	941	941
II.TAX STRUCTURE																	
2) / 1)	1.967	1.918	1.886	1.809	1.809	1.756	1.750	1.736	1.726	1.720	1.676	1.675	1.670	1.667	1.685	1.603	1.603

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009		
I.TAX REVENUE GENERATION														
1)LOCAL TAX (DT1)	587	587	587	587	587	587	727	587	587	587	587	587	TOTAL =	12825
2)NAT'L TAX FROM N.SMATRA (DT2)	941	941	941	941	941	941	1221	941	941	941	941	941	TOTAL =	21133
II.TAX STRUCTURE														
2) / 1)	1.603	1.603	1.603	1.603	1.603	1.603	1.680	1.603	1.603	1.603	1.603	1.603		

Tax Revenue and Structure (Table-3c)

(ALL PROJECTS)

** NATIONAL LEVEL

I.TAX REVENUE GENERATION	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
NATIONAL TAX (DT3)	883	1098	1199	1168	2023	2153	2576	2495	2678	2593	2618	2888	3008	3198	3259	2914	2914

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
NATIONAL TAX (DT3)	2914	2914	2914	2914	2914	2914	3239	2914	2914	2914	2914	2914

TOTAL = 149916

II.TAX STRUCTURE	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
(DT3)/SUMMATION (DT1) + (DT2)	0.982	0.948	0.886	0.832	0.721	0.802	0.813	0.748	0.721	0.502	0.542	0.538	0.514	0.498	0.347	0.406	0.406

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
(DT3)/SUMMATION (DT1) + (DT2)	0.406	0.406	0.406	0.406	0.406	0.406	0.426	0.406	0.406	0.406	0.406	0.406

Financial Evaluation (Direct Effects only) (Table-3a)

Table 3 (1)

***** FINANCIAL EVALUATION ***** (DIRECT EFFECTS ONLY)

--- REGIONAL LEVEL ---

K (PRIORITY)	J (REGIONAL)	PHO (DISCOUNT RATE)	A*	B*	RATIO OF REVENUE / EXPENDITURE (N = PERIOD) N = 16	N = 20	N = 25	N = 30
1	1	0.030	1.0	0.	1.451	2.030	2.645	3.161
1	1	0.050	1.0	0.	1.362	1.837	2.302	2.659
1	1	0.085	1.0	0.	1.223	1.556	1.840	2.027
1	1	0.120	1.0	0.	1.102	1.334	1.507	1.605
1	1	0.150	1.0	0.	1.011	1.181	1.294	1.351
1	2	0.030	1.0	0.	1.126	1.576	2.054	2.454
1	2	0.050	1.0	0.	1.040	1.402	1.756	2.028
1	2	0.085	1.0	0.	0.908	1.153	1.363	1.500
1	2	0.120	1.0	0.	0.797	0.962	1.086	1.156
1	2	0.150	1.0	0.	0.717	0.834	0.913	0.952
2	1	0.030	1.0	0.	0.777	1.067	1.370	1.620
2	1	0.050	1.0	0.	0.732	0.969	1.199	1.374
2	1	0.085	1.0	0.	0.660	0.827	0.968	1.061
2	1	0.120	1.0	0.	0.598	0.714	0.801	0.850
2	1	0.150	1.0	0.	0.551	0.637	0.694	0.722
2	2	0.030	1.0	0.	0.653	0.895	1.115	1.315
2	2	0.050	1.0	0.	0.608	0.805	0.976	1.116
2	2	0.085	1.0	0.	0.539	0.675	0.782	0.855
2	2	0.120	1.0	0.	0.480	0.573	0.639	0.677
2	2	0.150	1.0	0.	0.436	0.503	0.546	0.568

J = 1 NORTH SUMATRA

J = 2 WEST SUMATRA

* A = Including national tax revenue attributable to Sumatra

B = Including all national tax revenue

Financial Evaluation (Direct Effects and Indirect Effects) (Table-3b)

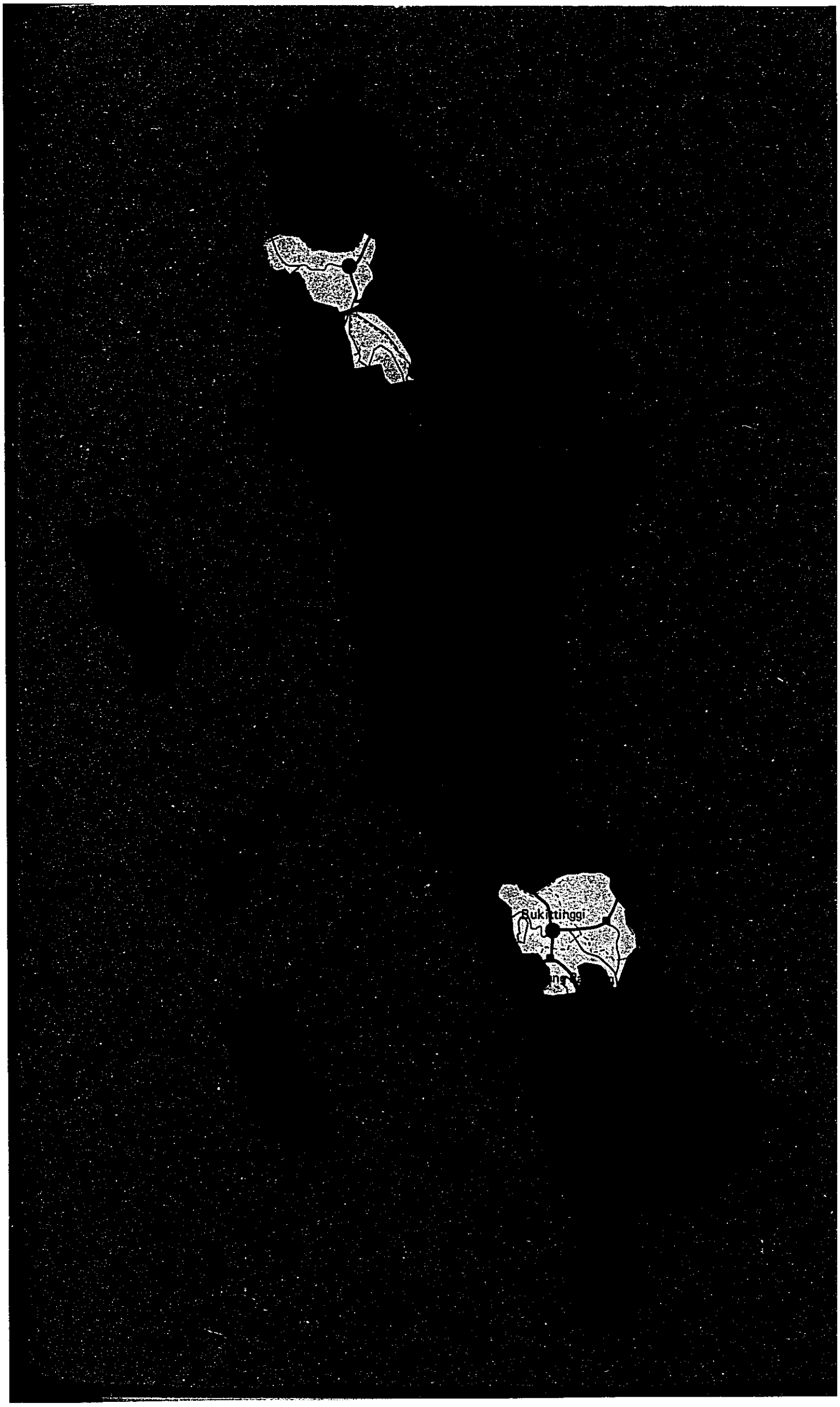
--- REGIONAL LEVEL ---

K (PRIORITY)	J (REGIONAL)	PHO (DISCOUNT RATE)	A	B	RATIO OF REVENUE / EXPENDITURE (N = PERIOD) N = 16	N = 20	N = 25	N = 30
1	1	0.030	1.0	0.	1.663	2.239	2.851	3.364
1	1	0.050	1.0	0.	1.563	2.035	2.498	2.853
1	1	0.085	1.0	0.	1.406	1.737	2.020	2.206
1	1	0.120	1.0	0.	1.270	1.501	1.674	1.771
1	1	0.150	1.0	0.	1.169	1.338	1.451	1.507
1	2	0.030	1.0	0.	1.204	1.653	2.129	2.529
1	2	0.050	1.0	0.	1.112	1.473	1.826	2.098
1	2	0.085	1.0	0.	0.971	1.215	1.424	1.562
1	2	0.120	1.0	0.	0.852	1.017	1.140	1.210
1	2	0.150	1.0	0.	0.767	0.884	0.962	1.001
2	1	0.030	1.0	0.	0.881	1.168	1.469	1.718
2	1	0.050	1.0	0.	0.830	1.066	1.294	1.468
2	1	0.085	1.0	0.	0.750	0.916	1.056	1.148
2	1	0.120	1.0	0.	0.681	0.797	0.883	0.932
2	1	0.150	1.0	0.	0.630	0.715	0.772	0.800
2	2	0.030	1.0	0.	0.693	0.934	1.151	1.351
2	2	0.050	1.0	0.	0.645	0.841	1.010	1.150
2	2	0.085	1.0	0.	0.572	0.707	0.813	0.887
2	2	0.120	1.0	0.	0.509	0.602	0.667	0.705
2	2	0.150	1.0			0.530	0.572	0.594

J = 1 NORTH SUMATRA

J = 2 WEST SUMATRA

* A = Including national tax revenue attributable to Sumatra
B = Including all national tax revenue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