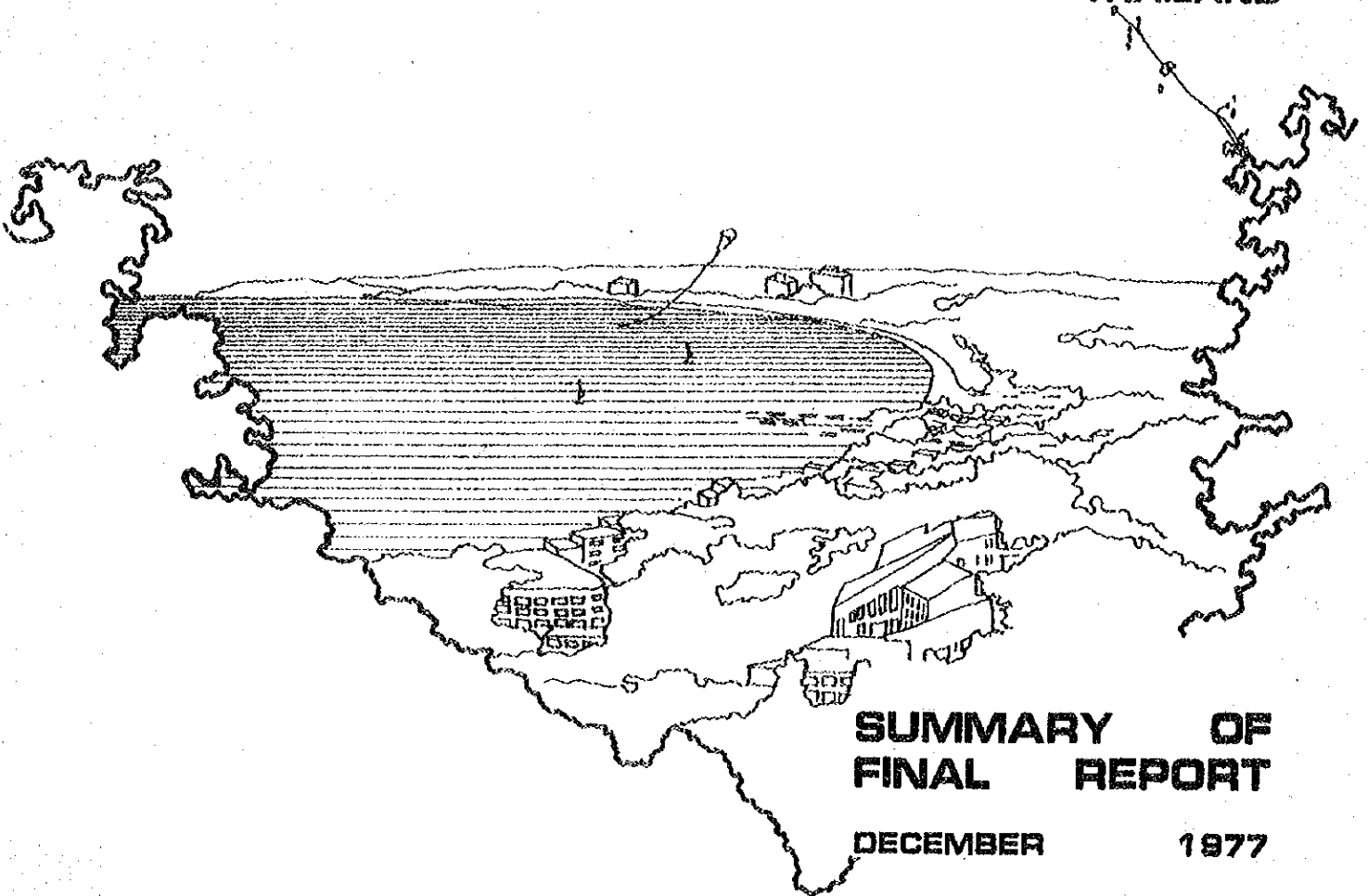


พัทยา

PATTAYA

TOURISM
DEVELOPMENT

THAILAND



SUMMARY OF
FINAL REPORT

DECEMBER 1977

JAPAN INTERNATIONAL
COOPERATION AGENCY

TOURIST ORGANIZATION
OF THAILAND



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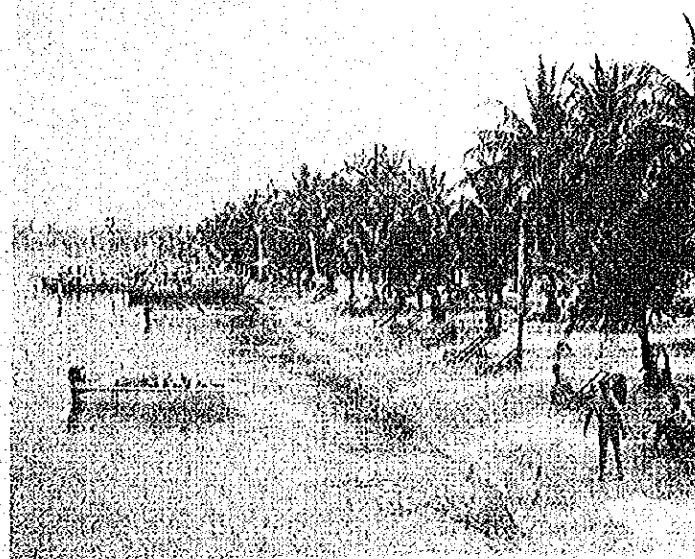
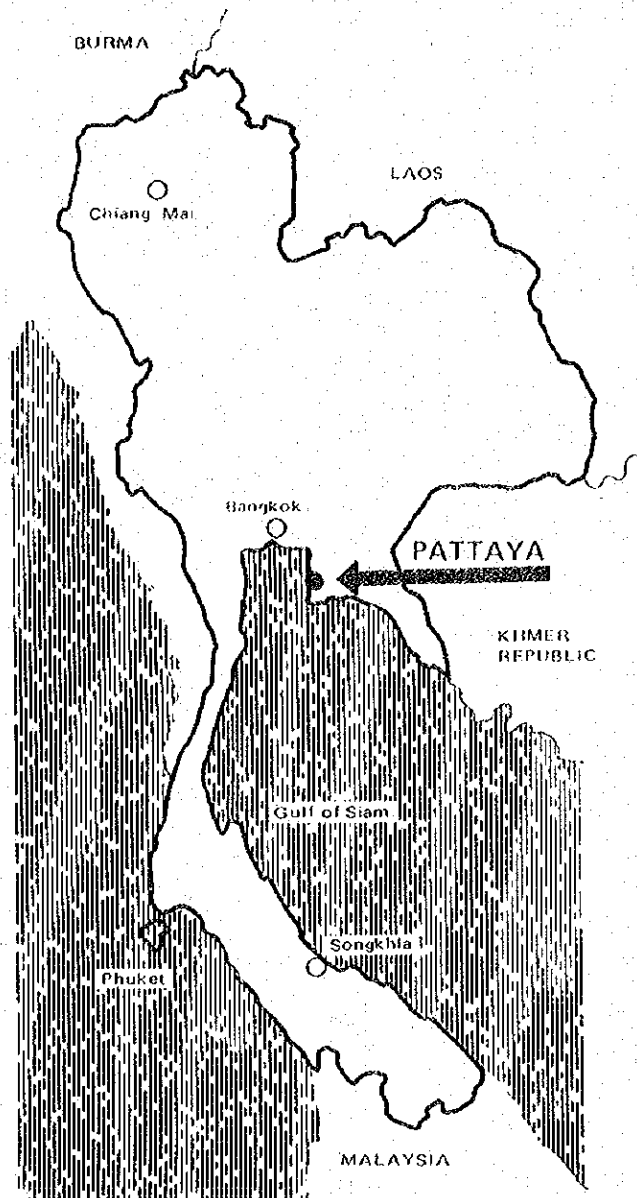
**JAPAN INTERNATIONAL
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PATTAYA TOURISM DEVELOPMENT**

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Pattaya Main Beach

SUMMARY OF FINAL REPORT ON PATTAYA TOURISM DEVELOPMENT

Chapter 1 Introduction

1 Tourism industry has now become one of the major industries for earning foreign exchange in Thailand, and Pattaya is one of the important international tourist ocean resorts in the Kingdom. However, due to the lack of an integrated overall tourism development plan, the problems of unbalanced supply and demand, particularly in the field of infrastructures, have become very acute in recent years.

This report is a masterplan for tourism development of Pattaya, which is a resort of high priority in want of a development plan, prepared by the Japan International Cooperation Agency (JICA), as part of the technical cooperation program by the Japanese Government.

2 The project area of Pattaya is a newly established beach resort situated on the east coast of the Gulf of Thailand at some 150 km south of Bangkok. The study area includes the strip presently already developed for tourist services, and also the islands of Ko Lan and Ko Phai.

The physical feature of the study area is generally flat, except for a small Pattaya Hill towards the south. It is in the tropical rain forest zone but the climate is favorable as a beach resort.

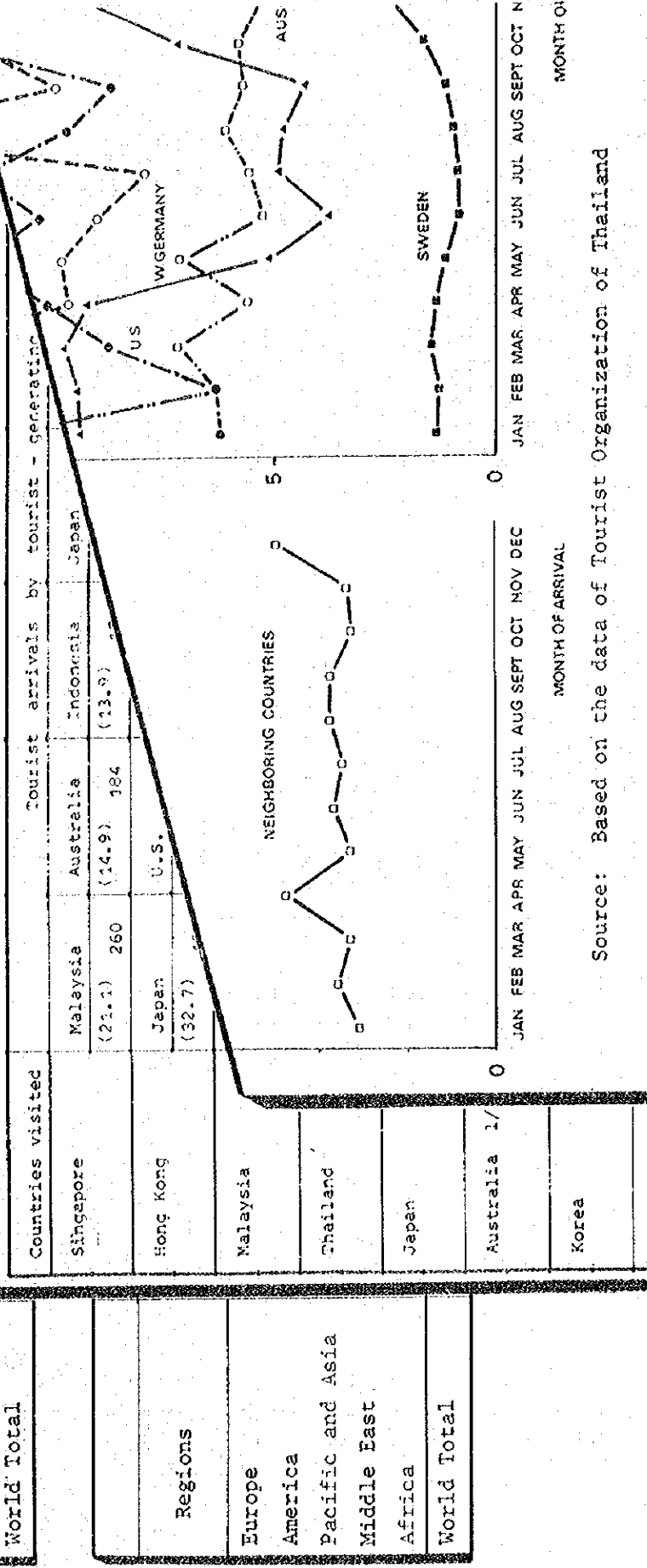
3 The total present population is about 42 thousand of which about 17 thousand are employed. Although the agriculture land area occupies about 63% of the total area, the share of agricultural and fishery labour comes to only 11%, while the service related sector occupies about 87% of the employed population.

4 In tourist accommodation facilities, there are 11 major hotels in Pattaya with nearly 2,800 tourist class hotel rooms and an employment force of nearly 4,400 employees. There are another 800 rooms consisting of minor hotels and bungalow type facilities.

International tourist arrivals by regions

Regions	1966		1969		1970		1971	
	as % of Total	Increase 1966-69	% Increase 1966-69	as % of Total	% In-crease	as % of Total	% In-crease	as % of Total
Europe	74.6	116,260	19.4	75.4	126,235	8.6	74.7	136,300
America	20.2	29,390	11.6	19.1	32,400	10.2	19.2	33,700
Pacific and Asia	1.9	4,155	63.4	2.7	5,285	27.2	3.1	5,260 (-) 0.5
Middle East								8.0
Africa								4.0
World Total								18.6
								2.9

International Tourist arrivals to major countries of Pacific Asia by leading tourist - generating countries (1974)



Source: Based on the data of Tourist Organization of Thailand

Chapter 2 Tourism Market Analysis in Pattaya

1 Since the early nineteen fifties, international tourism has enjoyed a period of rapid and steady growth so that the total international tourist arrivals has grown from 131 million in 1966 at a steady average annual growth rate of 5.6% to reach 213 million in 1975.

The international tourist receipts has also grown correspondingly from US\$12.5 billion in 1966 to US\$29 billion in 1974, for an average annual growth rate of 11.1%.

Europe and the Americas are traditionally the major tourists receiving regions of the world. In 1974, about 71% of the international tourists was received by Europe while the Americas catered for about 22%. However, the share of Pacific and Asia has been on the increase from 1.9% in 1966 to 3.3% in 1974.

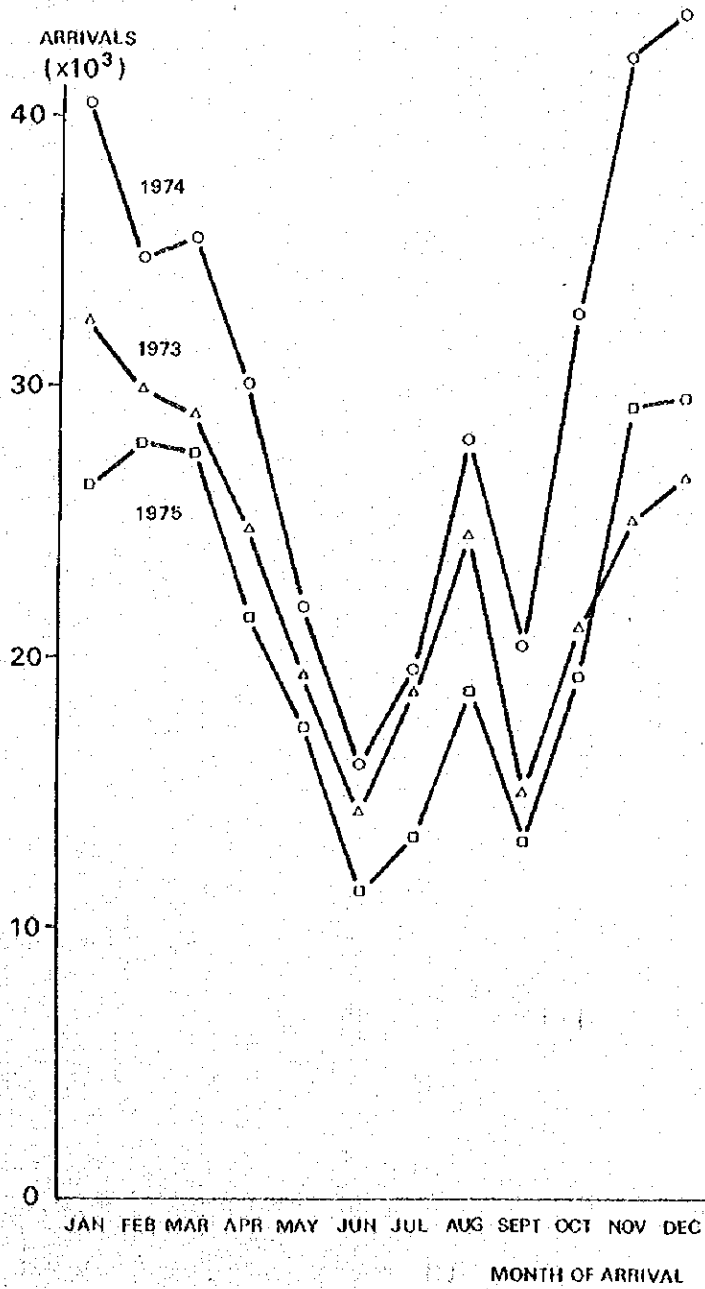
2 The number of tourist arrivals in Thailand has rapidly increased from 225 thousand in 1965 to 1,098 thousand in 1976, at a phenomenal average annual growth rate of 15.5%. The million mark was reached in 1973, when Thailand ranked third in Pacific and Asia in the number of international visitors received. In 1975, Thailand was slightly exceeded by Malaysia and is now ranking fourth in Pacific and Asia in the volume of international arrivals.

3 International tourist receipts of Thailand was recorded at about 4.5 billion bahts in 1975, and ranked fifth after rice, maize, sugar and tapioca as foreign exchange earner of Thailand.

4 The major countries of origin of international arrivals to Thailand in recent years were Malaysia, Japan, U.S., Western Europe countries and Australia.

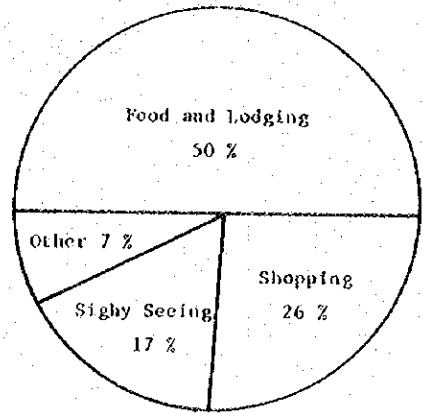
There is no conspicuous seasonal fluctuation in international tourist arrivals throughout the year although the months of January through April, and August, November and December are generally the peak months. This is due to the offsetting seasonal pattern of the major generating countries.

Hotel Arrivals in Pattaya



Source: Tourist Organization of Thailand

Census 1975



Tourist Organization of Thailand

Forecast of visit

World Bank	
PATA Development Authority	
Netherlands Institute of Tourism Development Consultants	
Dr. Bullockas	
Boeing	Low Estimate
	High Estimate
Dr. Baron	Low Estimate
	Medium Estimate
	High Estimate
Tourist Organization of Thailand	

Note. Source: Tourist Org

5 The average length of stay of international visitors in Thailand has lengthened steadily from 3 days in 1960 to reach 5 days in 1976.

The average expenditure per visitor in 1975 was US\$37.85 of which about 50% went for food and accommodation, 26% for shopping and 24% for sightseeing, transportation and other goods and services.

6 The volume of tourists into Pattaya has also rapidly increased in recent years. The total number of night staying tourists in Pattaya were estimated at 280 thousand for 1973, 360 thousand for 1974, and about 400 thousand for 1975 and 1976, including both international and resident tourists. International tourists is estimated at slightly over half the total volume.

Due to the large share of resident tourists, the seasonal fluctuation was much more conspicuous than the national average, so that the number of tourists at the peak months of December or January was nearly 3 times as large as the bottom months of June or September.

The present average length of night staying of visitors to Pattaya is about 1.7 days.

7 The future tourism demand of Thailand is estimated by forecasting the future world volume of international tourists, the future Pacific and Asia share of the world volume and the share of Thailand in Pacific and Asia. The volume of tourists into Pattaya is estimated for both international tourists and resident visitors by analysing the share of international tourist of Thailand into Pattaya and also the future pattern of growth of resident visitors. The results are summarized as follows:

Year	Future Tourist Volume				
	<u>1976</u>	<u>1981</u>	<u>1986</u>	<u>1991</u>	<u>1996</u>
World (million)	213.0	268.3	309.3	360.5	417.0
Pacific & Asia (million)	7.1	9.0	11.1	13.5	16.0
Thailand (thousand)	1,180	1,600	2,000	2,500	3,000
Pattaya (thousand)	400	600	800	1,000	1,200
International	210	352	500	588	660
Resident	190	248	300	412	540

Additional Hotel Rooms Required in Pattaya

Year	1976	1981	1986	1991	1996
(in thousand) Visitor arrivals	400	600	800	1,000	1,200
of which Foreign tour	210	352	500	588	660
of which Residents	190	248	300	412	540
(nights) Average length of stay	-	1.8	2.5	3.1	3.4
Foreign tourists	-	2.0	3.0	4.0	4.5
Residents	-	1.6	1.7	1.85	2.0
(annual average) Room occupancy (%)	-	80	80	80	80
Average of peak month (%)	-	95	95	95	95
Average of bottom month (%)	-	50	50	50	50
(person/room) Double occupancy	-	1.6	1.6	1.6	1.6
Total rooms required	-	2,300	4,300	6,600	8,700
Increase of rooms from 1976	-	-	700	3,000	5,100

Long-term Forecast of Hotel Visitors in Pattaya

(in thousands)

	(actual) 1973	(actual) 1974	1975	1976	1981	1986	1991	1996
Foreign Tourists (A)	-	-	-	210	352	500	588	660
% Average Annual Increase	-	-	-	-	1976-81 10.9	1981-86 7.3	1986-91 3.3	1991-96 2.3
Visitors to Thailand (B)	1,036	1,107	1,180 ^{1/2}	1,098	1,609	2,600	2,509	3,000
X = $\frac{A}{B}$	-	-	-	19.1	22.0	25.0	23.5	22.0
% $\left(\frac{A}{B}\right)$	-	-	-	52.5	58.7	62.5	58.8	55.0
Residents (C)	-	-	-	190	248	300	412	540
% Average Annual Increase	-	-	-	-	1976-81 5.5	1981-86 3.9	1986-91 6.9	1991-96 5.6
X = $\left(\frac{C}{B}\right)$	-	-	-	47.5	41.3	37.5	41.2	45.0
(A + C) Total (D)	279	364	400 ^{2/2}	400 ^{3/2}	600	800	1,000	1,200
% Average annual Increase	-	1973-74 30.5	1974-75 9.9	-	1976-81 8.6	1981-86 5.9	1986-91 4.6	1991-96 3.7
								1975-96 5.4
								1976-96 5.6

- 8 The future hotel room requirements of Pattaya are calculated from the assumed annual occupancy, the average peak and bottom month occupancy, the average length of stay separately for international and resident visitors and the average double occupancy per room and the results are as follows:

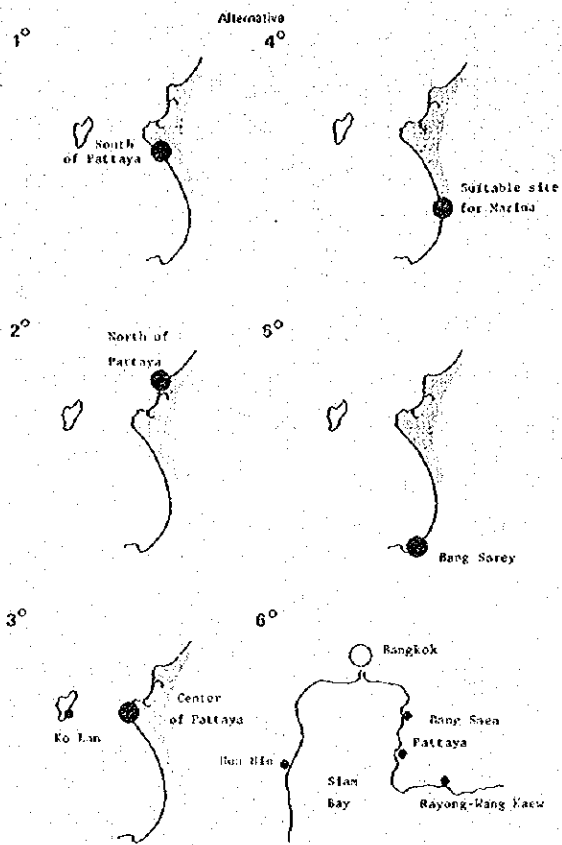
Future Hotel Room Requirement in Pattaya

<u>Year</u>	<u>Total Room Required</u>	<u>Additional Room Required</u>
1981	2,300	—
1986	4,300	700
1991	6,600	3,000
1996	8,700	5,100

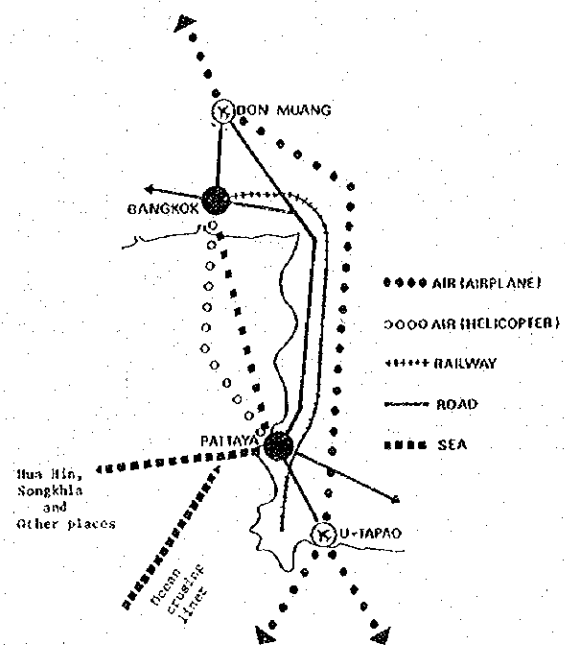
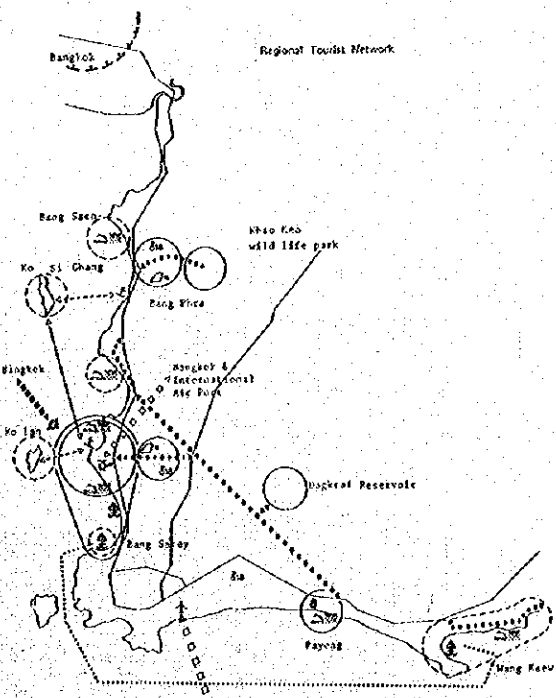
- 9 The future volume of day trip visitors into Pattaya is estimated as follows:

Volume of Day-Trip Visitors (in thousand)

<u>Item</u>	<u>1981</u>	<u>1986</u>	<u>1996</u>
For the year	458	625	960
Maximum per day	5.5	7.5	12.0
Average per day	1.3	1.7	2.6



Inter-Regional Transportation System



Chapter 3 Masterplan for Tourism Development

1 Several alternative concepts for the tourism development of Pattaya were studied and it was concluded that the alternative of making any necessary new development towards the adjacent south of the existing built-up area is most favorable from the points of maintaining totality of the resort and effectiveness in investment.

2 Besides the development of Pattaya, it is necessary to plan an integrated tourist route to include all the regions surrounding Pattaya in order to further enhance the attractiveness of the resort.

For the same reason the plan on the use of the sea surface should also include the entire sea surface extending up to Bang Sarey.

3 Inter-regional transportation system plan is important to ensure convenient access by tourist.

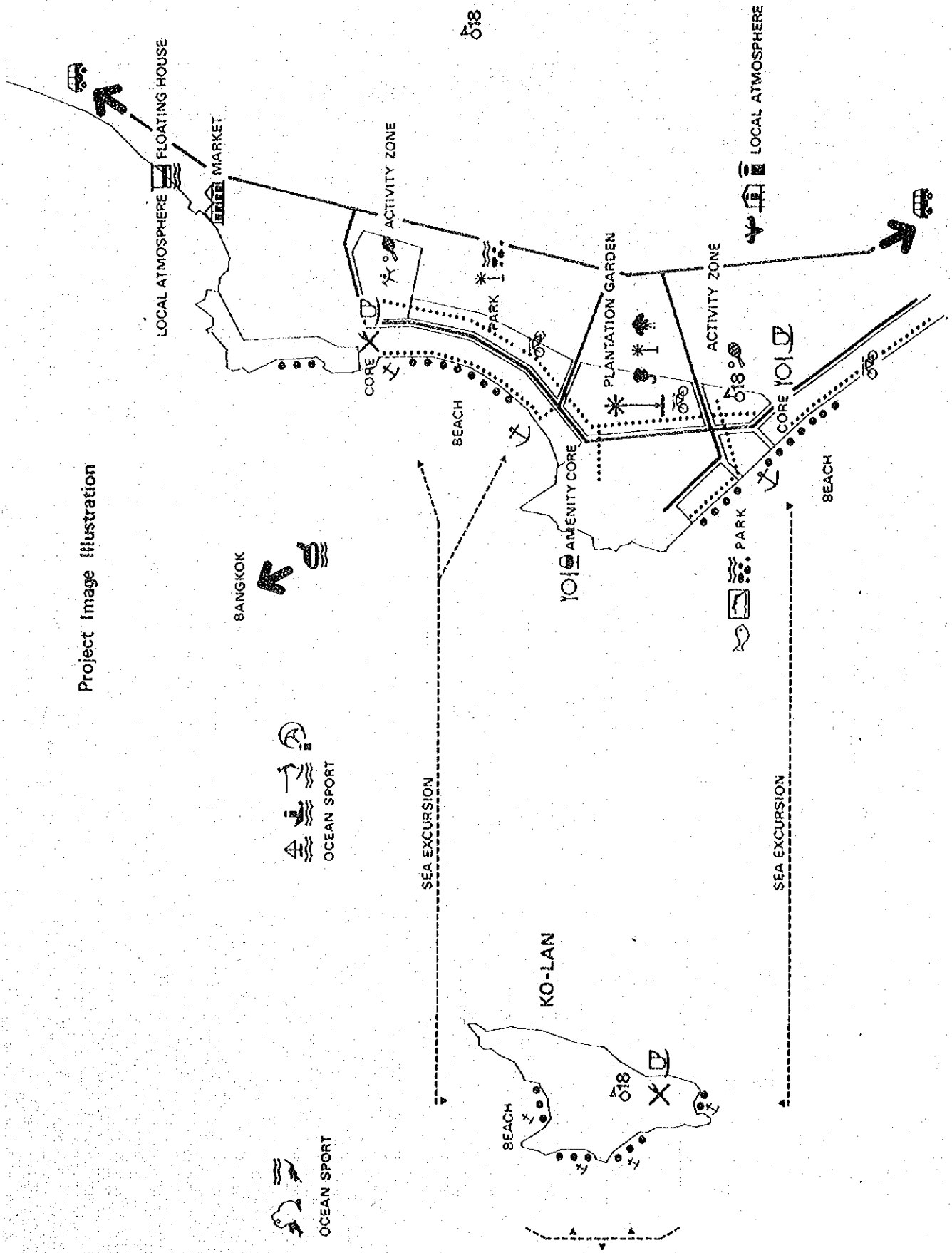
(i) The present widening of the Sukhumvit Highway will greatly improve the connection between Bangkok and Pattaya. However, studies should be made to determine the possibility of providing a bypass to connect the Don Muang Airport directly to Pattaya.

(ii) The planned railway line along the east of Sukhumvit Highway should be scrutinized in terms of convenience to the day trip visitors from Bangkok.

(iii) The possibility of opening the Utapao air base for commercial air transport should be studied within the framework of overall national civil aviation policy.

(iv) Liner transport in the Gulf of Thailand should be considered to connect Pattaya with Bangkok, Hua Hin, Songkhla, etc. by sea. The possibility of providing facilities for ocean liners at Pattaya should also be looked into.

Project Image Illustration



OCEAN SPORT

OCEAN SPORT

BANGKOK

KO-LAN

SEA EXCURSION

SEA EXCURSION

LOCAL ATMOSPHERE

LOCAL ATMOSPHERE

PARK

PARK

ACTIVITY ZONE

ACTIVITY ZONE

AMENITY CORE

CORE

CORE

018

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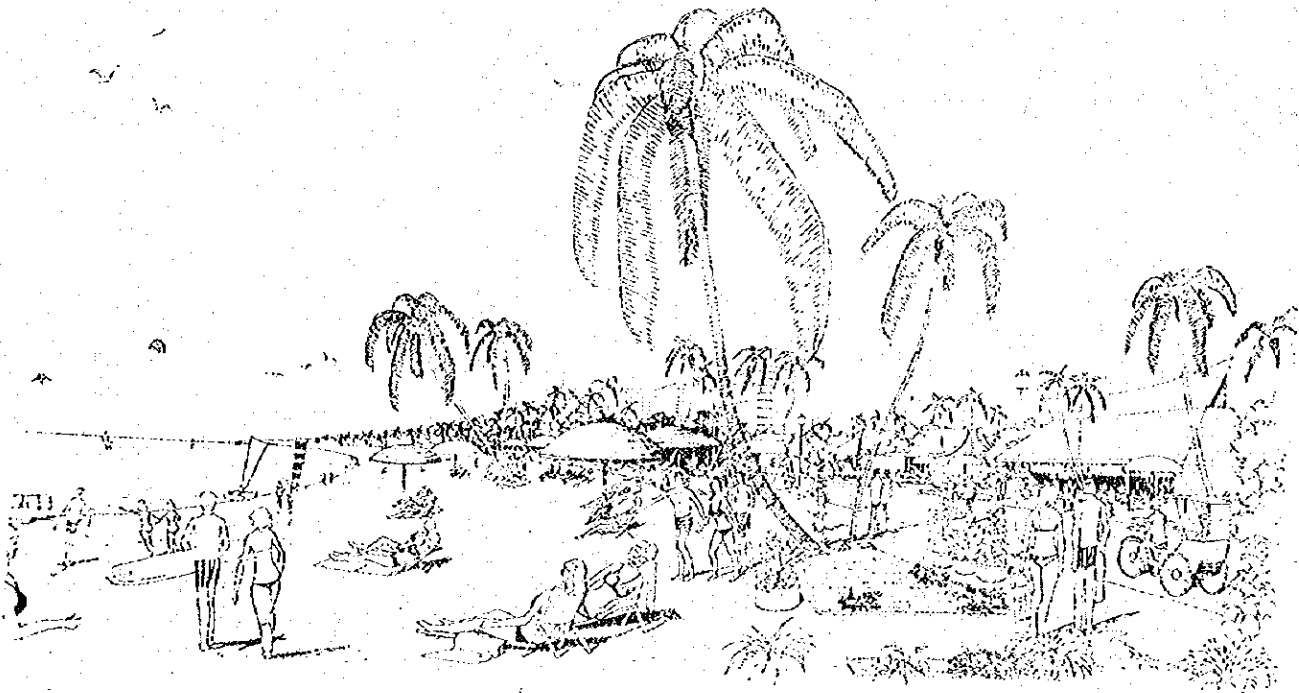
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4 The development policy established for Pattaya are as follows:

- * To maintain Pattaya as an international tourist resort.
- * To develop Pattaya into a resort with diversified ocean activities catering to all levels of ocean activity demands.
- * To provide adequate supplementary inland activities.
- * To cater also for the domestic Thai tourists.

5 Basing on the above development policy, the development goals are established as follows:

- * To maintain an environment compatible to international requirements.
- * Ensuring the safety and convenience of tourists.
- * Provision of ample supply to meet demand.
- * Control of the day-trip domestic tourists.
- * Emphasis on Thai atmosphere.

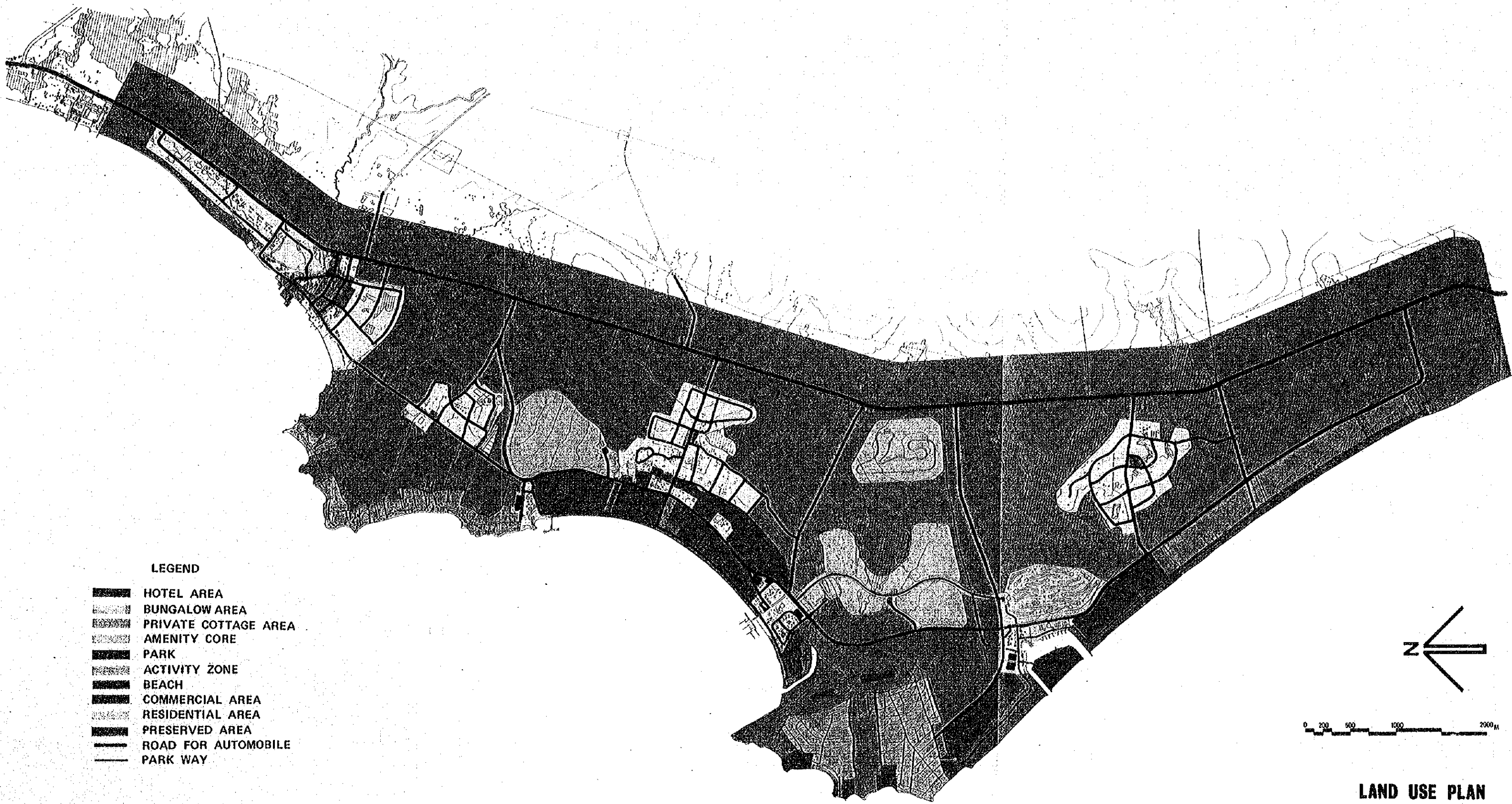


6 In the landuse plan, the basic landuse policy are as follows:













- * The inland area will be preserved as much as possible as an element for display of natural environment.
- * The local community will be rationally encompassed in the plan.
- * For the islands of Ko Lan and Ko Phai, the stress will be on nature.

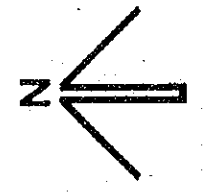
The various landuse allocations are made to meet the requirements of the landuse policy .

- (i) The existing hotel area will be maintained as the northern hotel area during the Phase 1 of the Plan.
A southern hotel area will be developed towards the south of Pattaya Hill in Phase 2.
- (ii) The existing bungalow area towards the south of the southern hotel area will be maintained as a low density accommodation area.
- (iii) The existing private cottage area at the north and the development on the western slope of Pattaya Hill will be controlled at low density as private cottage areas.
- (iv) The existing downtown area will be improved to serve as the main amenity core. A northern core will be newly established at the northern end of the northern hotel area. In Phase 2 a southern core will be developed for the new developed area.
- (v) Na Klua village will remain as the main centre for local community. A northern new town is planned to the east of the existing developed area to meet future population demand of the northern part of the study area. A further southern new town will be established to meet Phase 2 demand in the south.
- (vi) Inland activities will be concentrated in northern activity zone to the rear of the existing complex, central activity zone east of Pattaya Hill and southern activity zone in the Phase 2 development area.
- (vii) Areas not planned for specific use will be designated as preservation areas.



LEGEND

-  HOTEL AREA
-  BUNGALOW AREA
-  PRIVATE COTTAGE AREA
-  AMENITY CORE
-  PARK
-  ACTIVITY ZONE
-  BEACH
-  COMMERCIAL AREA
-  RESIDENTIAL AREA
-  PRESERVED AREA
-  ROAD FOR AUTOMOBILE
-  PARK WAY



LAND USE PLAN

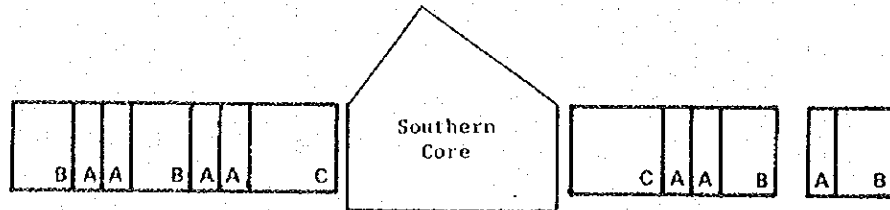
7 In the northern hotel area, an additional hotel supply of 700 rooms will be made in Phase 1. 3,000 additional rooms will be provided in the southern hotel area in Phase 2.

It is recommended that new hotel construction be of comparatively low structure with an area requirement of 200 m²/room.

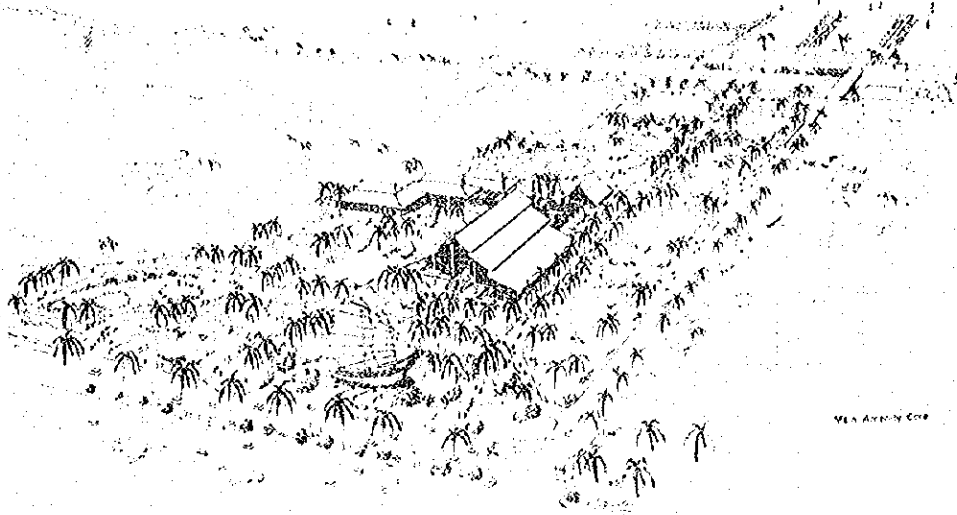
Phase 2

	TYPE "A"	TYPE "B"	TYPE "C"	TOTAL
Southern development	150 x 4 (3ha x 4)	300 x 2 (6ha)	400 x 1 (8ha)	1,600 rooms (32ha)
Northern development	150 x 3 (3ha x 3)	250 x 1 (5ha) 300 x 1 (6ha)	400 x 1 (8ha)	1,400 rooms (28ha)

Alternative 4



Southern Hotel development area



MEA Army Core



8 The functions of the amenity cores will be as follows:

- * As a symbol zone.
- * As a starting base for inland activities.
- * As a departing base for ocean activities, with beach and marine facilities.
- * As an action centre.
- * As a cultural display centre.
- * As a main entrance for visitors.

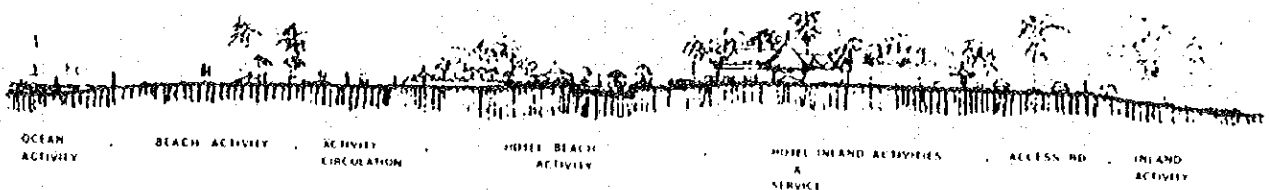
The different amenity cores will be planned with different functions and characters.

9 The pattern and demand of tourist activities in Pattaya was analysed and tourist facilities planned to meet the demand. This includes the activities on land and in the ocean.

In the ocean activities, the use of the sea surface was determined considering the capacity and the nature of activities both on the beach and in the ocean, and in line with the established development axes of (i) rest and relaxation, (ii) water contact activities and (iii) education.

Together with the zoning plan of the use of the sea surface, it is necessary also to establish regulations for the control of water surface usage, to enable enforcement of the zoning plan.

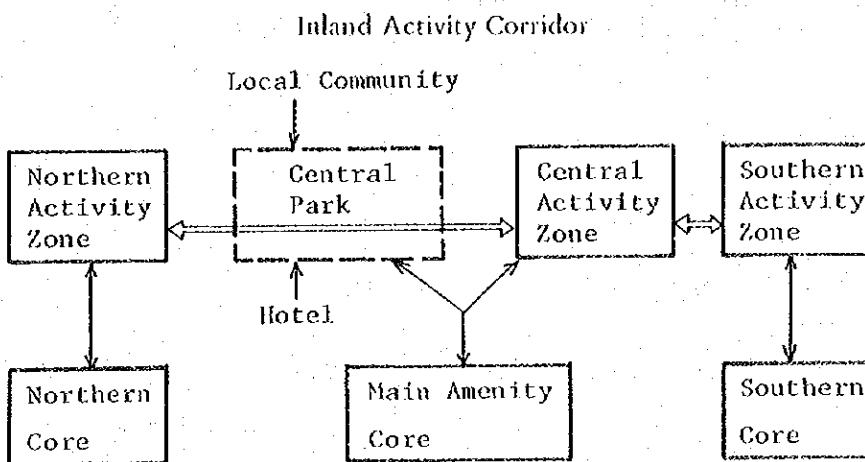
10 The control of the use by the boats will be an important point in improvement of the beach. For this purpose, locations will be designated for the mooring of boats, to be further bolster through the construction of piers at three locations, and the eventual completion of the port construction at the main amenity core.



11 The inland activity areas were planned under the following policy.

- As supplementary activity to the ocean activity.
- Inland activity with Thai flavor
- Availability to the local community and day-trip visitors.

The three inland activity areas (northern, central and southern) were planned with different characters to meet different requirements.

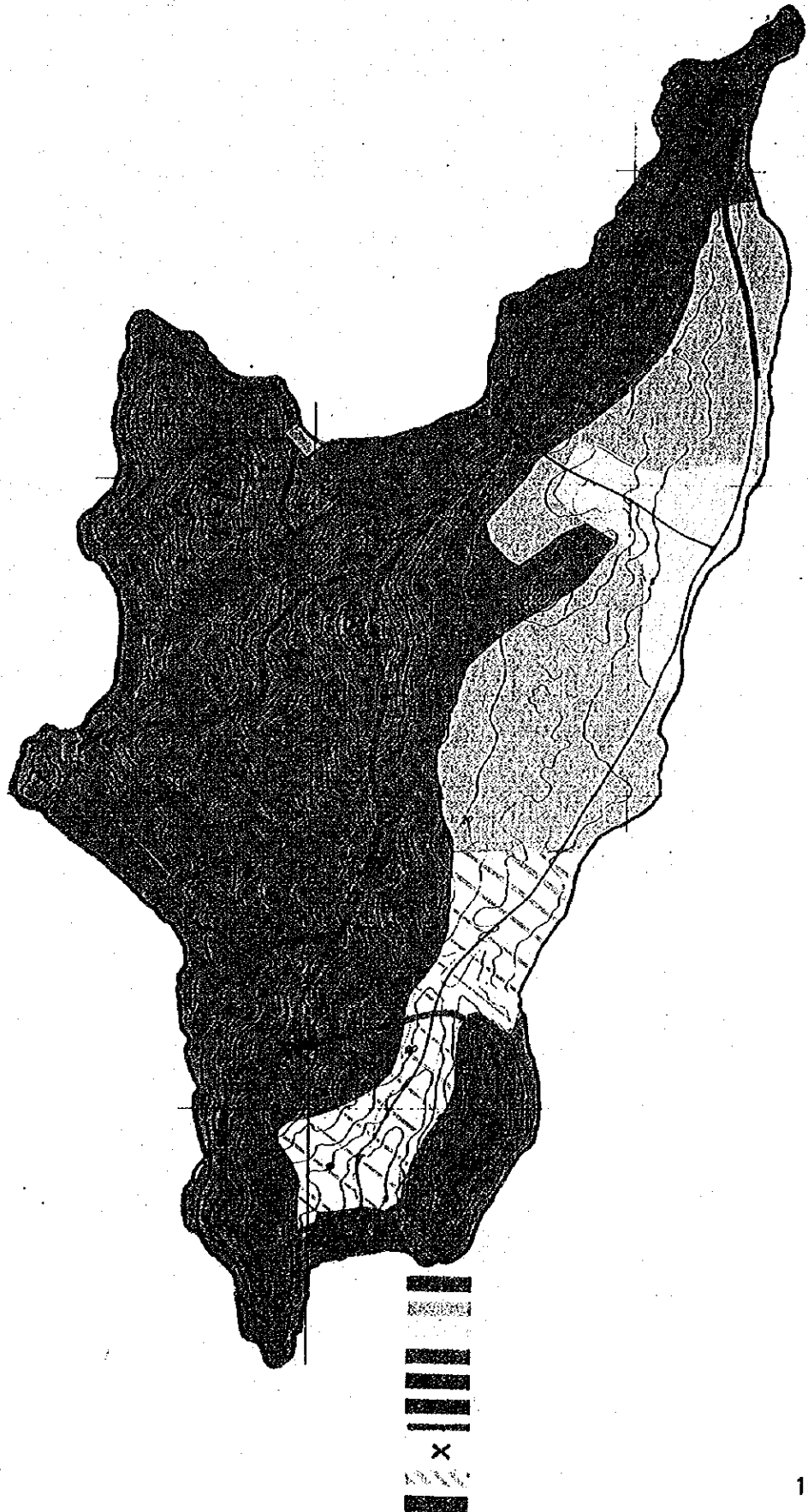


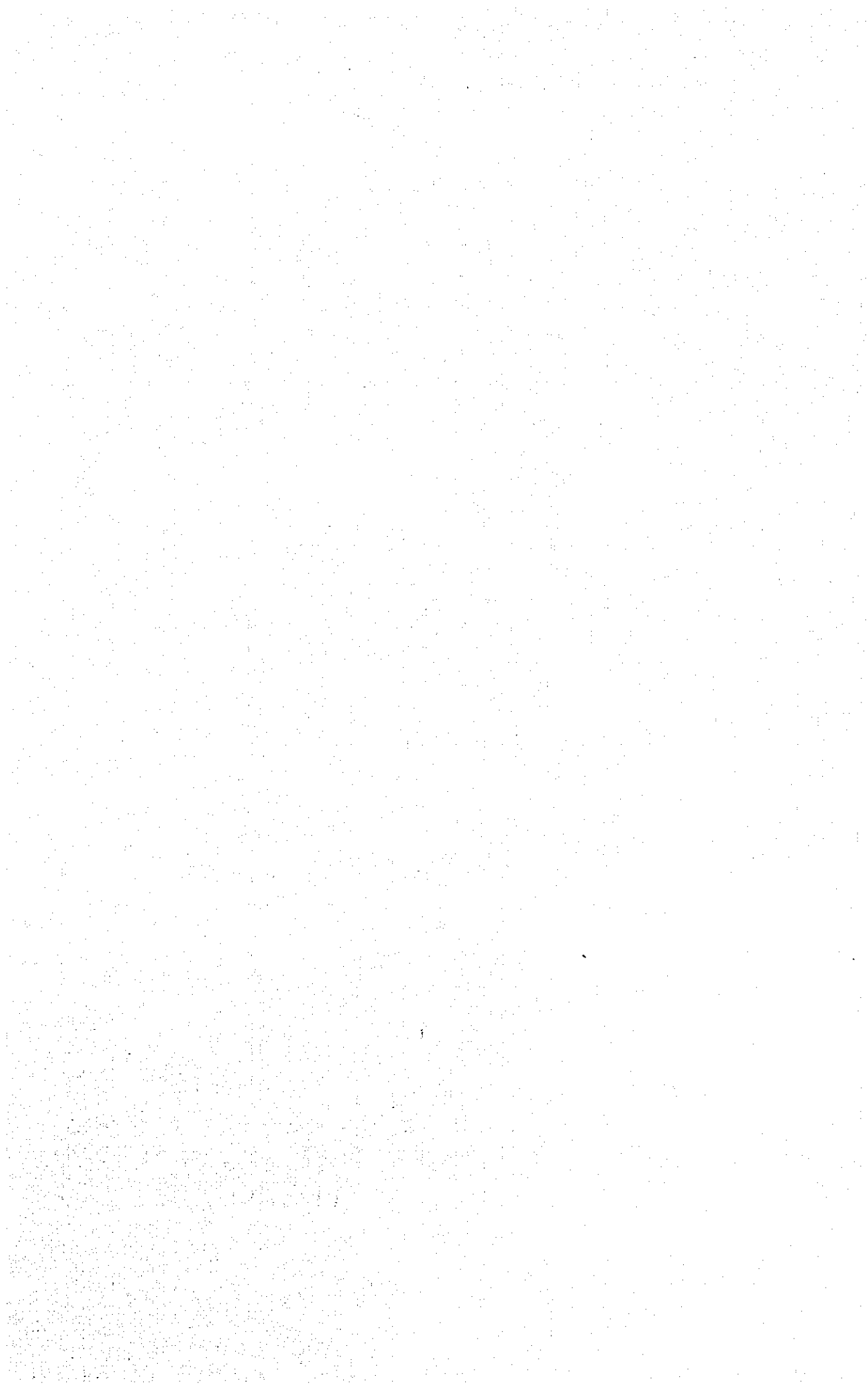
12 As for the development of the islands, emphasis was on the natural beauty and promotion of activities while man-made facilities will be kept to the minimum.



Ko Lan Island activity area

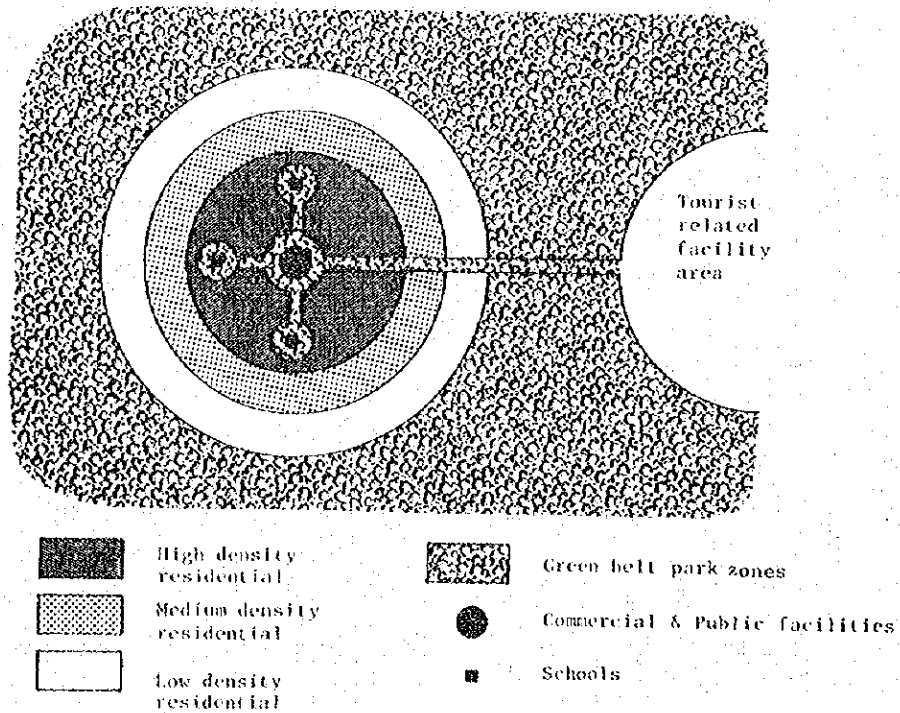
Development Plan of Ko-Lan





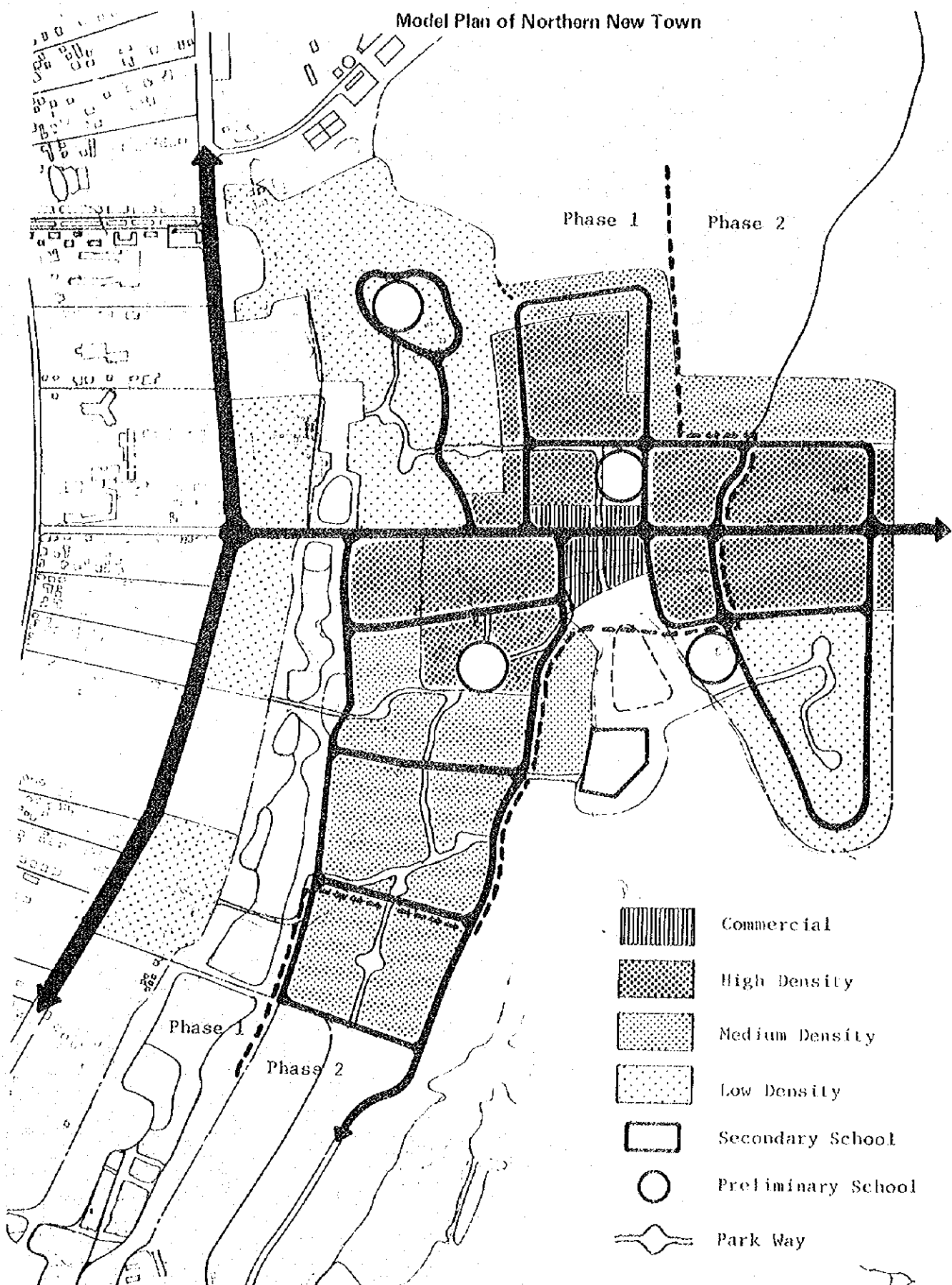
13 The plan for the residential area was made based on the following policy:

- * Separation of international tourist complex and local residential areas.
- * Improvement of living environment.
- * Conservation of natural beauty.
- * Less disturbance on the existing property line.
- * Suppression of the social mobilization of the population.
- * Variety of housing type and low density appearance of the housing area.



Diagrammatic illustration of neighborhood planning

Model Plan of Northern New Town




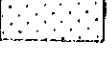





Phase 1

Phase 2

Phase 1

Phase 2

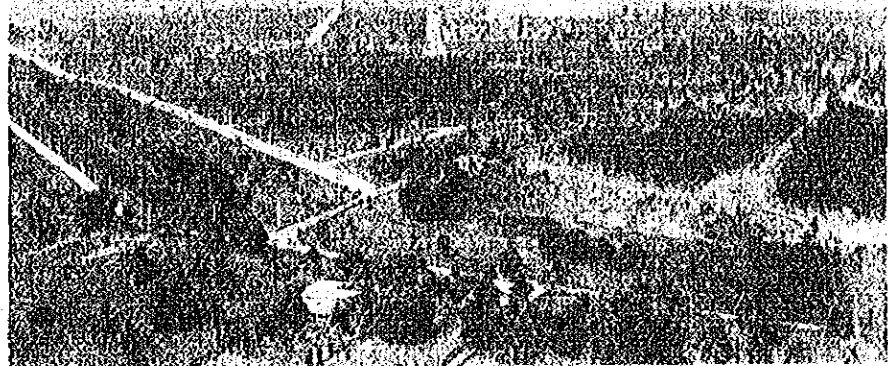
-  Commercial
-  High Density
-  Medium Density
-  Low Density
-  Secondary School
-  Preliminary School
-  Park Way

14 Zoning regulations are necessary for creation and preservation of environment, effective investment, promotion of tourism resources and for safety purpose.

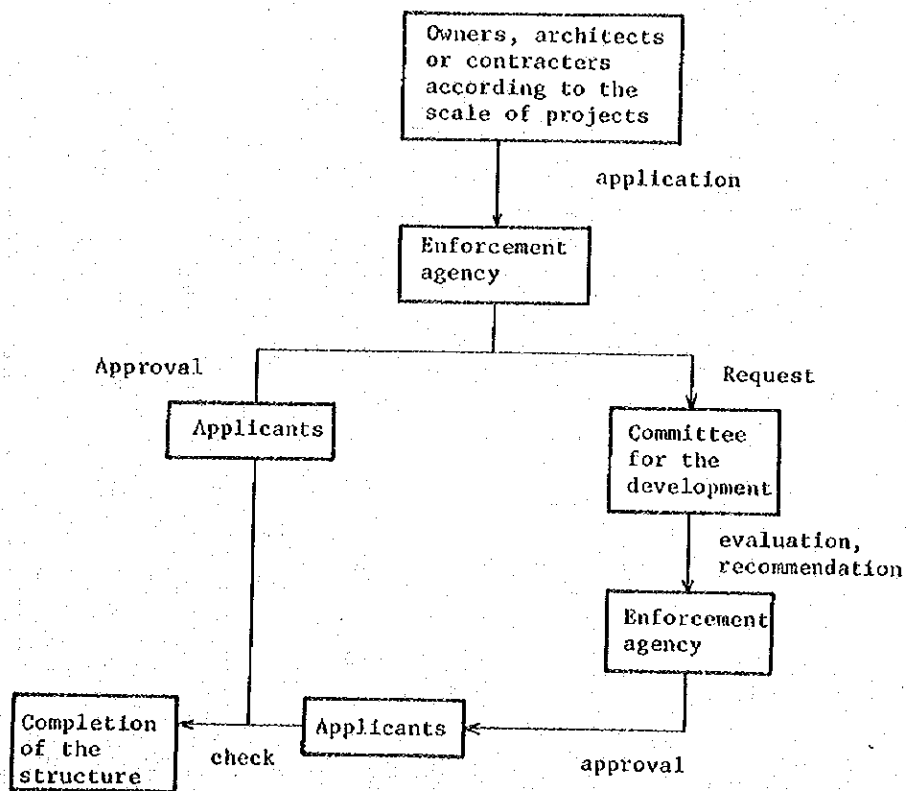
The proposed zoning regulations are composed of five sections.

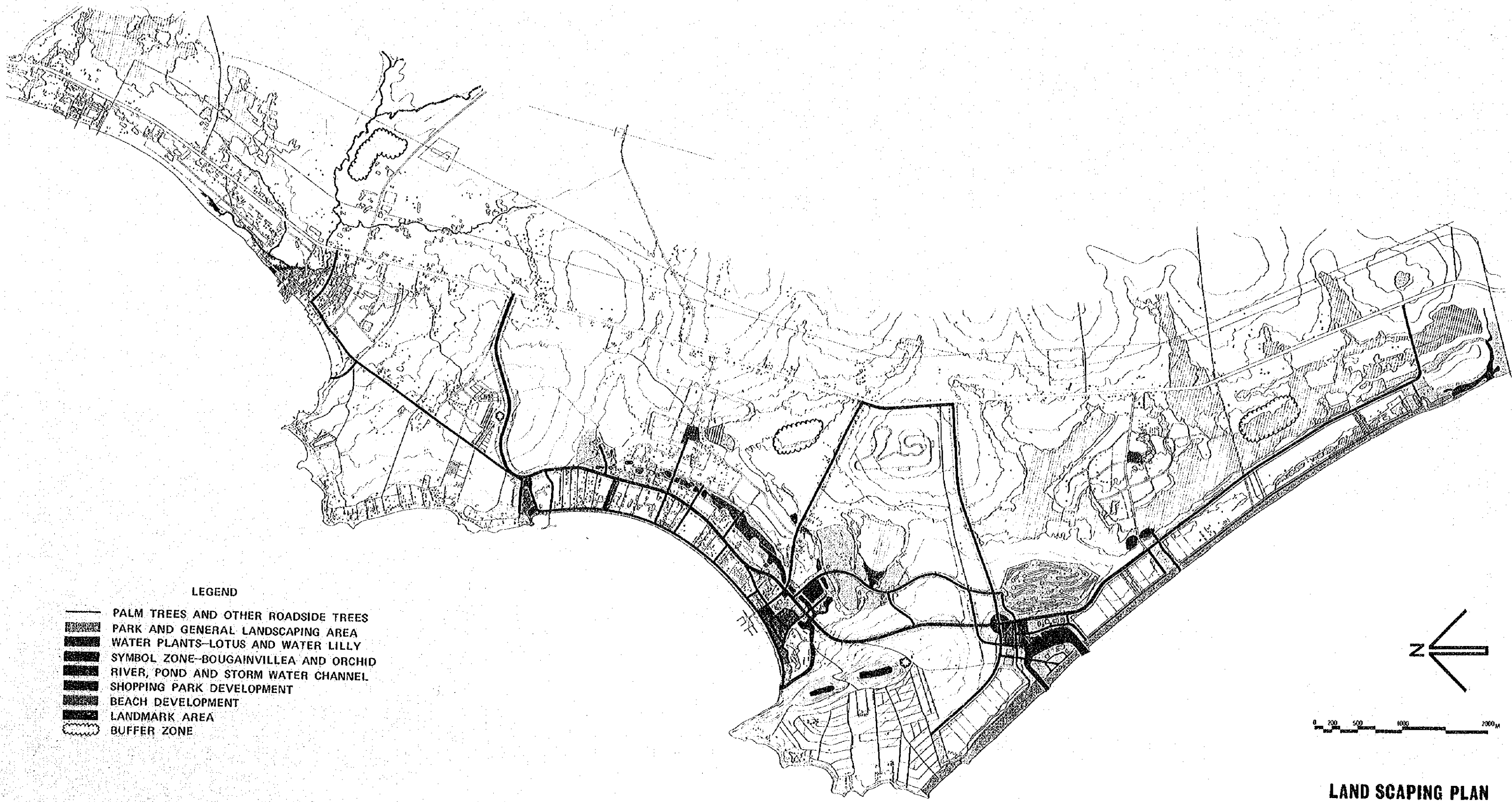
- (i) Development area and preservation area.
- (ii) Type of use or occupancy area.
- (iii) Regulation of the structure.
- (iv) Planned public facility area.
- (v) Special zone area.

It is recommended that the implementation of the zoning regulation should be made with legal support through appropriate legislative measures and enforced through establishment of enforcing organization.



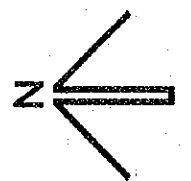
Procedure of Development Regulation





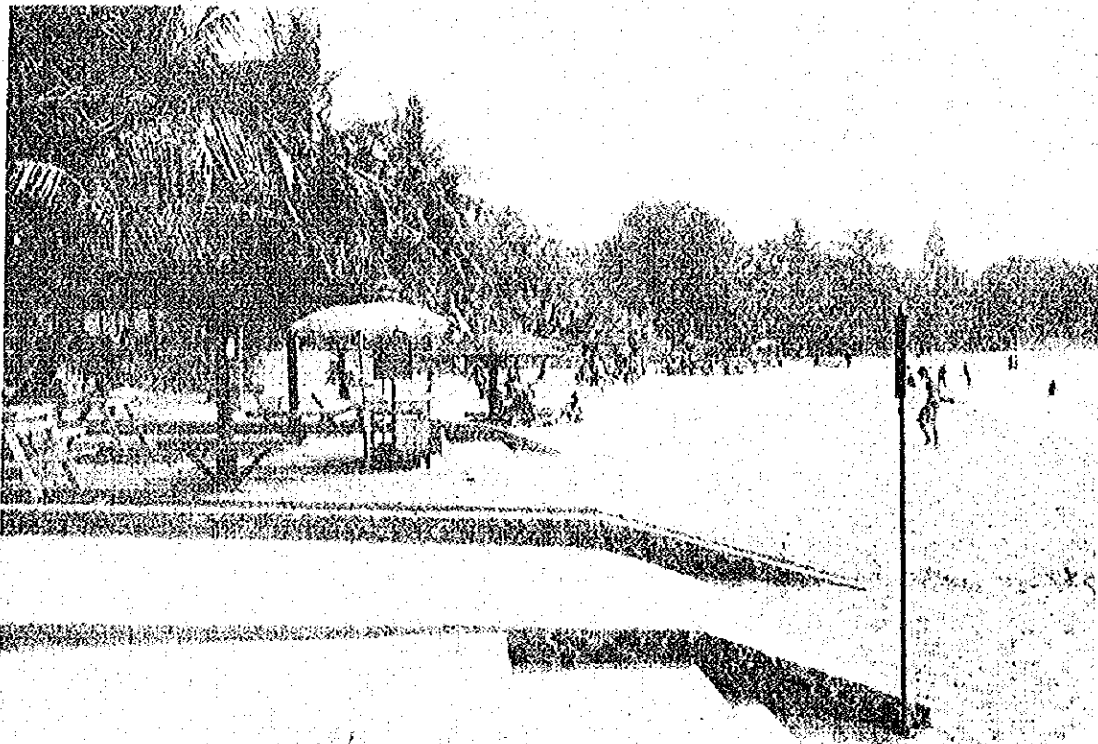
LEGEND

- PALM TREES AND OTHER ROADSIDE TREES
- ▨ PARK AND GENERAL LANDSCAPING AREA
- ▩ WATER PLANTS—LOTUS AND WATER LILLY
- ▧ SYMBOL ZONE—BOUGAINVILLEA AND ORCHID
- ▦ RIVER, POND AND STORM WATER CHANNEL
- ▥ SHOPPING PARK DEVELOPMENT
- ▤ BEACH DEVELOPMENT
- ▣ LANDMARK AREA
- ⊞ BUFFER ZONE

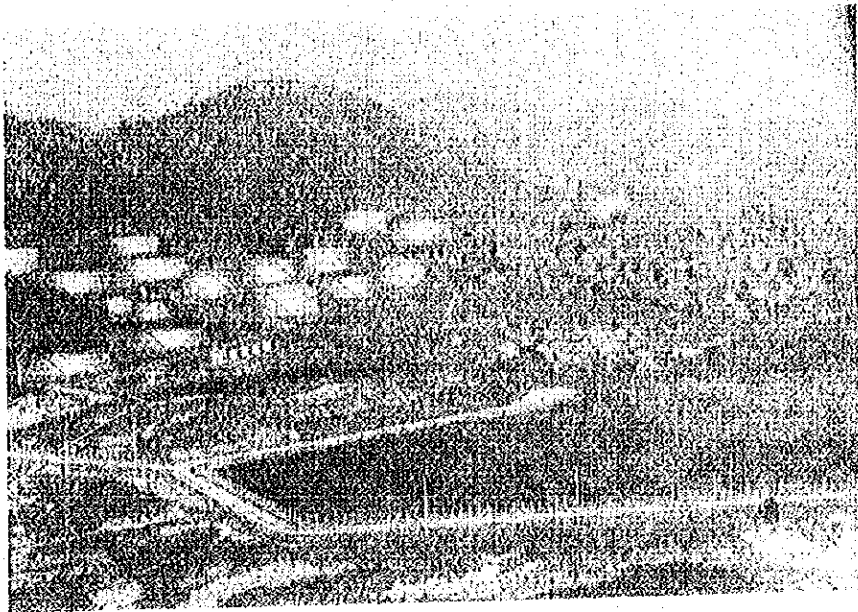


LAND SCAPING PLAN

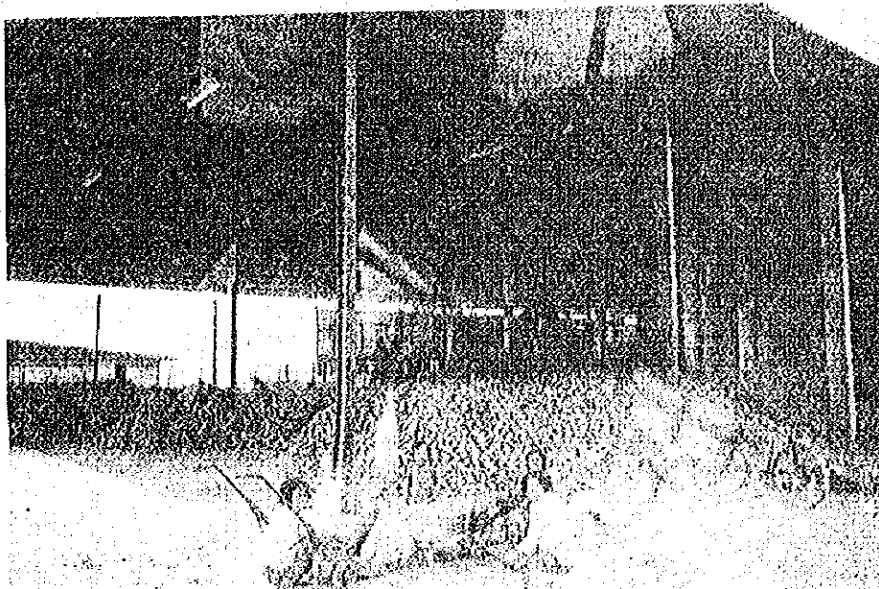
15 Architecture and landscape considerations are most important to ensure that the resort will be developed to meet the requirements in development policy. For this purpose, it is necessary to establish building standard regulation for buildings, environmental control and aesthetics.



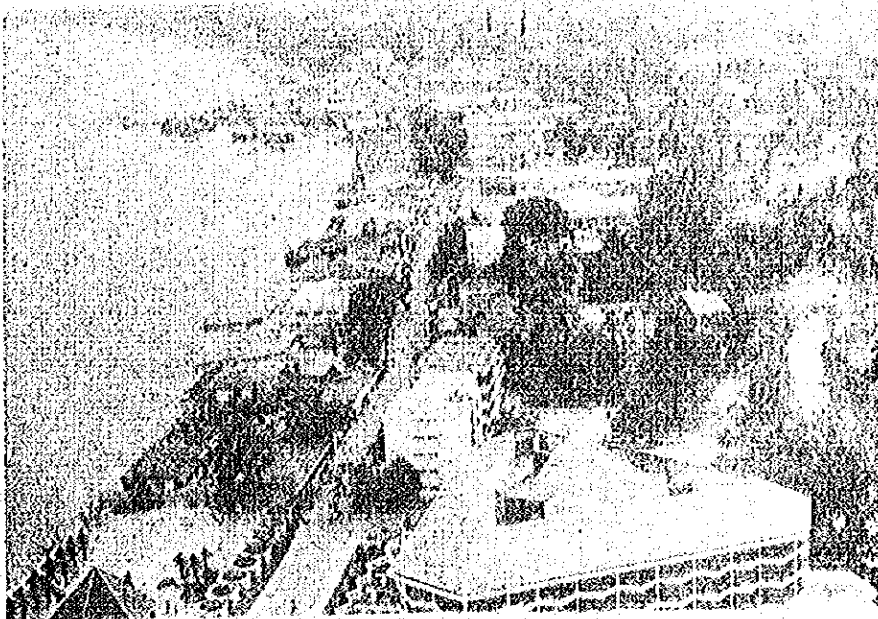
Landscaping at the beach



Laem Chabang Industrial Estate



Tapioca Factories



Pattaya Down Town

Chapter 4 Environment

- 1 Careful consideration on the environmental respects is necessary for a tourism development project. The considerations have to be made both on the effects of the development on environment and the influence of the environment on tourism development, from the land side as well as the marine side.

- 2 On the land side, it is noted that the tourism development of Pattaya will not result in any adverse effects on the environment since there is no fear of disturbing the ecological balance of the region through the development activities. On the other hand, it is anticipated that the tourism development will greatly bring about favourable effects on the economical and social environment of the region.

There is also little fear of adverse effects on the tourist resort from the surrounding. However, care should be taken in the industrial development of the Laem Chabang region to ensure that no land environmental destruction will result from the industries established in the region.

- 3 The marine environmental aspect is a matter of greater concern in relation to the development of Pattaya. Past data on the water quality of the sea of Pattaya shows that generally the entire coast is under quite a serious process of water pollution. The industrial waste water from the tapioca factories and the household waste water from the tourist related establishments and residents in the region are the two main sources of marine pollution.

- 4 A treatment system for the industrial and household waste water is therefore most important to maintain the water quality of the sea of Pattaya to a level suitable as a beach resort. The sewerage system proposed in this report will ensure that the discharge of the treated waste water from the region will not contribute to the worsening of the water quality of the sea of Pattaya.

The Observation Result of Pattaya Sea Area

Item Station	Date	Time	Tide	Air Temperature (°C)	Depth (m)	Transparency (m)	Water Temperature (°C)	pH	σ _t (‰)	DO (ppm)	DO Saturation degree (%)	CO ₂ (ppm)	SS (ppm)
St. 1.H 1.L	8.23	12:57	High	28.0	8.20	3.0	30.1	8.35	15.7	4.77	101.6	1.03	5
		07:05	Low	27.0	6.05	3.0	29.2	8.37	15.2	6.63	96.6	1.46	4
St. 2.H 2.L	8.23	13:25	High	27.2	6.60	2.7	30.0	8.37	16.0	6.88	102.8	0.97	5
		07:25	Low	27.0	5.30	1.9	29.6	8.28	15.7	6.51	96.2	1.54	8
St. 3.H.0 3.H.5 3.L.0 3.L.5	8.23	12:37	High	27.5	10.30	6.0	30.0 30.1	8.36 8.32	16.2 16.5	6.86 6.24	102.6 94.0	0.99 0.85	5 5
		06:50	Low	27.0	8.80	4.0	29.2 29.1	8.33 8.33	15.7 15.8	6.32 6.63	92.6 97.1	1.86 1.54	4 4
St. 4.H.0 4.H.5 4.L.0 4.L.5	8.23	12:10	High	28.0	11.00	5.0	29.4 30.0	8.30 8.32	16.6 16.5	6.46 6.26	96.0 94.0	1.05 1.40	5 6
		06:25	Low	27.0	7.90	4.5	29.4 29.2	8.34 8.32	15.9 16.2	6.59 6.28	97.1 92.5	1.31 1.40	4 4
St. 5.H 5.L	8.20	08:12	High	27.5	6.30	4.0	29.1	8.33	15.1	6.26	90.9	2.16	2
		13:25	Low	28.0	5.10	3.5	29.6	8.39	14.9	6.65	97.4	1.68	2
St. 6.H 6.L	8.20	08:45	High	27.5	7.00	5.0	29.1	8.32	15.1	6.42	93.2	1.80	2
		13:38	Low	28.0	5.90	4.0	29.6	8.36	15.0	6.84	100.3	1.56	2
St. 7.H 7.L	8.20	08:55	High	27.5	6.70	5.5	29.8	8.44	15.1	6.67	98.2	2.18	2
		13:49	Low	27.6	5.90	4.5	29.8	8.47	15.0	6.86	100.8	1.56	2
St. 8.H 8.L	8.20	07:50	High	27.5	4.60	4.6	29.0	8.41	15.1	6.21	90.2	2.18	2
		13:10	Low	28.0	3.90	3.5	29.7	8.42	15.1	6.65	97.8	1.74	3
St. 9.H 9.L	8.20	07:38	High	27.5	4.80	4.7	29.7	8.40	15.0	6.46	94.8	1.76	2
		13:01	Low	29.7	4.00	3.5	29.7	8.40	15.2	6.59	96.9	1.40	2
St. 10.H.0 10.H.5 10.H.10 10.L.0 10.L.5 10.L.10	8.27	14:40	High	27.1	17.30	7.0	30.3 30.4 29.9	8.32 8.22 8.21	17.3 16.2 17.5	6.19 6.03 5.55	94.4 90.9 84.3	1.21 1.80 1.07	2 2 3
		08:37	Low	29.0	15.30	10.0	30.1 30.0 29.9	8.24 8.32 8.28	16.6 17.1 17.4	6.19 6.09 4.97	93.2 92.1 75.3	1.15 1.33 1.37	2 1 2

Source: Japanese Survey Team



Na Khua River Mouth

5 As for the external effect on the marine environment of the sea of Pattaya, it is noted that the overall pollution of the entire Gulf of Thailand is probably also affecting the water quality of the sea of Pattaya. It is therefore important that a national policy for the environmental preservation of the upper gulf of Thailand be established to maintain the water quality of the entire gulf.

6 The two concepts that are of great concern regarding the marine environment of Pattaya are the proposal of a deep-sea port in Laem Chabang and the plan of an industrial estate in Laem Chabang region, since both may have adverse effects on the marine environment of Pattaya.

In the case of the port project, it is important that routes for the sea-faring boats be designated and strict regulations on the prevention of oil leakage and waste water discharge by the boats be established. Engineering steps may also be taken to physically prevent the flow of oil or polluted water from Laem Chabang to Pattaya.

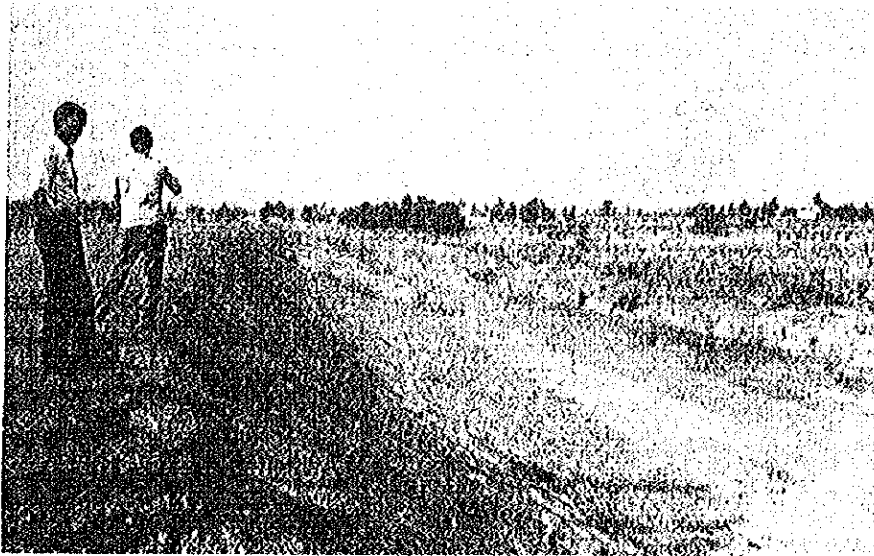
Regarding the establishment of the industrial estate in Laem Chabang region, it is necessary that criteria be set up for determining the type of industries that may be admitted in the industrial estate in order to shut out the industries accompanied by discharge of detrimental waste water. Criteria should also be set on the quality of waste water that the industries may discharge into public water channels.

7 In the immediate neighborhood, immediate steps should be taken to prevent uncontrolled discharge of waste water by the tapioca factories in the vicinity of the study area by stipulating pretreatment of the waste water before discharge and establishment of criteria of water quality of the pretreated waste water.

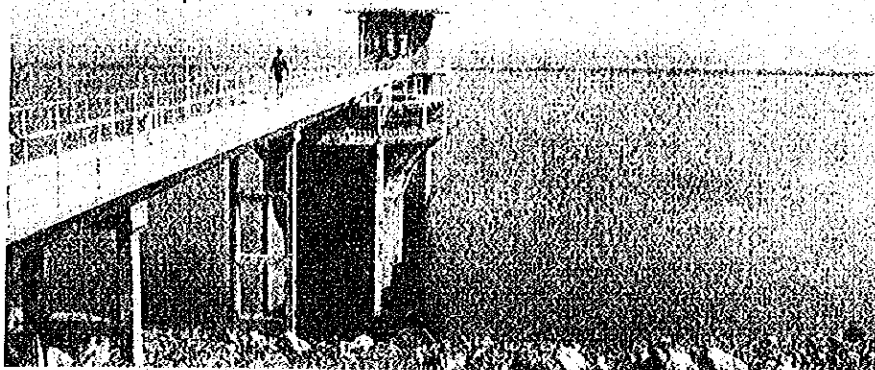
8 It is also of great importance to carry out routine monitoring of the water quality of the sea of Pattaya by regular performance of water quality surveys for the water both along the shore and offshore.

The setting up of criteria for the water quality of an ocean resort to serve as a basis for water quality control is also necessary.

9 During this master plan stage, the intensive sea water quality survey was carried out by the Japanese study team to supplement the present available data, and to evaluate the existing sea water condition. The result of the survey indicates the urgent need of measure to prevent uncontrolled discharge of waste water by the tapioca factories, the tourism establishments and local community. With the adequate sewerage system, the Pattaya beach will continuously be prosperous as an ocean resort.



Construction of Mabprachan Reservoir



Bang Phra Reservoir

Chapter 5 Infrastructure Plan

- 1 The infrastructure plans are studied for the following 8 projects:
- (i) Water supply system
 - (ii) Sewerage system
 - (iii) Storm water drainage system
 - (iv) Solid waste collection and disposal system
 - (v) Road and street system
 - (vi) Electric power supply system
 - (vii) Telecommunication system
 - (viii) Port and marine facilities

2 The total project costs for all the infrastructure projects including the cost of land acquisition and construction and operating and maintenance costs up to 2006 is estimated to be 3,561.3 million bahts (178.1 million US dollars). The cost in the first ten years will be 1,743.7 million bahts (87.2 million US dollars) or roughly about half the total costs.

The breakdown of this 1,743.7 million bahts is 1,214.6 million bahts in local currency and 529.1 million bahts (26.5 million US dollars) in foreign currency. The costs for the first ten years (Phase 1) by items are summarized as follows:

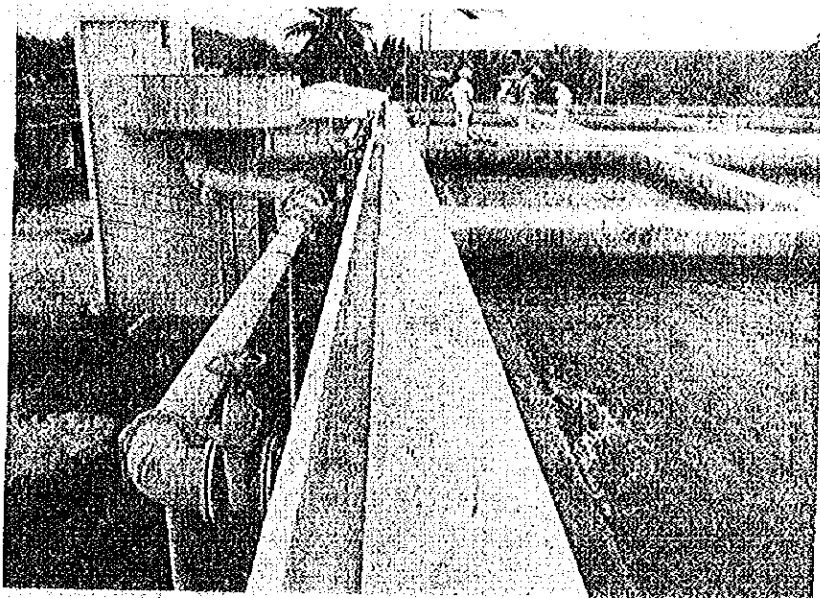
<u>Item</u>	<u>Total</u>	<u>Local Currency portion</u>	<u>Foreign Currency portion</u>	<u>%</u>
1. Water supply	473.3	277.2	196.1	27.0
2. Sewerage	230.4	161.4	69.0	13.0
3. Storm water drainage	145.8	142.7	3.1	8.5
4. Solid waste collection and disposal	56.4	40.5	15.9	3.5
5. Road & street	288.5	258.4	30.1	16.5
6. Electric power supply	251.5	142.4	110.1	14.5
7. Telecommunication	181.2	94.6	85.6	10.5
8. Port and marine facilities	115.6	97.4	18.2	6.5
Total (million bahts)	1,743.7	1,214.6	529.1	100.0
(Total in million US\$)	87.2	60.7	26.5	-

3 For the water supply system for Pattaya, various alternative sources of raw water supply were studied and it was concluded that the raw water supply should be drawn from the existing Bang Phra Reservoir in Phase 1 and this may be supplemented by the raw water from the planned Mabprachan Reservoir in Phase 2.

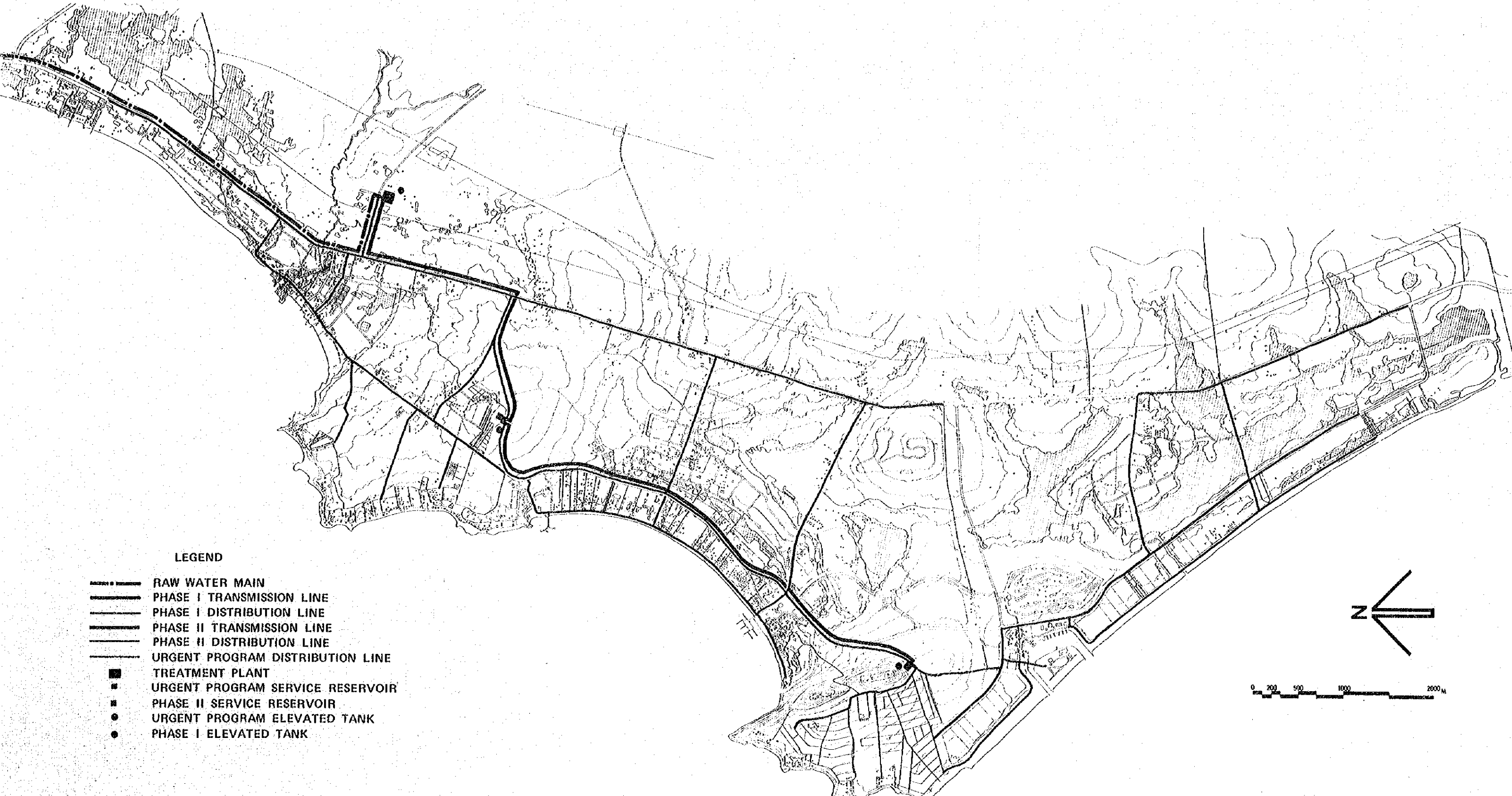
The treatment facilities are proposed in the study area to be located at the north end of the study area.

Water distribution is carried out by dividing the study area into three distribution zones, zone 'A' being for Na Klua area, zone 'B' for Pattaya area where existing hotels, restaurants and shops are located and zone 'C', south of Pattaya Hill for the future development in Phase 2. The capacity of the service reservoirs will be 3,900 cu.m. in zone 'A', 6,100 cu.m. in zone 'B' and 8,100 cu.m. in zone 'C'.

For Ko Lan Island, treated water will be supplied from the mainland by water barge.

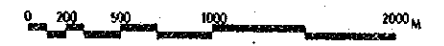


Bang Phra Water Treatment Plant



LEGEND

- RAW WATER MAIN
- PHASE I TRANSMISSION LINE
- PHASE I DISTRIBUTION LINE
- PHASE II TRANSMISSION LINE
- PHASE II DISTRIBUTION LINE
- URGENT PROGRAM DISTRIBUTION LINE
- TREATMENT PLANT
- URGENT PROGRAM SERVICE RESERVOIR
- PHASE II SERVICE RESERVOIR
- URGENT PROGRAM ELEVATED TANK
- PHASE I ELEVATED TANK



WATER SUPPLY SYSTEM

4 The proposed sewerage system will treat not only the waste water from the study area but also the industrial waste water of the tapioca factories immediately out of the study area.

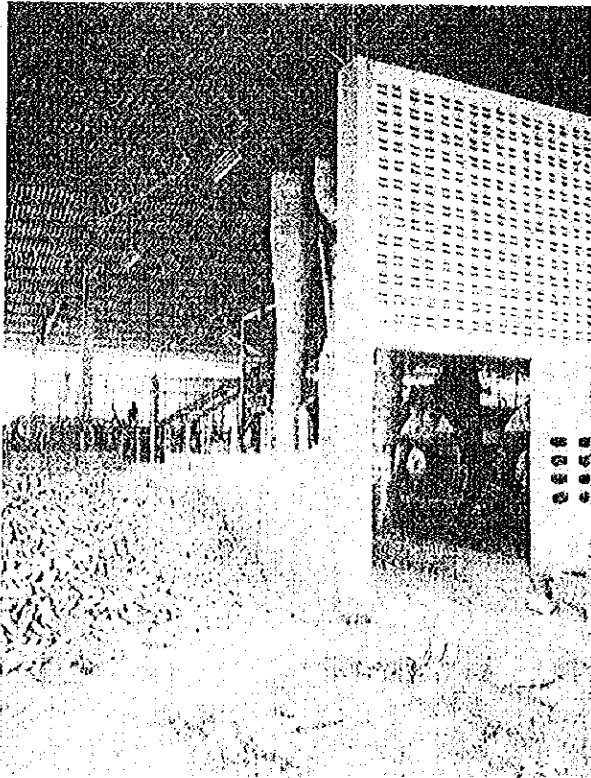
It is proposed that the tapioca factories will be required to pre-treat the waste water from the factory to a level of 300 ppm in 5 day BOD before being delivered to the public facilities for treatment.

The centralized treatment system is proposed as the suitable type for the study area.

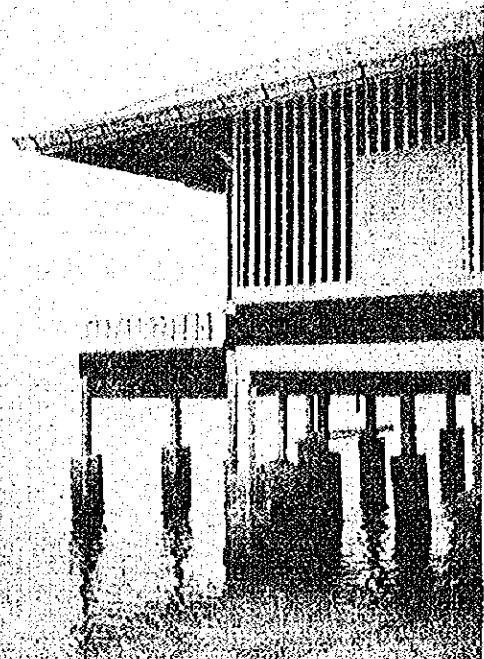
The stabilization pond is the proposed method of treatment for economy and ease of operation and maintenance.

Three separate ponds will be constructed at (i) Na Klua, (ii) the existing developed tourist area and (iii) the future development area south of Pattaya Hill. The treated water will be discharged into the rivers of Na Jom Tiem and Na Klua.

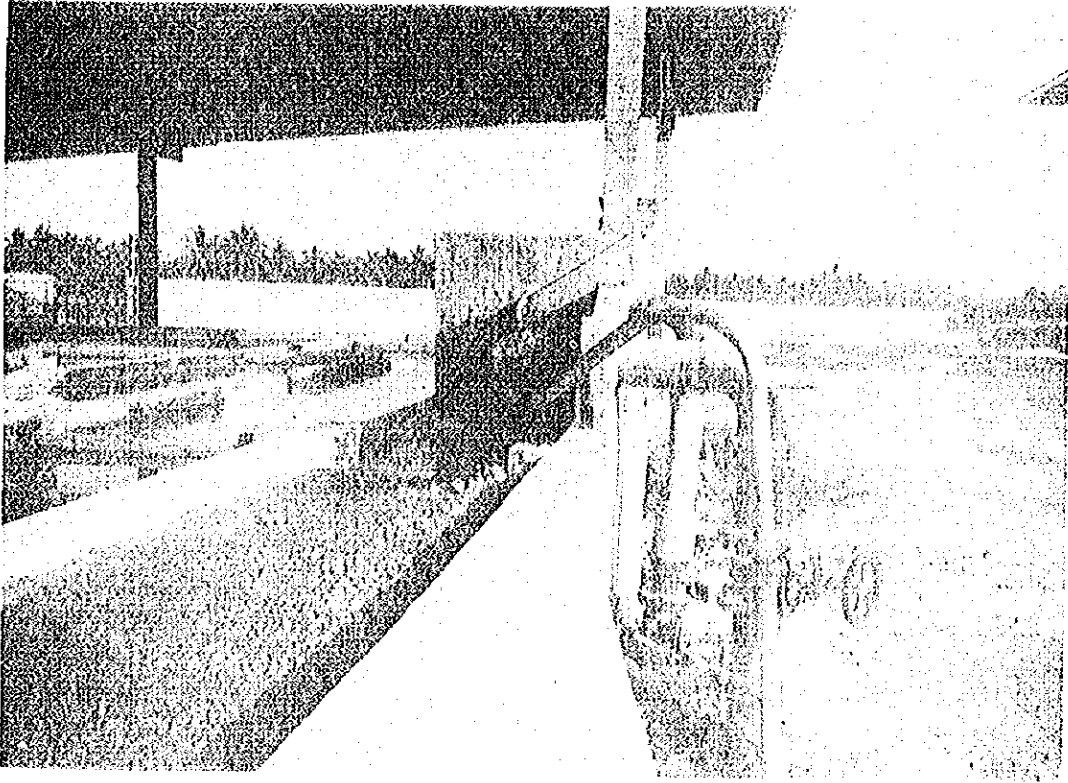
In Ko Lan Island, the septic tank system will be adopted for the establishments on the island.



Tapioca Factory

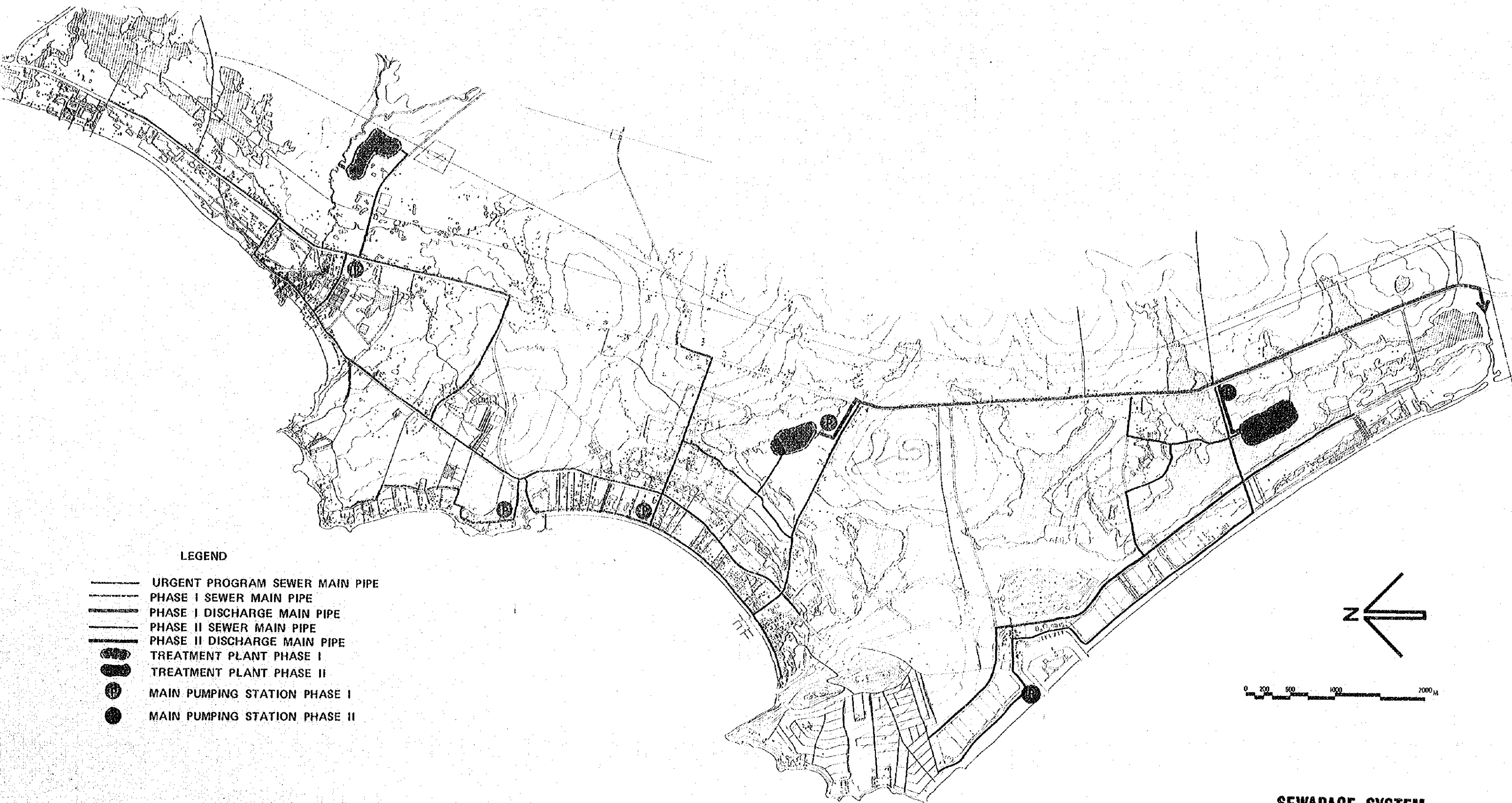


Waste water discharge directory
to the sea



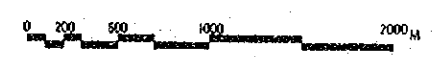
Treatment Plant at the Tapioca Factory





LEGEND

- URGENT PROGRAM SEWER MAIN PIPE
- PHASE I SEWER MAIN PIPE
- PHASE I DISCHARGE MAIN PIPE
- PHASE II SEWER MAIN PIPE
- PHASE II DISCHARGE MAIN PIPE
- TREATMENT PLANT PHASE I
- TREATMENT PLANT PHASE II
- MAIN PUMPING STATION PHASE I
- MAIN PUMPING STATION PHASE II

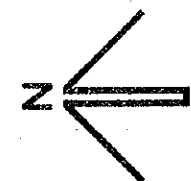


SEWARAGE SYSTEM



LEGEND

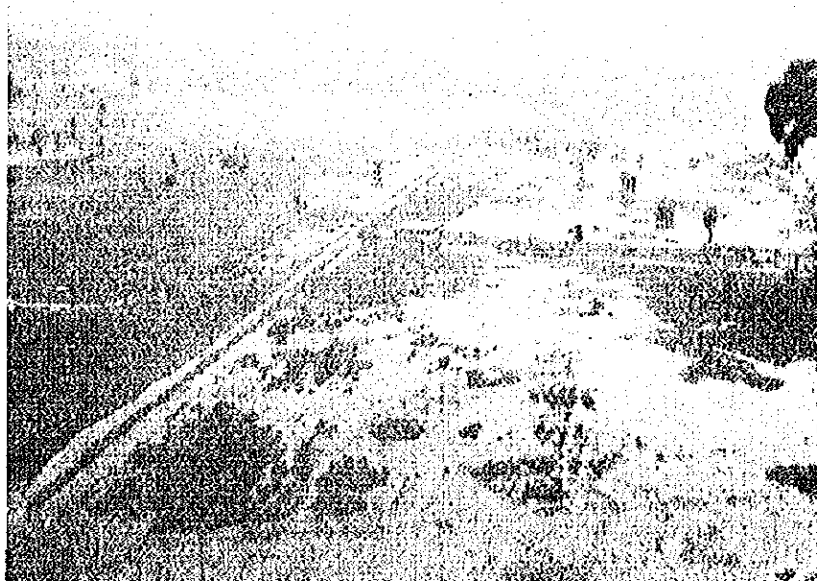
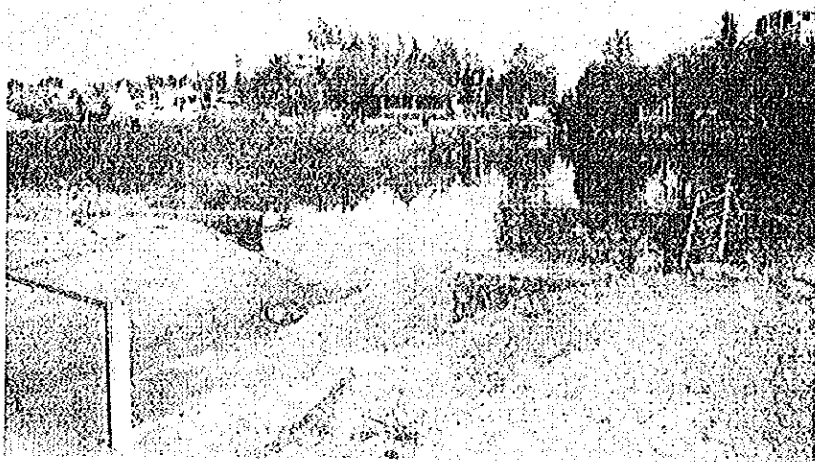
- PHASE I OPEN CHANNEL
- - - PHASE II OPEN CHANNEL
- = BOX CULVART.
- PHASE I SEDIMENTATION BASIN
- PHASE II SEDIMENTATION BASIN

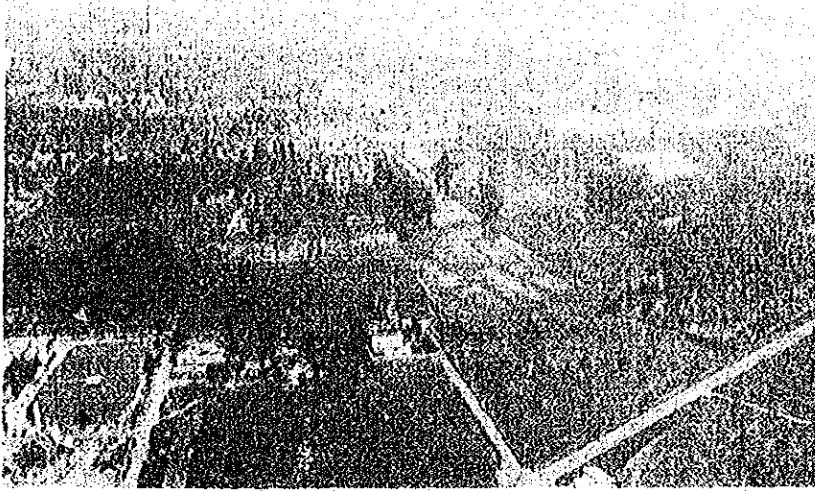


STORM WATER DRAINAGE SYSTEM

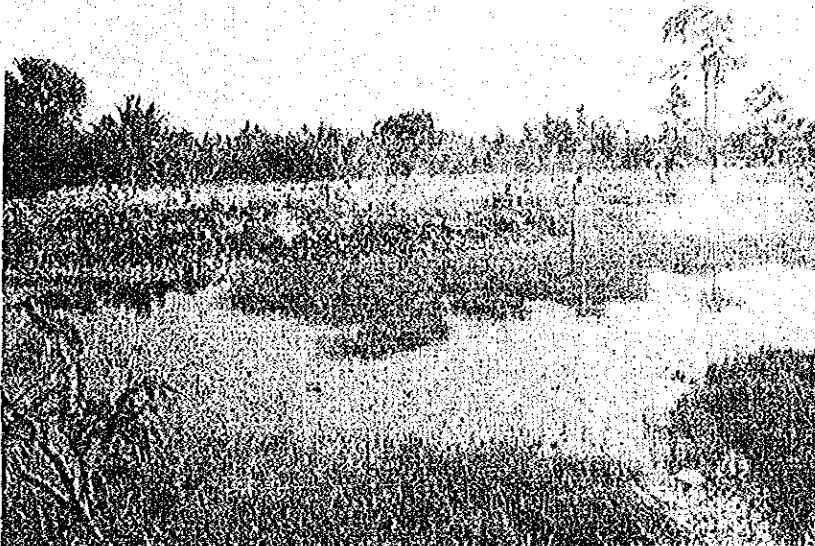
5 The storm water drainage system is planned to cater for all storm water within the catchment areas.

Open channel structure will be adopted for the outlying area but the box culvert structure will be adopted in the densely built-up town centre and also at street crossings.

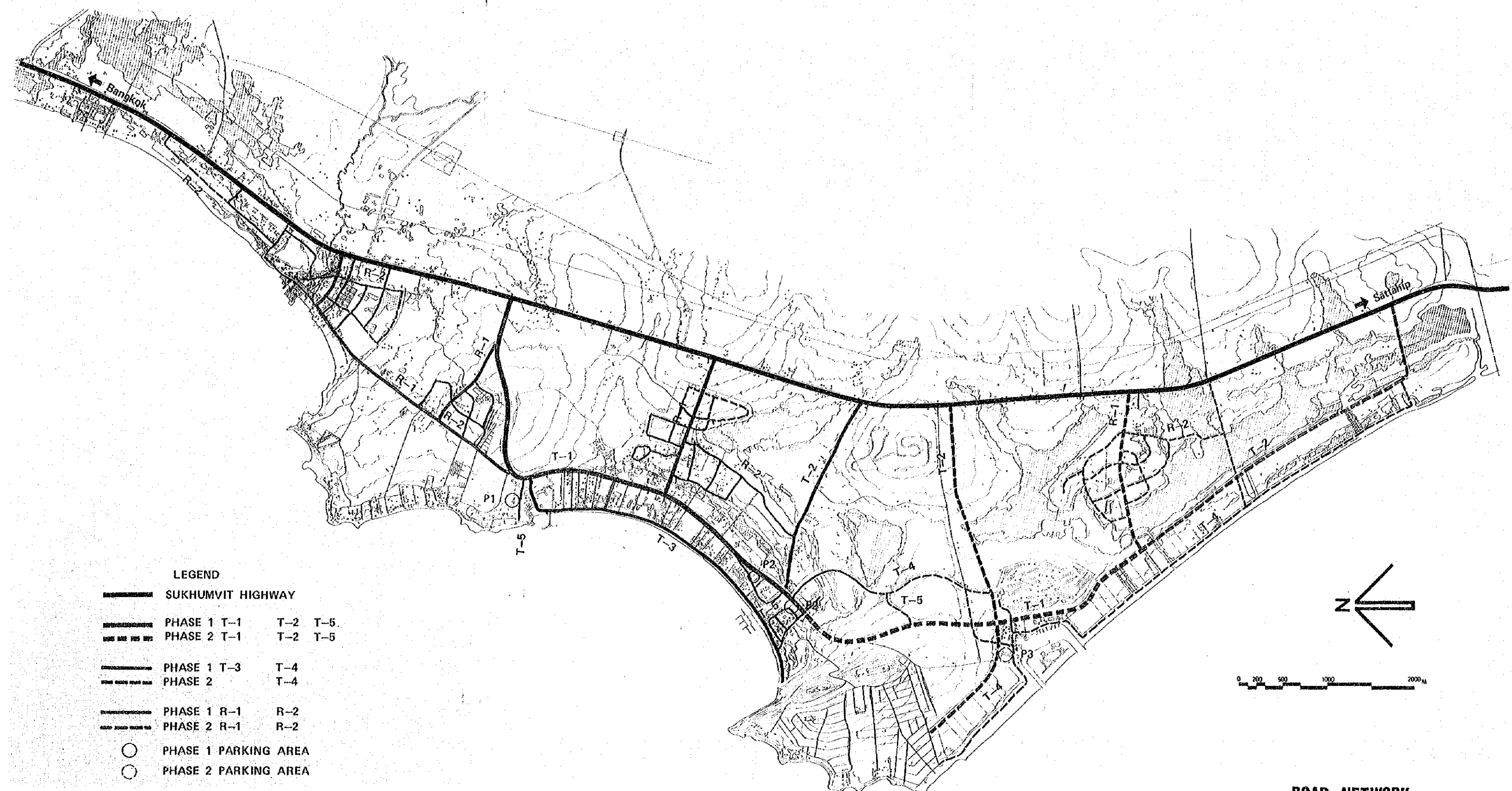




- 6 For the solid waste, collection will be made by rearloader dump trucks and disposal by the landfill system at a location east of South Pattaya towards the east side of Sukhumvit Highway.

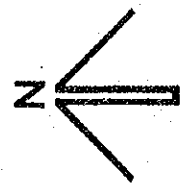


Existing Landfill site for solid waste disposal



LEGEND

- SUKHUMVIT HIGHWAY
- PHASE 1 T-1 T-2 T-5
- PHASE 2 T-1 T-2 T-5
- PHASE 1 T-3 T-4
- PHASE 2 T-4
- PHASE 1 R-1 R-2
- PHASE 2 R-1 R-2
- PHASE 1 PARKING AREA
- PHASE 2 PARKING AREA



ROAD NETWORK

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that proper record-keeping is essential for transparency and accountability, particularly in financial matters. The text notes that without clear records, it becomes difficult to track expenses, revenues, and other critical data points.

2. The second section addresses the challenges associated with data collection and analysis. It highlights that while modern technology offers powerful tools for data processing, the sheer volume and complexity of information can be overwhelming. The document suggests that organizations should invest in training and resources to effectively manage and interpret their data, ensuring that insights are derived accurately and used to inform decision-making.

3. The third part of the document focuses on the role of communication in organizational success. It argues that clear and consistent communication is vital for aligning team members, sharing information, and resolving conflicts. The text encourages the use of various communication channels, including face-to-face meetings, email, and digital collaboration tools, to ensure that all stakeholders are kept in the loop and that the organization's goals are understood and supported.

4. The fourth section discusses the importance of adaptability in a rapidly changing environment. It notes that organizations must be flexible and open to change in order to stay competitive and relevant. The document suggests that regular assessments of the current market and internal capabilities are necessary to identify areas for improvement and to implement strategic changes when needed.

5. The final part of the document provides a summary of the key points discussed and offers some concluding thoughts. It reiterates the importance of maintaining accurate records, managing data effectively, communicating clearly, and being adaptable. The text concludes by stating that these principles are fundamental to the long-term success and sustainability of any organization.

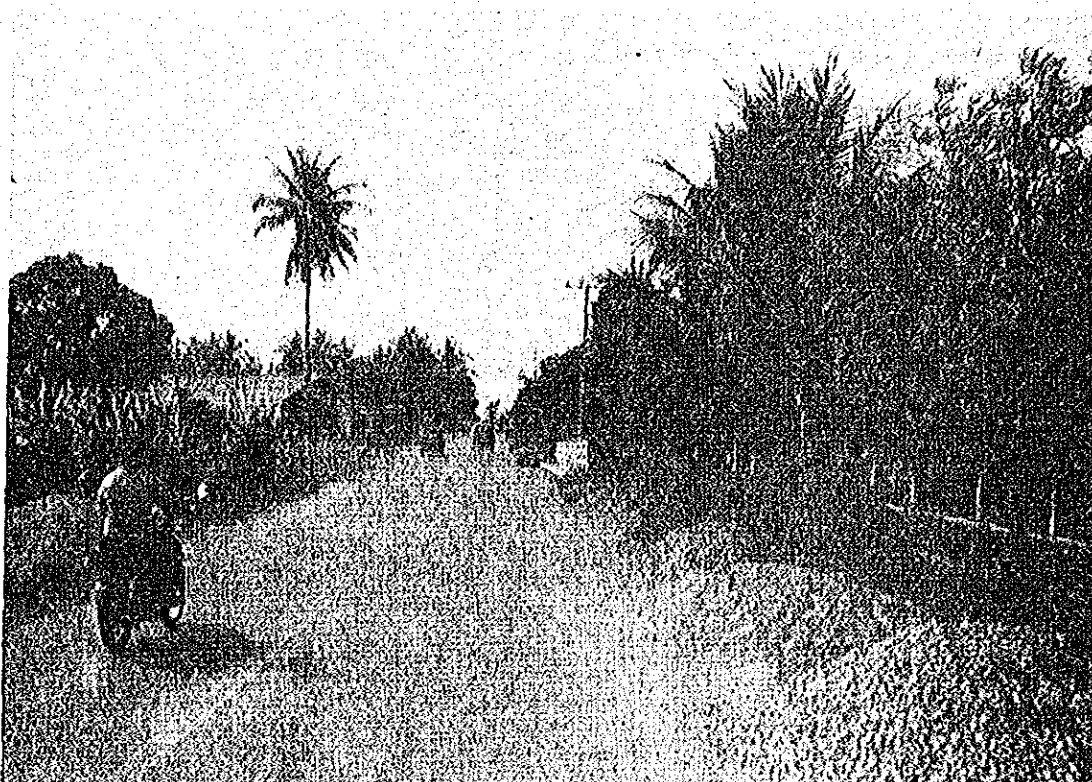
7 The planning of the road and street system will take into consideration not only the requirement to meet future traffic demand but also from the points of aesthetics and landscape.

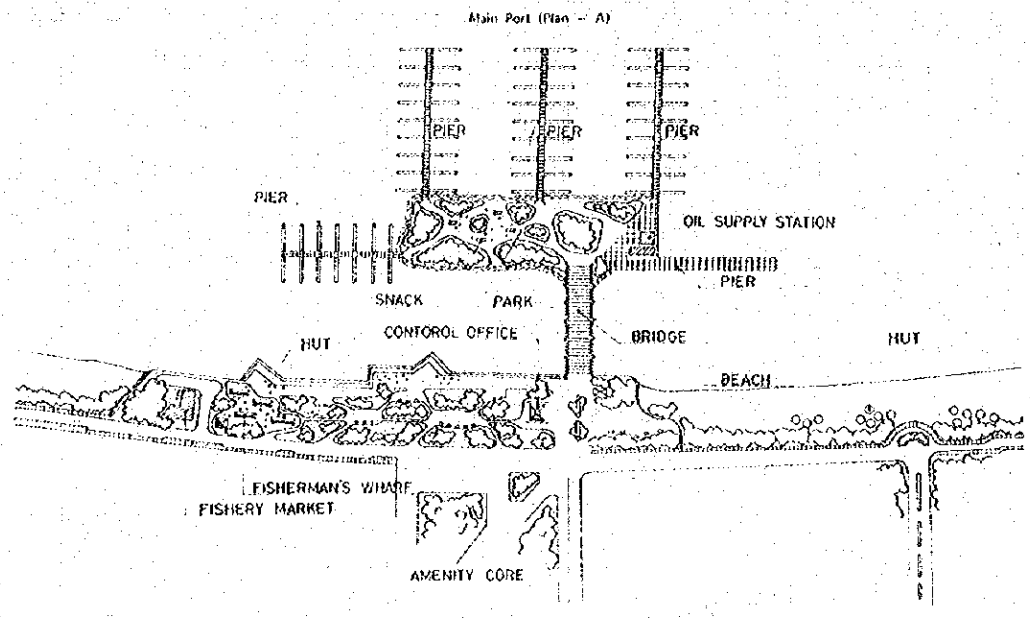
The access road for tourist will be clearly defined from the access road for the local community. Between the resort and the Sukhumvit Highway 3 main access roads each will be provided for the tourists and the local community, one each of which to be implemented in Phase 2.

The existing beach road will be eventually closed to vehicle traffic and the road to the rear of the existing hotel complex will be improved into the main thoroughfare of the resort.

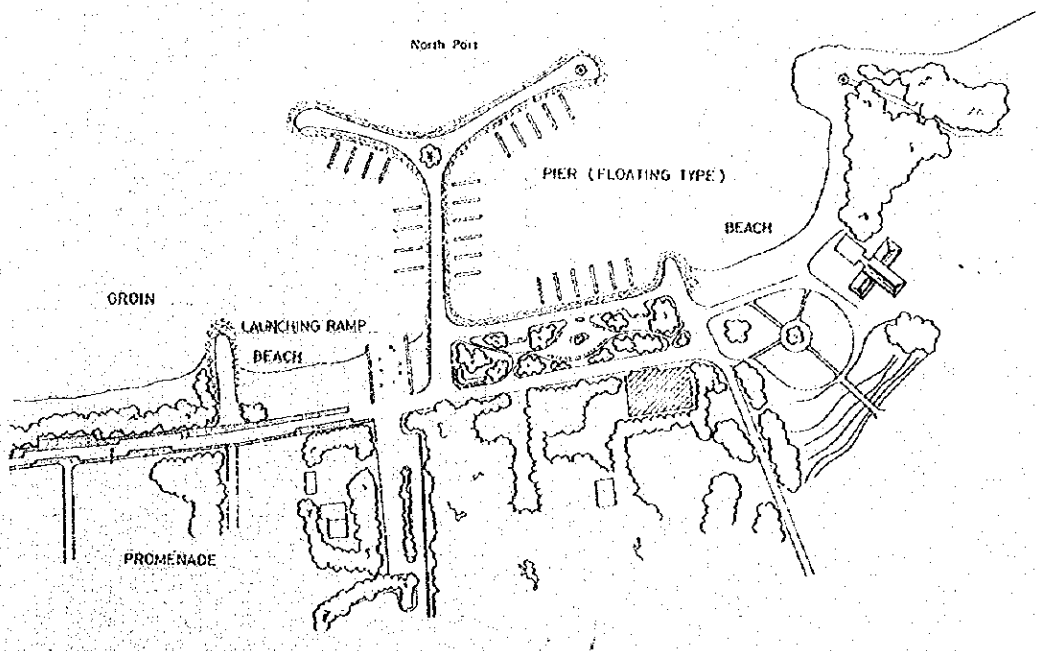
Lighting system will be planned and provided both from the point of functional and that of landscape requirements.

Three public parking areas will be provided in the study area.





Main Port



North Port

8 The power generating capacity of the existing facilities and those in the planning stage will be adequate to meet all future demand of the study area and no new generating facilities are necessary. However, distribution system will have to be provided for the newly developed areas.

For the distribution system, loop line connection will be adopted for big consumers and public consumers in high density area while single line connection will be adopted for low density residential area. For the former, underground line will be adopted while for the latter, overhead line will be used.

As a reserve service against failure, the hotels will have to install emergency generators at a capacity of about 30% of the private substation capacity for each establishment.

In Ko Lan Island, power supply will be made by diesel generators to be installed on the island.

9 The eventual completion of the planned expansion of the telephone system by the Telephone Organization of Thailand will ensure adequate line connection between Pattaya and Chonburi/Bangkok for some time. However, improvement of the telephone exchange at the early stage and extension of exchange at later stage is planned at the Pattaya Station. The direct dial relay system will be adopted.

Telex automatic line concentrator will be installed at Pattaya Station and linked to Bangkok Domestic Telex Exchange.

Two radio links will be constructed, one being the Pattaya-Chonburi microwave link and the other the Pattaya-Ko Lan UHF link.

10 The provision of ports and marine facilities will serve the purpose of providing convenience to the boat users as well as controlling the mooring of the boats at designated locations.

Three ports are proposed one at each amenity core. The main port will be at the existing downtown area and functions as the key tourist spot for ocean activities in connection with the inland amenity core. The north port at the north end of Pattaya will serve rather for international tourists. The south port to be constructed in Phase 2 will be utilized mainly as mooring facilities.

Estimate of Total Construction Cost of All Project for both Mainland & Ko Lan Island

(Millions Baht)

	Phase 1 (1977-86)										Phase 2 (1987-96)				Grand Total		
	Stage 1 (1977-81)					Stage 2 (1982-86)					Total		Local Cur- rency	Foreign Cur- rency	Sub- Total	Land Cost	Total Includ- Land Cost
	Local Cur- rency	Sub- Total	Foreign Cur- rency	Local Cur- rency	Sub- Total	Foreign Cur- rency	Local Cur- rency	Sub- Total	Foreign Cur- rency	Local Cur- rency	Sub- Total						
Water Supply System	31.1	20.0	51.1	102.5	168.4	270.9	133.8	188.4	322.0	100.6	80.6	181.2	234.2	269.0	503.2	1.5	504.7
Sewerage System	6.6	7.9	14.5	71.9	64.4	136.3	78.5	72.3	150.8	104.7	29.7	136.4	185.2	102.0	287.2	14.7	301.9
Storm Water Drainage System	27.5	1.3	28.8	32.6	1.0	33.6	60.3	2.3	62.4	57.7	2.5	60.2	117.8	4.8	122.6	64.6	187.2
Solid Waste Collection & Disposal System	-	0.7	0.7	1.4	2.2	3.6	1.4	2.9	4.3	12.6	5.2	17.8	14.0	8.1	22.1	63.4	85.5
Road & Street System	57.9	12.1	70.0	35.8	6.1	41.9	93.7	18.2	111.9	180.2	45.6	235.8	273.9	63.8	337.7	126.5	464.2
Electrical Power Supply System	2.6	16.5	19.1	43.4	64.4	109.8	48.0	88.9	136.9	57.7	98.0	155.7	105.7	178.9	284.6	0.1	284.7
Telecommunication System	0.7	2.5	3.2	30.2	64.0	94.2	30.9	66.5	97.4	29.0	64.0	93.0	59.9	130.5	190.4	0.1	190.5
Port & Marine Facilities	2.0	-	2.0	60.0	15.0	75.0	62.0	15.0	77.0	60.2	14.9	75.1	122.2	29.9	152.1	-	152.1
Total (A)	128.4	61.0	189.4	379.8	385.5	765.3	508.2	446.5	954.7	604.7	340.5	945.2	1,112.9	787.0	1,899.9	270.9	2,170.8
Park & Open Space	31.7	7.6	39.3	26.8	6.6	33.4	38.5	14.2	52.7	42.4	7.8	50.2	99.9	22.0	121.9	207.5	329.4
Amenity Core	3.5	0.8	4.3	3.5	0.8	4.3	7.0	1.6	8.6	3.9	1.0	4.9	10.9	2.6	13.5	10.7	24.2
Beach Facilities	1.4	0.3	1.7	0.3	0.1	0.4	1.7	0.4	2.1	0.7	0.2	0.9	2.4	0.6	3.0	0.5	3.5
Local Community	33.8	9.1	42.9	50.8	12.7	63.5	84.6	21.8	106.4	81.3	20.6	101.9	165.9	42.4	208.3	15.8	224.1
Sub-Total (B)	70.4	17.8	88.2	81.4	20.2	101.6	151.8	38.0	189.8	127.3	29.6	156.9	279.1	67.6	346.7	234.5	581.2
Private	210.7	57.0	267.7	514.1	261.8	775.9	724.8	318.8	1,043.6	1,743.6	1,124.4	2,870.0	2,470.4	1,443.2	3,913.6	687.8	4,601.4
Total	281.1	74.8	355.9	395.3	282.0	877.5	660.0	356.8	1,233.4	1,872.9	1,154.0	3,025.9	2,749.5	1,510.8	4,260.3	922.3	5,182.6
Public (A + B)	198.8	78.8	277.6	461.2	405.7	866.9	660.0	484.5	1,144.5	732.0	370.1	1,102.1	1,392.0	854.6	2,246.6	505.4	2,752.0
Private	210.7	57.0	267.7	514.1	261.8	775.9	724.8	318.8	1,043.6	1,743.6	1,124.4	2,870.0	2,470.4	1,443.2	3,913.6	687.8	4,601.4
Grand Total	409.5	135.8	545.3	975.3	667.5	1,642.8	1,384.8	803.3	2,188.1	2,577.6	1,494.5	3,972.1	3,862.4	2,297.8	6,160.2	1,393.2	7,553.4

Chapter 6 Economic and Financial Evaluation

1 Economic and financial evaluations are made to justify the economic and financial viability of the implementation of the projects proposed in the masterplan.

Although through these evaluations the economic and financial justifications for the entire masterplan are proved, it is also important to carry out further feasibility study for each individual major project prior to implementation.

2 In the economic and financial evaluations of the masterplan for tourism development of Pattaya, the proposed projects are classified into five groups of infrastructure projects, public sector investment group I (non-revenue generating), public sector investment group II (revenue generating), private sector investment group I (revenue generating) and private sector investment group II (non-revenue generating).

3 For the economic evaluation, the construction costs of all 5 groups and the maintenance and operating costs for infrastructure projects and the public sector investment group I projects (non-revenue generating) are the elements enumerated for the cost stream. The construction cost elements for the entire period of 20 years is summarized as follows:

Summary of Construction Cost (in million baht)

		<u>Phase 1</u>	<u>Phase 2</u>	<u>Total</u>
a. Infrastructures	L.C.	508.2	604.7	1,112.9
	F.C.	446.5	340.5	787.0
	Total	954.7	945.2	1,899.9
b. Public I & II	L.C.	151.8	127.3	279.1
	F.C.	38.0	29.6	67.6
	Total	189.8	156.9	346.7
c. Private I & II	L.C.	724.8	1,745.6	2,470.4
	F.C.	318.8	1,124.4	1,443.2
	Total	1,043.6	2,870.0	3,913.6
d. All Projects	L.C.	1,384.8	2,447.6	3,862.4
	F.C.	803.3	1,494.5	2,297.8
	Total	2,188.1	3,972.1	6,160.2

Note: L.C.: Local currency; F.C.: Foreign currency

Economic rate of return

(Million Baht)

Year	Investment Cost	Benefit	Discount Rate 20%			Discount Rate 30%		
			Discount Factor	Discounted Investment Cost	Discounted Benefit	Discount Factor	Discounted Investment Cost	Discounted Benefit
1977	103.5	23.4	.8333	86.2	19.5	.7692	79.6	18.0
78	326.5	28.0	.6944	226.7	19.4	.5917	193.2	16.6
79	474.7	(-)12.9	.5787	274.7	(-) 7.5	.4552	216.1	(-)5.9
80	544.9	9.3	.4823	262.8	4.5	.3501	190.8	3.3
81	349.2	218.8	.4019	140.3	87.9	.2693	94.0	58.9
82	289.8	376.2	.3349	97.1	126.0	.2072	60.0	77.9
83	281.4	506.9	.2791	78.5	141.5	.1594	44.9	80.8
84	283.2	659.0	.2326	65.9	153.3	.1226	34.7	80.8
85	519.8	777.4	.1938	100.7	150.7	.0943	49.0	73.3
86	386.9	961.7	.1615	62.5	155.3	.0725	28.1	69.7
87	486.5	1,073.7	.1346	65.5	144.5	.0558	27.1	59.9
88	486.2	1,225.3	.1122	54.6	137.5	.0429	20.9	52.6
89	483.7	1,383.2	.0935	45.2	129.3	.0330	16.0	45.6
90	500.6	1,544.2	.0779	39.0	120.3	.0254	12.7	39.2
91	497.7	1,726.3	.0649	32.3	112.0	.0195	9.7	33.7
92	465.5	1,847.1	.0541	25.2	99.9	.0150	7.0	27.7
93	463.3	1,963.0	.0451	20.9	88.5	.0116	5.4	22.8
94	466.8	2,078.9	.0376	17.6	78.2	.0089	4.2	18.5
95	472.7	2,195.1	.0313	14.8	68.7	.0068	3.2	14.9
96	472.0	2,335.4	.0261	12.3	61.0	.0053	2.5	12.4
97	84.0	2,463.6	.0217	1.8	53.5	.0040	0.3	9.9
98	84.0	2,463.6	.0181	1.5	44.6	.0031	0.3	7.6
99	84.0	2,463.6	.0151	1.3	37.2	.0024	0.2	5.9
2000	84.0	2,463.6	.0126	1.1	31.0	.0018	0.2	4.4
1	84.0	2,463.5	.0105	0.9	25.9	.0014	0.1	3.4
2	84.0	2,463.5	.0087	0.7	21.4	.0011	0.1	2.7
3	84.0	2,463.5	.0073	0.6	18.0	.0008	0.1	2.0
4	84.0	2,463.5	.0061	0.5	15.0	.0006	0.1	1.5
5	84.0	2,463.5	.0051	0.4	12.6	.0005	-	1.2
6	84.0	2,463.5	.0042	0.4	10.3	.0004	-	1.0
Total	9,194.9	45,555.4		1,732.0	2,160.0		1,100.5	840.3

Economic Rate of Return: 26%

- 4 The economic benefits for the tourism development are enumerated from the two items of (1) net foreign exchange earning and (2) operating profit of the tourism industry and the annual benefit for the key years are summarized as follows:

Economic Benefit for Key Years (in million baht)

Year	Operating Profit	Net Foreign Exchange Earning	Total
1981	107	11.8	218.8
1986	312	649.7	961.7
1991	553	1,173.3	1,726.3
1996	751	1,584.4	2,335.4

- 5 Assuming an analysis period of thirty years, the internal rate of return of all projects is calculated to be 26%.

At this high economic rate of return, it can be confidently concluded that the implementation of the masterplan is economically feasible, and it is recommended that on condition that the financial viability is verified, the implementation of the development according to the masterplan should be carried out, starting with the feasibility studies on the projects of high priority.

- 6 The financial evaluation is made on three cases as follows:

- (i) For the water supply system only
- (ii) For the water supply and sewerage systems together to be covered by the revenue on water consumption only.
- (iii) For all infrastructure and public sector group I projects assuming that all these will be implemented under a Pattaya Tourism Development Corporation.

- 7 In the case of the water supply system only, the following cases of unit rate of water charge per m³ are assumed.

- (i) 5 bahts for hotels and 2 bahts for residents
- (ii) 7 bahts for hotels and 2 bahts for residents
- (iii) 10 bahts for hotels and 2 bahts for residents
- (iv) 13 bahts for hotels and 2 bahts for residents

The financial rates of return for the four cases are as follows:

- (i) At a rate of 5 bahts for hotels, the financial rate of return = 3%
- (ii) At a rate of 7 bahts for hotels, FRR = 5%
- (iii) At a rate of 10 bahts for hotels, FRR = 8%
- (iv) At a rate of 13 bahts for hotels, FRR = 11%

Estimate of Increase in Receipts from Tourist through Development

Year	Rich Development (A)					Without (B)					Increase in Receipt (A - B)								
	Visitors (persons)		Total	Receipts (Millions Baht)		Visitors (persons)	Total	Receipts (Millions Baht)		Increase in Receipts (Millions Baht)		Out-side hotel (40%)							
	For- eign Tour- ists	Resi- dents		For- eign Tour- ists	Resi- dents			Average Length of Stay	For- eign Tour- ists	Resi- dents	For- eign Tour- ists		Resi- dents	Total	Inside hotel (60%)				
1977	233,020	200,580	433,600	293	136	210,000	190,000	400,000	1.7	1.3	254	128	392	29	8	37	25	14	
78	258,412	211,610	470,022	323	143	"	"	"	"	"	"	"	"	61	15	76	46	30	
79	286,414	223,090	509,504	382	162	"	"	"	"	"	"	"	"	118	34	152	92	60	
80	317,290	235,012	552,302	446	183	"	"	"	"	"	"	"	"	182	55	237	143	94	
81	352,000	248,000	600,000	521	206	"	"	"	"	"	"	"	"	257	78	335	202	133	
82	377,720	257,680	635,400	615	214	"	"	"	"	"	"	"	"	351	86	437	263	174	
83	405,170	267,719	672,889	710	233	"	"	"	"	"	"	"	"	456	95	551	331	220	
84	434,640	277,949	712,589	836	246	"	"	"	"	"	"	"	"	572	118	690	415	275	
85	466,110	288,522	754,632	966	255	"	"	"	"	"	"	"	"	702	127	829	498	331	
86	500,000	300,000	800,000	1,130	265	"	"	"	"	"	"	"	"	846	137	983	590	393	
87	516,300	320,500	836,800	1,223	283	"	"	"	"	"	"	"	"	959	135	1,114	669	445	
88	533,010	342,283	875,293	1,341	320	"	"	"	"	"	"	"	"	1,077	192	1,269	762	507	
89	550,120	365,436	915,556	1,466	342	"	"	"	"	"	"	"	"	1,202	214	1,416	850	566	
90	567,630	390,042	957,672	1,596	365	"	"	"	"	"	"	"	"	1,332	237	1,569	942	627	
91	588,000	412,000	1,000,000	1,740	396	"	"	"	"	"	"	"	"	1,476	268	1,744	1,047	697	
92	601,730	435,270	1,037,000	1,826	430	"	"	"	"	"	"	"	"	1,562	302	1,864	1,119	745	
93	615,650	459,719	1,075,369	1,913	494	"	"	"	"	"	"	"	"	1,649	326	1,975	1,186	789	
94	629,760	485,398	1,115,158	2,004	480	"	"	"	"	"	"	"	"	1,740	352	2,092	1,256	836	
95	644,040	512,379	1,156,419	2,097	506	"	"	"	"	"	"	"	"	1,833	378	2,211	1,327	884	
96	660,000	540,000	1,200,000	2,196	562	"	"	"	"	"	"	"	"	1,934	434	2,368	1,421	947	
97	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
98	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
99	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
2000	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
1	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
2	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
3	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
4	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
5	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
6	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
Total	-	-	-	45,598	11,791	-	-	-	-	-	7,920	3,840	11,760	37,678	7,951	45,629	27,392	18,237	

From the above results it is concluded that on condition that the minimum unit rate of water charge is set at 10 bahts or more for hotel consumption and 2 baht for residential consumption, the water supply project will be financially self-sustaining and viable as an independent project.

8 In the case that both the water supply and the sewerage system project are to be covered by the same revenue as that for water supply only, the results are as follows:

- (i) At a rate of 10 bahts for hotel, FRR = 2.8%
- (ii) At a rate of 13 bahts for hotel, FRR = 6%

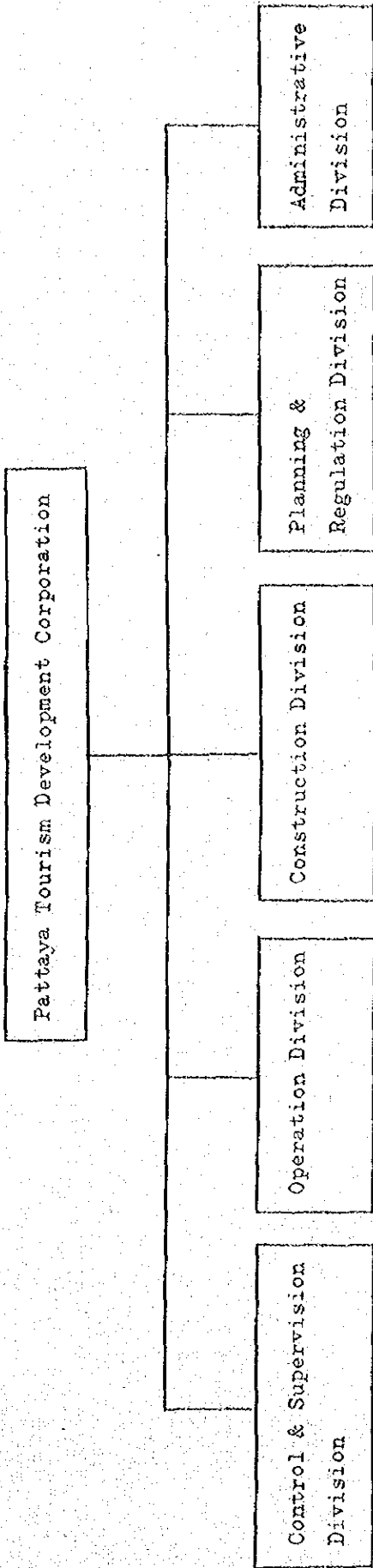
Due to the increase in cost, the financial rates of return for both cases are not favourable. It is deemed that Government subsidy will be necessary if both these projects are to be taken up together with one single source of revenue to cover both projects. The necessary subsidy is estimated to amount to about 90% of the revenue receipt from water consumption.

In this case, it should be noted that the increase in tax receipts through the increase of tourists to Pattaya will amply cover the sum required for subsidy by the Government so that in actual fact the financial viability can be maintained.

9 In the case that all infrastructure projects and public sector group I projects (non-revenue generating) are to be implemented by the proposed Pattaya Tourism Development Corporation, the income will consist of the revenue for water consumption, the increased revenue for electric power consumption and telecommunication facility usage, and the increased tax receipts by the local and the national government.

The results of financial evaluation for the case that the unit rate for water charge is 10 bahts/m³: the financial rate of return is calculated to be 9.1%.

At this favorable financial rate of return, it is considered that the establishment of the Pattaya Tourism Development Corporation for the implementation of these development projects will be financially viable and preparation for such purpose at an early date is recommended.



Operation of

Hotels
 Guide, Tour &
 Travel Agencies
 Tourist Facilities
 Operators
 Restaurants
 Souvenir Shops

Operation of

Local Transport
 Inland Activities
 Infrastructures
 Amenity Centres
 Information Services

Construction of

Infrastructures
 Public Facilities

Development Planning
 Proposal on Landuse &
 Landscape Regulations
 Sea Surface Usage
 Outlaying Islands
 Permits, Licences and
 Concessions

Personnel
 Accounts

Chapter 7 Organization

1 The Tourist Organization of Thailand (TOT) is the existing organization for the tourism industry. The energetic effort of the TOT has been instrumental in bringing about the recent rapid increase of international tourists into Thailand. However, since the TOT is without executing authority, it cannot take direct action in the implementation or execution of development of the tourism industry.

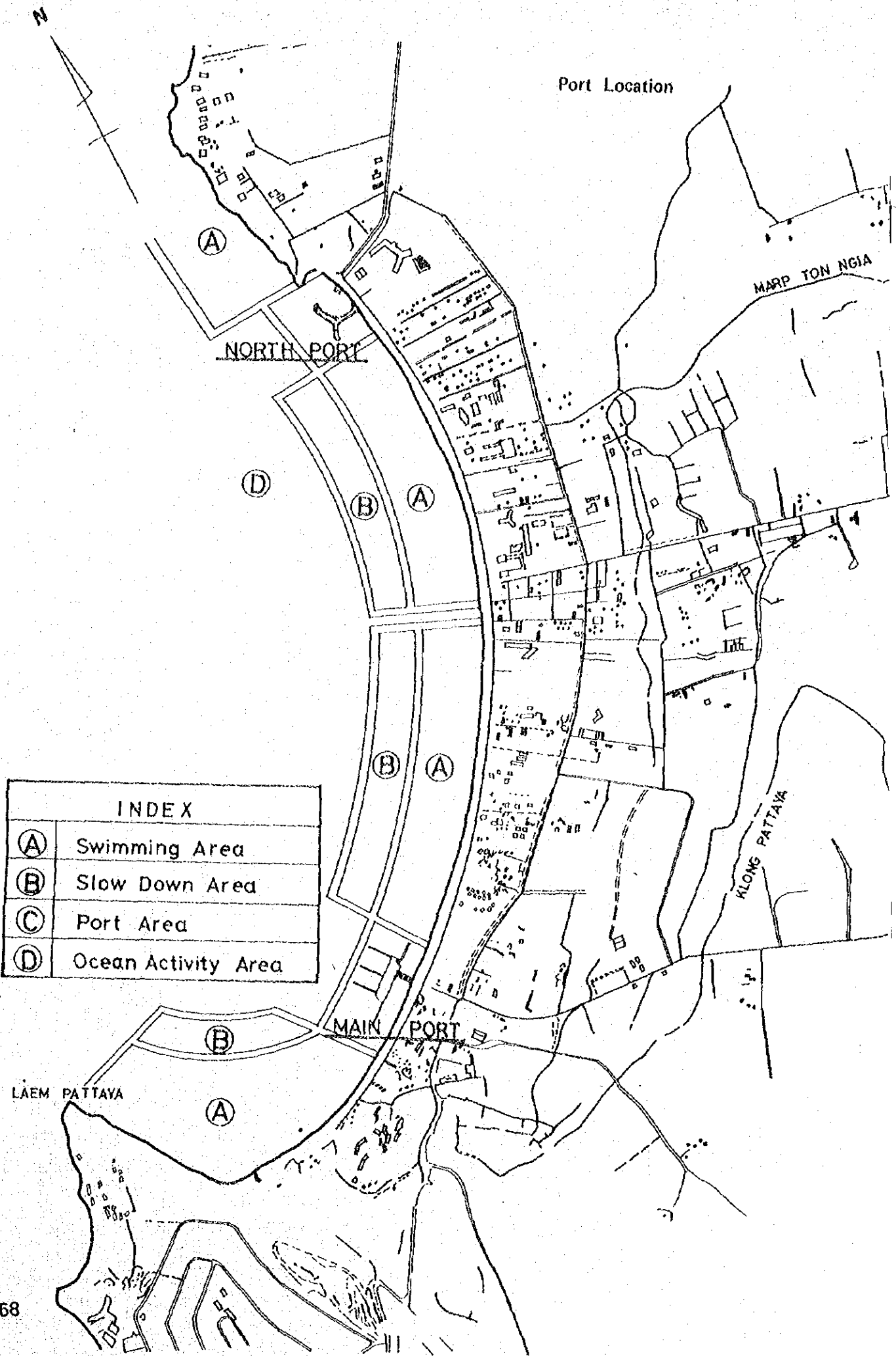
2 It is recommended that the Tourist Organization of Thailand be reorganized into an executing agency, such as in the form of a Tourist Authority, with the necessary authority to implement, control, operate, maintain and supervise tourism development and the tourism industry. The strengthened Tourist Authority may have under its organization such major departments as the Promotion and Marketing Department, Planning and Research Department, Operation and Supervision Department, Development Department and Administrative Department.

The Tourist Authority may establish Tourism Development Corporations under the supervision of the Development Department for the large scale development of major tourist resorts.

3 For the tourism development of Pattaya, it is recommended that a Pattaya Tourism Development Corporation be established for the execution of the implementation and operation of development projects by the public sector and the control and supervision of development projects by the private sector.

The Corporation may be composed of the Administration Division, Planning and Regulation Division, Construction Division, Operation Division and Control & Supervision Division.

4 In the private sector, it is recommended that the existing Pattaya Resort Association be strengthened into an organization with authority to make resolutions binding to all members of the association, in order that the association may make self-regulating resolutions on sanitary standard, safety standard, security standard, fare and charge level and service level.



Chapter 8 Legislation

1 There are at present no legislations directly for the tourism industry although many of the general laws are applicable also to the tourist resorts and tourist facilities. However, in view of the increased importance of tourism industry to Thailand, it is important that legislative measures directly applicable to the tourism industry be enacted.

2 The most necessary and important legislation for the tourism industry will be the establishment of a "Basic Tourism Law", in order to clearly define the policy, goal and spirit of the Government regarding the tourism industry and to present a general narration of the steps, means or methods necessary to fulfil or attain such policy, goal or spirit.

3 With the Basic Tourism Law as a fundamental basis, necessary legislative measures should also be taken for the regulation of the tourism industry at the administrative level.

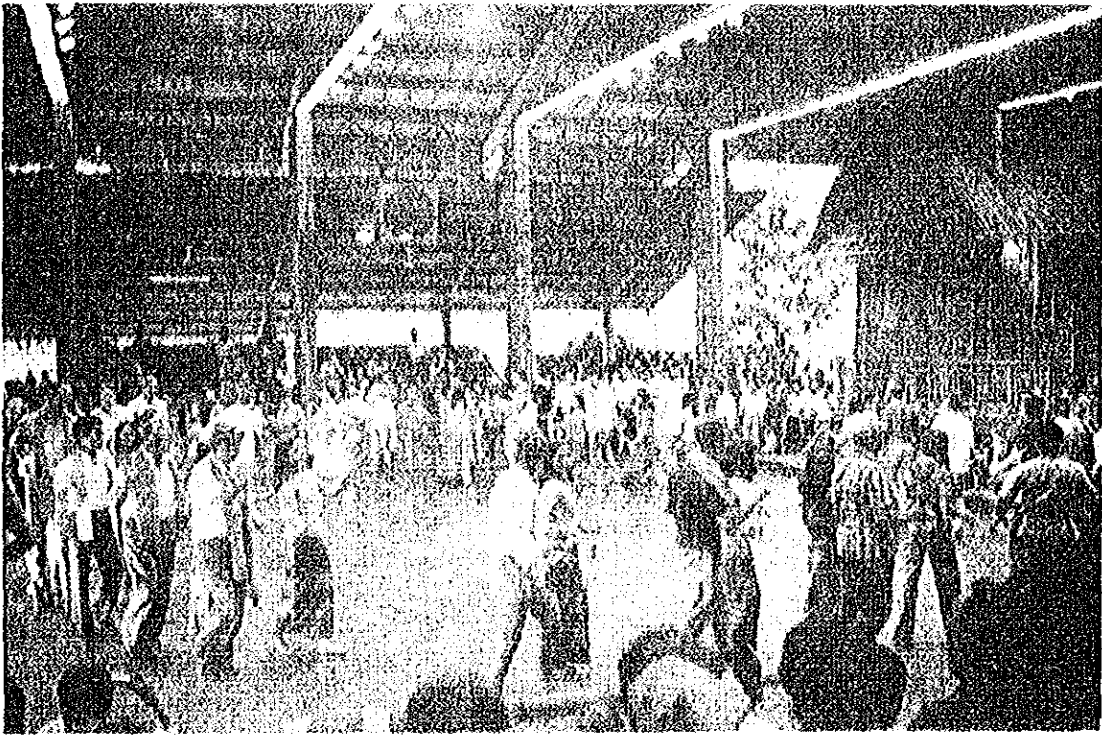
The following are some of the major legislative measures necessary in this respect.

- * Legislative measures for the regulation of tour and travel agents and operators.
- * Legislative measures on the regulation of tourist guides and interpreters.
- * Legislative measures for regulation of tourist hotels.

4 Many of the existing general laws may also be made more strictly applicable to the tourist resorts by taking appropriate legislative measures based on these laws. The following are some of the major items.

- * Legislative measures for preservation and protection of tourism resources.
- * Application of the "Environmental Act" to tourist resorts.
- * Legislative measures on food sanitation.

5 Where a masterplan for tourism development is prepared for a tourist resorts, appropriate legislative measures should also be taken to give legal support to the recommendations made in the masterplan.



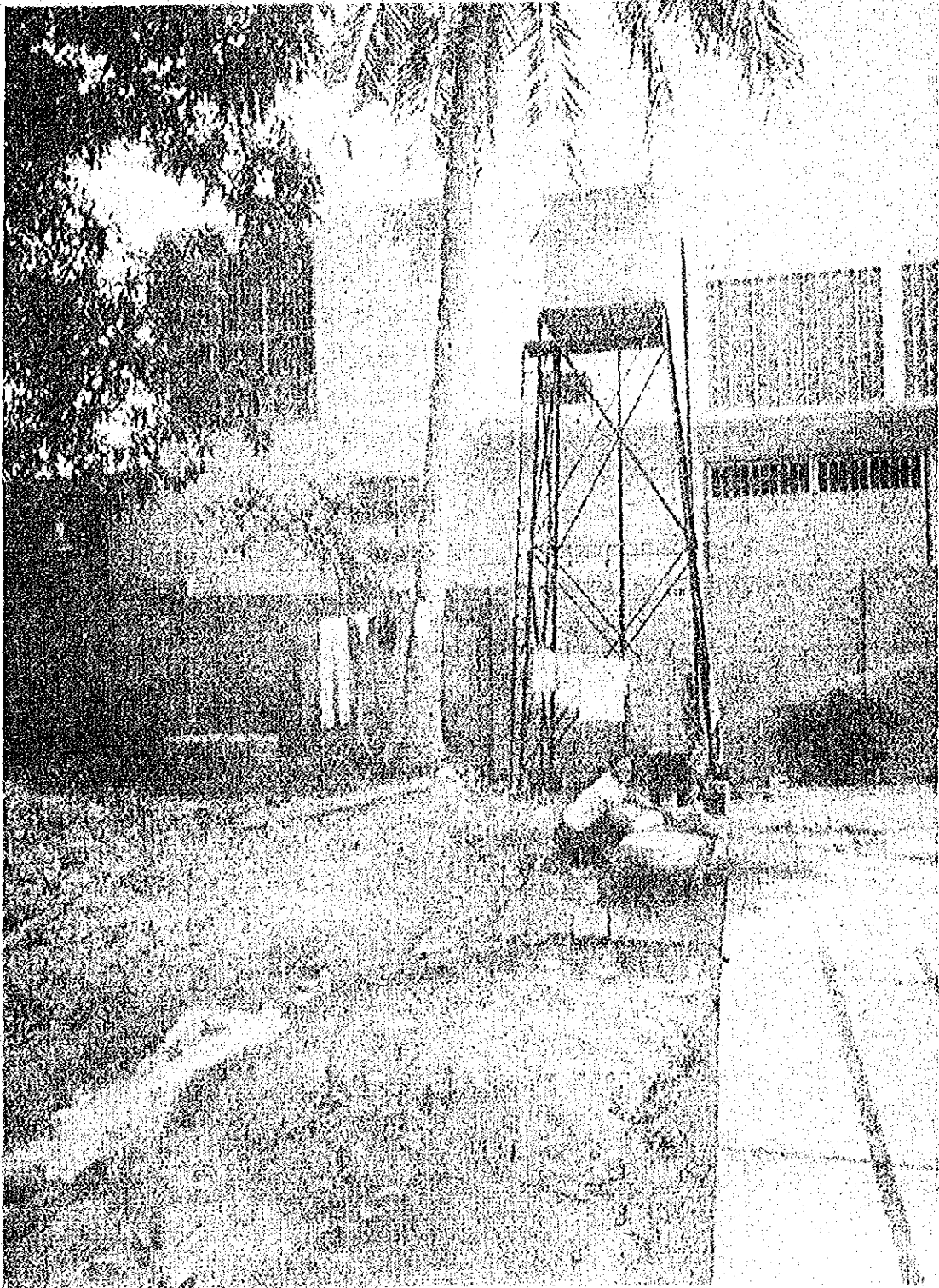
Chapter 9 Training

1 Together with the implementation of the tourism development of Pattaya, there will be a great increase in personnel requirements both in the management and operation of the tourist facilities in the private sector as well as in the administration and supervision of the facilities and activities in the public sector, and a concerted training program is necessary to ensure stable supply of personnel of required calibre and standard to meet the annual increase in demand.

2 In the private sector, it is roughly estimated that in the next 20 years, the additional personnel required in the hotel industry in Pattaya will come to a total of over 7.5 thousand. Over 1,350 tourist guides will also be additionally required. Together with personnel requirements in other tourist related services, the total personnel requirements will be very large. Training programs through addition of educational courses in universities and also training courses in vocational schools should be started at an early date.

Besides training to fulfil professional requirements in specific fields, training program on language proficiency is also necessary and the languages should, other than English, include also German, French and Japanese.

3 Personnel requirements in the public sector may be fulfilled by recruiting experienced personnel from other government agencies or the private sector, by sending recruited young personnel for training domestically or abroad, by employing foreign experts as advisors in the initial stage, or by assignment of the implementation, operation and management of specific projects to engineering and management consultants and specifying training of local counterparts as a requirement of the contract.



Chapter 10 Implementation of the Project

1 The masterplan for the tourism development of Pattaya is prepared for a period of 20 years up to 1996. The period is divided into two phases of 10 years each and the Phase 1 is further subdivided into stage 1 and stage 2 at 5 years for each stage.

The hotel room requirement in Phase 1 is very small and the projects proposed in this phase are mainly for the provision of infrastructure facilities to the existing developed resort area and also the provision of tourist facilities to enhance the attractiveness of the existing resort.

The hotel room requirement will be more than doubled in Phase 2 and the development in this Phase will be mainly south of the Pattaya Hill.

2 It is recommended that, the masterplan being made on a long term basis, a review of the plan be made at the end of Phase 1 to make any necessary modification or adjustment based on the latest available data and to reach a decision on whether the Phase 2 projects should be implemented as scheduled.

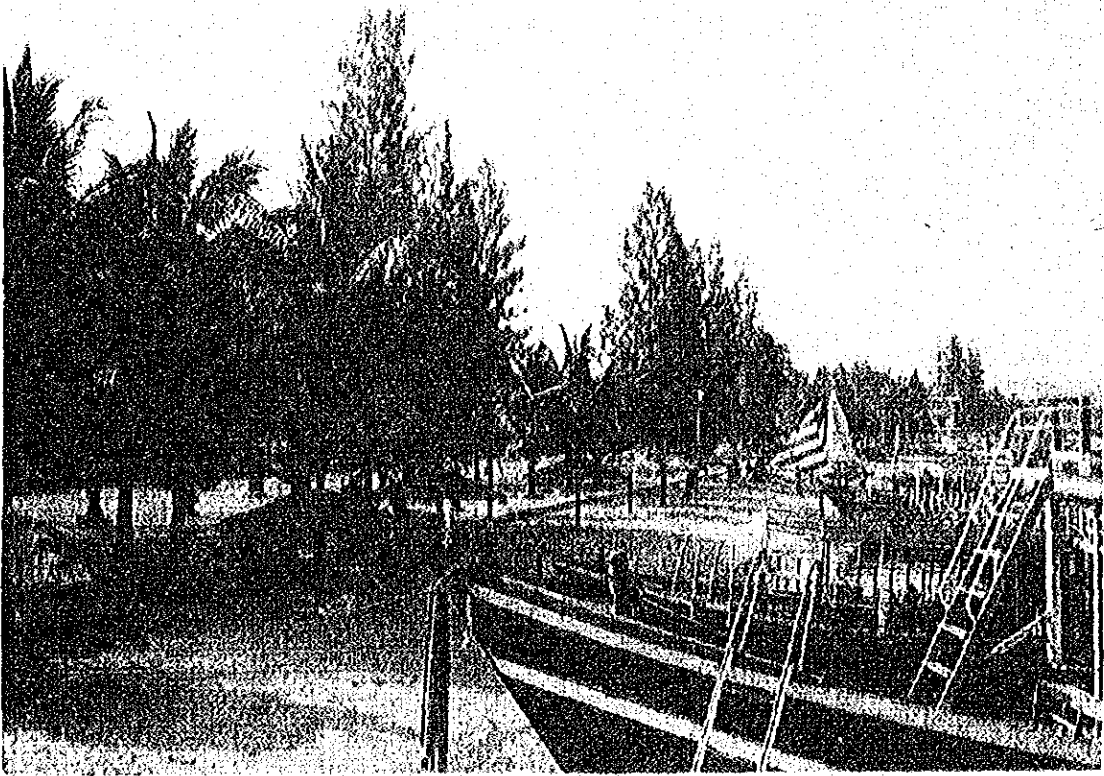
3 Eight infrastructure projects are studied in the masterplan and although the total implementation of all the projects is desirable, the order of urgency has to be determined by analysing the priority of the projects. After deliberation from the points of contribution in upgrading the level of service to the tourist and of environmental preservation, the priority of the infrastructure projects are established as follows:

(a) First priority group of projects which includes the following projects which may affect the viability of Pattaya as a tourist resort.

- * Water Supply System
- * Sewerage System
- * Solid Waste Collection and Disposal System

(b) Second priority group of projects which includes the following projects for improving the image and enhance the attraction of Pattaya as a tourist resort in order to ensure constant growth in tourist arrivals.

- * Road and Street System
- * Port and Marine Facilities
- * Storm Water Drainage System



(c) Third priority group of projects which are the following projects for improving the quality of service to the tourists and local community.

- * Electric Power Supply System
- * Telecommunication System

The above priority is decided from technical consideration and will serve as a basis for determination of the sequence of implementation of the projects. The status quo and related conditions of the projects should also taken into consideration in determining such sequence of implementation.

3 The implementation of the projects of the masterplan will require many years before completion. The following urgent programs are therefore recommended for immediate improvement of the conditions of the existing resort area.

(a) Urgent Projects

- * Temporary provision of raw water supply line
- * Temporary provision of sewerage system for South Pattaya
- * Provision of temporary marine facilities

(b) Periodical routines and simple facility provision

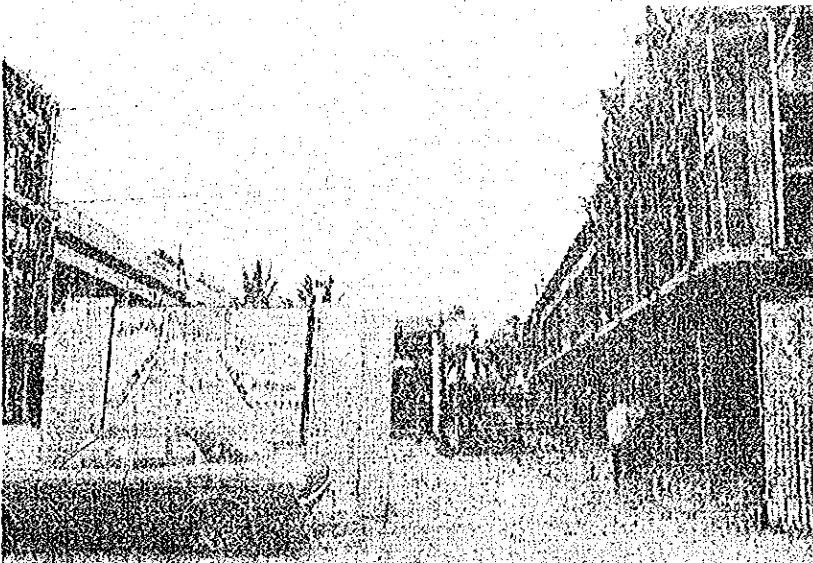
- * Regular cleaning of the beach
- * Restriction of horse riding on the beach
- * Regular cleaning of litters and sea-weed in the water
- * Chlorine injection of septic tanks of existing establishment
- * Designation of boat mooring area
- * Designation of water surface usage
- * Establishment of coast guards and first aid units
- * Provision of traffic signs
- * Designation of areas for vendors
- * Provision of benches along the beach
- * Promotion of cycling as a means of transport
- * Periodical monitoring of water quality

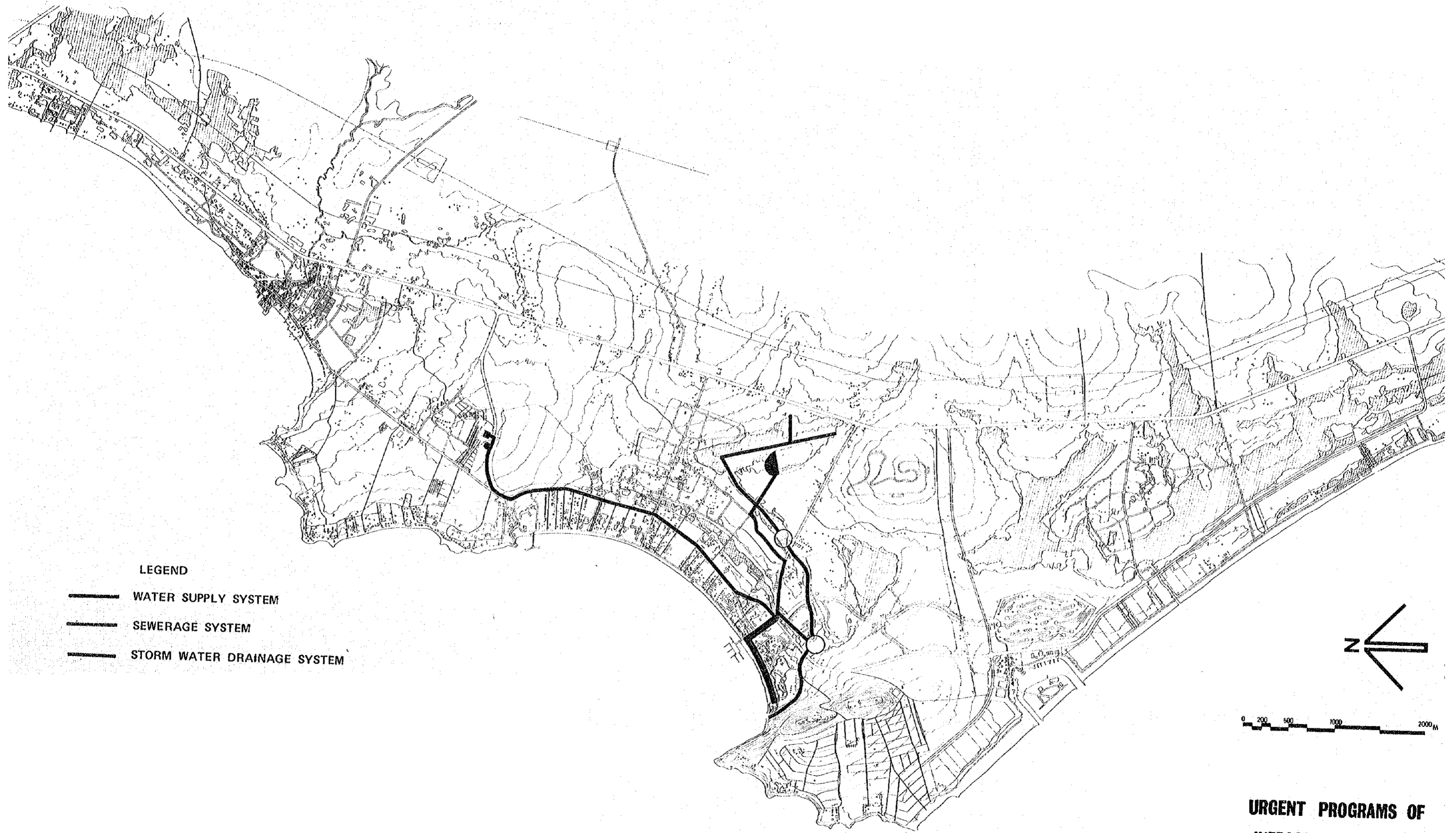
(c) Legislative and administrative measures

- * Regulation of traffic on beach road by introducing one-way-street system and closing part of the road to vehicle traffic.
- * Enforcement of registration of boats and stipulation of safety requirements for boats.
- * Regulation of speed of public transport vehicles.
- * Restriction of street soliciting
- * Establishment of criteria of quality of factory waste water from tapioca factories.

- (d) Immediate steps should also be taken to check and prevent the continued uncontrolled construction presently underway, before the recommendations of the report may be put into effect.

4 Other than taking immediate steps on the above urgent programs, early action should also be made for preparation of the implementation of the masterplan including the necessary feasibility studies and design services on the projects and steps for establishment of the recommended legislative measures.





LEGEND

- WATER SUPPLY SYSTEM
- - - SEWERAGE SYSTEM
- / - STORM WATER DRAINAGE SYSTEM

0 200 500 1000 2000 M

**URGENT PROGRAMS OF
INFRASTRUCTURE PLAN**

