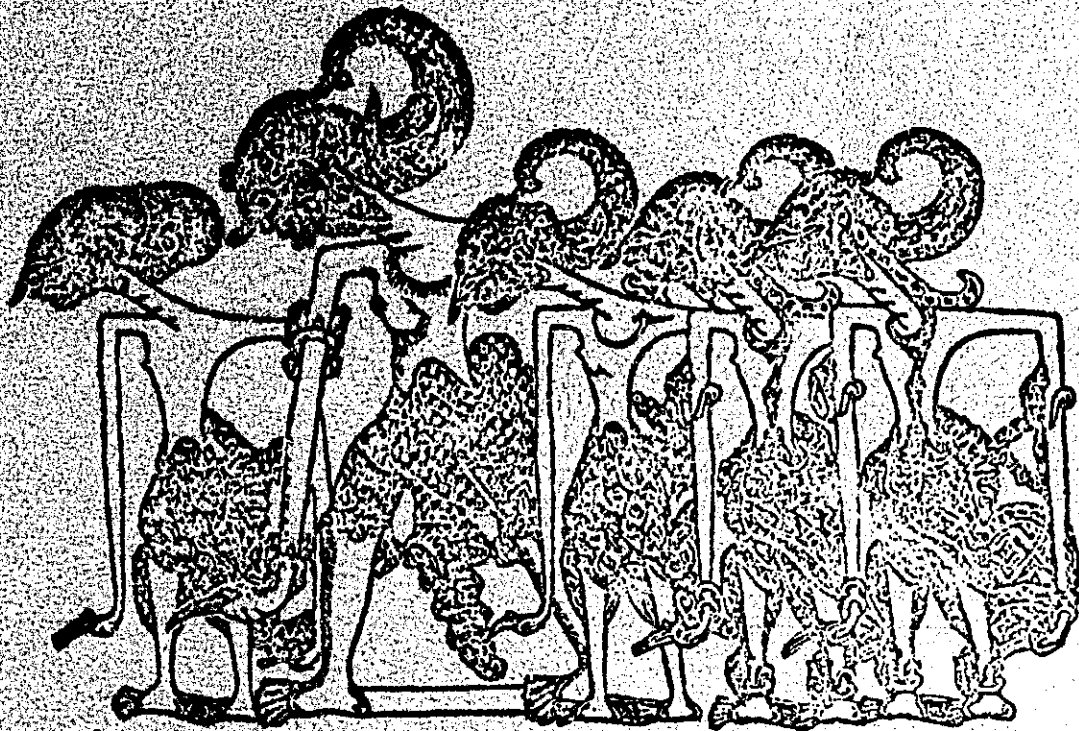


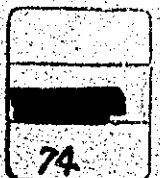
REPUBLIC OF INDONESIA

**CENTRAL JAVA AND YOGYAKARTA AREA
TOURISM DEVELOPMENT**



JULY, 1974

**OVERSEAS TECHNICAL COOPERATION AGENCY
JAPAN**



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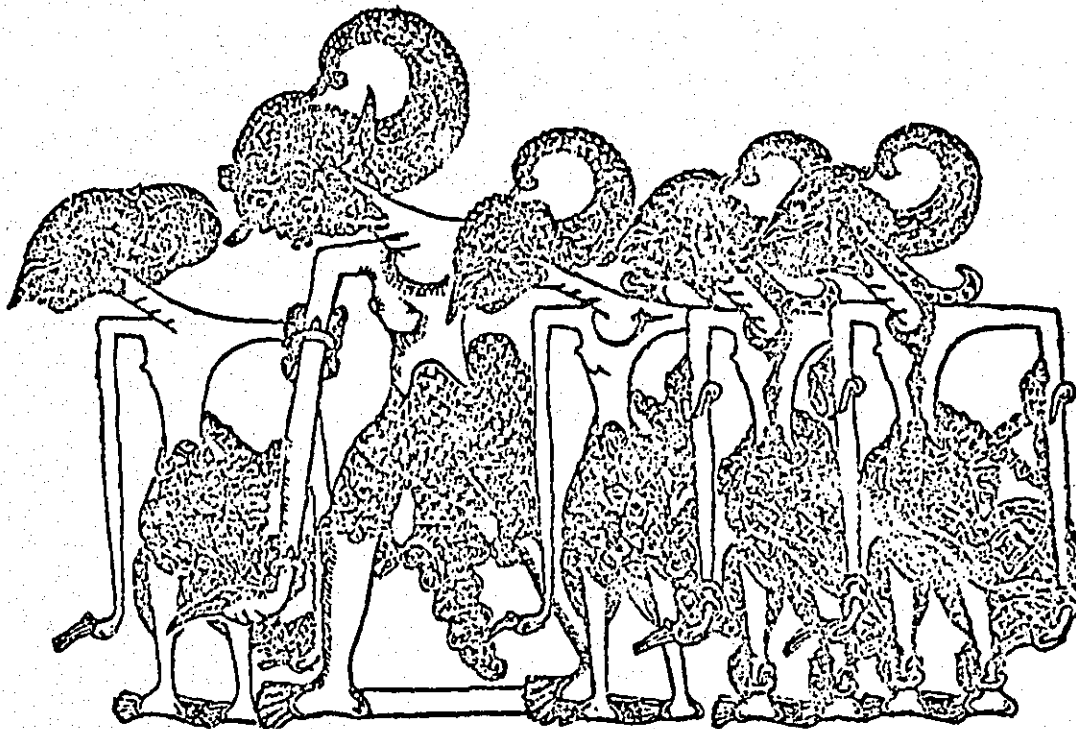


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REPUBLIC OF INDONESIA

**CENTRAL JAVA AND YOGYAKARTA AREA
TOURISM DEVELOPMENT**



JULY, 1974

OVERSEAS TECHNICAL COOPERATION AGENCY

JAPAN

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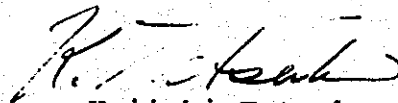
At the request of the Government of the Republic of Indonesia, the Government of Japan decided to carry out the study on the Central Java and Yogyakarta area Tourism Development Project and entrusted the Overseas Technical Cooperation Agency (hereinafter referred to as "OTCA") with execution of the Project.

OTCA, fully aware of the importance of the effect that the implementation of the Tourism Development Project will have on the social and economic development of the Republic of Indonesia, dispatched a survey team composed of experts on tourism development to Indonesia for a period of about one month, starting from October 4, 1973. While in Jakarta, Central Java and Yogyakarta, the full cooperation of various Government departments made it possible for the survey to be carried out very smoothly. Subsequent work in Japan has now been duly completed, and this report is the product of the study.

This report covers the master plan, preliminary engineering study and other technical considerations as well as the rough estimation of the construction cost of the archeological parks and related infrastructures in the Prambanan area, Borobudur area and Dieng area in Central Java and Yogyakarta.

It is our fervent wish that the results of the study will contribute towards the tourism development of the Central Java and Yogyakarta area and towards the promotion of international friendship between Japan and the Republic of Indonesia.

July, 1974



Keiichi Tatsuke
Director General
Overseas Technical Cooperation Agency

FOREWORD

As requested by the Government of the Republic of Indonesia, the main objective of the following study was to evaluate the tourism potential of the Central Java and Yogyakarta regions and to prepare a long-range master plan for developing that potential, concentrating on the three main archeological parks, land use, infrastructure and hotels.

The Government of Japan entrusted the study to OTCA, which in turn appointed a committee for its guidance and supervision under the chairmanship of Mr. Y. Enomoto and consisting of six members from Ministries of the Japanese Government directly concerned. The detailed investigation and preparation of the masterplan and report was entrusted to Pacific Consultants International.

One of the Directors of OTCA, Mr. H. Yoshihara, accompanied by one staff member, conducted the preliminary discussions in Indonesia regarding the scope of the study, and the survey team, headed by Mr. K. Fukuoka and nine members, stayed in Indonesia for one month, starting October 4, 1973, to carry out the field work and discuss their findings with the responsible Government officials.

The Supervisory Committee of OTCA consisted of the following members:

Chairman	[General Management] Mr. Yoshiomi Enomoto	Executive Director, Japan National Tourist Organization
Vice Chairman	[Tourism policy] Mr. Takeshige Sasaki Mr. Isamu Sakurai (Predecessor)	Director, Tourist Promotion Division, Department of Tourism, Ministry of Transport

Member	[Tourism facilities] Mr. Soshuu Ishide Mr. Koosaku Yamada (Predecessor)	Director, Tourism and Recreation Area Planning Office, Facilities Division, Department of Tourism, Ministry of Transport
Member	[Airport] Mr. Yoshiomi Tanibe	Special Assistant to Director, Construction Division, Airodrome Department, Civil Aviation Bureau, Ministry of Transport
Member	[Water utilization] Mr. Shigeyuki Watanabe	Senior Engineer, River Planning Division, River Bureau, Ministry of Con- struction
Member	[Land use] Mr. Honjiroo Sato	Senior Planning Engineer, Regional Planning Division, Planning Bureau, Ministry of Construction
Member	[Highway] Mr. Hideo Tokuhira	Special Grade Engineer, International Cooperation Office, Planning Bureau, Ministry of Construction

The survey team staffed by Pacific Consultants International consisted of the following:

General Management (Team Leader)	Keiichi Fukuoka
Chief Engineer & Highway Engineer	Kazunari Makino
Physical Planner	Sohiko Yamada
Economist	Jiro Yokoyama
Tourism Specialist	Shingo Hagiwara
Ecologist	Shigeki Muramatsu
Landscape Architect	Robert Murase
Architect	Takuhide Fujihira
Waterworks Engineer	Tokihiko Ina
Airport Engineer	Hisao Hasegawa

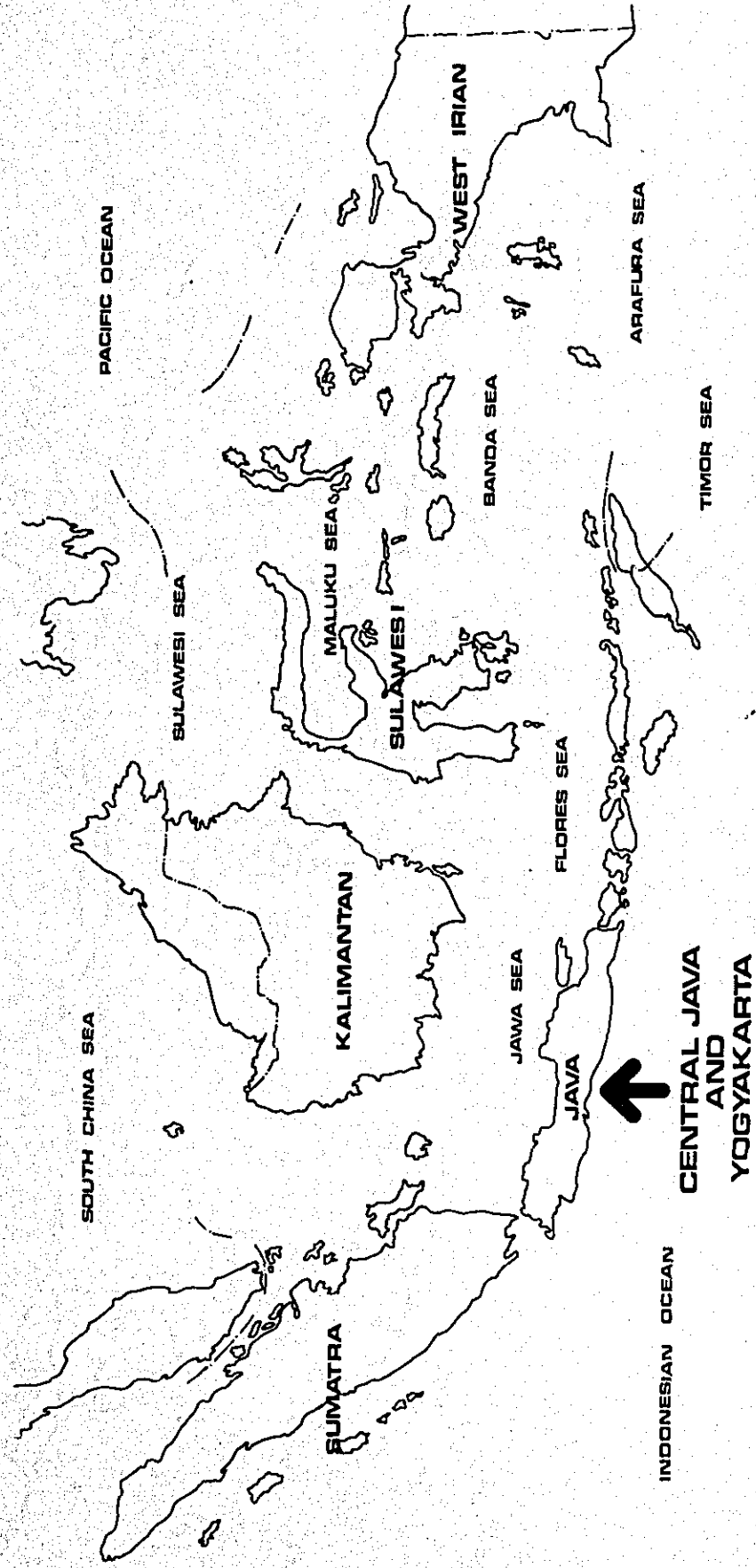
In the course of the study the OTCA team was provided with many facilities and given most valuable assistance, advice and views by the following authorities and their staffs:

Mr. M.J. Prajogo	Director Genral of Tourism, Ministry of Transport, Communications and Tourism, and his staff
Maj. Gen. Munadi	Governor, Province of Central Java, and his staff
Col. Sudjono A.J.	Mayor, Yogyakarta Special Munic- ipality, and his staff
Dr. Sudiman	Head Archeological Service of Central Java and his staff

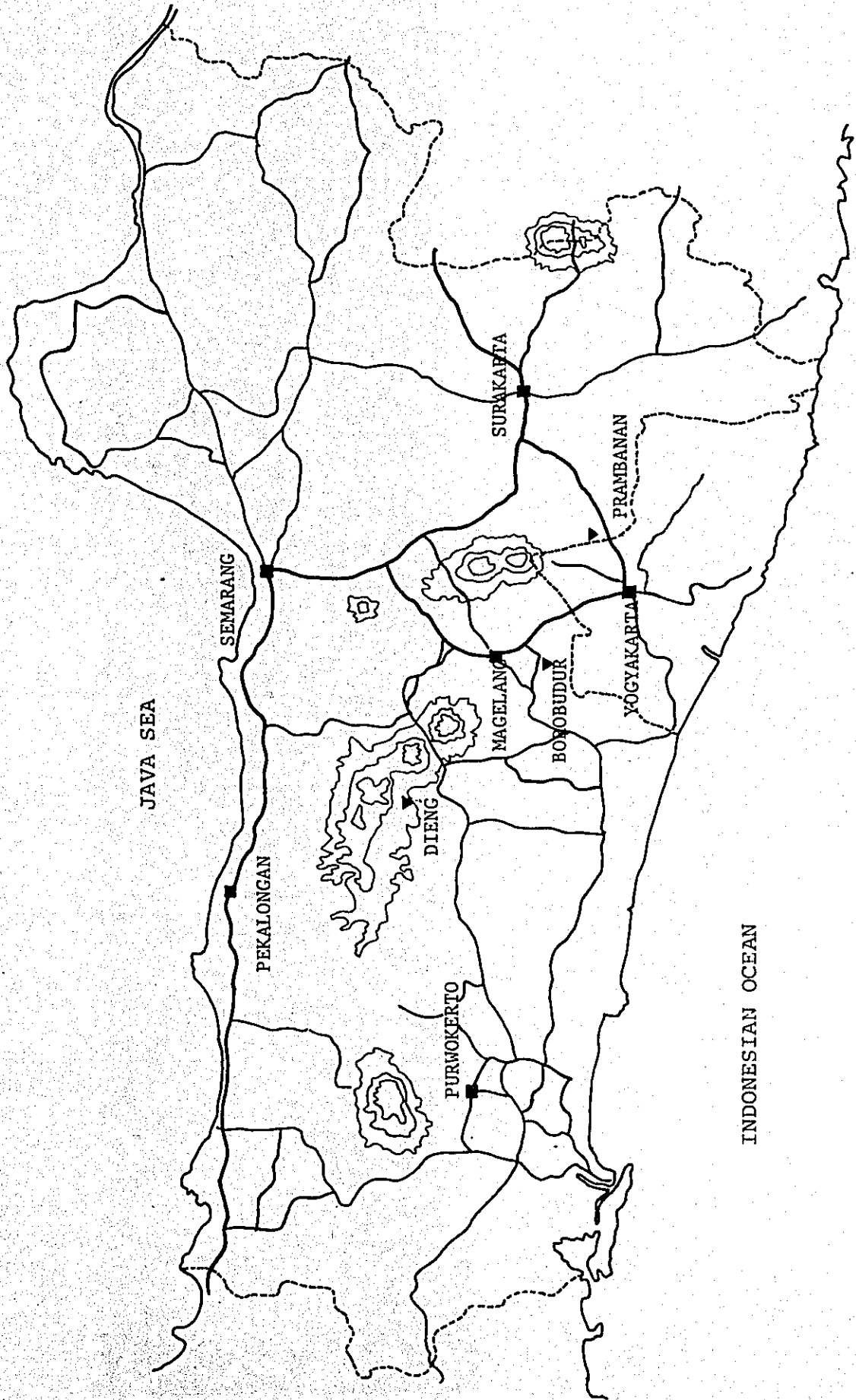
Without their valuable help it would have been impossible for the team to complete the field work in such a short period of time.

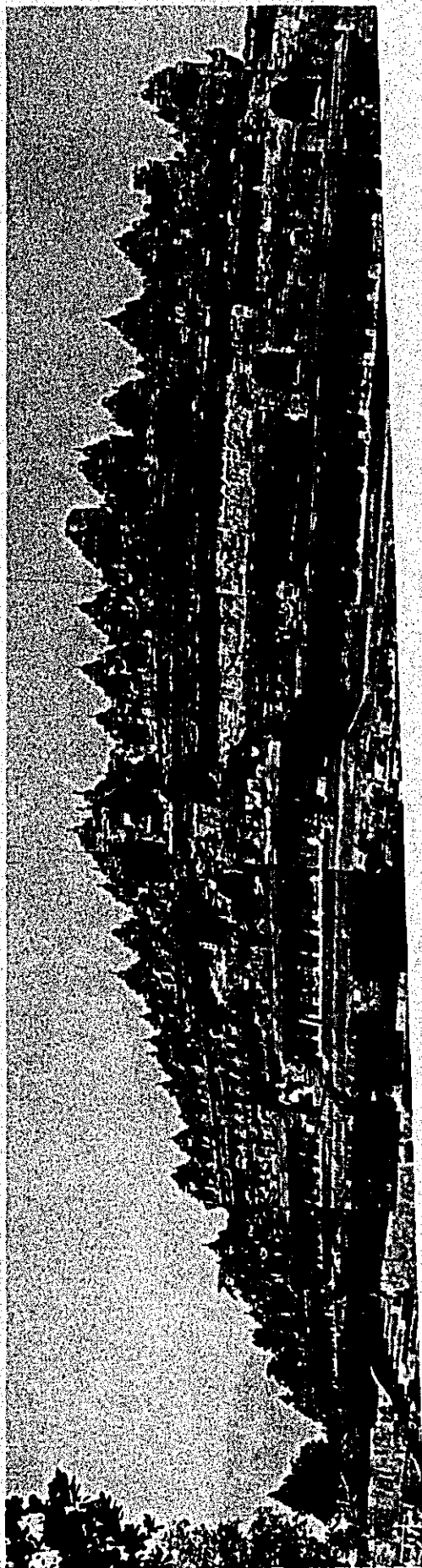
The staff made available to the team as counterparts also proved most helpful, especially in collecting data and maps and in the many discussions and exchanges of view between them and the team members. The counterpart team was headed by Ir. A. Sjamsoeddin, whose tireless efforts are herewith most gratefully acknowledged.

PROJECT LOCATION MAP



PROJECT LOCATION MAP



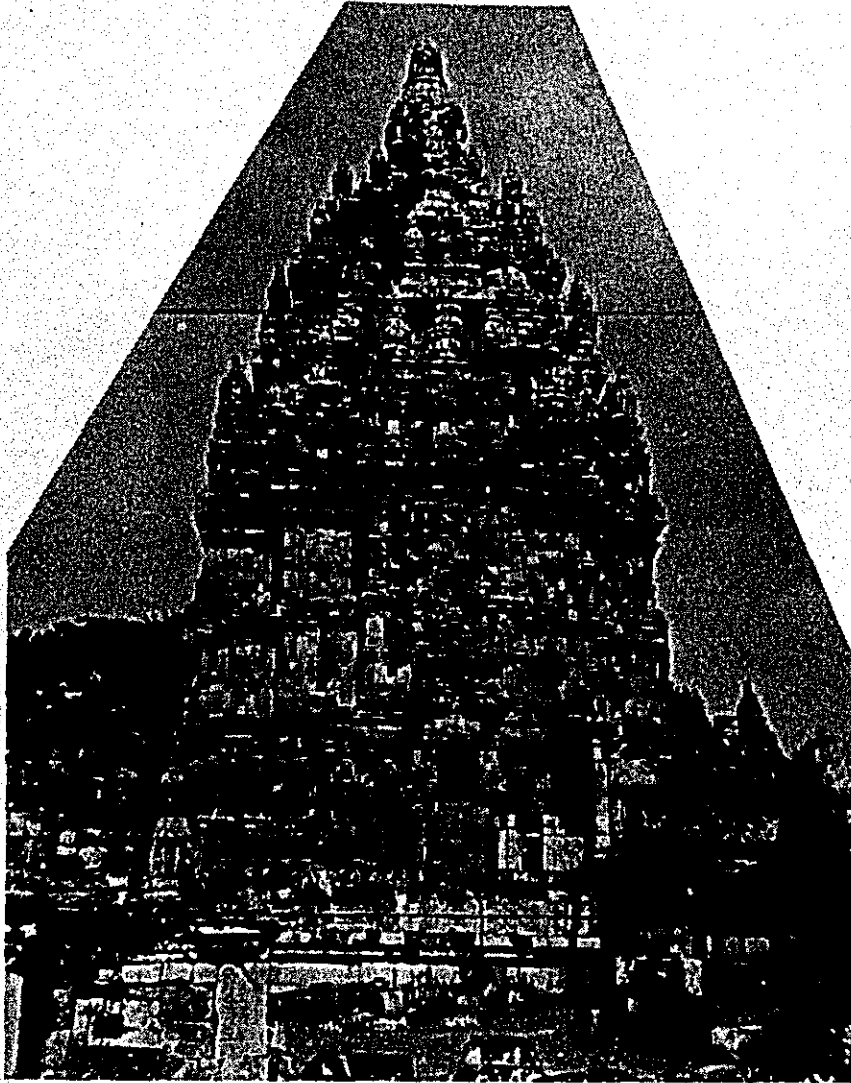


BOROBUDUR BUDDHIST TEMPLE
ボロブドール仏教寺院



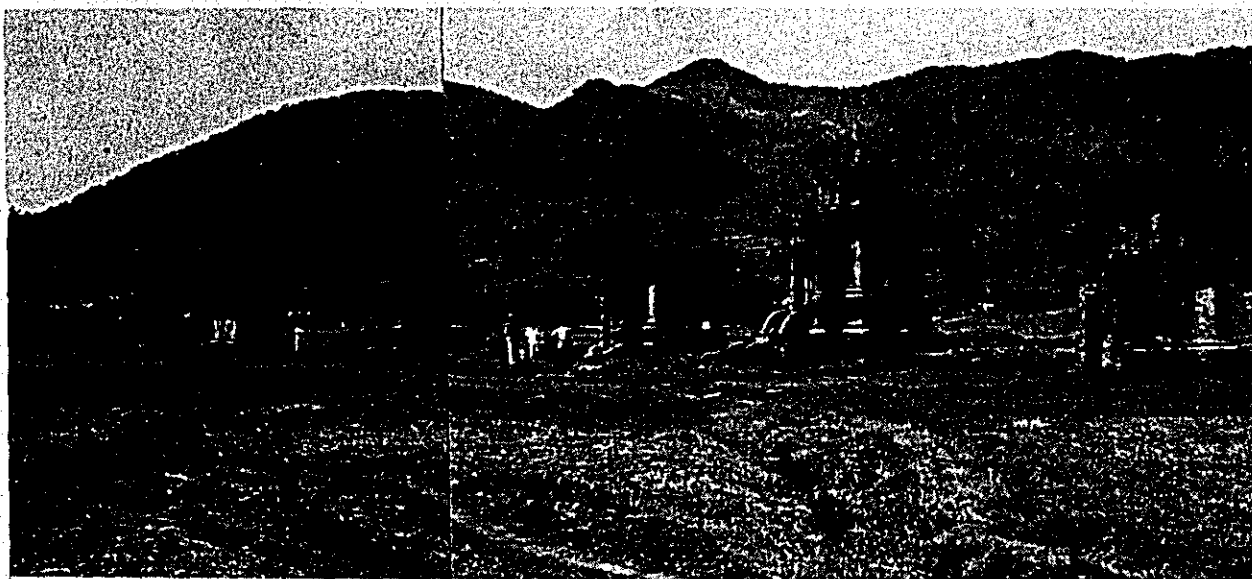
PRAMBANAN HINDU TEMPLE

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ブランバナンヒンズー教寺院

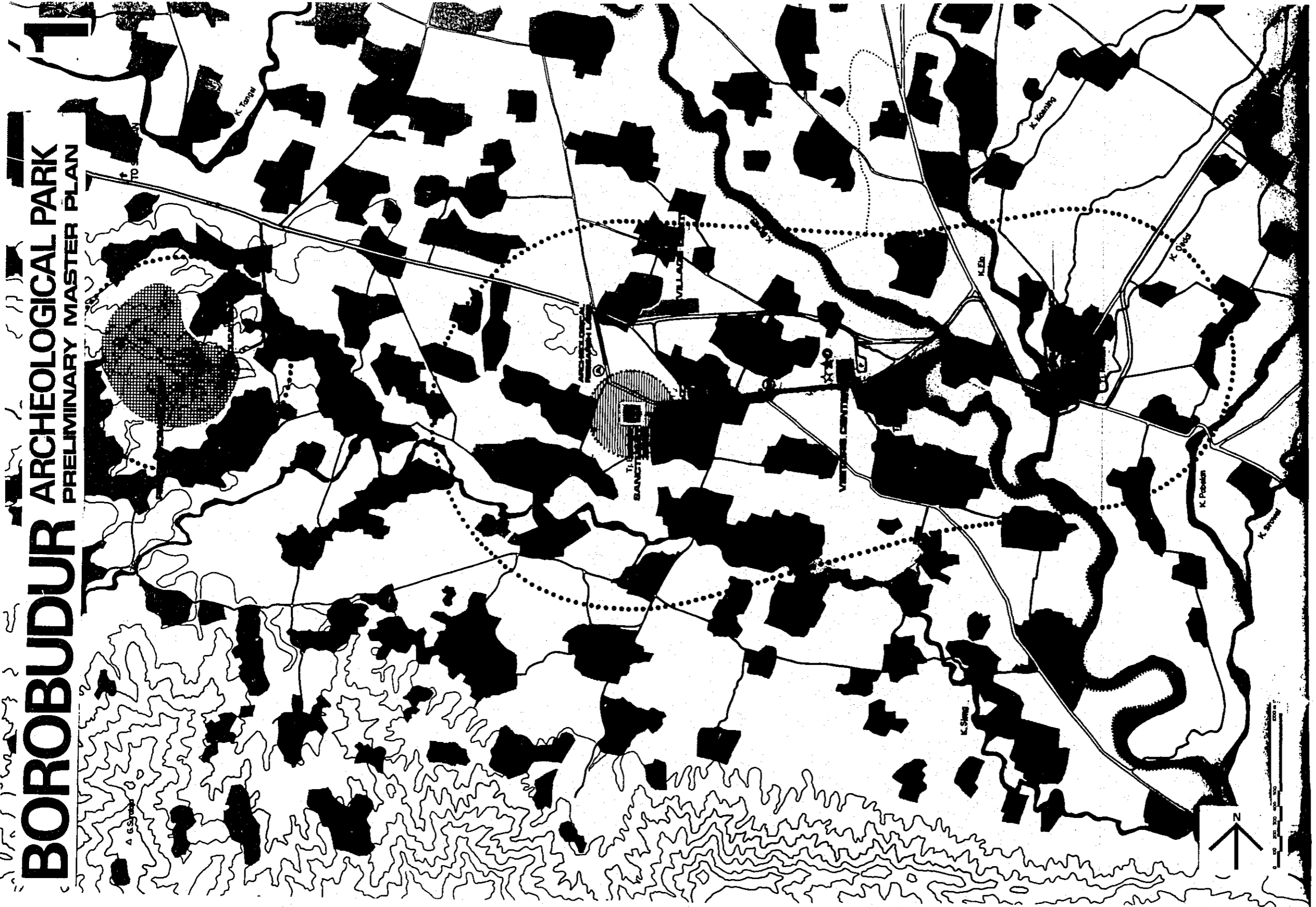


DIENG HINDU TEMPLE

ディエンヒンズー教寺院

BOROBUDUR ARCHEOLOGICAL PARK

PRELIMINARY MASTER PLAN



LEGEND

- LAND USE**
- ARCHAEOLOGICAL PRESERVATION AREA
 - TOURISM FACILITIES AREA
 - RESIDENTIAL AREA
 - AGRICULTURE / FA
- NETWORK**
- APPROACH ROUTE
 - ACCESS ROAD AND PARKING
 - BIKER TRANSIT ROAD AND BUGGY POOL
 - ENTRANCE CORRIDOR
 - FOOT PATH

FACILITY CENTORS

- ADMINISTRATION OFFICE
 - TOURIST INFORMATION OFFICE
 - AMENITY FACILITIES (SOUVENIR RESTAURANT COFFEE)
 - GATE FACILITIES
- RESEARCH CENTER**
- ARCHAEOLOGICAL RESEARCH LABO.
 - MUSEUM
 - CULTURAL RESEARCH LABO.
 - THEATER
- RECREATION CENTER**
- OBSERVATORY TERRACE
 - RECREATION FACILITIES

GENERAL

- MOUNTAIN
 - RIVER
 - LAKE
 - CONTIGUOUS LINE
 - RAILWAY AND STATION
 - EXISTING NATIONAL ROAD
 - EXISTING PROVINCIAL ROAD
 - EXISTING DISTRICT ROAD
- ZONING BOUNDARY**
- ZONE 1 50 HA
 - ZONE 2 1,200 HA
 - ZONE 3 5,000 HA

NOTES:

- This map was made on the basis of the 1:25,000 (one to twenty five thousands) scale maps and the aerophotographs provided by PARISIATA, Government of Indonesia.
- Proposed Zoning Boundaries are shown in the report.

PRAMBANAN ARCHEOLOGICAL PARK

PRELIMINARY MASTER PLAN

2



LEGEND

- LAND USE
 - ARCHEOLOGICAL PRESERVATION AREA
 - TOURISM FACILITIES AREA
 - RESIDENTIAL AREA
 - AGRICULTURE / FA
- NETWORK
 - APPROACH ROUTE
 - ACCESS ROAD AND PARKING
 - INNER TRANSIT ROAD AND BUGGY POOL
 - ENTRANCE CORRIDOR
 - FOOT PATH

FACILITY

- VISITORS CENTERS
 - ADMINISTRATION OFFICE
 - TOURIST INFORMATION OFFICE
 - AMENITY FACILITIES (SOUVENIR, RESTAURANT, CAFE)
 - GATE FACILITIES
- RESEARCH CENTER
 - ARCHEOLOGICAL RESEARCH LABO
 - MUSEUM
 - CULTURAL RESEARCH LABO
 - THEATER
- RECREATION CENTER
 - OBSERVATORY TERRACE
 - RECREATION FACILITIES

GENERAL

- MOUNTAIN
 - RIVER
 - LAKE
 - CONTOUR LINE
 - RAILWAY AND STATION
 - EXISTING NATIONAL ROAD
 - EXISTING PROVINCIAL ROAD
 - EXISTING DISTRICT ROAD
- ### ZONING BOUNDARY
- ZONE 1 100 HA
 - ZONE 2 1.500 HA
 - ZONE 3 5.000 HA

NOTES:
 * This map was made on the basis of the scale maps and the aerophotographs provided by PAMLISSATA, Government of Indonesia.
 * Proposed Zoning Boundaries are shown in the report.

SUMMARY AND CONCLUSIONS

The survey of Central Java carried out by the OTCA team has found the region to have a very good potential for both international and domestic tourism.

The main attractions of the area are its many archeological sites, its ancient temples, its many connections with all stages of Indonesian history, and last but not least, its beautiful tropical scenery and chain of volcanos.

These features, with their high educational values, make Central Java especially attractive to visitors from Indonesia and neighboring countries, and the OTCA team recommends that the Indonesian Government in fact give priority to developing the region in the first instance for domestic and regional tourism, especially for students, by establishing chains of rest-houses, organizing student research trips and similar measures.

Central Java and Bali being so near to each other in terms of travelling time, and being complementary to each other in terms of their attractions, it would be very much in the interest of both regions if their tourist development and promotion were to be carefully coordinated.

Several areas within the Central Java and Yogyakarta region have been found to be particularly attractive for tourists. They are described in the report in more detail and it is recommended that they be designated and protected as special "tourism areas" or "tourist blocks".

It is also strongly recommended that the Indonesian Government adopt a definite long-range master plan for the tourism development of Central Java, in order to preserve its assets and at the same time maximize its benefits from investments, creation of new employment, etc. The report gives the broad outlines of such a master plan and suggests step-by-step implementation through a short range (5 year) and medium range (10 year) program.

The main elements of the long-range plan are the following:

- i) Archeological Park Projects
 - Borobudur area
 - Prambanan area
 - Dieng area
- ii) Tourist Accommodation Projects
 - Tourist Accommodation Center
 - Rest-house Chain
 - City Hotels
- iii) Transportation Network Projects
 - Airport
 - Excursion Routes
 - Access Roads
- iv) Other Projects
 - Improvement of urban tourism assets in Yogyakarta and Surakarta
 - Staff Accommodation Sector
 - Improvement of Villages
 - Tourist Centers

The investments in infrastructure needed for the long-range plan have been estimated very roughly at US\$29,683,400 (Rp.12,170,200,000), and the internal rate of return on the tourism investments at about 14%. If the cost of the recommended village improvements were also counted as tourist investments, the internal rate of return would be somewhat less.

These village improvements would mostly be redevelopments of villages directly affected by the proposed projects, and investments in agriculture among others to produce the increase in special food supplies required by the tourists.

Since the individual projects of the long-range master plan fall within the responsibility of several ministries and government agencies, it is recommended that some organization or administration be created for the coordination of the various components of the proposed master plan. This coordinating body would also have to ensure that the long-range master plan fits in well with Indonesia's Second Five Year Plan, its national tourism development policy and the Central Java Regional Plan.

Last but not least, it is strongly recommended that the Government promptly adopt legislation and regulations for implementation of the master plan. The first step in that direction should deal with the archeological parks. Legal steps for their preservation and zoning regulations for the surrounding areas should be adopted even before detailed plans have been worked out.

ITINERARY OF THE SURVEY TEAM

	<u>Day</u>	<u>Stay</u>	<u>Activity</u>
1	Oct. 4 (Th)	Jakarta	First Group, Leader & members, arrived at Jakarta
2	Oct. 5 (F)	"	Visit to Japanese Embassy and OTCA Jakarta Office
3	Oct. 6 (Sa)	"	Preliminary consultation at Japanese Embassy and OTCA Jakarta Office
4	Oct. 7 (S)	"	Preliminary consultation
5	Oct. 8 (M)	"	Data collection
6	Oct. 9 (T)	"	Consultation with Directorate General of Tourism, Indonesian Government
7	Oct. 10 (W)	Yogyakarta	Field investigation and data collection
8	Oct. 11 (Th)	"	Consultation with Counterpart team, data collection and field investigation
9	Oct. 12 (F)	"	Field investigation and data collection
10	Oct. 13 (Sa)	"	Field investigation and data collection (Second Group, 4 members, arrived at Jakarta)
11	Oct. 14 (S)	"	Field investigation and data collection (Second group arrived at Yogyakarta)
12	Oct. 15 (M)	"	Field investigation and data collection
13	Oct. 16 (T)	"	- ditto -
14	Oct. 17 (W)	"	- ditto -
15	Oct. 18 (Th)	"	Consultation with the Supervisory Committee members
16	Oct. 19 (F)	"	Field investigation and data collection
17	Oct. 20 (Sa)	"	- ditto -
18	Oct. 21 (S)	"	- ditto -
19	Oct. 22 (M)	"	Field investigation and data collection, Consultation of team members
20	Oct. 23 (T)	"	Field investigation and data collection, Joint meeting with Supervisory Committee member and Counterpart team
21	Oct. 24 (W)	"	Field investigation and data collection
22	Oct. 25 (Th)	"	Field investigation and data collection, Consultation of team members
23	Oct. 26 (F)	"	Field investigation and data collection, Consultation of team members
24	Oct. 27 (Sa)	Jakarta	Field investigation and data collection, From Yogyakarta to Jakarta
25	Oct. 28 (S)	"	Arrangement of data
26	Oct. 29 (M)	"	Consultation of team members
27	Oct. 30 (T)	"	Consultation with Directorate General of Tourism, Indonesian Government
28	Oct. 31 (W)	"	- ditto -
29	Nov. 1 (Thu)	"	Visit to Japanese Embassy and OTCA Jakarta Office
30	Nov. 2 (F)	Tokyo	Back to Japan

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CHAPTER I

INTRODUCTION

CHAPTER I. INTRODUCTION

1-1. GENERAL

Over the course of past centuries, Buddhist, Hindu, and indigenous Javanese cultures have enriched the civilization of Indonesia.

Many significant archeological monuments representing this cultural heritage can be found in Central Java. To develop these archeological resources for encouraging domestic and global tourism, in context with Indonesia's general development, we must be extremely careful that contemporary technology and values do not invade and clash with a country whose fabric is essentially pretechnological, a country relatively uncorrupted by modern ills, and a country created by an environment differing from those of developed, industrialized countries. We must be careful that development does not turn into unnecessary destruction, and that Indonesia's resources and symbolic heritage are not overexploited. Its spiritual and visual qualities are not simply commodities to be bought and sold.

Modern technology has brought affluence to the developed countries of the world, but it has also fostered a machine-dominated, dehumanized and polluted civilization now facing an environmental crisis. We must be aware in our tourism development program that none of these ills befalls Indonesia.

At the same time, we must remember that modern technology can also bring many advantages in terms of comfort and convenience, essential for international tourists and also desirable for Indonesians as well as being an essential foundation for economic development in the modern world. With careful thought and proper planning, we feel, this clash between the apparently contradictory demands of development and preservation can be avoided. In fact, development can provide those resources which foster preservation and prevent decay, as well as stimulate a creative change within the framework of and in harmony with Indonesian civilization.

The attractiveness of the Central Java region, from the standpoint of tourism, can be ascribed principally to its archeological assets, its traditional culture, and its natural scenery, including its volcanos. The human activities of the region cap this attractiveness and mold it into a unified whole.

There is every reason to believe that the appeal of the region to international tourists--particularly its cultural appeal--will continue to increase, and that this appeal will fit in well with changes in the character and activity patterns of international tourists. In drafting this plan, we have attempted to maximize the attractiveness and appeal of the region to tourists.

Although the first step in making decisions concerning preservation of archeological monuments and other tourism assets of the region must be based on academic values, it is also important that ways be found to stimulate the interest in such assets on the part of tourists.

Regarding the archeological park, we imagine it as being an "open-air museum nestled in nature's midst." The real value of the assets contained in this park cannot be fully appreciated if they are viewed apart from their historical setting. It makes a big difference whether a Buddhist statue, for instance, is viewed in its natural surroundings or through a glass case in a conventional museum.

Nevertheless, we must strike a happy medium between what appears to be contradictory aspects of the archeological park: (1) the preservation of its environment and (2) its development for tourism.

International tourism development in the action plan stage will also create a foundation on which future domestic tourism for educational and recreational purposes can stand. The Central Java region, by virtue of its outstanding historical and cultural value to Indonesians, provides the ideal setting for such domestic tourism.

It should be emphasized that domestic tourism as so defined differs from international tourism in that it will have to be planned on the basis of a comprehensive policy at the national level which embraces--among other things--the national policy concerning the education, health, and welfare of all Indonesians.

Thus, it is clear that "preservation" is necessary in order to enable "development." Destruction of the culture and environment will only drive international tourists away and limit the educational effectiveness of the region for domestic tourists.

At the same time, "development" is necessary to effect "preservation" by strengthening the economy of the region and of Indonesia as a whole. Transportation, accommodations, and other facilities must be provided so that the region can provide the comforts and amenities required by all classes of tourists, whose numbers are expected to increase considerably.

We believe that in this report, we have made proposals which are sensitive to the many requirements of the region and which blend in the best way possible the demands of preservation and development.

1-2. SCOPE OF WORK

According to the original terms of reference, the work of the OTCA team was to consist mainly of a specific physical study based on the framework provided chiefly by the T.D.C. study. However, during the first meeting between representatives of the OTCA Team and the Indonesian Government on November 11, 1973 in Jakarta, it was agreed that the following elements should be adopted in the interim report as a framework for the original terms of reference, considered necessary because of the lapse in time and a consequent possible change in conditions since the T.D.C. study was made:

1. A 10-year implementation program and a 20-year perspective plan for tourism development in the specified area.
2. Land use plans for the three archeological parks, the related tourism development projects, and the surrounding area direct influenced by such development.
3. A market study to help formulate the implementation program.
4. Preliminary technical studies for the infrastructures and cost estimates.
5. Preliminary economic viability studies for the implementation program.

Although this proposal signifies a change in the original terms of reference, its justification is the necessity to make the project more realistic for implementation.

On the basis of this new framework, the scope of the present final study has encompassed designation of the development areas and the quantity of development, as well as a physical study and preliminary engineering study.

It should also be noted that both parties agreed in their discussion on the basis of the interim report that a scale of 1/25,000 instead of the 1/10,000 specified by the original terms of reference would be adequate for the master plan at the present study level.

Figs. I-1 and 2 show the scope of work which the OTCA Team has actually undertaken and the necessary further studies in line with the planning procedure.

FIG. I-1 PLANNING FRAME

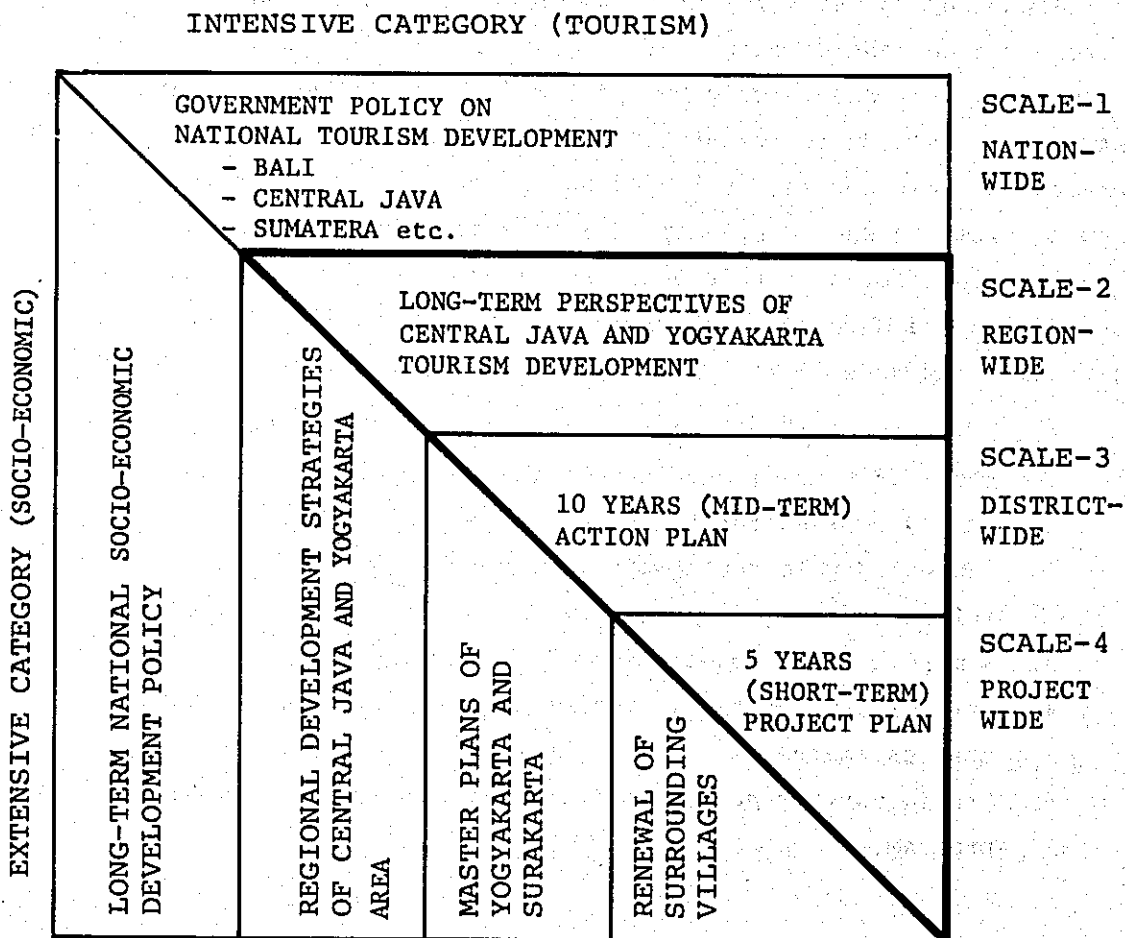
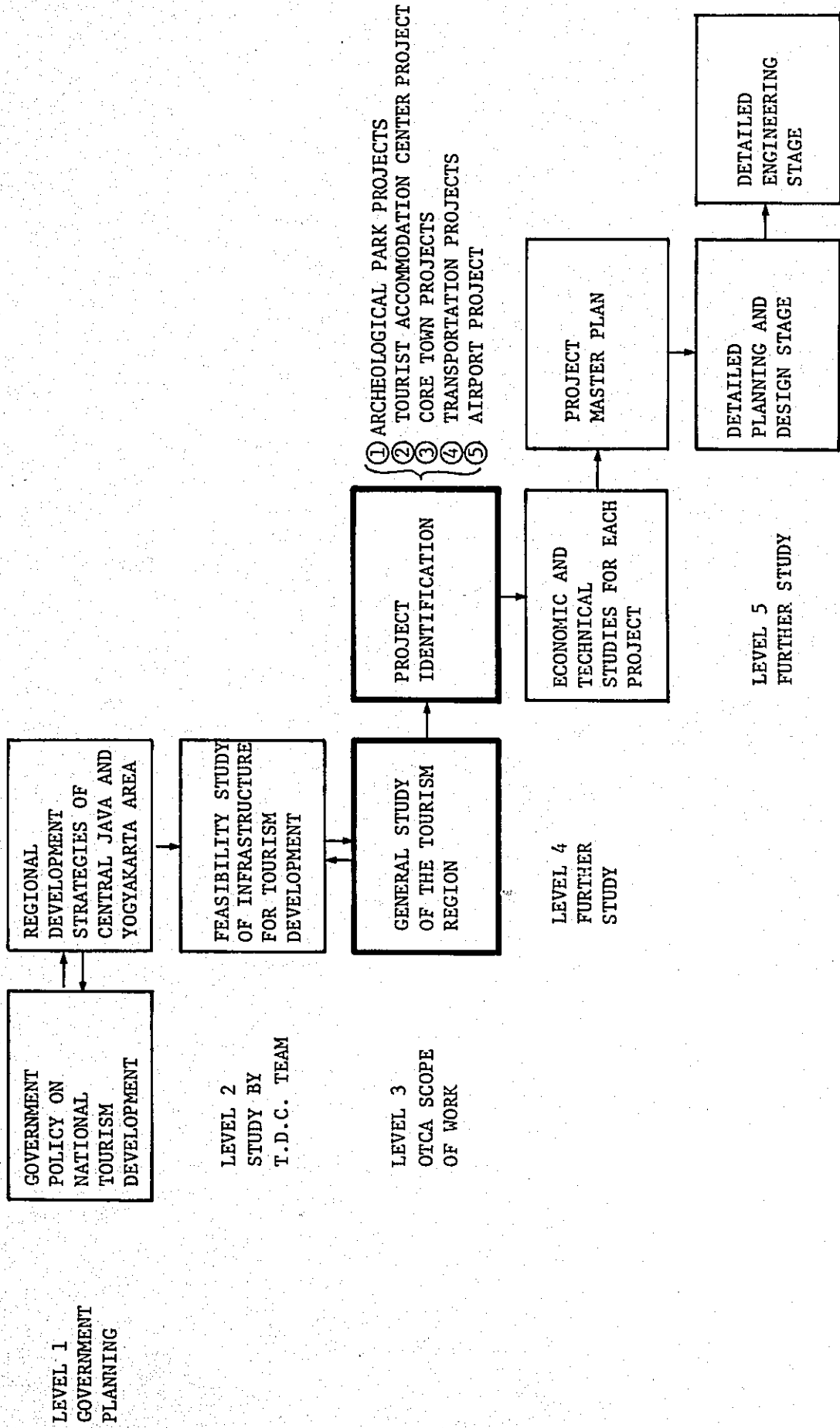


FIG. I - 2 PLANNING PROCEDURE



CHAPTER II

GENERAL STUDY: SUMMARY OF FINDINGS

CHAPTER II. GENERAL STUDY: SUMMARY OF FINDINGS

2-1. GENERAL CONDITIONS OF THE REGION

2-1-1. REGIONAL DEVELOPMENT STRATEGIES

2-1-1 (1). Problems of the Region

The Central Java region has been facing many problems. The most urgent problem is its overpopulation. Its population as of 1971 was 24.4 million (Yogyakarta 2.5 million and Jawa Tengah 21.9 million) and its population density is the highest in Indonesia. Studies by Gajah Mada University show the unemployment, including the partially employed in this region, is about 7 million (Yogyakarta 1 million and Jawa Tengah 6 million). Although this figure may be somewhat exaggerated, it is high enough that it may be a cause of possible social and political unrest. Per capita income in this region is substantially below the nation's average of US\$ 100. Promotion of family planning and emigration to the outer islands should be considered first of all as countermeasures against overpopulation and unemployment in this region. Although the Indonesia Government has been making efforts to accomplish such promotion, the effect of these countermeasures has been limited.

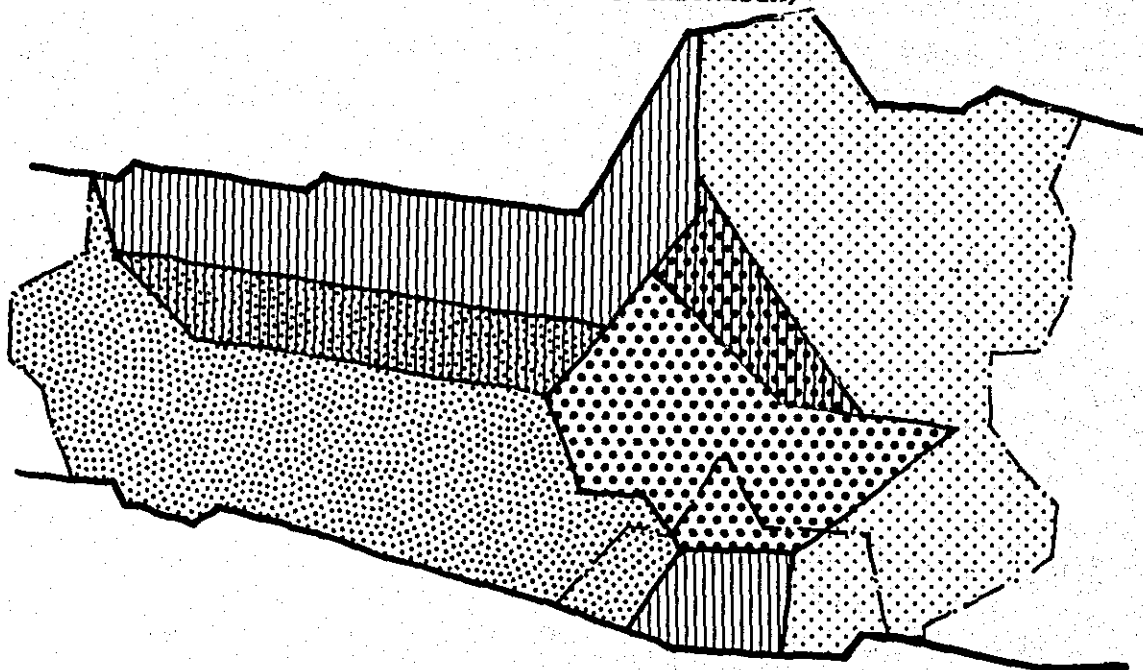
2-1-1 (2). Government Policy for the Region

The Indonesia Government has been making preparations for the second Five Year Plan (REPELITA II), which is due to be put into operation on April 1, 1974; Provincial Governments were also asked to prepare their own plans. What is to be noted among the draft plans for Yogyakarta and Jawa Tengah is that they identify strategic development potential by area. The area for tourism, industry, agriculture, trade, and plantation is an area covering Surakarta, Salatiga, Magelang, Yogyakarta, and the Borobudur and Prambanan Temples around Mt. Merapi and Mt. Merbabu. Since this area has relatively concentrated

tourism resources and is also provided with a relatively good infrastructure such as an airport and road networks, highest priority should be placed on this area for promoting tourism development in the Central Java Region. Judging from the character and location of the tourism resources in this region, beach development at Krakal would not be economically feasible.

FIG. II-1 REGIONAL DEVELOPMENT POLICY

(SECOND 5-YEAR PLAN:
REPELITA II: GOVERNMENT OF INDONESIA)



- ■ ■ ■ ■ AREA FOR TOURISM, INDUSTRY, AGRICULTURE, TRADE AND PLANTATION
- ||||| INDUSTRIAL AREA
- ■ ■ ■ ■ AGRICULTURAL AREA
- ■ ■ ■ ■ UNDERDEVELOPED AREA

2-1-1 (3). Comments on the Indonesia Economy

i) Since the Suharto Government was established, the Indonesian economy has been proceeding with steady reconstruction and development. The Gross Domestic Product increased at an average rate of 5 to 6% annually during the past several years. The price level was also relatively stable from 1969 until the first half of 1972, although it has tended to rise since November 1972. The cost of living index in Jakarta indicates that the price level in July 1973 increased by 42% over the corresponding month of the previous year. (As for Yogyakarta, the comparable figure was 37%.) The increase in price level in recent months was initially spurred by a decrease in rice production in 1972, due to the drought which many Asian countries--including Indonesia--suffered. The following reasons should also be considered in explaining the recent price increase in Indonesia:

- a) The prices of main export commodities of Indonesia (crude oil, timber, rubber, palm oil, tin, etc.) increased substantially due to firm international commodity markets, which in turn raised the price levels of these commodities in Indonesia.
- b) The boom and inflation prevalent in Japan and the western countries, and the de-facto devaluation of the Rupiah, (being linked to the U.S. dollar), combined to boost the price level of Indonesia.
- c) The money supply of Indonesia increased sharply due partly to an inflow of short-term capital into Indonesia. Almost the same rate in fiscal 1972, which reflects the growth of economic activities in Indonesia, and other specific factors. As a result, a deficit in the current account, which includes service accounts such as transportation, nevertheless increased to more than US\$800 million in fiscal 1972.

ii) As already explained, the Indonesian economy as a whole has developed favorably over the past several years. But the problems facing Indonesia are still great. The 1971 census revealed that the population is 119 million, fifth largest in the world. The population

has increased at an annual rate of 2.1% since 1961, the per capita income is still at a very low level, and the rate of unemployment is very high. More than 50% of the national income and more than 60% of the labor force are dependent on the agricultural sector.

The nature of the Second 5-year plan does not differ much from the First 5-year Plan. It emphasizes ways (methods, plans, and so on) for further increasing the rate of economic growth and reducing the economic constraint arising from the balance of payments problem. In this context, promotion of export industries--including the international tourism industry--will continue to be important. In addition, the new plans will probably devote more attention than before to such aspects as regional and social development to reduce regional and income differentials in Indonesia. Therefore, when we assist Indonesia to promote tourism industry in the Central Java area, we should not neglect the social aspects.

iii) The number of foreign visitors to Indonesia has increased at an average annual rate of about 60% since 1967, having reached 278,000 persons in 1972, of which less than half were tourists. This rapid increase was partly due to the expanded markets of Japan and the western countries, although fundamentally, it was created by the following reasons:

- a) Political and economic conditions in Indonesia have become stabilized.
- b) Accommodation facilities and related infrastructures--including air service--have been improved.

2-1-2. BASIC ENVIRONMENTAL CONDITIONS AND EXISTING LAND USE

Like most of Java, Central Java's tropical rain forest has been cleared for cultivation because of the pressing need for agricultural land; with it, the traditional shifting agricultural pattern has vanished. Traveling through the region now, one can view expansive areas of rice fields where men and women are busily working. These scenic land features are very dynamic and the cultivated fields are agricultural gardens of beauty. The planting of a crop, its harvesting, and its curing, are exciting and fluid, posing as natural tourist

attractions. Farmers working in the field, their way of dress, and their modes of transportation, all add interest and color to the environmental conditions attracting tourists.

The dominant crop is rice; after it is harvested, soybeans or peanuts are planted, intercropped with corn, potatoes, or cassava. Other major crops are tobacco, sugar cane, and--at higher elevations--cabbage.

The need for agricultural land is extreme. Even steep mountainsides have been cut over and terraced for cultivation. This intensive use of the land for agriculture has caused a host of problems, the primary ones being erosion and flooding caused by upland deforestation.

A village can usually be visually identified first by its surrounding landscape. A dense forest of fruit trees and bamboo contrasts sharply with the cultivated fields, and within the grove of trees one finds neatly laid out footpaths, walls, and living quarters. Bamboo is used for construction material as well as for numerous articles of daily use. The trees provide shade, fruit, and protection from the elements. Domestic animals within the village settlements are sheep, cows, water buffaloes, and the ever-present chicken.

There are impressive volcanoes in the equatorial zone, and Central Java being no exception. Mount Merapi, Sumbing, Sundoro, and Slamet--to name a few--like tower over the landscape great volcanic monuments.

2-1-3. INVENTORY OF TOURISM ATTRACTIONS

2-1-3 (1). General

Assets with a high tourism value are dispersed throughout the area, classifiable into the following categories:

i) Archeological assets

Buddhist and Hindu temples and other archeological remains of major interest for cultural tourism in Indonesia, and at the same time, the chief cultural and historical legacy of the area.

ii) Cultural assets

Batik, silverwork, museums, and such attractions as the Wayang and the Ramayana ballet, all a part of the legacy of cultural life in the area.

iii) Historical assets

Palaces that bespeak the area's history, and historical buildings such as temples that form a part of the country's Islamic heritage.

iv) Natural assets

Volcanos, beaches, lakes, and other natural assets in the area which provide wonderful scenery and are adapted for tourism.

2-1-3 (2). Outline of Tourism Assets

The following is an outline of tourism assets of the region. Emphasis is placed on the archeological assets.

Buddhist and Hindu archeological sites dating back to the 8th, 9th, and 10th centuries are scattered through the region. Those most notable are found in the following three major complexes:

- i) The Borodudur temple complex, located 42 kilometers northwest of Yogyakarta.
- ii) The Prambanan temple complex, located 15 kilometers from Yogyakarta, consisting of the Loro Jonggrang site, the largest such Hindu site in Indonesia, where the Ramayana ballet performance can be seen, and a number of Buddhist sites, including the Plaosan, Sewu, and Kalasan sites.
- iii) The Dieng temple complex, a small complex consisting of the Bima and Pantadewa sites nestled in a basin surrounded by Mt. Prau, Mt. Sundoro, and Mt. Sumbing.

Other notable tourism assets in the area include the cities of Yogyakarta and Surakarta, which provide tourism attractions of cultural and historical value such as museums, batik factories, Wayang shows, and Sultan palaces. Great natural assets include volcanos in the 3,000-meter-high class (including Mt. Merapi), mountainous areas like Kaliurang and Kopeng which now have local resort activities, and the coastal area centering on Baron. Historical assets include the Islamic temples in Kudus, Demak, and Imogiri, as well as

Sangirang, north of the Surakarta area, noted as the area where the Java man was excavated, all attesting to the rich potentialities of the tourism resources of the area.

2-1-4. INVENTORY OF INFRASTRUCTURE

2-1-4 (1). Transportation Network (Refer FIG.II-3)

i) Access to the Region

Two categories of tourists are expected to visit this region: Indonesian tourists and foreign visitors. A majority of the domestic travelers originating in the Java area and some of the domestic travelers from other parts of the country will utilize the trunk roads to this region. Also there will be some domestic travelers who utilize northern or southern railway links. On the other hand, although there are ports such as Semarang on the Java Sea and Cilacap on Indonesian Ocean, since they are too far from this region, tourists using the sea route are expected to be few.

a) Roads and Highways

As access roads to this region from other areas of the country, the following routes are noted:

- o Cirebon ~ Semarang ~ Surabaya, route
- o Cilacap ~ Yogyakarta, route

At present, it is considered that the majority of tourists arriving in this region will use either private cars or long-distance coach services available between other large cities in Java and Yogyakarta.

b) Railroads

As access railway routes, the following two trunk lines are available to this region:

The Southern Route; between Jakarta and Surabaya via
Yogyakarta

The Northern Route; between Jakarta and Surabaya via
Semarang

However, the Northern Route via Semarang is hampered by a great disadvantage due to the infrequency of service between Semarang and Yogyakarta.

The OTCA Team agrees with the conclusion of T.D.C. that the number of international and domestic tourists will be limited unless improvements are made on the present rolling stock and railway tracks for the comfort of travelers.

c) Airport

The region will need an airport that can serve as one of the major gateways for tourists, and such an airport will have to be equipped to handle the increasing numbers of international tourists that are expected. In terms of location, site conditions, and other considerations, Yogyakarta Airport seems to be the most appropriate site for this role.

d) Ports

There are two ports available for sea transport to this region: Semarang and Cilacap.

o Semarang Port:

This port is so shallow that only vessels of the 1,000 DWT class can enter. At present, the 10-year plan includes a project to dredge the port so that larger vessels can enter. There is also a plan to construct berths for ocean cruisers.

o Cilacap Port:

This port, located at the river mouth, offers relatively better natural conditions as a port than does Semarang. Its depth is enough to accommodate 1,500 DWT ships. At present, this port is mainly being used for unloading oil products and loading grain.

ii) Regional Transportation Network

a) Roads

In this region, the national highways are 5 - 6 meters wide. Paving is judged to be in relatively fair condition. Other rural roads are 3.5 - 4 meters wide, and parts of the paving is in rather poor condition. The existing conditions of each road in this region are shown in Table II-1.

b) Railways

In this region, there are presently four daily train services along the Southern Route. However, the facilities are judged to be of sufficient capacity to absorb future increases in the number of tourists. The OTCA Team estimates that an increase of two or three more trains daily will be enough to accommodate projected increases in the number of tourists in the foreseeable future.

c) Harbors

As for tourism, Semarang and Cilacap Port must be able to perform the following functions:

- o A sea-gate for domestic tourists
- o A center for importing various materials and supplies for hotels and other tourist facilities.

The present 10-year plan includes an improvement project for Semarang Port, and when this project is completed, both of these ports will be able to handle the above functions.

FIG. II-3 EXISTING TRANSPORTATION NETWORK

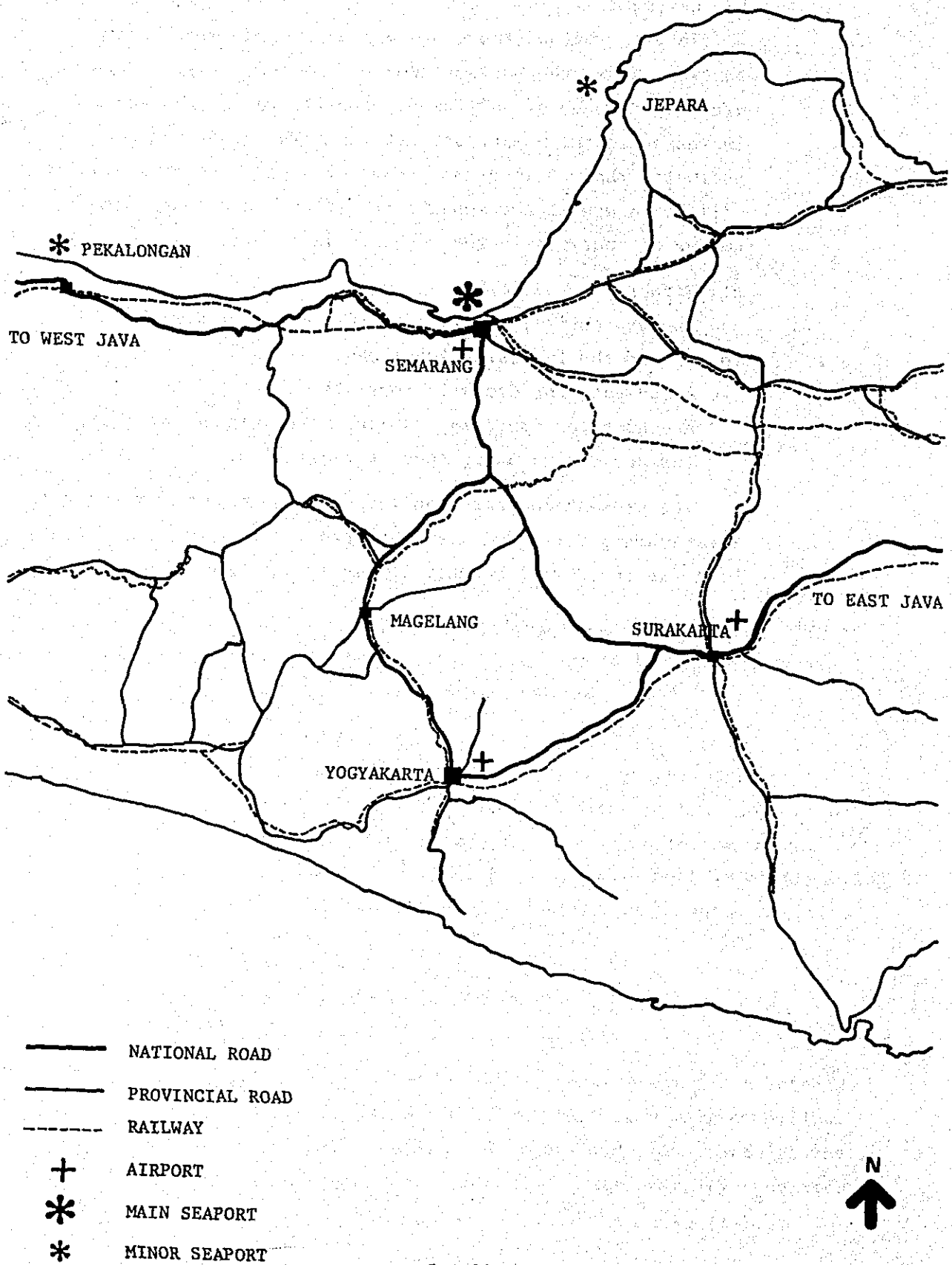


TABLE II-1. EXISTING ROAD CONDITIONS

Section	Class	Paved Width	Description
Yogyakarta-Prambanan	National Highway	8 m	Crowded with bicycle traffic.
Prambanan-Surakarta	National Highway	6 m	At some sections there are roads for cycling and pedestrian traffic separated from the main route.
Surakarta-Salatiga	National Highway	6 m	Both the alignment and paving conditions are good.
Salatiga-Setjang	National Highway	5 m	Despite the rolling topography, both the alignment and paving conditions are comparatively good.
Yogyakarta-Moentilan	National Highway	8 m	Within 10 km from Yogyakarta there is heavy bicycle traffic. A pedestrian road is under construction in parts.
Moentilan-Secang	National Highway	5 - 6 m	There is a bottleneck in the city of Magelang.
Moentilan-Mendut	Prefectural Highway	3.5 m	Parts of the paving are in a bad condition.
Mendut-Borobudur	Prefectural Highway	4 m	Parts of the paving are in a bad condition.
Setjang-Parakan	Prefectural Highway	4 m	The alignment has many curves.
Parakan-Wonosobo	Prefectural Highway	3.5 - 4 m	The alignment has many curves and the loading capacity of bridges is about 2 - 3 tons.
Wonosobo-Dieng	Prefectural Highway	2.5 m	The alignment in mountainous portions is bad, partly facing cliffs on one side.
Bojolali-Blabak	Prefectural Highway	2 - 2.5 m	The alignment in mountainous portions is bad, partly being under construction for improvement.

2-1-4 (2). Public Utilities

i) Rainwater

According to a Report by Sir. M. Macdonald & Partners issued in 1971 and certain information at the Municipal Water Supply and Sewage Office in Yogyakarta, each item may be considered as follows.

a) Rainfall

The occur spells of local heavy rainfall intensity is about 80 to 150 mm per hour. The rainfall area covers around 25 km² to 50 km², although it moves as time proceeds. The density of rainfall may reach 1,600 to 4,500 mm per year, and the annual maximum daily rainfall varies from about 90 mm to 150 mm.

b) Geological Characteristic Area

The percentage of the land utilization is as follows:

River basin	Irrigated	Non-irrigated	Village areas	Forests and nonarable areas
PROGO	33%	28%	21%	18%
OPACK	41%	20%	24%	25%

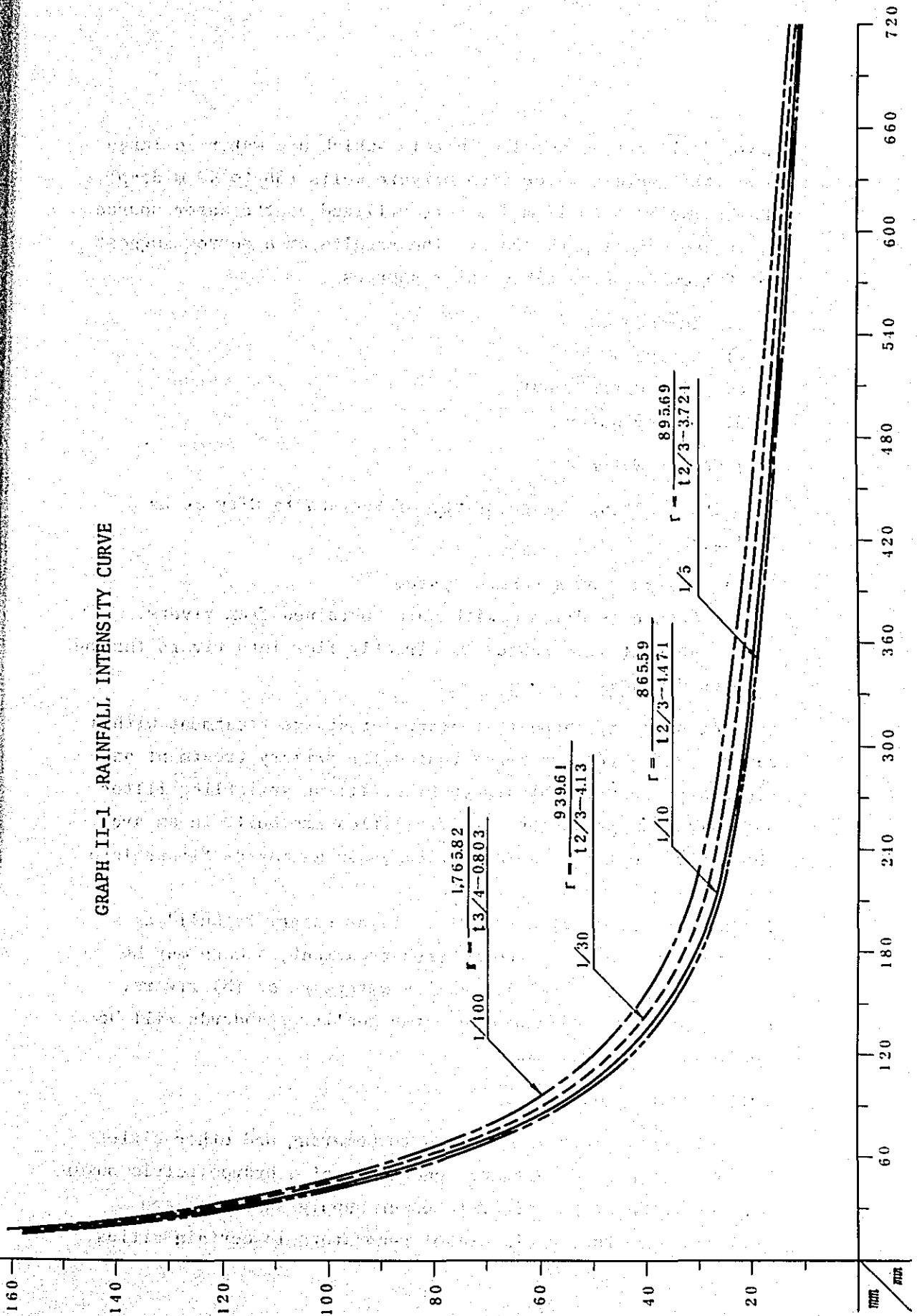
Soil in the North Progo area mainly consists of volcanic waste of the Quarternary period and the Tertiary period.

Soil in the Progo and Opack areas consists mostly of deposits of volcanic waste. As soil permeability to water is high in the upstream area, water flows mostly into the underground. Through data or records of meterological survey over the past 20 years, the rainfall intensity curve can be estimated as shown in Graph II-1.

ii) Water Supply

Water of the city water supply system of Yogyakarta City, supplied by nine wells at the foot of Mt. Merapi, is not cleaned and sterilized other than by sedimentation and chlorination.

GRAPH II-1 RAINFALL INTENSITY CURVE



Those facilities--including hotels--which use water in large quantities obtain water from private wells (30 to 40 m deep). Shallow wells 5 to 15 m deep are utilized as the water source in archeological park areas. The results of a survey suggest the following as possible water sources:

- a) Surface water
- b) Springs
- c) City water supply
- d) Ground water

iii) Sewage Water

The existing sewage system of Yogyakarta City is as follows:

- a) Sewerage of separate system
- b) Sewage is diluted with water obtained from rivers.
- c) Rainwater is caused to directly flow into rivers through open ditches.

At present, three test plants of sewage treatment with a capacity of 5 l/s are being tested for primary treatment and secondary treatment of sewage by utilizing sprinkling filter and oxidation processes. If facilities are built in an area where there exists a sewage system, sewage may be flowed into the existing sewers.

In the project area, however, it is necessary to build an independent sewage system. After treatment, sewage may be flowed into either (a) irrigation waterways or (b) rivers. Both Indonesian and Japanese water quality standards will be applied to treated sewage.

iv) Electric Power

Electric power is supplied to Semarang and other cities by three 16,000-KW capacity generators of a hydroelectric power station in Salatiga; electric power supply shortages are replenished with the aid diesel generators in certain cities.

High-voltage lines are used to carry electric power from the Salatiga Power Station to a 6,000 KVA capacity substation in Yogyakarta City where the power is reduced to lower service voltages for distribution.

Rural electrification is extremely low, and electrification is limited to cities with few service wires extended to the outskirts of cities. Furthermore, voltages are far lower than normal for a variety of reasons.

The Indonesian Government is planning to increase the output of electric power as follows:

Yogyakarta	6 MW (Diesel)	1974 - 1975
Semarang	20 MW (Gas-turbine)	1975 - 1976
Semarang	50 MW (Steam)	1976 - 1977
Semarang	50 MW (Steam)	1977 - 1978
Garut	20 MW (Hydro)	1977 - 1978
Dieng	5 MW (Geothermal)	1978

Among these plans, the construction of a diesel power plant in Yogyakarta has been granted a final decision.

ALTERNATIVE PLANS FOR THE POWER SUPPLY SYSTEM

Considering the existing situation, the following two alternative power supply plans are proposed for the respective projects as follows:

1. Each project to have an independent power supply system.
2. The diesel power plant, planned to be completed in Yogyakarta is 1975, to be expanded by adding generators so that electric power may be supplied to all the projects as necessary, with a stand-by generator to be installed for each project.

v) Telecommunications

Present facilities of the Yogyakarta Telephone Exchange are as follows:

Existing lines	2,000 pairs	1973
Extensions	2,000 pairs	1975

The dial system is employed in the entire service area. Communications can be directly established between Yogyakarta, Jakarta, and other cities, and international calls are made via the exchange in Jakarta.

Telephone service and facilities are controlled by KTU (KANTOR GABUNGAN TELEPON), and service lines are extended as needed.

2-2. TOURISM MARKET ANALYSIS

According to the given Terms of Reference, the general plan is to be based on a study of the forecast of tourist flow prepared by T.D.C.

After having made a close study of the report prepared by T.D.C., the OTCA Team has no substantial objections to the general trends of international tourism to Indonesia as described therein; however, we have partially amended the demand for accommodations forecast.

2-2-1. FORECASTING TOURIST FLOW TO INDONESIA

Referring to past statistics on foreign tourist arrivals in Indonesia and the upward trend in the volume of international tourism throughout the world as forecast by the International Union of Official Travel Organization (IUOTO), we regard the authorized estimation as generally appropriate, providing nothing unforeseen intervenes. The estimation indicates an annual increase rate in foreign tourist flow of 34% over five years from 1970 - reaching 555,000 in 1975, 19% over the following five years - reaching 1,310,000 in 1980, 10% over the next five years - reaching 2,100,000 in 1985, and 10% over the next five years - reaching 3,300,000 in 1990.

2-2-2. FORECASTING TOURIST FLOW TO THE DEVELOPMENT AREAS

Considering the fact that tourism has its own characteristic forms, patterns, and flows, we have observed two basic categories: Foreign tourists and Indonesian tourists. They have been further classified into three different groups according to their hotel standard preferences; i.e. 1) tourists preferring deluxe-standard hotels, 2) tourists preferring economy-standard hotels, and 3) tourists preferring local-standard hotels.

2-2-3. FOREIGN TOURIST FLOW TO THE DEVELOPMENT AREAS

As for the flow of foreign travelers to the areas, T.D.C. forecasts 23% increase annually in the 1970 - 1975 period based on the given figures of 15,000 in 1970 - reaching 65,000 in 1975, followed by a 20% annual increase rate for the next five years - reaching 160,000 in 1980, a 15% annual increase over the following five years - reaching 320,000 in 1985, and a 10% annual increase over the next five years - reaching 500,000 in 1990.

Paying close attention to the fact that development of the areas will probably cause the proportion of arriving tourists to vary, we have partially amended the figures to make them as practical as possible. An actual figure of 16,538 foreign travelers to the development areas in 1970 has been obtained, and we estimate a 13% annual increase rate, 10% less than the T.D.C. estimation, after taking into account the actual increase of supply of accommodations in this area, reaching 45,000 in 1975. During the following period 1975 - 1980, we estimate an annual increase rate of roughly 30%, 10% more than that estimated by T.D.C., reaching 162,000 in 1980. The projected hotels in the areas are expected to undergo initial implementation during this period to meet the unusual increase in demand, which is expected as a result of promotional efforts by the Directorate General of Tourism to take advantage of the PATA meeting in 1974. During the period 1980 - 1985, the annual increase rate is expected to be the relatively low figure of 4%, reaching 196,000 in 1985, which is the normal annual increase rate for international tourism in Southeast Asia estimated by IUOTO.

During the next period, 1985 - 1990, we estimate a higher annual increase rate of 11%, reaching 331,500 in 1990, due to the anticipated operation of the New Bali Tourism Development Plan in 1985. We consider a continuous increase unlikely; therefore, we feel the estimated figures on foreign travelers to the areas after 1990 will approach practical ceilings.

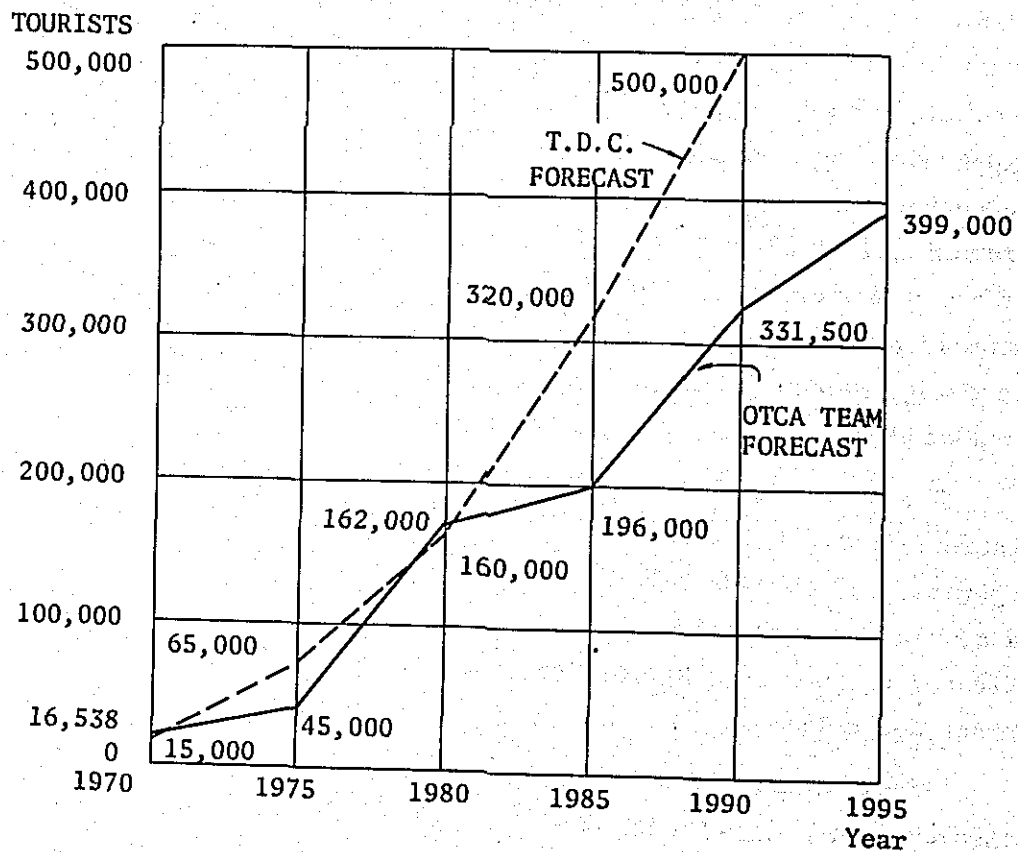
The following Table II-2 and GRAPH II-2 shows a comparison of the forecasts prepared by the OTCA Team and T.D.C.

TABLE II-2 COMPARISON OF ESTIMATED FOREIGN TOURIST FLOW TO THE DEVELOPMENT AREA

Year	OTCA TEAM FORECAST			T.D.C. FORECAST		
	TOURISTS TO THE STUDY AREA	SHARE OF THE TOTAL	ANNUAL INCREASE RATE	TOURISTS TO THE STUDY AREA	SHARE OF THE TOTAL	ANNUAL INCREASE RATE
1970	16,538*	13%	+23%	15,000	12%	+23%
1975	45,000	8%		65,000	12%	
1980	162,000	12%	+30%	160,000	12%	+15%
1985	196,000	9%	+4%	320,000	12%	
1990	331,500	10%	+11%	500,000	12%	

* Actual figure

GRAPH II-2 COMPARISON OF ESTIMATED FOREIGN TOURIST FLOW TO THE DEVELOPMENT AREA



2-2-4. INDONESIA INDIGENOUS TOURIST FLOW TO THE DEVELOPMENT AREAS

Recent study in the field discloses that the number of Indonesian tourists making visits in the areas forms a considerable proportion, which has been underestimated in the T.D.C. study.

The total number of Indonesians using every classified standard of hotel in the development areas totaled 47,077 in 1970, 49,925 in 1971, and 51,747 in 1972.

Since the annual increase rate of Indonesian indigenous tourists to the development areas is considerably steady, we deem it appropriate to apply an annual increase rate forecast of 2.5%: i.e. 78,500 in 1975, 127,000 in 1980, 149,000 in 1985, and 160,500 in 1990.

TABLE II-3 COMPARISON OF ESTIMATED INDONESIAN TOURIST FLOW TO THE DEVELOPMENT AREA

Year	OTCA	T.D.C.
1970	47,077*	9,000
1975	78,500	
1980	127,000	
1985	149,000	
1990	160,500	40,000
1995	177,000	

* Actual figure

2-2-5. FORECASTING THE FLOW AND SUPPLY DEMANDED BY EACH CLASSIFIED GROUP

2-2-5 (1). Tourists preferring deluxe-standard hotels

Mostly foreign tourists, motivated by leisure and/or culture, travelling in groups or individually, as well as a relatively small but steady number of prosperous Indonesians.

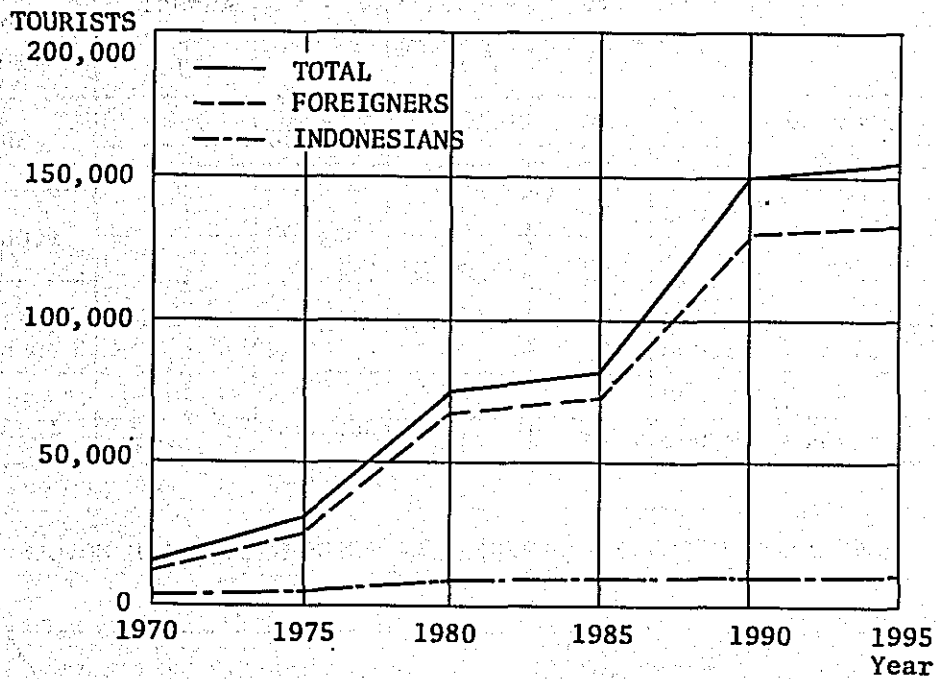
The average length of stay is 2.1 days and a 1.1 persons of average per-room occupancy, from which the demanded volume of accommodation is automatically calculated. Considering the features of this group, we forecast a similar flow of increase to that of total foreign tourists into the development areas.

TABLE II-4 TOURISTS PREFERRING DELUXE-STANDARD HOTELS

	No. of Tourist		Pro-portion (%)	Average Annual Increase (%)	Total	Average Annual Increase (%)	Required Accommodations (Number of rooms)
	Foreigners	Indonesians					
1970	Foreigners	11,352*	69 *	—	16,569*	15*	116 *
	Indonesians	5,217*	31 *	—			
1971	Foreigners	13,488*	71 *	19 *	19,023*	11*	116 *
	Indonesians	5,535*	29 *	6 *			
1972	Foreigners	16,479*	78 *	22 *	21,153*	21	116 *
	Indonesians	4,674*	22 *	0.8*			
1973	Foreigners	20,000*	78	21	25,600	25	116 *
	Indonesians	5,600	22	20			
1974	Foreigners	26,000	80	30	32,000	30	250
	Indonesians	6,000	20	7			
1975	Foreigners	24,500	85	33	41,000	15	350
	Indonesians	6,500	15	8			
1980	Foreigners	73,000	90	16	82,000	2	700
	Indonesians	9,000	10	7			
1985	Foreigners	82,000	90	2	92,000	10	800
	Indonesians	10,000	10	2			
1990	Foreigners	142,000	93	12	153,000	0.0	1,000
	Indonesians	11,000	7	2			
1995	Foreigners	143,000	92	0.0	155,000	—	1,000
	Indonesians	12,000	8	2			

* Actual figures

GRAPH II-3 TOURISTS PREFERRING DELUXE-STANDARD HOTELS



2-2-5 (2). Tourists Preferring Economy-standard Hotels

Primarily foreign holiday travelers on economy package tours and average foreign businessmen combined with leisure and/or cultural tours, with a considerable proportion of Indonesians, such as ordinary family groups.

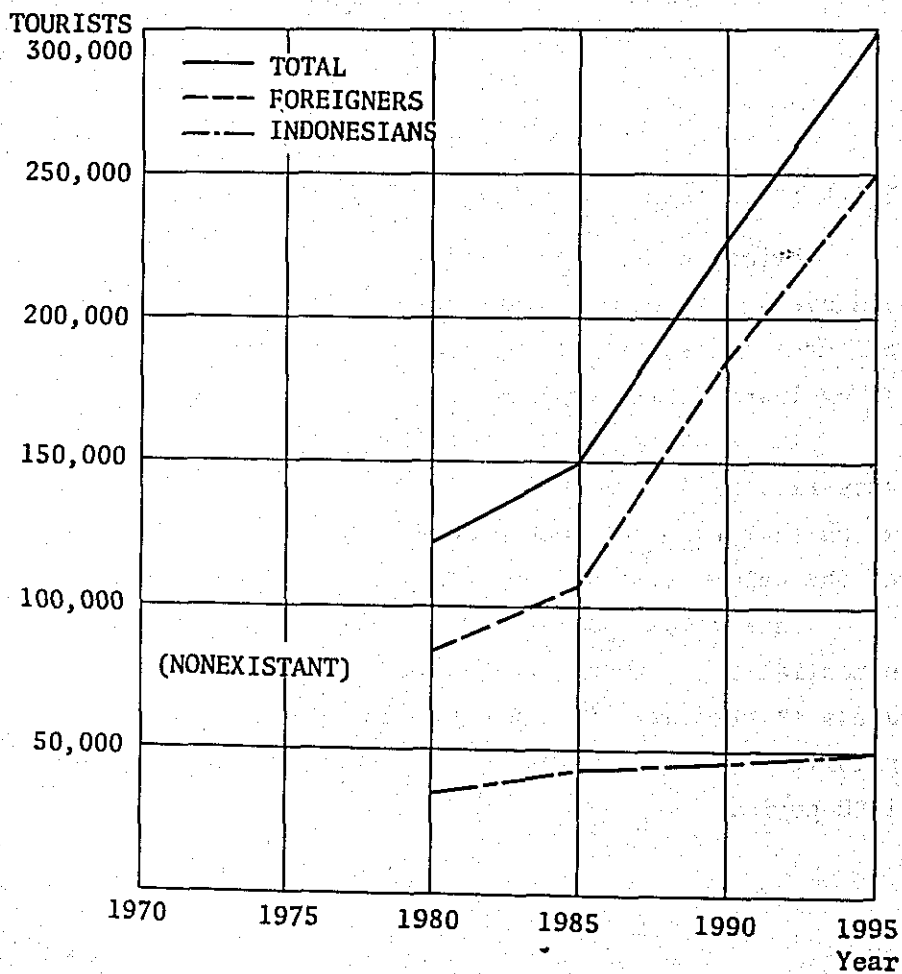
It is estimated for this group that the average length of stay will be 3 days and a 1.7 persons of average per-room occupancy, which features more double occupancies and longer stays than those of the deluxe-standard hotels.

This group, as indicated in the T.D.C. study, has a large potentiality, although there are no hotels of such standard in the areas at present. The general plan, therefore, suggests giving priority to constructing economy-standard hotels during the 1975 - 1980 period.

TABLE II-5 TOURISTS PREFERRING ECONOMY-STANDARD HOTELS

	No. of Tourist		Pro-portion (%)	Average Annual Increase (%)	Total	Average Annual Increase (%)	Required Accommodations (Number of Rooms)
	Foreigners	Indonesians					
1980	Foreigners	85,000	70	—	122,000	4	800
	Indonesians	37,000	30	—			
1985	Foreigners	109,000	71	5	153,000	8	1,000
	Indonesians	44,000	29	3			
1990	Foreigners	184,000	80	11	229,000	6	1,500
	Indonesians	45,000	20	2			
1995	Foreigners	250,000	83	6	300,000	—	2,000
	Indonesians	50,000	17	2			

GRAPH II-4 TOURISTS PREFERRING ECONOMY-STANDARD HOTELS



2-2-5 (3). Tourists Preferring Local-Standard Hotels

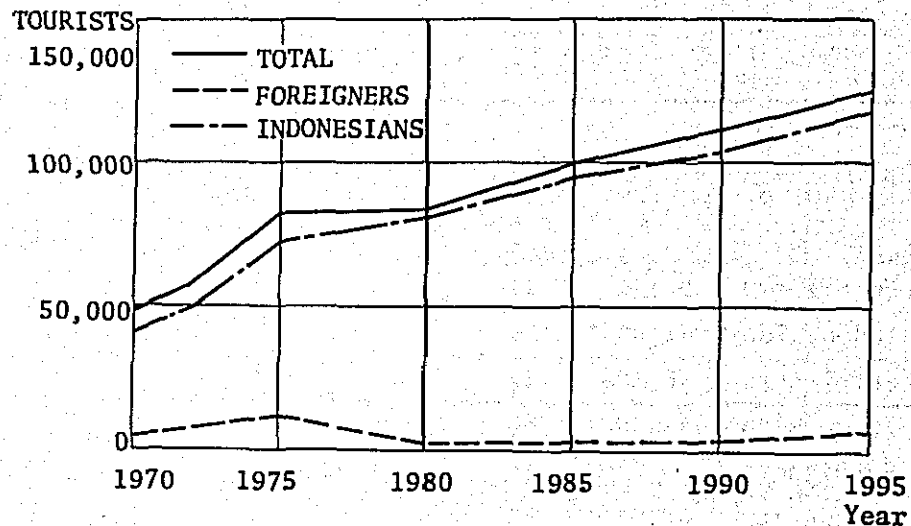
Mostly Indonesian individuals and family groups, as well as low-income foreign holiday travelers and businessmen of small firms. The flow forecast on this group is calm and steady.

TABLE II-6 TOURISTS PREFERRING LOCAL-STANDARD HOTELS

	No. of Tourist		Pro-portion (%)	Average Annual Increase (%)	Total	Average Annual Increase (%)	Required Accommodations (Number of Rooms)
	Foreigners	Indonesians					
1970	Foreigners	5,186 *	11 *	—	47,046*	—	200*
	Indonesians	41,860*	89 *	—			
1971	Foreigners	6,159*	12 *	19 *	50,549*	7*	200*
	Indonesians	44,390*	88 *	6 *		8*	
1972	Foreigners	7,530*	14 *	22 *	54,603*	24	200*
	Indonesians	47,073*	86 *	6 *			
1973	Foreigners	9,500	14	26	67,500	10	200
	Indonesians	58,000	86	23			
1974	Foreigners	10,000	13	5	75,000	10	200
	Indonesians	65,000	87	12			
1975	Foreigners	10,500	13	5	82,500	1	350
	Indonesians	72,000	87	11			
1980	Foreigners	4,000	5	62	85,000	3	500
	Indonesians	81,000	95	5			
1985	Foreigners	5,000	5	3	100,000	2	700
	Indonesians	95,000	95	3			
1990	Foreigners	5,500	5	2	110,000	2	1,000
	Indonesians	104,500	95	2			
1995	Foreigners	6,000	5	2	121,000	—	1,000
	Indonesians	115,000	95	2			

* Actual figures

GRAPH II-5 TOURISTS PREFERRING LOCAL-STANDARD HOTELS



2-3. PHYSICAL ANALYSIS OF THE REGION

2-3-1. GENERAL

The results of the analysis, along with the tourism inflow analysis, will provide a basis for the general plan.

A pilot tourism model will serve as a general planning guide.

The following subjects are dealt with in this section:

- i) Design of a pilot model for the tourism region
- ii) Tourism resources analysis
- iii) Determination of the tourism region
- iv) Determination of the tourism development components

2-3-2. PILOT MODEL OF THE TOURISM REGION (Refer FIG. II-4)

The Tourism Region can be classified into three types of zones:

- i) Core zones
- ii) Excursion zones
- iii) Destination zones (tourism objectives)

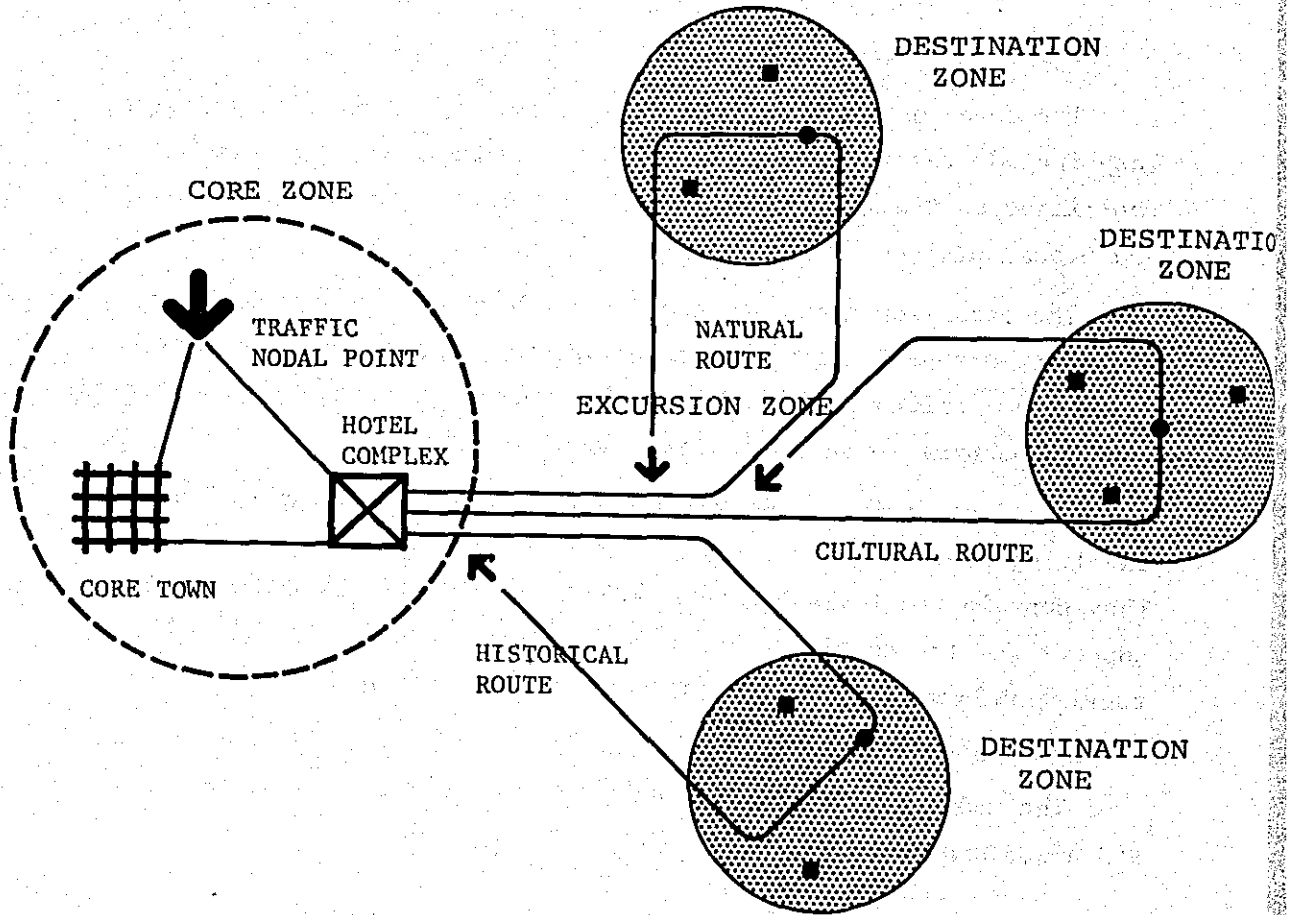
The core zones provide the main functions of the Tourism Region. They include the following elements: air, land, and sea gateway facilities as traffic nodal points, a tourist accommodation center, and urban services.




The excursion zones are those areas between the core zones and the destination zones. They contain a variety of transportation networks which form various tourism routes, such as: cultural routes, historical routes, natural routes, and educational routes.

The destination zones are areas that support tourism activity involving stays of at least a few days, centering on tourism assets. They contain the following types of tourism facilities that provide support for the tourism assets: simple accommodation facilities, tourist information facilities, area transportation facilities, and related services.

The model also allows for geographic coincidence of a core zone and a destination zone.

FIG. II-4 PILOT MODEL OF THE TOURISM REGION



-  : EXCURSION ROAD
-  : TOURIST CENTER
-  : TOURISM ASSET

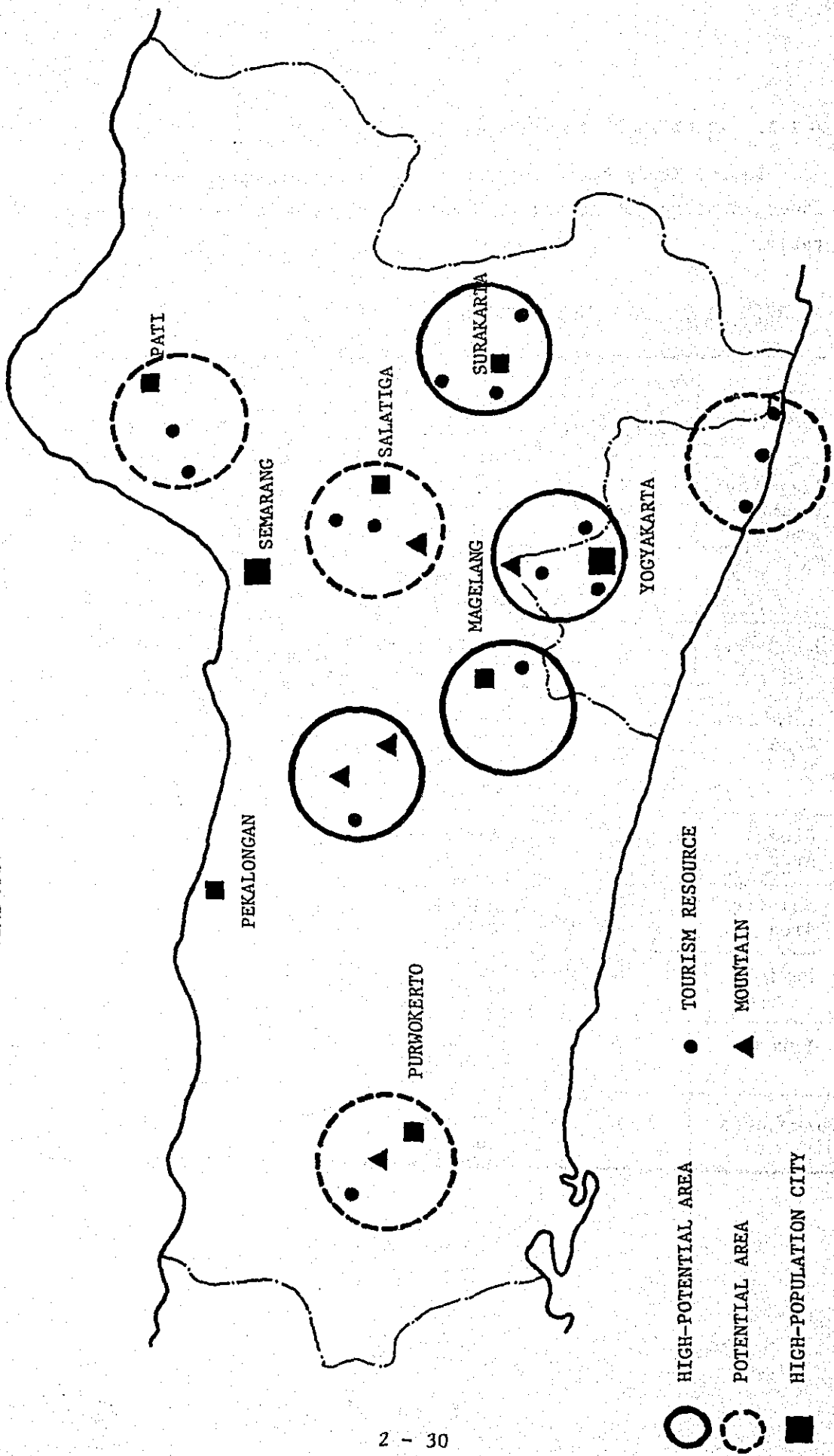
2-3-3. ANALYSIS OF TOURISM RESOURCES (Refer FIG. II-5)

In the Study Region, specific areas are designated as either core zones, destination zones, or both as indicated in the following table.

TABLE II-7 TOURISM RESOURCES

Area	Type of Zone Core: (C) Destination: (D)	Tourism Assets	Potential	Tourism-supporting Facilities
Yogyakarta Prambanan Area	C D	Architectural Assets Cultural Assets Historical Assets	High	Yogyakarta City Airport Gateway
Borobudur Area	D	Architectural Assets	High	Magelang Town
Surakarta Area	C D	Cultural Assets Historical Assets	High	Surakarta City
Dieng Area	D	Architectural Assets	High	Wonosobo Town
Salatiga Area	D	Natural Assets	Low	Salatiga Town
Pati	D	Historical Assets	Low	Pati Town
Baron	D	Natural Assets	Low	
Purwokerto	D	Natural Assets	Low	Purwokerto Town

FIG. II-5 TOURISM POTENTIAL MAP



2-3-4. ESTABLISHMENT OF THE TOURISM REGION (Refer FIG. II-6)

The purpose of establishing the Tourism Region is to limit the area for tourism development and at the same time to designate a desirable scale for tourist activity. We have established it on the basis of the general survey of the Study Region by using the following criteria:

- i) The tourism region must cover the major tourism resource areas.
- ii) It must agree with the overall land use plans for the Central Java area.
- iii) It must include various tourism-supporting facilities.

2-3-5. TOURISM DEVELOPMENT COMPONENTS

As a result of studying the possible tourism development components of the Tourism Region, we have found the following components to be necessary to that region's tourism development:

- i) Improvement of tourism assets
 - o Preservation and improvement of the environment around the archeological complexes and construction of facilities for tourist use.
 - o Improvement of urban tourism assets.
 - o Improvement of other historical and natural tourism assets found in the study region.
- ii) Improvement of core tourism facilities
 - o Construction of main accommodation facilities.
 - o Improvement of various facilities in the core towns.
 - o Development and improvement of transportation nodal points (terminals).

- iii) Development and improvement of tourism networks
 - o Routes into the Tourism Region
 - o Excursion routes in the Tourism Region
 - o Tourist information network.
- iv) Protecting the natural environment of the Tourism Region
 - o Mountainous environment
 - o Seashore environment.

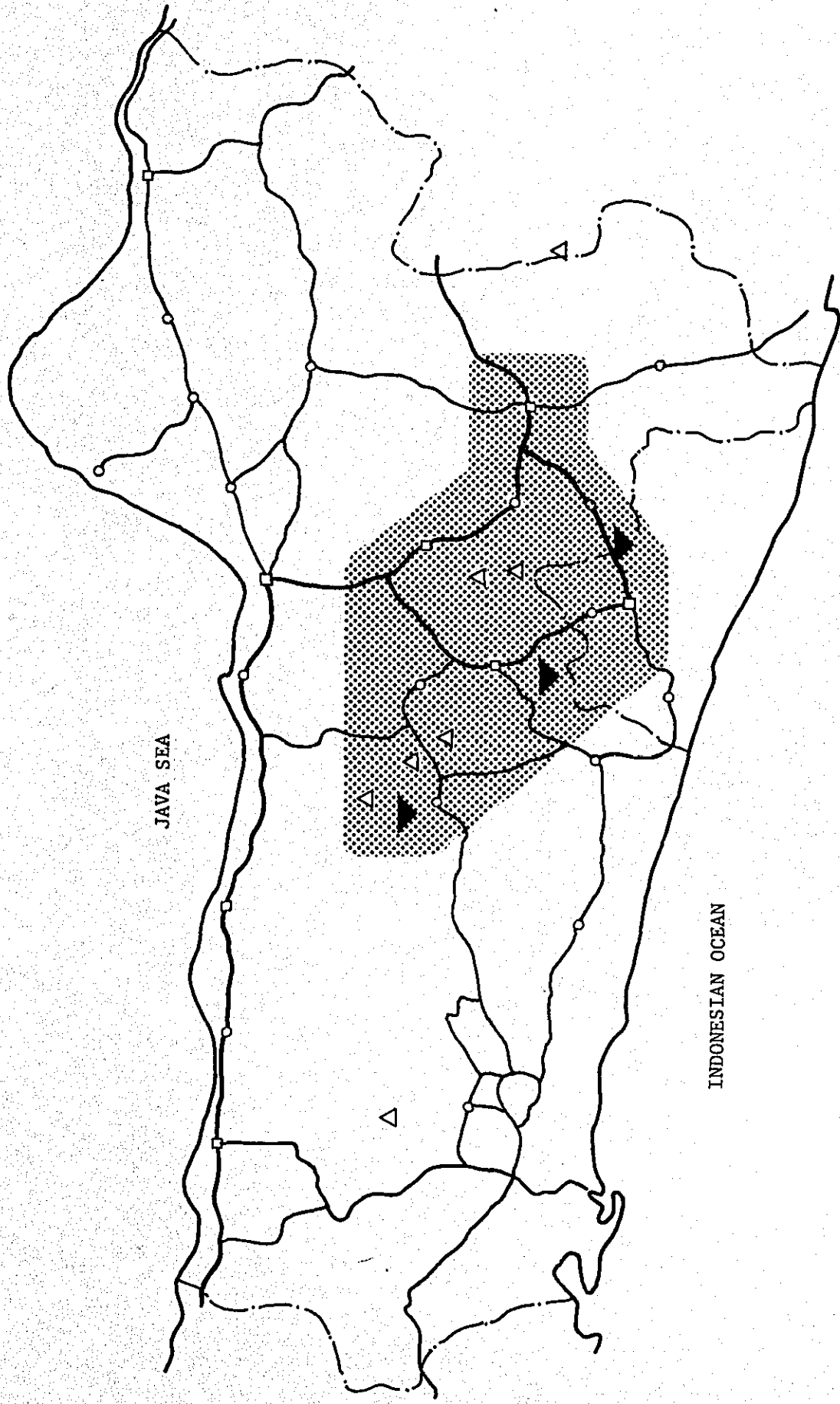


FIG. II-6 THE TOURISM REGION

CHAPTER III

**GENERAL STUDY: GENERAL PLAN OF THE
TOURISM REGION**

CHAPTER III. GENERAL STUDY: GENERAL PLAN OF THE TOURISM REGION

3-1. INTRODUCTION

3-1-1. GENERAL

The General Plan is a public document concerning the use, development, and conservation of land and its resources, which establishes a long-range, comprehensive framework and direction for the formulation of implementation measures.

Essential to this General Plan is the concept that the process by which decisions are made is as much a part of the policy as are conclusions concerning land use for the planning period. Thus, in the initial Master Plan, the process by which it is subsequently modified or implemented must be clearly established. The plan is in essence a process for continuous decision making, which includes policy decisions as a part of that process.

The planning process constitutes major parameters governing land use and reflects the degree of public and private concern for the area's future. Because this area is rich in history, culture, and archeological monuments, a concern over this area's environmental quantities has high priority. To formulate policies consistent with such concern, a framework of existing and committed usages, future plans, financial resources, and anticipated public and private benefits have been examined.

3-1-2. PLANNING MODULES (Refer FIG. III-1)

In a tourism development project such as this one which covers a wide area, it is necessary to define the dimensions of the plan in terms of both time and space.

The present study therefore proceeds as follows:

- i) Regional level -- the Province of Central Java and the Special District of Yogyakarta.

- ii) Subregional level -- all areas in which there will be tourism development; i.e., the tourism region and outlying tourism areas.
- iii) District level -- the areas of tourism designated as tourism blocks.
- iv) Project area level -- project sites and the area around them directly affected.

In this study, a development period of 20 years is envisaged, divided into four phases each of five years' duration. 1975 is set as the first year of the development period. FIG. III-1 defines the terms of the various time divisions involved.

3-1-3. OUTPUT (Refer FIG. III-2)

3-1-3 (1). General Plan

The general plan includes a proposal concerning the tourism structure of the region and identification of specific development projects. Included in the proposal are the establishment of boundaries of the Tourism Region, a tourism block plan, a tourism route plan, and a plan for tourism facility networks.

3-1-3 (2). Project Plans

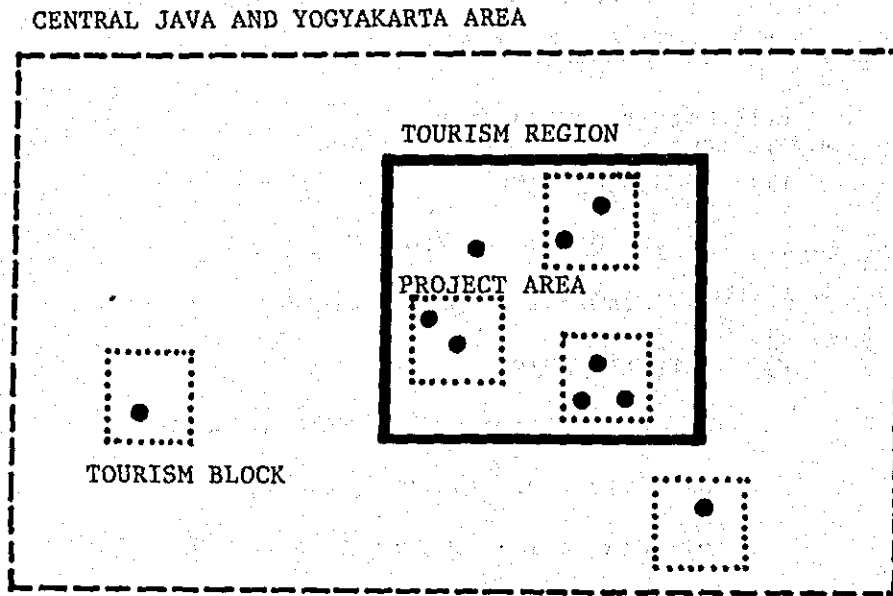
The following are detailed plans for the projects identified in the general plan.

- i) Archeological park projects:
 - a) Establishment of boundaries for the parks.
 - b) Environmental preservation plans.
 - c) Environmental improvement plans; i.e. facilities, infrastructure, etc.
 - d) Plans for improvement of surrounding villages.
 - e) Preliminary master plan.

- ii) Tourism accommodation center project:
 - a) Selection of appropriate sites.
 - b) Setting the scale of the development.
 - c) Construction program.
- iii) Core town projects.
- iv) Road projects:
 - a) Plan for excursion roads.
 - b) Plan for by-pass roads.
- v) Airport project:
 - a) Designation of the main airport.
 - b) Passenger inflow forecast.
 - c) Plan for improvement of the main airport.

FIG. III-1 PLANNING MODULES

SPATIAL HIERARCHY



DEVELOPMENT PHASES

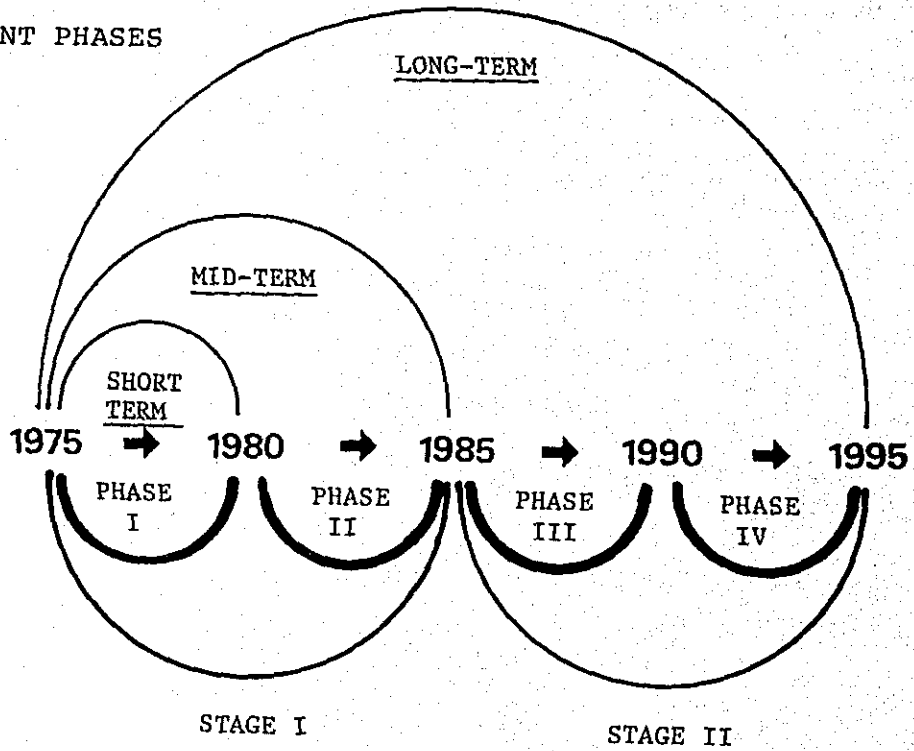
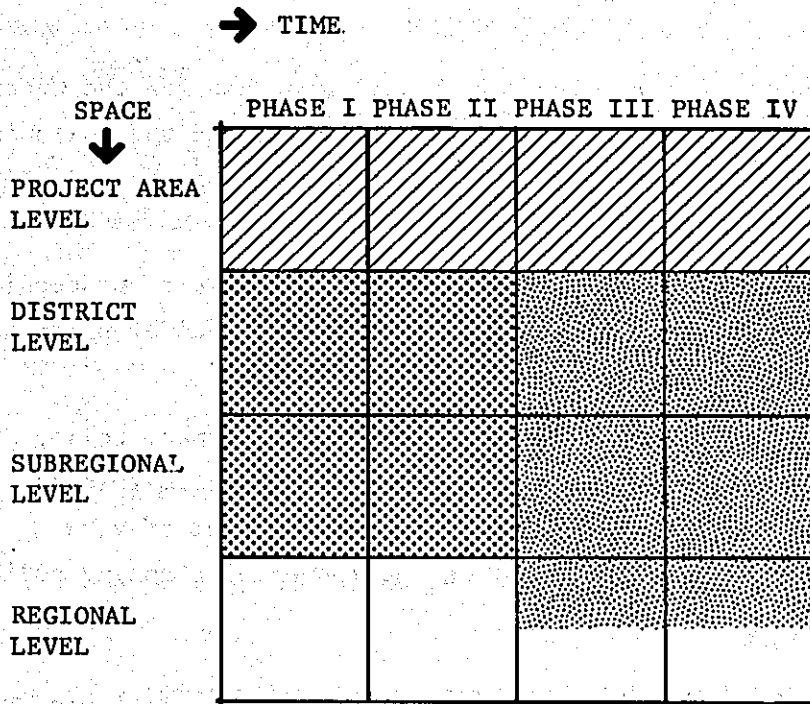


FIG. III-2 PLANNING MATRIX



- [Dotted pattern]
PERSPECTIVE PLAN (1985-1994)
- [Dotted pattern]
ACTION PLAN (1975-1984)
- [Diagonal lines]
PROJECT PLAN

3-2. DEVELOPMENT POLICY

3-2-1. GENERAL

In preparing the tourism development programs for the Central Java and Yogyakarta areas, the OTCA Team formulated the following guidelines for the General Plan as a development policy and planning concept.

The development policy is made up of four levels, proceeding in order from more general areas to more detailed areas of planning.

- Level I Hypothesis
- Level II Formulation of a tourist development policy
- Level III Formulation of a policy for tourism-related investment from an economic point of view
- Level IV Formulation of an environmental planning policy

3-2-2. HYPOTHESIS

The Central Java and Yogyakarta tourism development programs could be an integral part of a regional planning project relating to Indonesia's national policy for social and economic development. By attracting international tourism-related investments, the project could foster the acquisition of foreign currency, impart a positive impact to economically stagnant regions, be effective in improving the balance of international payments, stimulate regional development, and help improve the future regional infrastructural modernization.

The development plan could also create tourism facilities that would meet the needs of international and domestic tourism and the future recreational demands of the region.

3-2-3. FORMULATION OF A TOURIST DEVELOPMENT POLICY

After making a comparative study of the major tourism regions of Indonesia, the OTCA Team concluded that this region should be characterized as a Cultural Tourism Region, based on its rich cultural history and archeological monuments.

During the first ten years of development, priority will be given to the establishment of a tourism-related infrastructure that will chiefly be designed to accommodate international and domestic tourists. Efforts will be exerted to attract not only vacationing tourists from other parts of the country but also to encourage people living in the area to use the planned recreational facilities.

3-2-4. FORMULATION OF A POLICY FOR TOURISM-RELATED INVESTMENT FROM AN ECONOMIC VIEWPOINT

i) Raising of per Capita Income

Striving for maximum impact in terms of raising the level of per capita income through the multiplier effect.

ii) Stimulation of employment

Promotion of employment in hotels and other directly related industries.

iii) Promotion of service industries

Strengthening and promoting service industries such as gift shops, restaurants, and arts and crafts industries.

iv) The investment undertaken in the framework of the first

10-year plan will be designed to yield a reasonable internal rate of return.

v) Although it will not produce direct capital gains, economic investment in the archeological park development program will be given investment priority, since it is the focal point of the project proposal.

3-2-5. FORMULATION OF AN ENVIRONMENTAL PLANNING POLICY

i) Safeguard and maintain areas of scenic, historic, and cultural value.

ii) Evaluate the natural resources within the planning area and safeguard its ecological balance.

- iii) Preserve the region's spiritual, historical, and cultural heritage.
- iv) Provide infrastructural facilities of high aesthetic quality, which meet ecological policy standards.
- v) Ensure that the General Plan embodies processes with which it permits flexibility in reaction to new parameters.
- vi) Ensure that the project is consistent with regional land use plans.
- vii) Relate any development to economic, recreational, aesthetic, ecological, and environmental planning policies.

3-3. DEVELOPMENT FRAMEWORK

3-3-1. FORECAST TOTAL INFLOW OF TOURISTS TO THE REGION

The following table and graph list projected figures for a long-term inflow of international and domestic tourists into the Tourist Region.

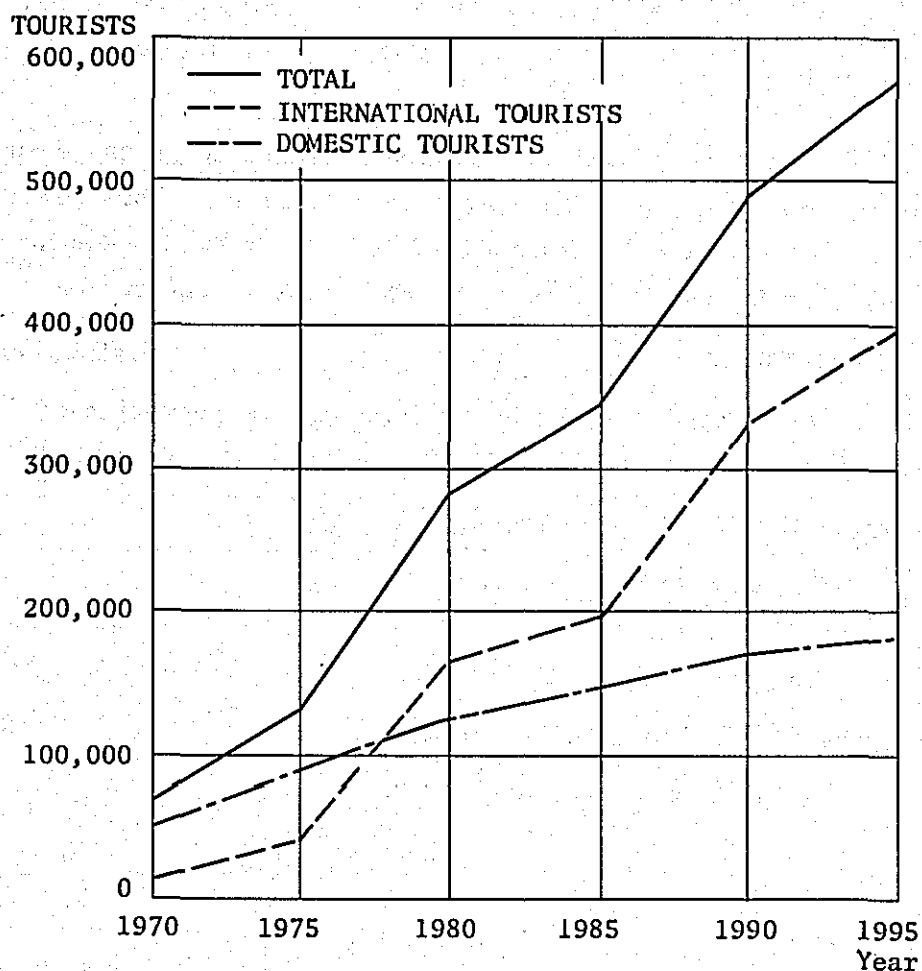
TABLE III-1 FORECAST TOURIST FLOW

	1970	1975	1980	1985	1990	1995
International Tourists	16,538*	45,000	162,000	196,000	331,500	399,000
Domestic Tourists	47,077*	78,500	127,000	149,000	160,500	177,000
Total	63,615*	123,500	289,000	345,000	492,000	576,000

* Actual figures

GRAPH III-1

FORECAST TOURIST FLOW



3-3-2. EXPECTED TOURIST ACTIVITY

i) International Tourists

It is expected that group tours involving short stays of two to three days will account for the majority of international tourists, and that such groups will follow definite international tourism routes within the region.

ii) Domestic Tourists

A national policy for the promotion of tourism is expected to create tourist demands among many different strata of the population. Particularly promising are school trips, family

vacations, and honeymoons. Domestic tourism activity within the region and the length of stay are expected to be quite varied.

iii) Local Recreation

The recreation demand is expected to increase in the future as local governments encourage leisure activities. This demand is expected to manifest itself chiefly in the form of weekend and 1-day excursions by inhabitants of cities in the region.

3-3-3. DEVELOPMENT PROJECTS

The following projects will be essential in the promotion of tourism development in the region.

i) Archeological Park Projects

- o Borobudur area
- o Prambanan area
- o Dieng area

ii) Tourist Accommodation Projects

- o Tourist Accommodation Center
- o Rest-house Chain
- o City Hotels

iii) Transportation Network Projects

- o Airport
- o Excursion Routes
- o Access Road

iv) Other Projects

- o Improvement of urban tourism assets in Yogyakarta and Surakarta
- o Staff Accommodation Sector
- o Improvement of villages
- o Tourist Centres

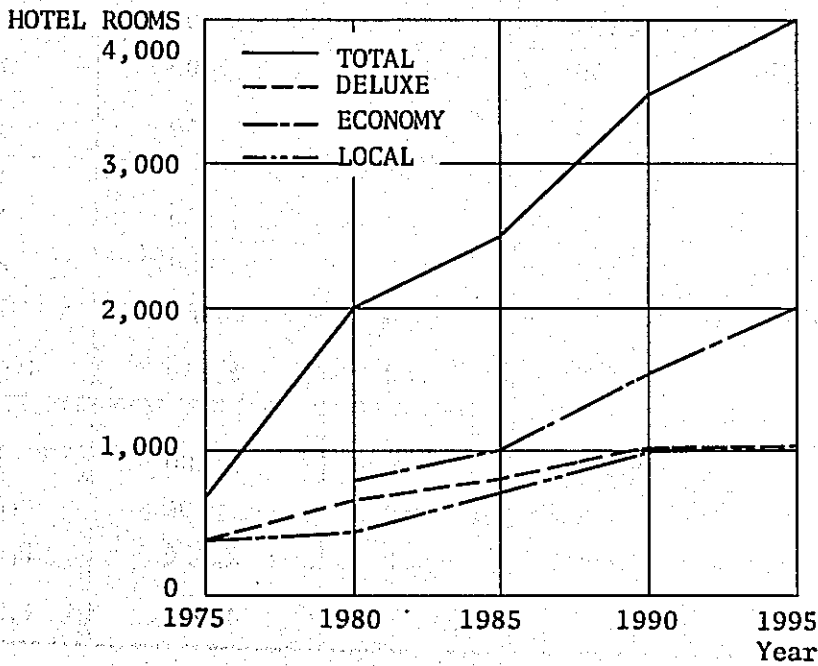
3-3-4. REQUIRED ACCOMODATIONS

The following table and graph list the projected figures of tourist accommodation facilities. (Refer to CHAPTER II, 2-2-5).

TABLE III-2 REQUIRED ACCOMMODATIONS

	1975	1980	1985	1990	1995
Deluxe-standard Hotel	350	350(700)	100(800)	200(1,000)	(1,000)
Economy-standard Hotel		800(800)	200(1,000)	500(1,500)	500(2,000)
Local-standard Hotel	350	150(500)	200(700)	300(1,000)	(1,000)
Total	700	1,300(2,000)	500(2,500)	1,000(3,500)	500(4,000)

GRAPH III-2 REQUIRED ACCOMMODATIONS



3-3-5. FORECAST OF INFLOW OF VISITORS TO THE ARCHEOLOGICAL PARKS

The table below lists the expected number of visitors of each category for each of the archeological parks. The figures for international and domestic tourists are based on the Table appearing in II-4, 5 and 6, in Chapter II.

TABLE III-3 DAILY INFLOW OF VISITORS

		Prambanan		Borobudur	Dieng
		Daytime	Evening	Daytime	Daytime
1980	International Tourists	450	180	450	65
	Domestic Tourists	350	140	350	115
	Local Vacationers	400	60	400	270
	Total	1,200	380	1,200	450
1985	International Tourists	550	220	550	80
	Domestic Tourists	400	160	400	190
	Local Vacationers	800	120	800	450
	Total	1,750	500	1,750	720
1990	International Tourists	950	380	950	140
	Domestic Tourists	450	180	450	220
	Local Vacationers	1,450	220	1,450	700
	Total	2,850	780	2,850	1,060
1995	International Tourists	1,100	440	1,100	165
	Domestic Tourists	500	200	500	260
	Local Vacationers	2,450	370	2,450	1,100
	Total	4,050	1,010	4,050	1,525

- NOTES:
1. The unit of figures in this table represents persons per day.
 2. In view of the similarity of the tourism value and location of the Prambanan and Borobudur Parks, the number of visitors to each has been assumed to be the same.
 3. It has been assumed that all international and domestic tourists visit both Prambanan and Borobudur Parks during their stay in the region.
 4. The ratio of the number of international and domestic tourists who come on the evening tour to the Prambanan theater to the number of daytime visitors to the park is assumed to be 40%.
 5. Considering the limited length of stay in the region of international tourists, it has been assumed that the ratio of their number that visit Dieng Park to the number that visit Prambanan and Borobudur Parks is only 15%.

3-4. STRUCTURE OF THE TOURISM REGION

3-4-1. GENERAL

An outline of the tourism structure is presented in items 3-4-2 to 3-4-5, below. This structure covers a wide range of tourist activities and provides for their efficient application and linkage of tourism resources.

The main elements of this structure are established in items 3-4-2 and 3-4-3 on the basis of the physical analysis in Chapter II, 2-3.

- i) Tourism block plan: Derived from tourism flow studies.
- ii) Tourism route plan: Derived from tourist transportation studies.

Furthermore, a proposal is presented in items 3-4-4 and 3-4-5 for networks of various tourist facilities (i.e., tourist centre and core towns) as necessary elements of the tourism region.

Consequently, this section will serve as a guideline for the formation of the kind of tourism region desired and as a pilot model in drafting of the general plan.

3-4-2. TOURISM BLOCK PLAN

3-4-2 (1). General Description

This plan calls for five tourism blocks within the tourism region and three outside of it.

The tourism blocks within the tourism region will cover the principal tourism resources of the area; i.e., three archeological parks and such major tourist cities as Yogyakarta and Surakarta.

This plan also calls for two nature conservation zones in the mountains within the boundaries of the tourism region and one along the shore outside of the tourism region.

3-4-2 (2). Definition of Tourism Block

As observed in Chapter II, 2-3, tourism blocks are areas with tourism attractions that are designated as developmental units for specialization in tourism in the framework of regional development planning. They comprise the following three types:

Type A -- core areas within the tourism region which embrace a comprehensive range of service industries and personnel essential to tourist activities.

Type B -- major tourism areas for international and domestic tourists.

Type C -- tourism areas to be subsequently developed to accommodate domestic tourists and local recreation that are expected in the future. (Refer FIG. III-3).

3-4-2 (3). Descriptions of the Tourism Blocks

i) Yogyakarta-Prambanan Tourism Block

Because of its centralized location, this block will be developed as an overall centre for tourist activities in the

tourism region.

Components: Archeological park (Prambanan)
Core town (Yogyakarta City)
Airport (Yogyakarta)
Tourist accommodation centre

ii) Surakarta Tourism Block

This block will center on Surakarta City, an overland gateway from East Java and -- like Yogyakarta City -- a tourist objective in itself.

Components: Core town (Surakarta City)
Prehistoric park (Sangirang)
Sukuh Temple

iii) Borobudur Tourism Block

This block has the temple complex with the highest potential in the tourism region.

Components: Archeological park (Borobudur)
Subcore town (Magelang City)

iv) Dieng Tourism Block

Like the Borobudur block, Dieng is a temple complex.

Components: Archeological park (Dieng)
Subcore town (Wonosobo)
Natural landscape (volcanic scene)

v) Other Tourism Blocks

Other tourism blocks in the tourism region are the Salatiga block to the north, which serves as a gateway from the direction of West Java, Semarang and includes Kopeng and Pening Lake, and the following three blocks which will specialize mainly in domestic and local tourism activity:

The Pati-Kudus-Demak block, noted for its temples at Kudus and Demak, which are a legacy of the first Islamic Kingdom in Indonesia.

The Baron block, the only one providing seaside recreation.

The Purwokerto block, located at the western end of the study region, specializing in local resort tourism with a mountain, lake, and other natural assets.

FIG. III-3 TYPES OF TOURISM BLOCKS

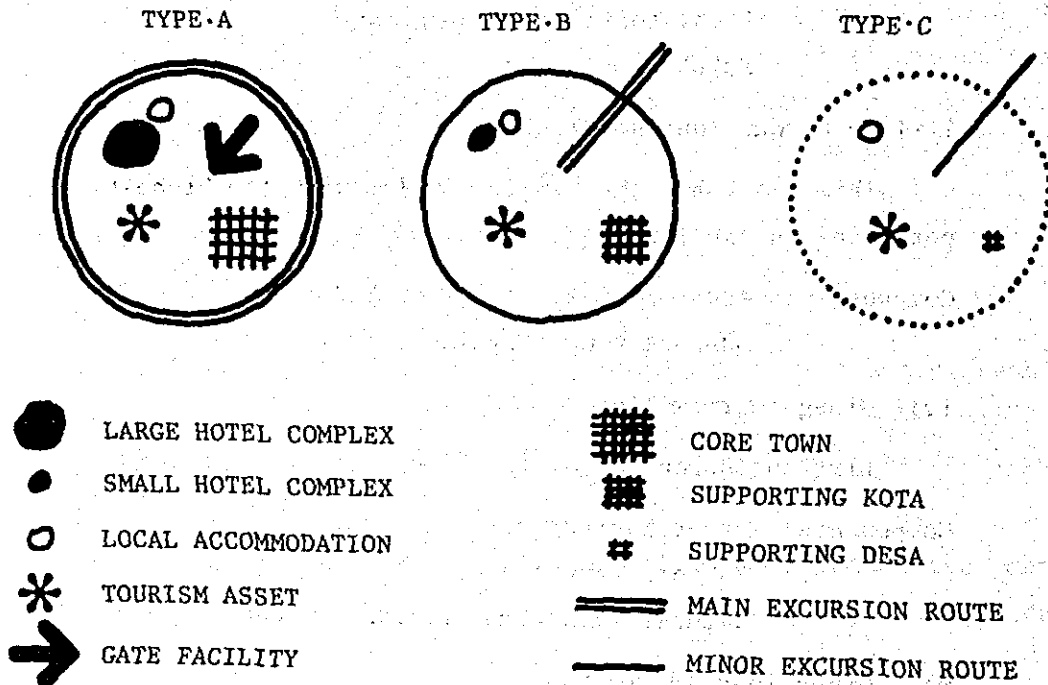
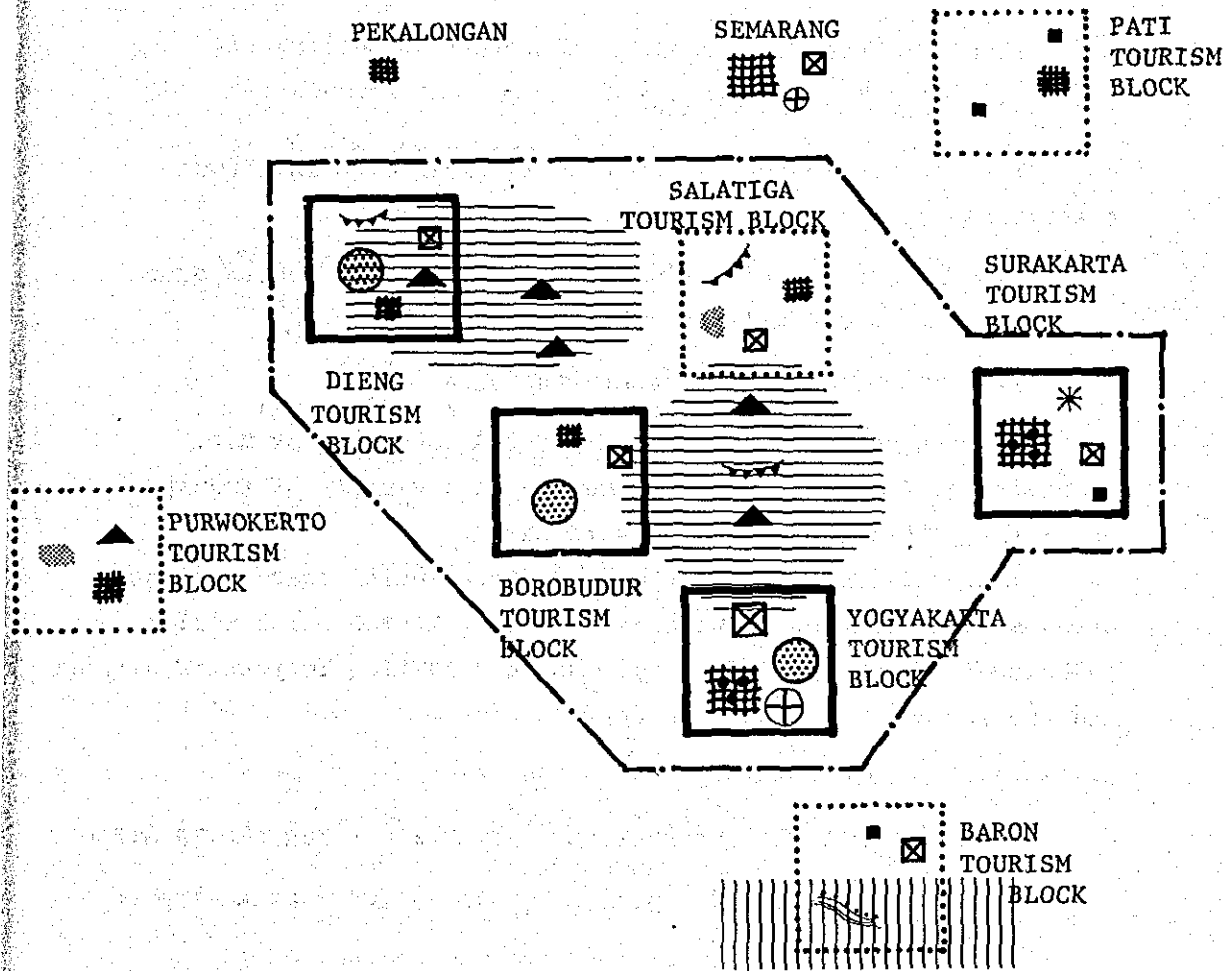




















FIG. III-4 TOURISM BLOCK PLAN



- | | | | |
|---|---------------------------|---|---|
|  | ARCHEOLOGICAL PARK |  | LAKE |
|  | LARGE HOTEL COMPLEX |  | ISLAMIC PALACE |
|  | SMALL HOTEL COMPLEX |  | MOUNTAIN |
|  | SUPPORTING TOWN |  | TOURISM REGION |
|  | PREHISTORICAL PARK |  | TOURISM BLOCK PRIORITY I |
|  | INTERNATIONAL AIRPORT |  | TOURISM BLOCK PRIORITY II |
|  | DOMESTIC AIRPORT |  | PRESERVATION AREA OF MOUNTAIN LANDSCAPE |
|  | SCENIC CORRIDOR |  | PRESERVATION AREA OF SEASIDE LANDSCAPE |
|  | BEACH | | |
|  | TOURISM ASSET IN THE CITY | | |

3-4-3. TOURISM ROUTE PLAN

3-4-3 (1). General Description

The tourism routes can be roughly classified into two categories:

- i) Air, sea, and railway gateways and road routes over which visitors will arrive.
- ii) Excursion routes within the area.

International tourists are expected to arrive by air. Domestic tourists will have the choice of a variety of transportation means (air, train, bus, and private car).

Basically, existing national and provincial roads will be used as excursion routes within the area. Routes which will have to be newly built include a by-pass road linking Yogyakarta Airport and the tourist accommodation center.

3-4-3 (2). Main Gateways

- i) Air gate for international arrivals -- Yogyakarta Airport
- ii) Air gates for domestic arrivals -- Yogyakarta Airport and Semarang Airport
- iii) Sea gates for possible cruises -- Semarang Harbor and Cilacap Harbor.
- iv) Railway gates -- Yogyakarta, Semarang, and Surakarta.

3-4-3 (3). Road Routes for Entering the Area

- i) From West Java -- Jakarta-Cirebon-Semarang, route
-- Cilacap-Yogyakarta, route
- ii) From East Java -- Surabaya-Surakarta, route

When the Trans-Java Highway is completed, access will be more convenient from both directions.

3-4-3 (4). Excursion Routes

- i) Loop route

This route, consisting of existing national roads between

the cities of Yogyakarta, Magelang, Salatiga, and Surakarta, will connect the major tourism blocks in the tourism region.

ii) Secondary routes

These roads, national, provincial, and otherwise, will serve as straight, direct links between the major tourism blocks in the tourism region:

- o Kaliurang route
- o Salatiga-Setuang route
- o Mungkid-Selo-Bojolali route
- o Setjang-Wonosobo-Dieng route

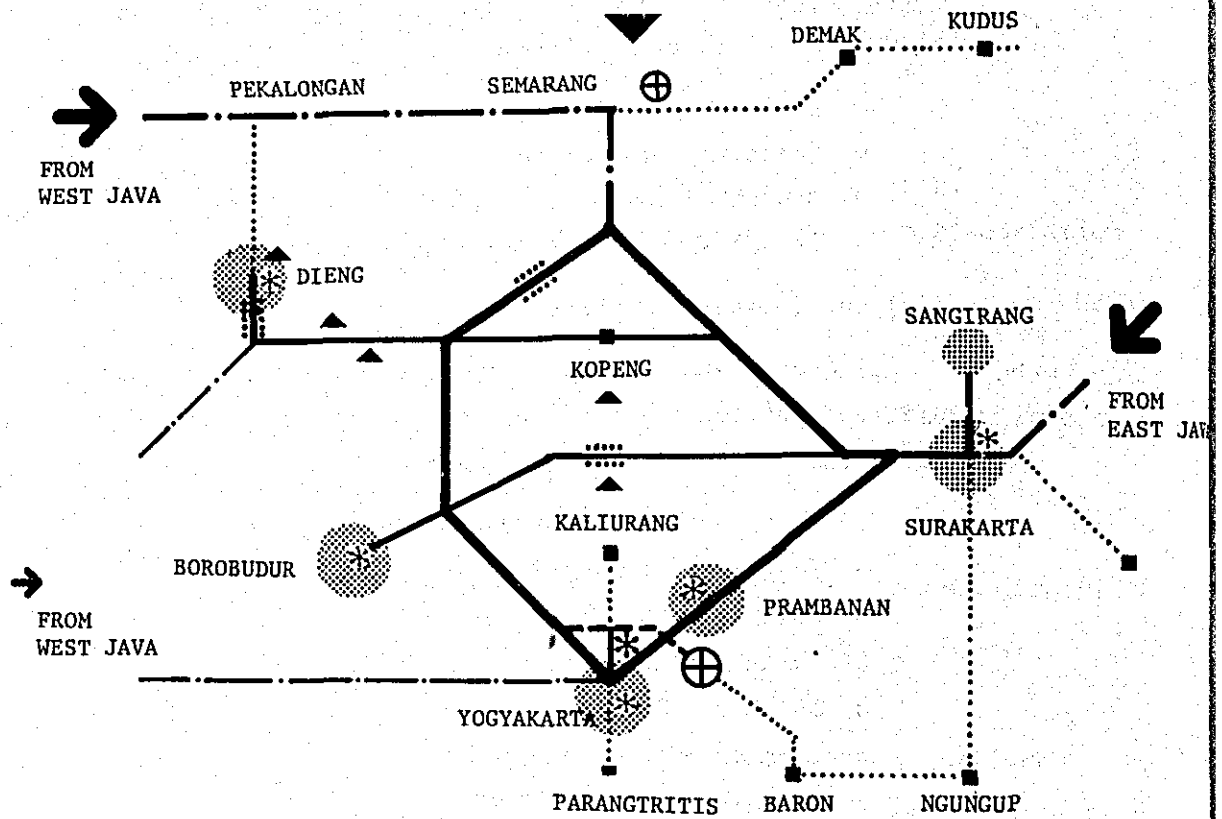
iii) Local excursion routes

These existing routes, with some new road construction, will connect the major cities in the tourism region with local tourism assets:

- o Yogyakarta-Purwokerto-Cilacap route
- o Yogyakarta-Parang Tritis route
- o Surakarta-Sarangburung route
- o Surakarta-Sukuh route
- o Surakarta-Sangirang route
- o Semarang-Pati route
- o Dieng-Pekalongan route*

*This last route is covered by a plan of the Tourist Board of the Province of Central Java.

FIG. III-5 TOURISM ROUTE PLAN



EXCURSION ROUTES

- LOOP ROUTE
- SECONDARY ROUTE
- - - BY-PASS
- LOCAL EXCURSION ROUTE

GATE ROUTE

- - - INTER REGIONAL HIGHWAY
- - - INTER REGIONAL ROADWAY

GATEWAYS

- ⊕ AIRPORT
- ▼ SEAPORT
- ➔ LAND GATE

- * TOURIST TERMINAL
- * TOURIST CENTER
- ⊗ TOURISM DESTINATION AREA
- RECREATIONAL DESTINATION AREA
- - - SCENIC REST AREA

3-4-4. CORE TOWNS

Various tourist attractions are inherent to the existing cities. These cities provide many different complex services that involve, among other things, the flow of people and goods.

The following three cities should be designated as core towns:

- i) Yogyakarta City (Yogya-Prambanan block)
- ii) Surakarta City (Surakarta block)
- iii) Semarang City (between Magelang and Demak-Kudus-Pati blocks).

The following are subcore towns:

- i) Magelang City (Borobudur block)
- ii) Wonosobo Town (Dieng block)
- iii) Salatiga City (Salatiga block)

3-4-5. TOURIST FACILITY NETWORK

3-4-5 (1). General Description

Dealt with here is a proposed tourist information network and tourist accommodation network as basic facilities for supporting the tourism activities in the area.

More specifically, these networks will provide guidance and control for tourism activities over a wide area. The tourist information network will consist of a chain of tourist centers, and the tourist accommodation network will consist of the tourist accommodation center, hotels, and rest-houses located throughout the area.

3-4-5 (2). Tourist Centers

Functions of the tourist centers will be to furnish tourist information to tourists and to conduct administrative activities for the blocks in which they are located. There should be one such center in each block, with a "tourist terminal" in one block to collect, control, and redistribute information from all of the blocks and also to provide an interregional information linkage with Bali, Jakarta, Sumatra, and other tourism areas. (Refer FIG. III-6).

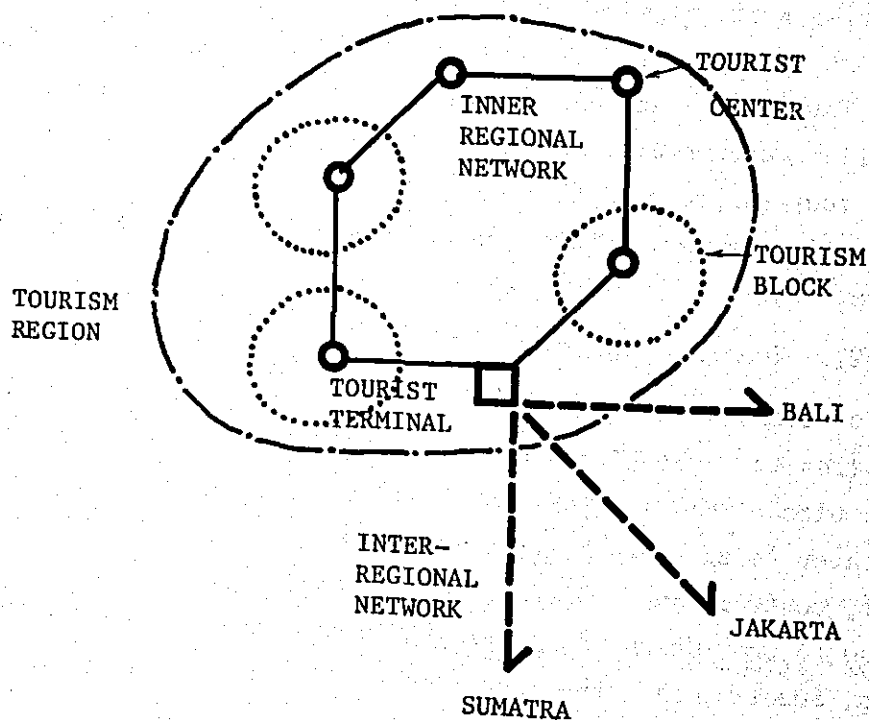
3-4-5 (3). Tourist Accommodation

Here the OTCA Team has proposed a network of accommodation facilities to serve as a base for tourist activities.

Since the activities of international tourists generally follow fixed patterns, it is desirable that they are controlled in a centralized manner with a large-scale tourist accommodation center.

Domestic tourists, however, are expected to follow more diversified patterns of activity, which implies that they will need a broader range of choice as to the type of accommodation facility and its location. Thus, consideration should be given to local-standard accommodations in main existing cities and towns, and to rest-houses, motels, drive-ins, and accommodations for touring school children in more widely distributed locations.

FIG. III-6 TOURIST INFORMATION NETWORK



3-5. GENERAL PLAN

3-5-1. GENERAL

3-5-1 (1). Experience has shown that the traditional practice of establishing inflexible plans for a 20-year period is inadequate, ineffective, and self-defeating in a dynamic, mobile, and evolving society. Not only must the planning increments be reduced in length and related to the accuracy of prediction, but the plan itself must have built-in processes which permit flexibility in reaction to new parameters. In addition, short-range land use indications reflect generally held social objectives, goals, and values as they now appear to exist.

3-5-1 (2). To preserve choice and to maintain future options in reaction to changing conditions, this General Plan has established specific uses when there was an indication that the probability of uses was rational within a period of time for which available information and projections concerning use were considered reasonably accurate.

3-5-1 (3). To maintain continuity beyond such a period that usage predictions could be reasonably made, and to establish long-range and comprehensive parameters for any unforeseen use which might materialize, the general plan also establishes basic criteria related to the physical and ecologic characteristics of the planning area which would be applicable to the evaluation of any usage.

3-5-1 (4). Development Phases

This project has two planning phases -- that of a 20-year long-term perspective plan (1975-1994) and that of a 10-year action plan (1975-1984).

The 10-year action plan is subdivided into two additional phases: Phase 1 (1975-1979) and Phase 2 (1980-84).

3-5-1 (5). Development Area

In this project, a tourism potential analysis was made to designate areas with a particularly good tourism potential.

These areas are designated as "Tourism Regions." Development within the context of the 10-year action plan will be limited to these "Tourism Regions."

3-5-2. STUDY OF ALTERNATIVES

A comparative study of alternatives was made on the following:

- i) Alternative proposals regarding the distribution of infrastructural units.
- ii) Priority and location of the major projects.
- iii) Alternative proposals for accommodation facilities.

3-5-2 (1). Alternative Proposals regarding the Distribution of Infrastructural Units

A comparative study was made on the existing pattern of land use and the proposed development plan as to whether infrastructural work in regard to tourism development should be concentrated or dispersed.

If it is concentrated, the investment effect will be good, although it will be limited to a relatively small part of the tourism region. If the infrastructural work is dispersed, the development effect will cover a wide area, and the scale of investment will be extremely large. Since investment funds will be limited during the first 10-year program, infrastructural facilities should be concentrated. If adequate funds are available, during the ensuing 10-year program, a dispersed infrastructural plan may be considered.

3-5-2 (2). Priority and Location of the Major Projects

Proposals at this level of study can be summarized in terms of the location and the development priority of each project.

Particular importance will be a comparative study of the tourism region, the development priority of various archeological parks, the selection of core towns, and determination of the excursion routes.

i) Airport

The main access gate to the region will be the Yogyakarta Airport.

ii) Archeological Parks

Prambanan and Borobudur will be given development priority because of tourist accessibility and tourism attraction. For the first 10-year development plan, Dieng should be regulated and have only a minimum of necessary work should be carried out.

iii) Core Towns

Yogyakarta and Surakarta should function as core towns and have their tourism resources developed.

In the future, also Semarang should function as a core town.

iv) Excursion Route

The loop road connecting Yogyakarta, Surakarta, Salatiga, and Magelang should be the main excursion route for the region. In the future, alternative subexcursion routes may be established.

3-5-2 (3). Alternative Proposals for Accommodation Facilities

The following are two alternatives for the distribution of accommodation facilities.

i) The concentrated accommodation layout is the best solution in terms of economic efficiency. Its drawback is excessive development in a limited area, thus creating "tourist ghettos." The scattered or dispersed accommodation type will reduce economic investment efficiency and give rise to transportation and logistics problems.

Because of its economic feasibility, the concentrated accommodation layout will be considered for the first 10-year development plan.

ii) The deluxe-and economy-standard type accommodation facilities will be included in the initial planning program, but the local-standard accommodation units will be planned by the local planning authorities.

iii) The scale and structure of the accommodation center should harmonize with the natural environment, and a variety of hotel types should be suggested to offer an element of choice to the investor.

iv) Site selection for the accommodation center.

Sites for the accommodation centers should be selected from the five tourism blocks. The following are a few evaluation criteria for location selection:

- a) Accessibility from the airport
- b) Accessibility to tourism assets
- c) Relation to the excursion route
- d) Relation to existing land use
- e) Relation to utility service
- f) Ecological impact
- g) Committed planning policies

After a comparative evaluation was made with regard to these criteria, the Yogyakarta tourism block was considered the most suitable as the accommodation center.

3-5-3. DEVELOPMENT PROGRAM

3-5-3 (1). Work to be done during 1975-79

During this period (Phase-1), projects will be carefully selected and implemented. These projects will be mainly concerned with the archeological parks and construction of the tourist accommodation center and the by-pass road.

- o Zoning regulations will be made for the three archeological parks. Internal roads, tourist facilities, and landscaping of the Borobudur and Prambanan parks will be improved.

- o In Stage-I (1975-84), infrastructural work will have to be undertaken to keep pace with hotel construction at the tourist accommodation center. This hotel construction will take place in two stages: 250 rooms in 1976-77 and 1,300 additional rooms in 1978-79.
- o An access road between Yogyakarta Airport and the tourist accommodation center will have to be constructed. It will be approximately 7 kilometers long.
- o The Kaliurang road will undergo repairs in order to connect the tourist accommodation center with Yogyakarta City.
- o Major city tourism attractions in Yogyakarta and Surakarta will be improved by building for them parking areas, reception facilities, and other conveniences.
- o Living quarters will be built for hotel employees.
- o Necessary improvements will be made on villages affected by the tourism development program. This includes a resettlement program as well as electrical and landscape improvements.

3-5-3 (2). Work to be done during 1980-84

During this period (Phase-II), projects will be continued from Phase-I and new development projects will be undertaken.

- o In the framework of the archeological park projects, major new road networks will be built, basic tourism facilities will be expanded in Borobudur and Prambanan Parks, and work will begin on Dieng Park.
- o The Merapi road will be repaired as an excursion route between Mungkid and Bojolali, with certain new road construction.
- o Roadside parks will be constructed alongside some of the excursion routes with particularly fine scenic environment.

- o The village improvements begun in Phase-I will be continued, with particular emphasis placed on schools, local market places, and other basic facilities necessary for daily existence.

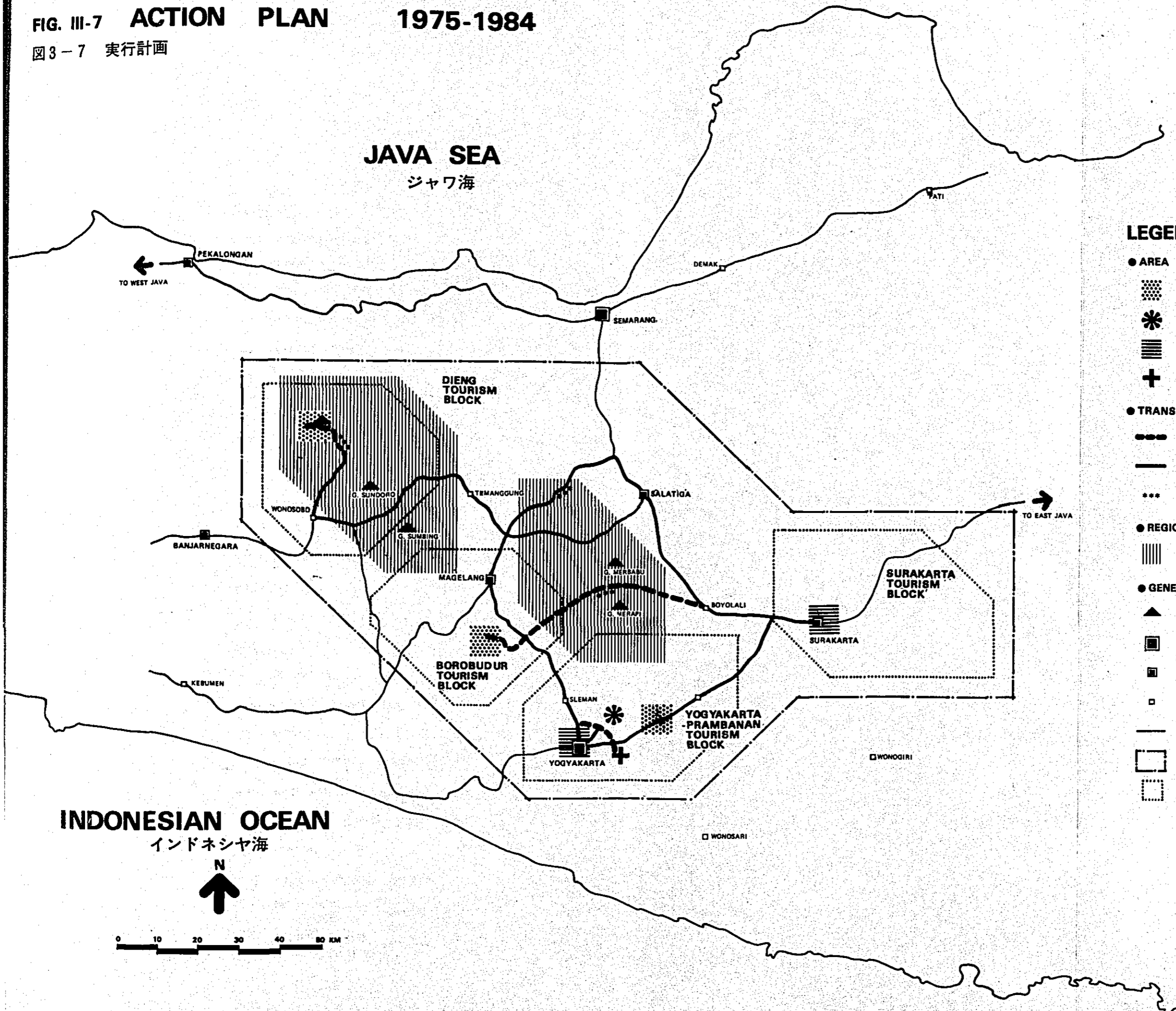
3-5-3 (3). Work to be done during 1985-94

During this period (Phase-II), further accommodation will be provided for an increasing number of international tourists, and improvement and extension of tourism assets, tourism routes, and active development of accommodation facilities will be undertaken for the benefit of domestic tourists, which will begin to emerge as an important segment of the tourism market.

- o In all three of the archeological parks, the sites themselves will be further restored and the park facilities will be completed.
- o Another 500 rooms will be added to the capacity of the tourist accommodation center.
- o A rest house will be built in each tourism block to provide accommodations mainly for domestic tourists.
- o Excursion routes throughout the area will continue to be repaired, and certain new ones will be built.
- o Various measures will be taken for further modernization of villages in the area.
- o Tourism-related industry will be encouraged in the core towns, and their supporting functions will be strengthened.

FIG. III-7 ACTION PLAN 1975-1984

図3-7 実行計画



LEGEND 凡例

● AREA DEVELOPMENT PROJECTS

- ARCHEOLOGICAL PARK 史跡公園
- TOURIST ACCOMMODATION CENTER 観光客宿泊センター
- CORE TOWN コアータウン
- AIRPORT 空港

● TRANSPORTATION PROJECTS

- NEW CONSTRUCTION OR IMPROVEMENT OF EXISTING ROAD 道路新設又は改良
- EXCURSION ROAD 周遊道路
- SCENIC REST ZONE 景観道路地区

● REGIONAL REGULATION

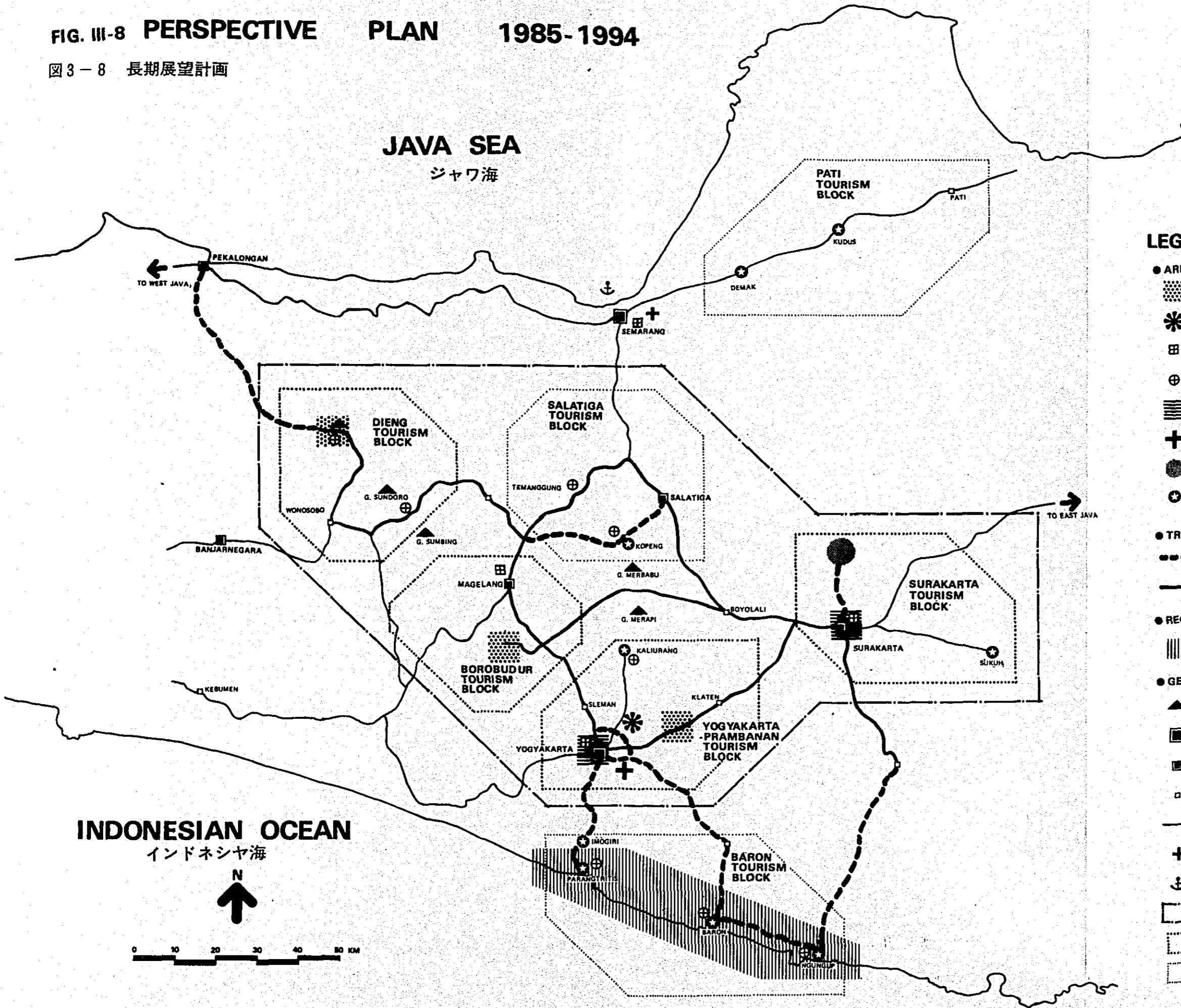
- PRESERVATION OF MOUNTAINOUS LANDSCAPE 山岳修景保全地区

● GENERAL

- MOUNTAIN 山
- CAPITAL OF PROVINCE 州都
- MUNICIPALITY 市
- OTHER TOWN その他の主要都市
- NATIONAL OR PROVINCIAL ROAD 道路
- TOURISM REGION 観光地域
- TOURISM BLOCK 観光ブロック

FIG. III-8 PERSPECTIVE PLAN 1985-1994

図3-8 長期展望計画



LEGEND 凡例

- AREA DEVELOPMENT PROJECTS
 - ARCHEOLOGICAL PARK 史跡公園
 - ✳ TOURIST ACCOMMODATION CENTER 観光客宿泊センター
 - CITY HOTEL 市街地ホテル
 - ⊕ RESORT HOTEL リゾートホテル
 - ≡ CORE TOWN コアタウン
 - ✚ AIRPORT 空港
 - PREHISTORIC PARK
 - ⊙ IMPROVEMENT OF TOURISM RESOURCE
- TRANSPORTATION PROJECTS
 - NEW CONSTRUCTION OR IMPROVEMENT OF EXISTING ROAD 道路新設又は改良
 - EXCURSION ROAD 周遊道路
- REGIONAL REGULATION
 - ||||| PRESÉRVATION OF MOUNTAINOUS LANDSCAPE 山岳修景保全地区
- GENERAL
 - ▲ MOUNTAIN 山
 - CAPITAL OF PROVINCE 州都
 - MUNICIPALITY 市
 - OTHER TOWN その他の主要都市
 - NATIONAL OR PROVINCIAL ROAD 道路
 - ✚ DOMESTIC AIRPORT 国内空港
 - ⚓ SEAPORT 港
 - TOURISM REGION 観光地域
 - TOURISM BLOCK PRIORITY I 観光ブロック
 - TOURISM BLOCK PRIORITY II 観光ブロック

CHAPTER IV

ARCHEOLOGICAL PARK PROJECTS

CHAPTER IV. ARCHEOLOGICAL PARK PROJECTS

4-1. EXISTING CONDITIONS

In the project area, there are a considerable number of Buddhist and Hindu temples which were built in the 9th and 10th century; most of them, however, have been devastated by natural elements and through neglect.

The destruction of these temples has progressed to such a point that in many cases there is not even a clear boundary between them and the surrounding area, for most of the stone slabs have been dismantled for use in building farm roads and surrounding villages, and farmlands have severely encroached upon the temple grounds.

In recent years there has been a growing recognition that these temples are national treasures and also of global cultural value, and the need for their restoration is being increasingly felt. Particularly noteworthy is the fact that a number of countries are presently participating in the surveying and restoration of the Borobudur ruins in a UNESCO sponsored project. Survey and restoration of other sites as well are being gradually undertaken by the Indonesian Government.

Because Borobudur has available funds through the UNESCO program, its restoration work is being carried out under a carefully organized program of archeological investigation, research, and restoration. On the contrary, Prambanan's restoration -- compared with that of Borobudur's-- does not meet the same restoration standards. Many sections of Prambanan's temples have partially missing reliefs, the surrounding walls to the temple complex have been reconstructed with a conglomeration of remaining temple stones, and the lighting rod cable for the Loro Jonggrang stands out unnecessarily. Very little restoration work has been done on several small Hindu temples on the Dieng Plateau. The walls of the temples are now covered with graffiti.

Both the Borobudur and Prambanan park sites are situated in Central Java's typical agrarian landscape. The Dieng Plateau, 2,000 meters above sea level, is encircled by mountains, and a large part of

the plateau is a moist, green marsh.

The Kraton Ratu Baka in the Prambanan Archeological Park site is on a mountain plateau, which gives a panoramic view of the greater Prambanan area and a beautiful view of Mt. Merapi.

4-2. PLANNING APPROACH

4-2-1. PROJECT REQUIREMENTS

The archeological park must have tourist-supporting facilities as well as a design control and development system.

- i) Archeology
 - o Study of archeological monuments
 - o Restoration of monument surrounding environments
 - o Study of past and present religious activities
- ii) Sociology and Ecology
 - o Improvement of agricultural production
 - o Preservation and restoration of the physical environment
 - o Protection and improvement of existing communities
- iii) Tourism Development
 - o Guidance and control of tourism development
 - o Improvement of tourism facilities
 - o Developing the park also for regional recreation area

4-2-2. PLANNING PARAMETERS

- i) Establishment of a site regulation system
 - a) Designation of areas for environmental preservation and the establishment of zoning boundries
 - b) Enactment of laws concerning the preservation of the archeological parks
 - c) Establishment of zoning regulations and related to existing urban planning policies
 - d) Determination of the scale of development.

- ii) Establishment of a site development system
 - a) Drafting of park usage plan
 - b) Drafting of an implementation program for the projects
 - c) Site planning with regard to environmental improvements
 - d) Solutions for village relocation and rehabilitation

The following are items that must precede the above planning items in order to attain the zoning boundaries, the scale of development, the direction of development, etc.:

- a) Archeological analysis
- b) Sociological analysis
- c) Site analysis
- d) Visual analysis
- e) Tourism forecasts

4-3. PLANNING POLICY

4-3-1. THE ARCHEOLOGICAL PARK

i) Research Activities

In addition to such basic functions as surveying, research, and repair and management of the archeological monuments, this center should provide comprehensive tourist information and educational services, giving the tourist historical and archeological information and the cultural background of the region.

ii) Tourist Activities

The main tourist activity will be visits to the archeological monuments. The natural surroundings will provide recreational activities, and the visitors center will provide various tourist services.

iii) Community Activities

Those people living within the park areas will no doubt continue to constitute primarily agricultural communities. Nevertheless, through effective use of development impact, it will be possible to strengthen the tourist-supporting function of such communities by creating new tourist service industries.

FIG. IV-1 places the above activities and their components in relation to one another.

4-3-2. ENVIRONMENTAL MODELS

The following three models are constituent elements of the archeological park:

i) Zoning Model

This model divides the area of the archeological park into three zones. (Refer Chapter IV, 4-7)

ii) Tourism Development Model

This model calls for the following improvements in archeological park facilities.

- a) A park road system for linking the various archeological monuments and tourist facilities.
- b) Tourist facilities
- c) Public facilities
- d) Open space

iii) Village Rehabilitation Model

This model calls for the following improvements of villages in the parks.

- a) Relocation of certain agricultural land and residential homes, and provision for certain new facilities to improve the production and living environment of the village inhabitants.

- b) Rearrangement of land-use patterns and construction of public utility networks in areas directly affected by the development. Economically, benefits to the local community from the development must be considered in terms of the local administrative units.

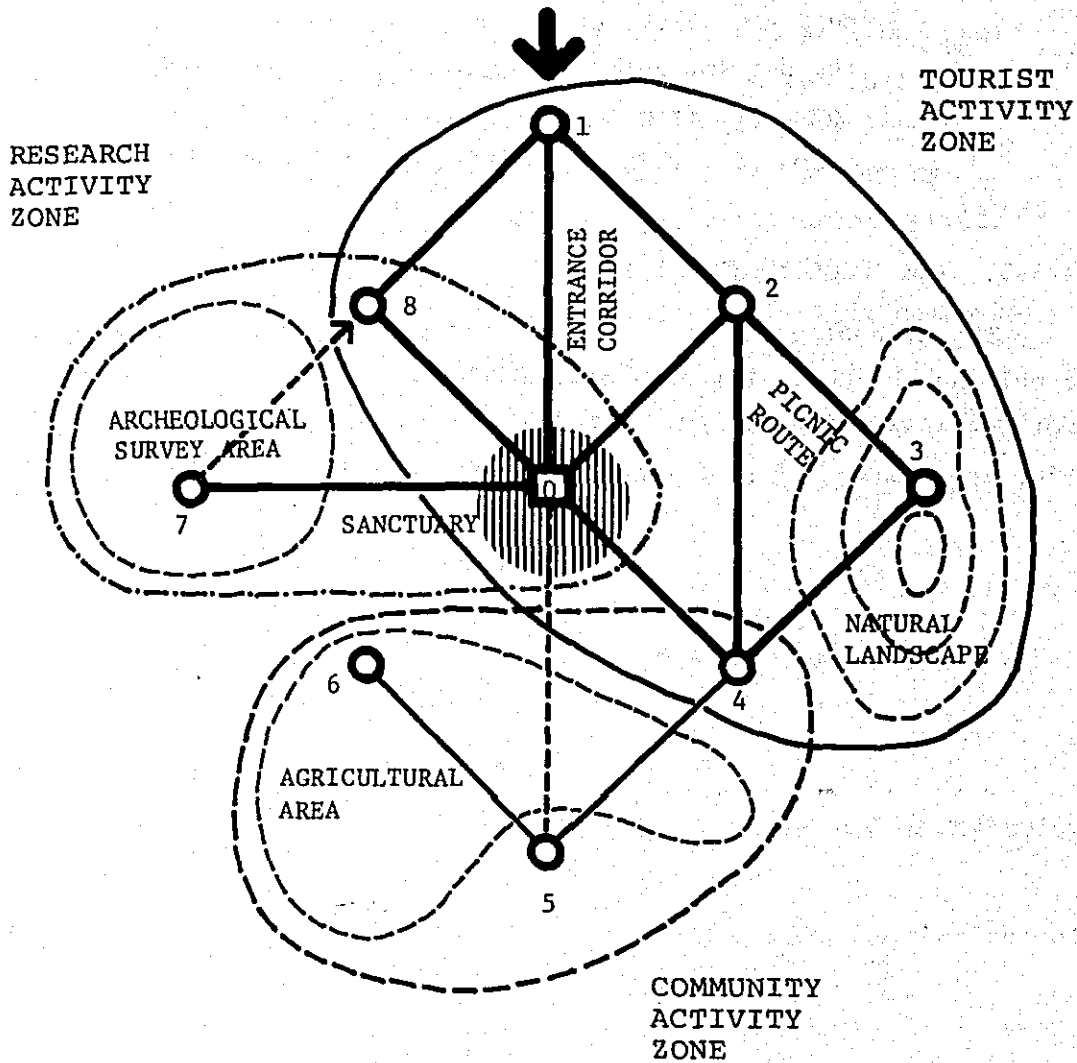
4-3-3. THE ARCHEOLOGICAL PARK UNIT

The archeological park, as an environmental unit, is obtained by combining the above three models. Each model serves as a subsystem for regulation and design control of the environment.

FIG. IV-2 gives the positional relationship between the three models.

FIG. IV-1 ACTIVITIES NETWORK

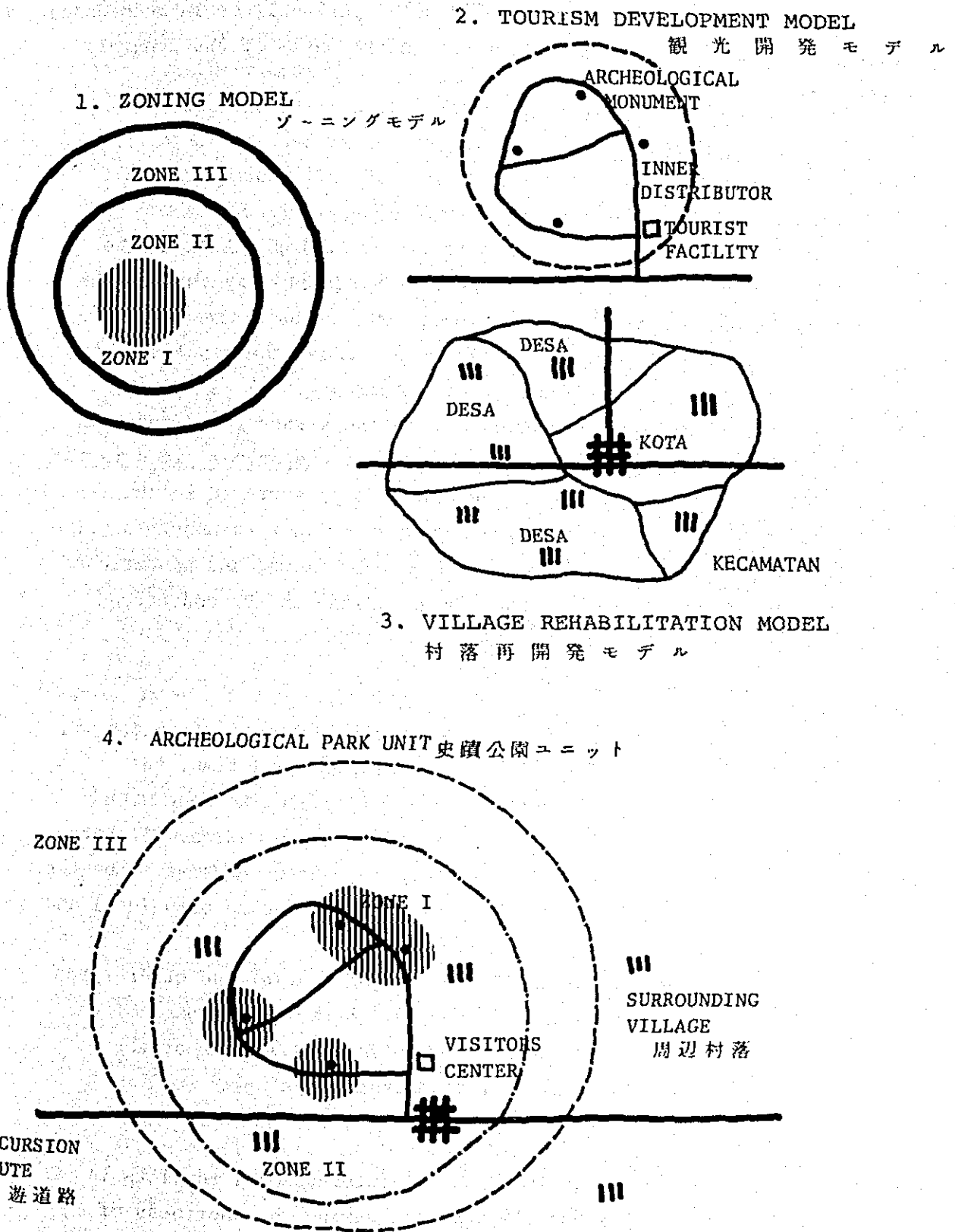
図 4-1 活動ネットワーク



- | | |
|----------------------------|--------------|
| 0. ARCHEOLOGICAL MONUMENT | 遺 跡 |
| 1. VISITORS CENTER | ヴィジターセンター |
| 2. ADMINISTRATIVE OFFICE | 管理事務所 |
| 3. RECREATION CENTER | レクリエーションセンター |
| 4. SOUVENIR SHOP AND PASAR | 市場、みやげ物店 |
| 5. VILLAGE CENTER | 村落センター |
| 6. AGRICULTURAL CENTER | 農業センター |
| 7. RESEARCH CENTER | 考古学研究センター |
| 8. MUSEUM AND THEATER | 博物館、劇場 |

FIG. IV-2 ENVIRONMENTAL MODELS

図 4 - 2 環 境 モ デ ル



4-4. DEVELOPMENT POLICY FOR EACH ARCHEOLOGICAL PARK

The development of each archeological park will be in accordance with its particular characteristics and on the basis of the general scheme already described.

4-4-1. CHARACTERIZATION

i) Borobudur

Since it runs too close to the Archeological Monuments sanctuary, the provincial road that winds its way through the archeological sites must be realigned.

The development must take into account the results of the archeological surveys already in progress.

It would be advisable to establish a survey and research entity which could undertake studies of historical sites in the Tourist Region, including those now being surveyed in the context of the survey and restoration project in progress. The results of such a survey should be publicized, and educational tours relating to them could be organized in the context of nationwide educational and cultural efforts.

ii) Prambanan

Since this park is near the tourist accommodation center, Yogyakarta, and Surakarta in both distance and time, its development will have to be especially geared to cope with tourism demands emanating therefrom. Consideration will have to be given to future increases in the amount of traffic on the national road that cuts through the park due to both local and tourist usage.

As added attractions, the Ramayana ballet and other types of performances should be promoted, the former as part of the evening tours. (Effective use should also be made of the symbolic background view of Mt. Merapi.)

iii) Dieng

Although use of this park by international tourists is expected to be rather limited considering the shortness of

their stay in the Tourism Region, it can be developed primarily as a resort area for domestic tourists who are expected to increase in number.

The development of this park will primarily be undertaken to develop the various tourist mountain facilities. Accommodation facilities will also have to be developed since, unlike the other two archeological parks, Dieng is rather remote in terms of both distance and time from the big cities and the Accommodation Center.

Since the basin there surrounded by mountains forms a natural unit, the entire basin should be incorporated into the park.

TABLE IV-1 CHARACTERISTICS OF EACH PARK

	BORUBUDUR	PRAMBANAN	DIENG
Development Type	Educational Dev.	Cultural Dev.	Natural Resort Dev.
Topographic Condition	Level Land	Level	Basin
Landscape Characteristic	Rural	Rural	Volcanic
Monument Distribution	Linear	Scatter	Spot
Network Type	Linear	Loop	Spot
Recreation Type	Educational Recreation	Suburban Leisure	Mountain Recreation

4-4-2. ESTABLISHMENT OF ZONING BOUNDARIES

The OTCA Team established zoning boundaries, based on the conceptual models.

4-4-2 (1). Standards of Distance and Area

Standards were studied to create the conditions for setting each zoning boundary depending upon the following criteria.

- i) The first boundary will provide a sanctuary area and a buffer zone for the monument(s) in the archeological park as well as these nearby.

- o To obtain the required area for the optimum density of tourist activity.
 - o To obtain the required area for the optimum ratio of monument site to Zone-I as separate aesthetic units.
 - o To maintain the pleasant views from/to monument(s) in the immediate area (s).
- ii) The second boundary will define the archeological park area and also provide a secondary buffer zone for the monuments and other natural features. Basically it will embrace all monuments in the park proper as well as the various park facilities;
- o To obtain the required area for the optimum ratio of Zone-I and the surrounding area of natural features to Zone-II as a separate environment unit.
 - o To maintain the pleasant views from/to monuments and other natural features in the intermediate area.
- iii) The third boundary will provide an outer boundary for the archeological park and also a tertiary buffer zone for the monuments:
- o To keep uncontrolled development completely out of sight from the monuments.
 - o To obtain pleasant panoramic views from lookout points set at particularly good vantage spots in Zone-II.
- This criteria should be taken as a visual code which constitutes one of the standards to establish the third boundary.

TABLE IV-2 STANDARDS OF ZONING BOUNDARIES

	Area Standard	Distant Standard	Visual Code
Zone-I	50 to 100 HA	100 to 300 m	-
Zone-II	1,500 HA	1,000 m	-
Zone-III	5,000 HA	3,000 m	5,000 m

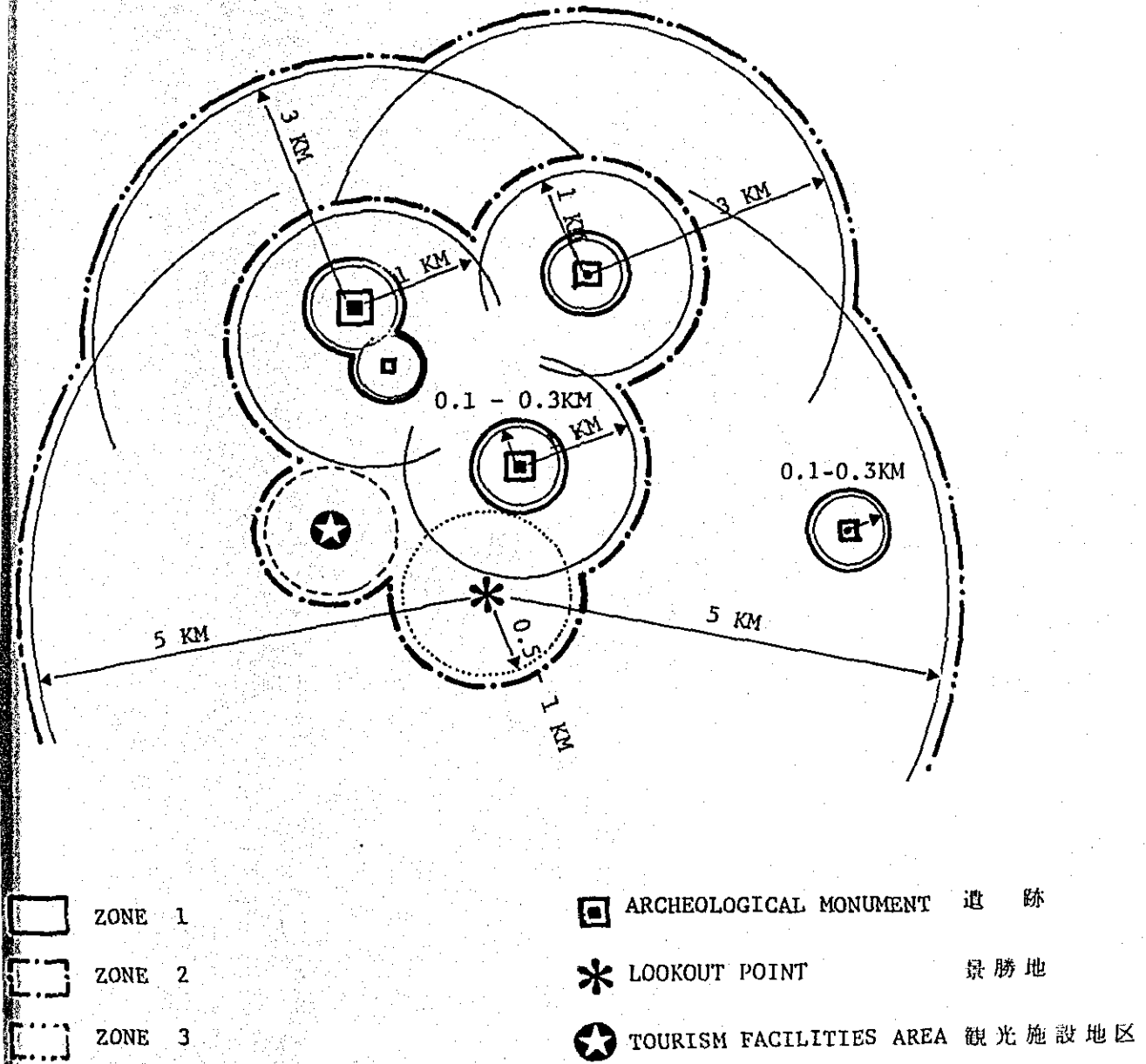
4-4-2 (2). Criteria in Actually Drawing Up the Zoning Boundaries




- i) The distribution and historical relationship of the archeological monuments (a priority factor with respect to the first and second boundaries).
- ii) Topographical elements such as mountains, hills, basins, and rivers (a predominant factor in the case of Dieng Park.)
- iii) The existing pattern of land use (particularly important with respect to the first and second boundaries).

Other factors, including population, administrative boundaries and various socio-economic factors, should be further considered. (Refer FIG. IV-4,5,6.)

FIG. IV-3 ZONING BOUNDARIES MODEL

図 4 - 3 ゾーニング境界モデル



-  ZONE 1
-  ZONE 2
-  ZONE 3












-  ARCHEOLOGICAL MONUMENT 遺跡
-  LOOKOUT POINT 景勝地
-  TOURISM FACILITIES AREA 観光施設地区

FIG. IV-4 **BOROBUDUR ARCHEOLOGICAL PARK ZONING MAP**

図4-4 ボルブドール史跡公園ゾーニング図

- | | | | | | |
|---|-------------|---|-----------------------|---|-----------------------|
|  | ZONE 3 |  | NATIONAL ROAD
国道 |  | BOUNDARY OF PROVINCE |
|  | ZONE 2 |  | PROVINCIAL ROAD
州道 |  | BOUNDARY OF KECAMATAN |
|  | MONUMENT 遺跡 |  | MAIN TOWN
主要都市 | | |

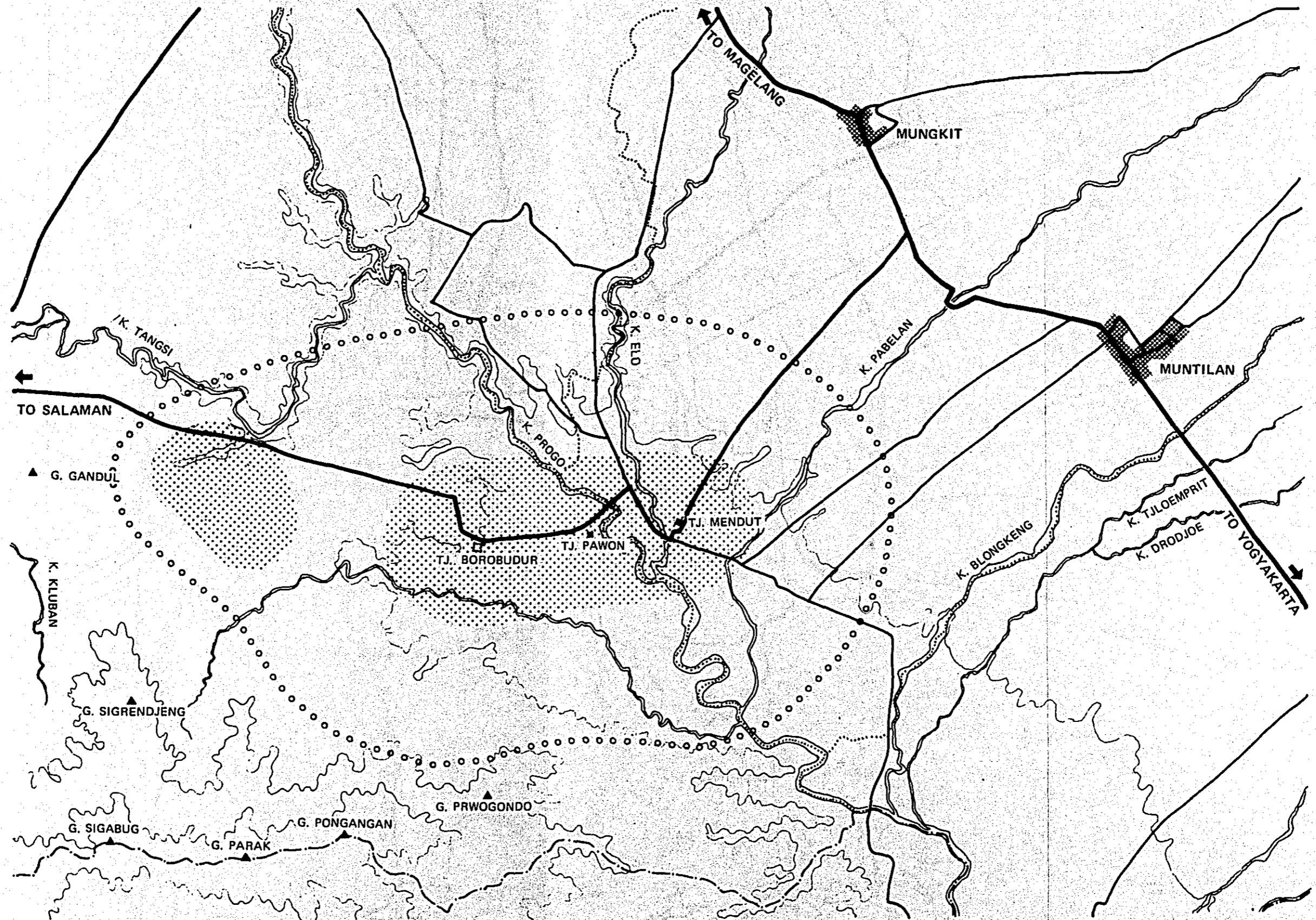
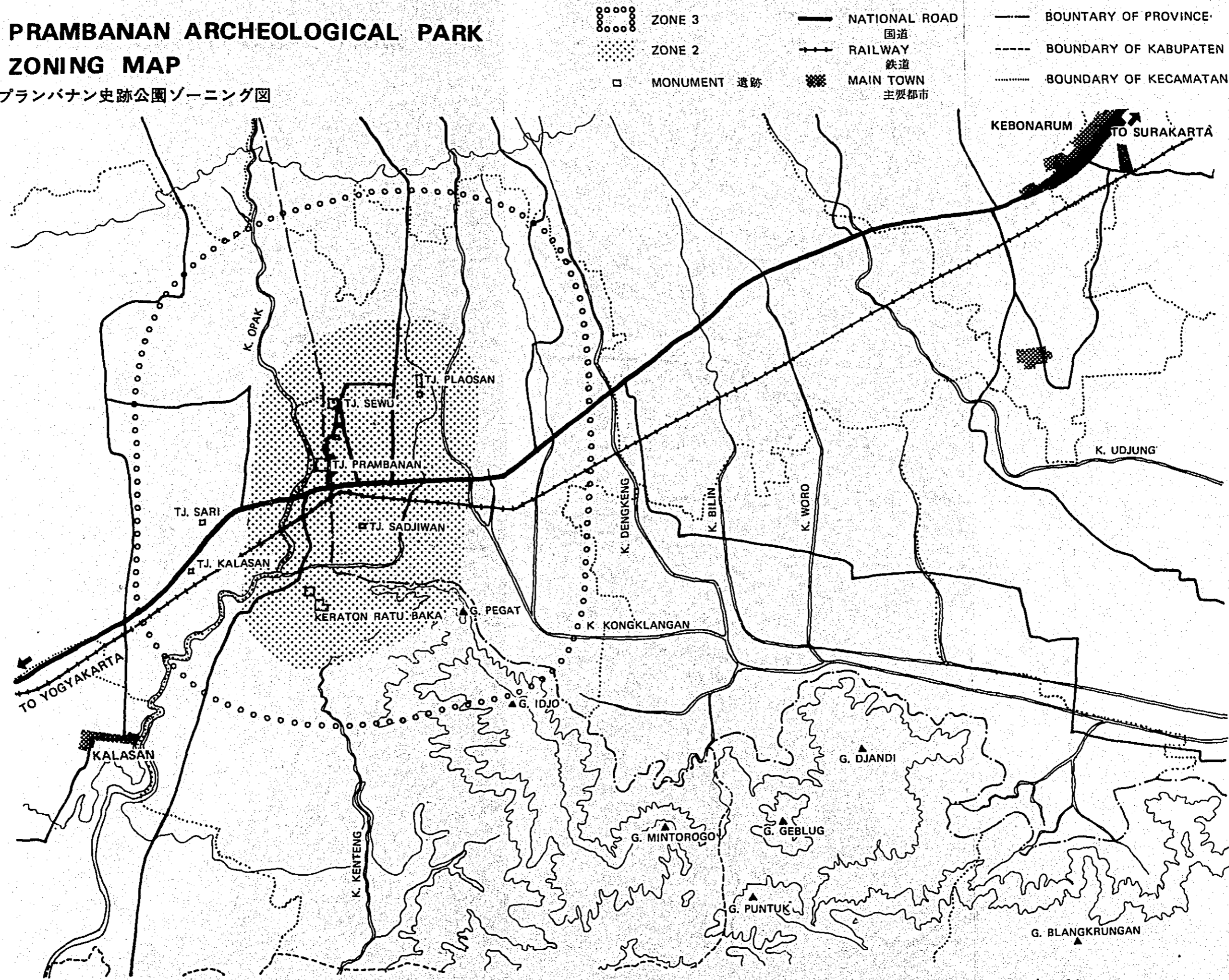


FIG. IV-5 PRAMBANAN ARCHEOLOGICAL PARK ZONING MAP

図4-5 プランバナン史跡公園ゾーニング図

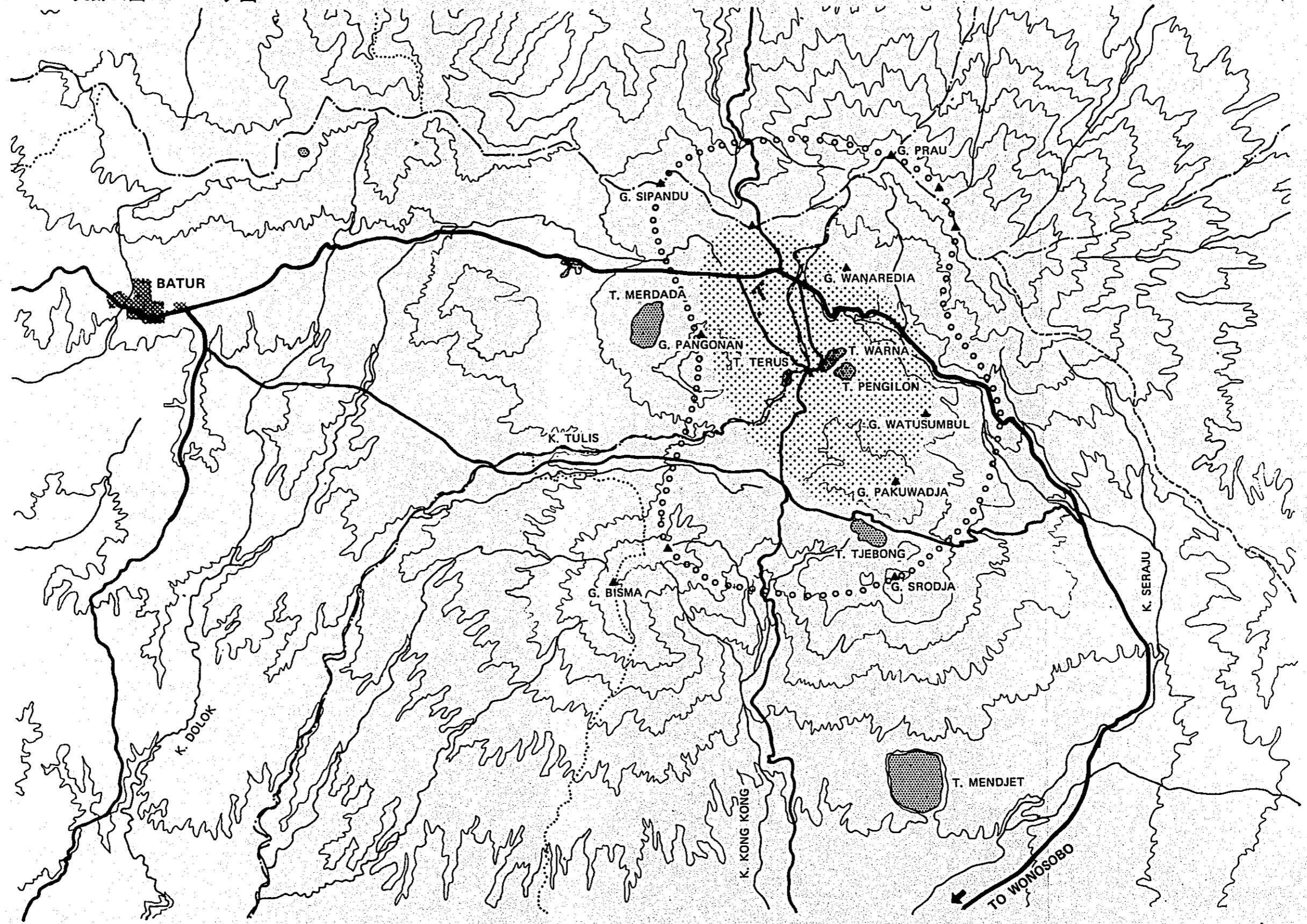


- ○ ○ ○ ○ ZONE 3
- ● ● ● ● ZONE 2
- MONUMENT 遺跡
- NATIONAL ROAD 国道
- +— RAILWAY 鉄道
- MAIN TOWN 主要都市
- BOUNDARY OF PROVINCE
- - - BOUNDARY OF KABUPATEN
- BOUNDARY OF KECAMATAN

FIG. IV-6 DIENG ARCHEOLOGICAL PARK ZONING MAP

図4-6 デイエン史跡公園ゾーニング図

- ○ ○ ○ ○ ZONE 3
 - ● ● ● ● ZONE 2
 - MONUMENT 遺跡
- DISTRICT ROAD
 - ▨ MAIN TOWN 主要都市
- BOUNDARY OF KARESIDENAN
 - - - BOUNDARY OF KECAMATAN



4-4-3. BASIS FOR DEVELOPMENT

The basis for arriving at a physical solution for each of the archeological parks, through various studies already made, will be established.

TABLE IV-3 BASIS FOR DEVELOPMENT FOR EACH ARCHEOLOGICAL PARK

	Borobudur	Prambanan	Dieng
Development Area (hectares)	1,600	1,200	800
Number of Visitors Person/day	1,750	1,750(500)	720
Hours Open	8	8	8
Hours Present	2	2	4

The figure in parenthesis indicates the number of visitors for the evening tour.

4-5. PHYSICAL SOLUTIONS

The objective here is to arrive at a concrete solution for each of the archeological parks by studying the various components necessary to the project, the above basis for development serving as the premise.

4-5-1. LAND USE

Proposals are made concerning appropriate land use within the framework of the zoning boundaries set for environmental control.

The various land uses will have to be determined by miscellaneous existing laws and new regulations in order for the control functions be effective.

i) Archeological Preservation Area (Zone-I)

These areas are those set around the archeological assets that constitute the chief tourism objectives in each of the parks. Existing land use in these areas will be allowed to continue insofar as is consistent with the planning objectives.

ii) Tourism Facilities Area

These areas include auxiliary facility areas, local recreation areas, and inner road development areas. The following are a few evaluation criteria for site selection; accessibility from major roads; appropriate distance from the tourism assets for tourist use and preservation of such assets; avoidance of existing village areas; and, in the case of recreational areas, necessity for the land to be spacious, hitherto unused, and suitable for recreation.

iii) Village Areas

Included are residential, community, and commercial areas. A limited amount of village expansion is planned in consideration of the expected population growth.

It may be necessary to relocate existing community and commercial facilities regarding environmental beautification, road construction, and other factors.

iv) Agricultural Areas

Involving a variety of agricultural activities (rice cultivation predominant), these areas mainly consist of existing cultivated land.

4-5-2. PARK ROADS

4-5-2 (1). General

For the Borobudur and Prambanan Archeological Parks, a strong physical and visually impressive entrance corridor to the monuments is planned.

i) Borobudur

Borobudur, Pawon, and Mendut are said to have been originally connected by a covered passageway used for religious processions. Excavation up to now has revealed nothing about a lost "procession path"; although indications are strong that such a corridor may actually have existed. Even today, on the

birthday of Buddha, religious processions and rituals are performed by starting at Mendut, proceeding to Pawon, and on to Borobudur. Assuming that such an avenue did exist, reconstruction of this grand processional avenue is appropriate. This avenue will significantly add to the grandeur of the temples and will form a dynamic visual and spacious professional sequence climaxing at the Borobudur temple.

Presently, there is no spacious corridor sequence to the holy summit; no feeling of arriving at a magnificent monument. Instead, the tourist arrives at a parking area near the eastern edge of Borobudur and walks into a cluster of commercial food-stalls and souvenir shops. Commercial shops will be relocated at designated areas. Combustion engine vehicles will be prohibited within the processional corridor. This measure will keep the automobile from intruding upon the tranquility of the environment, giving the tourist an opportunity to observe the beauty and subtleties of Central Java's natural landscape and Borobudur's professional sequence from a horse and buggy, bicycle, or other form of nonpolluting conveyance.

ii) Prambanan

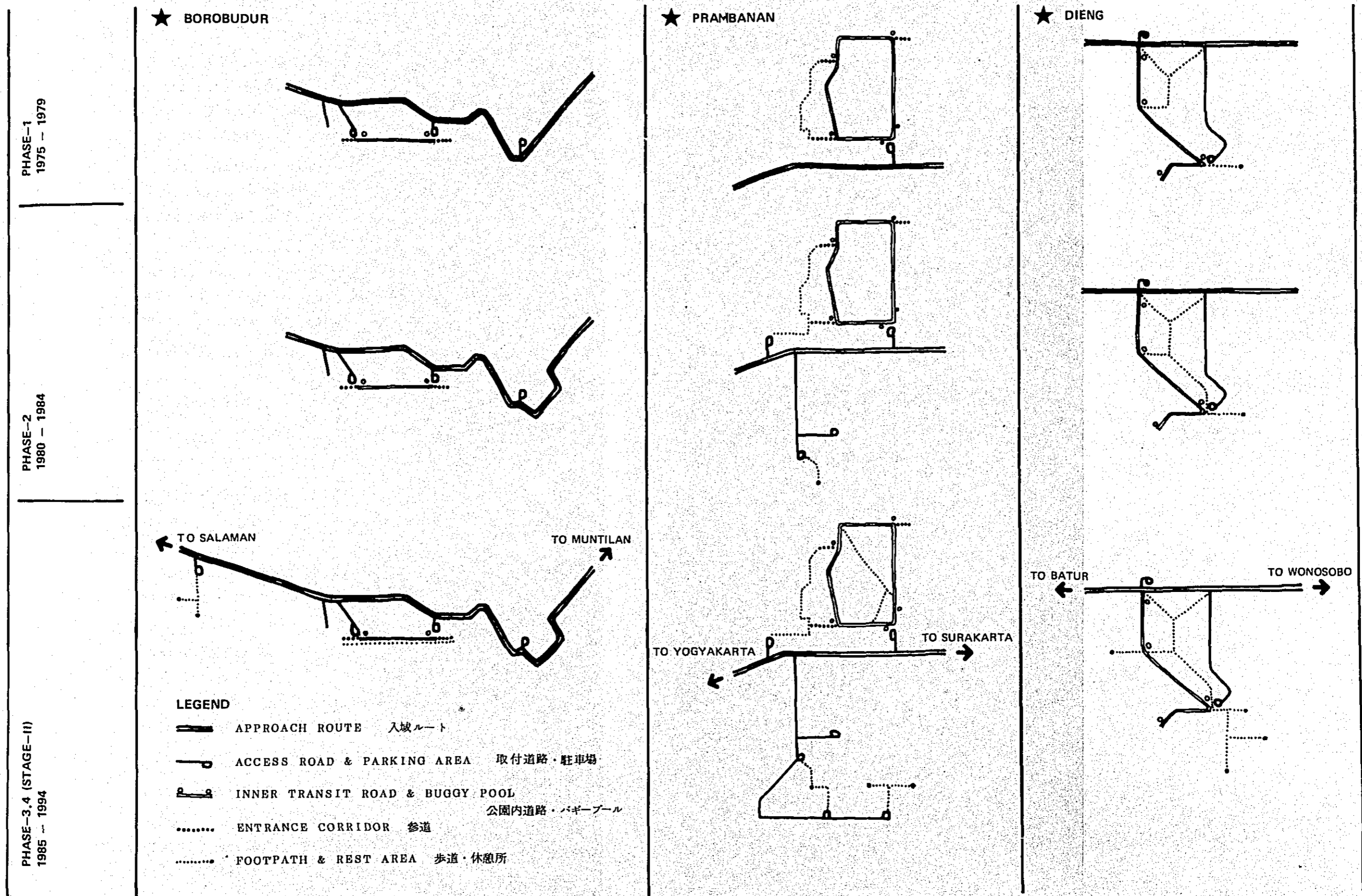
The parking area is presently located just south of Loro Jonggrang, and tourists enter the temple complex from that direction. The parking area will be relocated to the east. The excursion route between Loro Jonggrang, Candi Bobrok, Candi Sewu, and Candi Plaosan will use the existing road network, and similar to Borobudur, only nonpolluting conveyances will be allowed for tourist excursions.

iii) Dieng

Since activity areas are widely dispersed in this park, conventional means of transportation will be continued on the existing road network. Hiking and strolling paths will be expanded.

FIG. IV-7 PARK ROAD NETWORK PLAN

図4-7 公園道路ネットワークプラン



4-5-2 (2). Inventory of Park Roads and Off-road Traffic Facilities

i) Roads

- a) Approach route -- main road from other areas; principally national or provincial roads; realignment or new construction will be undertaken within the context of road projects.
- b) Access roads -- roads leading from approach roads to tourism facilities areas; suitable for taxis, buses, and other primary means of road transportation.
- c) Inner transit roads -- roads linking various tourist assets and facilities within parks for tourist excursions; confined to such secondary means of road transportation as buggies, becaks and bicycles.
- d) Entrance corridors -- roads leading from the inner transit roads to the various archeological monuments; only walking permissible.
- e) Footpaths -- Some existing roads will be used for tourist footpaths.

ii) Off-road Traffic Facilities

a) Parking areas

These facilities are to be located only off the access roads for closing off the primary means of tourist transportation.

b) Buggy pools

These facilities are to be located near the vicinity of the archeological assets and in various tourism facilities areas as a secondary means of tourist transportation.

4-5-2 (3). Park Road Network Plan

The following considerations were made for the park road network:

- o Providing a range in choice of routes for various types of tourist activities.

- o Avoiding impairment of the archeological environment and existing agriculture
- o Avoiding detriment to local activities on and alongside existing roads
- o Appropriate measures will be taken with respect to existing roads into the parks from approach routes, for which free entry must be denied air-polluting vehicles.

4-5-3. LANDSCAPE

The landscape may be categorized as resource-based, as for example, flood plains, wildlife habitats, agricultural land, marsh area, etc., or based on social concepts, such as scenic areas, cultural and historical areas, etc.. Resource-based categories are generally subject to slow change, except changes in terms of fire, earthquake or man's activities in reshaping the landscape. Social concepts are subject to much faster changes. The projected landscape plan brings these two categories together as they are understood at the present time.

i) The Agricultural Landscape

As stated in Regional Environmental Conditions, the agricultural landscape is a beautiful, cultivated garden, and this garden should remain as the basic environmental resource in the archeological parks.

Plans to decorate the parks with flower gardens, strolling gardens, i.e. conventional park designs, have been discouraged, because they would merely be meaningless decorative design and would replace valuable agricultural land.

ii) Recreational Space

During a 20-year time span, pressure for recreational open space will be great.

Urbanism and suburban growth and congestion will create conditions where the urban populace will seek and need a natural landscape to retreat to.

This impact could be incorporated into the archeological park

schemes in conjunction with urban open space programs. The Dieng archeological park plan is heavily oriented for resorts and recreational use.

iii) Archeological Monument

Firm landscape design concepts around the monuments will evolve as area ideas develop. Development of area order, opening or closing of viewing corridors, direction of visual perception and so on should be organized in the landscape. The selection of vegetation and trees should define, direct, and give emotional depth to the landscape. The existing trees immediately around the archeological monument which degrade their form or texture, or which block viewing corridors, should be removed if the trees have no archeological or religious significance.

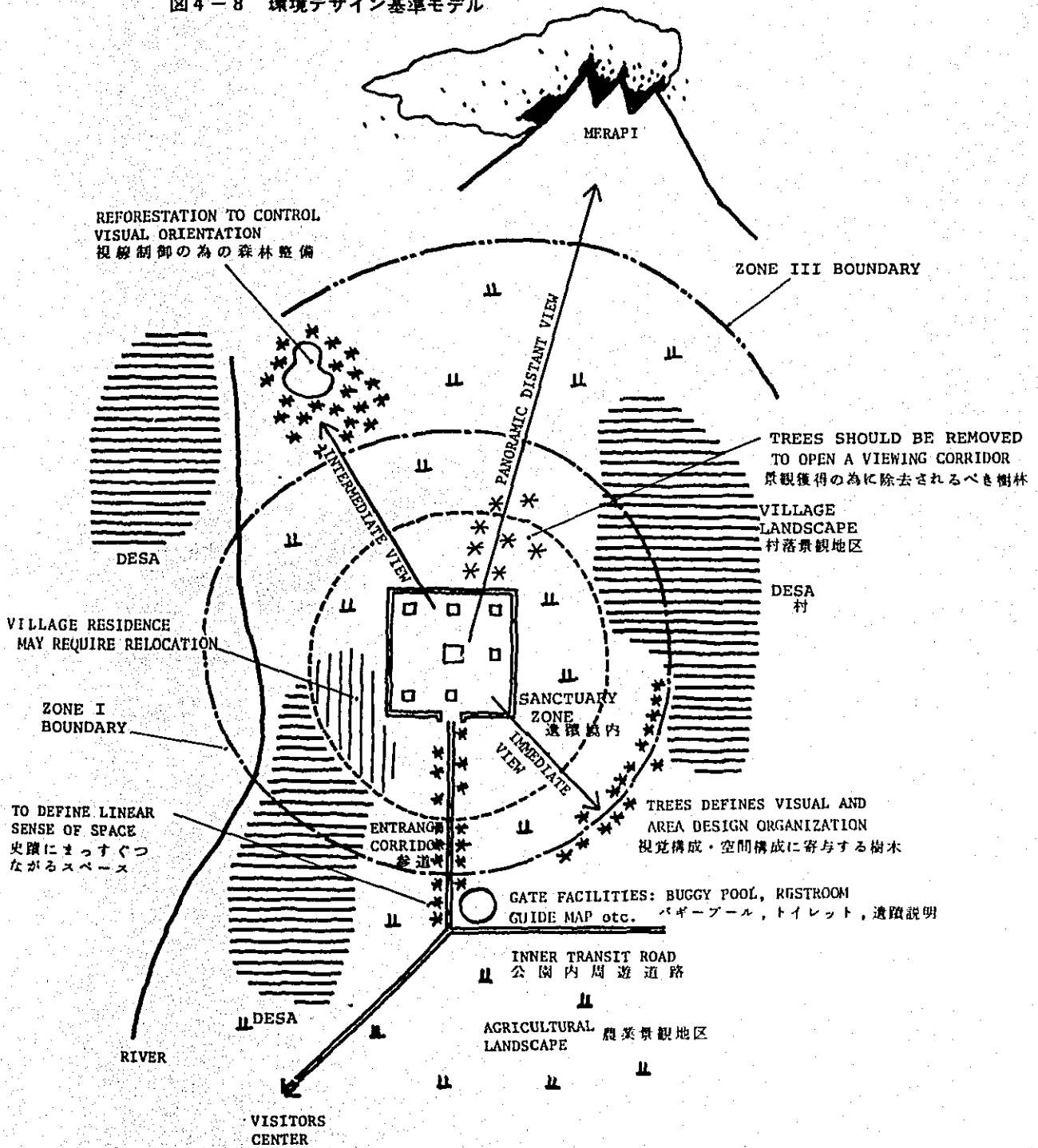
iv) Roads

The entrance corridor should be tree-lined to heighten the linear sense of space and to create a grand processional sequence route to a monument.

v) Tourism Facilities

The landscaping program around these areas should be organized to define and regulate area order and to create a leisurely, restful environment. Planting plans should harmonize with the existing environmental scene and planting guide lines should be taken from typical planting motifs.

FIG. IV-8 MODEL OF ENVIRONMENTAL DESIGN CRITERIA
 図4-8 環境デザイン基準モデル



SKETCH: BOROBUDUR ARCHEOLOGICAL PARK

スケッチ：ボルブドール史跡公園



ENTRANCE CORRIDOR

VISITORS CENTER

SANCTUARY

ARCHEOLOGICAL MONUMENT

4-5-4. SUPERSTRUCTURE

4-5-4 (1). Facility Layout

The facilities can be classified into the following groups from the viewpoint of their layout.

i) Visitors' Center

This Center will be the first one visited by tourists when they arrive at the archeological park. Accordingly, it must contain a tourist information facility. It will also house other amenity facilities and the park's various administrative facilities.

ii) Recreation Center

This Center will include various recreational facilities to meet the expected increase in the number of recreationists in the region. These facilities will vary from park to park.

iii) Research Center

This Center will consist of an archeological research center, a cultural research center, and nearby facilities for exhibiting the results of the research.

iv) Village Center

This Center will serve the villages in the archeological park and nearby which are affected by the park development. Thus, its facilities will have to consider existing village activities. To facilitate agricultural activities, for instance, it should have a farm produce shipment center and warehouses. Also worthy of consideration is moving bazaars here when it is necessary to relocate them.

4-5-4 (2). Architecture

The architectural design must consider both the general features of buildings in tropical tourist areas and the particular features of such buildings; i.e., those reflecting the uniqueness of the particular locality.

i) Tropical Architecture

Features of tropical architecture include deep eaves, steep-pitched roofs, high ceilings, and elevated floors, for protection from the natural elements. Easily obtainable local materials are used for building materials, and simple construction method based on local building skills are employed.

ii) Javanese Space and Design

The following describes certain features of Javanese space and design:

Building sites are surrounded by groves of many different kinds of trees (mainly coconut trees), and these groves are combined with others to comprise forests in this area.

A typical residential unit is composed of two to three buildings, the main one invariably having an open corridor in front.

The outdoor space enclosed by these buildings is used for work areas and children's playgrounds. Main features of the buildings are the kinked roof slopes and the orange tiles. The contrast of this orange color with the green of the surrounding trees is an impressive scenic element of the environment.

iii) Architectural Design Criteria

Design solutions developed by the inhabitants of tropical areas in the course of their long history should be applied to this building project.

The design must incorporate "local flavor" to be appreciated by foreign visitors. For the safety and health of the tourists, modern equipment and materials should be used; nevertheless, local materials, and local structural techniques and building skills should be adapted wherever possible.

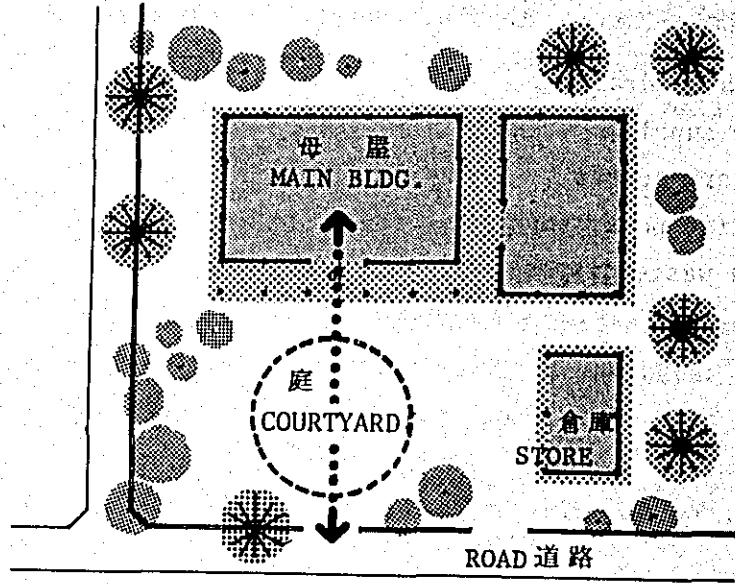
4-5-5. PUBLIC UTILITIES

An optimum utility system for the archeological parks has been attained through the study of various alternatives on the basis of an analysis of the existing state of the park infrastructures.

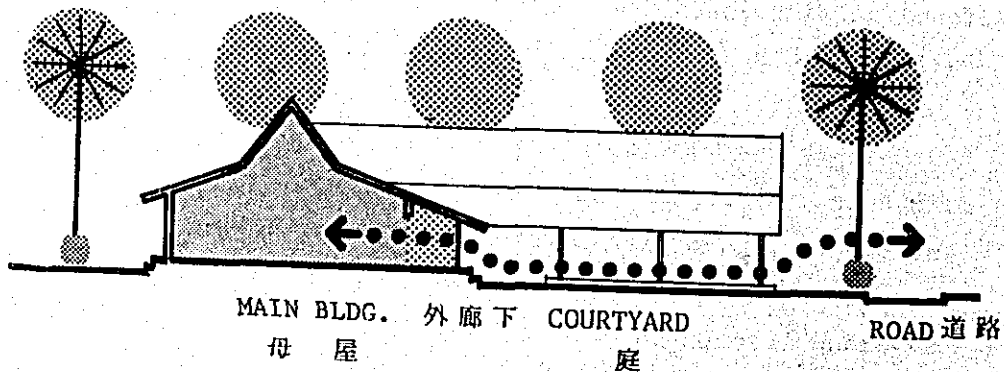
- o Rainwater drainage
- o Water supply
- o Sanitary sewers
- o Electric power supply
- o Solid waste disposal

FIG. IV-9 TYPICAL JAVANESE HOUSING UNIT

図 4 - 9 ジャワ風住居



HORIZONTAL SECTION
平面图



VERTICAL SECTION
断面图

TABLE IV-4. FACILITY LIST BY PHASE

Phase	Borobudur				Prambanan				Dieng			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
Visitors Center												
Administration Office	○				○				○			
Tourist Information Office	○		△		○		△		○		△	
Souvenir Shop		○	△			○	△				○	
Restaurant	○		△		○		△				△	
Coffee Shop		○	△			○	△		○		○	
Gate Facilities of Monument												
Gate Office	○				○							
Public Toilet	○				○				○			
Workshop		○				○	△		○			
Research Center												
Archeological Research Laboratory				○	○							○
Museum		○										
Cultural Research Lab. (Dance Music School)								○				
Theater						○						
Recreation Center												
Observatory Terrace				○		○						○
Recreational Facilities				○				○	○		△	
Local Accommodation Facility				○								○
Village Center												
Community Facilities	○				○							
Agriculture Center				○				○				○

Mark ○ indicates new constructed facilities and mark △ indicates facility extensions.

TABLE IV-5. AREA LIST OF FACILITIES

	Borobudur		Prambanan		Dieng	
Visitors' Center	<u>4,500</u>	1,100m ²	<u>4,500</u>	1,100m ²	<u>1,500</u>	350m ²
- Administration Office		300		300		50
- Information Office		150		150		100
- Amenity Facilities		650		650		200
Gate Facilities	2,500	500	<u>1,500</u>	300	<u>600</u>	100
Research Center	<u>4,000</u>	800	<u>4,000</u>	550		--
- Archeological Research Laboratory		500		200		--
- Museum		300		--		--
- Theater		--	<u>3,000</u>	350		--
Recreation Center		--	<u>1,000</u>	500		--
- Observatory Terrace		--	<u>1,000</u>	50		--
Village Center	<u>5,000</u>	1,200	<u>12,500</u>	3,000		--
- Relocation of Passar		1,200		3,000		--

NOTES: • This list shows the building floor areas and site areas of the facilities required in Stage-I.

• The underscored figures indicate the site areas for facilities.

4-6. TECHNICAL NOTES

This is a study of the physical solutions mentioned before from the engineering standpoint.

4-6-1. STORMWATER

Special protection will be provided in the site where erosion by rain may take place, and a drainage canal will be built in the site where rainwater may flow in. It is desirable to design the drainage system through using rainfall intensity computed by 1/5-year probability rainfall.

$$r = \frac{895.69}{t^{\frac{2}{3}} - 3.721}$$

It is necessary to plan a drainage system which permits drain to spontaneously flow into the river at the flood water level. It is important to examine the past record of flooding and to determine the relation between the rainfall and the discharge rate, when the designed high river water level is estimated. For this purpose, it will be necessary to conduct further detailed river survey and to study the flood protection works. Sand arrestation being contemplated includes tree planting, earth retaining, and river bed protection.

4-6-2. WATER SUPPLY

Since Prambanan and Dieng are presumed high potential areas for underground water, and Borobudur's a mean potential area, wells may be used to advantage as a water source. Water will be cleaned by a compact cleaning system (rapid filtration). Depending on the site, installation of a relay pump may be necessary to ensure a smooth flow of water.

The future water demands on the archeological park plan are estimated after considering the safety allowance consumption and rotation for these facilities which include the tourist information center, restaurants, and souvenir shops.

(m³/day)

	1980	1985	1990	1995
Prambanan	40	40	40	40
Borobudur	40	40	40	40
Dieng	10	10	10	10

4-6-3. WASTE WATER

A separate system will be employed for waste from rainfall and sewage. Rainwater will be flushed into irrigation canals or rivers through open ditches; on the other hand, sanitary-treated sewage can be flowed into irrigation canals.

Waste water quality is as follows:

Sewage before treatment BOD 260 PPM

Sewage after treatment BOD 90 PPM

The discharge rate of waste water is assumed to be 80% of the inflow.

(m³/day)

	1980	1985	1990	1995
Prambanan	32	32	32	32
Borobudur	32	32	32	32
Dieng	10	10	10	10

4-6-4. ELECTRIC POWER

i) Power Supply System

A loop feeder which extends from a diesel power plant to service areas at a voltage of 6 KV will be adopted, pending the completion of a loop during future expansion. Since this loop feeder system is highly reliable, it has been adopted in many applications. Electric power can be obtained from either end of the loop feeder line; thus, should an accident occur at any point, the entire power distribution system remains unaffected. (Refer to FIG. IV-12).

ii) Power Plant

A diesel engine generator (capacity mentioned later) will be installed in each archeological park, and an appropriately sized building will be constructed to house the generator and ancillary facilities.

iii) Transformer Station

Electric power carried to the substation or unit distributor installed at the nearest point to the respective service areas at a voltage of 6 KV will be reduced to 380/220 volts for the purpose of distribution. Since the unit distributor is mainly intended for supplying power to outdoor lights, it will be installed outdoors.

iv) Wiring Method

Wiring will be installed by using underground cables as far as practicable to minimize the effect on the environment; the cables will run through ducts laid underground.

v) Outdoor Lighting

The streets and promenades will be lined with street lights; area lights will be installed in parking areas and buggy pools.

vi) Alternative Plans for the Power Supply System

The following two alternative plans of power supply can be considered for the respective archeological parks:

1. Each park will have an independent diesel generator.
2. Electric power will be obtained from the city line of PLN.

Plan No. 1 is more recommendable because it provides a more reliable power supply system and also is more economical.

Plan No. 2 will not become feasible unless the power plant in Yogyakarta has excess generation capacity and variations in voltage are eliminated.

LOAD AND GENERATOR CAPACITY

		Prambanan	Borobudur	Dieng
Load	1980	69.7 KVA	56.7 KVA	21.7 KVA
	1985	37.1 KVA	16.6 KVA	3.6 KVA
Generator	1980	1 - 75 KVA 1 - 50 KVA	1 - 50 KVA 1 - 25 KVA	1 - 20 KVA 1 - 10 KVA
	1985	-	-	-

4-6-5. TELECOMMUNICATIONS

Telephone service lines will be extended to Prambanan and Borobudur Parks from the Yogyakarta telephone exchange; Dieng will be connected to the nearest line to establish communications with the Yogyakarta telephone exchange.

Telephone cables will be laid in underground ducts in the archeological parks as in the case of electric power distribution.

DEMAND FOR TELEPHONE LINES

	Prambanan	Borobudur	Dieng
1980	20	19	6
1985	12	7	4

4-6-6. SOLID WASTE DISPOSAL

Three points -- i) collection, ii) disposal, and iii) waste residue -- must be considered in this study.

Basic condition for study

Types of solid waste

Kitchen waste, paper waste, fallen leaves, hazardous waste, and others

Total amount of solid waste (in 1985)

Borobudur Park 5 - 6 t/day

Prambanan Park 6 - 7 t/day

Dieng Park 2 - 3 t/day

i) Collection of Solid Waste

By truck

ii) Waste Disposal

o Alternatives

Sanitary land-fill

Incineration

We proposed an incineration system, taking into consideration the small amounts of waste. The sanitary land-fill system could cause many problems at this time; i.e. a generation of harmful insects and disease germs, contamination of underground water, or other hazards.

iii) Waste Residue

We propose sanitary land-fill in an ash dumping ground if a suitable site can be found. (Refer FIG. IV-13)

4-7. GUIDELINES FOR ZONING REGULATIONS

4-7-1. GENERAL

As a means by which the government may implement land use prescribed by a plan, zoning is perhaps the oldest form of implementation tool we have. It is a means of protecting the public from private enterprise, although there are deficiencies in zoning regulations because of oversimplification of zones for the complexities of community organization, and its failure to recognize social structure and inherent physical characteristics of the land.

To use the zoning tool more efficiently, the OTCA Team has endeavored to make planning decisions reflecting actual social and physical conditions, while understanding that the quality of the real physical environment cannot be predetermined or controlled by any amount of quantitative standards or restrictions. Therefore, zoning regulations should essentially be requirements for performance, and the most critical of performance requirements should be specific physical design plans.

The proposed zoning regulations contain restrictions when development is proposed in areas involving or affecting:

- 1) Scenic qualities
- 2) Historic and archeologic sites
- 3) Recreational sites
- 4) Local social structure and values
- 5) Public economy

4-7-2. ZONING PARAMETERS

The archeological parks will be divided into the following three zoning parameters.

Zone I

This area has the strongest impact on archeological monuments and their immediate surroundings. Monument sites should be purchased to protect and enhance the archeological monument environment.

Zone II

Like Zone I, the preservation and enhancement of this area is important. This zone may still contain many archeological remains. If remains are unearthed, the land should be purchased by the government for archeological survey and excavation.

Zone III

Zone III's regulation is aimed at restricting large-scaled development projects which would disrupt the view from the archeological monuments.

4-7-3. ZONING REGULATIONS (tentative)

The following will not be permitted without the approval of a government-sponsored committee.

Zone I

1. Constructing anew, reconstructing, or extending buildings or structures.
2. Alteration of the character or use of land such as land development.

3. Felling trees and bamboo.
4. Collecting archeological artifacts, soil, stones and the like.
5. Painting buildings and other structures.
6. Posting outdoor advertisements.
7. Other acts which are likely to unfavorably affect preservation of the archeological park.

Zone II

1. Items 2, 3, 4, 6, and 7 of Zone I, above.
2. Construction of a building or structure not in harmony or scale with the existing village composition.

Zone III

1. Construction of a building or structure which will visually affect preservation of the archeological park.
2. Alteration of mountain or volcano landscapes by grading.
3. Construction of any structure or infrastructure on the ridge of mountains or volcanoes, or which interferes with their natural ridge outline.
4. Item 7 of Zone I, above.

FIG.IV-10 WATER SUPPLY SYSTEM DIAGRAM
 図 4-10 水道システムダイアグラム

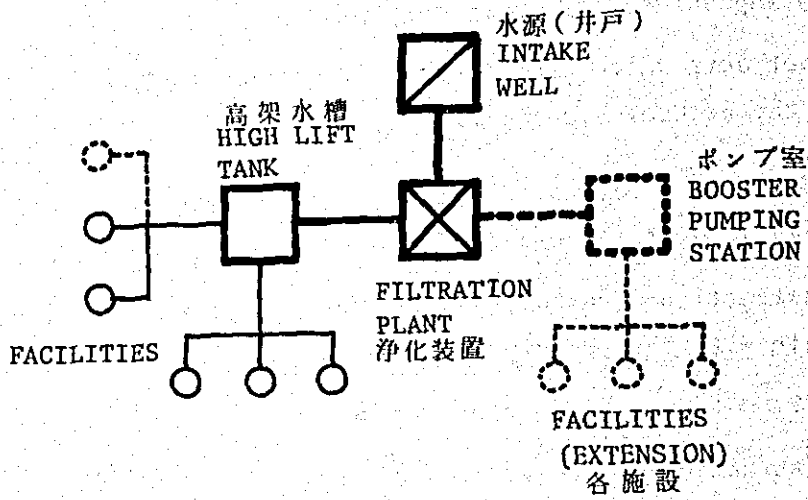


FIG.IV-11 SANITARY SEWER SYSTEM DIAGRAM
 図 4-11 衛生処理システムダイアグラム

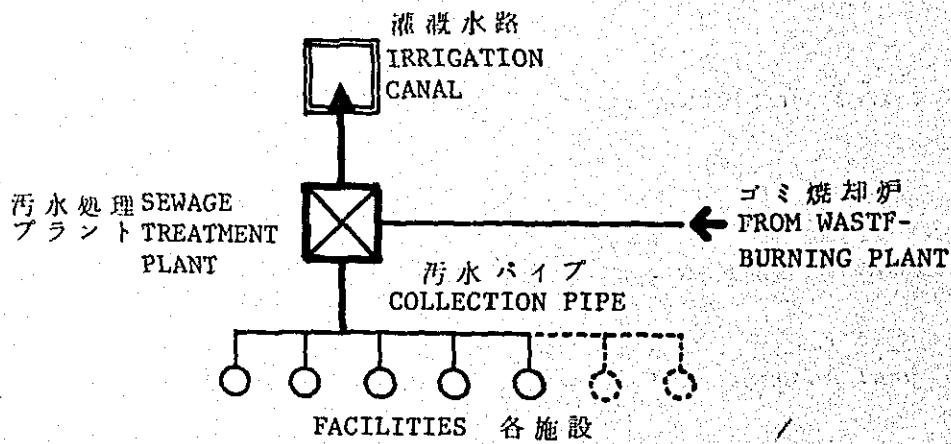


FIG.IV-12 ELECTRIC POWER SUPPLY SYSTEM DIAGRAM

図4-1-2 給電システムダイアグラム

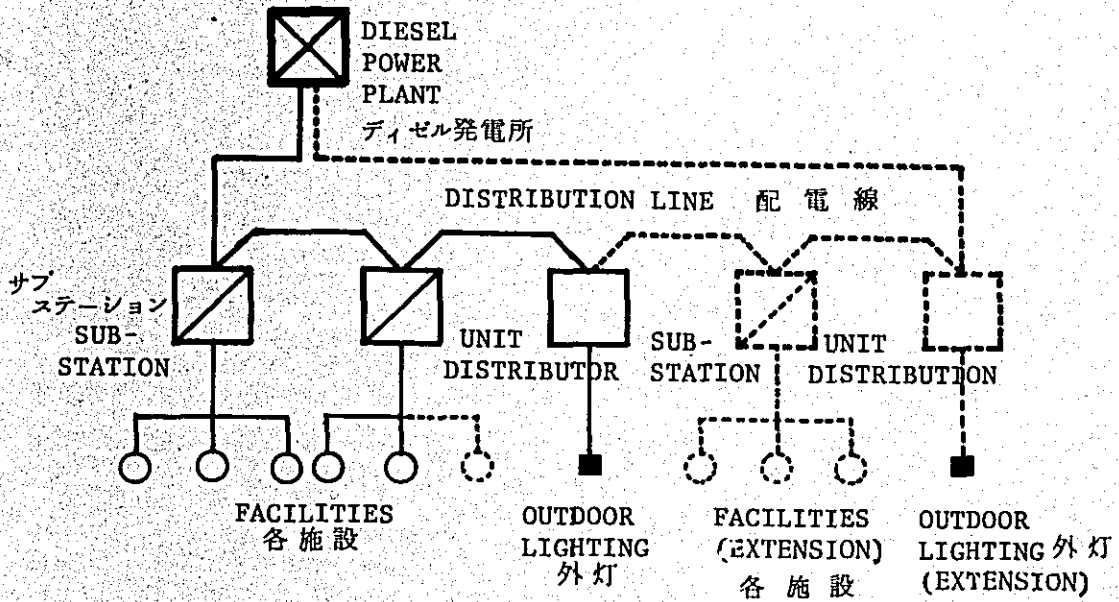
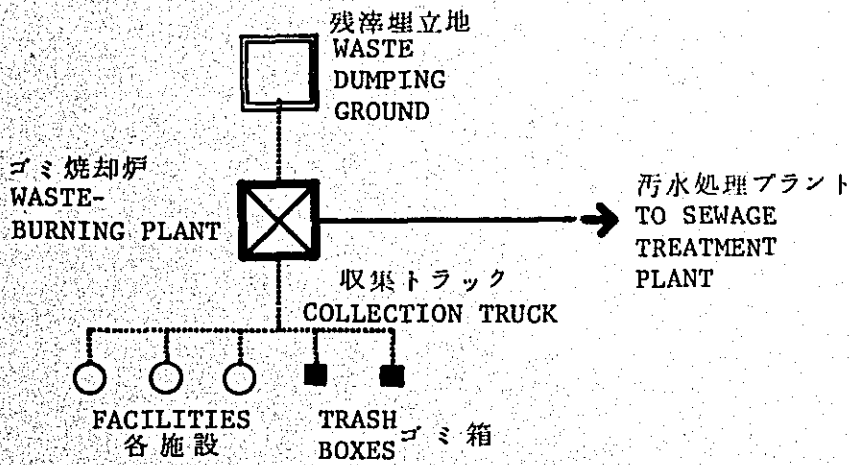


FIG.IV-13 SOLID WASTE DISPOSAL SYSTEM DIAGRAM

図4-1-3 ゴミ処理システムダイアグラム



CHAPTER V

RELATED PROJECTS

CHAPTER V. RELATED PROJECTS

5-1. TOURIST ACCOMMODATION CENTER PROJECT

5-1-1. PROJECT OUTLINE

5-1-1 (1). General

The following items will serve as the framework for site planning.

a) Site Location

Refer to Chapter III, 3-5-2.

b) Scale

The scale of the Accommodation Center both as a physical environmental unit and as an economic unit must be determined on the basis of tourist inflow projections. Also, the scale of development should be kept as small as possible to avoid infringing on environmental standards and development density.

c) Composition

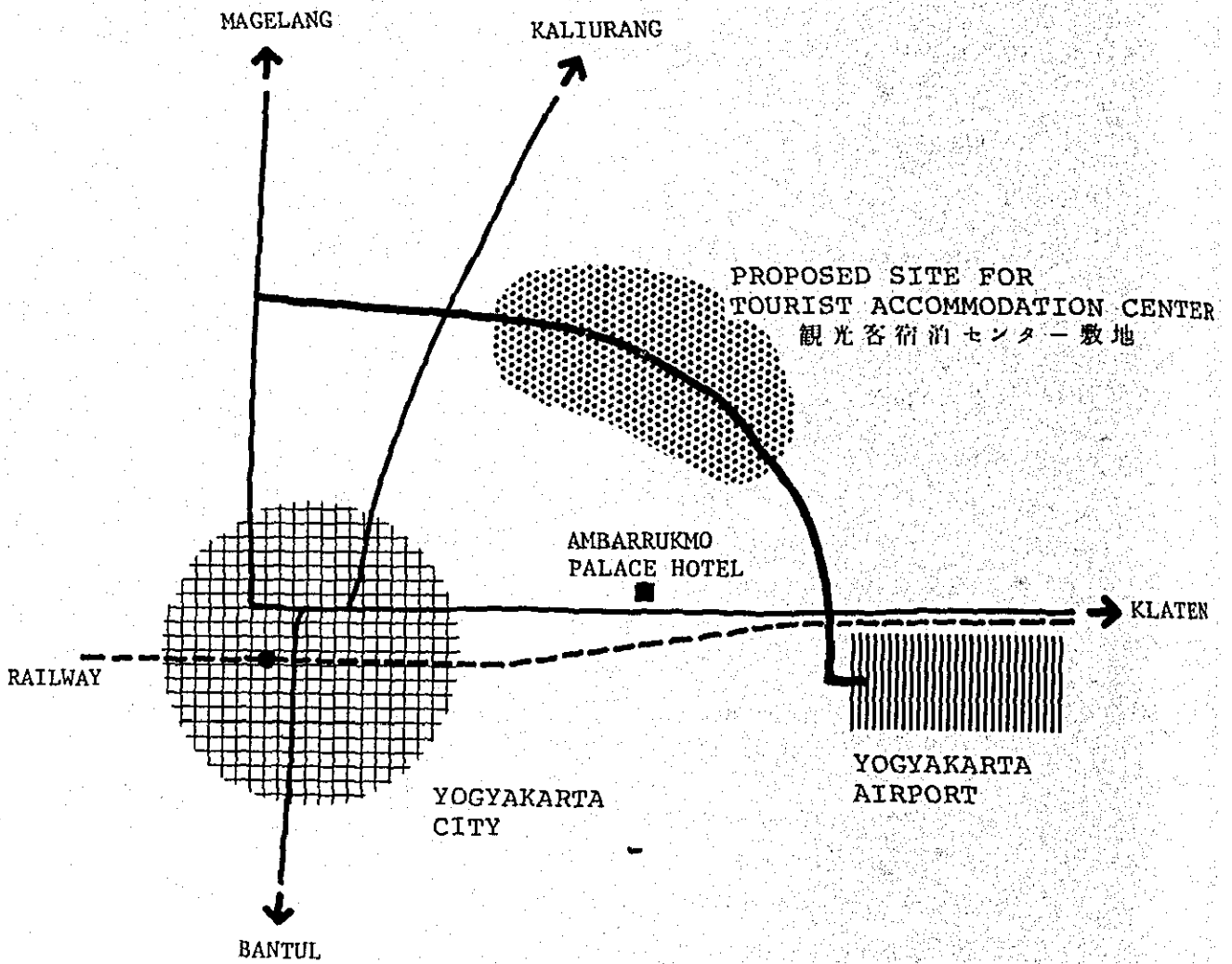
The composition of the project must meet the needs of tourists and harmonize with the surrounding villages; and the development environment must provide incentives to hotel investors.

5-1-1 (2). Description of Project

The project will probably be located near the intersection of the Yogyakarta by-pass and the Kaliurang Road, about 5 kilometers northeast of Yogyakarta City. (Refer FIG.V-1)

FIG. V-1 SITE LOCATION MAP

図 5 - 1 サイトロケーション



The project will consist of both deluxe-standard and economy-standard hotels, with a total capacity of 1,450 rooms in Stage-I and another 500 rooms to be added in Stage-II, totaling 1,950 rooms. In Stage-I this will represent the entire deluxe-standard and economy-standard hotel capacity in the region. In Stage-II it will represent 80%, the remaining 20% being appropriately distributed in the core towns and outlying areas, since the local-standard hotels will be in both stages.

The following table is a detailed account of the hotel capacity.

TABLE V-1 HOTEL CONSTRUCTION PROGRAM

Location	Standard	1975-79	1980-84	1985-1989	1990-1994
Tourist Accommodation Center	Deluxe	350	100 (450)	100 (550)	(550)
	Economy	800	200 (1000)	200 (1200)	200 (1400)
	Total	1150	300 (1450)	300 (1750)	200 (1950)
Other places	Deluxe	-	-	100	(100)
	Economy	-	-	300	300 (600)
	Total	-	-	400	300 (700)

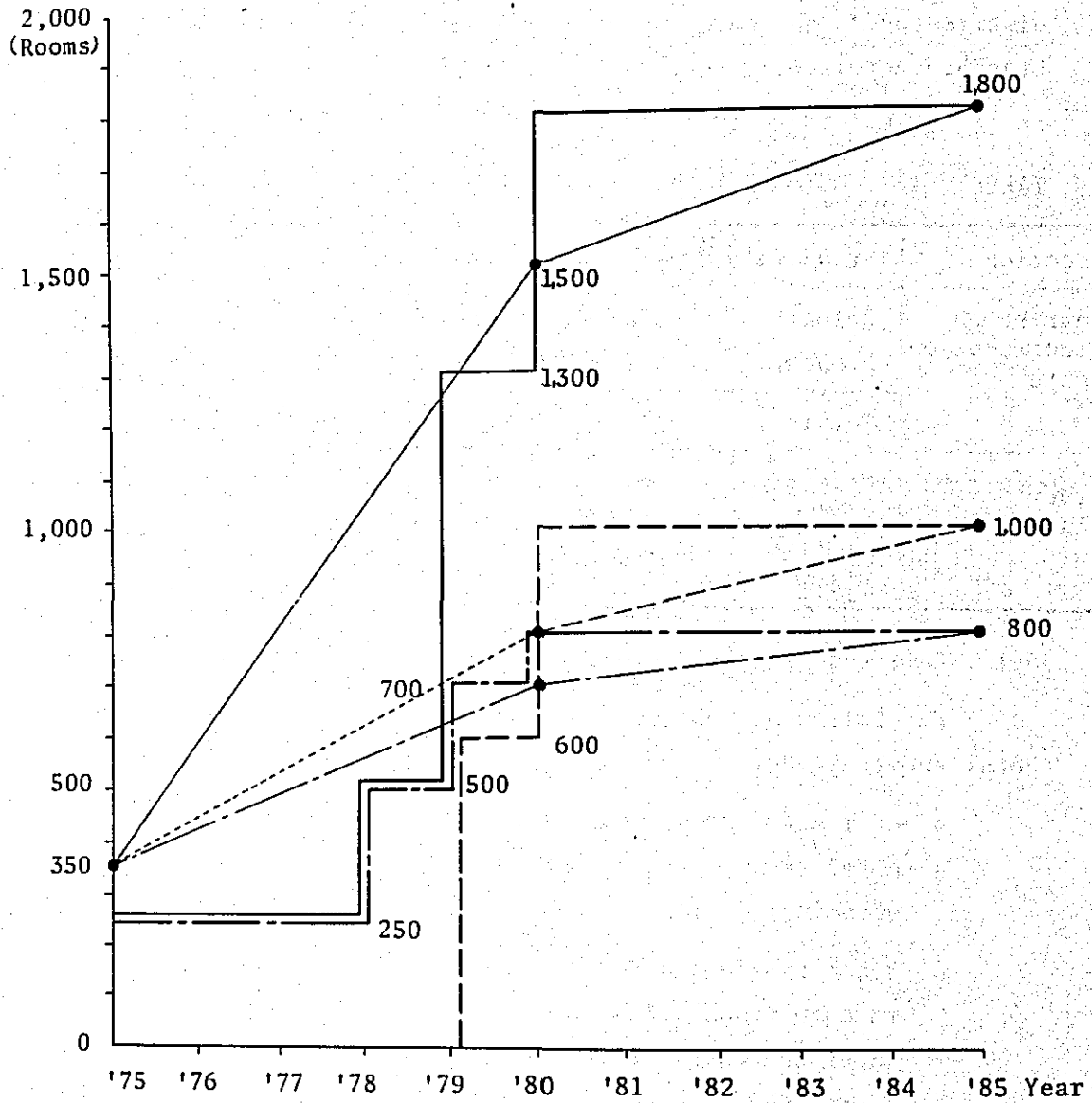
5-1-1 (3). Hotel Supply Program

The following considerations were taken into account in the hotel supply study.

- o At least four(4) years will be required before the first hotel can be opened, considering the time required for planning, design, engineering, and construction.
- o Since the demand for hotels is too low during Phase-II in comparison with Phase-I, all infrastructures and common superstructures required in Stage-I should be developed during Phase-I, considering the economic efficiency of the construction.
- o The hotels required in Stage-I should be constructed within two years of completion of the infrastructure and superstructures to attain maximum effectiveness of the investment.

Graph V-1 indicates the correlation between hotel supply and hotel demand.

GRAPH V-1 CORRELATION BETWEEN HOTEL SUPPLY AND DEMAND
 グラフ5-1 ホテル供給及び需要関連



HOTEL SUPPLY
 ——— TOTAL
 - - - - DELUXE
 - - - - ECONOMY

HOTEL DEMAND
 ——— TOTAL
 - - - - DELUXE
 - - - - ECONOMY

5-1-1 (4). Site Selection

On selecting the site in the detailed planning stage, it is necessary that the analyses below be made on the basis of a sociological survey and a site and building survey. A comparative study must be made of various available sites, with major emphasis being placed on the landscape and the cultural ecological pattern.

- a) Existing land use analysis
- b) Micro-ecological analysis
- c) Existing transportation network analysis
- d) Land ownership analysis
- e) Visual analysis
- f) Topographical analysis
- g) Existing utility network analysis

5-1-1 (5). Area Composition

The area composition of the tourist accommodation center will be determined by the following two elements.

- i) Whether or not it has a core

In deciding whether each hotel in the hotel complex should be self-contained (i.e., have its own public function) or whether there should be an independent amenity core, it must be remembered that the existence of a core would make the resort environment of the complex more organic and allow comparatively smaller hotels in the complex to dispense with the burden of having their own public function, although the scale of public investment would increase somewhat.

- ii) Shape of the Development Area

From the viewpoint of construction cost, operation cost, and operation convenience, the superbloc type would be the best. The trouble is, however, that the existing high-density land-use pattern would make the acquisitions of such a site rather difficult. The cluster type, on the other hand, would fit in well with the site conditions; i.e. site acquisition possibilities, compatibility with the surrounding pattern of land-use, and so on. In any case, site planning will have

to be very detailed to achieve the optimum objective.

iii) In the detailed planning stage it will be necessary to make a comparative study of detailed alternative proposals. Here we can only tentatively establish the following two conditions as a framework for the site planning study:

- a) That a tourist accommodation center have only common auxiliary facilities and no commercial facilities, Yogyakarta providing the functions that an amenity core would otherwise provide.
- b) That the site selection be oriented toward the cluster type, with the land-use pattern being organically related to that of the surrounding villages.

5-1-1 (6). Land Use System

The site control system and the site development system dealt with in Chapter IV on the archeological parks will apply to this project as well.

The site control system will involve the following type of zoning:

i) Zone-I

This zone will include the hotel sites, auxiliary facility sites, open spaces, and so on. It will be subject to density and height controls and to other subdivisional controls.

ii) Zone-II

This zone, surrounding Zone-I, will embrace nearby villages and farm fields, and will be subject to controls against tourism facilities possibly sprawling out.

The site development system is discussed in 5-1-2.

FIG. V-2 SPACE COMPOSITION

図 5 - 2 空間構成

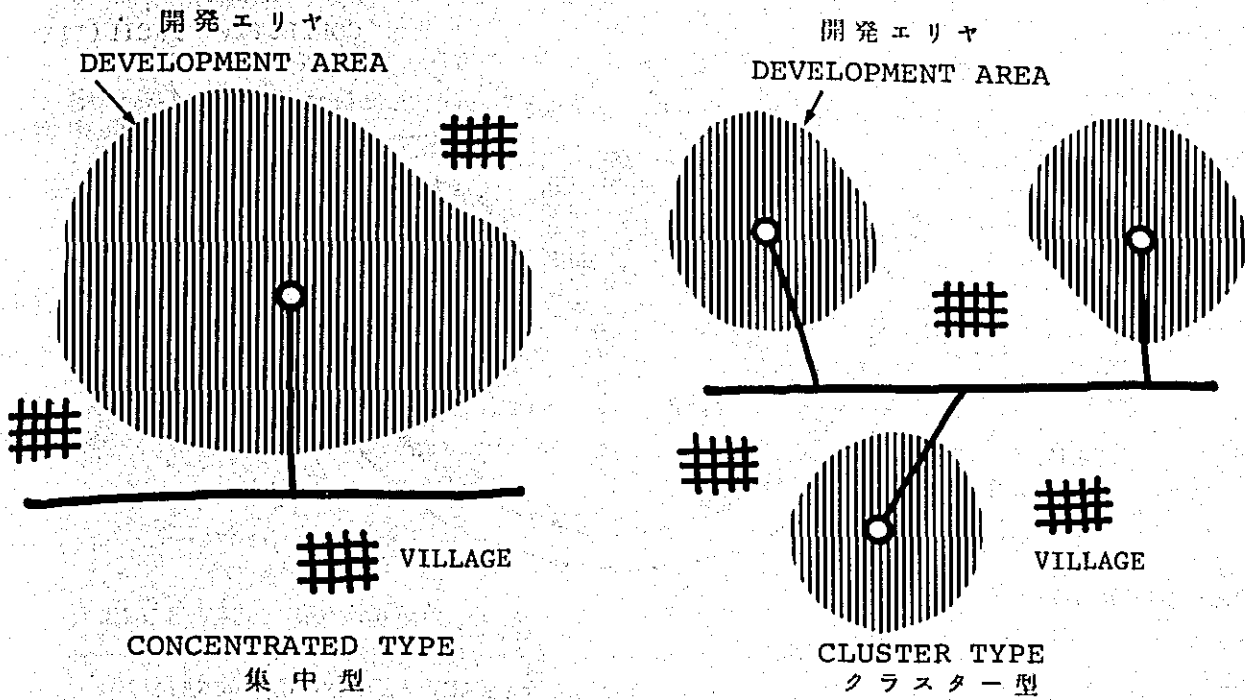


FIG. V-3 PROPOSED DEVELOPMENT TYPE

図 5 - 3 開発タイプ

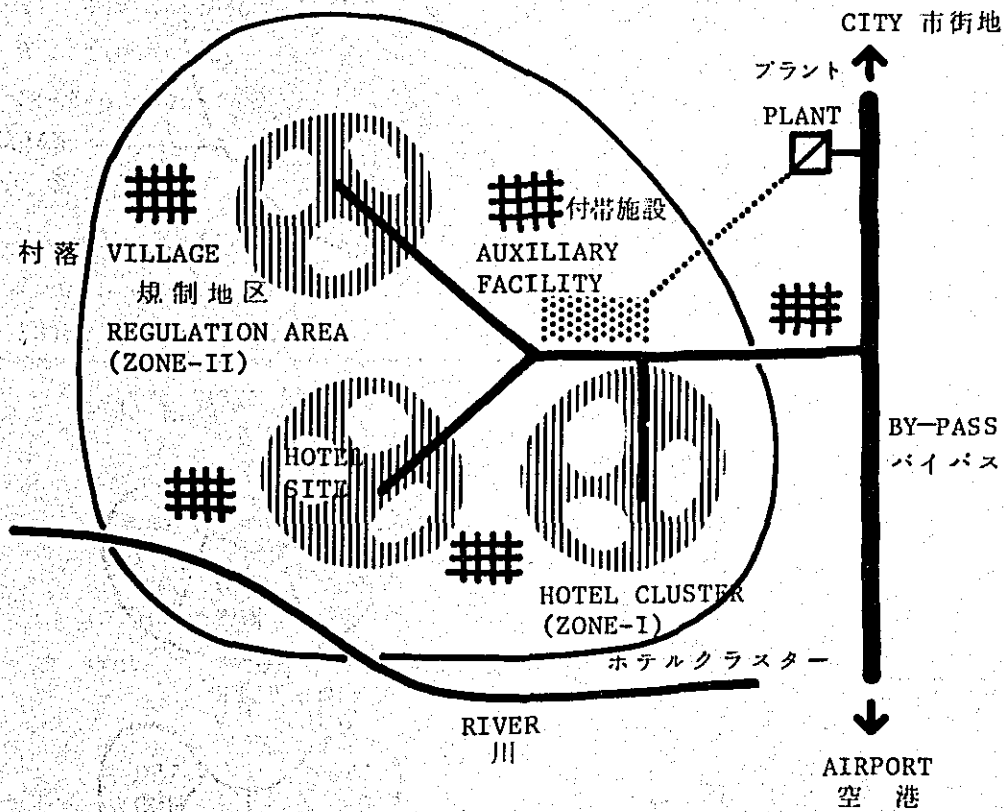


FIG. V-4 HOTEL CLUSTER SYSTEM

図 5 - 4 クラスタースステム

LAND USE SYSTEM

土地利用システム

BUILDABLE AREA
建築エリア

BUFFER GREEN ZONE
調整緑地地区

HOTEL DEVELOPMENT BOUNDARY
ホテル開発地域

PRESERVATION OF EXISTING TREE
既存保護林

GATE PARK AND/OR COLLECTIVE FACILITIES IF NECESSARY
ゲートパーク必要施設集中地区

SETBACK LINE AND PROTECTING GREEN ZONE
建築後退線及び保全緑地

TRANSPORTATION SYSTEM

交通システム

バギープール
BUGGY POOL

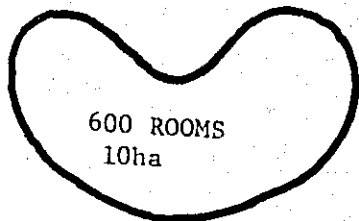
TO AUXILIARY FACILITY AREA
附帯施設地区

INNER DISTRIBUTOR
域内交通網

WALKWAY
散策路

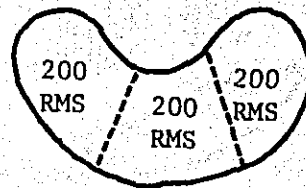
SUBDIVISION SYSTEM

PROTO TYPE



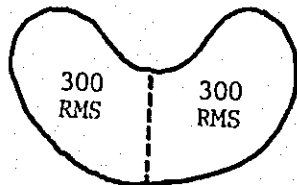
3-LOTS TYPE

3 敷地タイプ



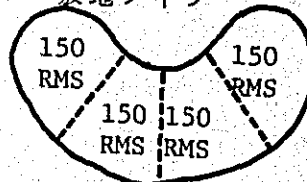
2-LOTS TYPE

2 敷地タイプ



4-LOTS TYPE

4 敷地タイプ



5-1-2. GUIDELINES FOR SITE PLANNING

This section is comprised of a hotel-type study, a determination of the space required for the tourist accommodation center, and a proposal for the site development system in terms of its components.

5-1-2 (1). Hotel-type Study

Here the following three aspects of the hotel type are considered: hotel standard, hotel scale, and building type.

i) Hotel Standard

The following list shows the differences from a physical standpoint between the deluxe-standard hotel and the economy-standard hotel.

TABLE V-2 COMPARISON OF HOTEL TYPE

	Deluxe-Standard	Economy-Standard
Guest floor area (m ² /rm)	50	42
Public floor area (m ² /rm)	20	18
Auxiliary facility		
Restaurant	2 - 3	1 - 2
Coffee shop	1 - 2	1
Bar	1 - 2	1
Night Club	1	0
Shopping mall	Large	Small
Tennis court	2 - 3	1
Swimming pool	1 - 2	1

ii) Hotel Scale

Here the hotel scale will be expressed in terms of the number of rooms. Although the final decision on scale is made by the investor, we suggest the following three grades as being suitable for resort hotels in a tropical tourism area. The size of existing hotels has been taken into account.

Grade 1	350 rooms
Grade 2	200 rooms
Grade 3	100 rooms

Considering the different investor objectives, these figures can vary by 20%.

It should be noted that these figures are tentative since they will require such action as interviews with various hotel investors.

iii) Building Type

What the OTCA Team implies by building type here is the number of stories. Considering the land-use policy already discussed, the site conditions of the accommodation center, and other relevant factors, the buildings should be no more than six stories. Within this range, the building type can be differentiated into the 4 to 6-story type from the 2- to 3-story type, the former requiring elevator service.

The standards in the following list were derived in the course of this hotel-type study as being necessarily applicable to all of the possible types obtained by taking one of the choices given in each aspect and combining the three.

TABLE V-3 STANDARDS FOR HOTEL TYPE

	Net Density	Lot Coverage Ratio	Floor Area Ratio	Max. Height of Bldgs.
Deluxe Standard	50 Rms (per hectars)	25%	5	25.0 M
Economy Standard	70 Rms (per hectars)	25%	5	25.0 M

These standards will also serve as site subdivision standards together with the setback lines. In establishing them, it will also be necessary to make various detailed studies, including a visual analysis and a site condition analysis.

5-1-2 (2). Amount of Land Required for Tourist Accommodation Center

The following figures on area have been calculated on the basis of the hotel projection and area composition previously described, plus the standards in item 5-1-2 (1), above.

TABLE V-4 LAND REQUIRED FOR TOURIST ACCOMMODATION CENTER

	1975-79	1980-84	1985-89	1990-94
i) Net area (hectares)	18.5	5 (23.5)	5 (28.5)	3 (31.5)
ii) Gross area (hectares)	46.5	12.5 (59.0)	12.5 (71.5)	7.5 (79.0)

It has been assumed that the ratio of net to gross is 1:2.5.

5-1-2 (3). Site Development System

The site development system consists of the following components:

i) Land-use

The following land-use pattern has been chosen for Zone-I as referred to in Chapter V., 5-1-1 (6).

- a) Hotel sites area 40%
- b) Auxiliary facilities area 20%
(Common public facilities such as development corporation offices, excursion bus terminal, and utility facilities)
- c) Open space 28%
(Recreational open space and green buffer areas)
- d) Paved area 12%
(Roads and minor parking areas)

ii) Other Components

a) Transportation Network System:

Approach road from the Yogyakarta By-pass;
A main artery within the area from which access roads lead off to the individual hotels, and minor roads within the area for nonvehicular traffic.

b) Landscape

A study has been made of the following two kinds of landscaping as important elements in the creation of the environment of the tourism accommodation center:

- o Area landscaping (particularly planting and lighting plans for open spaces);
- o Roadside landscaping (particularly planting, lighting, signs, and other plans based on the above transportation network, and in which consideration has been given to a pleasant atmosphere and safety).

c) Superstructure

The following common facilities are considered necessary for the tourist accommodation center:

- o Administration Office
- o Tourist Information Center
- o Tourist Agency Offices*
- o Bank & Insurance Facility*
- o Restaurant, Coffee Shop**
- o Souvenir Shop**
- o Bus & Taxi Terminal
- o Service Station
- o Police Station/Police Box*
- o Fire Station**
- o Clinic**
- o Recreation Park

One asterisk (*) indicate facilities which are to be self-contained in the hotel sites.

Two asterisks (**) indicate facilities which depend upon Yogyakarta.

A simulation of the Javanese style of architecture, as discussed in the Chapter IV on the archeological park projects, is considered appropriate for these facilities as well.

There will also be a requirement for various building regulations with respect to the building construction undertaken by private investors, including environmental standards and regulations concerning the type of construction.

d) Utility Network System

The following items have been studied as a public utility network system necessary for supporting the functions of the tourist accommodation center:

- Rainwater drainage
- Water supply
- Sanitary sewage
- Electric power supply and telecommunications
- Solid waste disposal.

5-1-3. TECHNICAL NOTES

5-1-3 (1). Rainwater

Refer to the description of the Chapter IV, "Archeological Park Projects"

5-1-3 (2). Water Supply

Since the hotel site is presumed to belong to a high potential area for tapping underground water, wells are recommended as water source in the light of the application, consumption, water quality, and supply stability, avoiding the affect on the consumption by existing inhabitants. The type of water cleaning system will be decided with reference to the results of a pumping test and a sanitary quality water test.

i) Rate of Water Consumption

Water demand per hotel room is estimated at $3.0\text{m}^3/\text{day}$, excluding cooling water for electric power generators.

TABLE V-5 FUTURE WATER DEMAND OF HOTEL FACILITIES

	1980	1985	1990	1995
Hotel	3,450	4,350	5,250	5,850
Dormitory	621	765	1,139	1,398

(m^3/day)

ii) Plan of the Water Supply System

Water cleaning by slow sand filtration seems appropriate, judging from the survey results and the data of a sanitary quality test conducted on the water sampled from the existing water supply system. However, the type of water cleaning system should be determined in the light of the application and the results of a pumping test and a sanitary quality test.

5-1-3 (3). Waste Water

i) A separate system will be employed for waste water and rainwater. Rainwater will be flushed into irrigation waterways or a river through open ditches. Sewage will be treated in accordance with effluent standards before it is fed into irrigation canals or a river.

ii) Sewage should be treated by a biochemical method, since the control of a biochemical treatment system is comparatively adaptable and the yearly average temperature is high with negligible variation.

iii) Suggested Effluent Water and Quality.

TABLE V-6 WASTE WATER

	1980	1985	1990	1995
Hotel	2,760	3,480	4,200	4,680
Dormitory	497	612	911	1,118

(m^3/day)

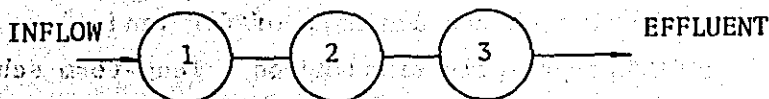
The discharge of waste water is assumed to be 80% of total consumption. Water quality of inflow is: BOD 150 PPM,
SS 200 PPM

According to the Industrial Effluent Standards of Indonesia, the case of flow into island surface water is: BOD 30 PPM, SS 100 PPM

iv) Alternative of Sewage Treatment System

- o Activated sludge
- o Trickling filters
- o Stabilization ponds

Hotel waste water is characterized by a relatively low rate of BOD, and a wide variation in load. Furthermore, it is easy to procure igneous rock as a filter material near the hotel site, and a test plant utilizing the trickling filter process is being tried out in Yogyakarta. In view of these facts, the trickling filter process seems advantageous at the present stage. This system includes next three main facilities.



1: Preliminary sedimentation pond

2: Treatment facilities

3: Final sedimentation pond

Explanation on the capacity of each unit of equipment

- 1: To control the quantity and quality of inflow water, expecting 30% of exclusion in BOD.
- 2: To control 75% of BOD and 80% of SS of the balance.
- 3: To separate the effluent into clear water and sludge through sedimentation technic, anticipating stability of the effluent water quality.

Decision on the quantity of sedimentation ponds. Due to the design manual of sewage systems in Japan, the number of preliminary sedimentation ponds will be equivalent to the volume of inflow for two hours. The final number of sedimentation ponds will be equivalent to the volume of effluent for two and a half hours.

v) To prepare a detailed design concerning the sewage treatment system and location of the sewage at the hotel site, each item should be studied more carefully through practical investigation as follows.

a) Natural circumstances

- o Topography and geological character covering the area of the hotel site.
- o Present situation of the existing river: water quantity, water level, bed slope, and velocity.
- o Condition of land surface erosion.
- o Collection of meteorological data.

b) The relation with other attached plans

- o Land utilization of roads, housing and other infrastructures.
- o River improvement plan.
- o Irrigation and drainage of farmland.
- o Other projects standing on a long-term scheme

c) Field survey on existing hydrological facilities

- o Water use condition of existing structures.
- o Ground water condition in rainy season and dry season.
- o Analysis of water quality in natural river and irrigation canal during the dry season.
- o On the detailed design, the result of the above survey must be compared with the standards.

5-1-3 (4). Electric Power

i) Power Supply System

A loop feeder system will be adopted to carry electric power from a diesel power plant to the respective service areas at a voltage of 6 KV. Since this loop feeder system is highly reliable, it has been adopted in wide applications. Electric power can be obtained from either end of the loop feeder line, thus unaffected the entire power distribution system should an accident occur at any point.

ii) Power Plant

A diesel engine generator (capacity to be mentioned later) will be installed in each archeological park, and an appropriately sized building will be constructed to house the generator and ancillary facilities.

iii) Transformer Station

Electric power carried to the substation or unit distributor installed in the hotel or at the nearest point to the respective service areas at a voltage of 6 KV will be reduced to 380/220 volts for effecting distribution. Since the unit distributor is mainly intended for supplying power to outdoor lights, it will be installed outdoors.

iv) Wiring Method

Wiring will be installed by using underground cables as far as practicable to minimize the effect on the environment; the cables will run through ducts laid underground.

v) Outdoor Lighting

The streets and promenades will be lined with street lights; area lights will be installed in the parking area, buggy pools, and recreational area.

vi) Alternative Plans for the Power Supply System

The following three alternative plans of power supply can be considered for the tourist accommodation center:

- a) A diesel generator plant will be constructed to the centralized power supply to all hotel sites.
- b) The diesel power plant in Yogyakarta will be expanded to install a generator of sufficient capacity to supply power to the tourist accommodation center from the city line of PLN.
- c) An independent generator will be installed in the respective hotels and other facilities.

Of the three plans, Plan No. 1 is the most recommendable since it provides the most reliable power supply and also is more economical. Plan No. 2 is not recommendable in considering the power plant capacity in Yogyakarta and the wide variations in voltage.

TABLE V-7 LOAD AND GENERATOR CAPACITY

	1980	1985
Load	3,428 KVA	812 KVA
Generator	3 - 1,000 KVA 1 - 500 KVA	1 - 1,000 KVA 1 - 1,000 KVA

5-1-3 (5). Telecommunications

Telephone service lines will be extended to the tourist accommodation center from the Yogyakarta telephone exchange as necessary.

Each hotel and building will be equipped with a PBX if a number of extension lines are needed by each facility.

Telephone cables will be laid in underground ducts at this Center as in the case of electric power distribution.

5-2. CORE TOWN PROJECTS

5-2-1. GENERAL

This is a proposal concerning various urban improvements in the core towns referred to in Chapter III, 3-4,; i.e. Yogyakarta, Surakarta, and Semarang.

In these cities, the largest in the region, along with concentration of population there has been a certain amount of accumulation of social overhead capital such as wide-area transportation facilities and urban service facilities. As core towns for tourism, however, the following improvements are necessary:

- i) Improvement of urban tourism assets
- ii) Development of staff accommodation sector

- iii) Improvement of infrastructure of tourism-related industry
- iv) Administrative guidance with respect to local-standard hotel sites
- v) Promotion of local craft industry and performing arts

The last two items are from the viewpoint of tourism administration.

5-2-2. RECOMMENDATIONS

5-2-2 (1) Improvement of Urban Tourism

The following improvements are necessary for enhancing the attractiveness of urban tourism:

- i) Improvement of major tourist assets such as palaces, castles, museums, etc., including the construction of parking lots and the provision of staff and facilities for handling visitors.
- ii) Enactment of ordinances for the purpose of preserving the historical townscape.
- iii) Designation of routes within the city linking the various tourist assets, providing them with necessary street signs, and improving the view along the streets.
- iv) Establishment of a tourist information center.

5-2-2 (2). Development of Staff Accommodation Sector

The provision of housing for hotel employees is an important item in this development project since it calls for large-scaled hotel development. The number of hotel employees that will be needed to staff the hotels that start operations in the first ten years, together with their families, amounts to a very large number of people. If, for instance, staff accommodations are provided for one-third of the total number of hotel employees, this will involve 9,500 persons, families included, and an area of 65 hectares will be needed. Implementation of such a housing project could be undertaken by the tourism development authority, the local government, a private developer, or jointly by all of them. The location of

the sector will have to consider the city's land-use planning. It is desirable, however, that it be in the Yogyakarta area in view of the location of the tourist accommodation center.

5-2-2 (3). Administrative Guidance with respect to Local-standard Hotel Sites

Besides large-scaled hotel development, there will also be demand for and construction of small-scaled city hotels by private hotel investors. Since these hotels will make demands on the existing hotel infrastructure, they will have to be located in accordance with urban planning authorities. It is therefore advisable that the municipal governments provide administrative guidance for the activities of these investors.

5-2-2 (4). Promotion of Local Craft Industry and Performing Arts

Batik and silverwork are representative local craft industries of the region. As the number of tourists increases, they can be expected to develop further as souvenir industries. Since these small factories and ateliers are already grouped together, it will not be too difficult to also form them into shopping clusters with parking lots and other facilities.

In the heart of the cities, theaters can be built for such performing arts as the Ramayana ballet and the Wayang Orang.

5-2-2 (5). The core towns will need to provide comprehensive urban services including a railway station and a long-distance bus terminal as gateways to the region, a distribution center and wholesaling facilities, and a tourist service industry. These urban facilities must be properly situated within the framework of land-use planning.

FIG. V-5 CORE TOWN

図 5 - 5 コア・タウン

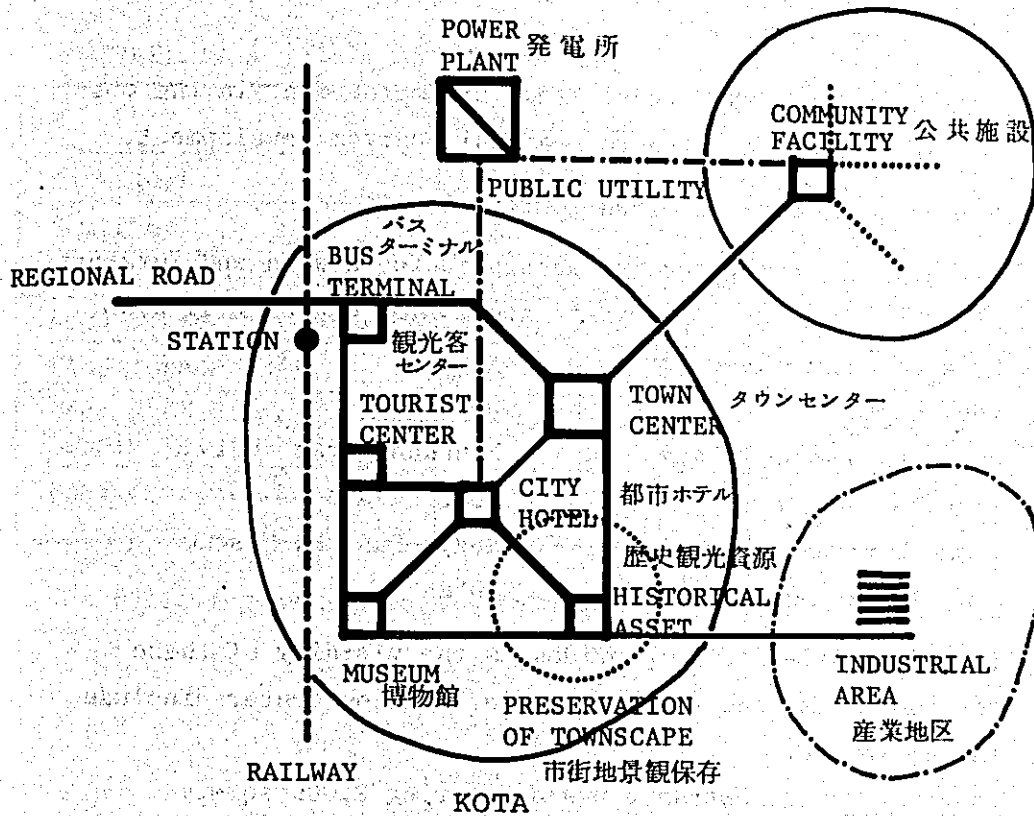
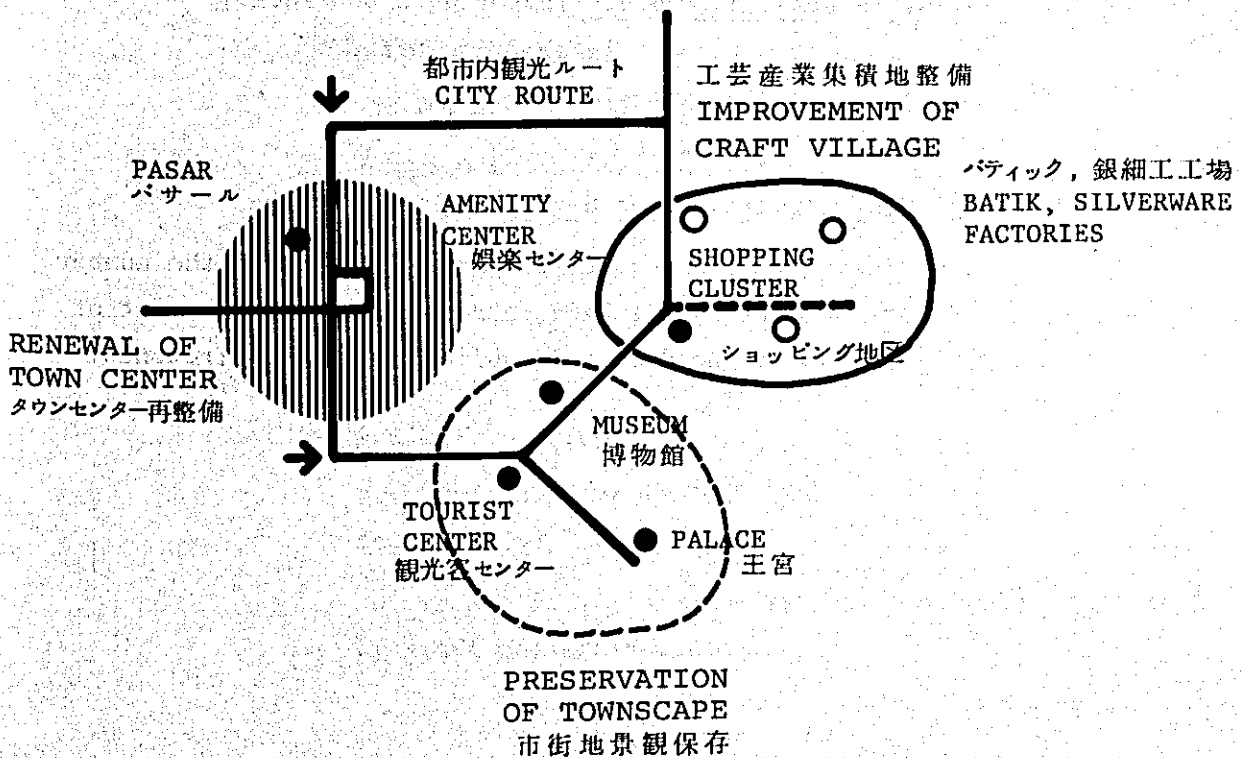


FIG. V-6 IMPROVEMENT OF URBAN TOURISM

図 5 - 6 都市観光整備



5-2-3. PROJECT FINDINGS

This section deals with those items of improvement in the core towns which are closely related to regional tourism development.

5-2-3 (1). Improvement of Urban Tourism Assets

i) The following tourism assets in Yogyakarta and Surakarta will be involved. A tourist information center will also have to be provided for each city.

Yogyakarta

Hamengku Buwono Palace

Yogyakarta Palace

Taman Sari Water Castle

Sono Budoyo Museum

Surakarta

Mangkunegaran Palace

Solo Palace

Radya Pustaka Museum

Sukuh

ii) Facilities to be provided in the vicinity of these tourism assets and the tourist information centers include the following:

Tourism assets (entrance plaza covering 2,000 sq.m.)

Parking lots

Souvenir shop areas

Gardens

Tourist information centers (covering 2,000 sq.m.)

Tourist information offices

Parking lots

Gardens

5-2-3 (2). Staff Accommodation Sector

The following table presents estimates concerning the number of people that the sector will have to accommodate, the amount of land space that will be needed, and public utility requirements.

TABLE V-8 STAFF ACCOMMODATION

	Stage I	Stage II	Total	Remarks
Bachelors	1,500	1,200	2,700	
Families	3,700	3,100	6,800	
Total (persons)	5,200	4,300	9,500	
Area of sector (hectares)	35	30	65	150 persons/hectares
Floor space (M ²)	93,600	77,400	171,000	18M ² /head
Demand of water supply (t)	780	645	1,425	150 t/head
Demand of electricity (KVA)	13,000	10,750	23,750	2.5 KVA/head

The following assumptions were made with regard to these figures.

i) Staff breakdown.

1. Hotel staff

Management staff	10%
Upper-level employees	30%
Middle-level employees	30%
Lower-level employees	30%

2. Tourism development corporation staff

ii) Number of employees

1. An average of 2.5 employees per room
2. Accommodation for 60% of the employees in the upper-level and middle-level categories.

iii) Accommodation for all of the tourism development corporation staff.

iv) Families

1. One-third of the employees and staff members to be accommodated have families that also must be accommodated.
2. An average family size of five members, the employee or staff member included.

5-2-3 (3). Shopping Cluster for the Craft Industry Area
(3,500 sq.m.)

1. Shops
2. Shopping street or plaza
3. Parking area

5-3. TRANSPORTATION PROJECTS

5-3-1. PROBLEMS

5-3-1 (1). Existing Conditions

As for access roads to the Tourism Region, during the survey, the team learned that the Indonesian Government plans to improve or reconstruct the routes and aims to upgrade these roads to 4-lane highway standards. Therefore, the OTCA team judged that the present schemes for upgrading and rehabilitation will be enough to handle future needs. On the other hand, in the Tourism Region, the main problems regarding traffic conditions are as follows.

- o Traffic bottlenecks frequently form around bridge because they are too narrow.
- o Most of the roads in the region are used by mixed traffic: pedestrians, bicycles, and oxcarts, as well as cars and lorries.
- o Existing roads in the region, including national highways, are used for local transport as well as interregional transport. As a result, those parts of roads passing through commercial centers are frequently liable to experience traffic jams.
- o In-rush hours, there is heavy bicycle traffic.

Concerning the railway, track maintenance by the government is good and its improvement is currently under way. Also improvement of the bridges is planned by the government. Under these circumstances,

as previously mentioned, traffic increases could be met by increasing the number of trains for tourists to two or three per day. With this thought in mind, investment in railway facilities is not considered necessary. Tourists using sea transportation will be few in number since tourists from Jakarta and Surabaya will mostly utilize land transportation rather than sea routes over a long distance from ports to the Tourism Region.

As for port facilities, therefore, no special need is envisioned for new facilities other than passenger facilities at Semarang, as programmed in its 10-year plan, providing it is implemented.

5-3-1 (2). Tourism Traffic Analysis

Two kinds of traffic to and from the Tourism Region. General traffic generated by the local life and industries expected in the future, and newly generated traffic as a result of tourism development. Traffic volume on the main highways by vehicle types and roadside count are listed on Tables V-9 and V-10.

i) General Traffic in the future

The traffic volume to and from the Tourism Region in the future, taking into account traffic increases as a result of other projects in Java, is forecast to be approximately double the present volume by 1980 and approximately triple by 1990.

ii) Tourism Traffic

The principal types of traffic to be generated by tourism development will be as follows:

<u>Types of Traffic</u>	
Airport-tourist Area	225
Tourist excursion	260
Personal transportation	475
Transportation of hotel supplies	100
Transportation of fuel	15

Transportation of personal housing supplies	125
Public and official transportation	250
Total (ADT)	1,450

The volume of tourism traffic will be small in comparison with general traffic. Expansion of the existing roads is unnecessary solely from the viewpoint of tourism traffic.

TABLE V-9 TRAFFIC VOLUME ON MAIN HIGHWAY in 1971

Section	Type of Road	Average daily numbers of vehicles			
		Passenger cars	Buses	Trucks	Total vehicles
Yogyakarta-Surakarta	National	1,875	462	624	2,961
Surakarta-Semarang	National	1,949	475	762	3,186
Yogyakarta-Magelang	National	1,475	515	575	2,565
Setjang-Wonosobo	Provincial	--	--	--	985
Salatiga-Magelang	Provincial	--	--	--	883
Yogyakarta-Kaliurang	Provincial	--	--	--	622

TABLE V-10 TRAFFIC VOLUME ON MAIN HIGHWAY in 1971

Section	Motor-cycles	Tri-cycles	Sedans	Light Trucks	Buses	Common Trucks	Heavy Trucks	Trailers	Bicycles	Ox-carts
Yogyakarta-Klaten	1,884	13	1,238	150	398	657	12	31	12,627	241
Yogyakarta-Temple	1,450	-	703	256	291	436	10	11	4,753	40

5-3-2. PROJECT FINDINGS

After considering the above factors, we recommend the following projects.

- o Yogyakarta By-pass
- o Merapi Route (West side)
- o Borobudur Approach Route
- o Yogyakarta - Kaliurang Route
- o Dieng Approach Route
- o Salatiga - Secang Route
- o Surakarta - Sangirang Route
- o Wonosobo - Pekalongan Route
- o Yogyakarta - Parangtritis
- o Yogyakarta - Baron Route
- o Wonogiri - Ngungap
- o Giritantra - Baron

Scenic Corridor

The view from a highway accounts for an almost infinite variety of visual experiences. The changing landscape, vegetation, geologic features, and topography form part of this visual experience.

The main excursion route (Yogyakarta, Kartosuro, Bawen, Magelang, and Yogyakarta) has many scenic areas, and large sections of this route should be designated as Scenic Highway Corridors.

Designated Areas

- a) Highway corridor between Setjang and Bawen.

A very beautiful mountainous and heavily wooded area, where off-highway parking and rest zones should be provided.

The Lake Rawa Pening area is very scenic, making it an ideal area for recreational and rest zones.

- b) Approach routes to the archeological park sites.

- c) Yogya By-pass.

- d) Merapi Route (between Bojolali and Mungkid).

This should not be expanded to a two-lane highway because the environmental impact would be too severe.

The road expansion program now in progress ignores the natural attraction of the mountainous landscape. Rather, the concept is one of adapting nature to today's standards of highway construction.

5-3-3. SOLUTIONS

5-3-3 (1). Inventory of Road Implementation

Implementation of the road projects will be effected according to the following procedures, which cover the tourism development area.

i) Action Plan (10-year Plan)

The general policy of improvement has been defined as follows:

- o To use as many existing alignments as possible.
- o To improve alignments and widen the existing road for the Yogyakarta By-pass and access to the hotel complex.
- o To use the existing permanent bridges except when economically unjustified.
- o To pay special attention to drainage for irrigation.
- o To provide an evacuation area on the lane roads.

TABLE V-11 ACTION PLAN (10-YEAR PLAN)

Section	Distance (km)	Standard of Improvement
Yogyakarta By-pass	7.0	New construction
Yogyakarta By-pass	4.5	Improvement; widening
Merapi Route (West side)	20.0	Partial improvement
Borobudur Approach Route	10.0	Improvement; realignment
Yogyakarta - Kaliurang Route	15.0	Improvement; widening
Dieng Approach Route	22.0	Partial improvement
Scenic Rest Zone		New construction of road-side park
Merapi Route (East side)	20.0	Partial improvement

ii) Prospective Plan (20-year Plan)

At this stage, alignments will be improved and the roads widened to ensure more comfortable travelings.

TABLE V-12 PROSPECTIVE PLAN (20-YEAR PLAN)

Section	Distance (km)	Standard of Improvement
Salatiga-Secang Route	30.0	Improvement; partial widening
Surakarta-Sangirang Route	15.0	Improvement
Wonosobo-Pekalongan Route	65.0	Improvement; partial widening
Yogyakarta-Parangtritis Route	25.0	Improvement
Yogyakarta-Baron Route	50.0	Improvement; partial widening
Wonogiri-Ngungap Route	45.0	Improvement; partial widening
Giritantra-Baron Route	25.0	Improvement; new construction

5-3-3 (2). Typical Sections

The OTCA team will establish standards for road improvements based on an analysis of future traffic forecasts and tourist activities, bearing in mind the scenic qualities required in the Tourism Region. While the above criteria are being prepared, we shall give due consideration to existing standards used by the Indonesian Government both at national and regional levels. Geometric design criteria are provided as follows.

TABLE V-13 DESIGN STANDARD

Design Controls and Elements	Yogyakarta By-pass	Approach Route
Terrain	Flat	Flat
Design Speed	60 km	40 km
Width (Pavement)	2 x 3.5 m	2 x 3.5 m
Width (Shoulder)	2.5 m	2.5 m
Type of Pavement	Asphaltic concrete	Asphaltic concrete
Outer separation	3.0 m	4.0 m
R.O.W.	40	40

5-3-3 (3). Guidelines for Regulations

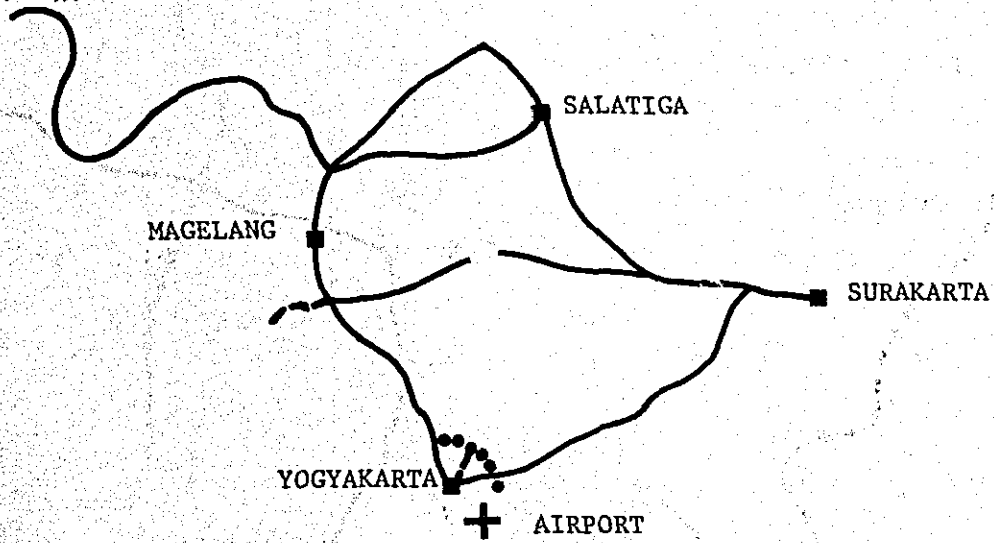
- i) Restriction of land use and density of development along the highway corridor.
- ii) Control of outdoor advertising signs.
- iii) Preservation of the natural landscape.
- iv) Control of design and appearance of structures.
- v) Other acts which are likely to unfavorably affect the scenic highway corridor.

FIG. V-7 ROAD PROJECT IN ACTION-PLAN STAGE

図 5 - 7 実行計画に於ける道路プロジェクト

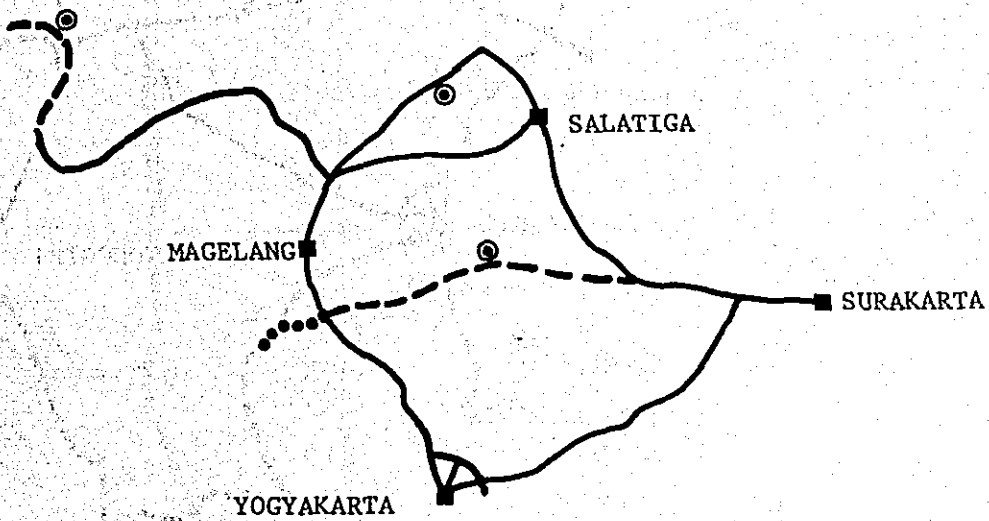
PHASE I 1975 - 1979

第 I 期



PHASE II 1980 - 1984

第 II 期



- NEW CONSTRUCTION
新 設
- IMPROVEMENT OF EXISTING ROAD
現道改良
- ⊙ SCENIC REST AREA
遊覧休憩場
- EXCURSION ROUTE
周遊ルート

FIG. V-8 ROAD PROJECT IN RESPECTIVE-PLAN STAGE

図 5-8 長期展望計画に於ける道路プロジェクト

PHASE III-IV 1985 - 1994

第 III - IV 期

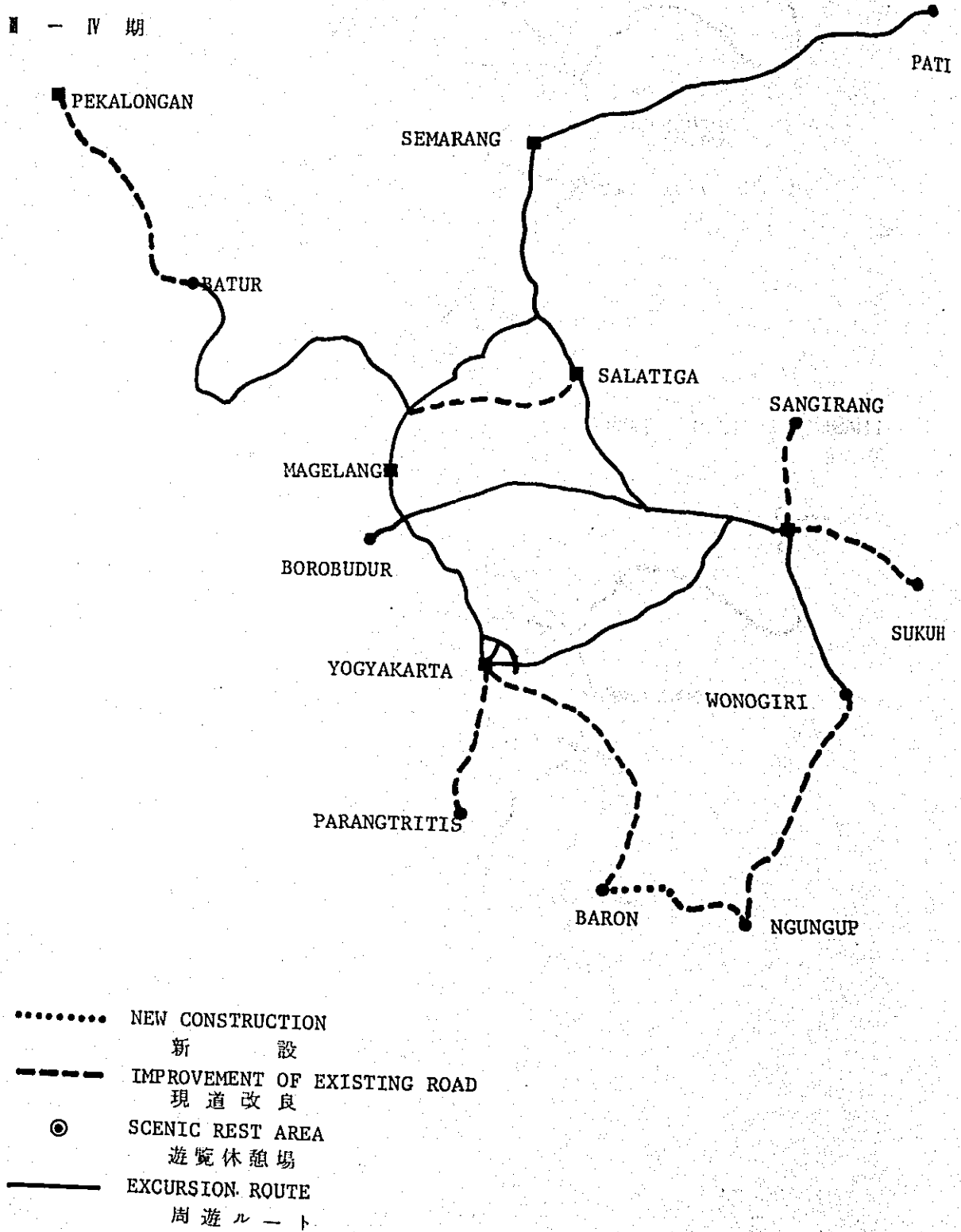
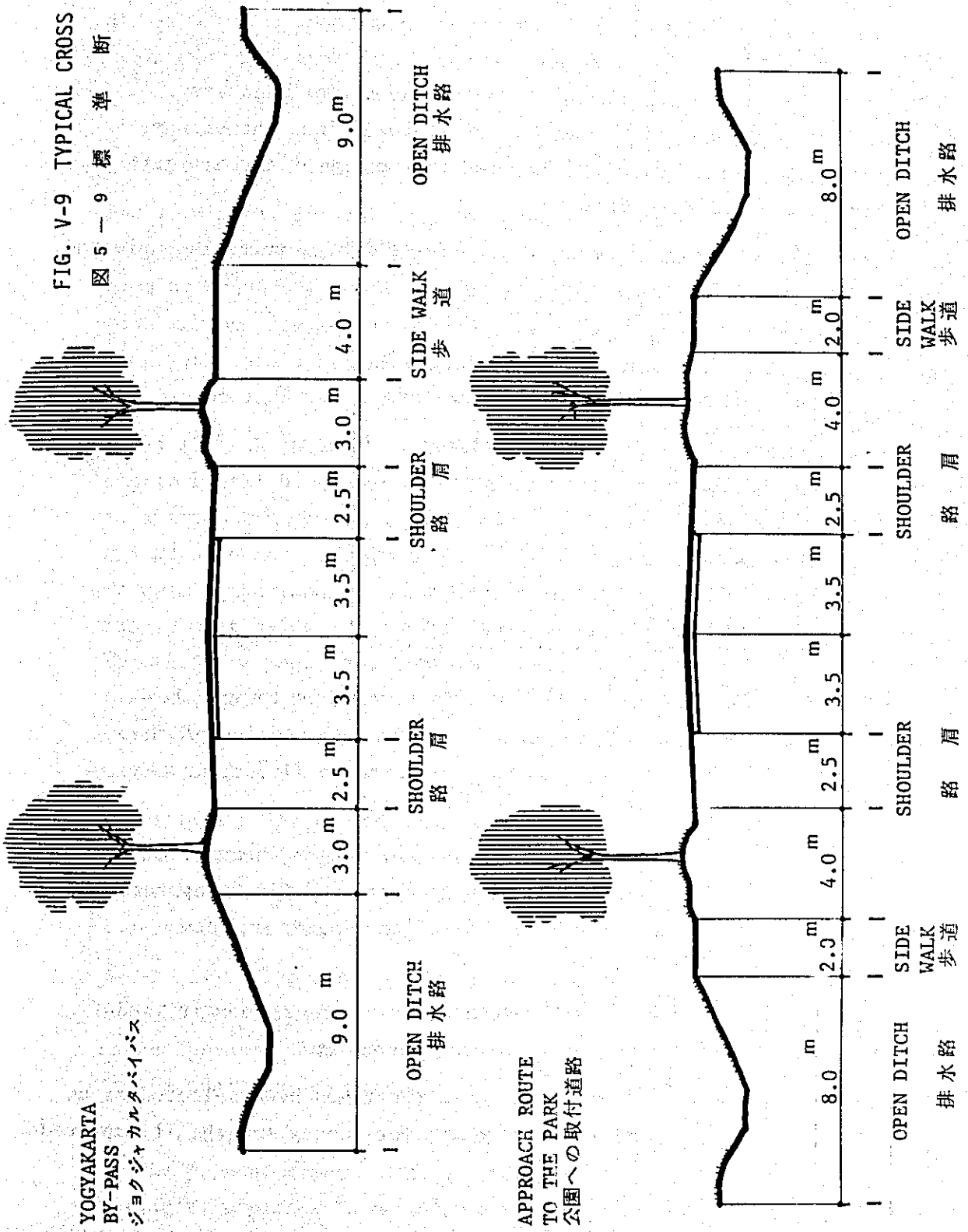


FIG. V-9 TYPICAL CROSS SECTION

図 5 - 9 標準断面図



5-4. AIRPORT

5-4-1. SUMMARY

5-4-1 (1). It is necessary to improve the airport and its facilities to promote tourism to the Region, since the airport performs the most important function in tourism as the air gate where tourists are received.

5-4-1 (2). The future annual demand for flight service is estimated as follows:

TABLE V-14 FUTURE ANNUAL DEMAND

Year	No. of Passengers
1973	95,400
1975	140,000
1980	361,000
1985	726,000
1990	1,250,000
1995	1,900,000

5-4-1 (3). As the world-wide trend in tourism is toward the utilization of chartered flights, a substantial portion of the demand estimated above will be met by chartered flights in the future.

5-4-1 (4). The trend is toward the use of larger, heavier aircraft such as the Boeing 747 and the DC-8 in chartered flight operations, since they can carry a larger number of passengers and can travel longer distances.

5-4-1 (5). The runway must be up to 3,500 m long to permit landing and take-off of large, jet-powered aircraft.

5-4-1 (6). The existing Yogyakarta airport has been selected as an airport which can meet the requirement for runway length, if improved.

5-4-1 (7). When planning the expansion of Yogyakarta Airport, it is of prime importance to designate the following areas which must meet different requirements, respectively.

- o Airport site
- o Area under the aircraft approach
- o Area which may be affected by aircraft noise

5-4-1 (8). It is desirable that necessary arrangements should be made prior to starting the airport expansion so that as large an area of privately-owned land as required by the future expansion plan may be acquired as soon as the expansion is started and an agreement should be reached with the military authorities concerning the use of land which is used by the armed forces at present.

5-4-1 (9). Even if the use of large jet-powered aircraft in chartered flight operations is precluded, it will become necessary to introduce aircrafts as large as the Boeing 737, Boeing 727 and DC-9 to meet the demand for flight service in the 1980.

To permit the landing and take-off of such large aircrafts, the runway must be extended to a length of 2,500 m. The extension up to 3,500 m mentioned in subparagraph 5 above is planned for 1985. (The extension to 2,500 m will be called the 1st stage airport expansion and the extension to 3,500 m the 2nd stage airport expansion.)

5-4-1 (10). The period of airport expansion in the 1st stage covers about six years, including the periods of a feasibility study and detailed design and engineering; that in the 2nd stage covers about three years.

5-4-1 (11). The construction cost is estimated at US\$16,400,000 for the 1st stage and US\$6,100,000 for the 2nd stage at 1973 market prices. The construction cost is not broken down according to the construction schedule.

5-4-1 (12). No mention has been made of the cost benefit analysis in the present report, but the OTCA Team feels certain that valuable results will be obtained when a cost benefit analysis of

the airport project is made as it takes shape.

5-4-1 (13). Since a long construction period is necessary to expand the airport, it is necessary to complete the feasibility study as promptly as possible to meet a demand for flight service by 1980.

5-4-1 (14). The feasibility study requires closer examination of the demand for flight service, airport layout plan (including the terminal, cargo building, and navigation aids), cost estimate, results of cost benefit analysis, approach and take-off procedures, joint operations of military and civil aircrafts, and the division of operation control between the military forces and commercial operators.

5-4-2. Present Condition of Airports in the Project Region

The Survey Team surveyed the airports in the Central Java and Yogyakarta area, the results are listed below.

FIG. V-15 PRESENT CONDITION OF EACH AIRPORT

	Yogyakarta	Wonosari	Surakarta	Semarang
A. Location				
1. Airport name	Adisutjipto	Gading	Panasan	A. Yani
2. City	Yogyakarta	Wonosari	Surakarta	Semarang
3. Distance from city center	7.4 km east	9.0 km southeast	11 km west	6 km west
B. Utilization in 1971				
1. Passenger (Scheduled)	50,608	-	Operated from beginning April 1974	39,114
2. No. of take offs and landings	1,810	-	-	1,264
3. Aircraft	Fokker 27,28	-	Fokker 27,28	Fokker 27, 28
4. Air routes	Jakarta, Denpasar	-	Jakarta, Bandung, Surabaya	Jakarta, Sydney, Denpasar etc.

5. Airlines	Garuda	-	Garuda etc.	Garuda etc.
6. Management and administration	Air Force Civil Aviation	For emergency	Air Force	Army, Civil, Aviation
C. Facilities				
1. Runway	1,840m x 40m with 30m overlay	About 800m length	1,500m x 30m	1,385m x 45m
2. Taxiway	150m x 30m		100m x 23m	75m x 15m 80m x 20m
3. Apron	6,100 m ²	-	1,600 m ²	7,500 m ²
4. Paved construction	Asphalt concrete	Turf	Asphalt concrete	Asphalt concrete
5. Terminal Bldg.	1,050 m ²	-	-	315 m ²
6. Navigational aids				
NDB	Yes	No	Yes	Yes
VOR	No	No	No	No
DME	No	No	No	No
ILS	No	No	No	No
ASR	No	No	No	No
Air Communication Facility	Yes	No	Yes	Yes
Air Traffic Control Facility	Yes	No	Yes	Yes
ABM	Yes	No	No	No
APPL	Yes	No	No	No
VASIS	Yes	No	No	Yes
RWYL	Yes	No	No	No
RWCL	Yes	No	No	No
REIL	No	No	No	No
TWCL	No	No	No	No
AFL	No	No	No	No
7. Expansion of facilities under construction	R/W 60 m extension under construction	No	R/W 300 m extension under construction	R/W 200 m extension under construction

D. Topography around airport	Flat plain south of Mt. Merapi; river on extension line of both ends of R/W Railway on parallel line	Flat land on mountain ridge	Flat plain east of Mt. Merapi	Flat terrain near seacoast; railway on extension line of, and an parallel line, of R/W
E. Land use condition in airport surrounding area	Gov't-owned land (golf course), village, paddies, etc.	Wilderness village, with uncultivated fields	Fields	Swamps
F. Distance from main tourism center and city				
BOROBUDUR	14km	25km	40km	170km
PRAMBANAN	40km	70km	100km	100km
DIENG	130km	160km	190km	110km
YOGYAKARTA	7.4km	28km	62km	140km
SURAKARTA	65km	88km	11km	115km

Notes:

NDB: Nondirectional Beacon VOR: Very High-frequency Omnidirectional Range
DME: Distance Measuring Equipment ILS: Instrument Landing System
ASR: Airport Surveillance Radar ABN: Airdrome Beacon
APPL: Approach Lights VASIS: Visual Approach Slope Indicator
DWYL: Runway Lights RWCL: Runway Center Line Lights
REL: Runway Threshold Lights TWL: Taxiway Lights
AFL: Apron Flood Light R/W: Runway

5-4-3. DEMAND

The future demand for flight service is estimated as shown in the Table that follows.

FIG. V-16 FORECAST OF PASSENGER AND CARGO HANDLING AT YOGYAKARTA AIRPORT

	1968	1969	1970	1971	1972	1973	1975	1980	1985	1990	1995	Source
(1) Annual number of passengers	-	-	-	-	-	-	140.0	361.0	760.0	1,250.0	1,900.0	-
Estimate												
Tourists (Foreign)	-	-	-	-	-	-	55.2	252.8	305.6	521.6	628.2	-
Tourists (Local)	-	-	-	-	-	-	3.3	23.0	27.0	28.0	31.0	-
(3) Passengers other than tourists	-	-	-	-	-	-	81.5	85.2	393.4	701.0	1,240.8	-
(4) Cargo	-	-	-	-	-	-	2,500.0	8,500.0	19,500.0	31,000.0	39,500.0	-
(5) Foreign arrivals	52.4	86.1	129.3	178.8	-	-	555.0	1,310.0	2,100.0	3,300.0	5,300.0	Immigration Service Bureau
(6) All passengers (International airlines)	79.9	84.9	175.9	206.6	-	-	-	-	-	-	-	ICAO-Digest of Statistics (AT-12)
All passengers (Domestic airlines)	350.1	403.2	568.5	616.8	-	-	-	-	-	-	-	-
(7) Passengers at Yogyakarta Airport	7.5	9.5	25.6	47.6	66.8	95.4	-	-	-	-	-	Yearly Statistics of Yogyakarta Airport
Cargo at Yogyakarta Airport	79.5	103.8	266.7	547.5	866.6	1954.4	-	-	-	-	-	-
(8) Hotel users (Foreign)	-	-	11.4	13.5	16.4	20.0	-	-	-	-	-	-
Hotel users (Local)	-	-	5.2	5.5	4.7	5.6	-	-	-	-	-	-
Actual												

NOTES: 1. Unit: Passengers x 1,000 Cargo x 1,000 kg

2. Airborne passengers are assumed to stay at deluxe and standard hotels.

3. The estimates shown above seem appear to be reasonable compared with the estimates by hotel users.

4. ICAO: International Civil Aviation Organization.

5-4-4. NECESSITY OF AIRPORT FACILITIES FOR LARGER AIRCRAFTS

i) The world-wide trend in tourism overall is toward the use of chartered flights.

ii) This tourism development plan should by necessity anticipate that foreign tourists will visit the country on chartered flights. The ratio of chartered to scheduled international flights in Europe, the North Atlantic, and Japan in 1972 was as shown below:

<u>Location</u>	<u>Chartered flights</u>	<u>Scheduled flights</u>
Europe	45	55
North Atlantic	26	74
Japan	8	92

There is every indication that the proportion of chartered flights will increase in the future.

iii) Increasing returns to scale are an important consideration in chartered flight operations. To achieve increasing returns to scale, the aircraft must carry a greater number of passengers over a longer distance on each flight. The majority of world airlines will fly the DC-8 and the Boeing 747 class aircraft in their chartered flight operations.

iv) Even though the F-28 aircrafts are in domestic service at present, the trend is definitely toward the use of larger aircraft in light of the increasing demand for flight service and increasing returns to scale. The tourism development plan should therefore anticipate that the DC-9 and the Boeing 727 class aircraft also will be placed into domestic service in the future.

v) The runway length necessary to permit the landing and take-off of aircraft of the class mentioned above has been determined with reference to the range of navigation, reference temperature, and altitude by destination as shown in the table that follows.

TABLE V-17 REQUIRED RUNWAY LENGTH ACCORDING TO AIRCRAFT TYPE

(Unit : m)

Destination	Range from Yogyakarta (NM)	Type of Aircraft									
		B-747	DC-8-62	B-707 -300B	B-720	B-727 -200	B-737 -200	DC-9-30	F-28		
Domestic	Jakarta	2,120	2,340	2,170	2,110	1,980	2,400	1,870	2,300	1,280	
	Denpasar	2,130	2,360	2,180	2,120	1,990	2,450	2,100	2,350	1,290	
	Singapore	2,130	2,360	2,180	2,120	2,100	X	2,780	2,600	1,450	
Charter Flights	Bangkok	2,130	2,650	2,180	2,150	2,550	X	X	X	X	
	Manila	2,130	2,800	2,300	2,300	X	X	X	X	X	
	Hongkong	2,250	3,050	2,950	2,450	X	X	X	X	X	
	Sydney	2,650	X	3,200	3,000	X	X	X	X	X	
	Karachi	3,050	X	X	3,300	X	X	X	X	X	
	Tokyo	X	X	X	3,400	X	X	X	X	X	

(by ICAO - Aerodrome manual)

- NOTES:
1. The reference temperature is assumed to be 28°C.
 2. The altitude is assumed to be 120 m.
 3. The range of navigation is determined by assuming that Yogyakarta Airport is expanded.
 4. Regarding the Boeing 747, figures in the left-hand column indicate the runway length required by an aircraft taking off with up to 360 passengers and 3,200kg cargo; figures in the right-hand column indicate the runway length required by an aircraft taking off with a 100% passenger payload.
 5. The "X" mark indicates that the maximum range of navigation is shorter than the distance between the starting airport and the destination. A connecting airport would be necessary for aircraft of these types.

The Table V-17 reveals that none of the existing airports has a runway sufficiently long to meet future requirements.

5-4-5. SITE SELECTION

5-4-5 (1). Scale

The existing airport runway must be scaled up to a length of 2,500 m to permit the use of the Boeing 727-200 class aircraft in domestic flights (between Yogyakarta and Denpasar), and further, up to a length of 3,500 m to permit the use of still larger aircrafts in international chartered flights (anticipating an extreme case where Boeing 707's will fly between Yogyakarta and Tokyo). When the existing airport runway is scaled up to 2,500 m, the aircraft listed in the above table may be put in service between the destinations bordered by the bold line in the same table.

5-4-5 (2). Site Selection

- i) From the aspects of natural conditions (wind direction, air turbulence, temperature, visibility, cloud height, topographical and geological conditions, etc.), the difficulty of construction, and obstructions, there are considered to be many available sites.

ii) However, since the Central Java area is densely populated, as well as being a granary area, the destruction of villages and rice fields should be avoided as much as possible.

Considering the above circumstances, the available sites for a large airport, which will require a lot of space, will be confined to existing airports capable of being expanded.

iii) The various comparative conditions of existing airports are listed in the following table.

TABLE V-18 COMPARATIVE CONDITIONS OF EXISTING AIRPORTS

	Yogyakarta	Wonosari	Surakarta	Semarang	Remarks
1. Natural conditions					
Topographical restrictions					
Extension possibilities of existing runway	4	4	3	3	Runway length 3,500 m
Possibilities of new runway construction	1	1	4	4	
Geological conditions	-	-	-	-	No difference
Meteorological conditions					No difference in wind direction, air turbulence, temperature, visibility, cloud height
2. Social conditions					
Ease of land acquisition	1	1	4	4	
Accessibility to tourism spots	1	2	3	4	
Condition of access roads	1	4	2	3	Degree of necessity of improvement
Power and water supplies	1	4	2	2	Degree of necessity of improvement or new installation
General evaluation	1	2	3	4	

NOTE: The figures in the above table reveal the suitability for each of the comparative items as follows.

1--Excellent, 2--Good, 3--Fair, 4--Poor

From the above comparison, Yogyakarta is proposed as the most appropriate site for a new airport.

5-4-6. AIRPORT LAYOUT PLAN

5-4-6 (1). Facilities Requirement

TABLE V-19 FACILITIES REQUIREMENT

Item	1st Stage	2nd Stage
Runway Length (m)	2,500	3,500
Berth Area (m ²)	22,500	31,000
Navigational aids	1 set including ILS	1 set including ILS
Terminal Building (m ²)	5,600	8,800
Cargo Building (m ²)	850	1,950
Car Parking Area (m ²)	6,510	9,410

5-4-6 (2). Runway

i) Number of Runways

Considering the volume of air passengers now forecast, one runway would be sufficient.

ii) Length of Runway

The length of the runway should be decided according to the type of aircraft using it and the distance of the air routes. The time is envisaged in the future when DC-8's or Boeing 747-class aircraft will be arriving from every part of the world on chartered flights, requiring the length of the runway to be 3,500 m. However, it is not economically advisable to immediately extend the runway to 3,500 m. Even if the use of large jet-powered aircrafts in chartered flight operations is precluded, it will become necessary to introduce aircrafts as large as the Boeing 737, Boeing 727, and the DC-9 to meet demands for flight service in the 1980's. To permit the landing and take-off of such large aircrafts, the runway must be extended to a length of 2,500 m. The extension up to 3,500 m mentioned in subparagraph 5, above, is planned for 1985. (The extension to 2,500 m will be

termed the 1st stage airport expansion and the extension to 3,500 m will be the 2nd stage airport expansion.)

iii) Direction of Runway

When extension of the existing runway is considered, the most easily conceivable runway direction is east to west, but this may be done only at high cost, since at least one or perhaps two rivers have to be crossed and much soil transport is anticipated.

On the other hand, the south to north direction, crossing the present runway at a near right angle, offers satisfactory conditions for the construction of a 3,500 m runway from the viewpoint of topography, obstacles, and the acquisition of land for the latter, already partially owned by the government. Therefore, the planned direction of the runway should be north to south, the exact direction to be determined in relation to obstacles, ease of construction, and other factors.

a) Obstruction

To ensure safe landing and take-off of aircraft, it is necessary to provide a certain amount of space free of obstructions near the airport. This is termed "restricted air space" as stipulated in ICAO-Annex 14. To comply with this provision, the new runway must be as illustrated in FIG. V-11. Obstacles which intersect this restricted air space on its horizontal surface and approach surface are mountains, (1) and (2) in FIG. V-11. Although these peaks do not form any obstruction to an aircraft landing or taking off in the correct direction, they may give rise to hazards, should the aircraft deviate from its normal route. To eliminate all these hazards, it is necessary to install red obstruction lights to mark such obstructions.

5-4-6 (3). Navigational Aids

The following facilities will be necessary.

- i) Wireless communication apparatus such as VOR, DME, and ILS Air Communication Facilities.
- ii) Lighting apparatus such as APPL, VASIS, RWTL, REL RWCL, and TWL.

5-4-6 (4). Site of Terminal Area

The terminal area must be capable of accommodating future air traffic demands and functions. The existing terminal area is too narrow for this objective, necessitating its relocation to some other site; however, such a site should have as least as many existing structures and facilities as possible, and offer a great deal of accessibility to the center of Yogyakarta and the hotel complex. A site which meets these requirements may be nowhere but west of the center of the new runway.

The replacement of the existing terminal with a new one poses problems associated with the economic operation of the airport and the construction period. To solve these problems, either of the following two alternative plans may be adopted;

- a) The existing terminal area to be expanded till 1979 and terminal operations transferred to the new terminal in and after 1980.
- b) Only the terminal area to be moved to the new site, without expanding the existing terminal area.

A detailed comparative study will be made of the two alternative plans in the next step.

5-4-6 (5). Airport site, area under the aircraft approach, and area which may be affected by aircraft noise.

When planning the Yogyakarta Airport expansion, it is of prime importance to designate the following areas which must meet different requirements respectively.

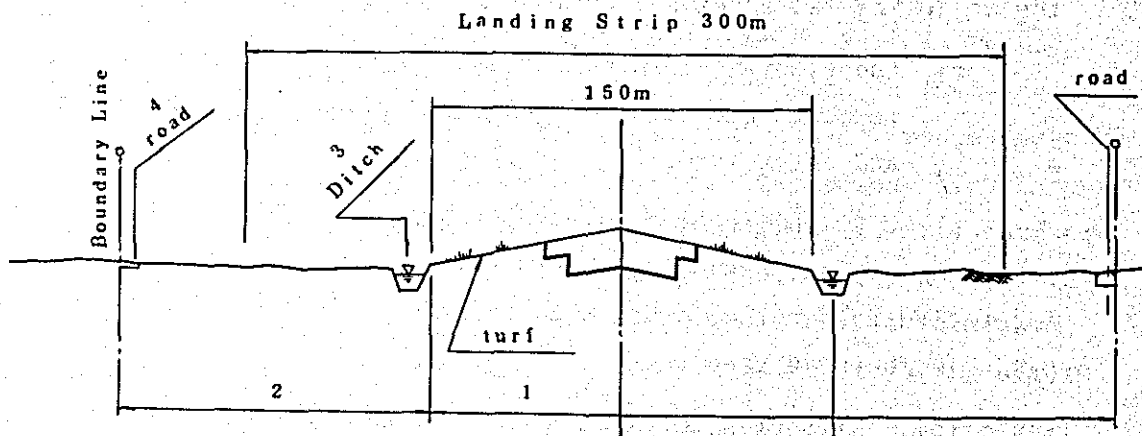
- o Airport site
- o Area which is under the aircraft approach but is free of obstructions to aircraft landings and takeoffs.

o Area which may be affected by aircraft noise

i) Airport Site

It is desirable that necessary arrangements be made prior to starting the airport expansion so that as large an area of privately-owned land as required by the future expansion plan may be acquired as soon as the expansion is started, and an agreement should be reached with military authorities concerning utilizing land which is presently used by the military forces. The airport site has an area large enough to include parallel taxiways if needed in the future, as shown in FIG. V-10. Of the total 260 hectare area, the area of land which may be purchased is about 118 hectares, and the area of land which may be borrowed from the military forces or used with the permission of such forces is about 142 hectares.

The following consideration should be employed to minimize the area of cultivated land sacrificed to expand the airport.



- NOTE:
1. Provide a graded and cleared area.
 2. Area which may be used for agricultural purposes under control of the airport administrator.
 3. Ditch without timber which serves as drainage for the runway and a substitute of the irrigation waterway divided by the expanded runway.
 4. Road which serves as safeguard of the airport and substitute of the road divided by the expanded runway.

Since its ground must be flat, the land for use as the glide slope cannot be used for agricultural purposes.

ii) Area under the Aircraft Approach

This is an area under the aircraft approach but which must be free of obstructions to aircraft landings and takeoffs. As mentioned in item 5-4-6 (2), the height of buildings must be limited to ensure safe landings and take-offs of aircraft in this area.

iii) Area which May Be Affected by Aircraft Noise

Environmental factors which affect the surroundings of the airport include noise, air pollution, and water pollution. On considering the number of aircraft arrivals and departures, however, noise will probably be the only problem that needs immediate solution. There are a variety of international units used to express the intensity of aircraft noise, but the ICAO has adopted the acronym WECPNL (Weighted Equivalent Continuous Perceived Noise Level). Even though the effect of aircraft noise measured by the WECPNL on humans has not been described, it is considered desirable that aircraft noise should be reduced to a 70 to 75 WECPNL in residential areas. (The aircraft noise standards set by the Japanese Environment Agency are appended at the end of this report for information). The effect of aircraft noise on the surroundings of this airport may be as shown in FIG. V-11. To pass the standard 75 WECPNL, no residential area should be admitted near the airport.

5-4-5 (6). Access Road

An access road will be provided as shown in FIG. V-10, when a new terminal is built west of the center of the runway.

5-4-7. IMPLEMENTATION AND CONSTRUCTION SCHEDULE

The period of airport expansion in the 1st stage is about six years, including the periods of a feasibility study, plus detailed design and engineering, and that in the 2nd stage is about three years.

TABLE V-20 IMPLEMENTATION AND CONSTRUCTION SCHEDULE

Stage		1st Stage							2nd Stage				Remarks
Year		1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	
Planning and designing	Feasibility study	9											
	Detailed design and engineering		18							15			
Land acquisition				6									
Construction	Earthwork				23						9		
	Pavement						17					11	
	Drainage					6					1		
Building construction	Terminal building					15						10	
	Other buildings						1						
Wireless communications												6	
Lighting facilities												6	

NOTE: The figures in the table indicate the terms of construction in months.

5-4-8. The construction cost is estimated at about US\$16,400,000 for the 1st stage and at about US\$6,100,000 for the 2nd stage at 1973 market prices. The construction cost is not broken down according to the construction schedule.

TABLE V-21

CONSTRUCTION COSTS

Project	1st Stage	2nd Stage	Total
	Amount	Amount	
Earthwork	\$ 120,000	\$ 50,000	\$ 170,000
Paving	4,000,000	1,400,000	5,400,000
Drainage	60,000	20,000	80,000
Terminal Building	5,700,000	2,700,000	8,400,000
Other Buildings	50,000	0	50,000
Wireless Communications	3,600,000	1,000,000	4,600,000
Lighting	1,370,000	430,000	1,800,000
Incidental work	1,500,000	500,000	2,000,000
Total	\$16,400,000	\$6,100,000	\$22,500,000

5-4-9. ECONOMIC ANALYSIS

Although no mention has been made of the cost benefit analysis in the present report, benefits directly accruing from it include the following:

1. Mass passenger handling
2. Use of large aircraft
3. Handling of international charter flights

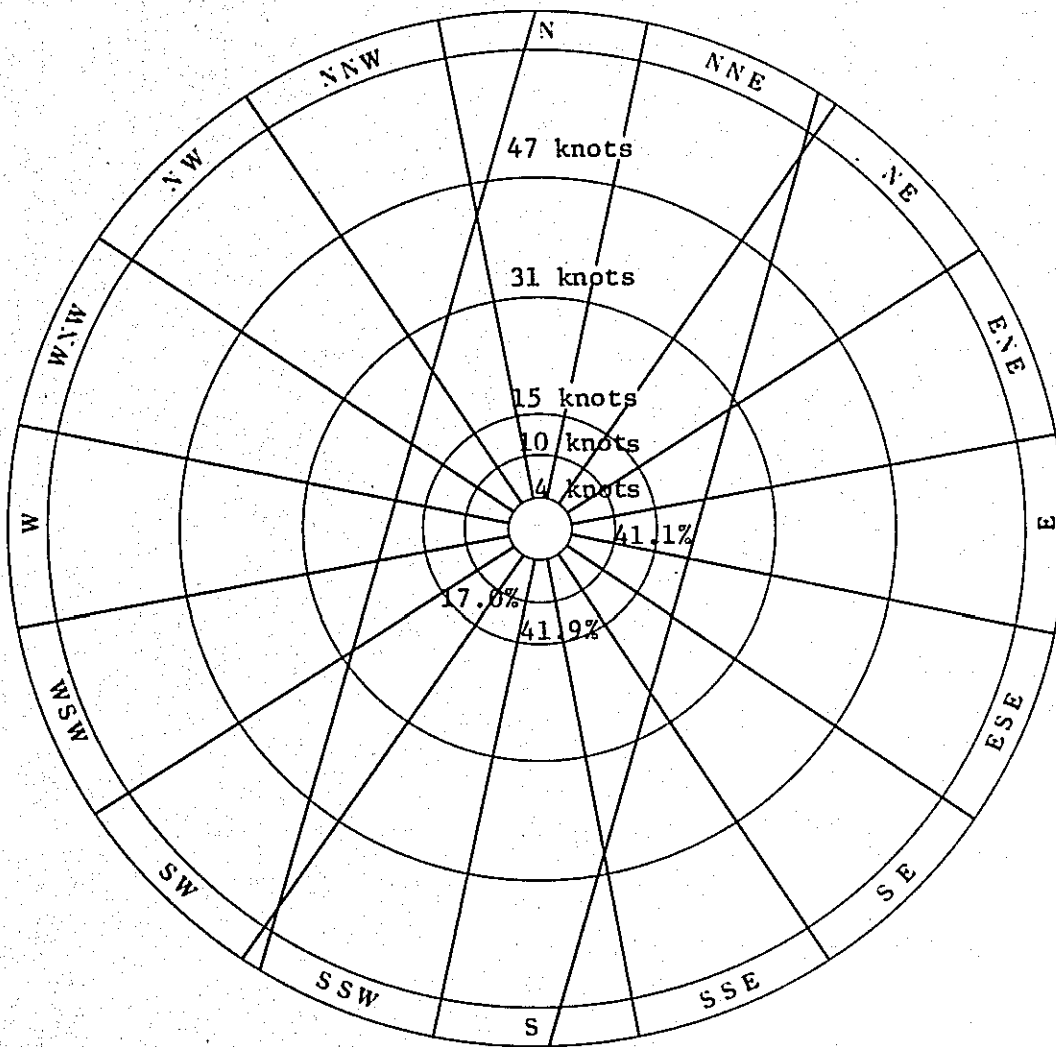
On the other hand, benefits indirectly accruing from cost benefit analysis include the following:

1. Freight reduction
2. Stimulation of economic development
3. Greater comfort and convenience
4. Reduction of airport operation costs as a result of introducing large aircraft
5. Increased employment during construction (more than 1,000 workers throughout the construction period)

Since benefits proportionate to the cost can be expected, we are firmly convinced that the cost benefit analysis will produce valuable results.

GRAPH V-1 WIND ROSE

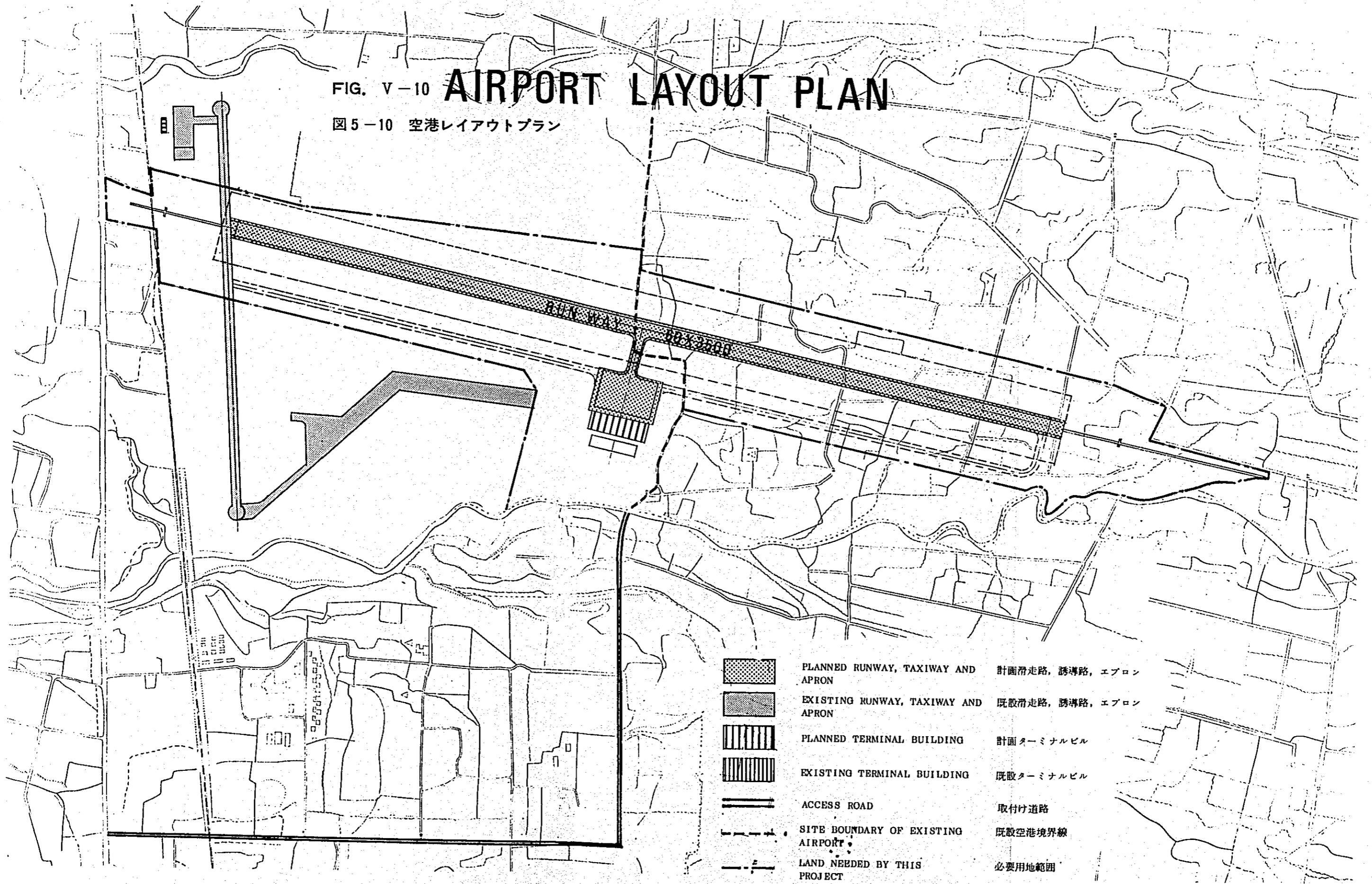
グラフ 5 - 1 風 向 風 速



- MAXIMUM PERMISSIBLE CROSS-WIND COMPONENTS 20 KNOTS
- ORIENTATION OF RUNWAY N 15°00'00"
- WIND COVERAGE 100%

FIG. V-10 AIRPORT LAYOUT PLAN

図5-10 空港レイアウトプラン



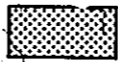



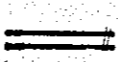
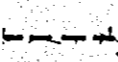
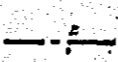
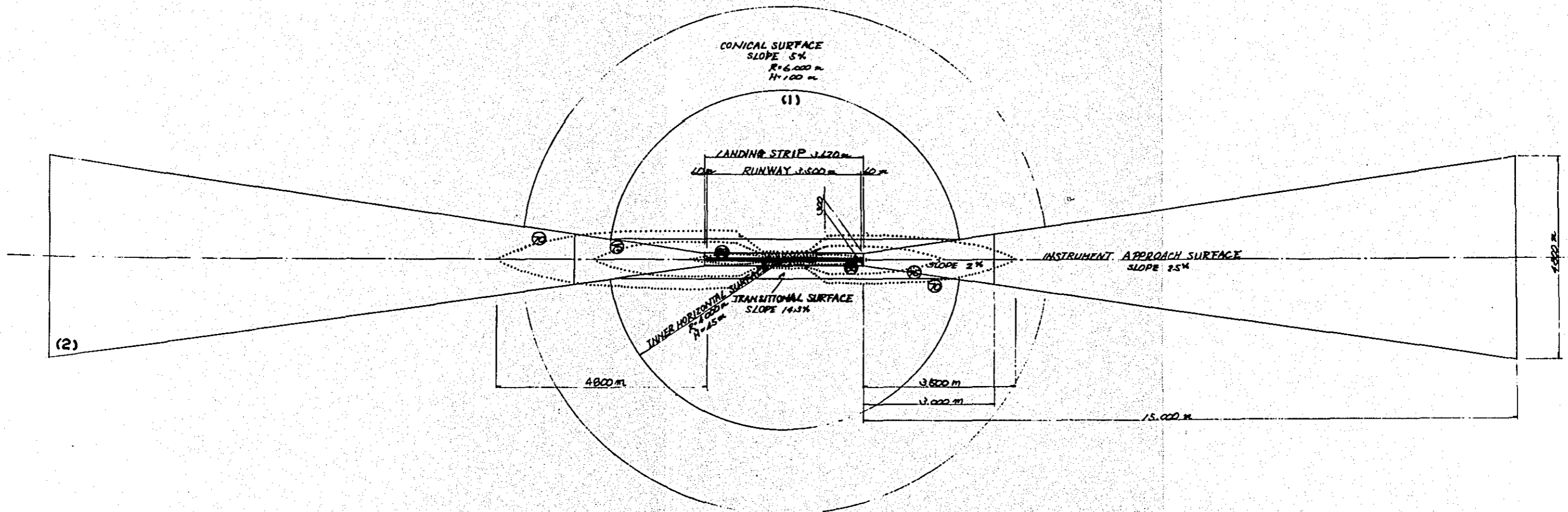
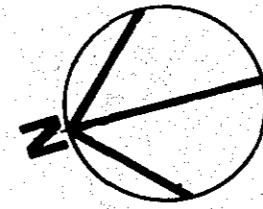
- | | | |
|---|------------------------------------|------------------|
|  | PLANNED RUNWAY, TAXIWAY AND APRON | 計画滑走路, 誘導路, エプロン |
|  | EXISTING RUNWAY, TAXIWAY AND APRON | 既設滑走路, 誘導路, エプロン |
|  | PLANNED TERMINAL BUILDING | 計画ターミナルビル |
|  | EXISTING TERMINAL BUILDING | 既設ターミナルビル |
|  | ACCESS ROAD | 取付け道路 |
|  | SITE BOUNDARY OF EXISTING AIRPORT | 既設空港境界線 |
|  | LAND NEEDED BY THIS PROJECT | 必要用地範囲 |

FIG. V-11 OBSTRUCTION RESTRICTION WECPN CONTOUR MAP

図5-11 制限空域及びWECPN騒音コンター図

- LINE OF OBSTRUCTION RESTRICTION 制限空域
- WECPN CONTOUR WECPNコンター
- (1), (2) OBSTRUCTION 障害物
- FIGURES INDICATE THE GRADE OF NUISANCE 数字は騒音ホーンを示す
- SCALE 1:100,000



CHAPTER VI

COST ESTIMATES AND ECONOMIC EVALUATION

CHAPTER VI. COST ESTIMATES AND ECONOMIC EVALUATION

Here the OTCA Team has calculated construction costs, as well as maintenance and operation costs, with respect to the various proposed projects, and has studied the economic effects on the region of the investment involved in these projects.

6-1. COST ESTIMATES

The following Tables present cost estimates for the various projects in terms of the action plans.

* General Cost Table	Table VI-1
* Cost of Archeological Parks	
Prambanan	Table VI-2
Borobudur	Table VI-3
Dieng	Table VI-4

= GENERAL NOTES OF TABLE =

1. Calculated on unit cost prices at the end of 1973, with a 10% annual price escalation.
2. An exchange rate of 410 Rp. to the U.S. dollar has been assumed with respect to imported materials in the foreign exchange component.
3. Twenty percent of the construction costs will be contingency costs.
4. Twenty percent of the costs for the tourist accommodation center project is an allowance for a possible larger scale of construction.
5. In case of alternative study of I.R.R. (Internal Rate of Return), we allocated 25% of the total construction cost for village improvement.
6. Ten percent of the total construction cost has been earmarked for engineering, supervision, and other consultant fees.

= COST COMPOSITION =

1. The construction costs for each project include the following items:

a) Tourism Accommodation Area

- o Landscaping: Planting, paving, outdoor furniture, Signs
- o Architecture: Public buildings, Electricity, Plumbing, Air-conditioning
- o Roads: Earth work, Drainage, Paving, Traffic control facility
- o Rainwater Drainage: Open ditches, Culverts
- o Water Supply: Wells, Pumps, Purification plant, Piping
- o Sanitary Sewer: Treatment plant, Piping, Pump station
- o Irrigation: Ditches, Piping, Pumps
- o Electricity: Power plant, Distribution ducts and cables, Substation and unit, Outdoor lighting
- o Solid Waste Disposal: Truck, Bulldozer, Garage
- o Others: Sodding and grubbing, Preliminary work, Grading

b) Archeological Park

- o Landscaping: Planting, Paving, Outdoor furniture, Signs
- o Architecture: Building, Electricity, Plumbing, Air-conditioning
- o Roads: Sodding and grubbing, Earth work, Pavement work, Traffic control facility
- o Rainwater Drainage: Ditches, Piping
- o Water Supply: Wells, Pumps, Purification plant, Piping
- o Sanitary Sewer
- o Electricity: Power plant, Distribution ducts and cables, Substation and Distribution unit.
- o Solid Waste Disposal: Incinerator, Collection truck
- o Others: Sodding and grubbing, Preliminary work, Grading

c) Regional Roads

- o Road: Sodding and grubbing, Earth work, Paving, Traffic control facility

- o Landscaping: Planting, Lighting, Signs
 - o Architecture: Building, Electricity, Plumbing
(Only the scenic Rest Zone)
- d) Improvement of Urban Tourism Assets
- o Parking Area: Sodding and grubbing, Earth work, Paving
 - o Landscaping: Planting, Lighting
 - o Architecture: Building, Electricity, Plumbing,
Air-conditioning

2. The maintenance and operation costs include the following items common to all of the projects:

- o Landscaping: Chemicals, Equipment
- o Architecture: Materials, Equipment
- o Roads: Materials, Equipment
- o Water Supply: Electrical power, Equipment, Chemicals
- o Sanitary Sewer: Electrical power, Chemicals, Sludge disposal
- o Rainwater Drainage: Equipment
- o Electricity: Diesel fuel oil, Materials
- o Solid Waste Disposal: Fuel oil, Equipment

Expenses for personnel of the maintenance and operation team are included in each item mentioned above.

TABLE VI-1 GENERAL COST

表 6 - 1 総合工事費

	1975 - 1979				1980 - 1984				Total			
	C.C.		F.E.C.	M. & O.C.	C.C.		F.E.C.	M. & O.C.	C.C.		F.E.C.	M. & O.C.
	10 ⁶ RP	10 ³ US\$	10 ³ US\$	10 ³ RP	10 ⁶ RP	10 ³ US\$	10 ³ US\$	10 ³ RP	10 ⁶ RP	10 ³ US\$	10 ³ US\$	10 ³ RP
Tourist Accommodation Center 観光宿泊センター	5,975.3	14,573.8	3,342.3	316,294.4	-	-	-	-	5,975.3	14,573.8	3,342.3	316,294.4
Archeological Parks 史跡公園	2,057.2	5,061.7	1,510.7	44,232.3	1,049.4	2,559.4	608.0	24,177.3	3,106.6	7,621.1	2,118.7	68,409.6
Prambanan ブランバナン	683.2	1,666.4	511.5	15,745.0	683.3	1,666.5	411.5	16,451.7	1,366.5	3,332.9	923.0	32,196.7
Borobudur ボルブドール	1,036.4	2,527.4	675.9	18,961.7	258.5	630.4	144.7	3,729.4	1,294.9	3,158.3	820.6	22,691.1
Dieng ディエン	355.6	867.4	323.3	9,525.6	107.6	262.5	51.8	3,996.2	463.2	1,129.4	375.1	13,521.8
Regional Roads 地方道路	1,098.0	2,678.1	957.6	21,156.0	1,493.1	3,641.6	1,236.4	37,367.4	2,591.1	6,319.7	2,194.0	58,523.4
Yogya By-pass ジョクジャバイパス	791.0	1,929.3	695.5	12,300.0	-	-	-	-	791.0	1,929.1	695.5	12,300.0
Yogya-Kaliurang Road ジョクジャ・カリウラン道路	166.3	405.6	142.0	4,797.0	-	-	-	-	166.3	405.6	142.0	4,797.0
Borobudur Approach Route ボルブドール取付け道路	140.7	343.2	120.1	4,059.0	561.7	1,370.0	474.7	4,698.6	702.4	1,713.2	594.8	8,757.6
Dieng Approach Route ディエン取付け道路	-	-	-	-	281.1	685.7	238.2	10,848.6	281.1	685.7	238.2	10,848.6
Merapi Route メラピ、ルート	-	-	-	-	532.6	1,299.1	449.5	20,885.4	532.6	1,299.1	449.5	20,885.4
Scenic Rest Zone 展望休憩ゾーン	-	-	-	-	117.6	286.8	74.0	934.8	117.6	286.8	74.0	934.8
Improvement of Urban Tourism Attraction 都市観光施設の整備	479.2	1,168.8	127.5	13,894.2	-	-	-	-	479.2	1,168.8	127.5	13,894.2
Total 計	9,627.8	23,482.4	5,938.1		2,542.4	6,201.0	1,844.4		12,170.2	29,683.4	7,782.5	

NOTES: 1. Figures in this Table do not include the price escalation.

本表の数値は物価の上昇を見込んでいない。

注: 2. Construction Costs include Foreign Exchange Components.

建設費は外貨分を含む。

3. Only Archeological Parks are shown in detail in Table VI-2,3,4.

史跡公園については詳細を表6-2.3.4に示す。

4. Figures in this Table do not include cost for land acquisition.

本表の数字には、土地取得費は含まれない。

5. Figures in this Table include contingency.

本表の数字は、予備費を含む。

6. The following items are excluded from this Table:

下記の各項は、本表に含まれない。

- Engineering Fees 1,217.0 x 10⁶RP (2,968.3 x 10³US\$)

技術費

- Cost of village improvements 3,042.6 x 10⁶RP (7,420.9 x 10³US\$)

村落改善費

- Staff Accommodation Sector スタッフ居住センター

C.C. : Construction Cost

建設費

F.E.C. : Foreign Exchange Component

外貨分

M. & O.C.: Maintenance and Operation Cost

管理運営費

TABLE VI-2 COST OF ARCHEOLOGICAL PARK (PRAMBANAN)
表 6-2 史跡公園工事費 (プランバナン)

	1975 - 1979				1980 - 1984				Total			
	C.C.		F.E.C.	O. & M.C.	C.C.		F.E.C.	O. & M	C.C.		F.E.C.	O. & M.C.
	10 ³ RP	10 ³ US\$	10 ³ US\$)	(10 ³ RP)	10 ³ RP	10 ³ US\$	10 ³ US\$)	(10 ³ RP)	10 ³ RP	10 ³ US\$	10 ³ US\$	10 ³ RP
Landscaping 土地造成	78,925.0	192.5	1.8	2,009.0	117,875.0	287.5	1.3	2,972.5	196,800.0	480.0	3.1	4,981.5
Architecture 建物	194,791.0	475.1	47.0	5,863.0	101,270.0	247.0	24.5	3,034.0	296,061.0	722.1	71.5	8,897.0
Roads 道路	98,482.0	240.2	86.2	1,387.4	444,522.0	1,084.2	379.5	8,132.8	543,004.0	1,324.4	465.7	9,520.2
Rainwater Drainage 雨水排水	26,568.0	64.8	-	196.8	-	-	-	-	26,568.0	64.8	-	196.8
Water Supply 給水	32,390.0	79.0	59.3	1,230.0	-	-	-	-	32,390.0	79.0	59.3	1,230.0
Sanitary Sewage 下水処理	8,487.0	20.7	4.1	934.8	19,598.0	47.8	6.2	2,312.4	28,085.0	68.5	10.3	3,247.2
Electricity 電力供給	240,875.0	587.5	308.2	2,902.8	-	-	-	-	240,875.0	587.5	308.2	2,902.8
Solid Waste Disposal ゴミ処理	2,706.0	6.6	5.0	1,230.0	-	-	-	-	2,706.0	6.6	5.0	1,230.0
Total	683,224.0	1,666.4	511.6	15,753.8	683,265.0	1,666.5	411.5	16,451.7	1,366,489.0	3,332.9	923.1	32,205.5

NOTES: 1. Construction Costs include Foreign Exchange Components. 建設費は外貨分を含む。
注: 2. Figures in this Table include Contingency. 本表の数字は、予備費を含む。
3. Figures in this Table do not include Engineering Fees. 技術料は本表に含まれない。

C.C. : Constructions Cost 建設費
F.E.C. : Foreign Exchange Component 外貨分
O. & M.C. : Operation and Maintenance Cost 管理運営費

TABLE VI-3 COST OF ARCHEOLOGICAL PARK (BOROBUDUR)

表 6-3 史跡公園工事費 (ボロブドール)

	1975 - 1979				1980 - 1984				Total			
	C.C.		F.E.C.	O. & M.C.	C.C.		F.E.C.	O. & M.C.	C.C.		F.E.C.	O. & M.C.
	(10 ³ RP)	10 ³ US\$	10 ³ US\$	10 ³ RP	10 ³ RP	10 ³ US\$	10 ³ US\$	10 ³ RP	10 ³ RP	10 ³ US\$	10 ³ US\$	10 ³ RP
Landscaping 土地造成	140,835.0	343.5	1.8	3,542.4	41,000.0	100.0	0.9	1,023.4	181,835.0	443.5	2.7	4,565.8
Architecture 建築物	152,110.0	371.0	36.7	4,563.3	67,896.0	165.6	16.5	2,041.8	220,006.0	536.6	53.2	6,605.1
Roads 道路	260,842.0	636.2	197.2	4,895.4	140,568.0	364.8	127.4	664.2	410,410.0	1,001.0	324.6	5,559.6
Rainwater 雨水排水	141,409.0	344.9	-	442.8	-	-	-	-	141,409.0	344.9	-	442.8
Water Supply 給水	53,751.0	131.1	59.3	1,230.0	-	-	-	-	53,751.0	131.1	59.3	1,230.0
Sanitary Sewage 下水処理	12,751.0	31.1	6.3	1,377.6	-	-	-	-	12,751.0	31.1	6.3	1,377.6
Electricity 電力供給	271,953.0	663.3	369.6	1,894.2	-	-	-	-	271,953.0	663.3	369.6	1,894.2
Solid Waste Disposal ゴミ処理	2,706.0	6.6	5.0	1,003.7	-	-	-	-	2,706.0	6.6	5.0	1,003.7
Total 計	1,036,357.0	2,527.7	675.9	18,949.4	258,464.0	630.4	144.8	3,729.4	1,294,821.0	3,158.1	820.7	22,678.8

NOTES: 1. Construction Costs include Foreign Exchange Components.

建設費は外貨分を含む。

注: 2. Figures in this Table include Contingency.

本表の数字は予備費を含む。

3. Figures in this Table do not include Engineering Fees.

技術料は本表に含まれない。

C.C. : Construction Cost 建設費

F.E.C. : Foreign Exchange Components 外貨分

O. & M.C. : Operation and Maintenance Cost 管理運営費

TABLE VI-4 COST OF ARCHEOLOGICAL PARK (DIENG)
表 6-4 史跡公園工事費(ディエン)

	1975 - 1979				1980 - 1984				Total			
	C.C.		F.E.C.	O. & M.C.	C.C.		F.E.C.	O. & M.C.	C.C.		F.E.C.	O. & M.C.
	(10 ³ RP)	(10 ³ US\$)	(10 ³ US\$)	(10 ³ RP)	10 ³ RP	(10 ³ US\$)	(10 ³ US\$)	(10 ³ RP)	10 ³ RP	10 ³ US\$	10 ³ US\$	10 ³ RP
Landscaping 土地造成	39,029.0	95.2	1.8	984.0	24,805.0	60.5	0.7	615.9	63,834.0	155.7	2.5	1,599.9
Architecture 建物	47,761.0	116.5	11.8	1,744.7	15,047.0	36.7	3.7	205.3	62,808.0	153.2	15.5	1,950.5
Roads 道路	77,668.0	189.4	65.6	4,760.0	67,773.0	165.3	47.4	3,174.8	145,441.0	354.7	113.0	7,934.8
Water Supply 給水	32,500.0	79.3	35.7	319.8	-	-	-	-	32,500.0	79.3	35.7	319.8
Sanitary Sewage 下水処理	4,237.0	10.3	2.0	123.0	-	-	-	-	4,237.0	10.3	2.0	123.0
Electricity 電力供給	153,020.0	373.2	203.9	1,082.4	-	-	-	-	153,020.0	373.2	203.9	1,082.4
Solid Waste Disposal ゴミ処理	1,358.0	3.3	2.5	511.7	-	-	-	-	1,358.0	3.3	2.5	511.7
Total 計	355,573.0	867.3	323.3	9,525.6	107,625.0	262.5	51.8	3,996.0	463,198.0	1,129.7	375.1	13,522.1

NOTES: 1. Construction Costs include Foreign Exchange Components. 建設費は外貨分を含む。
注: 2. Figures in this Table include Contingency. 本表の数字は予備費を含む。
3. Figures in this Table do not include Engineering Fees. 技術料は本表に含まれない。

C.C. : Construction Cost 建設費
F.E.C. : Foreign Exchange Components 外貨分
O. & M.C. : Operation and Maintenance Cost 管理運営費

TABLE VI-5 INVESTMENT SCHEDULE

表 6-5 投資計画

	PHASE - 1								PHASE - 2										
	1975	1976		1977		1978		1979		1980		1981		1982		1983		1984	
		C.C.	F.E.C.	C.C.	F.E.C.	C.C.	F.E.C.	C.C.	F.E.C.	C.C.	F.E.C.	C.C.	F.E.C.	C.C.	F.E.C.	C.C.	F.E.C.	C.C.	F.E.C.
Tourist Accommodation 観光宿泊センター Center																			
Infrastructure インフラストラクチャー		2,987 (7,286)	685 (1,670)	2,988 (7,288)	686 (1,672)														
Hotel DX-250 RMS ホテル・デラックス250室		1,794 (4,375)	449 (1,094)	1,794 (4,375)	449 (1,094)														
Hotel DX-300 RMS ホテル・デラックス300室 ECO-1,000 RMS エコノミー 1,000室				4,852 (11,833)	1,213 (2,958)	4,852 (11,833)	1,213 (2,958)	4,852 (11,833)	1,213 (2,958)										
Archeological Park 史跡公園																			
Prambanan プランバナン		230 (562)	71 (172)	230 (562)	71 (172)	222 (542)	69 (168)			684 (1,667)	169 (412)								
Borobudur ボルブドール		348 (849)	94 (229)	348 (849)	94 (229)	340 (830)	89 (218)			258 (630)	60 (145)								
Dieng ディエン								365 (867)	132 (323)					108 (263)	21 (52)				
Regional Roads 地方道路																			
Yogya By-pass ジョクジャ・バイパス		396 (965)	143 (348)	396 (965)	143 (348)														
Yogya-Kaliurang Road ジョクジャ-カリウラン道路		83 (203)	29 (71)	83 (203)	29 (71)														
Borobudur Approach Route ボルブドール取付道路				71 (172)	25 (60)	71 (172)	25 (60)					278 (677)	94 (230)	284 (693)	100 (245)				
Dieng Approach Route ディエン取付道路										140 (341)	48 (118)	142 (346)	49 (118)						
Merapi Route メラピ ルート										107 (261)	37 (91)	107 (261)	37 (91)	130 (316)	51 (124)	789 (461)	60 (145)		
Scenic Rest Zone 展望休憩ゾーン										59 (143)	15 (37)	59 (143)	15 (37)						
Improvement of Urban Tourism Assets 都市内観光施設の整備						248 (604)	28 (68)	232 (565)	24 (59)										
Total 計		5,838 (14,240)		10,761 (26,247)		5,732 (13,981)		5,439 (13,265)		1,247 (3,042)		585 (1,426)		522 (1,272)		189 (461)			

NOTES: 1. The costs in this Table depend upon the General Cost Table (TABLE VI-1).
注: 本表の数字は、総合コスト表(表6-1)にものとづくものである。

2. The unit of other costs is 106 RP., but the unit of the costs enclosed within parenthesis is 10³ US\$.
コストの単位は、百万ルピである()内の単位は千ドルである。

3. It is assumed that the deluxe-standard hotels will amount to \$35,000 and the economy standard hotels \$25,000 per room.
デラックスホテルは一室当り3万5千ドル、エコノミーホテルは一室当り2万5千ドルかかると想定した。

4. These costs do not include price escalation. C.C.: Construction Cost 建設費
コストには物価の上昇は見込んでいない。
F.E.C. Foreign Exchange Components 外資分

6-8

6-2. ECONOMIC EVALUATION

6-2-1. ECONOMIC EFFECT

Generally speaking, the following constitute the economic effects of tourism development:

- i) A major contribution to improvement of the country's balance of international payments.
- ii) Stimulation of the economy of the region through participation of a large number of firms in the development projects in both direct and supporting roles, and consequent improvement of the economic efficiency of all types of industry in the region.
- iii) The direct effects of increasing effective demand, employment, and income in both the construction stage and the operational stage.

Naturally, such a tourism development would be of no value to the region in which it takes place if the region were not to benefit from these effects. To ensure that it does, it is necessary that tourism policies be established of giving priority to local workers in employment, local producers in purchase of goods, and local people in vocational training, as well as to promoting the tourism-related local industry. And it is important that concrete measures be adopted for implementation of these policies.

6-2-2. ECONOMIC RETURN

- i) The benefits can be expressed in terms of the total value (turnover minus material input) of all segments of all sectors of the economy that are in one way or another related to tourism. If, for the purpose of calculating the benefits, all value added components of all segments of all sectors of activities related to tourism are aggregated, the total obtained by additional equals the tourists' expenditures in the project area. The benefits are, of course, corrected for tourists' expenditures to be expected even without the project and for foreign exchange drainage in the tourism sector; the amounts of the tourists' expenditures without the project and the amount of foreign exchange drainage are deducted from the

total tourists expenditures. The relevant investment cost is the investment cost of the infrastructure plus the investment cost of hotel accommodation facilities and related elements of the superstructure in the project area. With investments in the infrastructure and superstructure being complementary, both are to be considered in assessing the internal rate of return on the investment. Benefits that will accrue from expenditures of tourists who stay in local standard hotels are offset by additional investments that would take place in local-standard hotels, local transport, entertainment, and shopping facilities.

ii) With an estimated economic life of 25 years, the internal rate of return on the tourism investments in the project area would be around 14%. The rate of return would change as follows if the investment costs increase and net benefits decrease:

	<u>Resulting rate of return (%)</u>
1. Investment costs	
(+Cost for Village Improvement).....	around 12.5%
2. Net benefits (-10%)	around 12.5%

iii) Construction and improvement of several roads in the project area will constitute an important benefit to the local population and the economy. Construction of the road by-passing Yogyakarta city, which will give access to the hotel complex, will concurrently serve to eliminate a significant transportation bottleneck. When improved, the road running near Mt. Merapi will function not only as part of the excursion route but also as an evacuation road in this area. In addition, the project includes village improvement and the archeological parks, which will be main tourist attractions. If these benefits accruing to the local population are qualified and added to the benefit, the internal rate of return on the investment exceeds that mentioned above.

6-2-3. BALANCE OF PAYMENTS EFFECT AND THE MULTIPLIER

i) The foreign exchange earnings of Indonesia will greatly expand with implementation of this project. About 80% of

gross tourists' expenditures in the project area will be in foreign exchange. Gross foreign exchange earnings are expected to increase by US\$2 million in 1978 when the first hotels open, and by about US\$15.3 million when the project becomes fully operational in 1985. Net foreign exchange earnings are expected to amount to 75% of total revenues, and are likely to increase as the managerial positions of the hotels are filled by local staff and as supplies for catering of the hotels and restaurants are increasingly purchased on the local market.

ii) The GNP (Gross National Product) of Indonesia will also expand with implementation of the project. The multiplier with respect to international tourist expenditures in Indonesia is estimated at about 3, and is likely to increase as the foreign exchange drainage in the tourism sector decreases. This implies that US\$1,000 of gross international tourist expenditures will bring about, through the multiplier effect (e.g. income effect), an increase of US\$3,000 or more in the GNP of Indonesia.

6-2-4. EMPLOYMENT OPPORTUNITIES

Tourism development will create employment opportunities in the project area, both directly and indirectly. We have assumed that deluxe-standard hotels and economy-standard hotels will utilize 2.5 employees per room in mean number. When both types of hotels are fully operational, hotel employees will total 5,000 persons. Employment in agriculture, transportation, souvenirs and other service industries, which are directly or indirectly related to tourism development in the project area, will be even greater. The creation of the employment opportunities is particularly important in view of the fact that the Central Java area is politically and socially regarded as a crucial region, suffering more than any other region in Indonesia from dense population, low employment and low per capita income.

TABLE VI-6 PER DIEM EXPENDITURE

	Average length of stay		
	2 days	2.5 days	3 days
<u>Deluxe-standard hotel</u>			
Board and lodging			
Room charge	\$15.0 (\$11.5)	\$15.0 (\$11.5)	
Food and beverage	13.0 (10.0)	13.0 (10.0)	
Tax	2.8 (2.15)	2.8 (2.15)	
Tours and transportation	7.0 (7.0)	6.0 (6.0)	
Souvenirs	6.0 (5.0)	5.2 (4.4)	
Performances, entertainment, and unspecified items	4.5 (4.5)	4.5 (4.5)	
Total	<u>\$48.3 (\$40.15)</u>	<u>\$46.5 (\$38.55)</u>	
<u>Economy-standard hotel</u>			
Board and lodging			
Room charge	\$ 8.5 (\$ 6.4)	\$ 8.5 (\$ 6.4)	\$ 8.5 (\$ 6.4)
Food and beverages	8.5 (6.5)	8.5 (\$ 6.5)	8.5 (6.5)
Tax	1.7 (1.29)	1.7 (1.29)	1.7 (1.29)
Tours and transportation	7.0 (7.0)	6.0 (6.0)	5.3 (5.3)
Souvenirs	6.0 (5.0)	5.2 (4.4)	4.7 (4.0)
Performances, entertainment, and unspecified items	4.5 (4.5)	4.5 (4.5)	4.5 (4.5)
Total	<u>\$36.2 (\$30.69)</u>	<u>\$34.4 (\$29.09)</u>	<u>\$33.2 (\$27.99)</u>

NOTE: The OTCA Team has adjusted the estimates made by TDC in their feasibility study on Tourism Development of Central Java and Yogyakarta, March 1972 (shown in parenthesis), taking into consideration the price rise in Indonesia, a different projection of foreign and Indonesian tourist flow to the project area, and other factors.

TABLE VI-7 TOTAL TOURIST EXPENDITURE (IN U.S. \$1,000)

表 6-7 旅行者総支出 (単位 千米ドル)

Year 年度	Deluxe Class Hotels デラックスホテル				Economy Class Hotels エコノミーホテル				Grand total expenditure of all groups 全グループの支出総計
	Number of tourists 旅行者数	Duration of stay in days 滞在日数	Per diem expenditure 毎日の支出	Total expenditure 支出計	Number of tourists 旅行者数	Duration of stay in days 滞在日数	Per diem expenditure 毎日の支出	Total expenditure 支出計	
1977	45,000	2 days	US\$ 48.5	4,365					4,365
1978	66,000	"	"	6,402					6,402
1979	74,000	"	"	7,178					7,178
1980	82,000	2.5 days	US\$ 46.5	9,553	122,000	2.5-3 days	US\$ 34.5-US\$33.0	10,994	20,527
1981	84,000	"	"	9,765	127,000	"	"	11,438	21,203
1982	86,000	"	"	9,998	133,000	"	"	11,969	21,967
1983	88,000	"	"	10,230	139,000	"	"	12,499	22,729
1984	90,000	"	"	10,463	146,000	"	"	13,128	23,591
1985	92,000	"	"	10,695	153,000	"	"	13,757	24,452
1986	"	"	"	"	"	"	"	"	"
1987	"	"	"	"	"	"	"	"	"
1988	"	"	"	"	"	"	"	"	"
1989	"	"	"	"	"	"	"	"	"

NOTE: The number of tourists and the duration of stay were derived from the marketing study. The duration of stay is based on the number of nights spent in the project area by foreigners and native Indonesian visitors.

注: 旅行者の数及び滞在日数は、市場調査による。滞在期間は、外国人及びインドネシア人観光客の地区内での宿泊日数である。

TABLE VI-8 FOREIGN EXCHANGE DRAINAGE (IN U.S.\$1,000)

Year	Leakage	Year	Leakage
1978	509	1992	4,120
1979	703	1993	4,120
1980	4,041	1994	4,120
1981	4,210	1995	4,120
1982	4,401	1996	4,120
1983	4,591	1997	4,120
1984	4,807	1998	4,120
1985	4,017	1999	4,216
1986	4,017	2000	4,216
1987	4,017	2001	4,216
1988	4,017	2002	4,216
1989	4,017	2003	3,565
1990	4,120	2004	3,565
1991	4,120		

NOTE: The OTCA Team has adopted the TDC estimate of about 30% leakage of total hotel turnover. This leakage includes the import of food, beverages, and so on for hotels, payments to foreign labor, management contracts, franchise contracts and fees for bookings arranged via international reservation systems. The OTCA Team has also adopted the TDC estimate of some 15% leakage of total turnover in other sectors. It has been estimated, that the present leakage of total tourist expenditure is about 25%. We anticipate that this percentage will decline to 20% in 1985.

TABLE VI-9 BENEFITS TO BE DERIVED FROM TOURISM DEVELOPMENT
CORRECTED FOR IMPORTS AND FOR TOURISM EXPENDITURES
ANTICIPATED EVEN WITHOUT THE PROJECT

Year	Benefits	Year	Benefits
1978	1,528	1992	16,481
1979	2,110	1993	16,481
1980	12,121	1994	16,481
1981	12,628	1995	16,481
1982	13,201	1996	16,481
1983	13,773	1997	16,481
1984	14,419	1998	16,481
1985	16,070	1999	16,865
1986	16,070	2000	16,865
1987	16,070	2001	16,865
1988	16,070	2002	16,865
1989	16,070	2003	14,261
1990	16,481	2004	14,261
1991	16,481		

- NOTES:
1. Tourism expenditures anticipated even without the project as well as foreign exchange drainage must be deducted from total tourist expenditures to arrive at the benefits relevant to the evaluation. The OTCA Team expects 1978 to be the year when the first infrastructural and superstructural elements become operational. Any benefits accruing to the economy before 1978 are therefore assumed not to be generated by the project. The level of tourist expenditures in 1977 will therefore be annually deducted from total tourist expenditures throughout the project period.
 2. The infrastructural elements will have an economic life of at least 30 years, and 25 years in the case of the hotels. Revenues will continue to accrue as long as the hotels built in the planning period are not outdated; i.e. up to the year 2004, or 25 years after 1980, when the last hotel will have become operational.

TABLE VI-10 SUMMARY OF INVESTMENTS AND BENEFITS
表6-10 投資と利益 (単位 千ドル)

Unit: US\$1,000

Year 年度	Investments 投資	1976 (Present value) 現在価値	Benefits 利益	1976 (Present value) 現在価値	
1976	17,209	17,209			<p>NOTES:</p> <p>1. The internal rate of return can be defined as the rate of discount which renders the total sum of present values of the benefits equal to that of the investment cost.</p> <p>2. The year 1976 was taken as the basis for present value calculations. We have assumed that all investments are made at the beginning of the year and that all benefits are cashed at the end of the year.</p> <p>3. It is assumed that investment costs, including long-term working capital for deluxe-standard hotels, will amount to \$35,000 dollars per room, and for economy-standard hotels \$25,000 dollars per room.</p> <p>4. It is assumed that all infrastructures invested will have no remaining value at the beginning of the year 2005.</p> <p>1. 内部利益率とは、利益の現在価値を投資コストの現在価値と等しくするような割引額をいう。</p> <p>2. 現在価値の計算の基準として1976年を使用した。投資は総て同年度の初めに行われ、利益は同年度の終りに現金化されたと仮定した。</p> <p>3. 長期間の流動資本を含む投資額は、デラックスホテルの場合各室当り3万5千ドル、エコノミーホテルの場合各室2万5千ドルと推定した。</p> <p>4. 投資の対象となるインフラストラクチャーは、2005年の初めに残存価値がなくなると仮定した。</p>
1977	26,247	23,071			
1978	13,981	10,803	1,528	1,038	
1979	13,265	9,009	2,110	1,260	
1980	3,042	1,816	12,121	6,361	
1981	1,426	748	12,628	5,825	
1982	1,272	587	13,201	5,353	
1983	461	187	13,773	4,909	
1984			14,419	4,517	
1985			16,070	4,425	
1986			16,070	3,890	
1987			16,070	3,419	
1988			16,070	3,006	
1989			16,070	2,642	
1990			16,481	2,382	
1991			16,481	2,094	
1992			16,481	1,840	
1993			16,481	1,618	
1994			16,481	1,442	
1995			16,481	1,250	
1996			16,481	1,009	
1997			16,481	966	
1998			16,481	849	
1999			16,865	764	
2000			16,865	671	
2001			16,865	590	
2002			16,865	519	
2003			14,261	385	
2004			14,261	339	
Total	76,903	63,430	394,441	63,430	

IRR = 13.8%

TABLE VI-11 FOREIGN EXCHANGE PLANNING
表 6-11 外 貨 計 画

Year 年度	Number of foreign travelers 外国人旅行者数	Duration of stay in days 宿泊日数	Per diem expenditure 1日当り支出	Total expenditures in foreign currency (US\$ 1,000) 外貨収入総額(千ドル)
Deluxe-standard hotels デラックスホテル				
1977	38,000	2	U.S.\$ 48.5	3,686
1978	58,000	2	"	5,626
1980	73,000	2.5	U.S.\$ 46.5	8,486
1985	82,000	"	"	9,533
Economy standard hotels エコノミーホテル				
1977	-	-	-	-
1978	-	-	-	-
1980	85,000	2.5	U.S.\$ 34.5	7,331
1985	109,000	"	"	9,401
Total 計				
1977	38,000			3,686
1978	58,000			5,626
1980	158,000			15,817
1985	191,000			18,934

TABLE VI-12

K -- MULTIPLIER

(1) Definition

The general formula for K (the multiplier) is:-

$$K = \frac{1 - mt}{s + m}$$

where mt = propensity of tourists to consume imported products
(tourist consumption not generating income for the
host country)

$$= \frac{\text{external purchases by tourism sector}}{\text{total expenditures by international tourists}}$$

s = marginal propensity to save in the country under
consideration

m = marginal propensity to import or to spend income
abroad

(2) In the case of Indonesia

	<u>1975</u>	<u>1985</u>
mt =	25%	minimum 20%
S* =	8.9%	minimum 8.9%
m* =	16.7%	minimum 16.7%
K =	$\frac{1 - 25\%}{8.9\% + 16.7\%}$	maximum $\frac{1 - 20\%}{8.9\% + 16.7\%}$

NOTE: *is Based on 1971 figures appearing in the Indikator Ekonomi,
statistical bulletin of the Biro Pusat Statistik,
Jakarta

CHAPTER VII

IMPLEMENTATION OF THE PLAN

CHAPTER VII. IMPLEMENTATION OF THE PLAN

7-1. PHYSICAL IMPLEMENTATION

The problem of physical implementation is a vast one.

o Implementations of the Master Plan

The master plan is the reference base for the choice of orientation in the execution of a planned tourism development operation.

Thus, it is necessary to:

i) Interpret it in applying and constructing the additional prescriptions necessary.

ii) Determine the area and use of land for each project in the master plan.

iii) Follow preparation of the urbanization plans affected by the tourism areas.

iv) Supervise the execution and nature of construction projects.

v) Ensure that projects for the installation of infrastructure and infrastructure linkage to the existing network are implemented.

7-2. INVESTMENT INCENTIVE

It is also important to define the conditions for investments made in the tourism section. Further, the government should define which incentives are to be used to attract tourism development investment to the development area. At present the government provides:

i) Exemption from corporation taxes

ii) Duty-free imports of materials

iii) Employment of foreign staff

iv) A loan of up to 75% of the total amount of hotel construction.

Further incentives may require consideration, such as:

- v) Grants or long-term loans
- vi) Guarantees on loans
- vii) Reduction in taxation or exemptions after a holiday period
- viii) Necessary arrangements to help hotel investors to obtain sites.
- ix) Administrative and financial assistance to guide investor-with respect to complex Indonesian administrative procedures so that they can effectively assemble the appropriate materials for presentation when requesting aid and loans from the administration.
- x) Consequently, a tourism investment code should be adopted in the application of this code, and duty-free import licenses should be established along with the provision of financial aid via preferential loans such other measures are instituted.

7-3. ADMINISTRATIVE ORGANIZATION

7-3-1. GENERAL

Since a number of bottlenecks may develop during implementation of the master plan, development strategy must duly consider the nature of the project and the particular characteristics of the area involved. To secure successful execution of the plan, a specialized administrative organization is provided for in the terms of reference. Its functions would be as follows:

- o To consider the national and regional importance of the problem and to make sure that main decisions are in accordance with the government's tourism policy.
- o To guarantee as much coordination as possible between government departments.
- o To guarantee separation of the functions of execution and control, thus making it possible to easily remedy and deviate from the master plan.

- o To ensure uniform financing.
- o To involve local communities and to give adequate information concerning development of the area.

To perform the above activities, we suggest the establishment of an administrative structure comprising (1) administrative bodies and (2) a development corporation or special company financed 100% by the government. This type of organization may have already been put to test to a certain extent according to Government Policy on National Tourism Development by the Indonesian Government in the actual case of tourism development in Bali.

7-3-2. ADMINISTRATIVE BODIES

The objective of the master plan -- the development of tourism in Central Java -- can conceivably encounter administrative difficulties on three different levels: decision making, coordination, and project determination and supervision.

Difficulties at any one of these three levels could make it impossible for the Indonesian Government to complete the development successfully. Consequently, it is extremely important that these functions be the responsibility of one or more administrative structures created to carry them out efficiently.

The first of the three above-mentioned functions -- decision making -- ideally should be the responsibility of an interministerial committee, as in the case of similar operations in other countries. This makes it possible for all decisions necessitated by a tourism development operation to be made jointly by all concerned departments or agencies.

Since these decisions concern the application of a government-determined tourism policy, the process of making them should occur at the central government level. The important point to be considered is the ability and authority of the administrative body to engage the participation of various governmental departments and agencies in implementation of the various tourism development programs.

To achieve proper decision making, the establishment of a Tourism Development Advisory Council, or some such special organization which represents a central tourism authority, may be required. And on the province level, it may be necessary to establish a special organization representing tourism authority in the respective area.

The second function -- coordination -- should be the responsibility of an appropriate body within the governmental structure. Such a body exists in the form of the Directorate General of Tourism, PARIWISTA, and the two tourist boards in Central Java, namely;

- o The Tourist Board of the Province of Central Java.
- o The Tourist Board of the Special Territory of Yogyakarta.

However, the OTCA Team is of the same opinion as T.D.C. that the interests of the two areas in respect to tourism development are closely interrelated; therefore, it is indispensable that these two administrative bodies be unified.

The OTCA Team is, however, of the opinion that these two administrative bodies -- even when unified -- would not be adequate to cope with development according to the master plan, considering the necessity for consistency throughout the process of development and the tremendous tasks that must be accomplished to develop tourism as planned.

This is especially true when considering the time factor involving the necessity for prompt action.

Therefore, it will be necessary to create strong "coordination departments" within the regional and the national bodies to ensure the completion of the infrastructure and the installation of public services in accordance with the schedule.

The third function -- project determination and supervision -- differs from the other two because it is directly related to the geographical area affected by the master plan. This function would be carried out by a "Technical Agency" body concerned exclusively with technical problems in the course of application of the master plan and tourism policy as determined by the central government.

At this stage, however, the OTCA Team feels that the creation and organization of suitable administrative bodies and the establishment of a development corporation should be discussed further with the appropriate authorities in Indonesia.

7-4. PROTECTION OF TOURISM RESOURCES AND PRESERVATION OF THE ENVIRONMENT

An extremely important problem is that of preserving the environment of areas directly relating to tourism development and other related development activities in Central Java. There are two facets to this problem: (1) damage inflicted on the tourism resources themselves in the course of tourism development construction and (2) damage to the environment resulting from the commercialization of environment, advertising signs, barren parking lots, unsightly structures, over-modernization of traditional architectural motifs, etc. Such damage to the tourism resources and the environment in general of the area in question runs counter to the promotion of viable tourism development.

There are two ways of coping with this problem: (1) the enactment of laws and ordinances for zoning regulations and (2) administrative guidance on the basis of such legal regulation. Regarding Japan, there are such laws and ordinances which include the Natural Park Law, the Natural Environment Preservation Law, the Special Measures Law for Preservation of the Historical Climate in Ancient Capitals, ordinances for protecting natural culture, and ordinances for beautifying roadside landscapes. (Refer to Appendix)

There is also a development licensing system and guidelines for development as components of the overall administrative guidance system.

The following is a brief consideration of what types of laws and administrative guidance will be needed in connection with the Central Java and Yogyakarta Area Tourism Development Project.

For the three archeological parks, a new law similar to Japan's Special Measures Law for Preservation of the Historical Climate in

Ancient Capitals will have to be drawn up and enacted, and the type of zoning proposed herein will have to be provided for on the basis of such a law.

While it is advisable that implementation of such a law be under direct control of the central government, the central, provincial, and local governments will share the administrative and financial burden. Consideration should also be given to an arrangement whereby a development corporation is assigned the task of actually managing the regulations in the special tourism development areas, including the hotel development area (tourism accommodation center). It will also be necessary for a licensing system based on a special "administrative guidance program" to be drawn up by the development authority.

In the core towns of Yogyakarta and Surakarta, areas of particular tourism value enhanced by palaces, other tourist attractions, silverwork factories, batik factories, and so on will have to be designated as rehabilitation and scenic areas. It would also be possible to charge a development corporation with the management of regulation, on the basis of administrative guidance on the part of the development authority, in smaller areas where actual improvements are made within such designated areas.

7-5. OTHER GOVERNMENT ROLES IN THE TOURISM DEVELOPMENT

7-5-1. PROMOTION OF TOURISM

While the Indonesian Government has no doubt already taken many steps concerning international tourism promotion in connection with the development of Bali, it would appear to be necessary in the promotion of tourism development in the Central Java area to place particular emphasis on the area's archeological and historical features.

This can be accomplished to some extent through the provision of well-arranged archeological and cultural information in the tourist-generating countries concerning this area, and through international cultural conferences and seminars sponsored by the government.

The Ramayama ballet, the Wayan Orang, Wayan Kulit, Gamelan Indonesian music and so on are cultural performance arts which express the traditional culture of the Central Java area, and as such, can constitute main tourist attractions. Even now they are important chiefly in terms of religion and traditional life-style, and the bands of performers that practice these arts still maintain their traditional structure. The danger is that tourism development might cause the performances to become mere "shows" cut off from the whole that each of these arts traditionally constituted, thereby depriving them of much of their original appeal.

However, to preserve and develop them as "living" arts is no easy matter. It will require measures to be taken on a national level. To begin with, it will be necessary to consider subsidizing such arts and providing training in existing facilities as well as devising system for ensuring that the performing groups themselves benefit from the income of the tourism sector.

7-5-2. PROMOTION OF NATIONAL AND LOCAL INDUSTRIES

The socioeconomic effects of tourism development are far-reaching. The following three categories of industry are among those that are most effected: (1) the construction industry and related industries, (2) those industries related to food and other consumer goods used by tourists, and (3) the souvenir industry and other industries rooted in the culture and tradition of the area.

7-5-2 (1). Promotion of the Construction Industry and Related Industries

Unfortunately, these industries are presently found to be wanting with respect to product quality and quantity. At the outstart, it will be necessary to rely on imports because of the fast rate of development, but over a long term it will be advisable for the government to promote these industries as a part of the overall industrial policy to ensure a steady supply of materials and equipment, particularly since the economic effect of such promotion will be to minimize the outflow of hard-earned foreign exchange that the tourism industry will attract.

7-5-2 (2). *Promotion of Industries Relating to Food and Other Consumer Goods Used by Tourists*

The existing production and distribution setup may not be adequate in view of the need for daily supply of a substantial quantity of food and other consumer goods. Means will have to be found for supply within the region of the bulk of the farm products needed.

One such means that deserves the government's consideration is a better system of production and distribution that includes contracts between the tourism development entities on the one hand and farmers or farming communities on the other hand. This will also improve the agricultural structure of the region and have the effect of adjusting the amount of production, as well as providing price and supply stability.

7-5-2 (3). *Souvenir Industry and Others*

The quality of souvenirs of a region is an important factor in shaping the impression that tourists have of that region. In this sense, Central Java has a distinct advantage over the average tourist area in that it offers many types of worthwhile souvenirs that are strongly rooted in the history and culture of the region.

In fact, it often happens that souvenir industry later develops into an export industry as satisfied tourists spread the word about the merits of products they purchased after they return to their homelands.

The major souvenir products of Central Java are handicrafts. Means must be found to produce them in large quantities by other than purely traditional methods and without losing their appeal.

With this objective in mind, it would be worthwhile considering the establishment, by the government or otherwise, of an organization for research and guidance in this area. Such an organization could hold competitive shows that would help improve the production of souvenirs and encourage quality products. Financial assistance would also be helpful.

7-5-3. TRAINING AND EDUCATION OF PERSONNEL IN THE TOURISM SECTOR

7-5-3 (1). Hotel Personnel

When the development of large-scaled hotels begins to progress at a rapid pace, as is now occurring in Jakarta and on the island of Bali, there will be a serious shortage of fairly well-trained hotel personnel, a handicap which could even restrain the pace of development. Basically, the hotel staff should eventually consist mostly of Indonesians. Considering the present pace of development and of education and training of hotel personnel, however, this will not be possible immediately. It is necessary that consideration be given by the administrative bodies to preparation within the region of vocational education and training programs for the different levels of hotel employees, with people living in the development region receiving preference.

7-5-3 (2). Tourist Guides and Drivers

As tourism development progresses, there will naturally arise a shortage of guides and drivers as well as the need for qualitative improvement of those available.

The tourism development organization must find means to provide tourists visiting the region with adequate information concerning the archeological and historical assets in which they are interested. Incidentally, this must not have an oppressive effect on private tourist agencies and others, dealing in tourist information in the region.

1. SUMMARY OF GAZETTE NO. 154 OF THE ENVIRONMENT AGENCY
2. SPECIAL MEASURES LAW FOR THE PRESERVATION OF HISTORICAL CLIMATE IN ANCIENT CAPITALS
3. BIBLIOGRAPHY

APPENDICES

APPENDIX

SUMMARY OF GAZETTE NO. 154 OF THE ENVIRONMENT AGENCY

December 27, 1975

Airport Categories	Target Date	Interim Targets
Airports to be built in future	Immediately	—
Existing airports		
Airports under local government's jurisdiction or private airports	Immediately	—
Airports under national government's jurisdiction (Except FUKUOKA A/P)	(A) Within 5 years (B) Within 10 years	—
New Tokyo International Airport at Narita	Within 10 years	Attain WECPNL less than 85 within 5 years, or 65 WECPNL or less indoors in areas 85 WECPNL or more.
Tokyo International Airport at Haneda, Osaka International Airport, and FUKUOKA Airport	As soon as possible within period more than 10 years	1. Attain 85 WECPNL or less within 5 years, or 65 WECPNL or less indoors in areas exceeding 85 WECPNL. 2. Attain 75 WECPNL or less within 10 years, or 60 WECPNL or less indoors in areas exceeding 75 WECPNL.

- Notes:
1. Of the airports under national government's jurisdiction, (B) stands for airports used by aircraft with turbo jet motors for regular air transport service, and (A) denotes airports other than (B).
 2. In the neighborhood of the Self-Defense Forces airports are to be made to attain or maintain the environmental quality standards prescribed for civil airports with conditions similar to theirs in terms of the average number of landings and take-offs, the types of aircrafts, and the population density.
 3. In areas where achievement of the environmental quality standards within the prescribed period is considered difficult even if comprehensive measures are taken, surrounding work for houses is to be carried out for the benefit of those who wish to continue living there so that the same indoor environment as would result from

the attainment of the Standards may be realized, with utmost efforts being made in the meantime to attain the Standards as quickly as possible.

Based on recommendations from the Central Council for Control of Environmental Population, the Environment Agency has set the following environmental quality standards for aircraft noise, promulgating them on Dec. 27. (See the Report of the Expert Committee on Special Noise in Japan Environment Summary Vol. 1/No.1.)

1. ENVIRONMENTAL QUALITY STANDARDS

Type of Area	Standard Values (WECPNL)
I	70 or less
II	75 or less

- Notes:
1. Type I standard for exclusively residential areas and Type II the other areas where normal living conditions used to be preserved.
 2. Prefectural governors are to designate the specific areas.
 3. The environmental quality standards do not apply to the vicinity of airports where the number of aircraft arrivals and departures is 10 or less a day and airports on remote islands.
 4. The methods of measurement and evaluation of aircraft noise are identical to those outlined in Japan Environment Summary Vol. 1/No. 1.

2. Target Date

In the vicinity of public airports, the environmental quality standards are to be attained and maintained in the period of time as specified in the table above for each category of airports. In cases where the period for attaining the standards is over five years, interim target dates are established as shown in the table.

APPENDIX

SPECIAL MEASURES LAW FOR THE PRESERVATION OF
HISTORICAL CLIMATE IN ANCIENT CAPITALS

(Law No. 1 of January 13, 1966)

Amended by: Law No. 60 of April 28, 1966

(Object)

Article 1. The object of this law is to stipulate special measures to be taken by the State, etc. , for the purpose of preserving historical climate in ancient capitals, which all the nation should equally enjoy the benefit thereof and which shall be succeeded to posterity nations as cultural assets peculiar to Japan, thereby promoting the love for the realm, and contributing to the elevation and development of culture in general.

(Definitions)

Article 2. In this law, the term "ancient capital" means the cities of Kyoto, Nara and Kamakura which occupy historically significant status as the center of government and culture, etc., of Japan in the past, as well as other cities, towns and villages to be stipulated in cabinet order.

2. In this law, "historical climate" means the situation of the area in which buildings and remains, etc., which have significance in Japanese history, embody and formulate the tradition and culture in ancient capitals in perfect harmony with surrounding natural environment.

(Duties, etc., of the State and local public bodies)

Article 3. The state and local public bodies shall make the purport of the law known, and besides, endeavour to fairly administer the law in such a way that the historical climate in ancient capitals be adequately preserved.

2. The nation at large shall endeavour to understand the purport of the law and not to act in contravention thereof in any way, and at the same time, cooperate in the measures to be taken by the State and local public bodies in order to attain the purport of the law.

(Designation of area in which historical climate shall be preserved)

Article 4. The Prime Minister shall be at liberty to designate the area of land necessary to preserve historical climate in ancient capitals, as area in which historical climate shall be preserved, after deliberation with the chief of administrative organs concerned, concurrently with hearing the opinion of local public bodies concerned as well as of Historical Climate Council.

2. The Prime Minister shall publish in the Official Gazette, when designating the area in which historical climate shall be preserved, to that effect and the area thereof.
3. The provisions of the preceding two paragraphs shall apply mutatis mutandis as to the alteration of the area in which historical climate shall be preserved.

(Plan for preservation of historical climate)

Article 5. The Prime Minister, when he designated the area in which historical climate shall be preserved, shall decide the plan for preservation of historical climate (to be referred to hereinafter in this law as "historical climate preservation plan") in regard to the area in which historical climate shall be preserved, after deliberation with the chief of administrative organ concerned, concurrently hearing the opinion of local public bodies concerned as well as of Historical Climate Council.

2. In the historical climate preservation plan, the following items shall be decided.
 - (1) Items concerning the control of acts within historical climate preservation area, and maintenance as well as preservation of historical climate;
 - (2) Items concerning the consolidation of facilities which are deemed necessary in connection with the preservation of such historical climate in the historical climate preservation area;
 - (3) Items concerning the standard of designation of historical climate special preservation area;
 - (4) Items concerning the purchase of land in accordance with provisions of Article 11.

3. The Prime Minister shall, when the preservation plan of historical climate has been decided, publish it in the Official Gazette, concurrently sending the same to the chief of administrative organ concerned and local public bodies concerned.

4. The provisions of the three preceding paragraphs shall apply mutatis mutandis to the alteration of historical climate preservation plan.

(Designation of historical climate special preservation area)

Article 6. The Minister of Construction shall be at liberty to designate historical climate special preservation area (to be referred to hereinafter as "special preservation area") as city planning facilities, according to procedure stipulated in the Cities Planning Law (Law No. 36 of 1919), with regard to the area constituting the essential portion of historical climate preservation area concerned, for preservation of historical climate, within historical climate preservation area.

2. Fu and prefecture shall be bound, when the designation of special preservation area has been made, to set up a sign indicating thereon in the area. In this case, the owner or possessor of the land within special preservation area shall not refuse or obstruct the establishment thereof.

(Notice of acts to be engaged within historical climate preservation area)

Article 7. Any person intending to be engaged in the acts enumerated in any of the following items within historical climate preservation area (except special preservation area), shall previously make notice thereon to the governor of Fu or prefecture, as stipulated in cabinet order. However, this shall not apply to usual acts of control, minor acts and such

other acts as are stipulated in cabinet order, as well as such acts as are done as expeditious measures required in the case of calamity.

- (1) Constructing anew, reconstructing or extension of building or structure;
- (2) Alteration of the character of land such as formation of building land, land development, etc.;
- (3) Felling of trees and bamboos;
- (4) Collecting of soil and stones, and the like;
- (5) Besides the acts mentioned above, such acts as are likely to unfavourably affect the preservation of historical climate, and which are stipulated in cabinet order;

2. The governor of Fu or prefecture is at liberty to give the person who made the notice, necessary advice or recommendations in case the notice prescribed in the preceding paragraph has been made, if it is deemed necessary for the preservation of historical climate.

3. The organs of the State, when intending to perform acts which are required to make notice under the provisions of paragraph 1, shall notify the governor of Fu or prefecture previously to that effect.

(Restrictions upon acts within special preservation area)
Article 8. The acts enumerated in the following items shall not be performed within special preservation area, unless permission therefor has been previously obtained from governor of Fu or

prefecture concerned. However, this shall not apply to usual acts of control, minor acts and such other acts as are stipulated in cabinet order, acts which are done as expeditious measures required in the case of calamity, as well as the acts which are already connected at the time of the designation of the special preservation area concerned.

- (1) Constructing anew, reconstructing or extension of building or structure;
- (2) Alteration of the character of land such as formation of building land, land development, etc.;
- (3) Felling of trees and bamboos;
- (4) Collecting of soil and stones, and the like;
- (5) Colouring of building and other structures;
- (6) Indication or posting of outdoor advertisements;
- (7) Except those mentioned in the preceding items, acts which are likely to unfavourably affect the preservation of historical climate and which are stipulated in cabinet order.

2. Governor of Fu or prefecture shall not give permission according to the preceding paragraph to the acts enumerated in each item of preceding paragraph which fail to conform to the standards stipulated in cabinet order.

3. The Minister of Construction shall previously hear the opinion of Historical Climate Council, when he intends to draft the enactment as well as amendment or abolishment of proviso to paragraph 1, or item 7 of the same paragraph or the cabinet order in the preceding paragraph.

4. To the permission of paragraph 1, term or other conditions may be attached to the extent necessary to preserve historical climate.
5. Governor of Fu or prefecture may, in case when he deems it necessary for preservation of historical climate, order the person who violated the provisions of paragraph 1 or conditions attached to the permission under the provisions of preceding paragraph, the restoration to original status, or when the restoration to the original status is exceedingly difficult, to take necessary steps in substitution therefor. In this case, as regards execution by proxy in the case of failure in performing the acts ordered, the provisions of the Law of Administrative execution by Proxy (Law No. 43 of 1948) shall apply.
6. Governor of Fu or prefecture shall, when he intends to order to take necessary measures for restoration to original status or measures substituting these (to be referred to hereinafter as "restoration to original status, etc.") under the provisions of former part of preceding paragraph, hear from the person to whom the order of restoration to original status shall be issued. However, this provision shall not apply in cases when the person fails to attend hearing without good reason, or in cases of urgent necessity.
7. In the cases when the order of restoration to original status is intended to be issued under provisions of former part of paragraph 5, and it is unable to confirm the person to whom

the order of restoration to original status, etc., shall be issued without fault, the governor of Fu or prefecture may himself carry out the restoration to original status, or cause to be carried out by the person he ordered or commissioned, at the expense of the person to whom the order of restoration to original status shall be duly issued. In this case, previous public notice shall be made to the effect that the restoration should be carried out within reasonable period and that, in case the restoration to original status fails to be perfected until the prescribed limit, person ordered or commissioned by governor of Fu or prefecture shall undertake the restoration to original status, etc.

8. The permission under paragraph 1 shall not be required in regard to the acts performed by the State. In this case, the State organs concerned, which intend to perform the acts, shall previously deliberate with governor of Fu or prefecture thereon.

(Compensation of losses)

Article 9. In case any person sustains a loss as the result of failing to obtain permission stipulated in paragraph 1 of preceding article, Fu or prefecture shall compensate the loss usually incurred by the person adversely affected thereby. However, this provision shall not apply to acts for which application has been made in the case when coming under any one of the following items:

- (1) In connection with acts for which application has been

made for permission of paragraph 1 of the preceding article, when permission is required under provisions of law provided for in Article 10 (including order based thereon; the same shall apply hereinafter in this item), the disposition of refusing permission has been given;

(2) When the acts, for which application has been made under paragraph 1 of preceding Article, are deemed to be significantly incompatible with the purport of designating special preservation area from the standpoint of universally accepted social idea.

2. Governor of Fu or prefecture shall deliberate with the person who sustained losses concerning the compensation of losses under the provisions of the preceding paragraph.

3. In case when the deliberation under the provisions of the preceding paragraph fails to be materialized, governor of Fu or prefecture or person who sustained losses shall be at liberty to apply for decision under the provisions of Article 94 of the Land Expropriation Law (Law No. 219 of 1951) to Expropriation Council, in conformity with the stipulations of cabinet order.

(Application of other laws concerning prohibition or limitation of acts)
Article 10. The provisions of Articles 7 and 8 shall not preclude the application of provisions of Cities Planning Law, Architectural Standard Law (Law No. 201 of 1950, Cultural Properties Protection Law (Law No. 214 of 1950, Law for the Construction of International Culture and Tourism City in Nara (Law No. 250 of 1950),

Law for Construction of International Culture and Tourism City in Kyoto (Law No. 251 of 1950) and other laws (including cabinet orders based thereon), concerning the prohibition or limitation of new construction, reconstruction or extension of building or structures, alteration of the character of land and other acts, within historical climate preservation area.

(Purchase of land)

Article 11. Fu or prefecture shall, in regard to land within special preservation area which is deemed necessary for preservation of historical climate, when representation has been made from the owner of the land concerned, for purchase of the land by Fu or prefecture on account of the fact that the use of the land is considerably hindered due to inability to obtain permission stipulated in paragraph 1 of Article 8, purchase the land concerned.

2. The price of land when the purchase above referred to is made shall be the current price, and should be calculated on the basis of appraisal standard as provided for in cabinet order.

(Control of purchased land)

Article 12. Fu or prefecture shall control the land purchased under provisions of preceding Article , in a way to conform to the object the present law.

(Expenses required for enforcement of historic climate preservation plan)

Article 13. The State shall plan to secure the fund required for historical climate preservation plan, and besides, endeavour to

promote the enforcement thereof within the bounds financially acknowledged by the State.

(Burden of expenses and subsidy)

Article 14. The State shall, as regards the expenses required for compensation of losses under the provisions of Article 9 as well as the expenses required for purchases of land under the provisions of Article 11, bear a portion thereof as stipulated by cabinet order.

2. The State shall be at liberty, as regards the expenses required for maintenance and preservation as well as equipment of facilities of historical climate carried out under historical climate preservation plan, to subsidize local public bodies a portion thereof within bounds of budget, as stipulated by cabinet order.

Article 15. Deleted.

(Historical Climate Council. Omitted.)

(Reporting and investigation upon entry, etc.)

Article 18. Governor of Fu and prefecture shall be at liberty to require report on the status of enforcement of acts enumerated in each item of paragraph 1 of Article 8 and other necessary items, when deemed necessary for the preservation of historical climate, from the owner of land and other interested persons in the special preservation area to the extent necessary therefor.

2. Governor of Fu or prefecture, when deemed necessary in order to exercise the authority under paragraphs 1, 4 and the former part of paragraph 5 of Article 8, shall be at liberty to cause his personnel to enter the land in special preservation area and study the situation, or inspect the status of enforcement of acts enumerated in each item of paragraph 1 of the said Article, to the extent necessary therefor.
3. The personnel provided for in the preceding paragraph shall carry an identification card, which shall be produced upon request of persons concerned.
4. The authority of investigation upon entry or inspection upon entrance shall not be construed as having been granted for the sake of criminal search.

(Special rules in big cities)

Article 19. In the present law, the business which is deemed as one to be disposed of by Fu or prefecture or belonging to the competency of governor of Fu and prefecture shall, in the case of cities designated under paragraph 1 of Article 252-19 of the Local Autonomy Law (Law No. 67 of 1947) (to be referred to hereinafter as "designated cities"), be disposed of by the designated cities, or carried out by the mayors of designated cities. In this case, the provisions concerning Fu or prefecture or governor of Fu or prefecture shall apply to designated cities or mayors of designated cities, as provisions

relative to the designated cities or mayors of designated cities.

(PENAL PROVISIONS. Omitted.)

SUPPLEMENTARY PROVISIONS

(Date of enforcement)

1. The present law shall come into force from the day fixed in cabinet order, within 6 months counting from the day of promulgation thereof.

APPENDIX

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