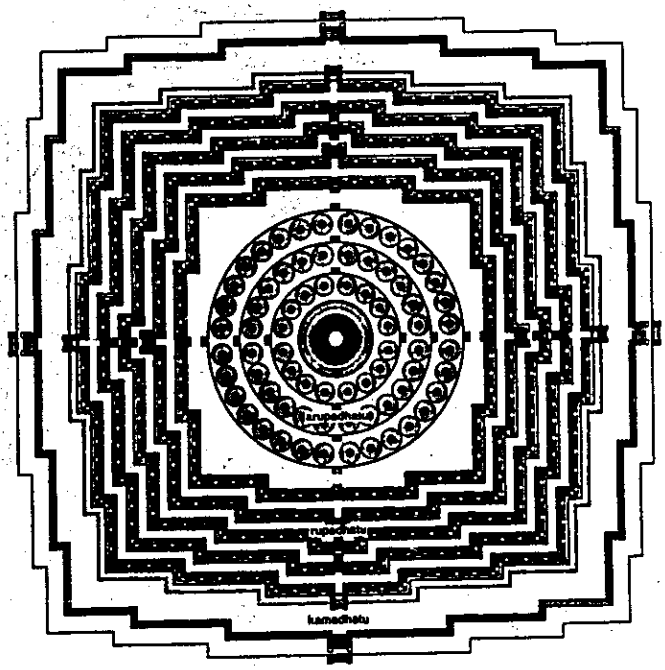
REPUBLIC OF INDONESIA

The National Archeological Parks Development Project

Borobudur & Prambanan



INTERIM REPORT

APRIL 1975

JAPAN INTERNATIONAL COOPERATION AGENCY

REPUBLIC OF INDONESIA

THE NATIONAL ARCHEOLOGICAL PARKS
DEVELOPMENT PROJECT

BOROBUDUR & PRAMBANAN

SUPPLEMENTARY BRIEF

NOTE ON PROJECT EXECUTION

APRIL 1975

JAPAN INTERNATIONAL COOPERATION AGENCY

NOTE ON PROJECT EXECUTION

Contents:

GENERAL (1)

11. In connection with the action plan for this project, it will be necessary for special development methods regarding implementation considering the significance and character of the project, for there is a greater background and significance than the objective of merely "appreciation of the archeological ruins."

The Indonesian Government, too, has set the following objectives for the implementation of the project:

(1) Preservation of historical cultural assets,

(2) Promotion of tourism development

(3) The socioeconomic development of the region,

(4) Having this project serve as a pilot model for this kind of development in the future.

It will be necessary in preparing the action plan to give due consideration to compatibility with these objectives.

In the present interim report only the basis thinking with respect to particularly important aspects of implementation of the project will be stated, with approach to a more realistic solution being on the basis of comments thereon by the Indonesian side. The following are some of the important aspects to be considered:

(1) Development program and project priority,

(2) Development methods,

(3) Development organization and roles,

(4) Application of the Master Plans,

12. In the Interim Report proper, explanations were given of the definition and significance of the project, the development policy and the physical and technical plans. Here we shall give preliminary consideration to the software program for the execution of the project, particularly the following items regarding development strategy and tactics.

(1) Development system

Consideration of an execution program that will encompass the entire process of realization of the project and make it possible to successfully complete the project in a smooth and rational fashion in accordance with its aims.

(2) Development organization

a. Establishment of the necessary organization on the administrative level (National Project Team and council)

b. Establishment of a development authority.

c. Establishment and systemization of other related organization for this development project.

(3) Roles of the development organization

The roles and activity functions of the abovementioned development organization will be the following:

a. Preparation of Master Program and Action Plan

Drawing up plans relating to the execution of the project, including project, investment, operation and construction plans.

b. Establishment of a coordination function

- Checking and coordination with upper-echelon plans and other policies
- Coordination and liaison with the government department, agencies and branches concerned (establishment of a council for this purpose)
- Coordination and adjustment locally (establishment of a development council and holding of public hearings)

c. Procurement of funds

d. Site acquisition

- Purchase or leasing of park land
- Village relocation and provision of substitute sites

e. Park construction

- Improvement of environment and provision of facilities and utilities
- Implementation of related works (access road, village improvement, etc.)

f. Operation, management and control, both directly and by private entities

g. Provision of legal system of development regulation

- Legal measures for environmental control (enactment of special legislation, including a National Archeological Parks Law)
- Setting of standards and establishment of a licensing system for development regulation (checking by an Environment Council and other organization)

h. Seeing that the local community benefits from the development.

i. Tourism promotion

j. Administrative guidance

DEVELOPMENT PROGRAM AND DEVELOPMENT PRIORITY (2)

The development works for the national archeological parks will fall and the following six categories:

(1) Restoration of the archeological ruins.

(2) Provision of the park landscaping.

(3) Provision of the park facilities,

(4) Provision of infrastructure.

(5) Provision of access roads.

(6) Village relocation and renewal.

The construction work will have to be done in stages but the final development program and development priority will have to be decided after technical consideration of each item as soon as the amount of development investment is determined.

While the project period has been set as 10 years, it is proposed to complete the construction work for items 2., 3., 4., and 5. above prior to the end of the 10-year period. Furthermore, as the total amount of investment is determined on the basis of subsequent financial analysis, alternative proposals will have to be considered for the development program and development priority.

DEVELOPMENT METHOD (3)

The character of the project, the problems regarding implementation, the institutional framework in Indonesia and other pertinent conditions must be taken into consideration in the selection of the development method regarding the execution of the project.

The following are examples of development methods in which the government plays the leading role which are presently common in Japan. They should be of considerable reference value to the Indonesian side.

Case-1 The national government being the development authority and the works being undertaken directly by government agencies (e.g., development of "recreation towns" by the Ministry of Construction; development by the Ministry of Transport of large-scale seaside recreational centers and national tourist recreation areas; and development by the Forestry Agency of forest recreation areas)

Case-2 Planning and financial assistance by the national government, but implementation by local governments as projects subsidized by the national government

Case-3 Operation by a special public corporate entity as social investment by the national government outside the regular framework of government finances

Case-4 Development and operation by special incorporated companies, with direct government capital participation on the basis of special legislation (e.g., power supply development, Japan Airlines)

DEVELOPMENT ORGANIZATION (4)

Development entities generally consist of the following elements:

(1) The national government

(2) Regional and local governments

(3) Local residents (individuals and groups)

(4) Private companies

Various types of development entities are formed by different combinations of these elements:

(1)	Public-sector type	(agencies of the national government and regional and local governments)
(2)	Quasi-public-sector type	(special public corporate entities and groups of individuals)
(3)	Private-sector type	(any private companies)
(4)	Third-sector type	(special companies)

The organization for implementation of this project should be either of the public-sector type or one in which the government plays the leading role. Furthermore, the active participation of the local residents will be indispensable. In this sense, it will be necessary to create a special kind of organization that incorporates types (1), (2) and (4) above.

LAND ACQUISITION (5)

(1) Although the ideal solution would be nationalization of all of the land in the park areas by government purchase, it would appear to be difficult to accomplish complete nationalization at the outstart of the project. It will be necessary, however, eventually to nationalize all of the land in the sanctuary areas and the archeological ruins protections areas (park facilities areas).

In the case of the archeological park scenic areas, in principle the land ownership will be allowed to remain as it is, with the land-use pattern being fixed and development regulation being applied.

(2) Land Acquisition in Connection With Village Relocation

In principle, the substitute land should be provided within the same desa as the original location of the village, the following being methods in this regard:

(a) Buying up of private land or desa common land by the park development entities to use as substitute land for relocation of villages.

(b) Creation by the provincial government of public land for accommodation of such resettlement by reorganizing the existing villages, raising the residential density.

We have assumed that method (a) will be adopted in preference to method (b). The final decision, however, will have to be made on the basis of consideration of development techniques, including a compensation system; development organization; financial divisions; and so on.

LEGAL REGULATION (6)

Legal provision will have to be made for land-use regulation, development regulation and standards, and various other kinds of regulation in order to support the project and guide development activity in the desired direction. Although it might be possible to some extent to provide for such regulation on the basis of existing laws, it is far better that an "Archeological Parks Act" be passed as well as other necessary related laws such as a "Cultural Assets Protection Act."

In this respect we, as the planners, have gone only so far as to present some guidelines. It will be necessary, however, to freeze all development activity until the legal framework for regulation within the designated areas of the parks is gradually formed.

REPUBLIC OF INDONESIA

THE NATIONAL ARCHEOLOGICAL PARKS
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APRIL 1975

JAPAN INTERNATIONAL COOPERATION AGENCY

Contents:

1. Estimation of Total Tourist Inflow in Project Region

1) Total tourist inflow,

a) Depending upon the REPELITA II data and the results of T.D.C.'s research, we have estimated the time series of total tourist inflow in the project region up to 1985 by using a model which was developed for this project.

b) We also estimated the time series of tourist inflow to Borobudur and Pranbanan in detail.

c) Total tourist inflow estimated consists of long term tourist, weekend tourist, day tripper and Foreigner by origins of tourist: Province, urban and rural.

d) Total tourist inflow to Borobudur and Pranbanan up to 1995 were extrapolated by time series of 1975-85 of them.

e) The results are shown in,

Table 1. Total Tourist Inflow & Total Tourism Expenditure in Project Region and

Table 2. No. of Tourist by Origin & Province.

Note

Case 2. We considered that People of Java would come twice during his life as a result of endevour to promote tourism activities or increase of attractiveness and assesibility. Then Domestic Tourist numbers of Java were twice in this case 2.

Figure 1. No. of Tourist inflow for Borobudur

Figure 2. No. of Tourist inflow for Pranbanan

TABLE - 1 Total Tourist Inflow & Total Tourism Expenditure In Project Region

	(UNIT:PERSON)		(UNIT:PERSON)		(UNIT:US$)	
	NTBO 1	NTPR 1	NTBO 2	NTPR 2	MTAEJ 1	MTAEJ 2
1974	687388	571846			6981529	
75	724182	598957	1400808	1181727	7648602	12552625
76	764776	627587	1471895	1236648	8482821	13619692
77	800505	649106	1530705	1276809	9458275	14816865
78	858852	690536	1631601	1356175	10645324	16248213
79	913668	725185	1721644	1426078	12071485	17930622
80	974986	762389	1819949	1490288	13794461	19922484
81	1044124	802362	1927901	1563727	15890179	22300513
82	1122714	845506	2047200	1642472	18452972	25159431
83	1212840	892345	2180107	1725694	21598131	28615661
84	1316727	943422	2328897	1815488	25457404	32801604
85	1438422	1000006	2498322	1913326	30237751	37931845

NTBO 1 Visitors to Borobudur (Case-1)
NTBO 2 " (Case-2)
NTPR 1 Visitors to Prambanan (Case-1)
NTPR 2 " (Case-2)
MTAEJ Total Tourism Expenditure in Project Region

TABLE - 2 No. of Tourist by Origin & Province

Province	Type of Trip	Urban & Rural	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
1 DKI Jakarta	LTWT	Urban	34188	35758	37401	39121	40929	42817	44800	46877	49054	51336	53732	56238
		Rural	544	551	554	559	565	570	573	577	584	585	591	596
2 Jawa Barat	LTWT	Urban	114319	118910	125581	131637	138001	144680	151699	159072	166816	174952	183503	192486
		Rural	7593	7644	7711	7767	7838	7914	7979	8049	8107	8188	8258	8989
3 Jawa Tengah	WT	Urban	110532	115764	121253	127017	133065	139412	146072	153066	160408	168116	176210	184705
		Rural	7859	7930	7991	8066	8130	8197	8268	8342	8405	8490	8564	8626
	DT	Urban	189142	198097	207491	217353	227704	238562	249963	261929	274491	287679	301533	316072
		Rural	13448	13570	13674	13802	13913	14027	14148	14275	14383	14528	14655	14761
4 Yogjakarta	WT	Urban	11934	12487	13075	13685	14328	15002	15709	16448	17229	18043	18899	19799
		Rural	926	934	941	950	957	965	974	982	991	1000	1007	1016
	DT	Urban	20415	21373	22369	23420	24520	25668	26883	28147	29481	30877	32341	33880
		Rural	1584	1599	1611	1625	1638	1650	1667	1680	1695	1711	1724	1738
5 Jawa Timur	LTWT	Urban	125401	131386	137665	144258	151183	158450	166081	174097	182512	191352	200637	210390
		Rural	9643	9723	9802	9896	9978	10062	10148	10237	10330	10410	10513	10604
6 Aceh	LTT		130	136	142	148	154	162	168	176	184	192	200	210
7 Sumatera Utara	"		822	860	898	940	982	1026	1074	1122	1174	1228	1284	1346
8 Sumatera Barat	"		586	612	638	666	696	728	760	794	828	866	904	944
9 Riau	"		302	314	326	340	354	368	384	400	416	434	452	470
10 Jambi	"		146	152	158	166	194	180	188	198	206	216	224	234
11 Sumatera Selatan	"		868	908	948	992	1036	1084	1132	1194	1238	1294	1354	1414
12 Bengkulu	"		60	64	66	68	72	74	78	82	86	90	94	98
13 Lampung	"		720	752	786	820	856	894	932	974	1018	1062	1110	1158
14 Kalimantan Barat	LTT		262	272	284	296	308	322	336	350	366	382	398	414
15 " Selatan	"		60	62	66	68	72	74	78	80	84	88	90	94
16 " Tengah	"		558	582	606	634	660	688	718	750	782	816	852	890
17 " Timur	"		70	74	76	80	82	86	90	94	98	102	106	110
18 Sulawesi Utara	"		182	190	198	206	214	224	234	244	254	266	278	290
19 " Tengah	"		94	98	102	108	112	116	122	128	132	138	144	152
20 " Selatan	"		1020	1064	1110	1158	1208	1260	1314	1372	1430	1494	1558	1626
21 " Tenggara	"		108	114	118	124	130	136	144	150	158	166	174	182
22 Bali	"		866	904	944	986	1030	1076	1124	1174	1226	1280	1338	1398
23 Nusatenggara Barat	"		570	596	622	650	680	710	742	776	810	846	884	924
24 " Timur	"		288	300	312	326	340	354	370	386	402	420	438	456
25 Maluku	"		88	92	96	100	104	108	112	118	122	128	134	138
26 Irian Jaya	"		108	112	118	124	130	136	144	150	158	166	174	182
Domestic Total														
0 Foreigner	"		32060	39298	49043	61304	76709	95886	119779	149645	187056	233899	292373	365794

Notes : LTWT : Long Term Weekend Trip
WT : Weekend Trip
DT : Day Trip
LT : Long Term Trip

Fig.-1 No. of Tourist Inflow for Borobudur

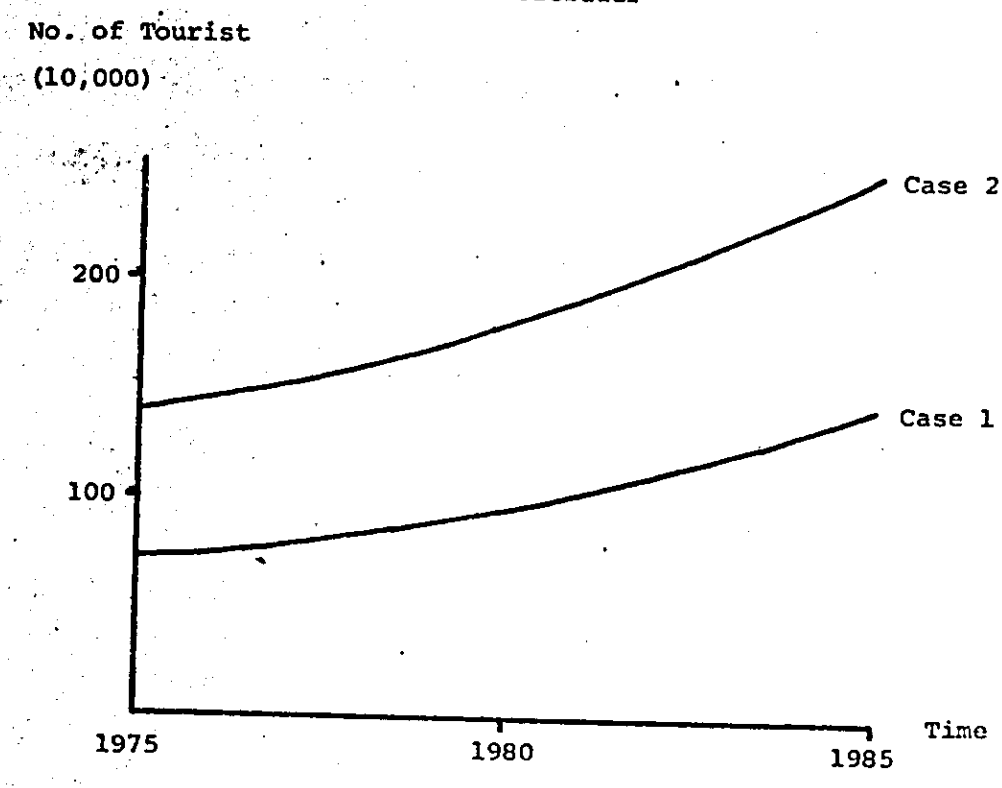
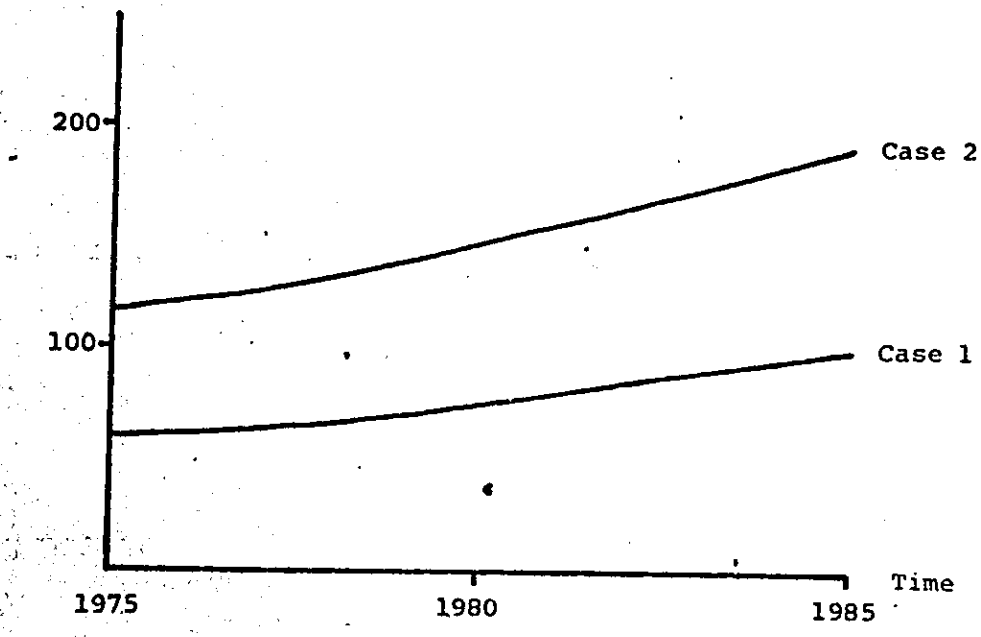


Fig.-2 No. of Tourist Inflow for Pranbanan



2. Determination of the Scale of the Parks Projecting

1) Not only for physical planning but also for investment planning, we have to decide the scale of parks in terms of the level of tourist inflow. Though our planning period is 1976-85, physical scale whose capacity is sufficient comparing with demand should be chosen at least at the level of demand 1995, twice length of the constructions period. At that time, we would make the renewal of the plan as a more suitable one for the stage of development of tourism.

2) Our target scale is therefore at the level of tourist inflow of 1995, but the construction and setting of basic structure of the park should be settled up to the end of planning period 1985, even though tourism operation is still growing under this level.

3) According to this idea the planning schedule of the project, the supply curve of the scale, should be depicted from the level existing at 1975 to the level planned at 1985 which equal to the level estimated at 1995.

4) The calculated results show that the supply curve of scale, i.e. planning schedule, is a curve whose growth rate is approximately 25% for Borobudur.

5) This gives us fundamental conditions of physical plan and investment.

6) The relationship of demand curve and supply curve of the scale of parks are explained in the following figures.

Figure 3: Planning schedule of Borobudur

Figure 4: Planning schedule of Pranbanan

Fig.-3 Planning Schedule of Borobudur

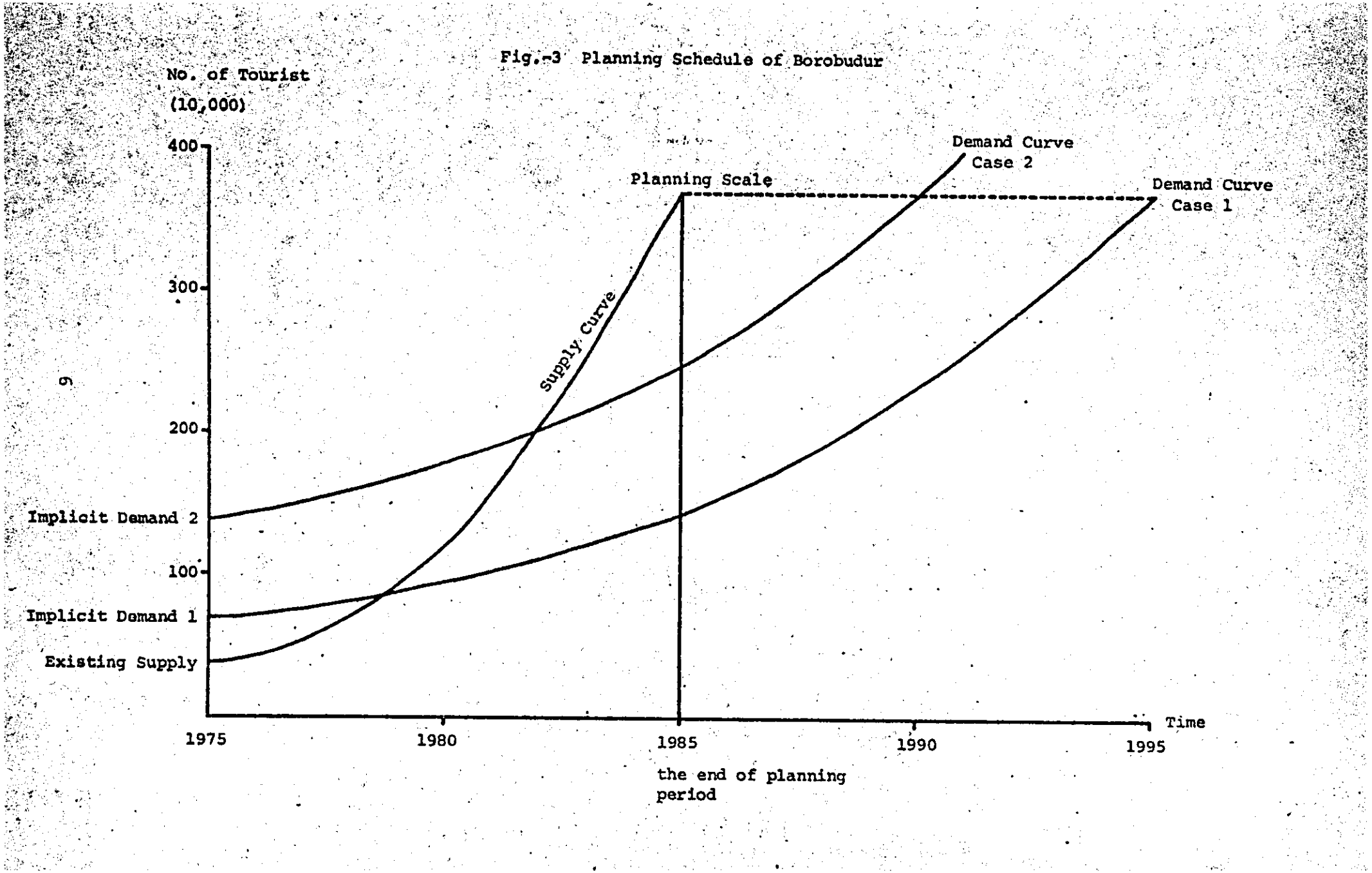
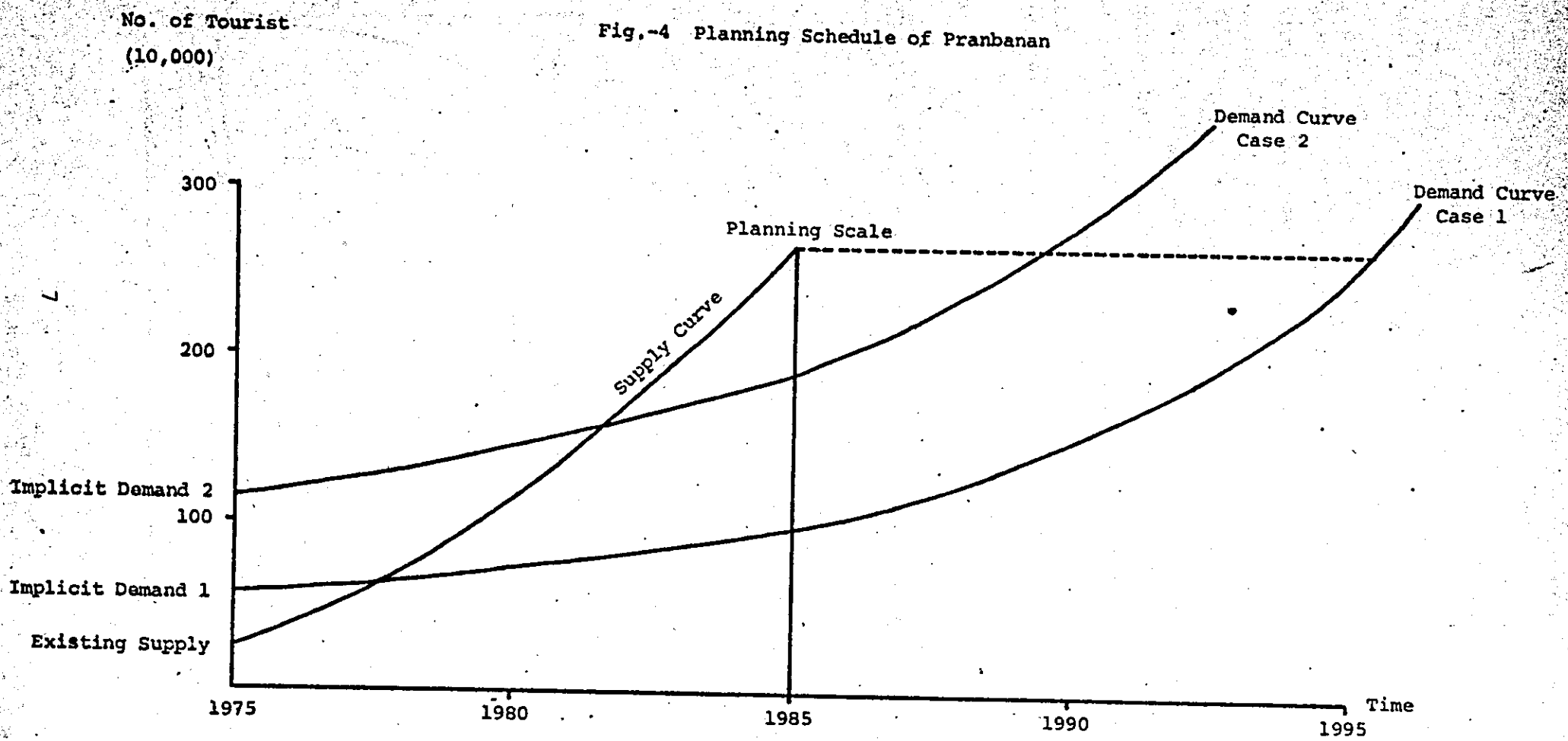


Fig.-4 Planning Schedule of Pranbanan



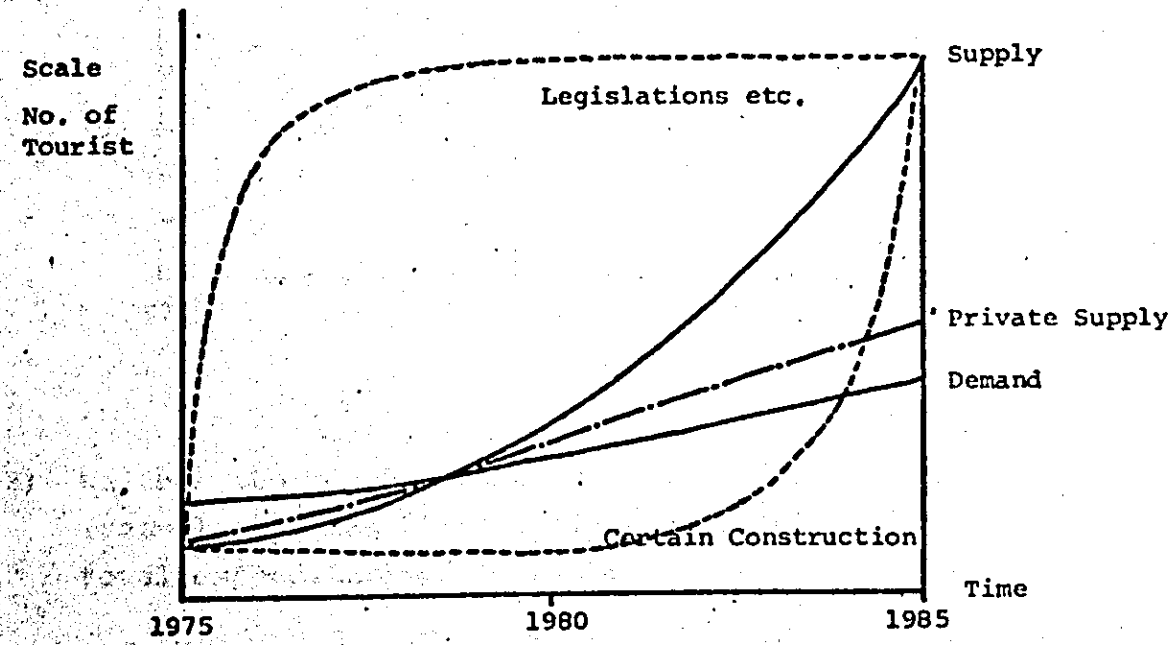
7) In due course of discussion, we have arrived at the conclusion that we have to plan both parks which have the same attractiveness and accessibility for tourists until the end of the construction. This means that the planned scale should be the same for both parks. This will be attained by the character of the park plan; for example, Pranbanan should be planned to attract much more daytrippers.

8) We decide lastly the same target for both parks.

Note

Given target scale of planning, we can decide physical layout and design. But the levels of implementation are distributed by type of mixed means. For instance, regulation for landuse and landscape keeping etc., should be completed at the beginning and a certain construction at the last stage until the end of the period. The domain of dotted lines are planning domain of investment.

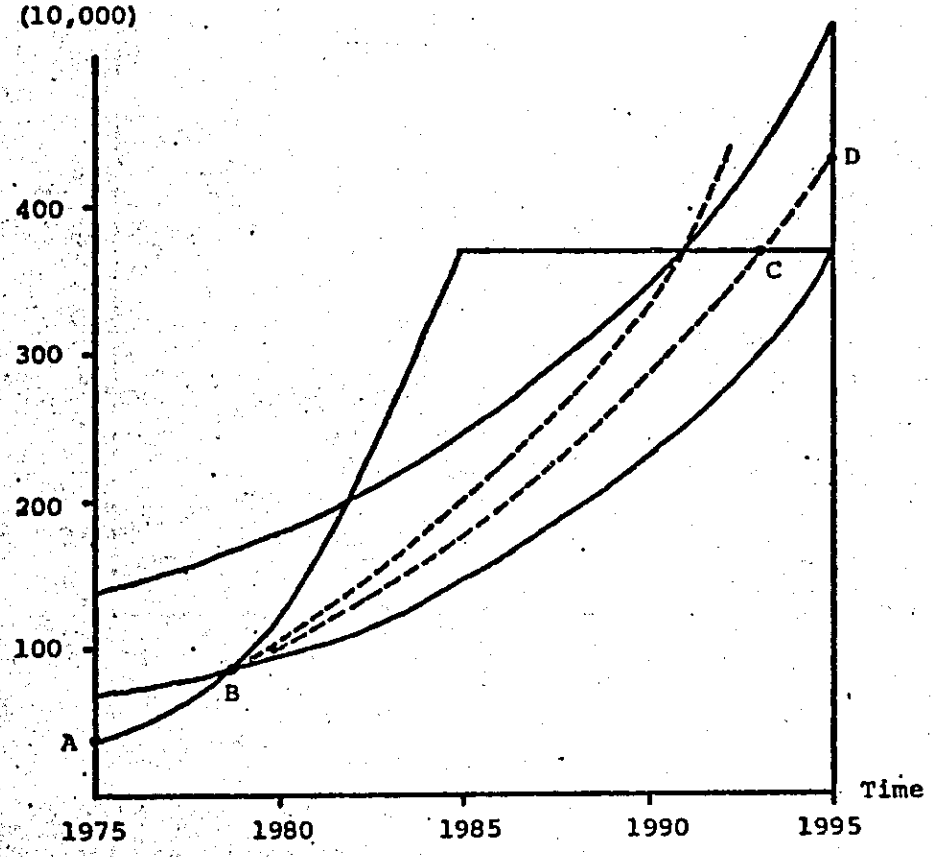
Fig.-5 Scale Explanation of the Planning Domain



3. Financial Feasibility of the Project

1) Tourist expenditure will be expected to yield through the activities of tourists who will come in this region. The demand level in tourists inflow is not always the number of the tourist who will come in reality. In the figure 6, the line AB, BC, and CD are considered to be the most plausible level of tourist inflow in reality, though its estimation is very difficult.

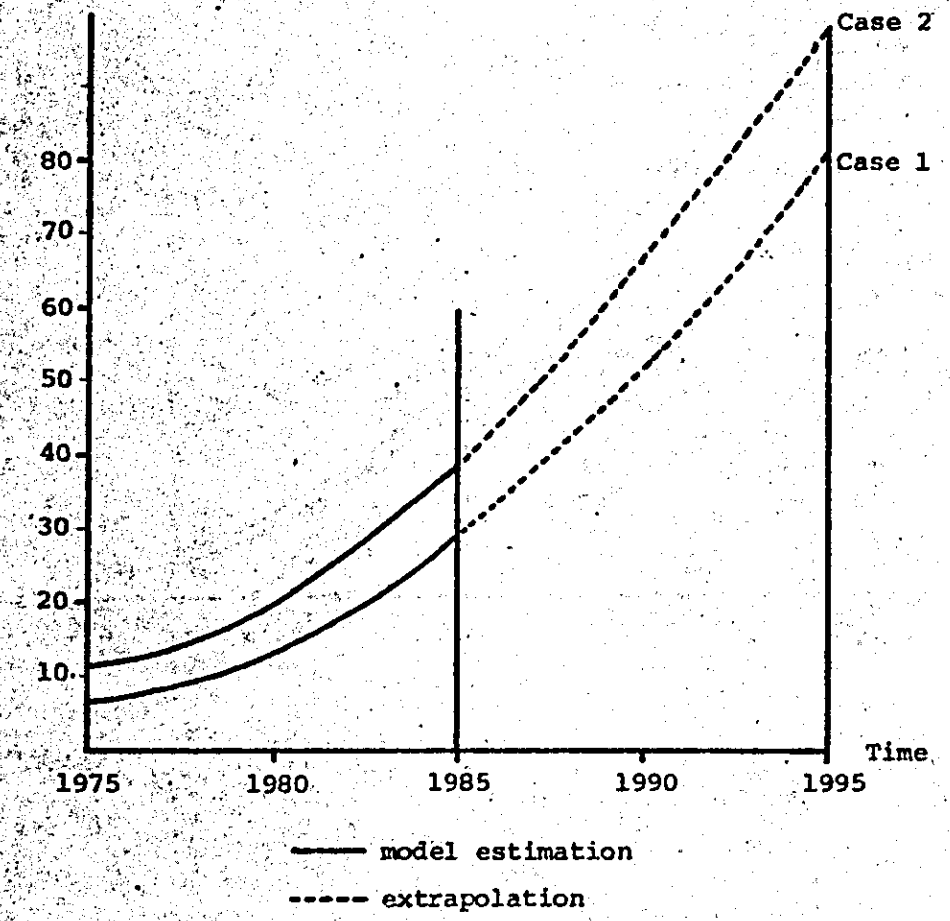
Fig.-6 Explanation for Expected Level of Tourist



2) We took the rough estimates derived from the demand curve (case 1 and case 2) as a first approach to calculate the total expenditure of tourists.

3) The calculated result of total tourism expenditure in the project region is as follows.
(Figures are shown in the table 1,)

Fig.-7 Total Tourism Expenditure In Project Region



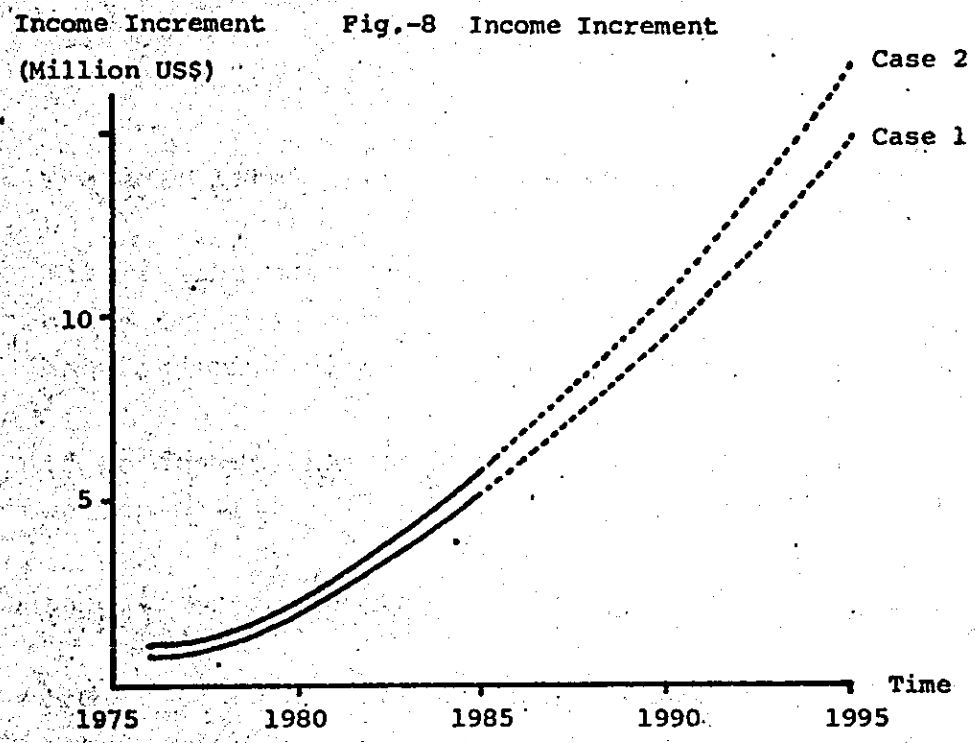
4) Though the investment of this project is autonomous one, we are not at the stage to estimate the income effect of autonomous investment. We are at the stage to decide the financial feasibility of this investment.

5) The induced investment through this expenditure is calculated by accelation principle.

6) The income generated through this investment is also calculated by multiplier principle.

7) The income increment of the region is shown in Figure 8.

Fig.-8 Income Increment



8) The rate of tax for G.R.P. of provincial government is taken from the data of REPELITA II. It is around 10%. Then we get the tax revenue increment in central Java, which is shown in Figure 9.

9) The rate of development subsidies from the central government to central Java which is denoted by γ is taken from REPELITA II. It is around 50%.

10) If it is possible to invest the sum of the governmental revenue for this project, the total fund for investment will be

$$(1 + \gamma)\, G(\Gamma) = (1 + \gamma) \int_0^{\Gamma} g(t)\,dt$$

The calculated estimated are shown in Figure 10.

This is the most modest estimation of investment fund because it does not include the effect of autonomous investment and the indirect effect of this induced investment.

11) If we denote the total investment of this project by $\bar{G}$, we can write

$$\bar{G} = (1 + \gamma)\, G(\Gamma)$$

in case of neglecting the interest cost.

From this we can get an indifferent curve between γ and Γ for special $\bar{G}$. Γ being decided we can get a special rate of subsidies γ for its own special $\bar{G}$. When Γ and γ are decided, we can decide a level of investment fund for this project $\bar{G}$. Even if it is rough, it depends upon the committee which to choose at the initial stage for planning.

Fig.-9 Tax Revenue Increment In Central Java

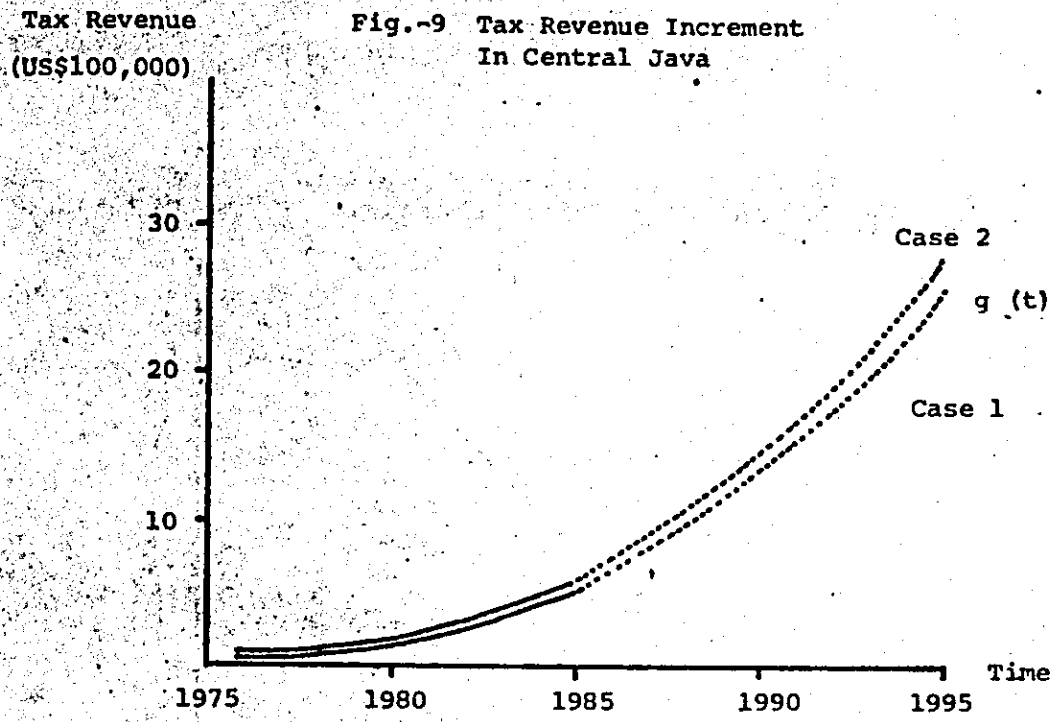


Fig.-10 Total Fund for Investment

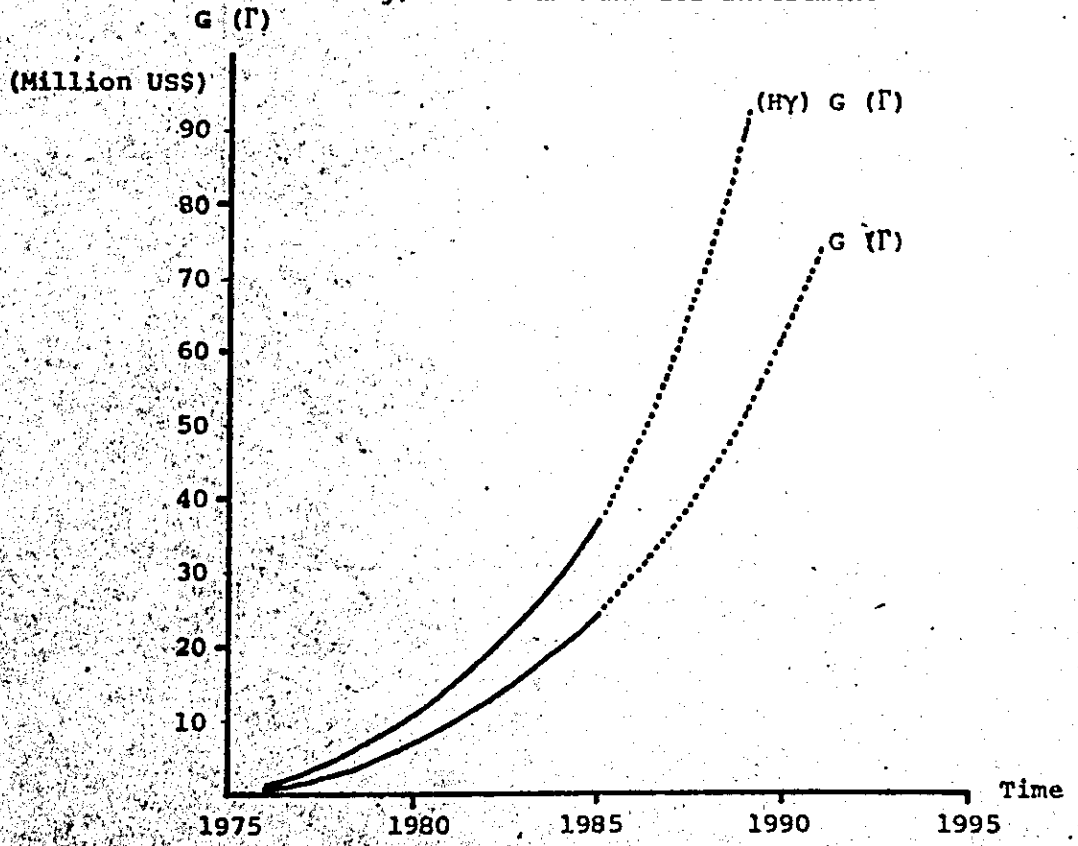
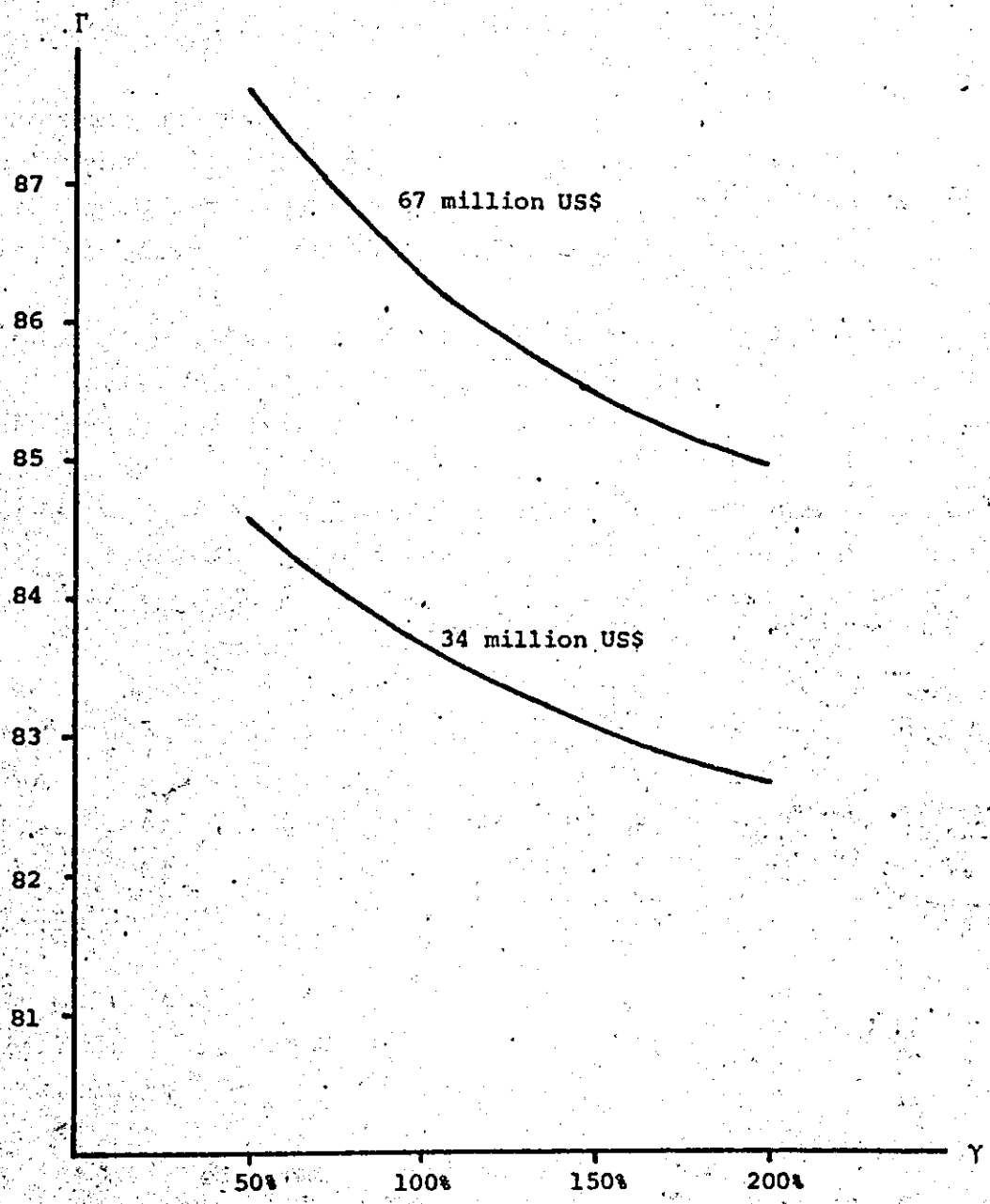


Fig.-11 Indifferent Curve of γ and Γ



4. Investment Schedule

1) We have already planned the domain for the scale and the approximate level of investment fund. According to these data, physical design and plan will be carried under the consideration of the next points.

2) The more heavily in volume and the more shortly in time we invest, the more difficult the finance will become, because of growing interest burden in spite of being more income effects from this autonomous investment.

3) Usually the amount of fund and planning domain will decide the investment schedule according to the technological and designing conditions.

4) After we get the schedule of investment, we can estimate both effects of autonomous and induced investment. Then we can give you more concrete data of Υ and Γ by means of the more comprehensive way.

5) Finally we can say total effect of this project should be evaluated by the cyclical depending model, which will treat special and mutual independance between investment and income effect under the condition of being given structures or the schedule of investment.

It will need at least the precise information about the following figures of policies to develop the study at the next task.

Υ : ratio of central government's development subsidies to local government investment

t : tax rate of local government to Gross Regional Product

Γ : your expected years for depreciation in this project

r : your expected discounting rates in this project

5. Last Remarks

As the interim conclusion we would like to emphasize the meaning of the national project.

1) The investment cost of this project is not a matter of commercialism. It depends upon the efforts and eagernesses of people who participate in this project voluntality to built up such a national treasure dwelling in the heart of Indonesian people. The cost curve shown from the economic view points is not a result of such national movements of Indonesian people. It would be possible to shift it downwards.

2) The demand of tourism will be created through the activities of such national movements. The more people take part in the movement, the more the demand of tourism to the historical parks in Central Java will increase. This is not only a personal transportation flow in tourism, but it will be expected to change the economic flow in Indonesian country.

   We would like to recongnize again the tourism development plan is a part of economic development plan of the regions and the country as a whole.

REPUBLIC OF INDONESIA

THE NATIONAL ARCHEOLOGICAL PARKS
DEVELOPMENT PROJECT

BOROBUDUR & PRAMBANAN

SUPPLEMENTARY BRIEF

EXECUTIVE SUMMARY

APRIL 1975

JAPAN INTERNATIONAL COOPERATION AGENCY

EXECUTIVE SUMMARY

Contents:

GENERAL (1)

The report that is now being submitted is an interim report on the completion of Phase-I of the JICA study, the duration of which has been four months. It is now necessary that the Indonesian side assess the results of the study to date and make decisions on various items so that the framework can be set for commencement of the subsequent work.

The contents of the present brief are accordingly as follows:

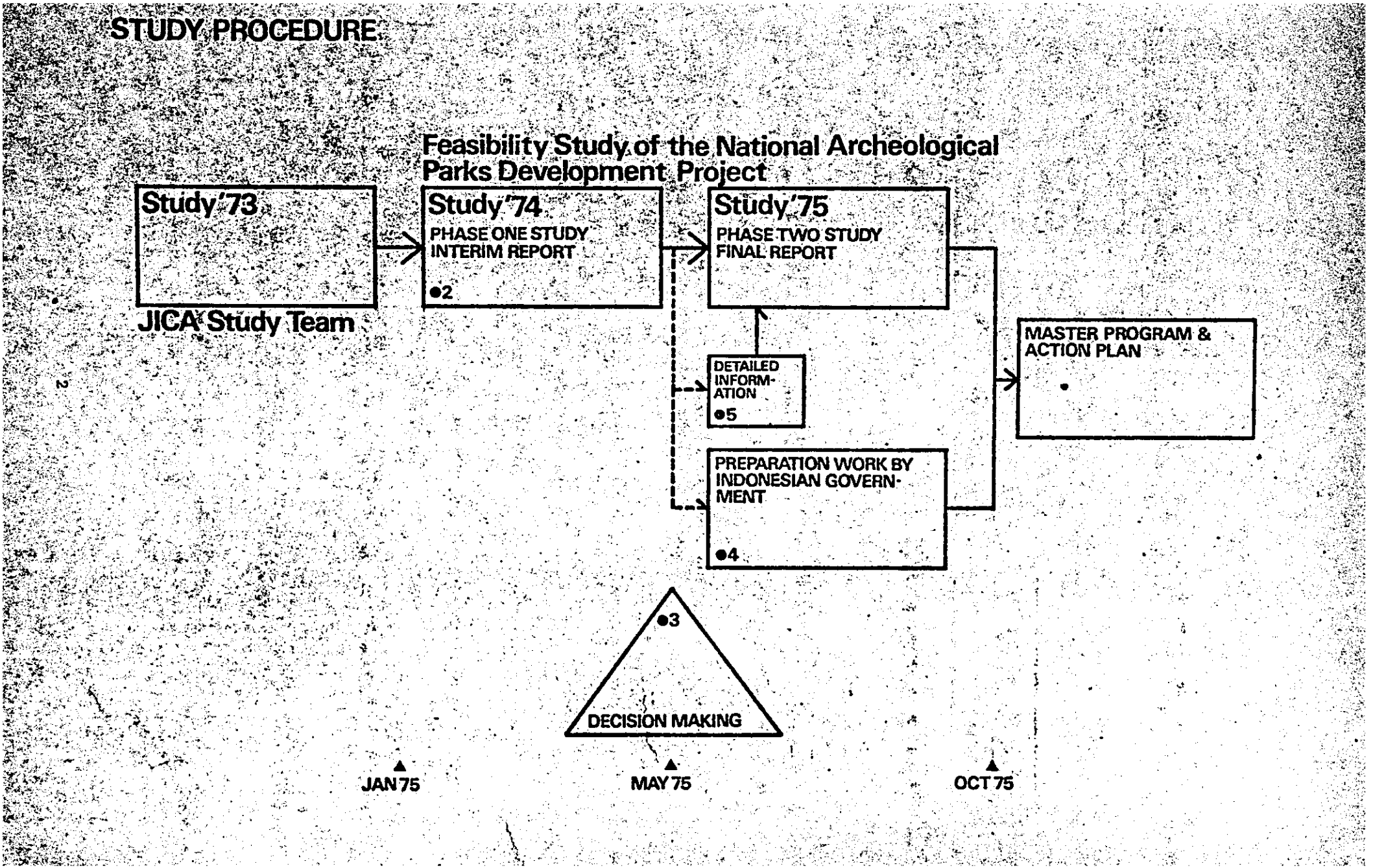
(1) Briefing on the output of Phase-I (summary, conclusions and recommendations)

(2) Identification of immediate items requiring decisions by the Indonesian side

(3) Identification of matters that will have to be studied by the Indonesian side in cooperation with the JICA Study Team during Phase-II as preparation for development

(4) Detailed data requested of the Indonesian side as necessary for the Phase-II work

STUDY PROCEDURE



INTERIM OUTPUT BY THE JICA STUDY TEAM (2)

Inventory:

Volume-I Interim Report (160 pages)

Volume-II Supplementary Brief

- Executive Summary
- Note on Project Execution
- Discussion Paper on Economic Feasibility
- Tourism Market and Financial Analysis

Volume-III Drawings

- General Plans, 1:10,000
- Master Plans, 1:5,000
- Master Plan Systems

The contents of the Interim Report are as follows:

(1) Policy plan for the national archeological parks development and improvement works

- Definition of the significance of the project from a socioeconomic standpoint (see § 3)

- Definition of the project from a development planning standpoint (see § 4)

(2) Frame plan for the development and improvement of the national archeological parks

- A proposed development plan covering the scale, timing, composition, etc. of the development (see § 52)

(3) General plans of the national archeological parks

- Landuse plans (see § 53)

- Zoning regulation plans (see § 54)

- General plans, 1:10,000 (drawings)

(4) Master Plans of the national archeological parks

- Concrete design of the park facility areas (see § 6)

- Master plans, 1:5,000 (drawings)

- Master plan system (drawings)

(5) Other project plans necessary to the national archeological parks

- Village improvement plans and village relocation plans for villages within the park areas (see § 71)

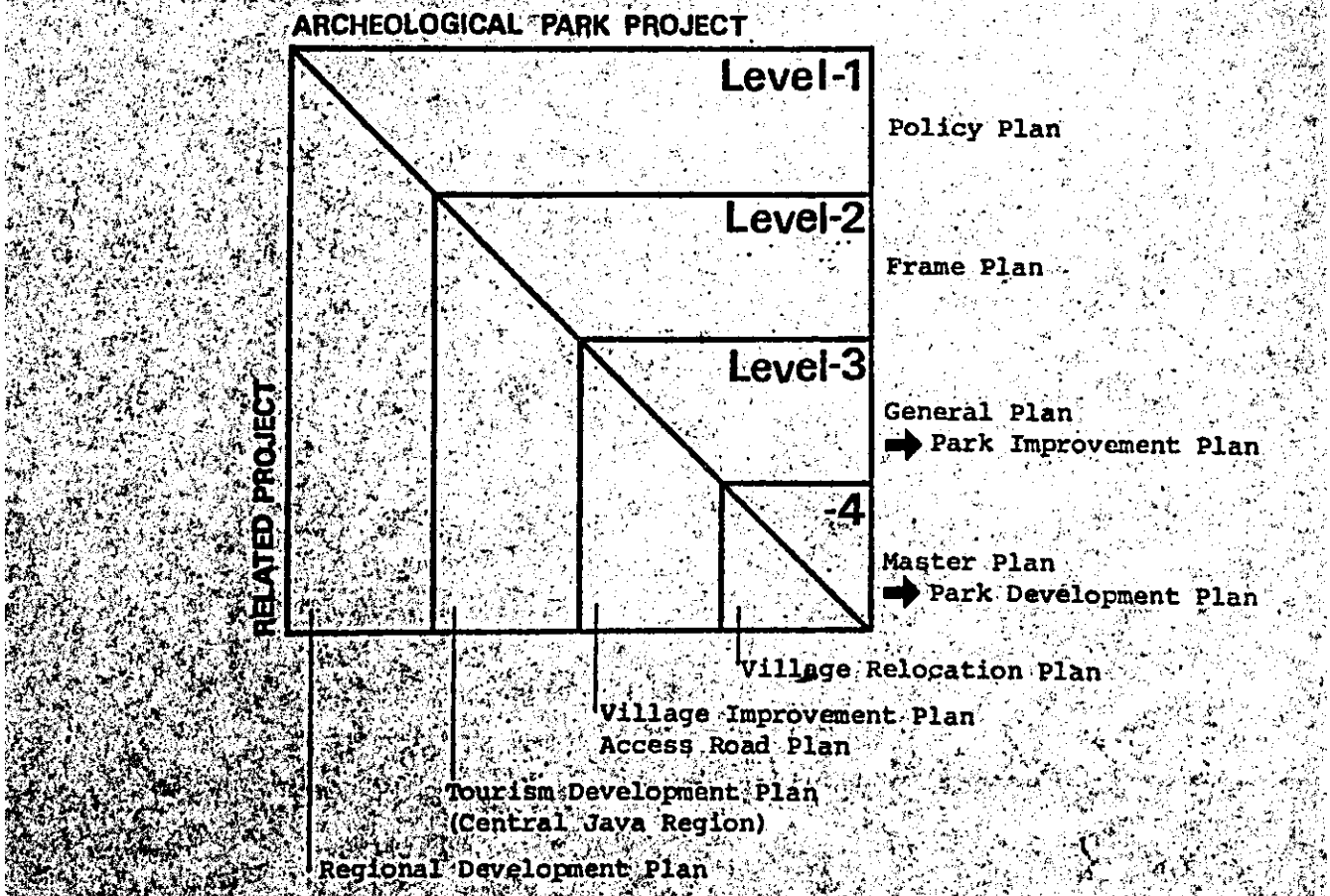
- Access road plans (see § 72)

The contents of the Supplementary Brief are as follows:

- Preliminary study regarding project implementation (development system, development organization and its roles, main problems with respect to implementation, etc.) (see Supplementary Brief #2)

- Preliminary economic feasibility study (estimation of total tourist inflow, determination of the scale of the parks, financial feasibility, investment schedule) (see Supplementary Brief #3)

Cross Reference Matrix of The Projects



DECISION-MAKING BY THE INDONESIAN GOVERNMENT (3)

The results of the above far-ranging studies will serve as given conditions for Phase II after being assessed by the Indonesian Government. It is to be hoped that such assessment will be on the following decision-making levels:

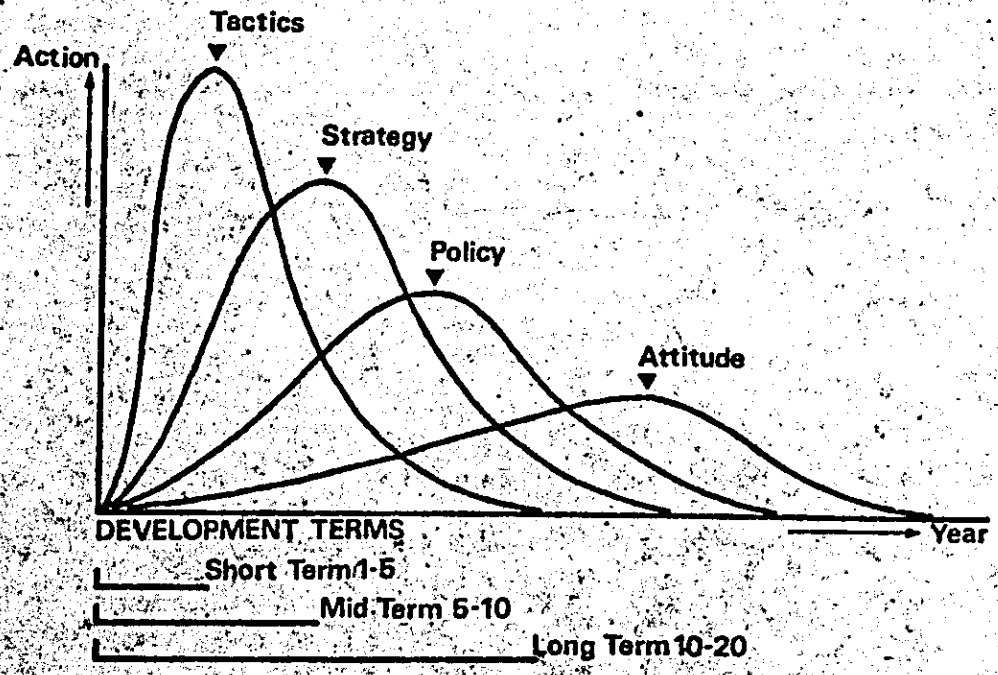
Level-1 Assessment of attitude (proposed principles, significance and definition of the project) (see § 3 and § 4)

Level-2 Assessment of policy (the proposed development frame of the project) (see § 5 and § 7)

Level-3 Assessment of strategy (the proposed individual physical aspects of the archeological parks) (see § 6)

Level-4 Assessment of tactics (the proposed technical details of the project)

Our Measure of The Decision-Making



1. Attitude Planning

   Permanent preservation of national assets and their surroundings

2. Policy Planning

   Utilization of the assets as national symbols

3. Strategy Planning

   Creation of national mobility through the promotion of domestic tourist activity

   Stimulation of regional development

4. Tactics Planning

   Implementation of pilot project

   Making sanctuaries of the archeological ruins (Zone-1)

   Making a park of the surroundings of the archeological ruins (Zone-2)

   Area designation for the purpose of permanent preservation of the environment (Zone-4)

PREPARATION BY THE INDONESIAN GOVERNMENT (4)

It will be necessary for the Indonesian Government to make preparations at the same time that the JICA Study Team is engaged with the Phase-II work, the following preparations being particularly urgent and important for the sake of early realization of the project.

(1) Determination of the development system

(2) Determination of development scale and priorities

(3) Determination of development organization

(4) Study and determination of the roles of the development organization

a. Fund procurement measures

b. Methods of land acquisition

c. Operation, management and control systems

d. Preparations for legal system for regulation

e. Establishment and adjustment of administrative footing

f. Measures for dealing with the villages in the park areas

g. Provision of infrastructure in connection with the park development

DETAILED INFORMATION REQUESTED (5)

The following detailed information is needed in order to proceed further with the study and the design.

(1) Land ownership drawings and information on the breakdown of the area involved

Borobudur Area

Three kecamatan in Magelang (Borobudur, Muntilan and Mungkit)

Prambanan Area

Kecamatan Borobudur in Klaten (information on Yogya already available)

The markings should be the same as those of the drawings prepared for the Agraria of the Yogya Special District.

(2) Regional data (within the park designated area: Zone-4)

a. Kecamatan and desa administrative boundaries

b. Distribution of public facilities (kantor, scola, passar, policlinic, polici, etc.)

c. Road division (by jurisdiction and classification)

d. Utility facilities distribution, particularly layout of irrigation network, and relationships of rights

e. Area and population by desa and dukuh

The information should be indicated on a 1:10,000 map prepared by Pariwisata.

(3) Survey of land, buildings and living conditions of the villages mentioned in the Interim Report (§ 71) as candidates for relocation

a. Indication of roads, sites, buildings, public facilities, irrigation network, etc. on map of scale of about 1:2,000

b. Population and breakdown thereof by age, sex and occupation

c. Map of land ownership showing the relationship between the land on which the villagers live and the fields that they own

d. Detailed survey of the area in Desa Borobudur in which the community facilities and commercial facilities are concentrated and the commercial area of Prambanan along the national highway

e. The administrative organizational setup on the level of the kabupaten, kecamatan, desa, and dukuh

f. The workings of the ties to the land on the level of the desa and dukuh

(4) Surveying of all of the archeological ruins in the park designated area (Zone-4) for width, depth and height

REPUBLIC OF INDONESIA

THE NATIONAL ARCHEOLOGICAL PARKS
DEVELOPMENT PROJECT

BOROBUDUR & PRAMBANAN

SUPPLEMENTARY BRIEF

TOURISM MARKET AND FINANCIAL ANALYSIS

APRIL 1975

JAPAN INTERNATIONAL COOPERATION AGENCY

ESTIMATION OF THE NUMBER OF VISITORS AND THE AMOUNT OF THEIR EXPENDITURES AND FINANCIAL ANALYSIS

GENERAL (31)

(1) Estimated Number of Visitors (demand analysis)

- Based on Repelita II.

- Some of the TDC survey findings used as assumptions.

i) Case-1

Long-term tourists from other islands of Indonesia and from abroad P/B = 1

Long-term and weekend tourists from Java P/B = 1

Day visitors from middle Java P/B = 0.6

ii) Case-2

Double for long-term and weekend tourists and day trippers and otherwise the same as in Case-1.

(2) Estimation of Expenditures by Visitors

- It is assumed that the long-term and weekend tourists will be in the project region two nights.

- It is assumed that foreign visitors will spend $30 a day.

- The expenditures per day of long-term tourists from other islands of Indonesia will vary according to their province.

- It is assumed that the long-term tourists from Java will spend $10 a day and weekend visitors from Java will spend $5 a day.

The amount of expenditures in Case-1 and Case-2 will be calculated on the basis of these assumptions.

(3) Financial Analysis

This analysis is an analysis of the relation between the period of time and the rate of subsidization, taking into account only the direct impact of the tourism project and using indifference curves and several models in conjunction with one another.

THE NUMBER OF VISITORS TO BOROBUDUR AND PRAMBANAN ON THE BASIS OF REPELITA II AND THE METHOD OF CALCULATION OF TOTAL TOURISM EXPENDITURE IN THE PROJECT REGION (32)

Symbols: * Attached symbols

i : Province

r : Industry (1, 2, 3)

The variables marked with a bar are based on REPELITA II.

R : Rural

U : Urban

t : time

$\bar{t}$: 1973

MJ : Middle Java

S : Breakdown of LTY

W : Workers

P : Population

R : Percentage of total represented by workers

Y : Income

MFY : Monthly Income per Family

NLTT : No. of Long-term Tourists

LTY : Income Level of Long-term Tourism

NWT : No. of Weekend Trippers

WTY : Income Level of Weekend Tourism

NDT : No. of Day Trippers

DTY : Income Level of Day Trip

NLWT : No. of Long-term & Weekend Tourists

NF : No. of Foreign Tourists

d_i^J : Economic and time distance from i Province to Yogya

TNBO : Total Tourist No. of Borobudur

TNPR : Total Tourist No. of Prambanan

TE : Tourist Expenditure in Project Region

TTE : Total Tourist Expenditure in Project Region

Estimation of Urban and Rural Income and Population of Each Province (321)

$$(1)\quad W_{ij}(\bar{t}) = f\left[\overline{P_i(\bar{t})},\ \overline{R_{ij}(\bar{t})}\right]$$

$$(2)\quad W_{ij}(t) = \phi\left[W_{ij}(\bar{t}),\ \left(\frac{\overline{\Delta W_j}}{W_j}\right),\ t\right]$$

$$(3)\quad Y_{ij}(t) = \int\left[\overline{Y_{ij}(\bar{t})},\ \left(\frac{\overline{\Delta Y_j}}{Y_j}\right),\ W_{ij}(t)/\Sigma W_{ij}(t)\right]$$

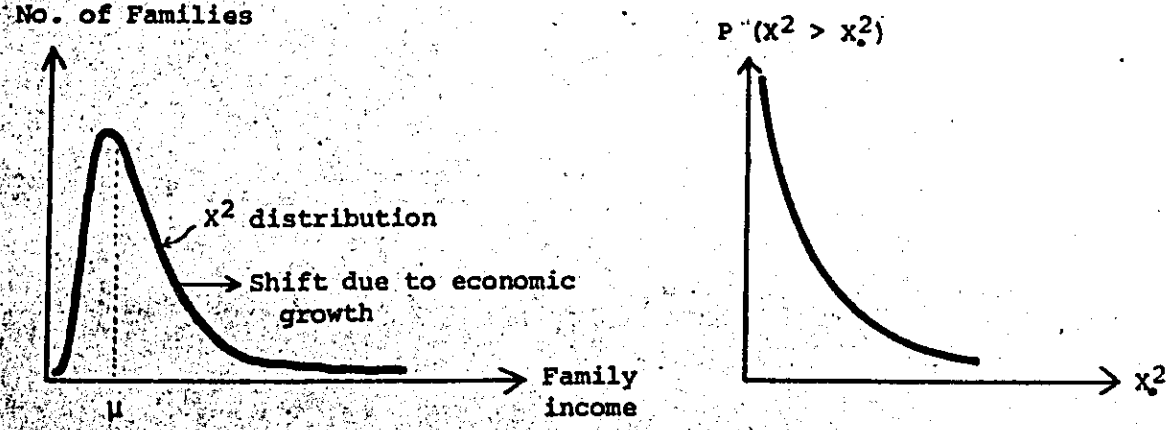
$$(4)\quad Y_i^R(t) = Y_{i1}(t),\qquad Y_i^U(t) = \sum_{j=2}^{3} Y_{ij}(t)$$

$$(5)\quad P_i^R(t) = \varphi\left[\left(\frac{\overline{P}}{W}(t)\right),\ W_{i1}(t)\right]$$

$$P_i^U(t) = \pi\left[\left(\frac{\overline{P}}{W}(t)\right),\ W_{i2}(t),\ W_{i3}(t)\right]$$

Family Income Distribution and Shift (322)

Considering the percentage of the total population of Yogyakarta represented by long-term trips, weekend trips and day trips as given in the TDC social survey, the family income-expenditure table for different social strata in Yogyakarta, and the average income thereof, we have assumed the urban family income distribution for the different provinces to be an x^2 distribution with a degree of freedom of 2. It has also been assumed that the distribution curve will move parallelly along the vertical axis in a simple fashion in the course of economic growth since in other cities the percentage of families in high-income brackets is not considered to be as high as in the case of Yogyakarta. This also means the equalization of income distribution.



The accumulative density function of the x^2 distribution with a degree of freedom of 2 is obtained by substituting the degree of freedom in the following equation.

i) x^2 distribution function with nth degree of freedom

$$f\left(X^2\right) = \left(X^2\right)^{\frac{n}{2}-1} \cdot e^{-\frac{1}{2}X^2} / 2^{\frac{n}{2}} \Gamma\left(\frac{n}{2}\right)$$

ii) Gamma function

$$\Gamma\left(m\right) = \int_0^{\infty} e^{-X} X^{m-1} dx$$

iii) Accumulative density function

$$P\left(X^2 > X_0^2\right) = \int_{X_0^2}^{\infty} f\left(x^2\right) dX^2$$

$$(6) \quad P\left(X^2 > X_0^2\right) = E \times P\left(-\frac{1}{2} X_0^2\right)$$

We have estimated the family income levels for which long-term trips, weekend trips and day trips are respectively possible by substituting the percentages for each in this accumulative density function.

$$\left[LTY_i^u\ (\bar{t}),\ WTY_i^u\ (\bar{t}),\ DTY_i^u\ (\bar{t}) \right]$$

The shift of the x^2 distribution to the right along with economic growth is of the same value as a shift in the direction of the origin of the abovementioned family income levels in the course of economic growth.

The shift of the values can be estimated by the following equation.

$$(7) \quad \frac{\Delta MFY_i^u}{MFY_i^u}(t) = \omega \left[\frac{Y_i^u}{P_i^u}(t),\ \frac{Y_i^u}{P_i^u}(t-1),\ \frac{P}{W}(t) \right]$$

Estimation of the Number of Long-term Tourists, Weekend Tourists and Day Trippers for the Urban and Rural Populations of Each Province (323)

$$(8) \quad NLTT_i^u\ (t) = F\left\{ ExP\left\{-\left[LTY_i^u(\bar{t}) - \frac{\Delta MFY_i^u(t)}{MFY_i^u(t)}\right]/2\right\},\ P_i^u(t)\right\}$$

$$(9) \quad NLTT_i^R\ (t) = \frac{P_i^R(t)}{P_i^u(t)} \quad \frac{NLTT_i^{\nu}(t)}{10}$$

$$(10) \quad NWT_i^u(t) = Z\left\{ ExP\left\{-\left[WTY_i^u(\bar{t}) - \frac{\Delta MFY_i^u(t)}{MFY_i^u(t)}\right]/2\right\},\ P_i^u(t)\right\}$$

$$(11) \quad NWT_i^R\ (t) = \frac{P_i^R(t)}{P_i^u(t)} \quad \frac{NWT_i^u(t)}{10}$$

$$(12)\quad NDT_i^u(t) = \Omega\left(\mathrm{ExP}\{-[DTY_i^u(\bar{t}) - \frac{\Delta MFY_i^u(t)}{MFY_i^u(t)}]/2\},\ P_i^u(t)\right)$$

$$(13)\quad NDT_i^R(t) = \frac{P_i^R(t)}{P_i^u(t)}\ \frac{NDT_i^u(t)}{10}$$

The TDC assumption that the values for the rural populations are 10% of those for the urban populations has been adopted here as well. The same applies hereinafter.

Estimation of the Number of Long-term Tourists, Weekend Tourists and Day Trippers of the Urban and Rural Populations of Each Province That Will Visit Borobudur and Prambanan (324)

Case-1

$$(14\text{-}1)\quad NLWT_i^{U,MJ}(t) = P_i^U(t)\left(\mathrm{ExP}\left[-\frac{WTY^U(t)}{2}\right] - \mathrm{ExP}\left[-\frac{WTY^U(t-1)}{2}\right]\right)$$

$$(14\text{-}2)\quad NLWT_i^{R,MJ}(t) = \frac{P_i^R(t)}{P_i^U(t)}\ \frac{NLWT_i^{U,MJ}}{10}$$

$$(14\text{-}3)\quad NF^{MJ}(t) = NF^{MJ}(\bar{t})\cdot(1 + 0.25)^t$$

$$A(t) = \sum_{i=6}^{26}\left(\beta \sum_{s=1}^{4}\{P_{is}^u(t)\ [LTY_{is}^u(t) - WTY^u(\bar{t})]\}/\sum_{s=1}^{4} P_{is}^u(t)\right)$$

$$\cdot \sum_{s=1}^{4} P_{is}^u(t)\ /d_i^J\ )$$

$$B(t) = \sum_{i=1}^{5}\left(NLWT_i^{u,MJ}(t) + NLWT_i^{R,MJ}(t)\right)$$

$$C(t) = \sum_{i=3}^{4}\left(NDT_i^u(t) + NDT_i^R(t)\right)$$

$$(14)\quad TNBO1(t) = A(t) + B(t) + C(t) + NF^{MJ}(t)$$

$$(15)\quad TNPR1(t) = A(t) + B(t) + \frac{TNPR(\bar{t})}{TNBO(\bar{t})}\left[C(t) + NF^{MJ}(t)\right]$$

Case-2

(16) $TNBO2\ (t) = A\ (t) + B\ (t) + 2\ C\ (t) + NF^{MJ}\ (t)$

(17) $TNPR2\ (t) = A(t) + B(t) + 2\ \frac{TNPR\ (\bar{t})}{TNBO\ (\bar{t})}\ C(t) + \frac{TNPR\ (\bar{t})}{TNBO\ (\bar{t})}\ NF^{MJ}\ (t)$

Total Tourism Expenditure in Project Region (325)

$$E\ (t) = 2 \sum_{i=6}^{26} TE_i \cdot A\ (t)$$

$$F\ (t) = 2 \sum_{i=1}^{5} \left(B\{10\ [A(t) - A(t-1)]/A(t) + 5\ [1 - \frac{A(t)-A(t-1)}{A\ (t)}\right]$$

$$G\ (t) = 30\ NF^{MJ}\ (t)$$

(18) $TTE\ 1\ (t) = E\ (t) + F\ (t) + G\ (t)$

(19) $TTE\ 2\ (t) = E\ (t) + 2F\ (t) + G\ (t)$

Table 1. Total Tourist Inflow & Total Tourism Expenditure In Project Region

TNBO1(t), TNPR1(t), TNBO2(t), TNPR2(t), TTE1(t), TTE2(t)

Table 2. NO. of Tourist by Origin & Province Long Term Tourist by Province, $NLWT_i^{U,MJ}(t)$, $NLWT_i^{R.MJ}(t)$ $NDT_i^{u}(t)$, $NDT_i^{R}(t)$, $NF^{MJ}(t)$

Fig. 1 Demand Curve: TNBO1(t), TNPR1(t), TNBO2(t), TNPR2(t) planned Supply Curve

Fig. 2 TTE1(t), TTE2(t)

TABLE - 1 Total Tourist Inflow & Total Tourism Expenditure In Project Region

	(UNIT:PERSON)		(UNIT:PERSON)		(UNIT:US$)	
	NTBO 1	NTPR 1	NTBO 2	NTPR 2	MTAEJ 1	MTAEJ 2
1974	687388	571846			6981529	
75	724182	598957	1400808	1181727	7648602	12552625
76	764776	627587	1471895	1236648	8482821	13619692
77	800505	649106	1530705	1276809	9458275	14816865
78	858852	690536	1631601	1356175	10645324	16248213
79	913668	725185	1721644	1426078	12071485	17930622
80	974986	762389	1819949	1490288	13794461	19922484
81	1044124	802362	1927901	1563727	15890179	22300513
82	1122714	845506	2047200	1642472	18452972	25159431
83	1212840	892345	2180107	1725694	21598131	28615661
84	1316727	943422	2328897	1815488	25457404	32801604
85	1438422	1000006	2498322	1913326	30237751	37931845

NTBO 1 Visitors to Borobudur (Case-1)
NTBO 2 " (Case-2)
NTPR 1 Visitors to Prambanan (Case-1)
NTPR 2 " (Case-2)
MTAEJ Total Tourism Expenditure in Project Region

14	Kalimantan Barat	LTT	282	298	314	332	350	370	390	412	434	458	482	510
15	" Selatan	"	60	62	66	68	72	74	78	80	84	88	90	94
16	" Tengah	"	558	582	606	634	660	688	718	750	782	816	852	890
17	" Timur	"	70	74	76	80	82	86	90	94	98	102	106	110
18	Sulawesi Utara	"	182	190	198	206	214	224	234	244	254	266	278	290
19	" Tengah	"	94	98	102	108	112	116	122	128	132	138	144	152
20	" Selatan	"	1020	1064	1110	1158	1208	1260	1314	1372	1430	1494	1558	1626
21	" Tenggara	"	108	114	118	124	130	136	144	150	158	166	174	182
22	Bali	"	866	904	944	986	1030	1076	1124	1174	1226	1280	1338	1398
23	Nusatenggara Barat	"	570	596	622	650	680	710	742	776	810	846	884	924
24	" Timur	"	288	300	312	326	340	354	370	386	402	420	438	456
25	Maluku	"	88	92	96	100	104	108	112	118	122	128	134	138
26	Irian Jaya	"	108	112	118	124	130	136	144	150	158	166	174	182
	Domestic Total													
0	Foreigner	"	32060	39298	49043	61304	76709	95886	119779	149645	187056	233899	292373	365794

Notes : LTWT : Long Term Weekend Trip
WT : Weekend Trip
DT : Day Trip
LT : Long Term Trip

TABLE - 2 No. of Tourist by Origin & Province

Province	Type of Trip	Urban & Rural	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
1 DKI Jakarta	LTWT	Urban	34188	35758	37401	39121	40929	42817	44800	46877	49054	51336	53732	56238
		Rural	544	551	554	559	565	570	573	577	584	585	591	596
2 Jawa Barat	LTWT	Urban	114319	118910	125581	131637	138001	144680	151699	159072	166816	174952	183503	192486
		Rural	7593	7644	7711	7767	7838	7914	7979	8049	8107	8188	8258	8989
3 Jawa Tengah	WT	Urban	110532	115764	121253	127017	133065	139412	146072	153066	160408	168116	176210	184705
		Rural	7859	7930	7991	8066	8130	8197	8268	8342	8405	8490	8564	8626
	DT	Urban	189142	198097	207491	217353	227704	238562	249963	261929	274491	287679	301533	316072
		Rural	13448	13570	13674	13802	13913	14027	14148	14275	14383	14528	14655	14761
4 Yogjakarta	WT	Urban	11934	12487	13075	13685	14328	15002	15709	16448	17229	18043	18899	19799
		Rural	926	934	941	950	957	965	974	982	991	1000	1007	1016
	DT	Urban	20415	21373	22369	23420	24520	25668	26883	28147	29481	30877	32341	33880
		Rural	1584	1599	1611	1625	1638	1650	1667	1680	1695	1711	1724	1738
5 Jawa Timur	LTWT	Urban	125401	131386	137665	144258	151183	158450	166081	174097	182512	191352	200637	210390
		Rural	9643	9723	9802	9896	9978	10062	10148	10237	10330	10410	10513	10604
6 Aceh	LTT		130	136	142	148	154	162	168	176	184	192	200	210
7 Sumatera Utara	"		822	860	898	940	982	1026	1074	1122	1174	1228	1284	1346
8 Sumatera Barat	"		586	612	638	666	696	728	760	794	828	866	904	944
9 Riau	"		302	314	326	340	354	368	384	400	416	434	452	470
10 Jambi	"		146	152	158	166	194	180	188	198	206	216	224	234
11 Sumatera Selatan	"		868	908	948	992	1036	1084	1132	1194	1238	1294	1354	1414
12 Bengkulu	"		60	64	66	68	72	74	78	82	86	90	94	98
13 Lampung	"		720	752	786	820	856	894	932	974	1018	1062	1110	1158

Fig.-1 No. of Tourist Inflow for Borobudur

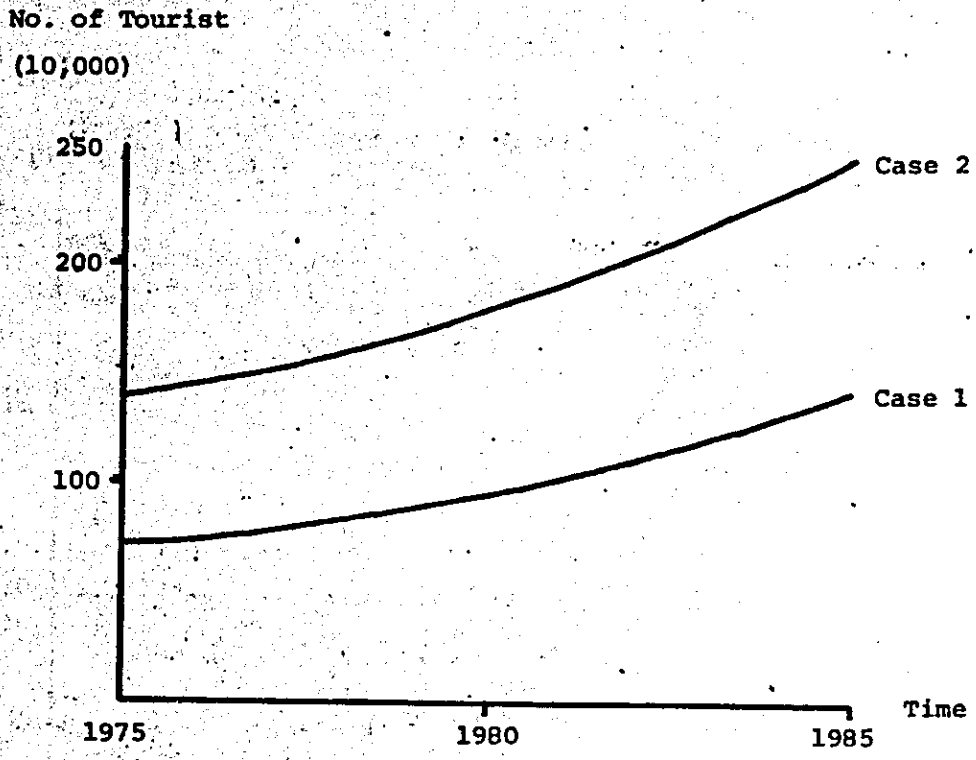


Fig.-2 No. of Tourist Inflow for Pranbanan

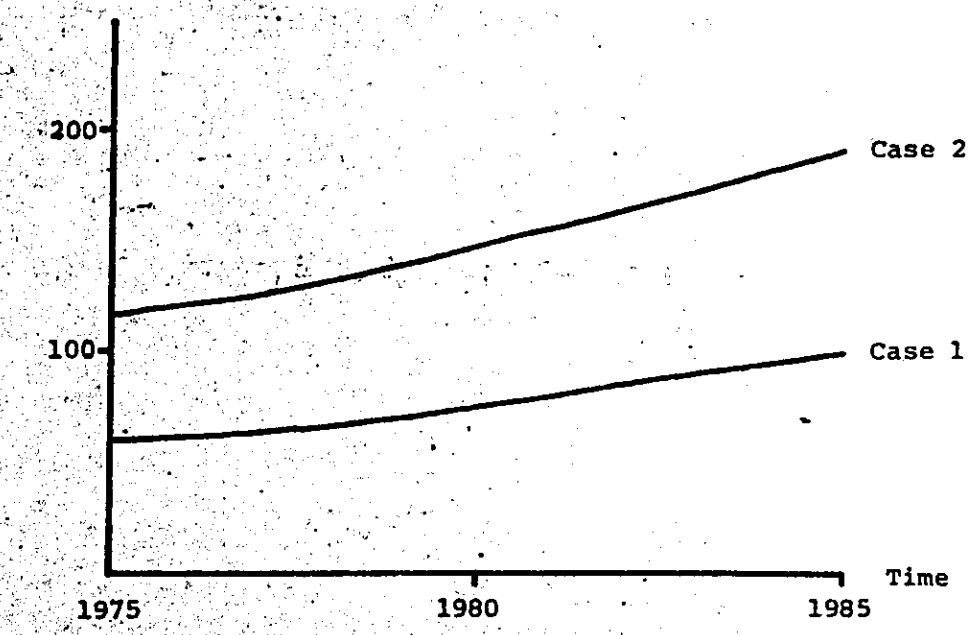
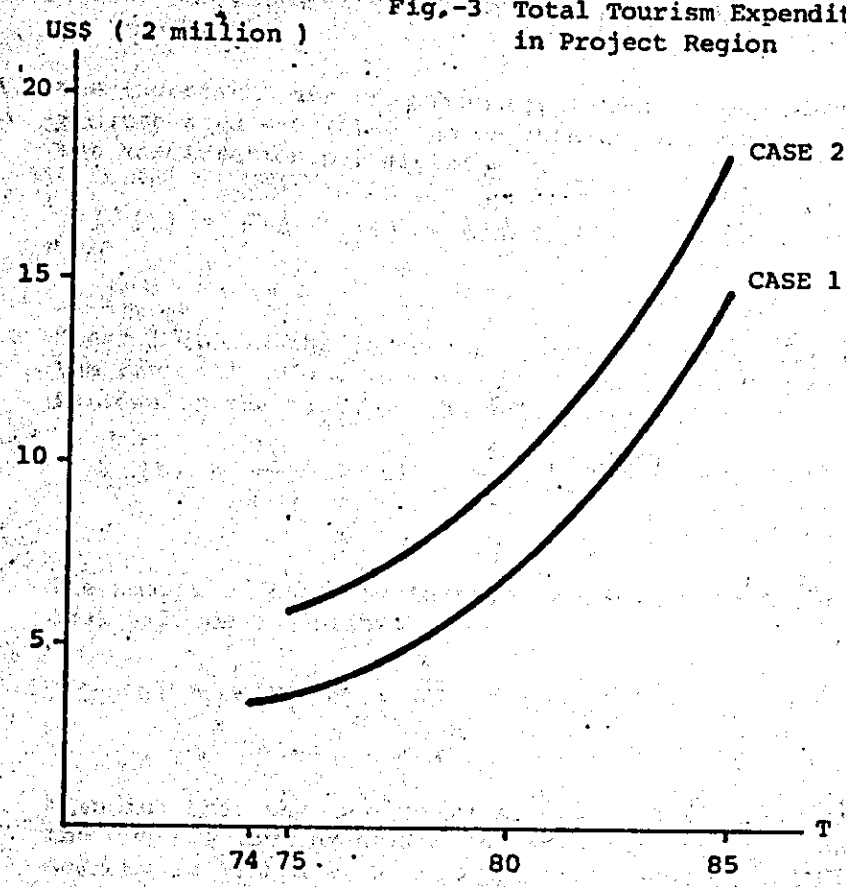


Fig.-3 Total Tourism Expenditure in Project Region



INVESTMENT SOURCES AND INVESTMENT PLAN FOR MIDDLE JAVA (33)

1. The investment deriving from total tourist expenditure in the project area --C (t)-- can be obtained as follows on the basis of the acceleration principle:

$$I(t) = \beta \cdot \Delta C(t) = \beta \{ C(t) - C(t-1) \}$$

2. Since I (t) is the induced investment from tourist expenditure, the regional income increase produced thereby is obtained as follows on the basis of the multiplier effect:

$$Y(t) = \frac{1}{1-\alpha} I(t) = \frac{\beta}{1-\alpha} \{ C(t) - C(t-1) \}$$

3. The amount of increase in tax revenues due to tourism in middle Java will be as follows:

$$T(t) = \hat{t} \cdot Y(t) = \frac{\hat{t}\beta}{1-\alpha} \{ C(t) - C(t-1) \}$$

4. Assuming that the investment subsidies A (t) that will be made by the Central Government for the sake of the impact on the national economy is linked with the investment sources T (t) in middle Java,

where γ is the rate of subsidization,

$$A(t) = \gamma(t) \cdot T(t)$$

5. Accordingly, assuming that the government investment sources for middle Java take into account only auto-circulation due to tourism,

$$F(t) = T(t) + A(t) = [1+\gamma(t)] \frac{\hat{t} \cdot \beta}{1-\alpha} \{ C(t) - C(t-1) \}$$

6. Investment in excess of this will be based on policy inclusion of that portion deriving from other sectors, With linkage of this, the total investment source is as follows:

$$B(t) = \delta \cdot F(t)$$

$$G(t) = B(t) + F(t) = [\,1+\delta\,]\,[\,1+\gamma(t)\,]\,\frac{\hat{t}\cdot\beta}{1-\alpha}\{C(t) - C(t-1)\}$$

Since, however, δ is based on policy, it have been given a value of zero.

7. The planned investment schedule has tentatively been set as follows (dependent on design):

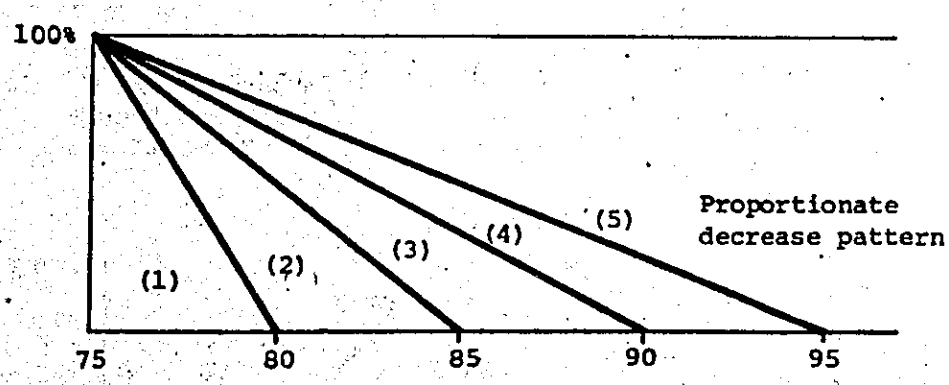
R1 (1) Investment for preservation of the archeological ruins (to be completed by 1980)

R2 (2) Investment for infrastructural formation (to be completed by 1985)

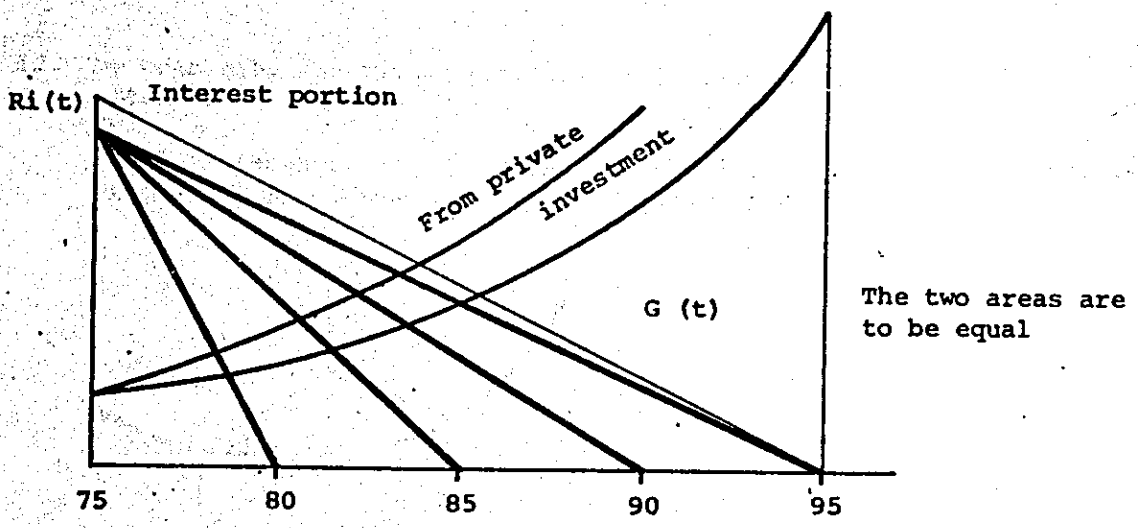
R3 (3) Investment for environmental improvement (to be completed by 1990)
(plants will have taken to the soil by then)

R4 (4) Accommodation-related investment (to be completed by 1995)

R5 (5) Private investment for profit (induced)



8. Discounting for interest and capitalizing, the following correspondence between the supply of investment funds and the investment plan is obtained.

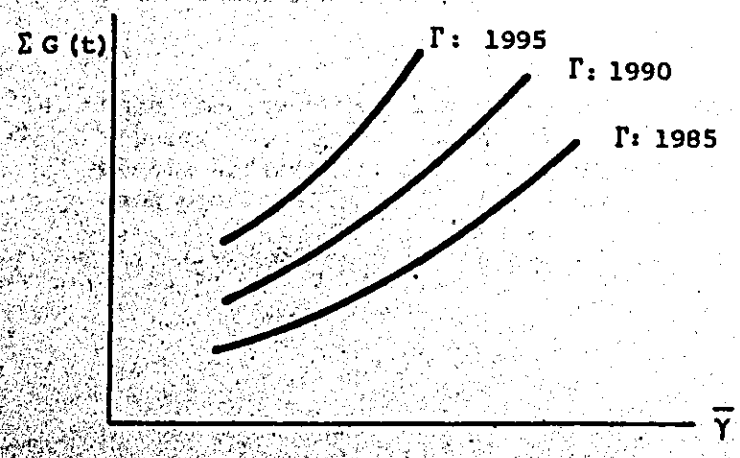


9. Thus, government investment $R_i(t)$ for each period is determined. The amount will be completely redeemed by 1995,

The above is the direct investment supply and demand not inclusive of feedback to account for the derivative effect,

This is a primary approach to obtaining the total amount of investment from a market study and is not a complete analysis. Nevertheless, it is indispensable as data for budget formation.

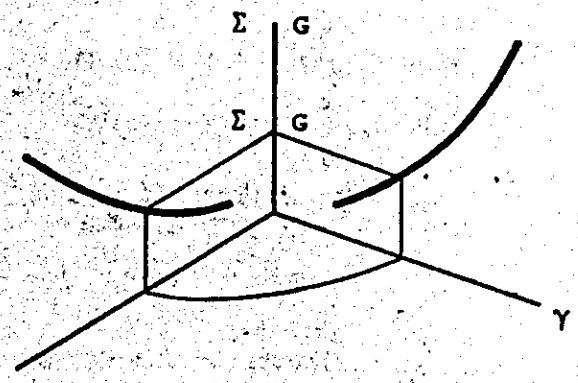
10. $\bar{Y}$ is the Central Government rate of subsidization for middle Java. Accordingly, the following function is obtained, Γ indicating the cumulative G (t) up to that year:



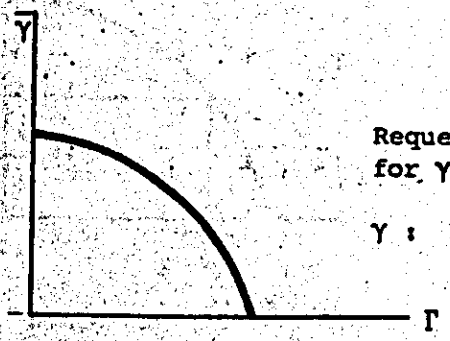
11. Since the rate of discount is given, the relationship between G (t) and Γ is known.

12. By combining the two, the following 3-dimensional diagram is obtained.

The indifference curve of γ and Γ is obtained if the total amount of planned investment $\Sigma\overline{G}$ is given exogenously.



13. This is an indifference curve regarding the choice between extension of the period of redemption and raising the rate of subsidization of the Central Government once the budget is fixed.



Request to the Central Government for γ

γ : Policy demand level

14. Once the investment budget is determined, the impact on the national economy of $\Sigma\overline{G(t)}$, particularly the national income effect, will become apparent as the direct impact, as will the income effect on each province.

15. From the national income effect can be obtained the increase in the tax revenues of the Central Government.

16. The amount of the increase in tax revenues that will be allotted to middle Java can be obtained from the regional income effect percentage of the national total. (Central Government subsidies) A (t)

17. The rate of subsidization γ (t) of investment by the provincial governments of middle Java can be obtained as follows:

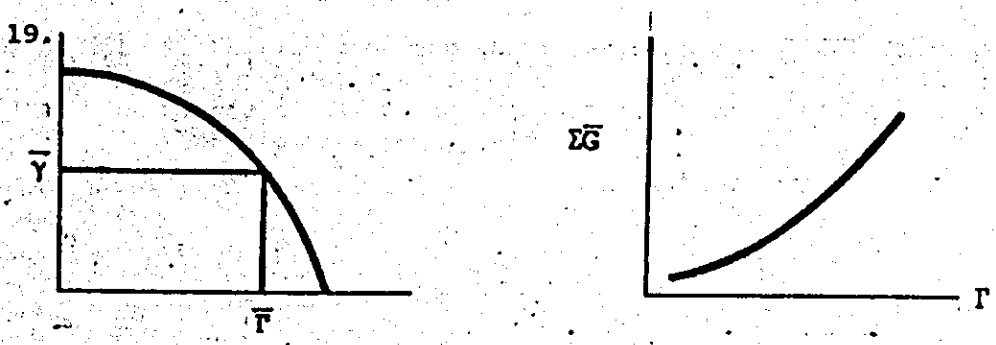
$$G(t) = [\, 1 + \gamma(t) \,]\, T(t)$$

$$\Sigma G(t) = \Sigma T(t) + \Sigma \gamma(t) \cdot T(t)$$

$$\bar{\gamma} = \frac{\Sigma \gamma(t) \cdot T(t)}{\Sigma T(t)}$$

18. As for the relationship between $\bar{\gamma}$ and Γ (14), when $\bar{\gamma}$, which is a condition on the supply side, is given, the period of redemption corresponding to the level of policy supply and the investment budget is obtained.

19.



20. Since the indirect impact of induced private investment has not been taken into account in connection with government finances, redemption will in fact be quicker by that amount.

21. If the initial investment is large, i.e., if the degree of leading investment is considerable, the period of redemption will be long, and if the period of redemption is long, there will be induced private activity, which gives a prospect of greater ease of redemption.

22. The following conclusions are therefore to be drawn:

(1) If initial investment is large, induced private investment is considerable, but the period of redemption must be long.

(2) Consideration must be given to the fact that a large initial investment will give rise to the problem of availability of funds.

(3) The following are principles to be taken into consideration with respect to construction organization and operational organization:

(a) Development of a national movement for realization of the project as a national project and with a minimum investment cost.

(b) Promoting inducement of tourist demand and raising the level of profitability of public investment by development of such a national movement.

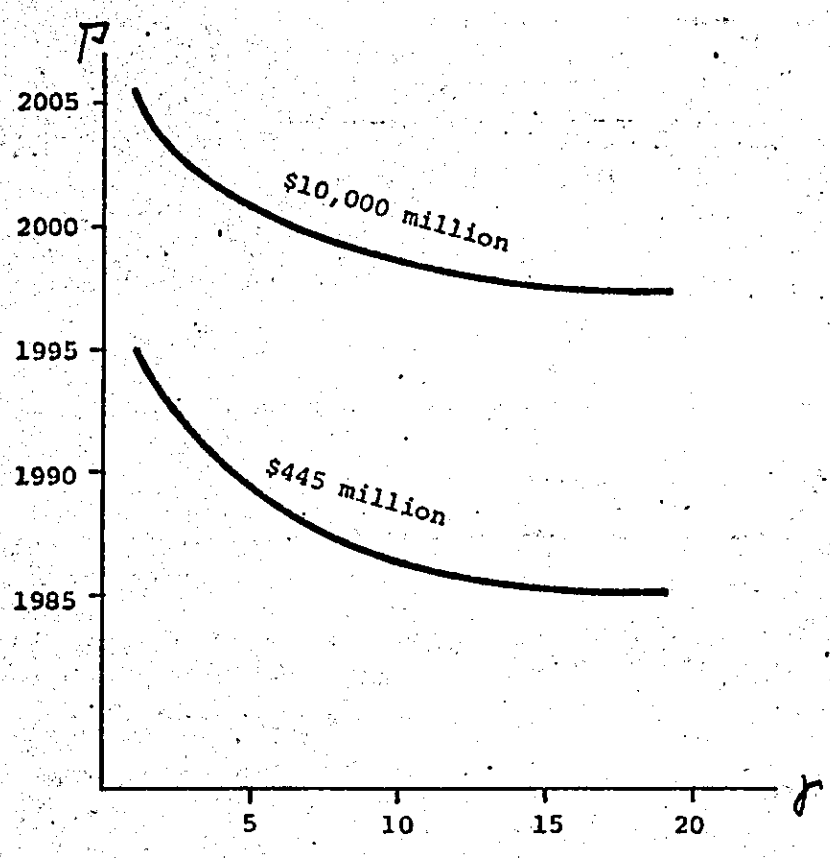
23. Policy Suggestions

(1) Pushing of the supply curve downward as a national project supported by a national movement,

(2) Having the tourism activities demand curve ship upward as a national project supported by a national movement.

(3) Transition from the three large archeological park projects to a project for promotion of tourism activities or a national movement will in fact ensure the success of the three large archeological park projects.

Fig.-4


P
2005
2000
1995
1990
1985
$10,000 million
$445 million
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10
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* EXECUTIVE SUMMARY

* NOTE ON PROJECT EXECUTION

* DISCUSSION PAPER ON ECONOMIC FEASIBILITY

* TOURISM MARKET AND FINANCIAL ANALYSIS

地図 6部.

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新宿三井ビル内私書箱216号

(45～48階・9階)

電 話 (03) 346 — 5311 ～ 4 (受付台)

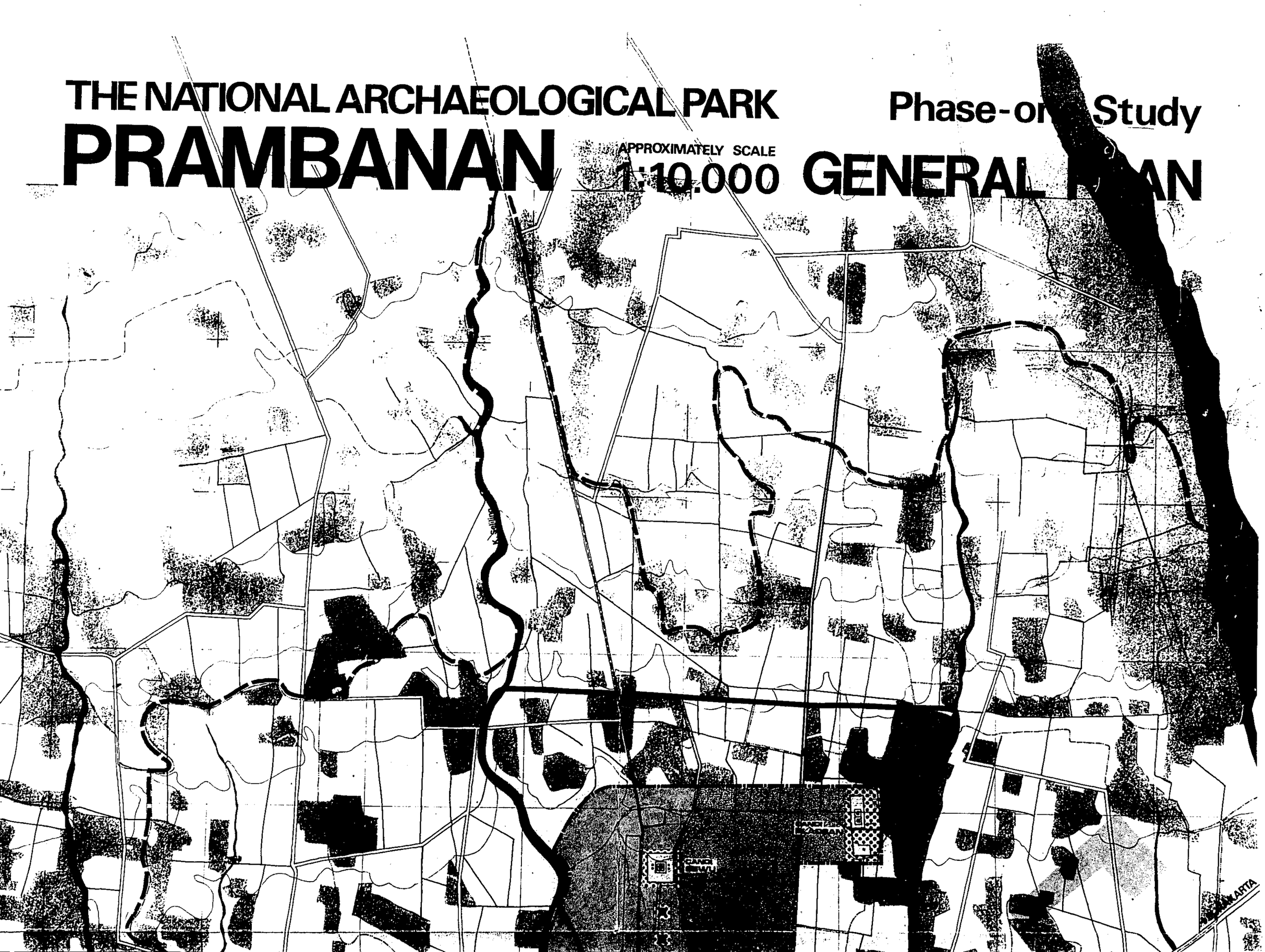
THE NATIONAL ARCHAEOLOGICAL PARK

PRAMBANAN

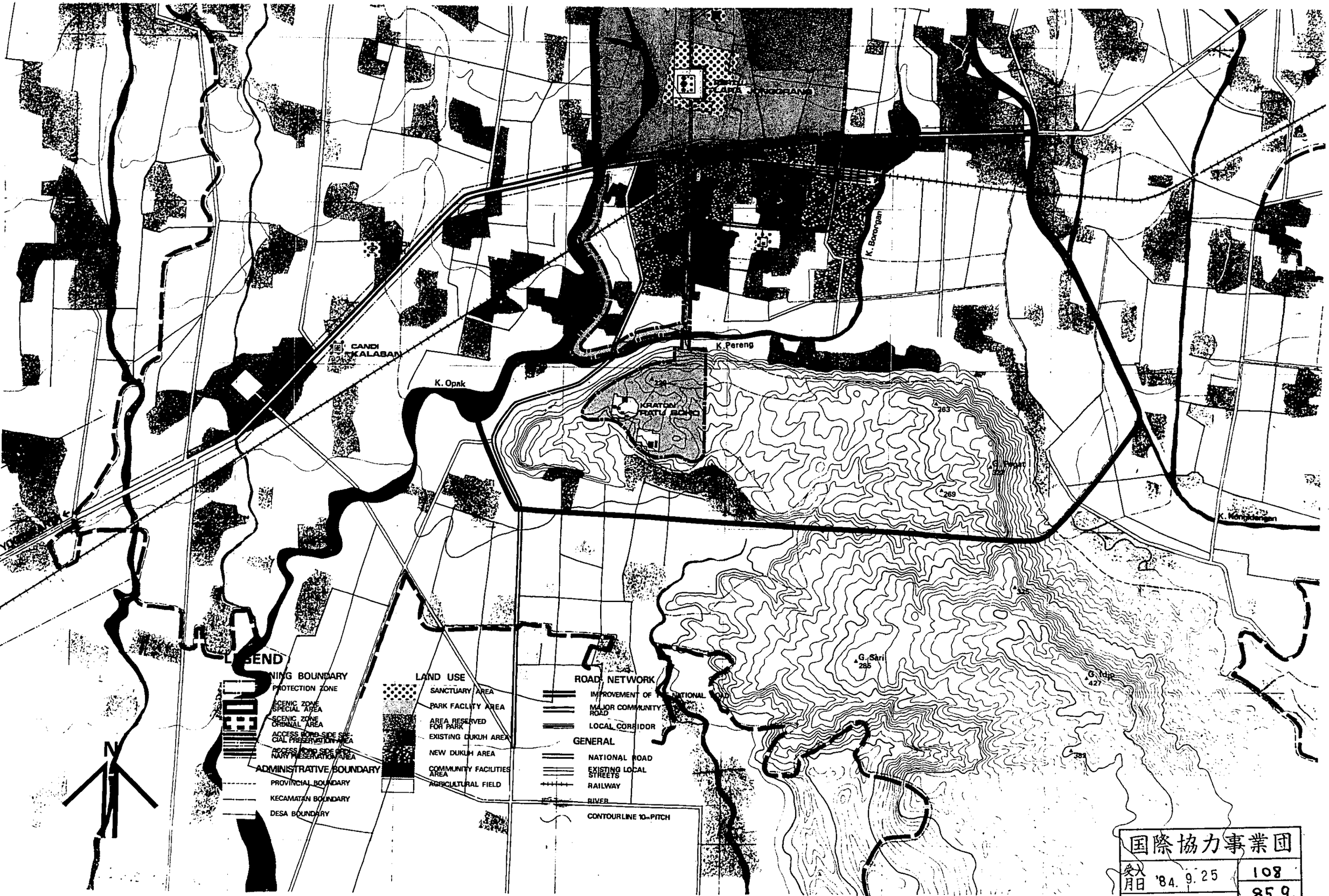
APPROXIMATELY SCALE
1:10.000

Phase-one Study

GENERAL PLAN




CANDI
LUMBUNG
CANDI
PLAOSAN
CANDI
SEWU
PERTI
KLARA JONGGRANG
K. Borongan
K. Pereng
CANDI
KALASAN
K. Opak
KRATON
RATU BOKO
K. Kongkangan



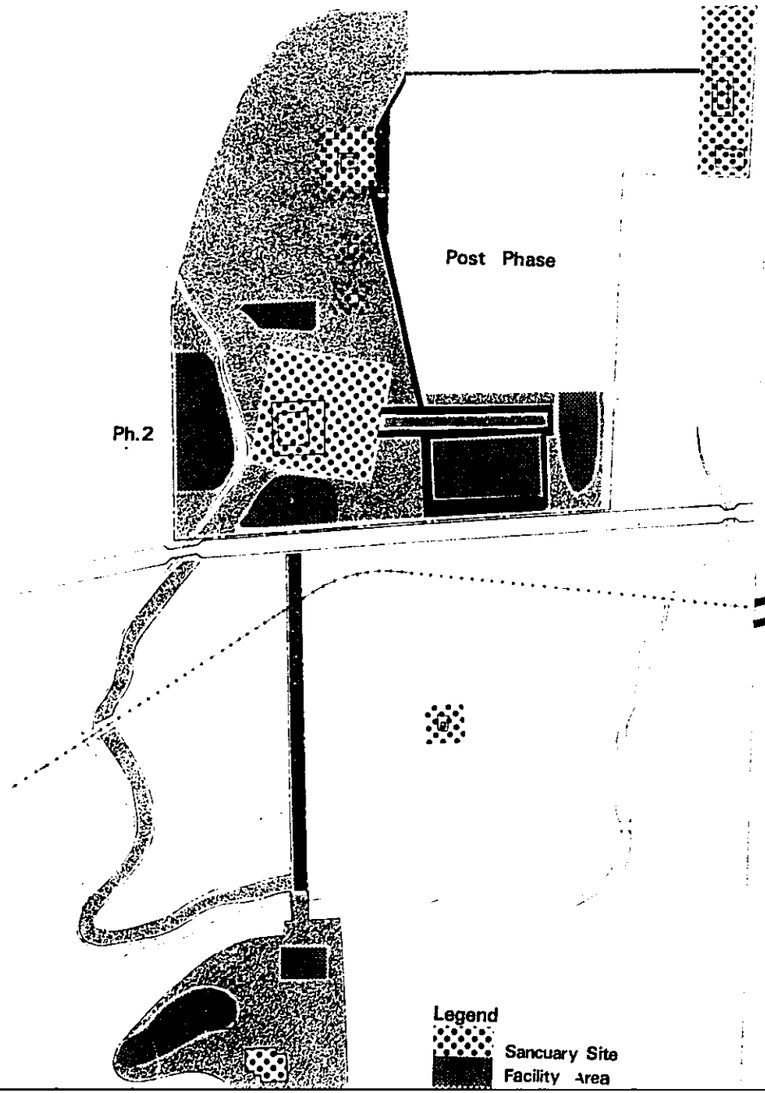
THE NATIONAL ARCHAEOLOGICAL PARK

PRAMBANAN

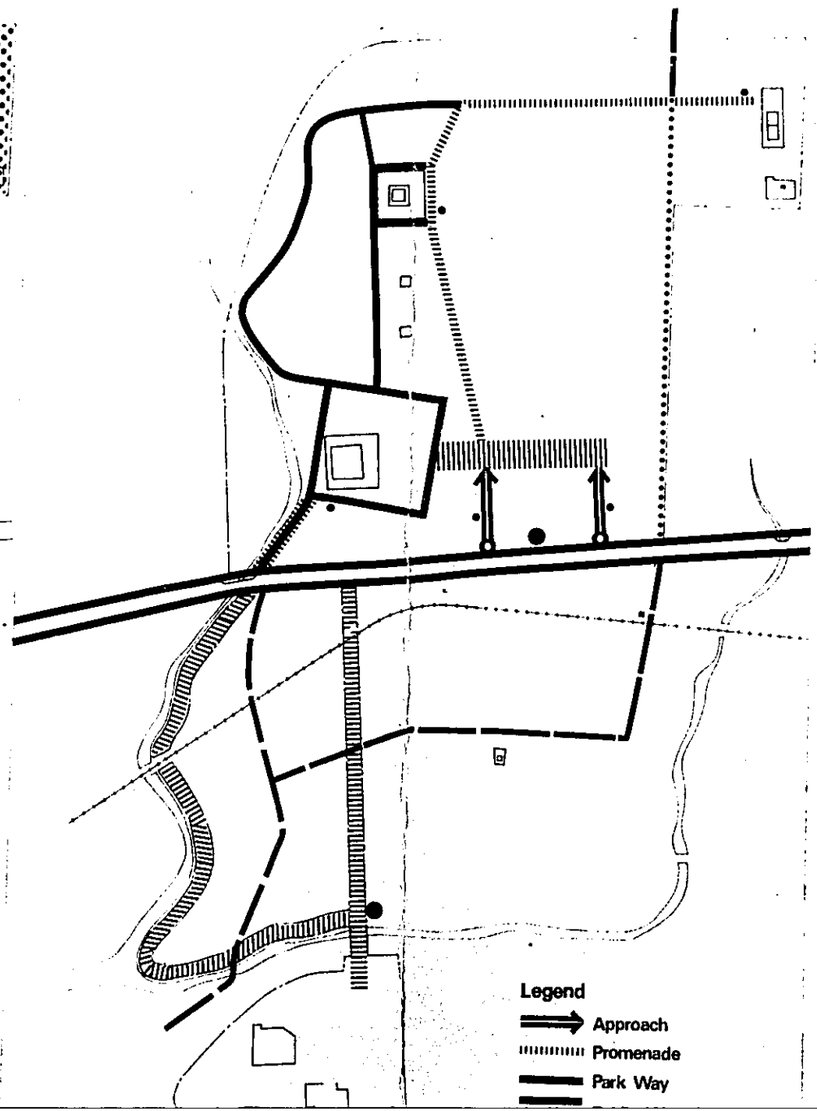
Phase-one Study

MASTER PLAN : SYSTEM

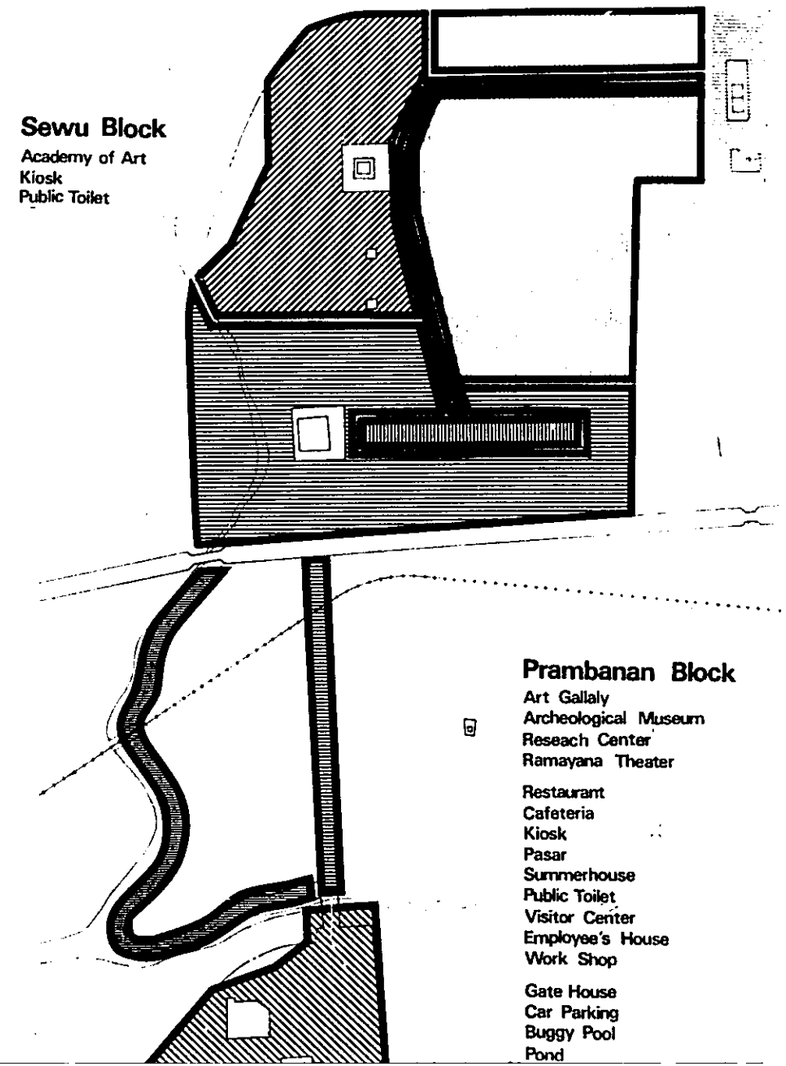
1 Land Use & Phasing System

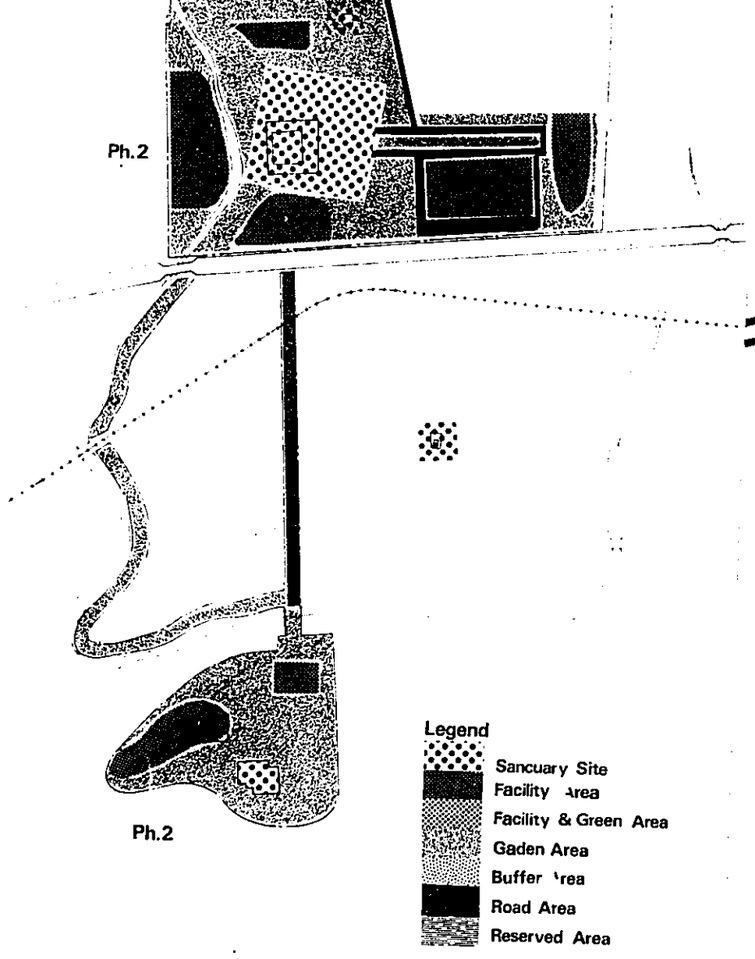


2 Transportation Network System



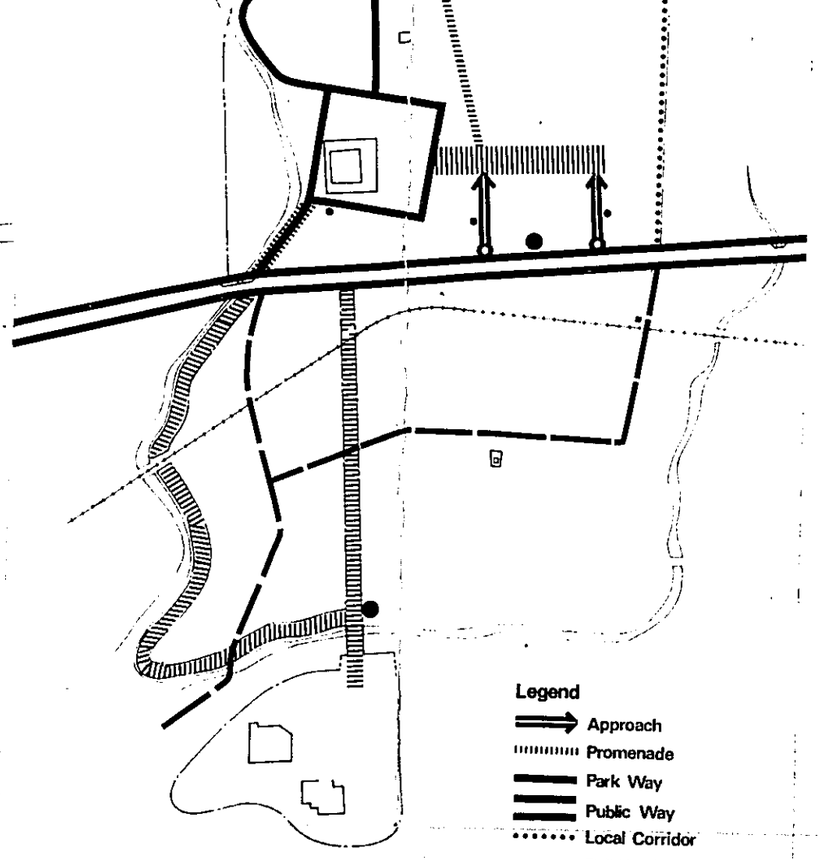
3 Block Division & Facilities Layout System





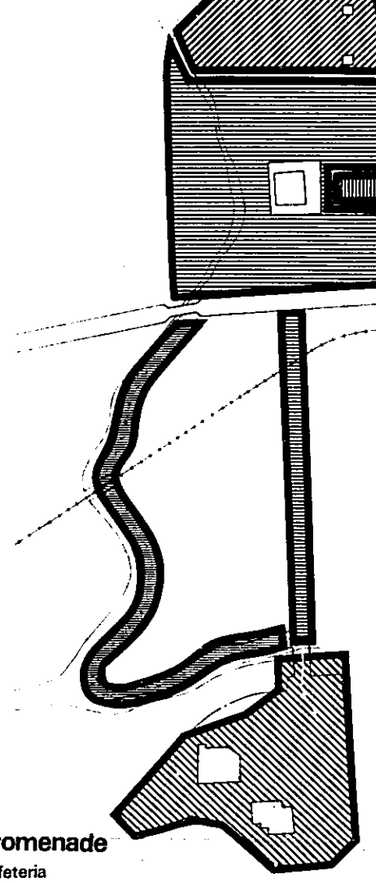
Legend

- Sancuary Site
- Facility Area
- Facility & Green Area
- Gaden Area
- Buffer Area
- Road Area
- Reserved Area



Legend

- Approach
- Promenade
- Park Way
- Public Way
- Local Corridor
- Rail Road
- Major Community Road
- Morter Car & Buggy Pool
- Buggy Pool



Promenade

Cafeteria
Kiosk
Public Toilet
Car Parking
Buggy Pool
Pond

Prambanan Block

Art Gallaly
Archeological Museum
Reseach Center
Ramayana Theater

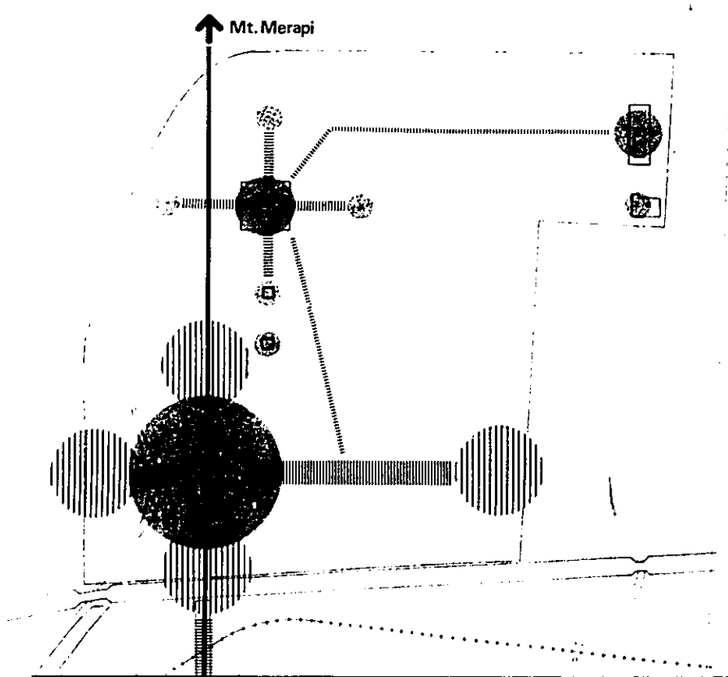
Restaurant
Cafeteria
Kiosk
Pasar
Summerhouse
Public Toilet
Visitor Center
Employee's House
Work Shop

Gate House
Car Parking
Buggy Pool
Pond

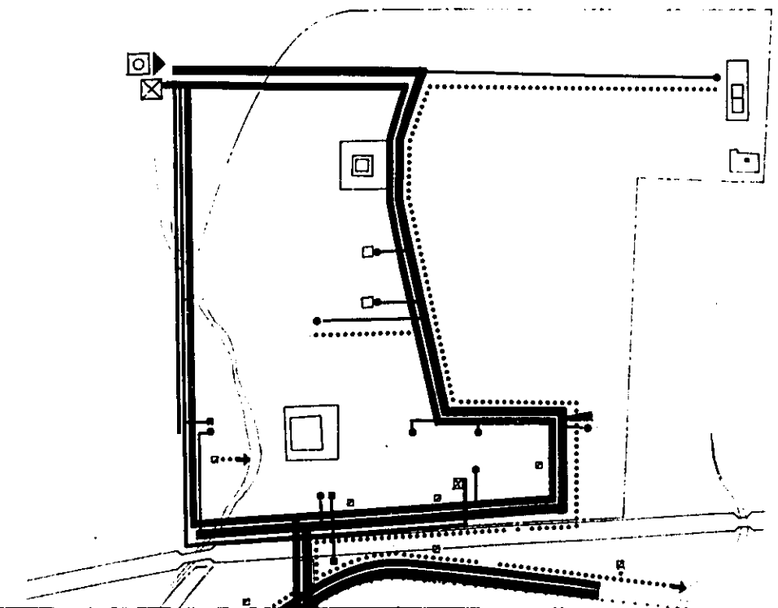
Kraton Block

Kraton Terrace
Cafeteria
Kiosk
Summerhouse
Public Toilet

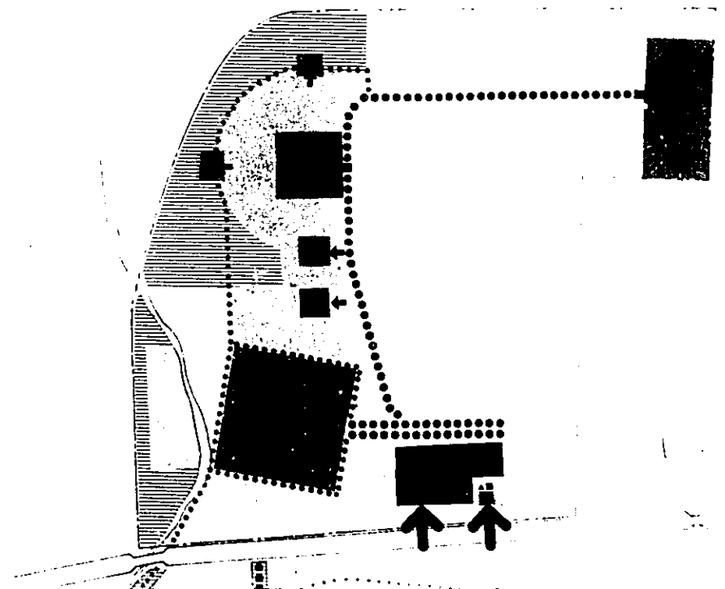
4 Visual Structure System



5 Utility Network System



6 Density Allocation & Activity Network System



Ph.2

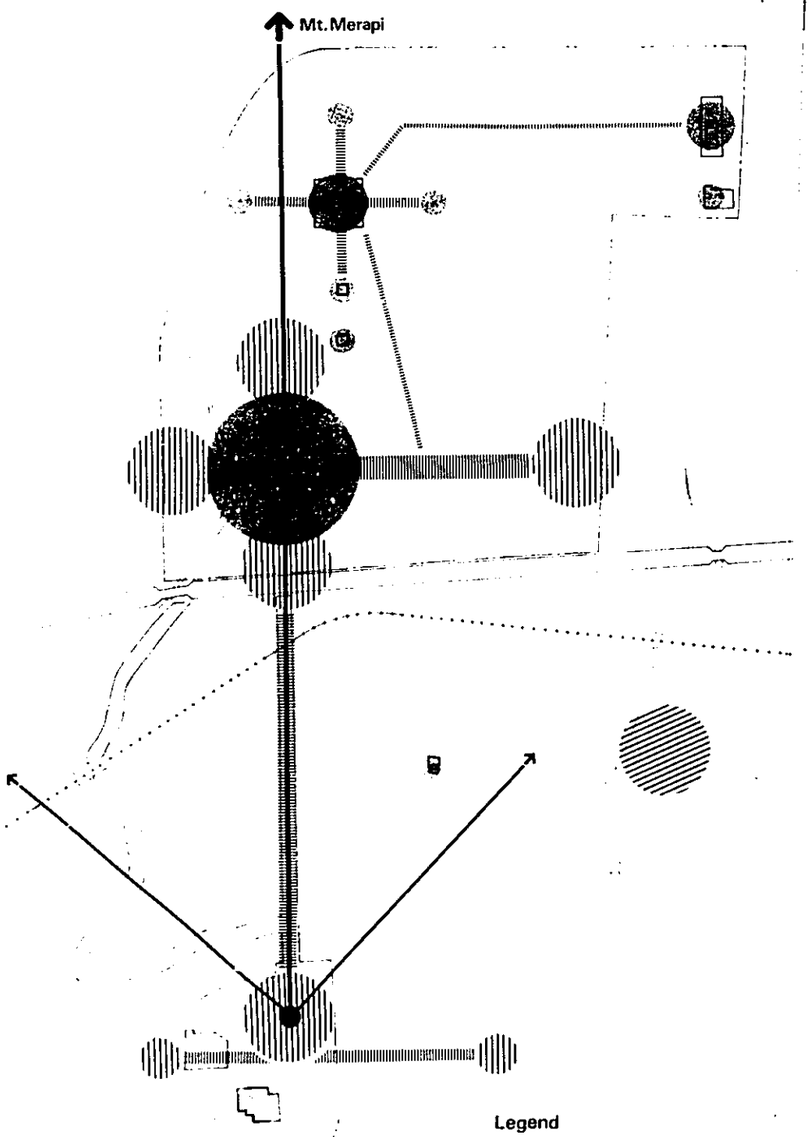
Facility & Green Area
Gaden Area
Buffer Area
Road Area
Reserved Area

Local Corridor
Rail Road
Major Community Road
Morter Car & Buggy Pool
Buggy Pool

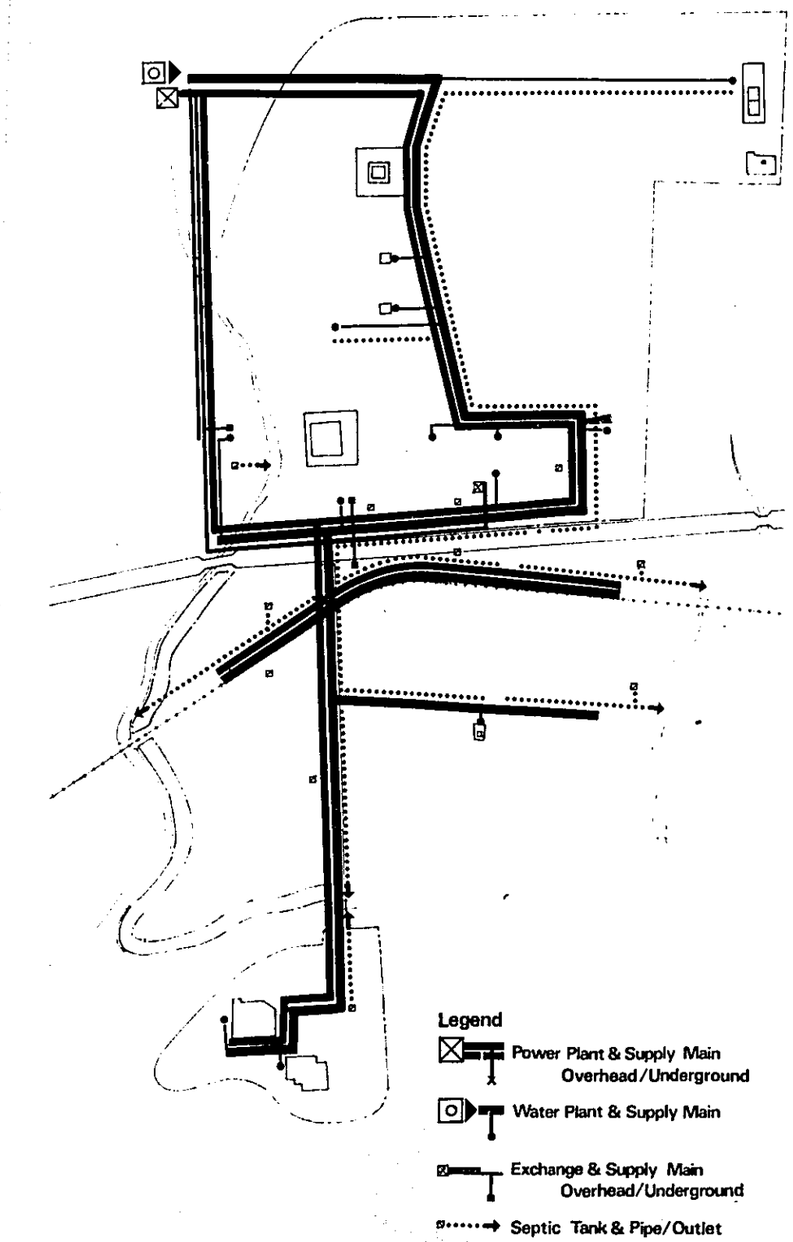
Promenade
Cafeteria
Kiosk
Public Toilet
Car Parking
Buggy Pool
Pond

Kraton Block
Kraton Terrace
Cafeteria
Kiosk
Summerhouse
Public Toilet

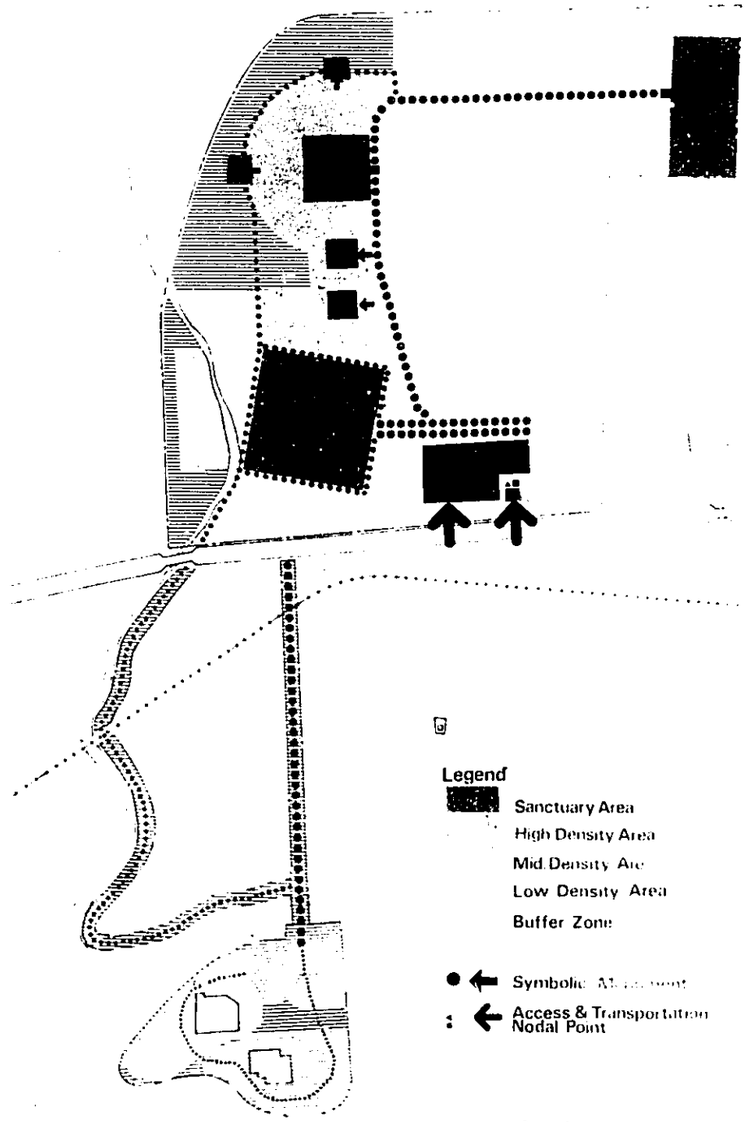
4 Visual Structure System



5 Utility Network System



6 Density Allocation & Activity Network System



THE NATIONAL ARCHAEOLOGICAL PARK

PRAMBANAN

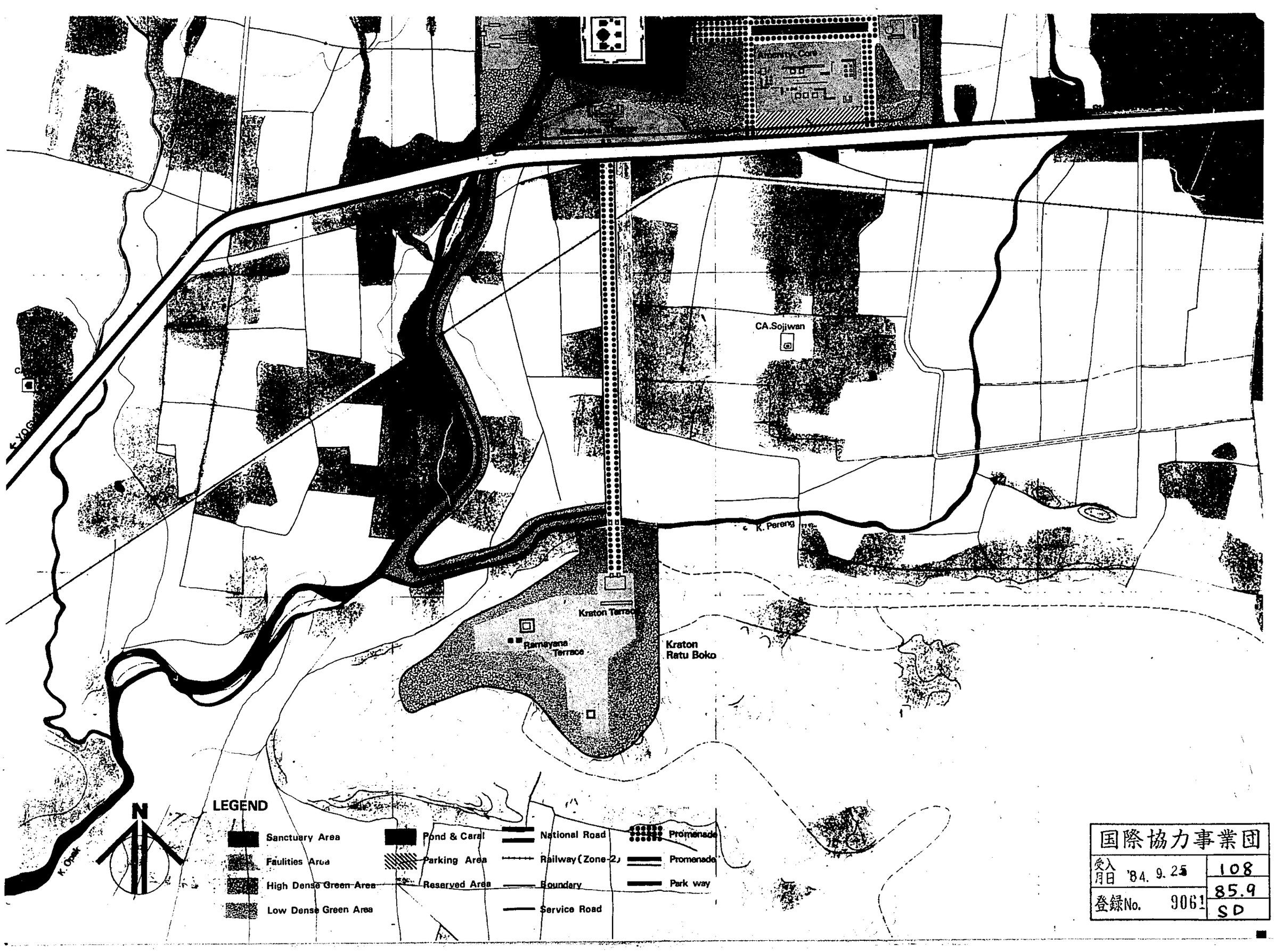
Phase-one Study

1:5.000 MASTER PLAN

APPROXIMATELY SCALE

CA. Plaosan

Academy of Art
Amenity Core
Gallery
CA.Sojiwan
K. Pereng
Kraton Terrac
Ramayana
Kraton



THE NATIONAL ARCHAEOLOGICAL PARK

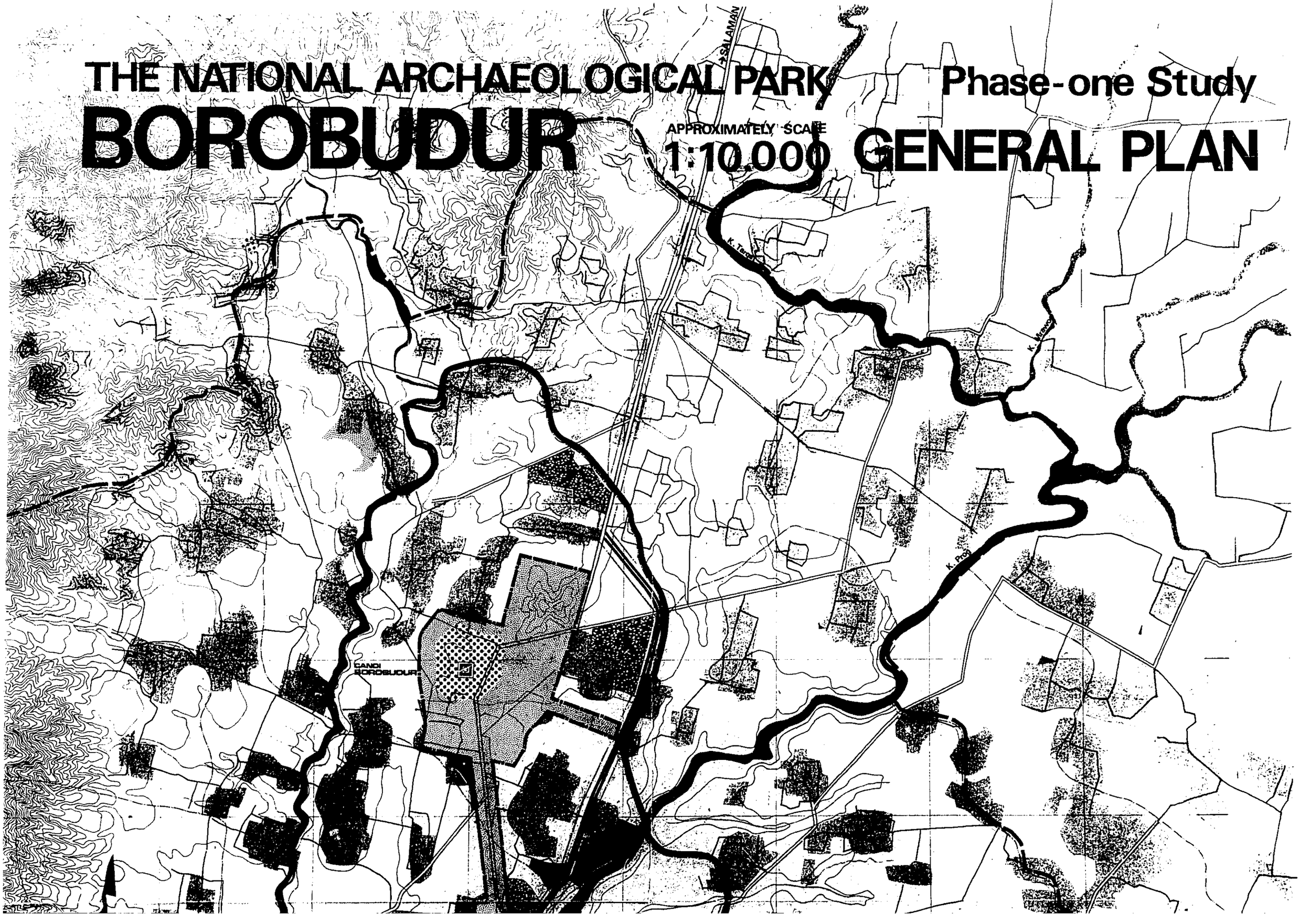
BOROBUDUR

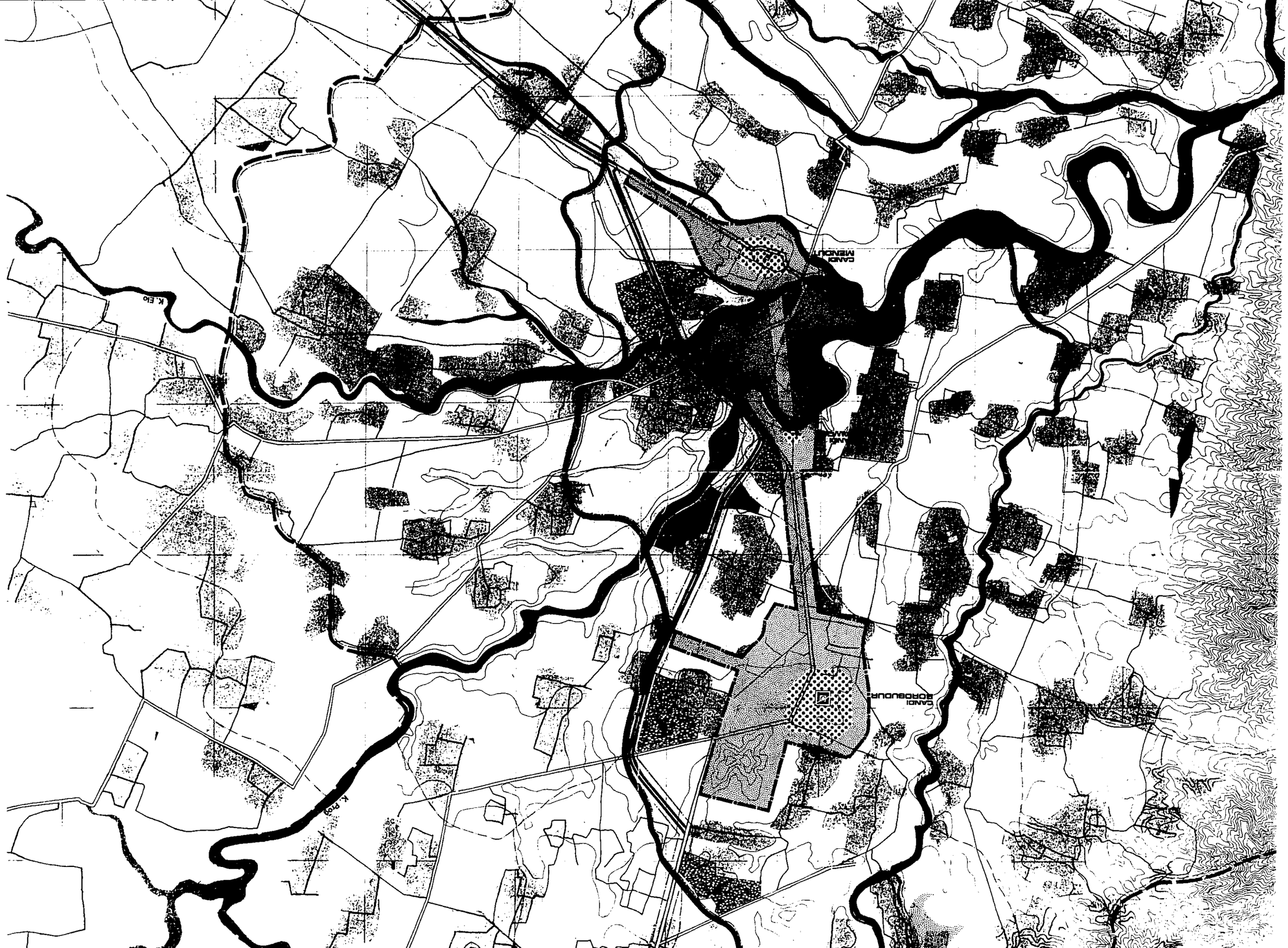
Phase-one Study

APPROXIMATELY SCALE

1:10.000

GENERAL PLAN

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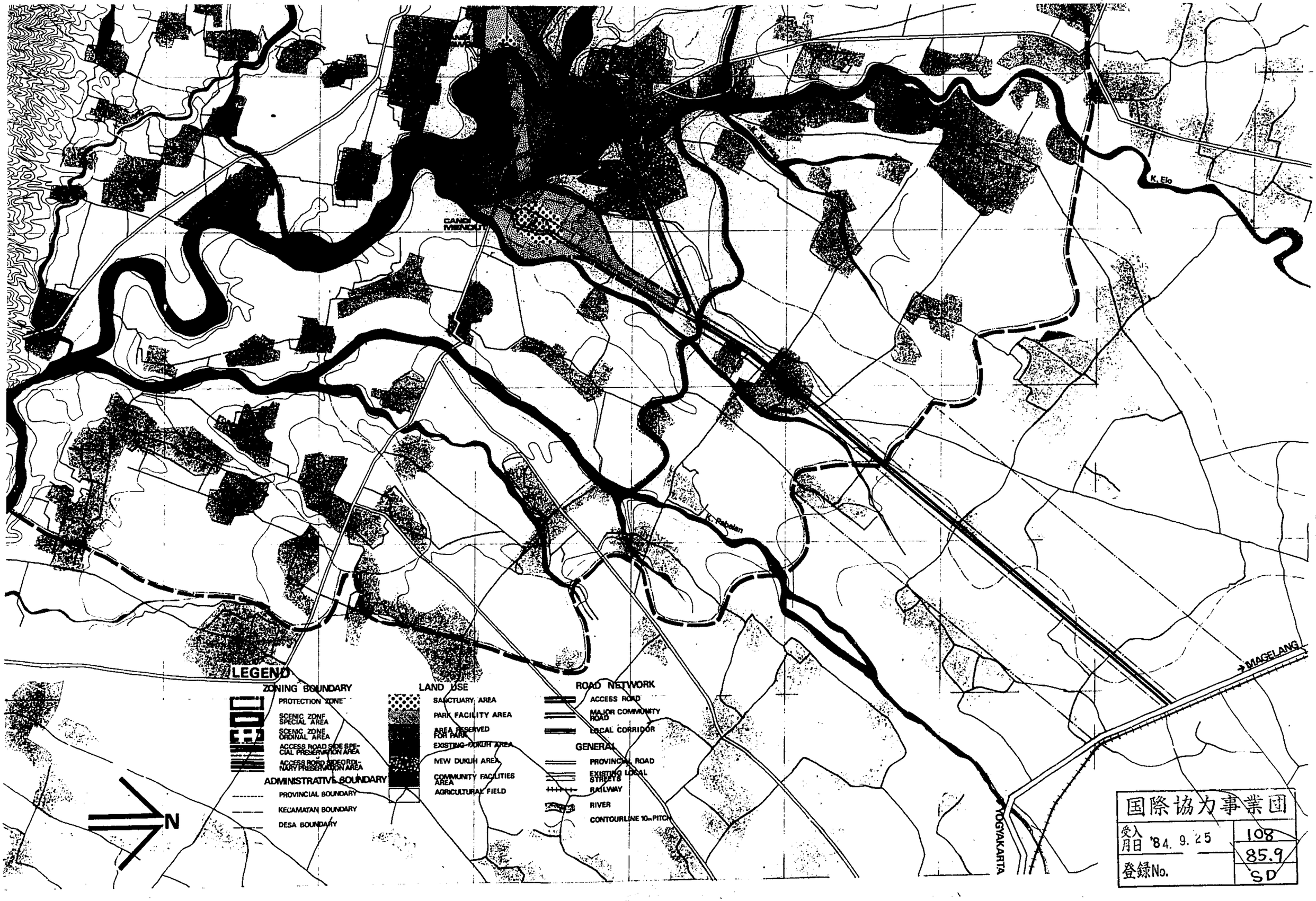
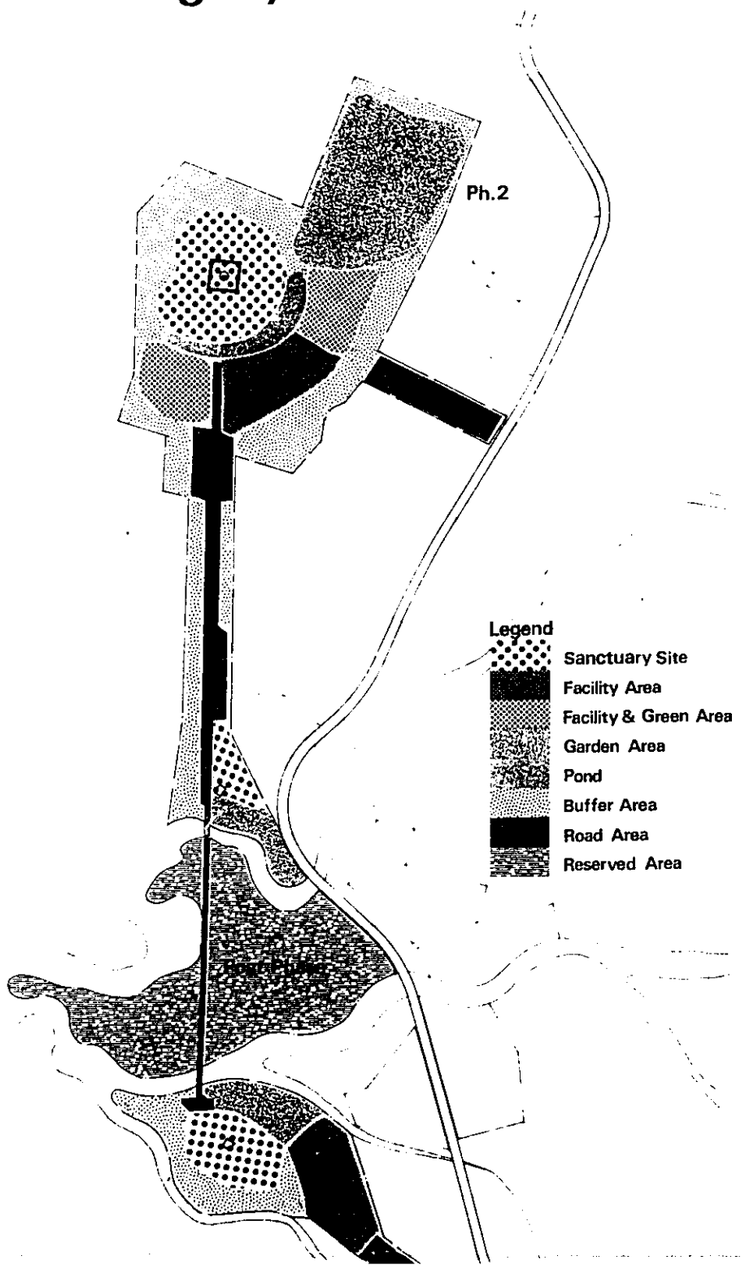


THE NATIONAL ARCHAEOLOGICAL PARK

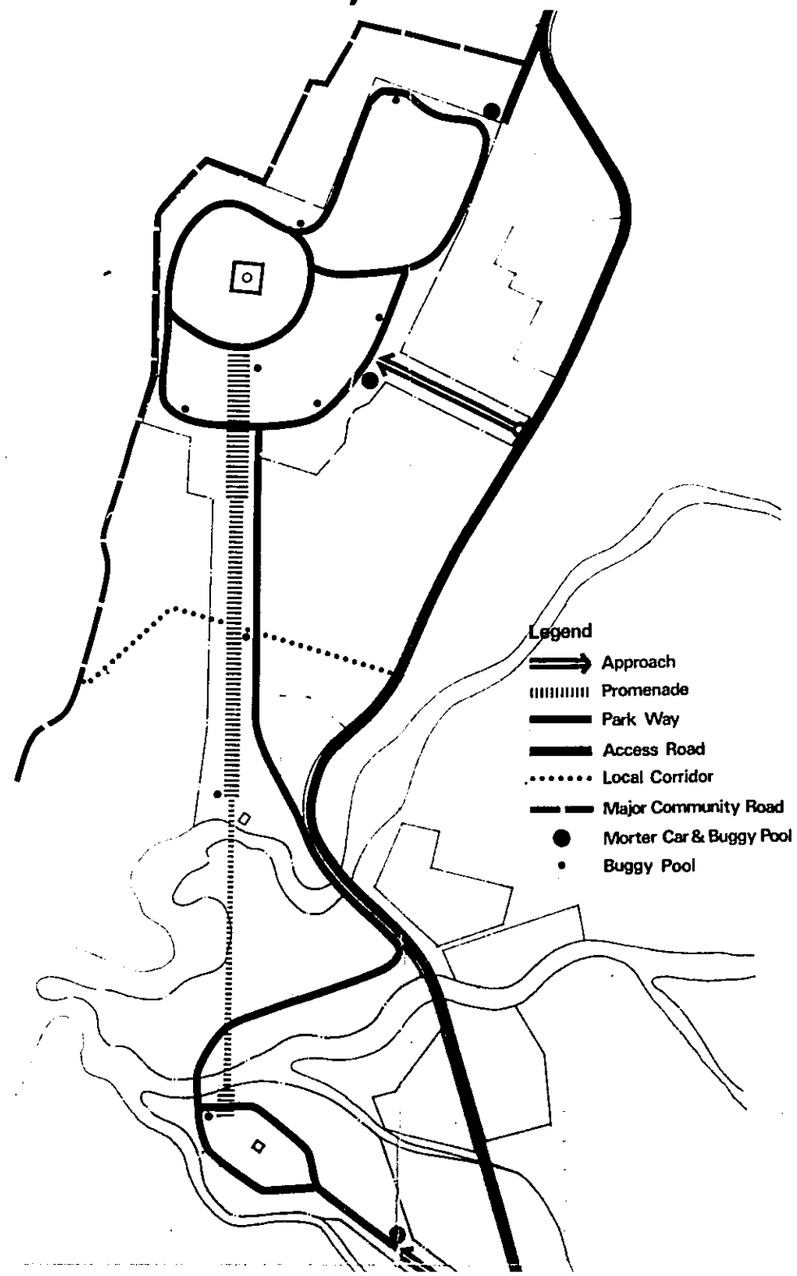
Phase-one Study

BOROBUDUR MASTER PLAN : SYSTEM

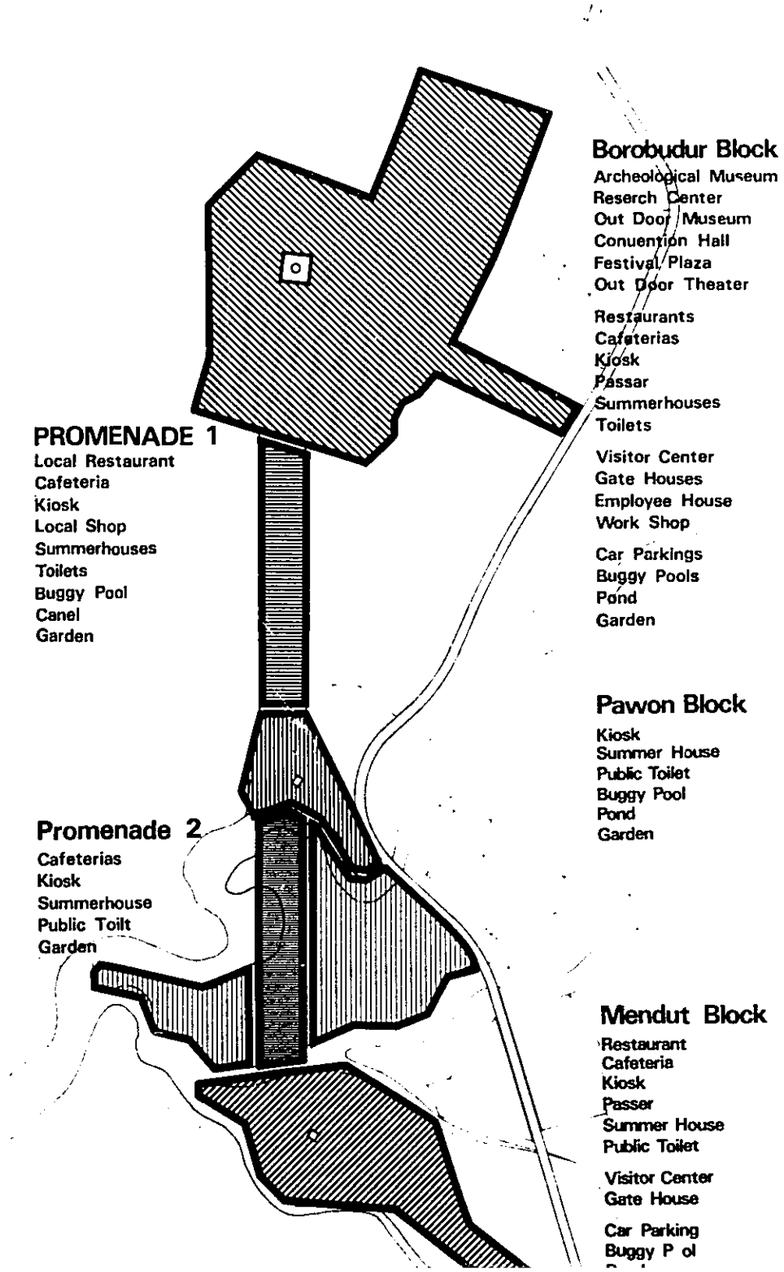
1 Land Use & Phasing System



2 Transportation Network System



3 Block Division & Facilities Layout System



Legend

- Sanctuary Site
- Facility Area
- Facility & Green Area
- Garden Area
- Pond
- Buffer Area
- Road Area
- Reserved Area

Legend

- Approach
- Promenade
- Park Way
- Access Road
- Local Corridor
- Major Community Road
- Morter Car & Buggy Pool
- Buggy Pool

PROMENADE 1

Local Restaurant
Cafeteria
Kiosk
Local Shop
Summerhouses
Toilets
Buggy Pool
Canel
Garden

Cafeterias
Kiosk
Passar
Summerhouses
Toilets

Visitor Center
Gate Houses
Employee House
Work Shop

Car Parkings
Buggy Pools
Pond
Garden

Promenade 2

Cafeterias
Kiosk
Summerhouse
Public Toilt
Garden

Pawon Block

Kiosk
Summer House
Public Toilet
Buggy Pool
Pond
Garden

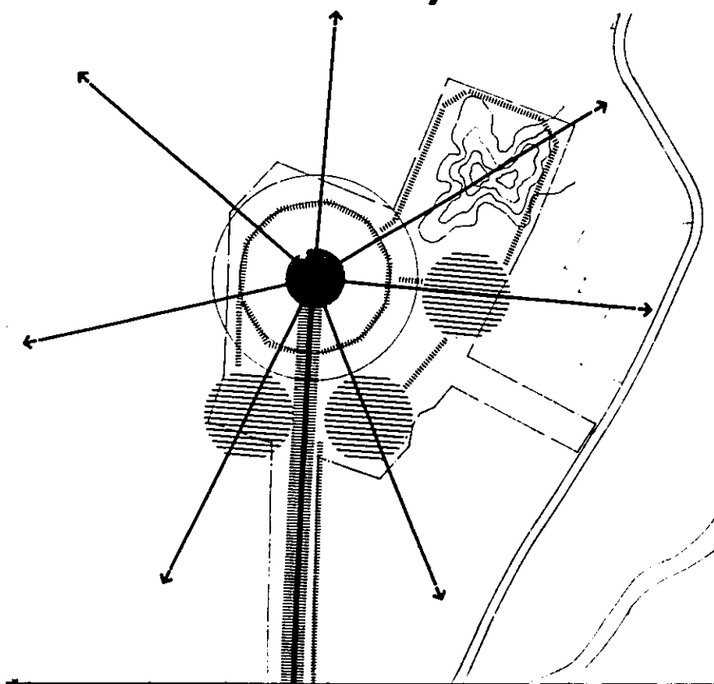
Mendut Block

Restaurant
Cafeteria
Kiosk
Passer
Summer House
Public Toilet

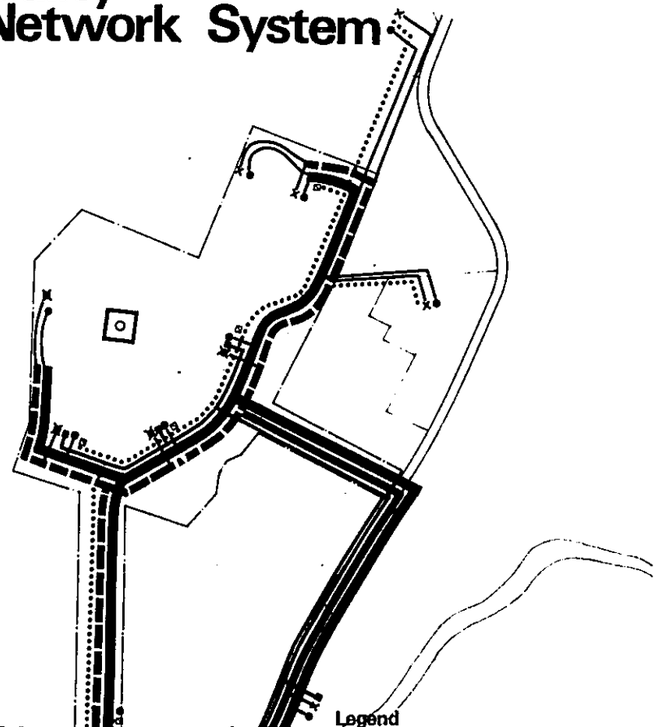
Visitor Center
Gate House

Car Parking
Buggy P ol
Pond
Garden

4 Visual Structure System

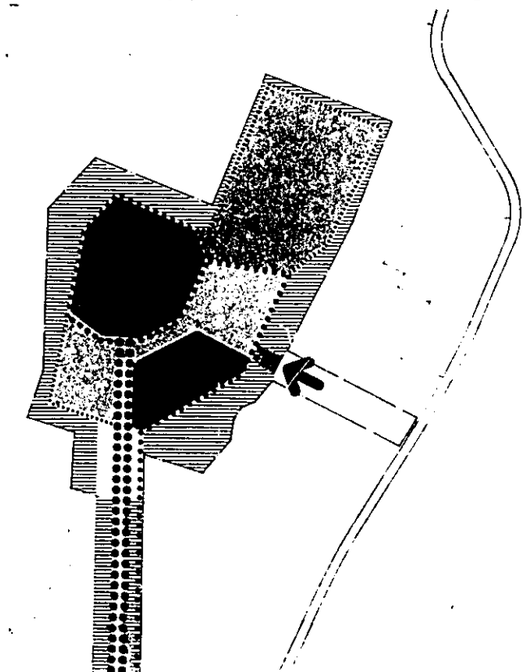


5 Utility Network System



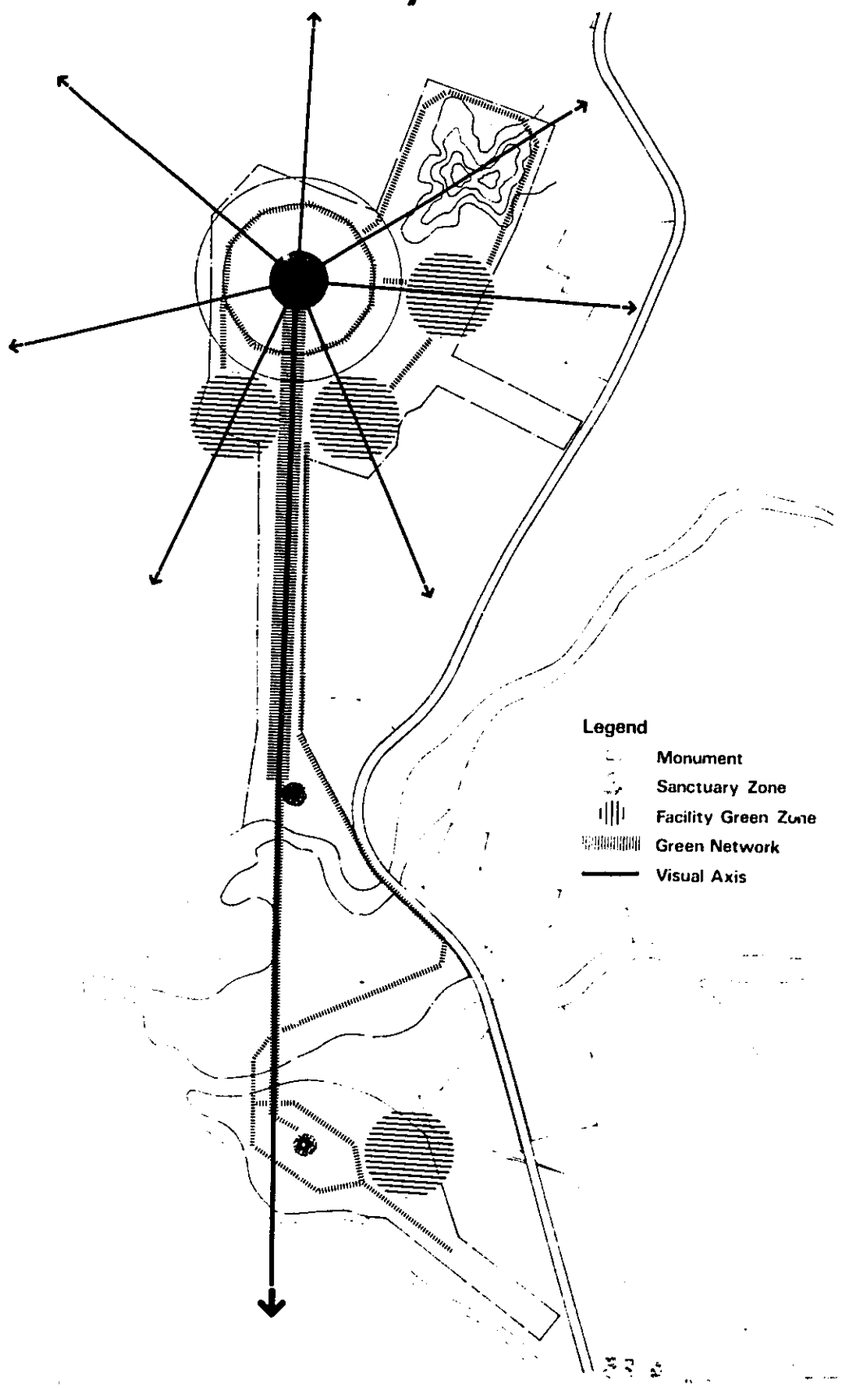
Legend

6 Density Allocation & Activity Network System

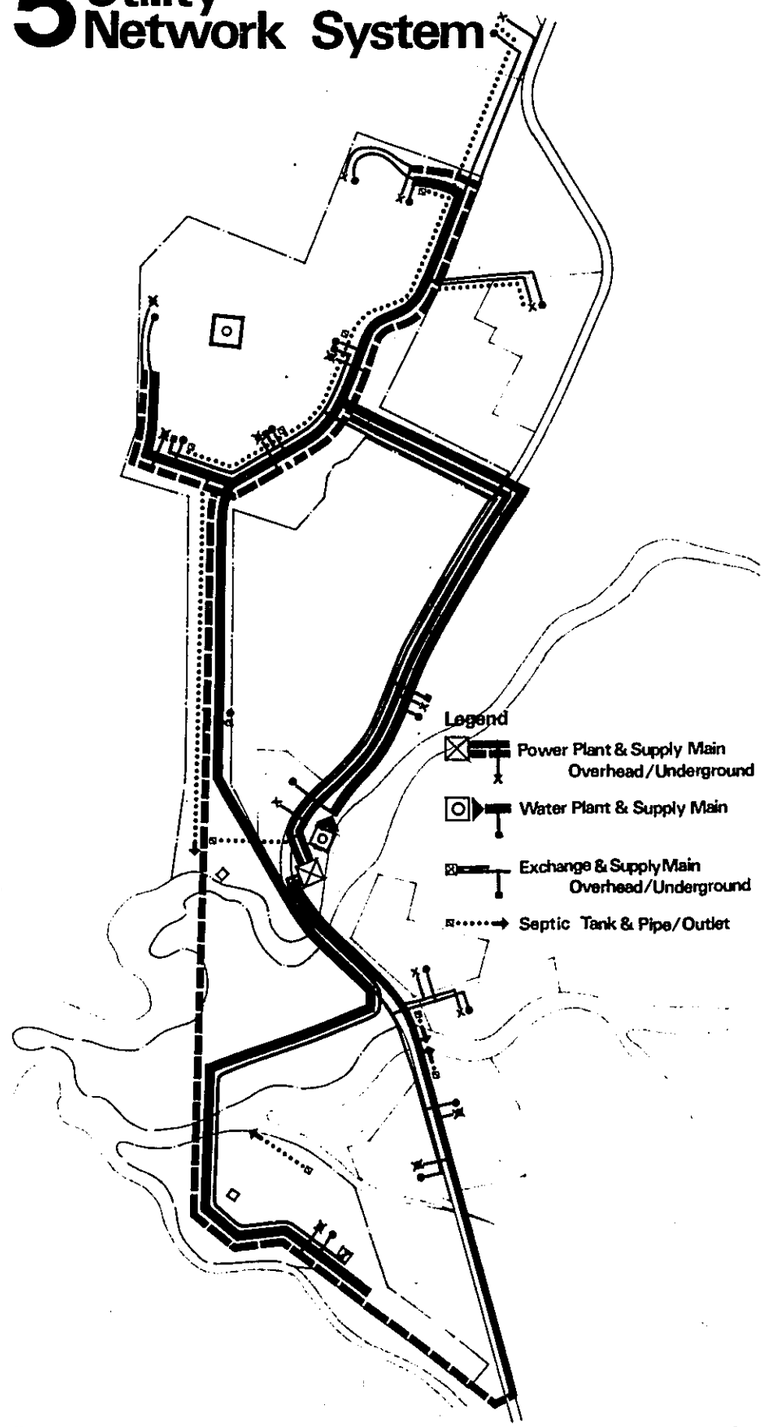


Ford
Garden

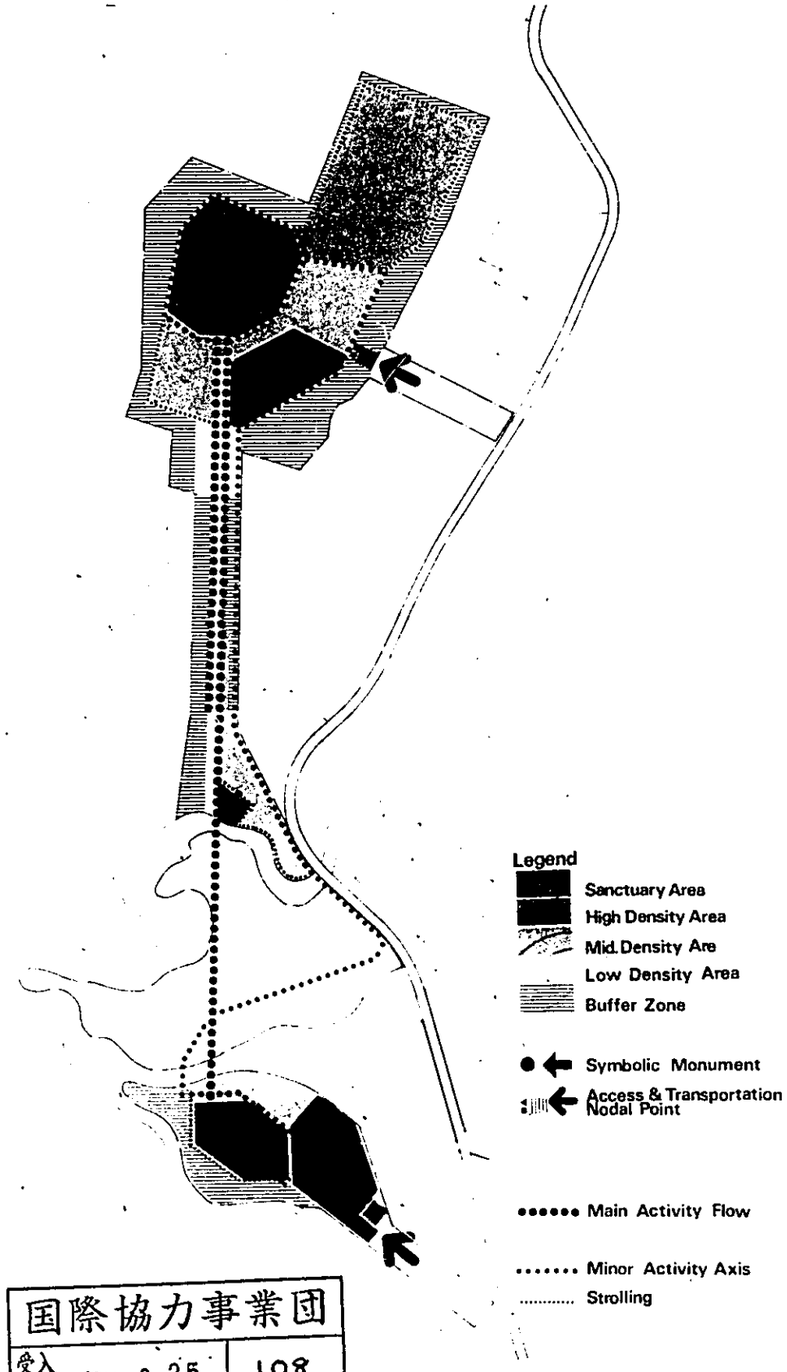
4 Visual Structure System



5 Utility Network System



6 Density Allocation & Activity Network System



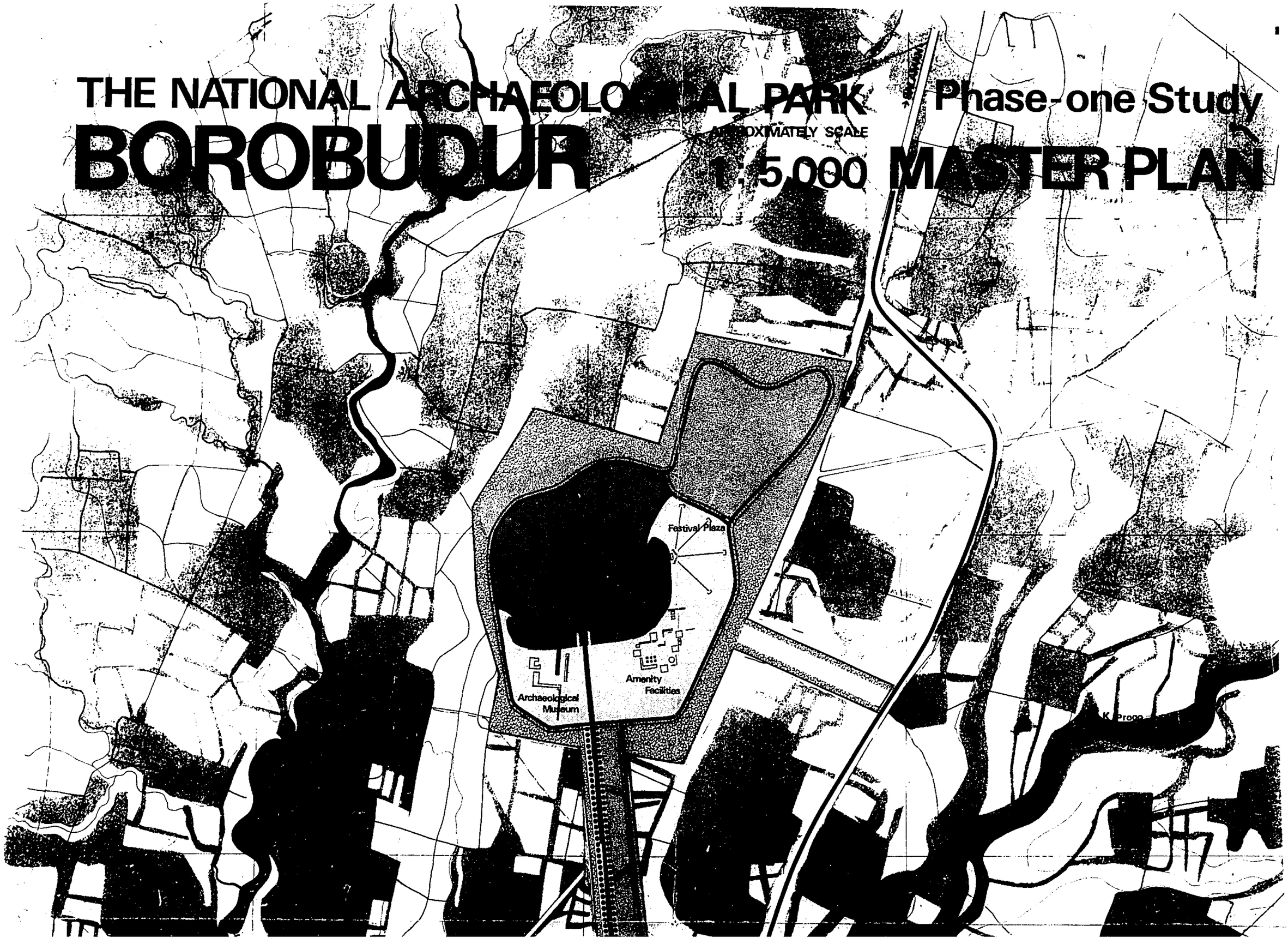
THE NATIONAL ARCHAEOLOGICAL PARK

BOROBUDUR

Phase-one Study

APPROXIMATELY SCALE

1:5,000 MASTER PLAN




Archaeological
Museum
Authority
Facilities
Festival Plaza
K.Sile