Construction Schedule Chart: Borobudur

Tentative Opening Area (1–5)
This is the area of the park that will open in October 1982 at completion of the Borobudur restoration work. It will consist of five blocks covering a total of 37.6ha and will include mainly operational and service facilities, including an operational office, an information center, a parking area, entrance facilities, and concourses.

Park Development Plan Area within Ten Years (6–10)
This is the area, consisting of several blocks, that will be gradually developed and opened after the 1982 tentative opening. Block 6 is scheduled to be developed in 1984, Block 7 in 1985, Block 8 in 1986, Block 9 in 1987, and Block 10 in 1988, the development concerning mainly theme facilities, the sanctuaries, and landscaping.

Tentative Opening

Pelita III | Pelita IV

79/80 | 80/81 | 81/82 | 82/83 | 83/84 | 84/85 | 85/86 | 86/87 | 87/88 | 88/89

Opening November, 1982

Block 1
This was established on a site determined as the most easy to be started area in the park development. In this area, the development of parking area exchangeable for the parking area for visitors and the equipment of concourse are made.

Block 2
In this area, the development and equipment of parkway and landscape as sanctuaries.

Block 3
The contents of development in this area includes that of the main elements such as parking area, entrance, operation office and information center, etc.

Block 4
This is the area surrounding Candi Borobudur and is currently used as the work yard of restoration works by BPCB. The basic equipments are to be made by BPCB by Oct. 1982, at the time of completion of the restoration.

Block 5
Currently this is used as a work yard of restoration, but will be equipped as sanctuary after the basic restoration is completed by BPCB.

Block 6
This designates the research facility area with such as Guest House, and BACC which are the thematic facilities of the park. The construction of each facility is made one after another and the new sanctuary will be completed in the year 1983.

Block 7
This is the area alongside of western parts of the sanctuary. The implementation of buffer greenery boundary are to be made and of the sanctuary after the site expropriation.

Block 8
This is the west boundary of the sanctuary where Dobuh Sabrang Road is located. The implementation of buffer greenery boundary are to be made and of the sanctuary after the site expropriation.

Block 9
This is the northern area of the sanctuary. Primarily it was used as a work yard for the equipment of the park and later the implementation will be made.

Block 10
This includes almost half of Dagi Hill. The equipment for water supply tanks will be made by the tentative opening of Oct. 1982 and later the equipment for flower roads and the establishment of the boundary will be made.

6.2ha
Government owned land

8.6ha
Public land
Agricultural land

10.3ha
Public land
Residential land
Population 799p.
No. of household 150p.

7.3ha
Candi Borobudur original site

6.2ha
Candi Borobudur restoration work yard

7.9ha
Residential land
Population 84p.
No. of household 365p.

15.9ha
Agricultural land
Residential land
Population 15p.
No. of household 3p.

4.1ha
Agricultural land
Residential land

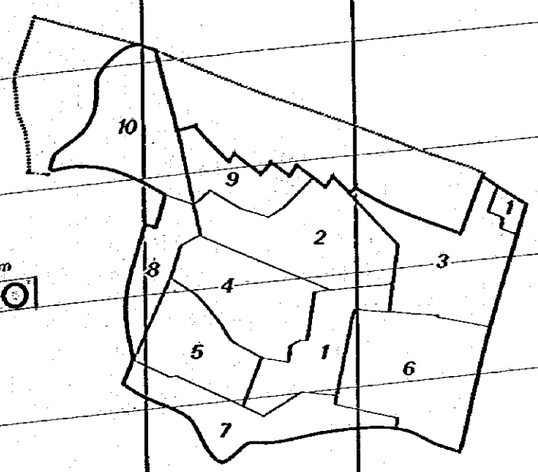
3.3ha
Agricultural land

7.8ha
Dagi hill

Land Acquisition
Construction
Operation/Maintenance

d Demolishment/Clearance Stage
a Archeological Survey Stage
e Earth Work Stage
u Utility Construction Stage
b Building Construction Stage
g Gardening Stage
s Landscape Structure Stage
p Planting Stage

Parking area
Concourse
Sanctuary
Operation office
Restoration of Candi Borobudur
Archaeological Museum
Demolishment of existing buildings
4,000 visitors/day
4,962 visitors/day
Borobudur conservation center
Guest house
Staff housing
Service facility
5,915 visitors/day
6,821 visitors/day
Field museum
7,178 visitors/day
Dagi hill
7,556 visitors/day
be used as construction work yard
be used as park area



Construction Schedule Chart : Prambanan

Tentative Opening Area (1–6)

This is the area that is to be opened in April 1984, at the end of Pelita III, consisting of Blocks 1–6, covering a total of 27.1ha. The facilities to be readied by that time are such operational and service facilities as an operation office, an information center, a parking area, entrance facilities, and a concourse, and an archeological museum in the way of theme facilities as well as a site office.

Park Development Plan Area within Ten Years (7–10)

After the tentative opening, other blocks will continue to be developed, starting with Block 7 in 1985 and going on to Block 8 in 1987, Block 9 in 1986, and Block 10 in 1987, the facilities to be developed including such theme facilities as the Ramayana theater, to be relocated, and a field museum as well as the sanctuaries and a riverside area.

Opening April, 1984

Block 1
This is the area where an early accomplishment of site expropriation is possible and where the equipment of facilities for park operation, concourse parking area are to be made at an earliest possible time.

Block 2
This is the area where Museum and Archaeological Office which are the theme facilities of the park should be constructed and the implementation of the sanctuary should be made.

Block 3
The 1st. and 2nd compounds of Candi Loro Jonggrang and the restoration is currently continued.

Block 4
This is the area for implementation of the sanctuary. After the partial use as the restoration yard the implementation will be made.

Block 5
This is the area where implementation of parking area and maintenance yard will be made immediately after the move of location.

Block 6
The partial implementation as a sanctuary or Field museum will be made after the completion of the move. Along the ration roads, buffer greenery will be constructed against the traffic noise.

Block 7
This is the area for the construction for the move and restoration of Ramayana Theater.

Block 8
After the completion new theater of 7 block, the removal of existing theater, improvement of Field museum and buffer greenery will be made.

Block 9
The construction of Field museum, riverside of Opak river, and the construction of Stabilization Pond are included.

Block 10
Implementation of the sanctuary, the park ways and riverside of Opak river will be made.

Sanctuary Candi Loro Jonggrang Area
Implementation of the original sanctuary, removal of the encroaching roads in southern and eastern remains, equipment of buffer greenery are to be made.

Other Sanctuary Areas
For both sanctuaries, the roads encroaching the temples should be removed along with the implementation of the sanctuary.

Pelita III: 79/80 | 80/81 | 81/82 | 82/83

Pelita IV: 83/84 | 84/85 | 85/86 | 86/87 | 87/88 | 88/89

Tentative Opening

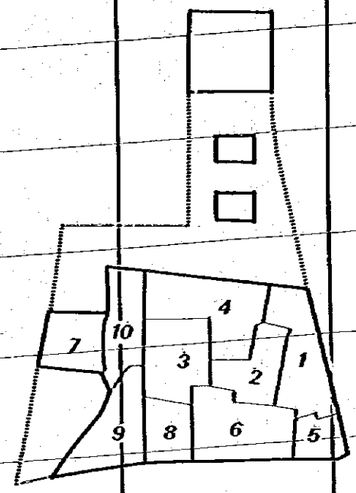
5.9ha Agricultural land
2.4ha Residential land Population 128p. No. of household 31u.
4.4ha Candi Loro Jonggrang second compound
6.6ha Agricultural land
2.0ha Public land
6.6ha Residential land Population 56?p. No. of household 156u.
2.7ha Agricultural land
2.9ha Residential land Population 417p. No. of household 84
1.4ha Agricultural land Residential land Population 37p. No. of household 7u.
6.7ha Agricultural land Residential land Population 89p. No. of household 23
6.4ha Population 29p. No. of household 6u.
2.3ha Population 29p. No. of household 6u.

Parking area
Concourse
Service facility
Prambanan area
Restoration of Candi Loro Jonggrang
To be used as restoration work yard
Sanctuary
Restoration work yard
Parking area
Maintenance shop
Field museum
Ramayana theater
Embankment of Opak river
Demolishment of Ramayana theater
Field museum
Stabilization pond
Embankment
Embankment
Sanctuary
Sanctuary
Sanctuary

2,279 visitors/day
2,687 visitors/day
3,169 visitors/day
3,738 visitors/day
4,227 visitors/day

Land Acquisition
Construction
Operation/Maintenance

d Demolishment/Clearance Stage
a Archeological Survey Stage
e Earth Work Stage
u Utility Construction Stage
b Building Construction Stage
g Gardening Stage
s Landscape Structure Stage
p Planting Stage



POC Office

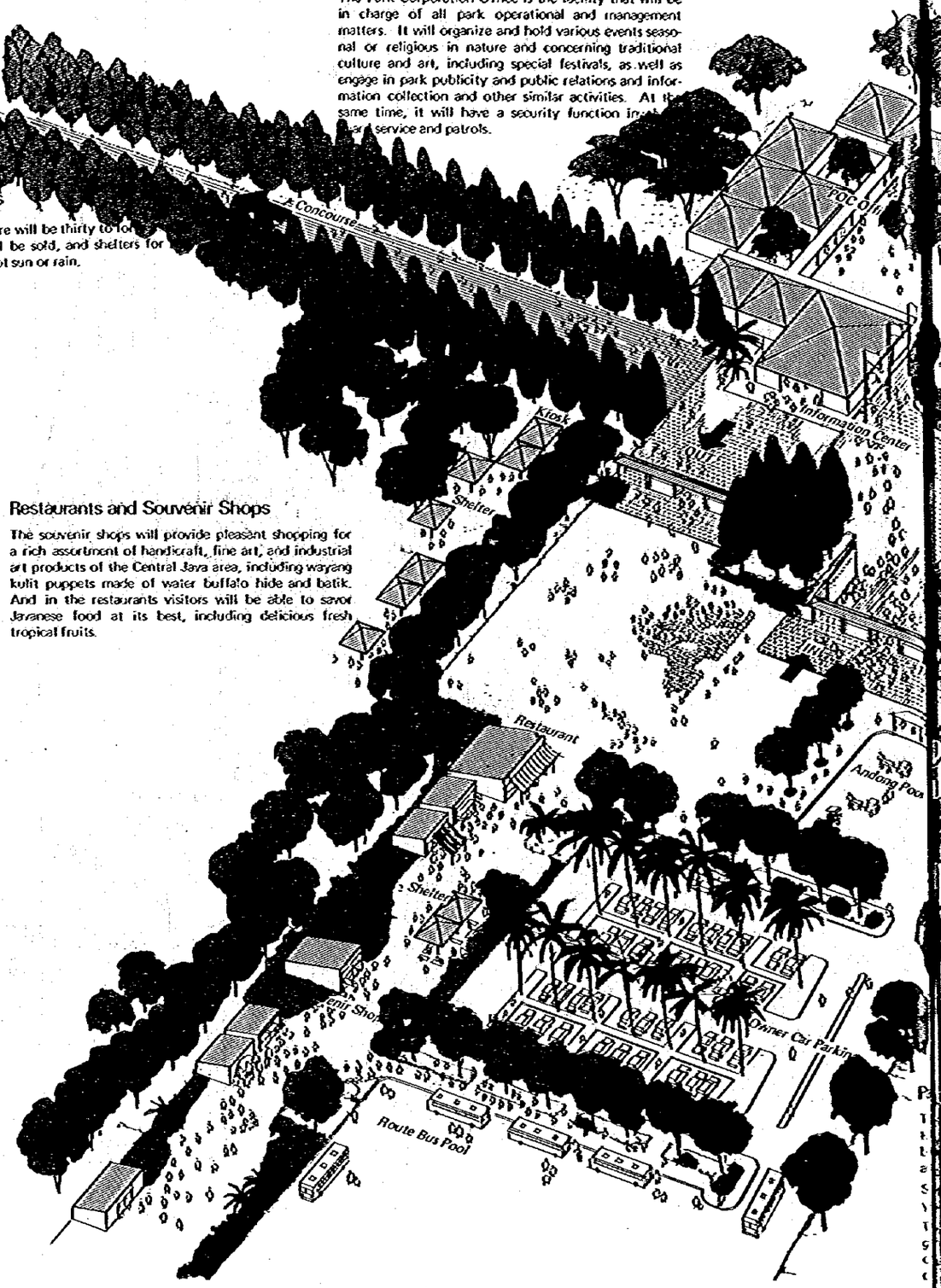
The Park Corporation Office is the facility that will be in charge of all park operational and management matters. It will organize and hold various events seasonal or religious in nature and concerning traditional culture and art, including special festivals, as well as engage in park publicity and public relations and information collection and other similar activities. At the same time, it will have a security function in... service and patrols.

Kiosks and Shelters

Along the parkways there will be thirty to fo... where refreshments will be sold, and shelters for ... and getting out of the hot sun or rain.

Restaurants and Souvenir Shops

The souvenir shops will provide pleasant shopping for a rich assortment of handicraft, fine art, and industrial art products of the Central Java area, including wayang kulit puppets made of water buffalo hide and batik. And in the restaurants visitors will be able to savor Javanese food at its best, including delicious fresh tropical fruits.



You, Too, Are Helping to Making the Park

Did you know that the admissions fee that you pay will help cover the expense of running the park, including maintenance and repair of the monuments? And that is not all. Why not add something to the park yourself by planting a tree to mark your visit. When you come again next time, it will have grown remarkably. And when your children, and theirs in turn, visit the park, they will have something to be really proud of.

Open 7:00am – 6:00pm.

Admission fees: 130 Rp. for adult
50 Rp. for children
20% discount for groups
(a group being 20 or more people entering together as a group)

Parking fees: 100 Rp. for passenger cars
300 Rp. for buses
30 Rp. for motorbicycle

Visual Communications System

The sign plate conveniently located throughout the park will keep you informed of exactly where you are and help you decide which fork in the road to take to keep to your schedule so that you can really relax and enjoy yourself without worrying about whether you will get back in time.

Excursion by Andong

At the Prambanan park there will be three distinct excursion routes around the candi, and the "andong", the familiar horse buggy of this area, will be employed as the means of transportation along them.

...0buses+110cars

...ated breakdown of the total number of visi... of transportation is as follows: (1) tourist ... (2) passenger cars, 5%, (3) route buses, 40%, ...er means of transportation, 15%.

...g capacities will be extended once at five-...s thereafter.

... trees, flower beds, low shrubs and other ... be planted at these parking facilities will not ...e cool shade but also tone down their artifi... ...ments of the scenery.

Park Operation Corporation

The functions, activities, organization, and manpower requirements of the Park Operation Corporation and the personnel assignment schedule and responsibilities of its Administrative Division will be as follows.

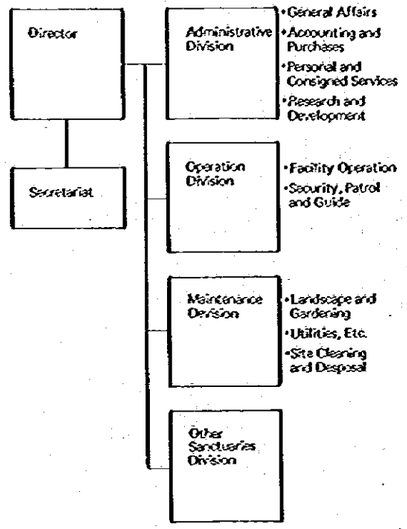
Role of POC

A park operation corporation with the following main functions will be established for the purpose of seeing to it that all aspects of park operation run smoothly:

- Coordination with the additional park construction works and monument restoration works that will take place after commencement of use of the park.
- Operation and maintenance of the various park facilities.
- Being of service to visitors at the visitor center and elsewhere in the park.
- Keeping track of how the park is being used, including the keeping and analysis of statistics on the number of visitors, for feedback for further improvement of the park.
- Planning of outdoor exhibitions of the archeological museum in close liaison with government archeological personnel within the park.
- Promotion activity in cooperation with the government and local tourism offices.

The park operation corporation will have the following four departments, the main duties of each of which are indicated:

Organization of POC



Administrative Division

General management duties, including finances and personnel; control of services of private concessions (restaurants, kiosks, guide service, andong service, etc.); and keeping of statistics, planning special events, and promoting use of the parks.

Manpower Allocation

	Upper class	Middle class	Lower class	Total class
General Affairs	2	4	10	16
Accounting/Purchases	1	2	4	7
Personnel/Consigned S.	1	2	4	7
Research/Development	1	4	5	10
Total	5	12	23	40

Transfer of Responsibility to Maintenance and Control

It is important that full confirmation be made of the aims of the various park facilities and structures at the time that they are handed over by the implementation entity.

Confirmation of function:
Purpose, safety, and durability of facilities.

Confirmation of quantity:
Number and quantities of facilities and whether there is any fluctuation and they represent real estate, fixtures, or expendables.

For reasons of safety, transfer should take place immediately after inspection of the completed facilities.

Operation and Maintenance Costs

General expenses
- Public utilities: electricity, water, gas
- Office supplies
- Telephone and other communication costs
- Employee transportation, operation of park vehicles, travelling cost for personnel at reassignment
- Publicity costs, including printing costs

Material costs
- Cost of maintenance and repair of buildings and equipment
- Cost of purchase of maintenance and repair tools
- Cost of materials for maintenance, repairs, and upkeep of grounds (paint, fertilizer, chemicals, etc.)

Control of Private Concession Operations

In selecting concessionaires for kiosks, souvenir shops, restaurants, guide service, and other park facilities and services, definite criteria should be observed. Control of such concessions will include checking of prices and the quality of goods and services being offered.

Expected Concession Fees

	Land cost	Building construction cost	Total cost	Monthly due
Borobudur				
(1) Restaurants	23,000	100,800	123,800	1,238
(2) Souvenir shops	11,500	32,400	43,900	439
(3) Kiosks	3,900	8,400	12,300	123
Sub-total	38,400	141,600	180,000	1,800
Prambanan				
(1) Restaurants	12,800	67,200	80,000	800
(2) Souvenir shops	9,600	32,400	42,000	420
(3) Kiosks	2,200	5,800	8,000	80
Sub-total	24,600	105,400	130,000	1,300
Total	63,000	147,000	310,000	3,100

Note: At 1% of land acquisition cost & Construction cost combined.

The amount of income from concession fees should increase each year in proportion to the construction of restaurants, kiosks, shops, etc. as the number of visitors increases. Here it has been assumed that in the case of the Borobudur park about 35% of the concessions will be operating by 1982, 70% by 1985, and 100% by 1987 and that in the case of the Prambanan park the same percentages will be attained by 1984, 1986, and 1988, respectively.

Miscellaneous Ideas Regarding Donations

- Commemorative Plants

  Donations of sacred trees for planting within the sanctuary areas may be accepted from people visiting the parks who wish to make such a donation.

- Restoration of Remains

  Private contributions may be considered to assist governmental operations for restoring the nearly half-ruined remains.

POC's Manpower

Staff and employees for the operation of both parks may be divided into the following three groups:
- Staff and employees employed by the Park Operation Corporation
- Staff and employees employed by governmental agencies
- Staff and employees employed by operators performing consigned functions within the parks

The following staff and employes will be needed for full operation of the park. Those personnel will be employed by the Park Operation Corporation and they may be divided into three categories:

Upper class: High-ranking managerial personnel
Middle class: General official workers and technicians
Lower class: Lower-ranking workers and physical laborers

POC's Manpower Requirement

	Upper class	Middle class	Lower class	Total class
Borobudur				
Administration	5	12	23	40
Facility Operation	1	14	35	50
Security, Patrol and Guide	1	4	65	0
Maintenance	2	12	106	120
Other Sanctuaries	1	3	16	20
Total	10	45	245	300
Prambanan				
Administration	5	12	23	40
Facility Operation	1	12	27	40
Security, Patrol and Guide	1	4	60	65
Maintenance	2	12	96	110
Other Sanctuaries	1	5	39	45
Total	10	45	245	300

Besides the above park operation corporation personnel, there will be 50–60 government archeological personnel and 100–110 management personnel and employees of the park concession facilities, for a total of about 450 in the case of each park. In hiring, priority is to be given to local people, the quota for them being 70–80%.

Other Sanctuaries Division

Besides the park grounds themselves, the park operation corporation will also be responsible for the maintenance and upkeep of the sanctuaries outside, of which there will be four in the Borobudur area and seven in the Prambanan area.

The main duties of other sanctuary division will be admission and exit control, security, and maintenance.

Manpower Allocation

	Upper class	Middle class	Lower class	Total
Borobudur				
Pawon	–	1	4	5
Mendut	1	2	8	13
Ngawen	–	–	2	2
Gunung Ukir	–	–	2	2
Total	1	3	16	20
Prambanan				
Plaosan Lor, Kidul	–	2	7	9
Sojiwan	–	–	3	3
Daung, Kraton Ratu Boko	1	3	7	21
Banyunibo	–	–	3	3
Kalasan	–	–	3	3
Sari	–	–	3	3
Sambisari	–	–	3	3
Total	1	5	39	45

Research and Development System

The research and development activities indicated below will be for the purpose of improving the park on the basis of analysis of information regarding how it is being used. Analysis of visitor statistics is explained in terms of the figures estimated in the present study, and the basic thinking and some ideas are given with respect to events and promotion.

Statistics on the Number of Visitors to the Parks

The number of visitors to each park and to the sanctuaries outside them can be kept track of by means of the admission tickets. Analysis of the data will reveal what the daily, weekly, and seasonal fluctuations are as well as the annual rates of increase for all visitors and different categories of visitors. For daily fluctuation, the day should be broken down into 1–2 hour periods. Besides feeding such admission data back into park improvement planning, it can be used in connection with encouragement of visits during slack periods.

Management and Control Plans

Management and control planning on the basis of the park planning must adjust demand forecasts and assessment and take into consideration economic conditions, the following matters being most basic to it:
- Assessment of visitor needs as reflected in their behavior on the basis of park use surveys.
- Identification of trouble spots through observation at the maintenance and control level.

Park Use Surveys

Surveys of how the park facilities are being used should be carried out on a regular basis and the results thereof reflected in the maintenance and management of the park.

The following types regular surveys are needed to ascertain the state of use of the park so that maintenance and control plans can be improved as required:
- Surveys of annual, monthly, daily, and seasonal number of visitors.
- Surveys of age and sex of visitors, where they come from, the park facilities that they made use of, the means of transportation they used to and from the park, etc.
- Surveys of the motives and purposes of visitors in coming to the park and of their opinions of the park and its facilities.

Visitors' Need and Satisfaction

The park facilities, including trees and shrubs, are constantly undergoing quantitative change, being supplemented or reduced by damage in proportion to the number of visitors. A regular record must be kept of this change in the maintenance and management ledger down to the last tree.

Consideration of Quantitative and Qualitative Change

Along with change in social needs, some facilities will have to be increased, some will have to be renewed as they reach the end of their life span, and other will have to be repaired. There will also have to be changes in the vegetation along with ecological change and qualitative changes in the facilities people come to expect better quality.

Park Improvements

Park improvements will have to be made under circumstances such as the following:
- When facilities become outdated.
- When visitors become more satisfied with the facilities.
- When improvements are needed because of changing social needs.

More than one of these circumstances can arise at the same time, and both quantity and quality should be taken into account in dealing with them.

Questionnaire Surveying

A sampling questionnaire survey should be held each year during the tourist season and once again during the off-season in order to get a better idea of how the parks are being used to serve as feedback in planning for their improvement. Among the information that should be sought is:

1) age, where from, and other information concerning visitor characteristics,
2) information concerning transportation and accommodation used, purpose of visit, etc.,
3) information on what facilities were used and duration of stay, and
4) what excursion courses, if any, were followed for visits to monuments outside the parks.

Such information will be useful in forecasting activities by tourist type, revising lines of movement, and generally in planning for improvements as well as for planning events and promotional activities.

An example questionnaire form is given below.

Questionnaire

(1) Age ☐Male ☐Female

(2) Occupation ☐Student ☐Others ( )

(3) Group visitor? ☐Small group ☐Large group (over 10 persons)

(4) Where did you come from?
☐Yogyakarta ☐Jakarta
☐East Java ☐Central Java ☐West Java Elsewhere ( )
If you are foreigner what is your native country? ( )

(5) Where did you stay overnight? ( )
☐Or did you return the same day?

(6) How did you come to the park?
☐Route bus ☐Train ☐Tour bus ☐Taxi
Other means of transportation ( )

(7) Is this your first visit? ☐Yes ☐No
If not, how much times have you come? ( )

(8) Do you intend to come again? ☐Yes ☐No

(9) How did you find out about the possibility of the park visting?
☐Poster ☐Guide book ☐Travel agency
In some other way ( )

(10) What has been the main purpose of your visit?
☐Sightseeing ☐Study tour ☐Business
Other purpose ( )

(11) How long were you at the park?
☐0–0.5hrs. ☐0.5–1hrs. ☐1–2hrs. ☐More than 2hrs.

(12) What park facilities did you use?
☐Visitor center ☐Museum ☐Kiosks ☐Souvenir shop

(13) What other kind of facilities do you think the park should have?
Do you have any suggestions regarding park facilities, services, or anything else about the Park?
( )

(14) Have you see or do you plan to see any of the following monuments?
Also, which one(s)?
☐Candi Mendut ☐Candi Pawon ☐Candi Ngawan ☐Candi Gunung Ukir ☐Candi Sambisari
☐Candi Sari ☐Prambanan Park ☐Candi Plaosan ☐Candi Sojiwan ☐Kraton Ratu Boko
☐Candi Kalasan ☐Candi Banyunibo

Promotion

Promotional activities will be carried out in cooperation with the Tourism Bureau, the Yogyakarta Special Territory Regional Tourist Offices, and the Central Java Province Tourist Office.

Before and for a while after the opening of the parks such promotion will consist mostly of posters and pamphlets aimed to making the general public more aware of the parks.

Besides season events for park publicity, new items can also be used for this purpose.

Furthermore, it would also be a good idea to sent school's pamphlets free of charge to encourage school trips to the parks.

Events

Events will be symbolic of the character of the parks and will also be important in terms of promoting their use.

Because they are important in these two different ways, they will have to be planned separately for each purpose in terms of timing and content. In the first case, events will be of a commemorative or festive type, and in the second, the main consideration will be to make them attractive enough to increase the number of visitors. The tendency is to hold the first type in seasons when there are many visitors anyway and the second type at slack times of the year. Among the specific possibilities are special exhibitions at regular intervals at the archeological and field museums, amateur photograph contests on the subject of the monuments, children's sketching contests on the same subject, and commemorative tree planting ceremonies.

Facility Operation

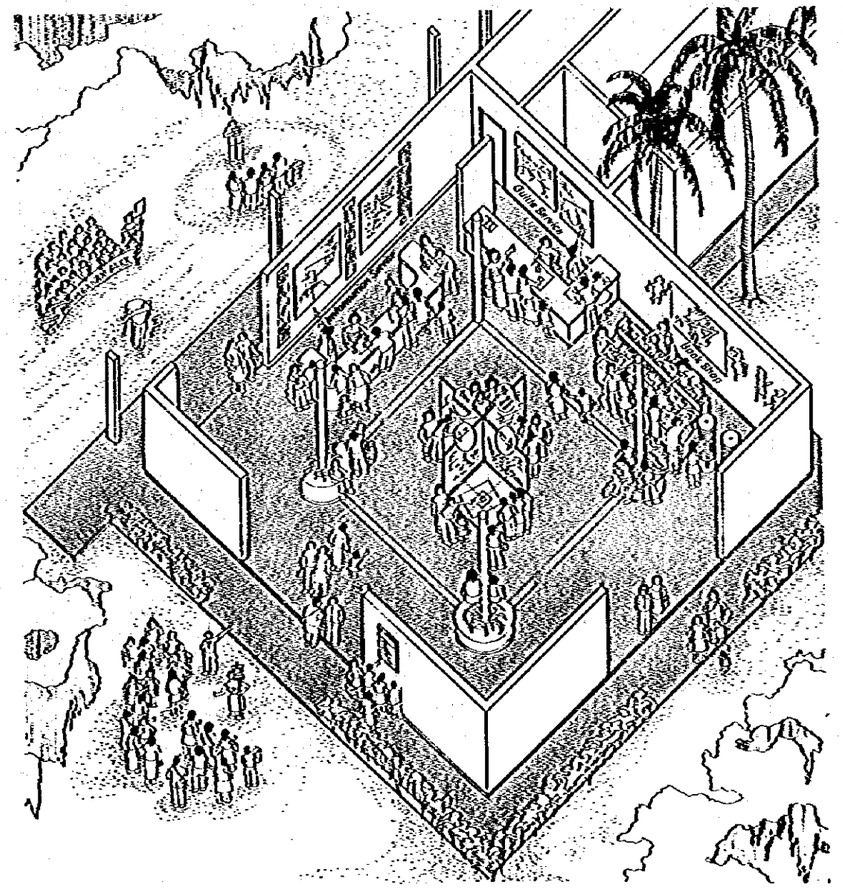
The Operational Division will consist of a facility operation section, which will be responsible for running visitor service facilities, and an SPG (Security, Patrol, and Guide) section, which will be responsible for park security. The personnel assignment schedules and activities of each are indicated below along with measures to be taken on the operational side for protection of the monuments and matters which will have to be brought to the attention of visitors.

Operations Divisions

Direct operation of gate facilities, visitor center, archeological museum and other nonconcession park facilities and park security and guidance of visitors.

Manpower Allocation

	Upper class	Middle class	Lower class	Total
Borobudur				
Gate/Parking	–	4	8	12
Visitor Center	1	4	7	12
BAM	–	4	12	16
Guest House	–	2	8	10
Total	1	14	35	50
Prambanan				
Gate/Parking	–	4	8	12
Visitor Center	1	4	7	12
FAM	–	4	12	16
Total	1	12	27	40



Information Center

This facility will provide information on the monuments themselves and on the various park facilities and tour routes, including brochures describing the historical, religious, cultural, and technical aspects of the monuments and guide maps of the park. Guides for foreigners can also be arranged here. Besides printed matter, this office will post information on signs and information boards as required on either a regular or a seasonal basis. It will also be responsible for emergency liaison and communication and for handling serious sudden illnesses or accidents.

Guide service: This is to provide guides who have received the proper training to guide foreign on Indonesian visitors to the parks.

Andong service: This is provide horse-drawn cart on the main routes with in the parks.

Atention of Visitors

No Littering Whatsoever on the Candi

The candi are national treasures of the Indonesian people. Special care must therefore be taken to avoid littering on them. On the terrace where restoration work is now being done small pieces of refuse have got their way into recesses where it is difficult or impossible to reach, which could adversely affect the storm drainage system over and above the harm done to the aesthetic attractiveness of the Candi.

Refuse disposal is of two kinds:
Collection and resell of cans and bottles and reclamation of garbage and papers.

Cigarette is observed thrown on the floor of Candi Borobudur.

Throw of trash and nuisance at the site should be stopped as soon as possible, by way of:–
- clear sign of boxes installation;
- propaganda against throw and nuisance;
- stop selling of can and bottle in the park;
- regulations, community charter and education.

Limit of the Number of Visitors to the Monument

Any destruction and change of the state of monuments is prohibited by Monuments Ordinance No. 238. Stair cases of Candi Borobudur, for instance, will be worn 2mm annual. In every twenty years interval the stones of steps should be changed when they will be worn 50mm.

Limit of the number of visitors to the monument at one time, 500 persons at Candi Borobudur, for example, will be another measure.

Cleaning of underground stones of the corridors will be required in every ten years.

SPG Personal

"SPG personnel" stands for security, patrol, and guide personnel. They will be stationed at three guard boxes in each park, from which they will make their rounds, not only checking the monuments, but also taking care of stray children and medical emergencies and helping visitors find their way around the park. They will constantly be on the lookout for potential hazards that are to be removed.

Manpower

	Upper class	Middle class	Lower class	Total class
Borobudur				
Candi	1	4	20	25
Sanctuary			10	10
Parking			10	10
Concourse			4	4
Field Museum			8	8
Research Zone			3	3
Dagi Hill			4	4
Night Guard			6	6
Total	1	4	65	70
Prambanan				
Candi Loro Jonggrang	1	3	16	20
Sanctuary			6	6
Parking			10	10
Concourse			4	4
Field Museum			6	6
Research Zone			3	3
Sewu, Lumbung, B		1	5	6
Night Guard			10	10
Total	1	4	60	65

Maintenance Program

A good maintenance program is indispensable if the parks are always to be kept in best condition. Such a program will be undertaken by three different sections of the Maintenance Division (a utility and mechanical section, a landscape and gardening section, and a site cleaning and refuse disposal section) the personnel assignment schedule for each and the work that each will be responsible for being as follows.

Why Maintenance

Parks are created by man for certain purposes and functions, and they require regular checking and maintenance in order for their facility buildings and accessories and electricity, water supply and drainage systems to function properly. Furthermore, safety controls are needed for facilities and utilities.

Although trees are planted in such a way as to suit their individual characters and environmental needs, there tends to be subsequent change in the environment and some unadvisable planting practices because of a desire to keep to the schedule in spite of unforeseen difficulties. At the completion of planting, the trees are in an immature state, and it takes quite a while for them fulfilt properly the functions that are expected of them.

Cleaning, refuse disposal, safety management and other aspects of park administration and maintenance must be carried out according to well-defined schedules.

What for the Maintenance

The basic objective of park maintenance and control is to keep the park facilities, structures, trees, etc. functioning properly, their main functions being enhancement of the efficiency of land use in the park, provision of the amount and quality of public services needed, provision of recreation opportunities, including space, and amenities, production of greenery, and so on.

Only with proper maintenance and control can the parks serve the public in the way they are meant to, and that is why park maintenance and control is such an important aspect of the project.

Maintenance Division

This department will be responsible for maintenance and management, repair, and construction of facilities and for gardening work and upkeep of the grounds. Maintenance of the natural environment does not mean leaving it to itself, but rather regular care of it, including trimming of trees, prevention of plant disease, supplementary planting, cutting of grass, and care of flowers. Such care need not, however, be as detailed as that of a gardener, but just enough to help nature along.

A system of regular checking is important with respect to the facilities, for a loose bolt or minor wear can give rise to a serious accident.

Disposal of refuse within the parks is another big problem. A rational system of collection and disposal will have to be instituted.

Manpower Allocation

	Upper class	Middle class	Lower class	Total
Borobudur				
Site Cleaning and Disposal	–	2	68	0
Landscape and Gardening	1	2	27	30
Utility Mechanical	1	8	11	20
Total	2	12	106	120
Prambanan				
Site Cleaning and Disposal	–	2	63	65
Landscape and Gardening	1	2	22	25
Utility Mechanical	1	8	11	20
Total	2	12	96	110

Landscape and Gardening

Care of Trees, Flowers, etc.

Trees and other vegetation can easily get out of hand in a tropical rain forest zone if not given proper attention. Lawns have to be mowed frequently, and branches and leaves trimmed to retain the attractive shapes of trees and shrubs.

- Watering of trees and shrubs once a week during dry season.
- The following once or twice during rainy season:
  1) Weeding of shrubbery and cutting of grass
  2) Getting rid of withered or damaged trees
  3) Supplementary planting of trees
  4) Care and fertilizing of trees and shrubs
  5) Pest and disease treatment

Site Cleaning and Disposal

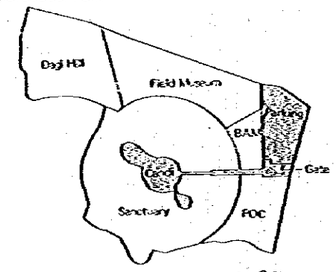
Ten Thousand Visitors in a Single Day Will Produce 1.7 Tons of Refuse

That is how much will have to be collected at Borobudur. Refuse baskets will be provided along parkways and malls and in places where people congregate. Visitors will have to be reminded not to fail to use the refuse containers for the refuse that they cannot help producing and to avoid producing any more refuse than they have to since its collection will be an expensive and arduous job for the park administration.

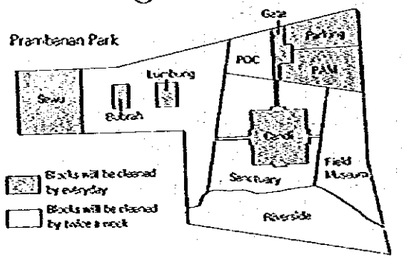
For cleaning of the park grounds the park will be divided into several block, with workers assigned to each. Some of the blocks will be cleaned everyday, and others only twice a week, depending on the frequency of use. Shubbery will also be cleaned once a month. The refuse will be collected at a designated place in each block, with cans, bottles, and other noncombustibles being separated from wastepaper, raw garbage, leaves, and other combustible materials.

Maintenance Block

Borobudur Park



Prambanan Park



Utilities, Etc

Utilities and other facilities and services like water supply, drainage, electricity, refuse disposal, and so on are of course absolutely indispensable to the smooth running of the parks. It is therefore necessary that there be a program of regular maintenance checks to avoid any problems with respect to them.

Management of Candi

The quality of use of historical areas depends on creative understanding by the visiter of the historical resource and its place in Indonesian history. The information and interpretive program for each area is, therefore, based upon the primary historical resources and its objective is to help visitors to comprehend intellectually and emotionally the significance of these resources to Indonesians.

Plans for Preserving the Monument

Plans for use differ between such archeological park cores as Candi Borobudur and the Candi Loro Jonggrang complex and sanctuary areas outside of the archeological parks. In the case of the former many attractive facilities will be provided, including an archeological museum, an archeological research center, a conservation center, a student village, and service facilities, whereas in the case of the latter, facilities will be the minimal required for the purpose of protecting and maintaining the monuments.

Furthermore, the archeological parks proper have been designed in such a way as to make it possible for the many visitors to the parks to become acquainted during their short stay with te religion, view of the universe, and culture of the times in which the candi were built and the long flow of history since those times as well as appreciate the importance and value of the many monuments, including those outside the parks.

The sanctuaries outside the parks, on the other hand, have been designed in such a way as to give as many people as possible an opportunity to become acquainted with the value of the cultural legacy represented by the monuments in them while at the same time preserving the state of harmony between the monuments and the lives of the people living around them that has continued through the ages.

The following requirements will have to be observed for the purpose of preserving that state of harmony:

- Custodian patrols, weeding, cleaning, and drainage maintenance as well as provision of fire-fighting and other preservation facilities.
- Requirements with respect to visitors:

(1) Provision of guide and other supervisory personnel.

(2) Clear identification of routes to be followed while in the sanctuary and prohibition of deviation from them or entry into off limits areas.

(3) Prohivition of smoking in some areas, with places where smoking is allowed be provided nearby.

(4) Patrols of the grounds immediately after closing time to make sure that no visitors are still inside and no damage has been sustained by the monuments or facilities as well as regular patrols thereafter.

(5) Requirement that visitors sign the visitors' book, group leaders signing for their groups, indicating the names of the groups.

(6) Provision of necessary facilities for early detection and extinction of fires and regular maintenance and checking thereof.

(7) In cases where circumstances make it difficult to abide by all of these requirements, appropriate measures should be taken such as restriction of public access or the entrusting of certain objects to the custody of museums.

Besides these main requirements listed above, all other measurement of the sanctuaries.

Graphic Design Standards

The following is an explanation of basic principles and matters to which attention will have to be given in the graphic design for the parks.

What is Graphic Design Standards ?

The graphic design standards will help to accentuate the characteristics of the parks as national archeological parks in their graphic design and serve as guidelines for design unity.

They will determine such basic elements as the symbol marks, Logotypes, and symbol colors of each park as basic elements and indicate specific sizes and coloring for the design of the park flags, tickets, etc., and posters and pamphlets.

They will also determine the type of lettering, pictograms, and coloring of the sign plates and signboards for smooth guidance of the visitors within the parks as a visual communication system and indicate the size of lettering and the layout for each use.

Symbols and Logotypes

The symbol marks and logotypes of the two parks must be suitable as national park symbols and also have an element of national identity. The actual designs must be suitable for the different uses, such as for printing, dyeing on cloth or carving in wood, enlarging or reducing in size, and use as symbol marks only or logotypes only. As for the coloring, consideration must also be given to cases of [illegible] expression.

Signs

The sign planning will aim at the function of visual communication at places of an international and public nature. In a complicated environment the signs will serve as a means of visual communication that will impart the same information to a large number of people at the same time and rapidly and guarantee proper flow of people within the parks. The signs must not only be attractive and functional in their own right but also blend in well with their surroundings, including adjacent buildings.

General Principles for Signs

The following general principles for the signs will ensure that the flow of people within the parks is smooth:

- Standardization: Unity of design within each area.
- Continuity: Signs indicating direction should be placed wherever needed by visitors, and there should be continuity between them.
- Simplicity: The signs should be as simple and readily understandable as possible.
- Readability: The size of the signs should be determined by the distance from which they are to be read, and visitors should be able to read the signs without difficulty under all circumstances.

Besides these principles, the psychological elements of attractiveness, reliability, and pleasantness should be added in the actual design of the sign plates.

Types of Signs

Identification signs:
Signs showing names of monuments, facilities, etc., including door signs.

Direction signs:
Signs indicating the direction to facilities and other destinations, including the distance if necessary, and which are to be located along approach roads and at forks and open spaces for convenience of visitors.

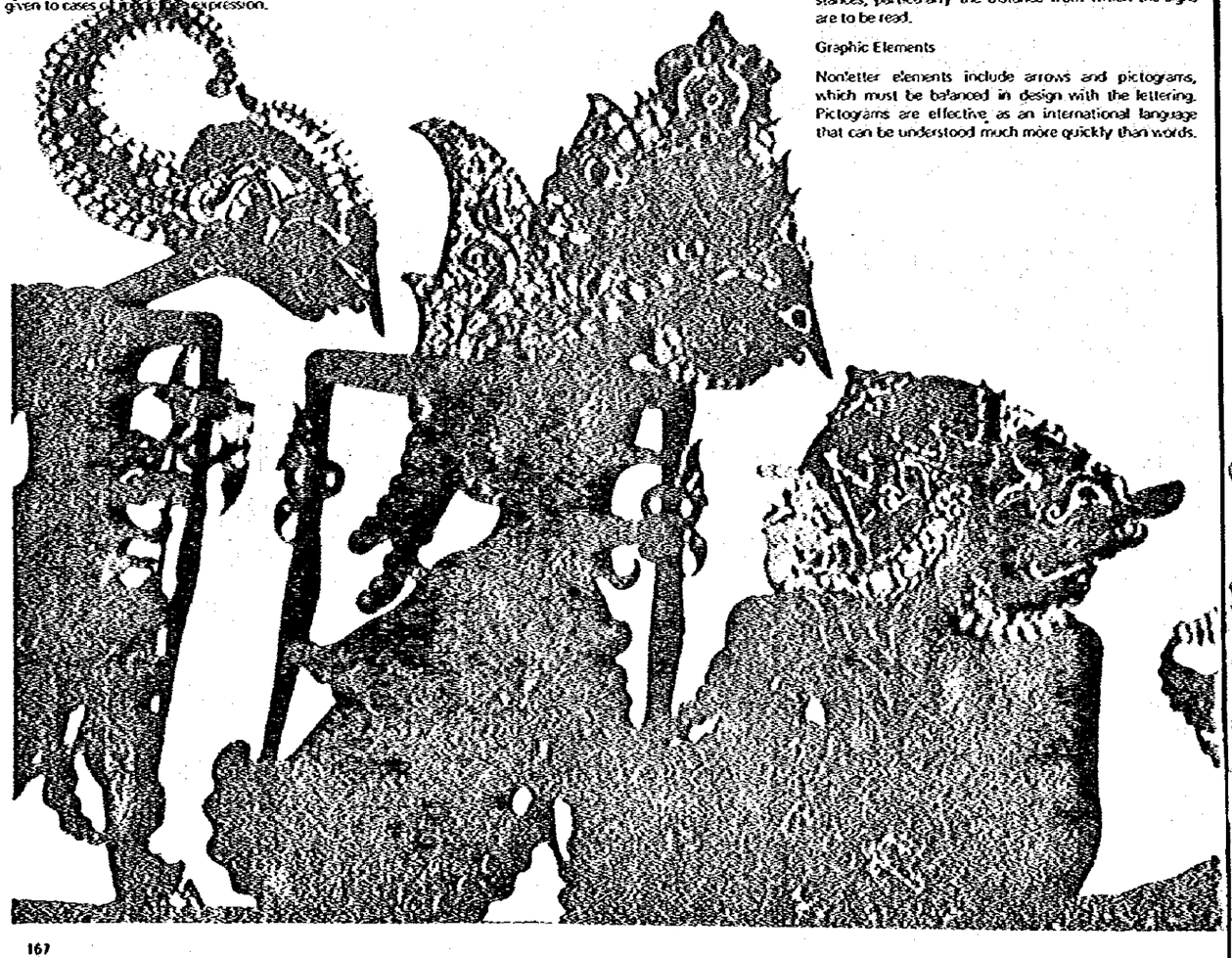
Information signs:
Signs showing the layout of the parks, giving information on the monuments, and indication prohibition or matters which must be note.

Sign Lettering

In selecting the type of lettering, legibility should be the main consideration, and overly decorative types should be avoided. Generally, universe, helvetica, and grotesque are used at airports and stations. Considering the international nature of the parks, textual signs at the park should be in both Indonesian and English. Making the first letter of each work larger than the others has been proven in research and testing to increase speed of reading. As for spacing between lines, it can be made uniform by various means, including the use of lettering tiles already spaced or using, say, the width of a small "i" as the standard spacing. Several sizes of lettering should be selected, each for use under different circumstances, particularly the distance from which the signs are to be read.

Graphic Elements

Nonletter elements include arrows and pictograms, which must be balanced in design with the lettering. Pictograms are effective as an international language that can be understood much more quickly than words.



Visual Communications System

Coloring of Sign Plates

While legibility is the first consideration, the signs must also be made to stand out and must be harmonized with their surroundings. Also, consideration must be given to how well the coloring of the materials used will hold and other similar matters.

Different colors should be used for different functions. For instance, signs giving warnings might be colored yellow, and signs indicating service facilities might be in green.

Layout of Sign Plates

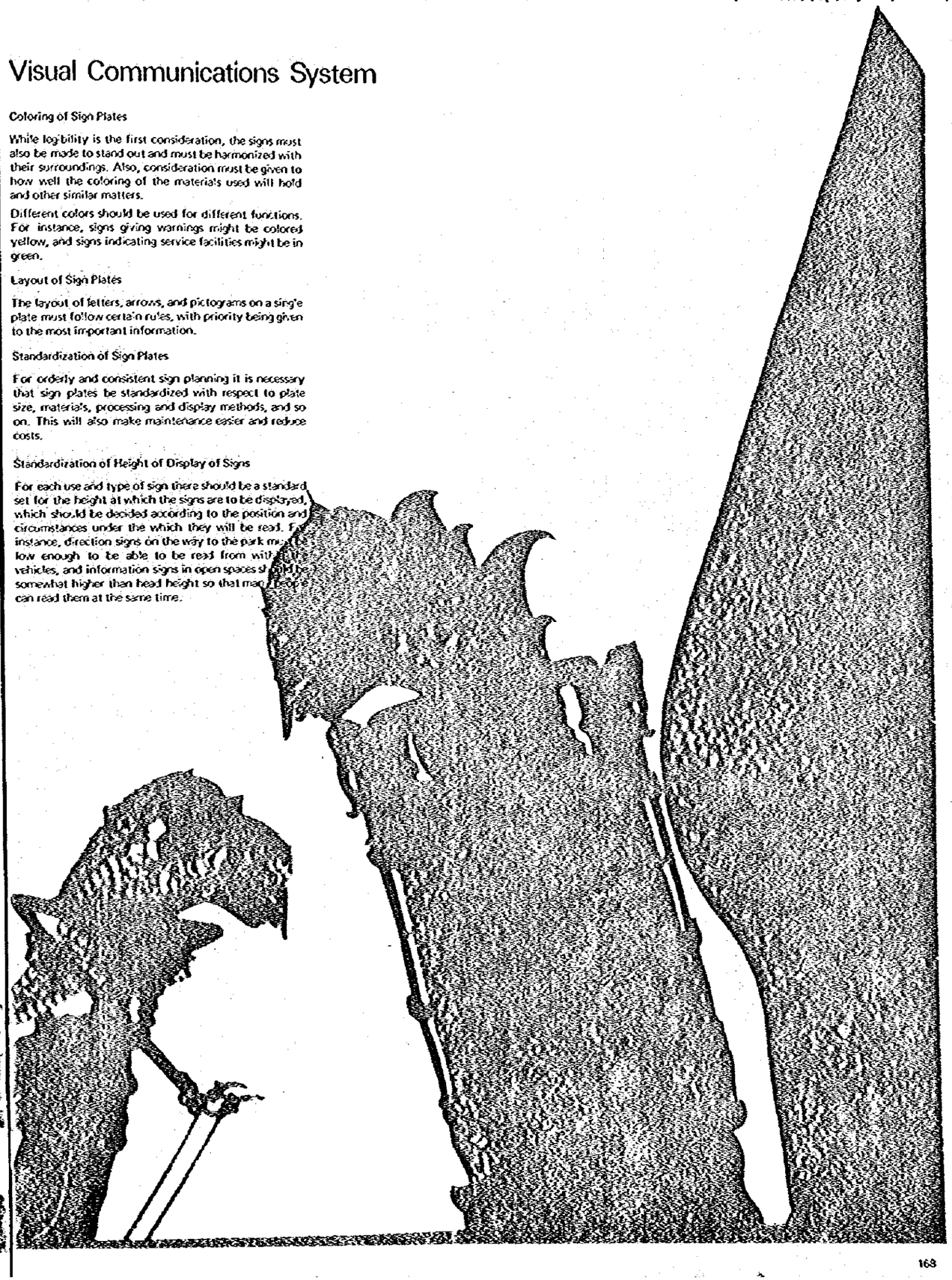
The layout of letters, arrows, and pictograms on a single plate must follow certain rules, with priority being given to the most important information.

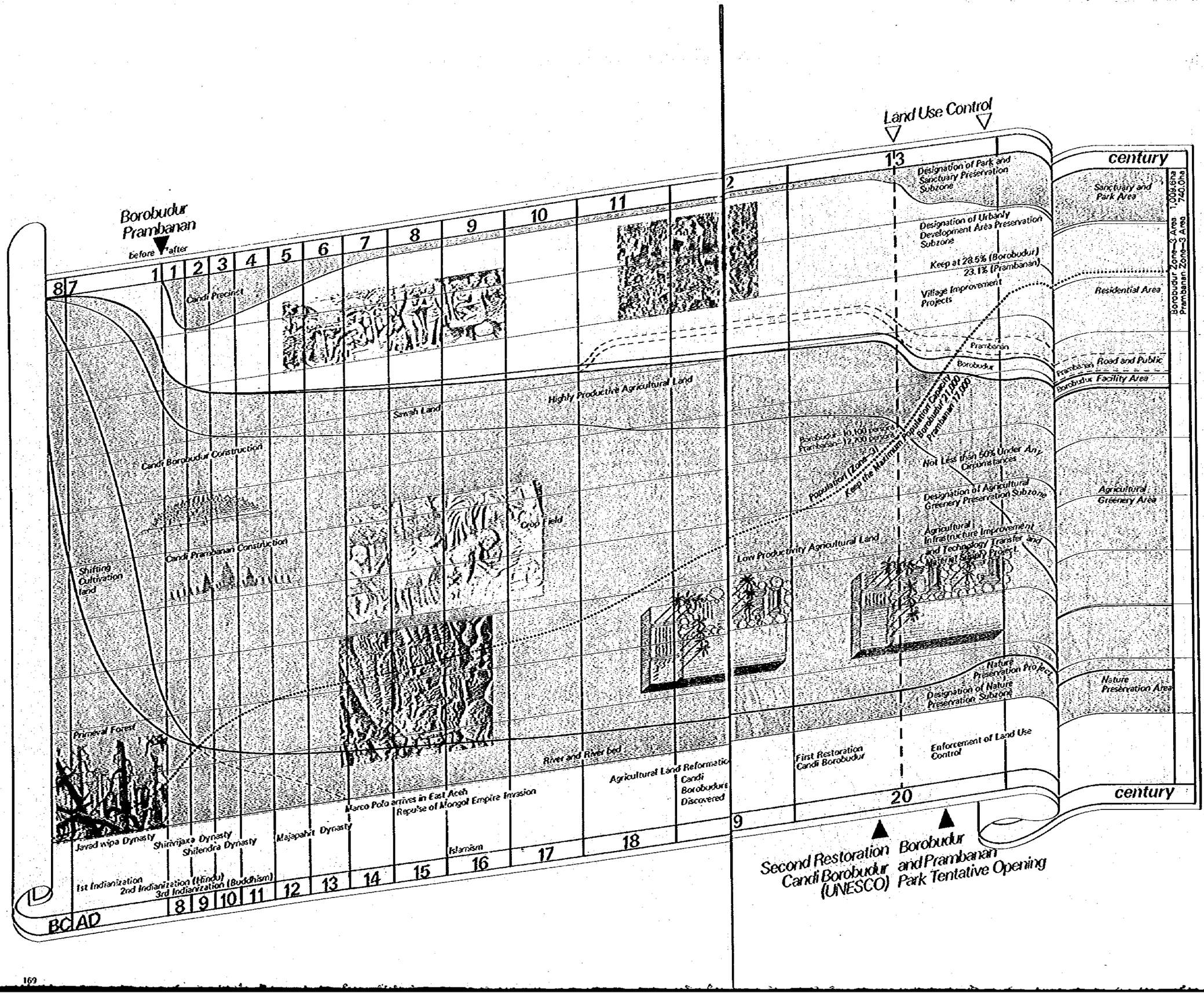
Standardization of Sign Plates

For orderly and consistent sign planning it is necessary that sign plates be standardized with respect to plate size, materials, processing and display methods, and so on. This will also make maintenance easier and reduce costs.

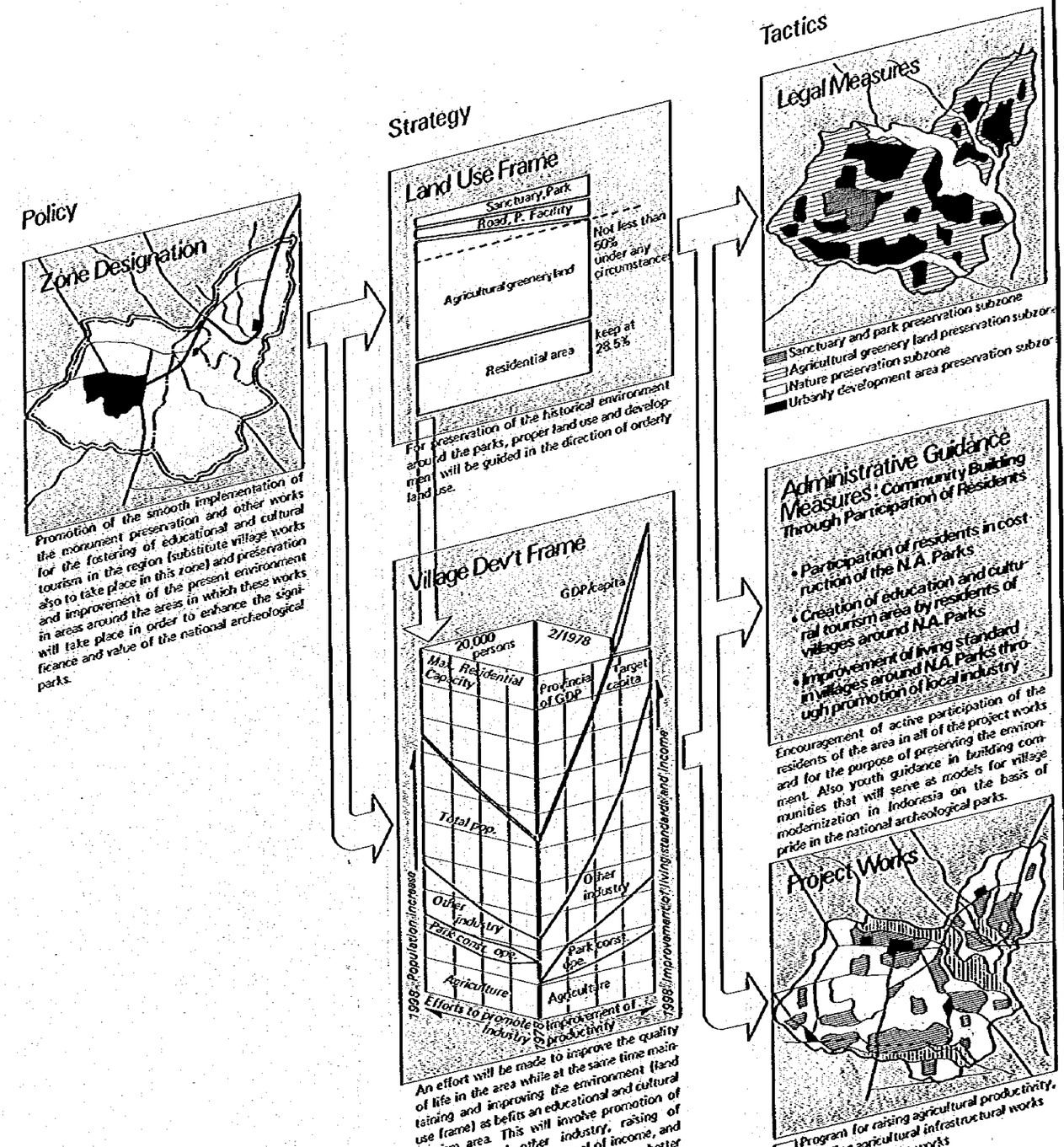
Standardization of Height of Display of Signs

For each use and type of sign there should be a standard set for the height at which the signs are to be displayed, which should be decided according to the position and circumstances under the which they will be read. For instance, direction signs on the way to the park must be low enough to be able to be read from within vehicles, and information signs in open spaces should be somewhat higher than head height so that many people can read them at the same time.




Borobudur
Prambanan
Before
after
8 7
1 1 2 3 4 5 6 7 8 9 10 11 12 13
century
Land Use Control
Candi Precinct
Candi Borobudur Construction
Candi Prambanan Construction
Shifting Cultivation land
Primeval Forest
Sawah Land
Crop Field
Highly Productive Agricultural Land
Low Productivity Agricultural Land
River and River bed
Agricultural Land Reformation
Candi Borobudur Discovered
Designation of Park and Sanctuary Preservation Subzone
Designation of Urbanly Development Area Preservation Subzone
Keep at 28.5% (Borobudur) 23.1% (Prambanan)
Village Improvement Projects
Borobudur 40,100 persons
Prambanan 12,400 persons
Population (Zone 3)
Keep the Maximum Population Capacity
Borobudur 21,000
Prambanan 17,000
Not Less than 50% Under Any Circumstances
Designation of Agricultural Greenery Preservation Subzone
Agricultural Infrastructure Improvement and Technology Transfer and Material Supply Project
Nature Preservation Project
Designation of Nature Preservation Subzone
First Restoration Candi Borobudur
Enforcement of Land Use Control
Second Restoration Candi Borobudur (UNESCO)
Borobudur and Prambanan Park Tentative Opening
Sanctuary and Park Area
Residential Area
Prambanan Road and Public Borobudur Facility Area
Agricultural Greenery Area
Nature Preservation Area
Borobudur Zone—3 Area 1,009.6ha
Prambanan Zone—3 Area 740.0ha
Javad wipa Dynasty
Shrivijaya Dynasty
Shilendra Dynasty
Majapahit Dynasty
Marco Polo arrives in East Aceh
Repulse of Mongol Empire Invasion
Islamism
1st Indianization
2nd Indianization (Hindu)
3rd Indianization (Buddhism)
8 9 10 11 12 13 14 15 16 17 18
9 20
century
BC/AD

Definition of Land Use Study



Zone Designation

Area Designation Criteria

This zone mainly encompasses areas in which there is a highdensity of distribution of monuments, including the Borobudur and Prambanan temples and other monuments along main educational and cultural tourism routes in the area. Village boundaries have for the most part been followed in setting the boundaries of this zone since substitute land for the village relocation program will be located in it. In a few cases rivers, water sheds, or other topographical conditions have determined the boundaries locally for the sake of convenience.

In the case of Prambanan

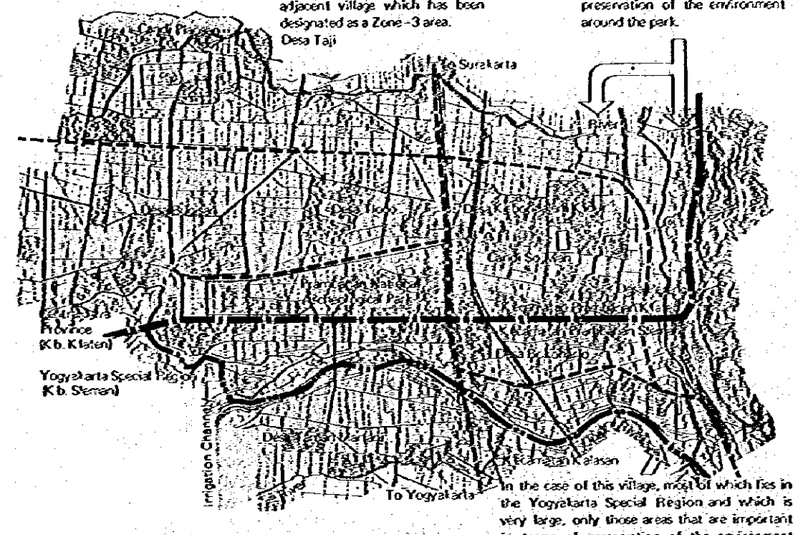
The land-use control is to cover all or part of seven Kelurahan in one Kecamatan of Kabupaten Klaten in Central Java Province and two Kecamatan of Kabupaten Sleman in Yogyakarta Special Region:

Kecamatan	Kelurahan	Area	Pop (1978)	Remarks
Prambanan	Bugisan	1.7	2,200	whole village
Klaten	Taji	(0.02)	100	a small part of village
(Kb. Klaten)	Tlogo	1.5	3,300	whole village
	Kebondalem Kidul	1.1	2,900	part of village
	Pereng	0.6	500	part of village
Prambanan Sleman	Bokoharjo	1.6	2,900	half of village
Kalasan	Taman	0.9	800	part of village
(Kb. Sleman)	Martani			
Total		7.4 km²	12,700 persons	

Zone-3 : Prambanan

The reason why a small part of this village has been designated as a Zone-3 area is that it is close to the Plaosan candi and is topographically closely related to the adjacent village which has been designated as a Zone-3 area.

The reason why a part of this village has not been designated as a Zone-3 area is the village spreads out in a direction that does not make it relevant to preservation of the environment around the park.

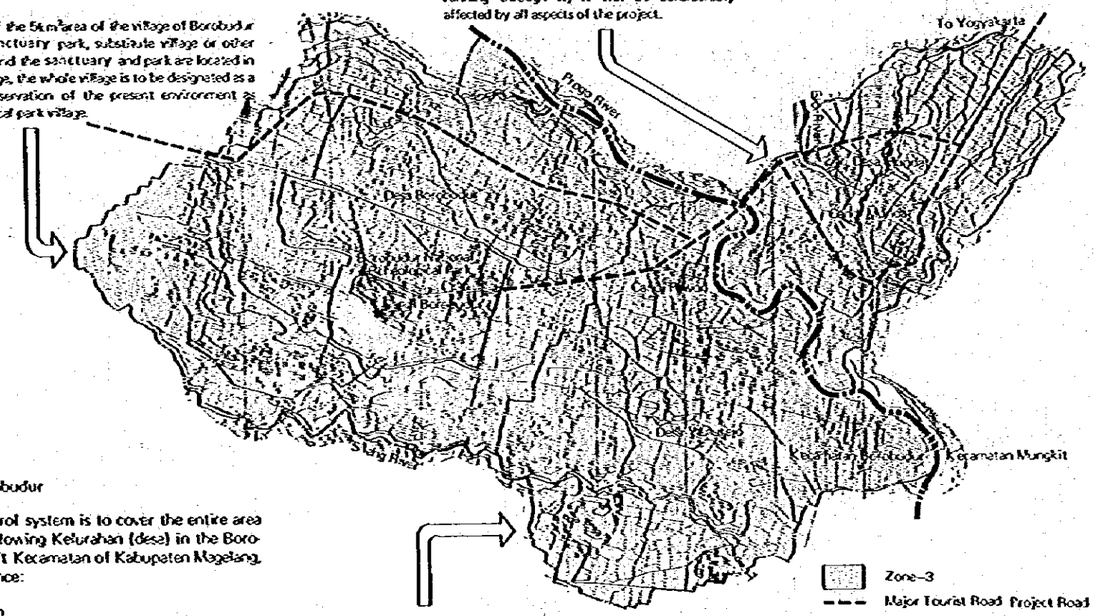


This village is also to be designated as a Zone-3 area in its entirety because it has a major monument in it, the earliest of the whole region, that will be involved in the monument improvement work, it will also be involved in the by-pass construction and substitute village works, and, with the access road to the Borobudur park running through it, it will be considerably affected by all aspects of the project.

In the case of this village, most of which lies in the Yogyakarta Special Region and which is very large, only those areas that are important in terms of preservation of the environment around the park will be designated as Zone-3 areas on the basis of judgment regarding the lay of the land.

Zone-3 : Borobudur

Since over one fifth of the 5km²area of the village of Borobudur is involved in the sanctuary park, substitute village or other works in this project and the sanctuary and park are located in the middle of the village, the whole village is to be designated as a Zone-3 area for preservation of the present environment befitting an archeological park village.



In the case of Borobudur

The land-use control system is to cover the entire area of each of the following Kelurahan (desa) in the Borobudur and Mungkit Kecamatan of Kabupaten Magelang, Central Java Province:

Kecamatan	Kelurahan (Desa)	Area	Pop. (1978)	Remarks
Borobudur	Borobudur	5.0	5,500	whole village
	Wanurejo	3.2	2,500	whole village
Mungkit	Mungkit	1.9	2,100	whole village
Total		10 km²	10,100 persons	

This whole village is to be designated as a Zone-3 area because it contains an important monument that will undergo restoration work, it is also a location for substitute village development, and a major to tourist route runs through it as its a topographically integral part of it.

Setting of the Land Use Frame

General

Land use frames for the next twenty years have been set for Zone–3 of the Borobudur and Prambanan areas as guidelines for environmental preservation and orderly development of the areas around the parks. Zone–3 will cover an area of 10.1km² in the case of Borobudur and 7.4km² in the case of Prambanan, inclusive of the areas of Zone–1 (monument environment preservation areas) and Zone–2 (park environment preservation area). There will be six land use items – monument environment preservation areas, park environment preservation areas, nature preservation areas, road and public facility construction sites, residential areas, and agricultural greenery areas, with the areas for each being set for each 5-year period.

Present State of Land Use and Environmental Preservation

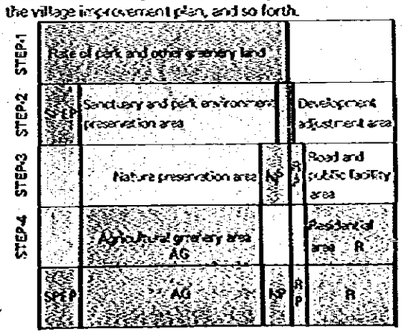
The Borobudur and Prambanan areas are both rural agricultural areas, and they have extremely high rates of agricultural land use and population densities. In fact, already two hundred years ago the Dutchman Thomas Stamford Raffles noted that land use on Java had reached a limit. In the Zone–3 areas of both Borobudur and Prambanan not only is there practically no land available for new development use but some of the land that is already in use should not be in view of the high risk such use poses of damage due to natural disasters.

This being the case, the only land that can be developed in the two areas is land that is presently being used for agriculture. In view of the fact, however, that major conversion of agricultural greenery land in the two areas would have a substantial adverse effect on local society and the local environment (destruction and degeneration of agriculturally oriented society and collapse of the countryside environment), such conversion will have to be minimized in setting the land use frames from the standpoint of preserving the environment of the areas around the parks and protection of their industrial structure, instead making as effective use as possible of existing land.

Process for Setting of the Land Use Frame

A land use frame for twenty years hence will be set from the viewpoint of preservation of the environment of the areas around the parks, adequate provision of archeological park facilities, the affects on the social and industrial structures, improvement of the living environment of rural communities, and so on on the basis of the following land use principles: (1) rate of park and other greenery, (2) land demand due to the park projects, (3) natural preservation, (4) agricultural greenery, (5) road and public facility construction sites, and (6) residential areas.

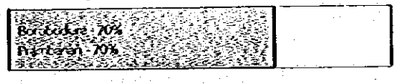
On the basis of the future image of what the parks and their surroundings will be like twenty years from now, land use patterns have been set for each of the four 5-year period up to then on the basis of adjustment between the sanctuary area improvement plan, the park area construction plan, the nature preservation plan, the village improvement plan, and so forth.



Maintenance of Present Rate of Park and Other Greenery Land — Step–1

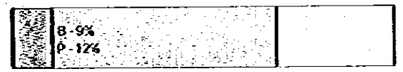
Plans call for making continuing use of trees presently standing in the park areas in order to preserve the Javanese landscape, and this must be done not just here and there but over broad areas of the parks.

For the purpose of making the most of the old Javanese landscape of the archeological parks, the rates of park, natural, and agricultural greenery land will be maintained from the angle of land use in Zone–3 areas. At the present time the overall rate of such different kinds of greenery land in the case of both Borobudur and Prambanan is 70% in Zone–3 areas, and it is very important from the standpoint of preservation of the historical environment that it not be lowered, although it will be possible to alter the relative shares of the different kinds of greenery according to the park land use requirements.



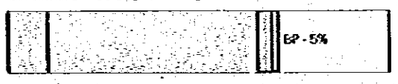
Setting of Sanctuary and Park Environment Preservation Areas — Step–2

It is in these areas that three-quarters of the project investment for the first ten years will be made since they are the areas relating directly to the main objectives of the master plan – preservation of the monuments and promotion of educational and cultural tourism. These areas will be set as optimum areas represent minimal requirements on the basis of full, comprehensive study in connection with Strategies 1 and 2, including existing land use. In Strategies 1 and 2 they are called Zone–1 areas (monument environment preservation areas) and Zone–2 areas (park environment preservation areas).



Setting of Development Adjustment Areas in Zone–3 Areas for Environmental Improvement — Step–2

An additional 5% (to be converted from agricultural land) of Zone–3 areas will be used for environmental improvement, including road, utility, and public service facility development sites in connection with improvement of the living environment of villages and land for measures aimed at preserving the natural environment.

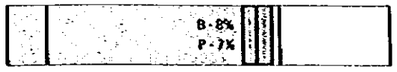


Setting of Nature Preservation Areas — Step–3

Many rivers flow through Zone–3 areas of both Borobudur and Prambanan, including the Progo and Opak rivers, two of the major rivers of Central Java. Considering the importance of these areas in terms of water system preservation and the high risk of natural disaster damage in them, sharply sloping land due to river erosion and river beds in them will be designated as nature preservation areas.

The same applies to the precipitous slopes (15–45 deg) of Kraton Hill in the Prambanan area in view of the fact that they, too, pose a threat of natural disaster damage and the fact that they are an important constituent element of the environment as the southern wall of that area.

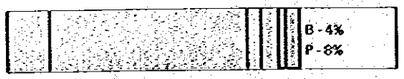
(Besides these nature preservation areas, there will also be area designation of some land presently being used as agricultural land in the development adjustment areas mentioned above.)



Setting of Road and Public Facility Areas — Step–3

It will be necessary to improve the living environment of the villages in both the Borobudur and Prambanan areas as befitting educational and cultural tourism areas and also so that such villages may be seen as models of sanitary, modern villages by domestic visitors. This being the case, Road and Public facility areas will be doubled in area in comparison to the present.

(This land will be a part of the 5% development adjustment area mentioned above.)

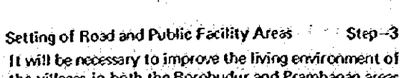


Setting of Agricultural Greenery Areas — Step–4

These areas will be set by subtracting the monument and park environment preservation areas of Step–2 and the development adjustment areas of Step–3 on the basis of the park greenery land rate set in Step–1. In both the Borobudur and Prambanan areas these areas will represent more than 50% of Zone–3.

The greater part of the park greenery land mentioned in Step–1 is presently agricultural land (63–65% of Zone–3), which is the most important constituent element of the land use and the industry of both areas as well as a basic element of the local rural social structure. Accordingly, in order not to change drastically the present structures of land use, industry, and society in the two areas, there will be no more than 20–25% conversion of agricultural land according to the above steps so as to be able to keep more than 50% of the land in Zone–3 areas as agricultural greenery land.

Since such land is constantly exposed to the threat of being urbanly developed as population increases, there must be adequate adjustment with demand for residential land, remembering, however, that these are not industrial development areas for which unlimited population increase and inflow can be tolerated, but rather areas specializing in environmental improvement for educational and cultural tourism.

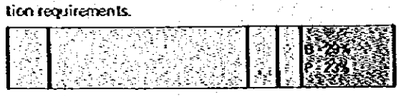


Setting of Residential Areas — Step–4

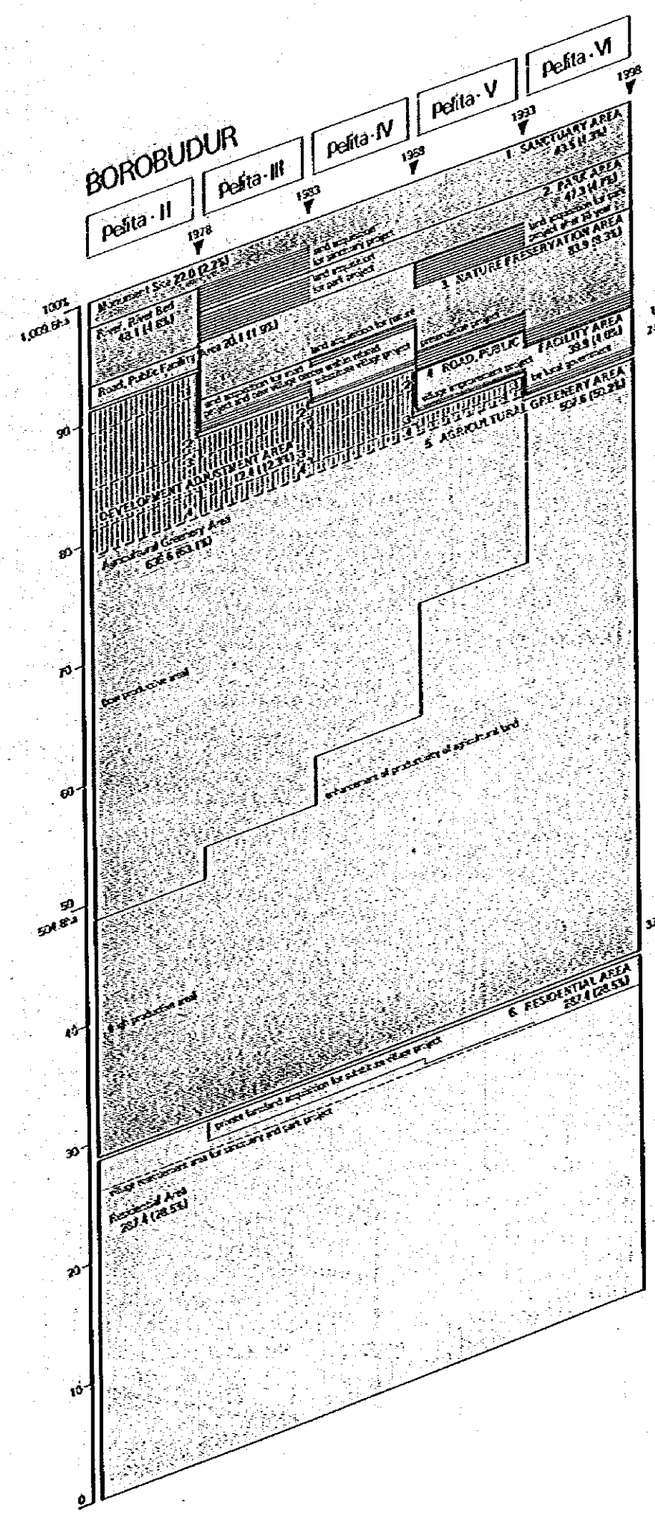
The average densities of the present residential areas are 7.5 households per hectare in the case of Borobudur and 14 households per hectare in the case of Prambanan, and these densities are low enough to allow for accommodation of a 1.4–2.0 fold in population.

Since, as pointed out in Step–4, the populations around the parks cannot be allowed to increase without limit if damage to the environment is to be prevented, the total residential area in Zone–3 will be left unchanged, and the natural increase in population will be settled on the 30–50% of vacant space now available in the residential areas.

The future maximum average residential area densities that have been set are 15 households per hectare at Borobudur and 20 households per hectare at Prambanan. What has been taken into account in setting these densities is the fact that the villages surrounded by groves of trees will have to be maintained as a very important environmental element and the fact that maximum use will have to be made of present residential sites within the limits set by environmental preservation requirements.



Land Use Frame to 1998



Setting of Village Development Frame

Future Image of the Villages Around the Archeological Parks

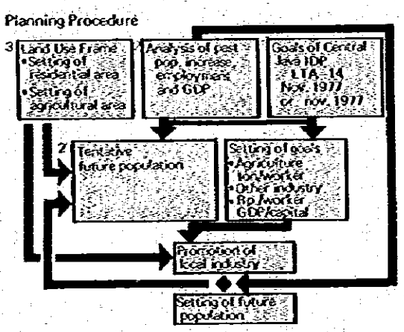
Target figures have been set for improvement of living standards and industry over the next twenty years in villages in Zone-3 and for their natural population increase as targets that local residents and local government should cooperate in order to attain.

Attainment of these target figures will not only enhance the educational and cultural tourism value of the area but also make it possible for such villages to serve as models for rural community modernization in Indonesia and community improvement around historical or archeological parks in other countries as well.

Problems

Both the Borobudur and Prambanan areas, like most rural areas in Java, are characterized by maximum land use and an outflow of population. Under such circumstances, the reduction of farmland by 20-25% required by the land use frame that has been set poses big problem for Zone-3 area in both areas from the standpoint of population increase and improvement of living conditions. The immediate problem in this connection will be the need to provide employment for those who will be forced to give up farming as a result of such reduction of farmland, and the problem in the long run will be the need to promote other local industries if incomes are to be increased and if the natural population increase of these areas is to be absorbed by them.

Planning Procedure



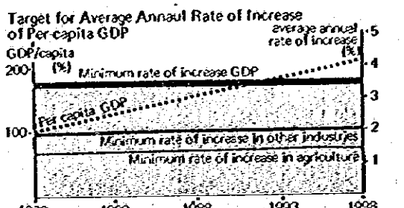
1. Prepared with assistance of Japan International Cooperation Agency. The planning figures set in this report have been used in setting the goals of the present frame and indices with respect to improvement of productivity, the structure of employment, and so on.
2. This analysis of social and economic conditions is based on the social survey data provided by the U.G.M. team.
3. The full land use frame is given on the preceding page.

2'. The rate of population increase has been set by taking into account past rates of population increase as obtained in analysis 2, the future rates of population increase of Kabupaten Magelang and Klaten, which contain the Zone-3 areas, as given in the population planning of 1, and maximum population capacity as based on the total residential land area figures set in 3.

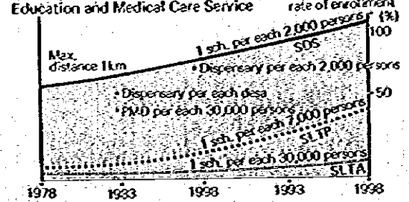
Goals for Improvement of Living Standards and Income in Villages Around the Archeological Parks

Goals for Zone-3 areas have been set for improvement of the level of public services and the rate of growth of per-capita GDP on the basis of the particular conditions in such areas and the planning values set forth in plans for the comprehensive development of Central Java. By attaining these goals, it will be possible to raise living standards and increase income in such areas.

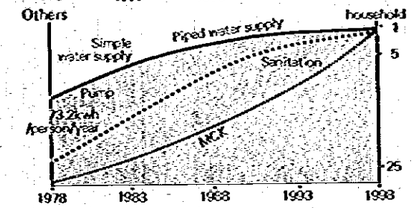
Target for Average Annaul Rate of Increase of Per-capita GDP



Education and Medical Care Service



Others

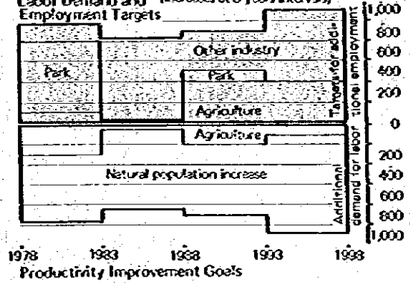


Targets for Industrial Development in the Villages

In order to attain these targets for Zone-3 areas, the farmland of which is to be reduced by 20–25% and the minimal rate of increase of gross area production, it will be necessary to promote local industry within such areas and encourage the raising of productivity.

With such reduction in the amount of farmland, it will be necessary to provide employment for the natural increase in area population by finding substitute jobs over the short run for those who will have to leave farming initially and promoting small-scale secondary and tertiary local industry over the long run.

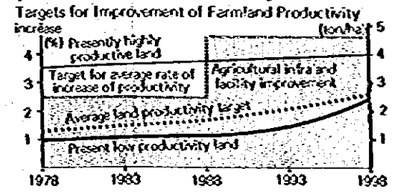
Labor Demand and Employment Targets (increases at 5-years intervals)



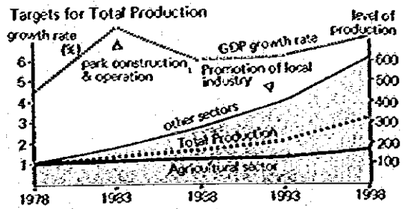
Productivity Improvement Goals

In order to satisfy the goals for per-capita productivity and increase in employment, it will be necessary to raise the productivity of agricultural land and productivity in other industries as well, and this will entail improvement of the industrial infrastructure and the providing of special treatment in terms of financing and taxation.

Targets for Improvement of Farmland Productivity



Targets for Total Production

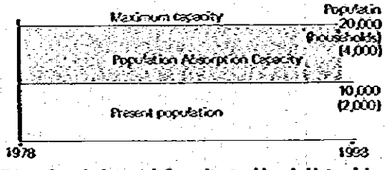


Goals for Accomodation of Natural Population Increase

Optimum populations have been set for villages around the archeological parks from the standpoint of maintaining harmony between them and the parks as figures that are considered possible in terms of housing and living standards and within the limits set by the land use frame and the goals for per-capita GDP for the villages. They are considered optimum in the sense of avoiding drastic population change, which would have an adverse effect on the historical environment, which is to be preserved in such areas, and allowing for improvement of living standards and balanced growth of local industry.

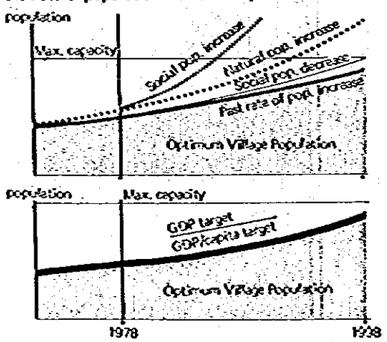
Maximum Residential Capacity

The total areas of residential land in Zone-3 areas have been set in the land use frame as 267.4 ha in the case of Borobudur and 171.2 ha in the case of Prambanan for the whole twenty-year period in question. Furthermore, from the viewpoint of environmental preservation, the maximum overall residential densities in Zone-3 areas have been set at 15 households per hectare in the case of Borobudur and 20 households per hectare in the case of Prambanan, these figures representing 1.5-2 times the present densities in each case.

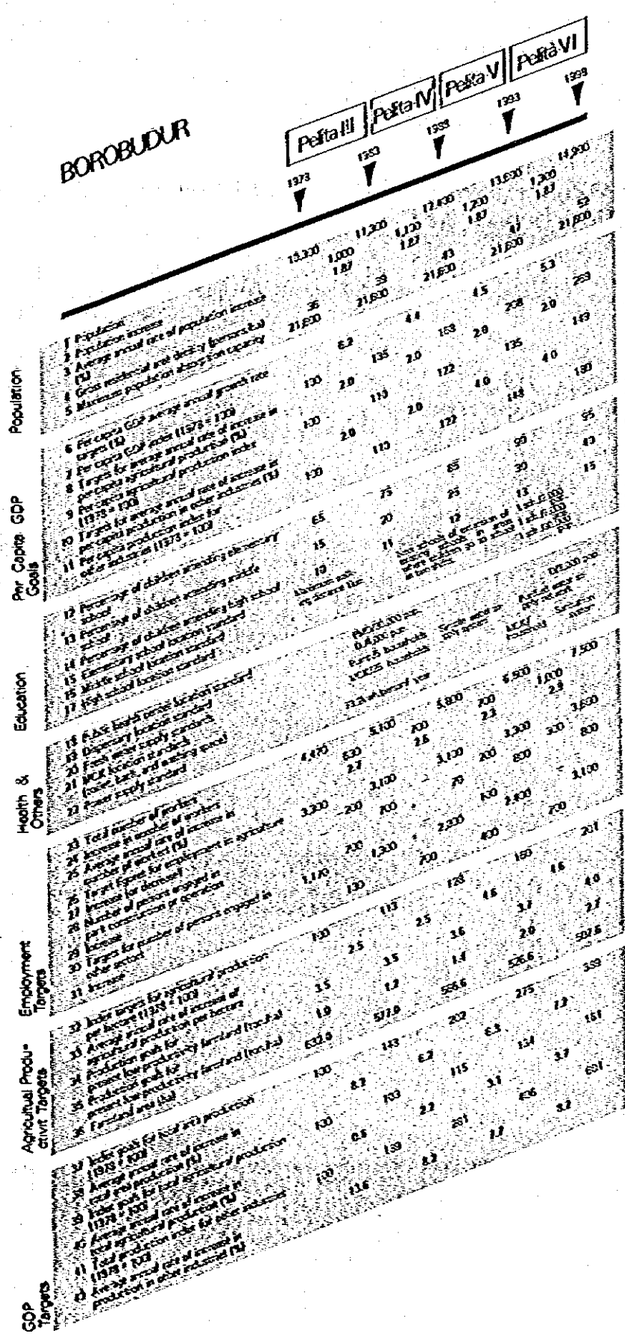


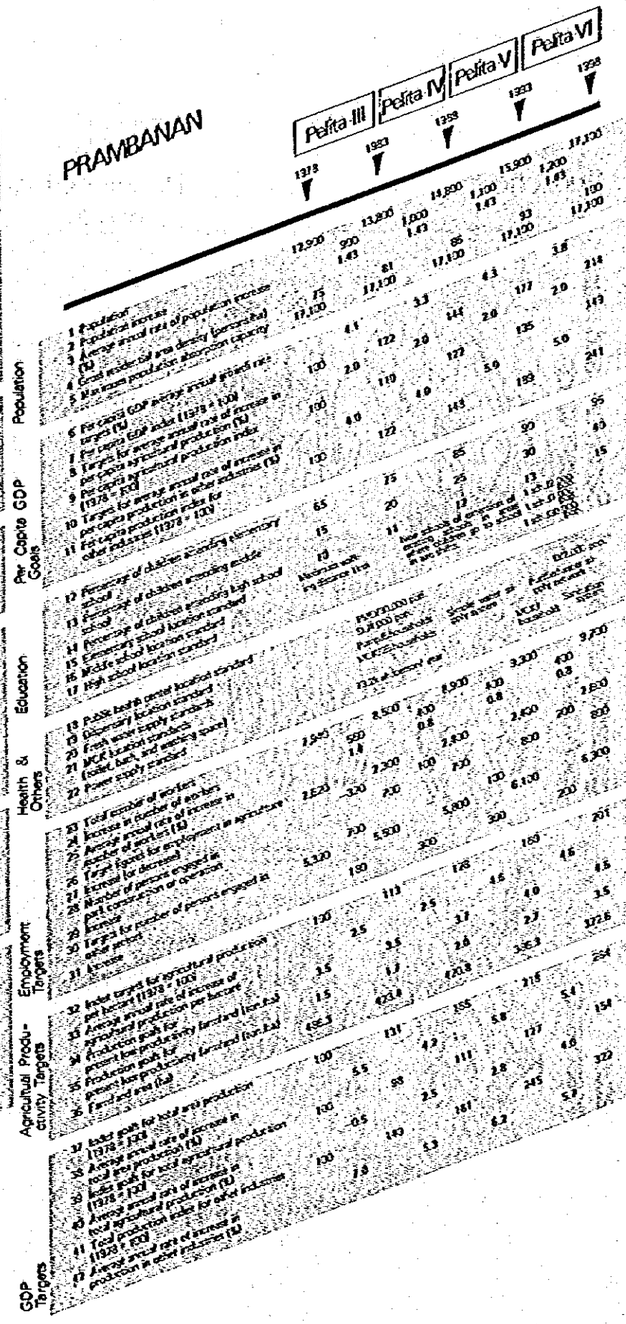
Village Population and Capacity to Absorb Natural Increase in Population

With the growth of local industry and attainment of the goals for per-capita GDP, what will be the residential populations that the Zone-3 areas can accommodate? In other words, how many young men will be able to find jobs locally so as to be able to settle down there with their families and participate in the building of the local community? In this connection, optimum future village population scales have been set as targets for which efforts are to be made to attain. Needless to say, there will be no opportunity for inflow of population from elsewhere in a situation where even absorption of the natural population increase is a problem.



Village Development Frame to 1998



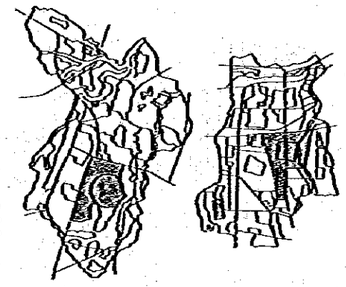
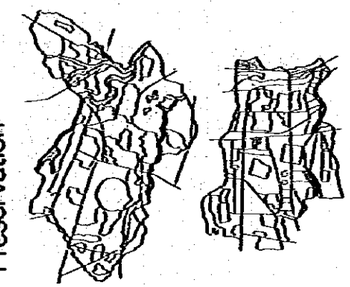
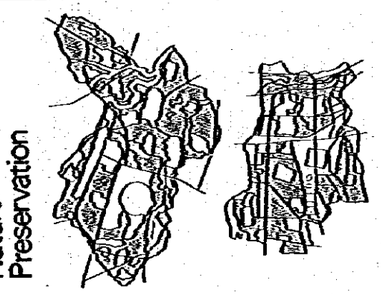
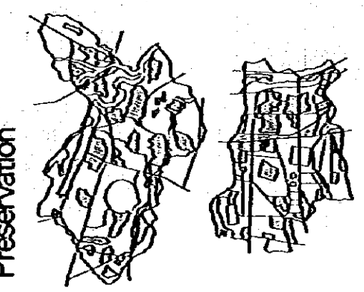


Land Use Control Guidelines

From the viewpoint of the land use frame based on the Zone-3 area designation and of the legal, administrative guidance, and implementation measures that are necessary for keeping to and attaining the village development frame, Zone-3 has been divided into four subzones, each with 20-year administrative guidelines for land use control by local governments.

The four subzones are as follows: sanctuary and park preservation subzone, agricultural greenery preservation subzone, nature preservation subzone, and urbanly developed area preservation subzone.

The land use controls will have to be backed up, however, by the active cooperation and participation of local residents on the basis of a consensus regarding the significance of the archeological parks. In other words, voluntary restraint for the purpose of environmental preservation is just as important as legal controls. In order to encourage this kind of attitude of local residents toward the parks, it is very important that considerable efforts be made in the way of promoting community development that will make the archeological park villages a source of satisfaction and pride to their residents.

Subzone	Designated Area	Purpose of Control	Legal Measure	Administrative Guidance Measure	Impremention Measure
Sanctuary and Park Preservation		For promotion of the smooth implementation of the sanctuary and park projects in Zone-1 and Zone-2 during the first ten years and thereafter.	Restriction of change in use or ownership and of development of land that is to be acquired for the sanctuary and park projects in this area while such acquisition is pending.	Public announcements and notification by the work entity regarding the significance of the works and fair compensation for land acquisition. Organization of unions of those who will be affected by the works to discuss compensation problems and enlistment of their participation and cooperation in the works.	(Sanctuary and park projects) (Compensation for restrictions on land use, ownership, and development)
Agricultural Greenery Preservation		Protection in Zone-3 of outstanding farmland with high productivity and farmland of high scenic value around the parks as a major constituent element of the Javanese landscape from disorderly development and improvement of it as the basic element in the main industry of the area, agriculture.	Restriction of changes in land use.	Promotion of Agriculture • Upgrading of agricultural technical guidance. • Guidance for improvement of types of farming operations. • Special tax and financial treatment. • Adjustment of farming rights. • Encouragement of "gotong royong" organizations.	Improvement of agricultural infrastructure. • Improvement of soil. • Provision of better agricultural facilities. • Provision of better marketing system and facilities. • Supply of agricultural materials. • BIMAS and INMAS programmes.
Nature Preservation		Prohibition of farming or residential use of land in Zone-3 areas susceptible to damage from natural disasters and promotion of works for prevention of such damage.	Restriction of farming, residential, and other land uses in the area.	Encouragement of gradual discontinuation of use of land in question for farming and moving to other locations. • Encouragement of greenification movement on the basis of awareness of the significance of nature preservation in terms of reducing the risk of antural disasters.	Nature preservation works. • Acquisition of privately owned land. • Programme for prevention of destruction of the natural environment. • Greenification.
Urbanly Development Preservation		Maintenance of scenery in residential areas, public facility areas, and urbanly developed areas of Zone-3 and promotion of village improvement works for guided settlement of natural population increase within the zone.	Restriction of housing and other building density and height in the area according to the following 5 step schedule:	Encouragement of national archeological park village beautification movement, including the planting of trees and organized cleaning operations. Movement for improvement of life in national archeological park villages, including participation and cooperation in living environment infrastructural improvement works undertaken by local governments and encouragement of cultural activities, adult education, and youth guidance. Promotion of local cottage industry.	Village improvement works. • Provision of public facilities. • Provision and improvement of roads. • Water supply, drainage, and electricity works. • Provision of minor roads in residential areas.

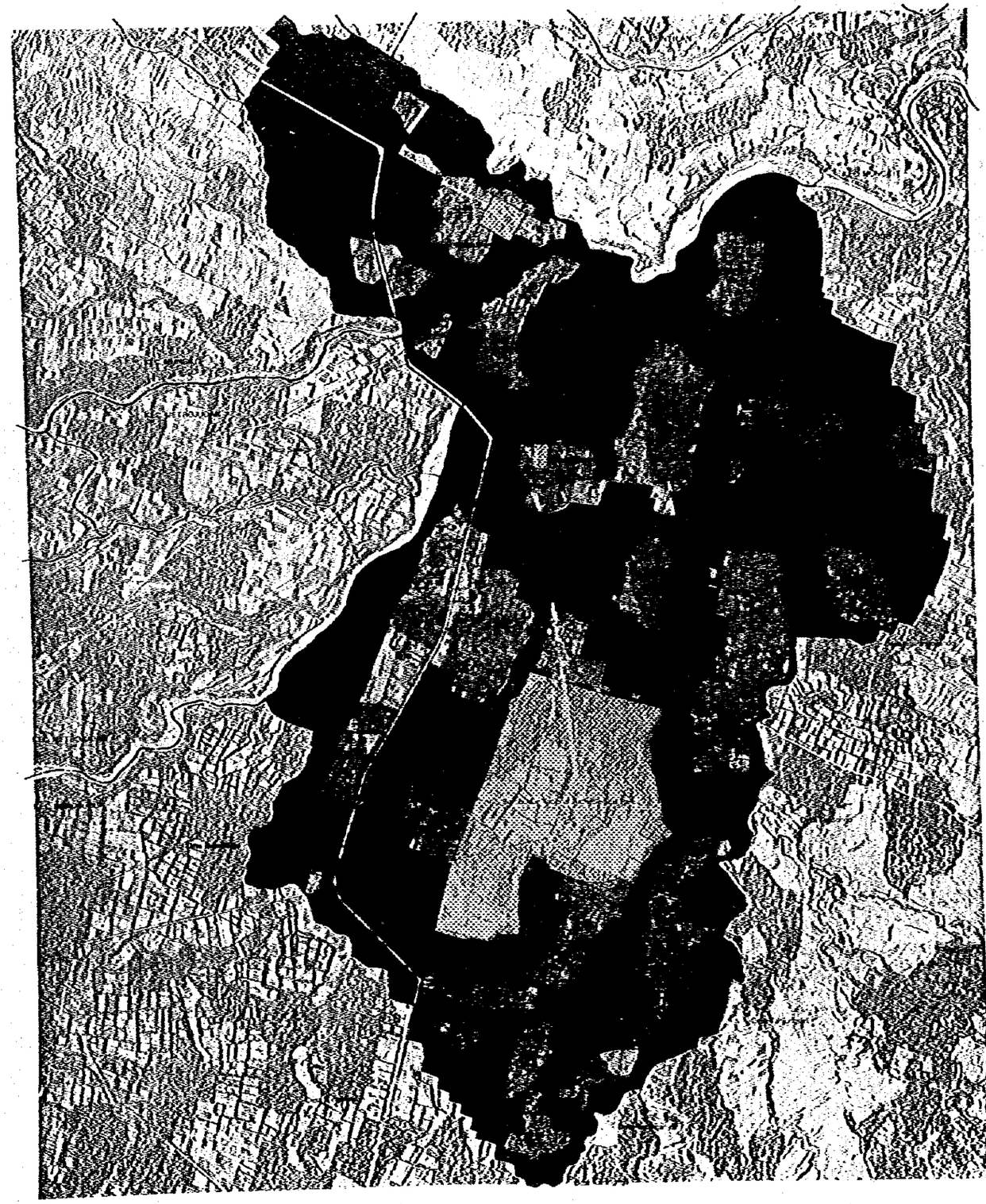
Designated Area	Borobudur	Prambanan
Government owned archeological site	17.4	10.1
Public facilities area	5.0	4.3
Road and river	5.0	5.2
Residential area	24.9	25.0
Agricultural greenery area	38.5	41.1
Total	90.8 ha	85.7 ha

Designated Area	Borobudur	Prambanan
Agricultural greenery area	507.6 ha	376.1 ha

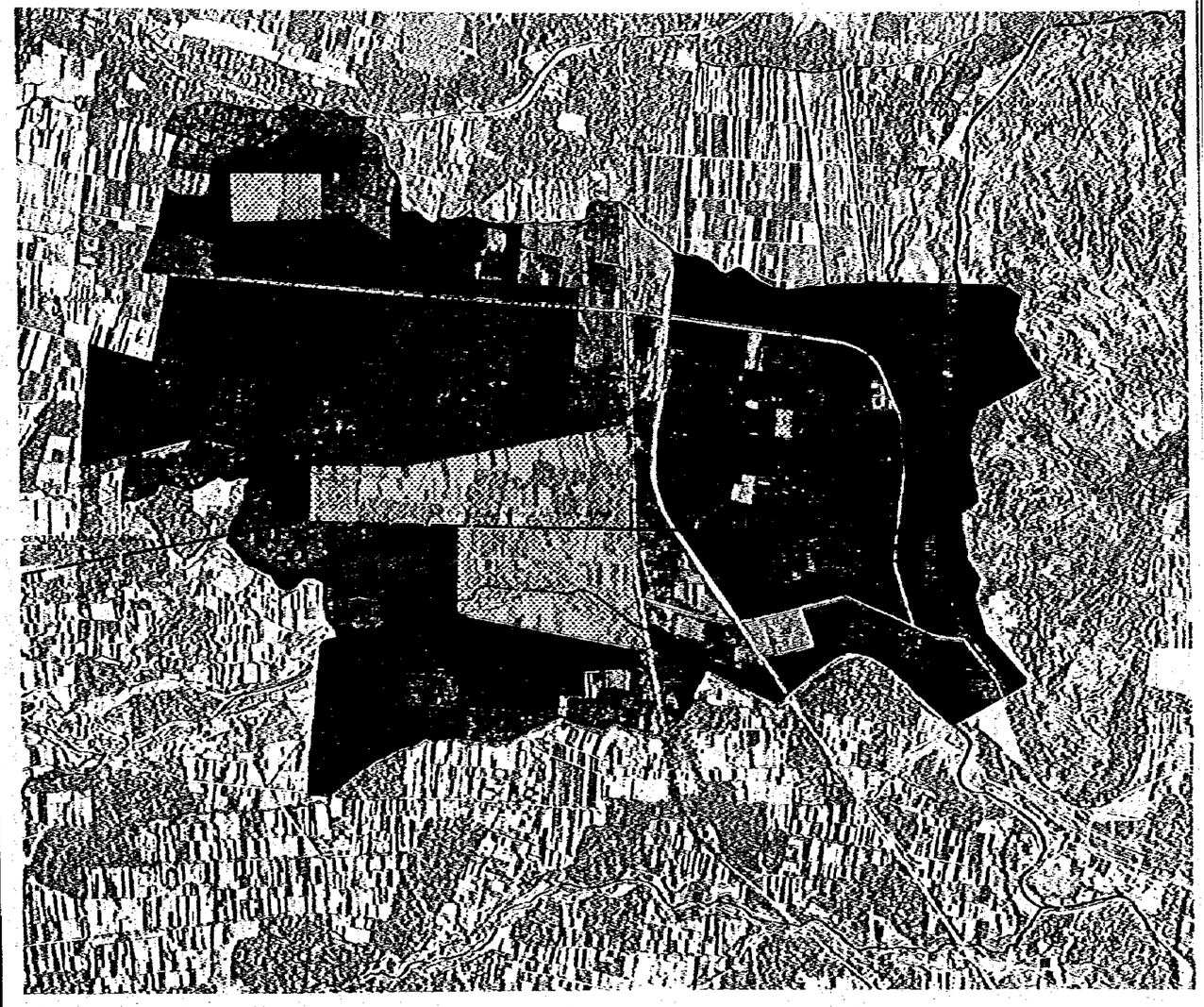
Designated Area	Borobudur	Prambanan
River and river bed	48.1	11.6
Agricultural greenery area	35.8	5.8
Wood land (steep slope area) Kraton hill		28.9
Total	83.9 ha	46.3 ha

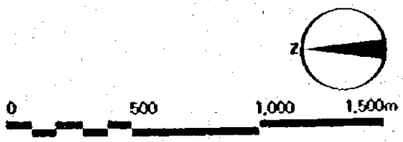
Designated Area	Borobudur	Prambanan
Residential area	262.5	146.2
Public facility and road area	15.1	30.0
Agricultural greenery area	49.7	55.9
Total	327.3 ha	232.1 ha

Land Use Control Plan : Borobudur



Land Use Control Plan : Prambanan





Subzone			Borobudur	Prambanan
Sanctuary and park preservation			90.8	65.7
Agricultural greenery preservation			507.6	375.9
Nature preservation			83.9	46.3
Urbanly development preservation			327.3	232.1
O-10 = H-6	Restriction of building density	10b/ha	(83.9)	–
	Restriction of building height	6m		
O-15 = H-6	Restriction of building density	15b/ha	(217.3)	(30.7)
	Restriction of building height	6m		
O-20 = H-6	Restriction of building density	20b/ha	–	(163.6)
	Restriction of building height	6m		
O-25 = H-10	Restriction of building density	25b/ha	(26.1)	–
	Restriction of building height	10m		
O-35 = H-10	Restriction of building density	35b/ha	–	(37.8)
	Restriction of building height	10m		
Total's			1,009.6ha	740.0ha

Village Improvement

This project consists of a 10 year plans for substitute village and road and bridge development as necessitated by the sanctuary and park development projects and 20 year plans for harmonious community development in Zone 3 areas around the parks.

These plans will serve as guidelines for community development in the archeological park areas on the basis of a form of participation and cooperation on the part of the local governments and the local residents.

Some of the works in the first ten years for development of substitute villages and roads will be a part of the park development project and others will be related works undertaken on the basis of local government funds. The villages that will have to resettle will be compensated fairly with suitable substitute land and provided with adequate roads and public facilities. Such land compensation and construction works involving an investment of Rp 2,750 million in the case of Borobudur and Rp 840 million in the case of Prambanan. The related works, i.e. those to be undertaken on the basis of local government funds, will provide water supply and drainage facilities, electricity supply [illegible] systems of [illegible] roads and other public facilities that will help the local communities in their long term development.

The [illegible] long-term plans are for [illegible] of the [illegible] of population, community planning, [illegible] planning and provision of public and utility infrastructure in Zone 3 areas, which consist of the [illegible] of three villages in the Borobudur area with a total area of 10 km² and a total population of 10,100 persons and all of three villages and parts of four villages in the Prambanan area with a total area of 7.4 km² and a total population of 12,700 persons.

All of these plans will contribute to the raising of living standards and improvement of the living environment in villages around the parks and to enhancement of local pride as well as making it possible for such communities to serve as models of village modernization and development and environmental preservation in historical and cultural tourism areas that the many visitors from throughout the country can learn from.

Page Guide

Village Improvement : 1998

This programme is to serve as a guideline for administrative guidance by local governments for settlement of the natural population increase of Zone-3 over a 20-year period within the zone and for village improvement and modernization as well as as a guideline for implementation of works and measures for these purposes.

It consists of community plans, plans for allocation of the natural population increase, public facility plans, and road and infrastructure plans. These plans and the works that involve will serve to raise the standard of living in the area, improve the environments of the villages around the parks, and raise the value of the area as an educational and cultural tourism area.

This programme represents, in other words, an initial strategy for village improvement in connection with the archeological park development project, a medium-term strategy for development of public facilities for vitalization of the communities of the archeological park villages, and a long-term strategy for provision of minor roads and living infrastructure and guidance of settlement of the natural increase in population at appropriate locations within the zone.

Population Allocation Plan

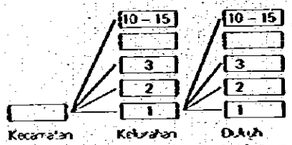
The only additional population that is to be settled in Zone-3 on the basis of this plan is the natural increase in population of the zone itself, which is expected to be 4,800 persons in the case of Borobudur and 4,400 persons in the case of Prambanan over a 20-year period. In guidance of allocation of such additional population emphasis will be placed on traditional territorial village structure, and density limits for preservation of the environment of urbanly developed areas as set in connection with land use controls will be observed. This means that the population increase of each village will be settled in or near the same village.

Community Plan and Public Facility Distribution Plan

The level of public services will be raised and the availability of such services will be made more even by setting appropriate living spheres and structural models for them in order to correct the distortions of the present living spheres and by creating a community structure that will match the expected future increase in population.

Community Structure

The community structure will consist of dukuh communities, the smallest daily living spheres, kelurahan (desa) communities as primary living spheres, and kecamatan communities (parts of kecamatan in the case of Zone-3) as secondary living spheres, and the maximum sizes of each community level will be set in terms of population, area, distance, and so on.



	Kecamatan level community	Kelurahan level community	Dukuh level community
Population	30,000 – 50,000	2,500 – 4,000	200 – 300
Households	6,000 – 10,000	500 – 800	40 – 60
Area	30 – 50 Km²	2 – 3 Km²	2.5 – 4.0 ha
Distance	3.5 – 7 Km	800 – 1,200 m	70 – 150 m

Community Center	Borobudur	Borobudur I	19
		Borobudur II	13
		Wanurejo	17
		Mundat	12
	Prambanan	Bugisan	14
	Kleten	Tlogo I	9
		Tlogo II	10
		Kebondalem K.I	9
		Kebondalem K.II	8
		Perang	4

Whole Dukuh Catalog : Borobudur

Code no.	Dukuh name	Existing Conditions: Population	Households	Dukuh area (ha)	Household density per ha	1996 Plan: Population	Households	Dukuh area (ha)	Maximum residential capacity (household)	Remarks over flow households
1-00	Borobudur					320	65	2.6	65	
1-01	Kereyan I	655	104	9.0	11.6	320	65	2.6	65	
1-02	Kereyan II					320	65	2.6	65	
1-03	Kereyan III					200	38	3.4	34	* 4
1-04	Ngaran Krayan I	852	199	15.8	12.6	280	51	2.8	70	
1-05	Ngaran Krayan II					260	52	2.8	70	
1-06	Ngaran Krayan III					270	52	2.8	70	
1-07	Ngaran Krayan IV					270	52	2.8	70	
1-08	Ngaran Krayan V					270	53	6.3	63	
1-09	Ngaran Ngisor I	363	70	12.6	5.6	270	52	6.3	63	
1-10	Ngaran Ngisor II					190	37	4.1	41	
1-11	Gopalan	128	27	4.6	5.9	210	41	6.0	60	
1-12	Bumi Segoro I	413	121	17.8	6.8	200	39	5.9	59	
1-13	Bumi Segoro II					200	38	5.9	59	
1-14	Bumi Segoro III					230	45	9.2	92	
1-15	Seburang Rowo I	315	75	19.5	3.8	230	45	9.1	91	
1-16	Seburang Rowo II					90	18	3.6	49	
1-17	Tamanan	63	12	3.6	3.3	140	27	6.4	96	
	Tanjungan	96	21	6.4	3.3	310	60	6.5	65	
1-18	Meitan	209	50	6.5	7.7	200	39	3.4	34	* 5
1-19	Kujon I	273	51	6.8	7.5	200	38	3.4	34	* 4
1-20	Kujon II					150	29	4.5	45	
1-21	Gejagan	103	25	4.5	5.6	180	35	3.6	36	
1-22	Gendingan	121	29	4.3	6.7	260	54	6.1	92	
1-23	Bagaweti I	188	37	6.1	6.1	320	62	7.3	183	
1-24	Bagaweti II	213	48	7.3	6.6	260	50	2.2	55	
1-25	Jayan I	531	65	6.6	9.8	260	50	2.2	55	
1-26	Jayan II					260	50	2.2	55	
1-27	Jayan III					300	64	5.1	77	
1-28	Jl. Igudan	222	45	5.1	8.8	280	54	3.3	49	* 5
1-29	Jenan I	373	68	6.6	10.3	270	53	3.3	49	* 4
1-30	Jenan II					260	50	4.8	72	
1-31	Kurahan I	342	72	9.5	7.6	250	49	4.7	47	* 2
1-32	Kurahan II									
	Totals	5,460	1,119	152.6	7.3	8,070	1,570	147.8	1,935	
2-00	Wanurejo					210	41	4.3	64	
2-01	Brajanalan I	424	91	12.8	7.1	210	41	4.3	64	
2-02	Brajanalan II					210	41	4.2	63	
2-03	Brajanalan III					190	37	7.0	105	
2-04	Tingal Kulon I	385	118	21.0	5.6	190	37	7.0	105	
2-05	Tingal Kulon II					190	37	7.0	105	
2-06	Tingal Kulon III					250	48	3.9	58	
2-07	Tingal Watan I	500	95	11.7	8.1	250	48	3.9	58	
2-08	Tingal Watan II					240	48	3.9	58	
2-09	Tingal Watan III					280	55	5.5	82	
2-10	Bajan I	383	95	11.0	8.6	280	54	5.5	82	
2-11	Bajan II					210	41	4.1	61	
2-12	Sarapadan	143	28	4.1	6.8	200	39	7.1	106	
2-13	Gedongan I	272	58	14.1	4.1	200	39	7.0	105	
2-14	Gedongan II					190	37	9.7	145	
2-15	Jowahan I	243	55	19.4	2.8	180	36	9.7	145	
2-16	Jowahan II					210	41	8.1	120	
2-17	Bareyan	144	35	8.1	4.4					
	Totals	2,499	576	102.2	5.6	3,690	720	102.2	1,426	
3-00	Mundat					300	59	4.3	64	
3-01	Mundat I	921	207	18.7	11.1	300	58	4.3	64	
3-02	Mundat II					300	58	4.2	63	
3-03	Mundat III					300	58	4.2	63	
3-04	Mundat IV					169	32	1.7	25	* 7
3-05	Mundat V					270	53	3.8	57	
3-06	Bojong I	736	158	150	10.5	270	53	3.8	57	
3-07	Bojong II					270	53	3.7	56	
3-08	Bojong III					280	53	3.7	56	
3-09	Bojong IV					280	54	3.6	52	* 2
3-10	Cabeyan	191	41	3.3	12.4	280	56	3.7	56	
3-11	Sitajan I	278	56	2.1	26.7	130	23	3.0	45	
3-12	Sitajan II									
	Totals	2,125	462	39.1	11.8	3,140	610	43.9	656	
TOTALS		10,084	2,157	293.9	7.3	14,900	2,900	293.9	4,017	

* Included present public facility area

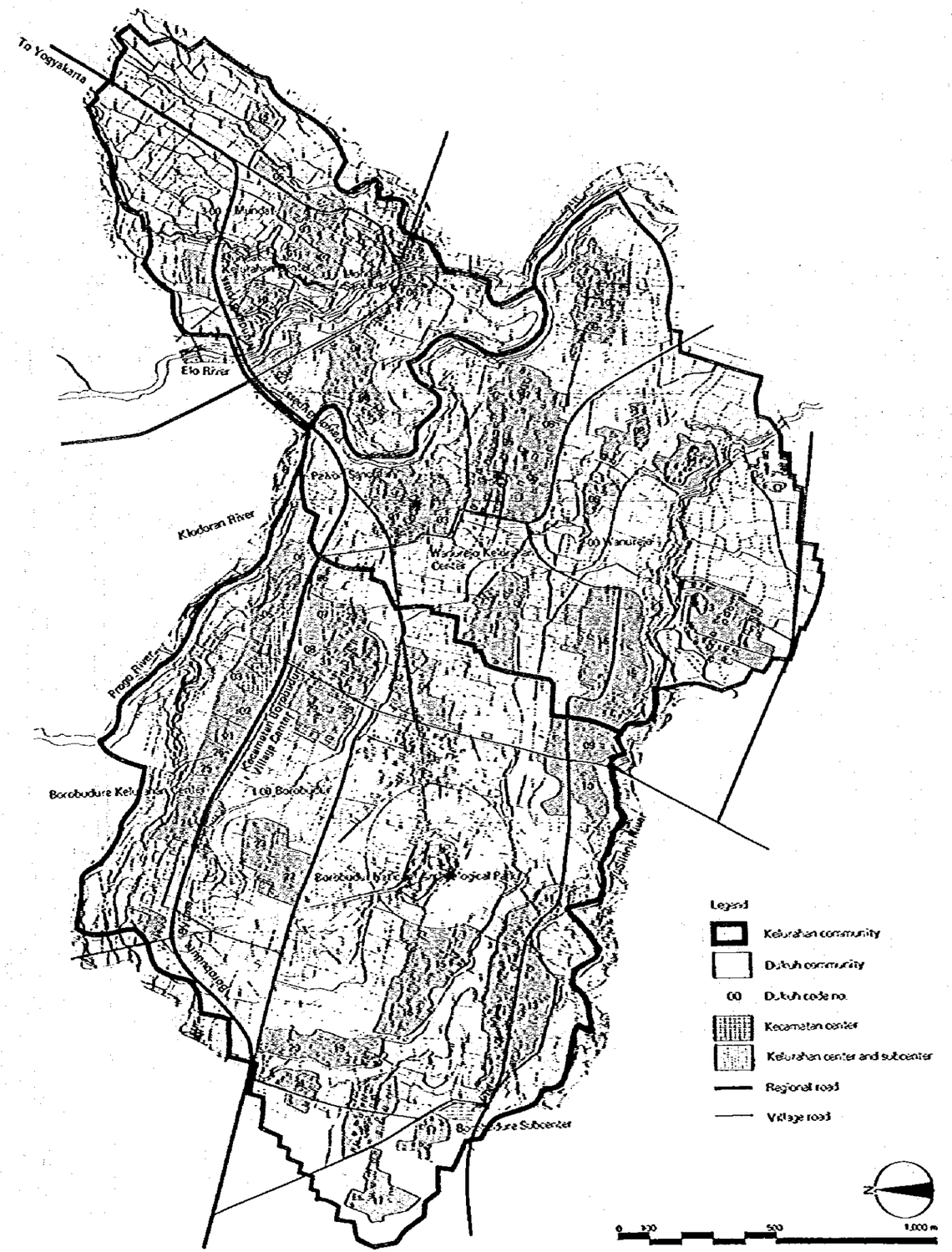
Public Facility Distribution

Each community is to be provided with a community center of a scale appropriate to its level to serve as its core. In determining the locations of such community centers, distances, population distribution, and other factors must be taken into account.

Each community center will have administrative, educational, commercial, religious and other facilities suited to its level as well as open space. In the case of administrative facilities, however, one will be provided for each present administrative unit. (Later kelurahan centers without administrative facilities will be called subcenters.)

Also to be provided village (dukuh) living infrastructure and basic facilities, residential service streets, water supply and drainage facilities, sewage treatment facilities, MCK (toilet, bath, and washing place) facilities, electricity supply facilities, and so on. (See the UGM technical report on village improvement for details.)

Human Settlemen Plan : Borobudur



Task of Local Government for Village Improvement

Local governments in the Borobudur and Prambanan areas will have to provide administrative guidance and set and promote the attainment of short-term, medium-term, and long-term goals on the basis of the village improvement plan for the 20-year period up to 1998.

Administrative Guidance with Respect to Housing Development

Guidance will have to be provided for housing development within the area (on the part of second and third sons establishing their own separate families) on the basis of the guidelines with respect to density and building height set for urbanly developed preservation subzones in the context of land use controls.

If the housing density limit has been reached by a dukuh and there are still those who want to build homes, they should be advised to build their homes in some other dukuh within the keturahan that is appropriate in terms of both housing density and opportunities for continuing work in the same profession. With the exception a few dukuh that will be allowed to extend their residential areas, such housing development will have to be on existing residential land that is still vacant in terms of housing but which may have been put to temporary use as orchard or vegetable garden land.

Works to be Undertaken for Village Improvement

Besides acquisition of the land for community centers and construction of their facilities, the local governments will have to implement works for provision of water supply and drainage facilities, sewage treatment facilities, MCK facilities, electricity supply networks, residential service streets, and regional and village roads.

Construction of Community Centers

The existing kecamatan centers in the Borobudur and Prambanan areas will have to be relocated in the context of the substitute village project because of their location in Zone-1 and Zone-2. This will be done initially by the local governments concerned as part of the programme of works that they are to undertaken in connection with that project. New facilities will be built in the centers after the existing ones become obsolete.

As a medium-term goal, 4 kelurahan centers are to be constructed in the Borobudur area (one a subcenter), and 7 in the Prambanan area (two being subcenters), each to be provided with the following facilities, either transferred from nearby or newly built once similar existing facilities in the area has become obsolete.

Since the dukuh centers will be established in existing residential areas, present facilities will be used wherever possible, and new facilities will be built only if they are lacking. The area of each dukuh center will be approximately the same as that of one residential lot.

Service center	Village center (kecamatan)	Kelurahan center	Sub-center	Dukuh center
Service center area (ha)	1.9 ha	1.23	1.13	0.061
Floor area (m^2)	3,560	2,760	2,460	54
Education		STK.ES. SLP	STK.ES SLP	
Kantor	Kantor Kec.			
Commerce	Passars, Shops	Shops	Shops	Warung
Open space	Sports ground	Play, sports ground	Play, sports ground	Small park
Religious	Mosque	Mosque		
Other	Meeting hall	Meeting hall		Watch house
Borobudur	1	3	1	61
Prambanan	1	5	2	74

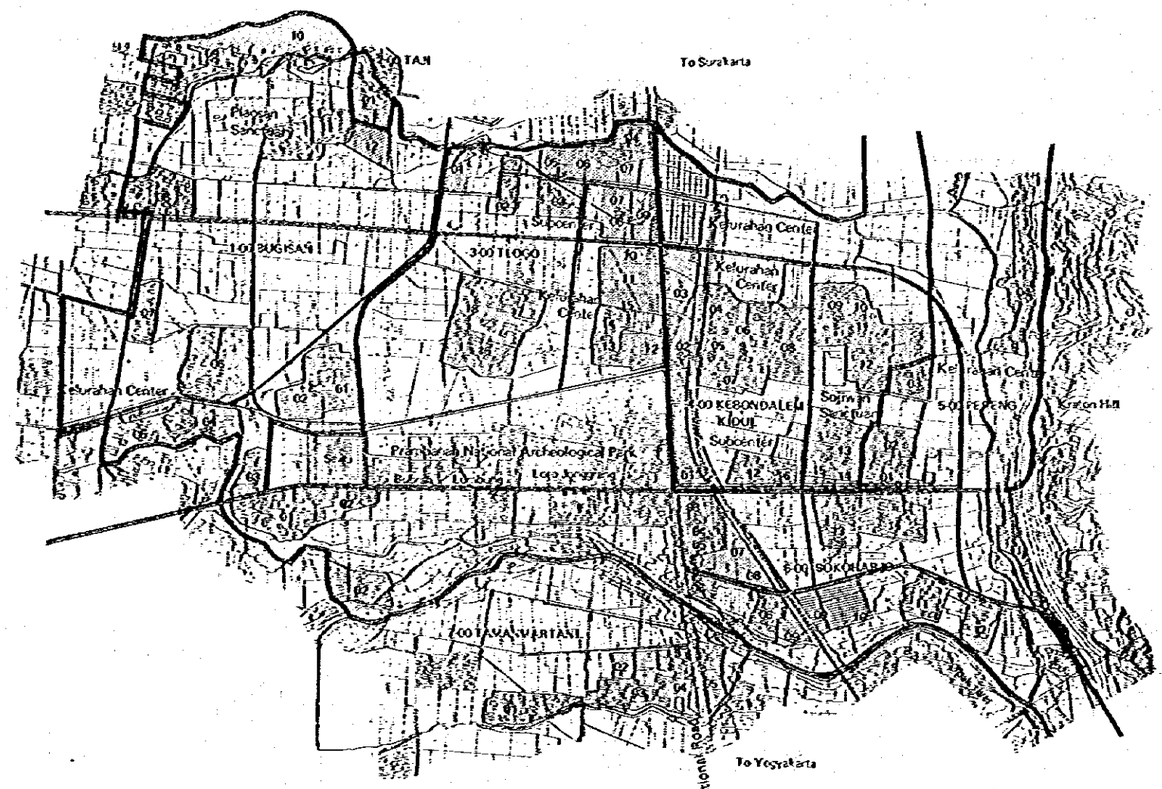
See the UGM Final Report regarding the construction of other facilities and infrastructure.

Whole Dukuh Catalog : Prambanan

Code no.	Dukuh name	Existing Conditions: Population	Households	Dukuh area (ha)	Household density per ha	1995 Plan: Population	Households	Dukuh area (ha)	Maximum residential capacity (household)	Remarks over flow households
1-00	Bugisan									
1-01	Bener I	341	46	6.7	6.9	230	41	6.4	96	
1-02	Bener II					230	41	6.3	94	
1-03	Candi Rejo	141	19	1.6	11.9	190	32	1.6	32	
1-04	Cepoko I	363	68	8.2	8.3	250	45	4.1	61	
1-05	Cepoko II					240	43	4.1	82	
1-06	Bugisan I	299	55	6.2	8.7	200	36	3.1	46	
1-07	Bugisan II					200	36	3.1	46	
1-08	Sukoharjo	106	25	2.6	9.6	140	25	2.6	52	
1-09	Pengok Kulon I	274	40	3.8	10.5	190	34	1.9	28	* 6
1-10	Pengok Kulon II					180	32	1.9	28	* 4
1-11	Puewodadi I	286	61	6.1	10.0	190	34	3.1	62	
1-12	Puewodadi II					190	34	3.1	62	
	Pengok Yketan	55	13	1.3	10.0	70	14	1.3	26	
1-13	Plaosan Lor I	300	53	4.3	12.3	200	36	2.2	44	
1-14	Plaosan Lor II					200	36	2.1	42	
	Total's	2,165	380	40.8	9.3	2,900	520	40.8	801	
2-00	Plaosan									
2-01	Plaosan Kidul	134	32	2.4	13.3	180	40	2.4	43	
	Total's	134	32	2.4	13.3	180	40	2.4	43	
3-00	Tlogo									
3-01	Sidoharjo	101	23	0.6	38.3	140	25	0.6	12	* 13
3-02	Modal	143	16	1.7	16.0	200	28	1.7	34	
	Tlogo Lor IV					130	24	1.3	26	
3-03	Ringin Putih	59	22	2.1	10.5	80	22	1.1	38	
	Karang Lor	69	15	0.8	18.8	90	16	0.8	28	
3-04	Barongan	212	46	1.7	27.1	290	52	1.7	59	
3-05	Karang Kidul I	561	158	5.9	26.8	190	40	1.9	66	
3-06	Karang Kidul II					190	40	1.9	66	
3-07	Karang Kidul III					190	40	1.9	66	
3-08	Karang Kidul IV					190	40	1.8	63	
3-09	Sidodadi	215	39	2.0	19.5	290	52	2.0	70	
3-10	Ngang Kruk	193	34	3.3	10.3	270	43	1.7	59	
3-11	Klurak	165	39	3.3	11.8	220	40	2.0	70	
3-12	Tlogo Kidul I	851	111	5.0	22.2	290	46	1.5	52	
3-13	Tlogo Kidul II					290	46	1.5	52	
3-14	Tlogo Kidul III					290	46	1.5	52	
3-15	Tlogo Kidul IV					280	44	1.5	52	
3-16	Tlogo Lor I	761	115	9.9	11.6	300	54	3.3	49	* 5
3-17	Tlogo Lor II					300	54	3.3	49	* 5
3-18	Tlogo Lor III					300	53	3.3	49	* 4
	Total's	3,335	618	36.3	17.0	4,520	810	36.3	1,012	
4-00	Kebondalem Kidul									
4-01	Koplak I	318	31	3.0	10.3	210	38	1.5	52	
4-02	Koplak II					210	38	1.5	52	
4-03	Tegalharjo	86	5	0.9	5.6	120	21	0.9	31	
	Ngang Kruk	139	17	1.7	10.0	190	35	1.7	59	
4-04	Delangan Toyo I	276	63	3.1	20.6	190	36	1.6	32	* 3
4-05	Delangan Toyo II					180	32	1.5	30	* 2
4-06	Watu Tumpeng	118	27	1.3	20.8	160	28	1.3	26	* 2
	Kaliprgten	116	21	1.4	15.0	160	28	1.4	28	
4-07	Kenteng	121	19	1.1	17.3	160	28	1.1	22	* 6
	Ngentak	63	13	0.8	20.0	80	14	0.8	16	
4-08	Baro Sentul	187	41	3.8	10.8	250	45	3.8	76	
4-09	Kebondalem I	300	28	3.7	7.6	200	36	1.9	38	
4-10	Kebondalem II					200	36	1.8	38	
4-11	Kalongan	81	19	2.2	8.6	110	20	2.2	41	
	Kwaron	101	11	1.0	11.0	190	26	1.0	20	* 6
4-12	Sojiwan	163	33	2.9	11.4	220	40	2.9	58	
4-13	Tegal Bendo	183	26	1.7	15.3	240	43	1.7	34	* 9
4-14	Banjar Sari I	308	43	4.5	10.7	210	38	2.3	46	
4-15	Banjar Sari II					200	36	2.2	44	
4-16	Gempol I	273	28	3.2	8.8	180	32	1.6	32	
4-17	Gempol II					180	32	1.6	32	
	Total's	2,833	430	36.3	11.8	3,790	680	36.3	810	
5-00	Pereng									
5-01	Sunggingan Kulon I	310	73	4.5	16.2	210	38	2.3	46	
5-02	Sunggingan Kulon II					210	38	2.2	44	
5-03	Sunggingan Vietan	143	35	2.7	13.0	190	36	2.7	54	
5-04	Kedon	38	12	2.2	5.5	50	9	2.2	44	
	Total's	650	120	9.4	12.8	660	120	9.4	188	
6-00	Bokoharjo									
6-01	Purerejo I	453	100	11.5	8.7	310	56	5.8	116	
6-02	Purerejo II					300	54	5.7	114	
6-03	Karanggan I	895	116	7.0	16.6	280	50	1.8	36	* 14
6-04	Karanggan II					270	48	1.8	36	* 12
6-05	Karanggan III					270	48	1.7	34	* 14
6-06	Karanggan IV					270	48	1.7	34	* 14
6-07	Klurak I	674	146	7.8	20.6	230	41	2.0	40	* 1
6-08	Klurak II					230	41	2.0	40	* 1
6-09	Klurak III					230	41	1.9	38	* 3
6-10	Klurak IV					220	40	1.9	38	* 2
6-11	Ringin Sari I	268	70	5.2	13.5	200	36	2.6	52	
6-12	Ringin Sari II					190	34	2.6	52	
6-13	Gatak I	718	116	9.6	12.1	330	59	3.2	64	
6-14	Gatak II					320	57	3.2	64	
6-15	Gatak III					320	57	3.2	64	
	Total's	2,938	548	41.1	13.3	3,970	710	41.1	822	
7-00	Taman Martani									
7-01	Karang Mojo	104	21	1.6	13.1	190	24	1.6	32	
7-02	Kwarirejo	150	33	1.0	33.0	200	35	1.6	32	* 3
7-03	Sanggrahan Ketirejo	260	52	3.1	16.8	360	63	3.1	62	* 1
7-04	Bogem I	296	50	8.4	6.0	200	35	3.9	78	
7-05	Bogem II					190	33	3.9	78	
	Total's	810	156	14.1	11.1	1,080	190	14.1	282	
TOTALS		12,706	2,281	180.4	12.7	17,100	3,070	180.4	3,963	

* Included present public facility area

Human Settlement Plan : Prambanan



Legend

- Kelurahan community
- Dukuh community
- 00 Dukuh code no.
- Kecamatan center
- Kelurahan center and subcenter
- Regional road
- Village road

0 100 500 1,000 m