

INTEGRATE REPORT OF JAPANESE SPECIALISTS  
SENT TO SINGAPORE ON  
RECONSTRUCTION OF JAPANESE GARDEN

MAY 1987

JAPAN INTERNATIONAL COOPERATION AGENCY

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INTEGRATE REPORT OF JAPANESE SPECIALISTS  
SENT TO SINGAPORE ON  
RECONSTRUCTION OF JAPANESE GARDEN

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Destination Country : Singapore

Consulting Object : Japanese Garden

Period of Stay : Mar. 23 – May 20, 1987

Compiled : May 20, 1987

JAPAN INTERNATIONAL COOPERATION AGENCY

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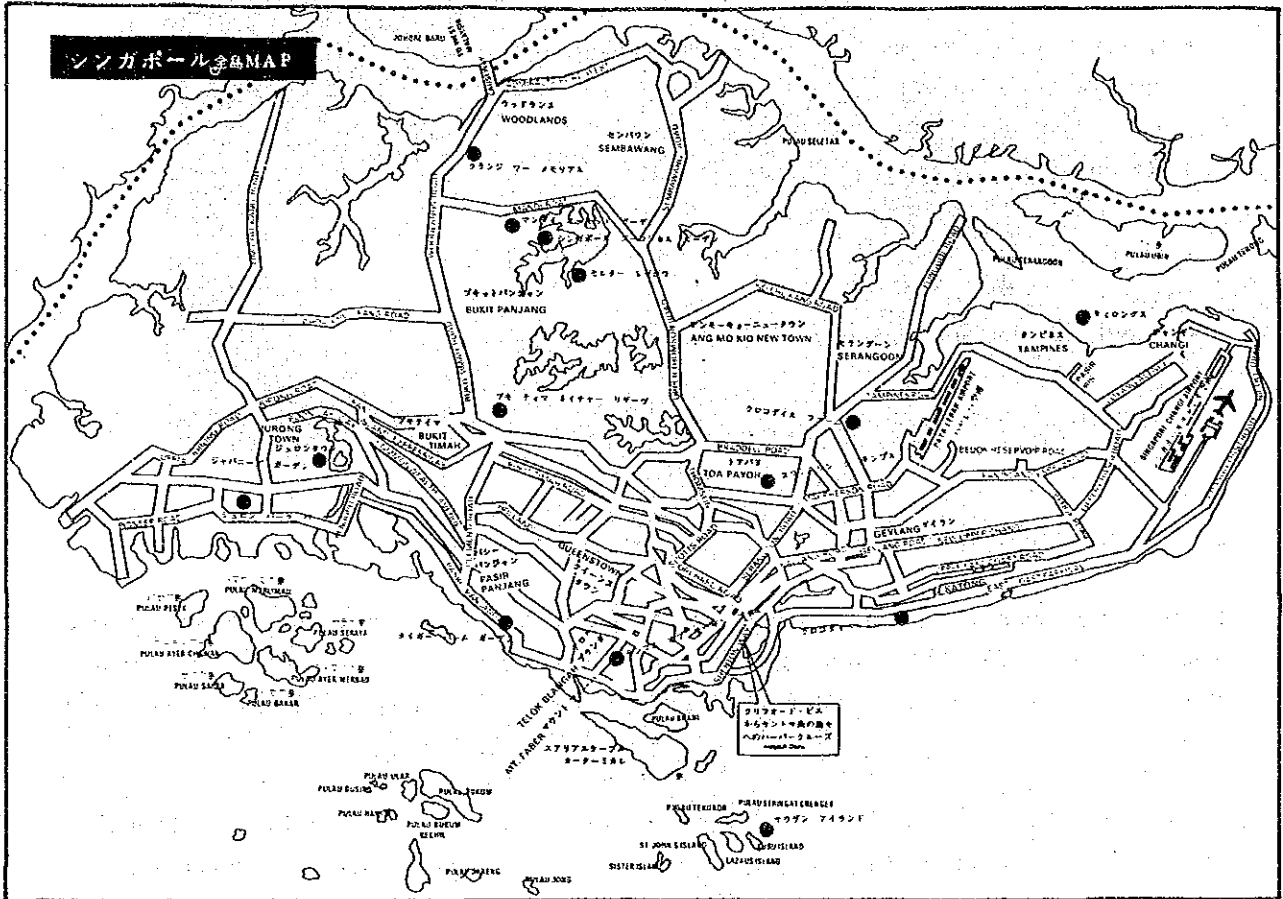
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## 1. Summary of Investigation



### 1-1 Contents and Background of Investigation

#### 1) Contents of Investigation

This investigation was carried out as technical cooperation in the reconstruction and management program, etc. of the Japanese Garden constructed in the Jurong district, Singapore (publicly opened in 1973 and having an area of about 13 ha) and the report deals with concrete measures worked out by the specialists based on the "Investigation Report on Request and Background concerning Management and Cooperation of Japanese Garden," which became effective in November, 1985.

Main items of this report are as follows:

- Positioning of the Japanese Garden in the Jurong district.
- Space Planning Program of the entire garden, reflecting the surrounding environment and conditions of utilization.
- Reconstruction Program of Japanese Garden.
- Land Utilization Program for land outside the Garden.
- Event Planning and Operation Program.
- Annual Business Program.

## 2) Background of Investigation

14 years have elapsed since the opening of the Japanese Garden. The number of visitors who registered, about 750,000 in one year after the opening, recently decreased to some 100,000, about 1/6 of those of the neighboring Chinese Garden, which registered about 620,000 per year.

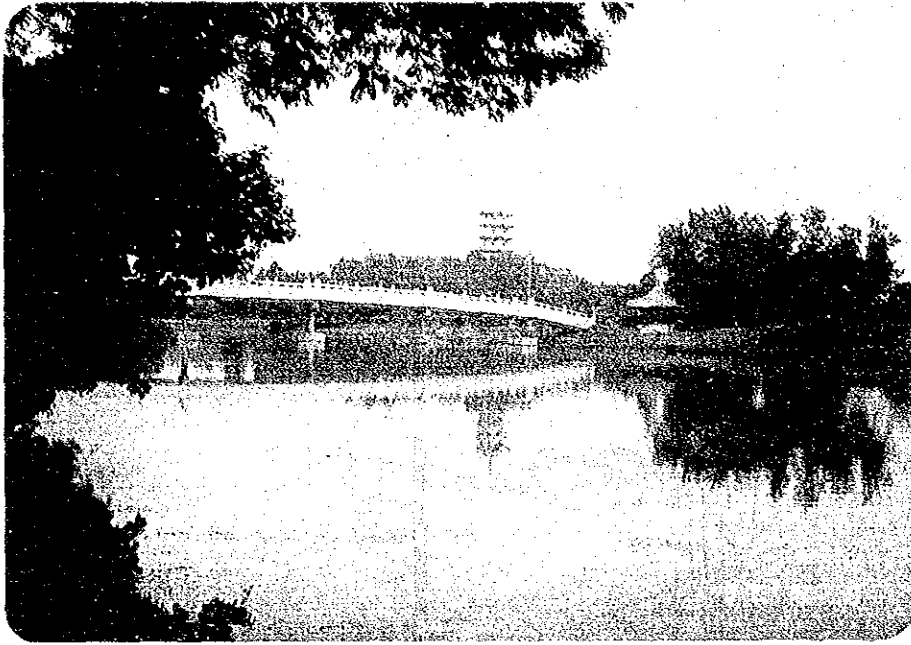
Under these circumstances, J.T.C. and J.E.E. completed in April, 1987 a linking bridge (L = 85 m, W = 4.5 m Refer to Page 4.) to be jointly utilized by the Chinese Garden and Japanese Garden.

Moreover, an MRT station is expected to be built in 1989 about 300 m, north of the Chinese Garden (Ref. Pages 4 & 5)

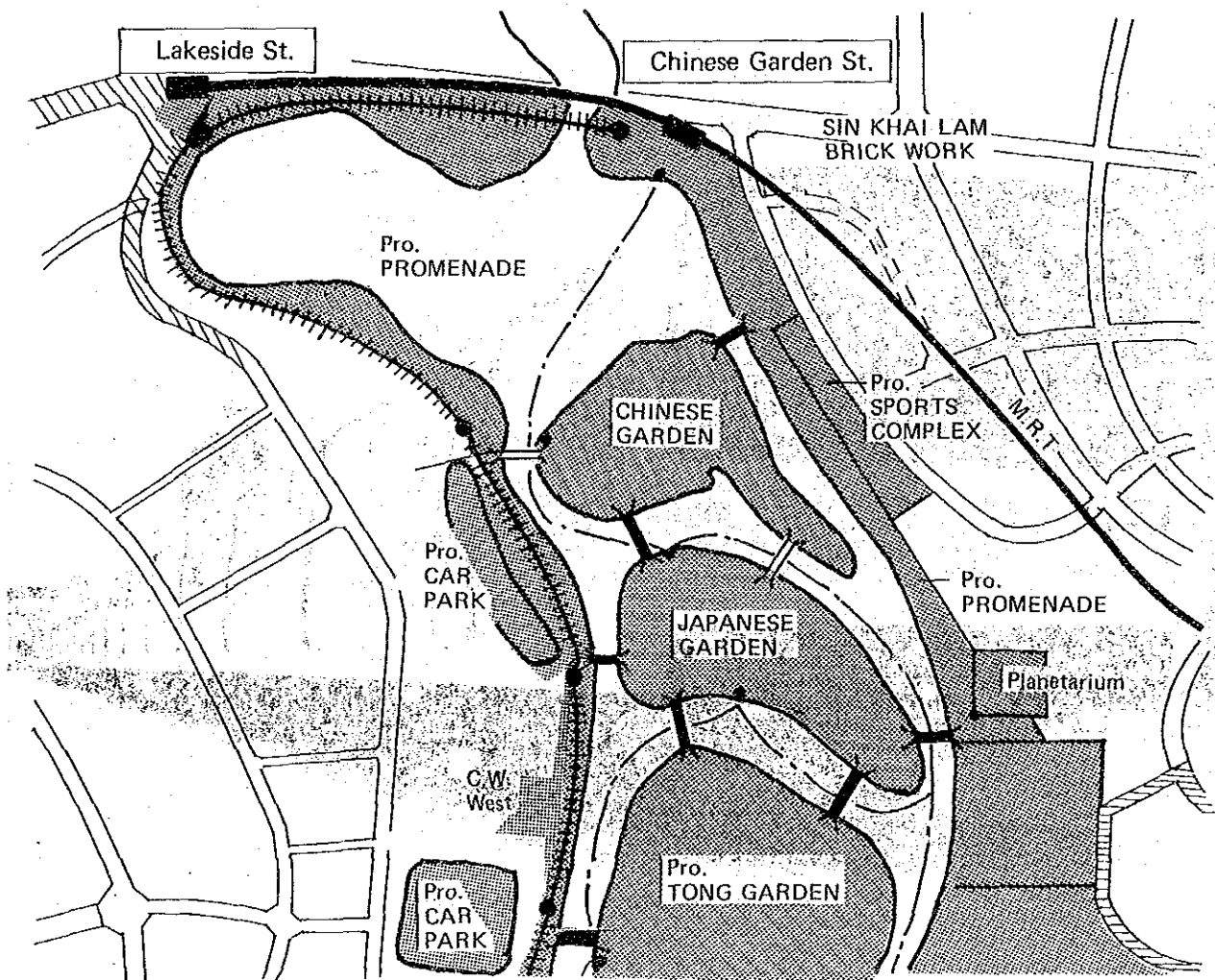
On the other hand, J.T.C. is planning to invite leisure facilities (The area where those will be situated is to be called Tong Garden) to be operated by a private enterprise of Taiwan, which Jurong Park (a public park) which adjoins the Japanese Garden on the south.

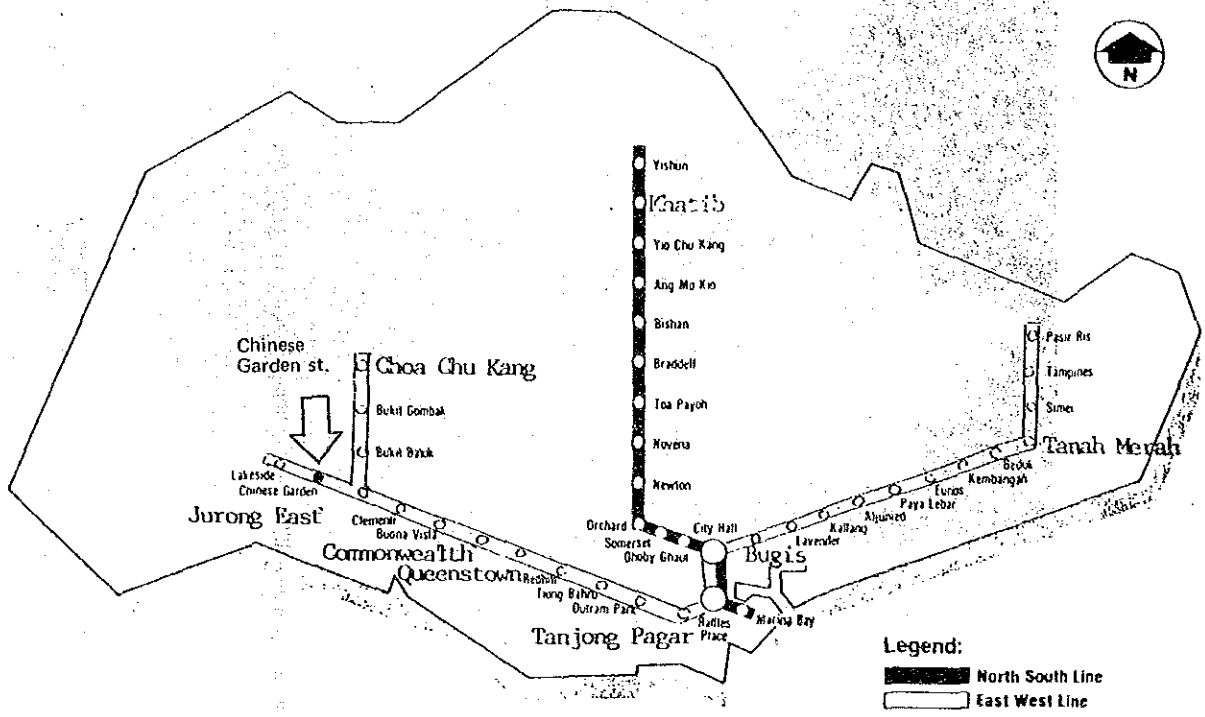
Moreover, the Tourism Bureau of the Government of Singapore, S.T.P.B. and J.T.C. are endeavoring to develop and rearrange tourist potentials. (The number of tourists in 1986 was about 3.2 million.)

With the above background in mind, the utilization of the island, part of which is now utilized as a Japanese Garden, is now being reconsidered and a management program, etc. are also under consideration.

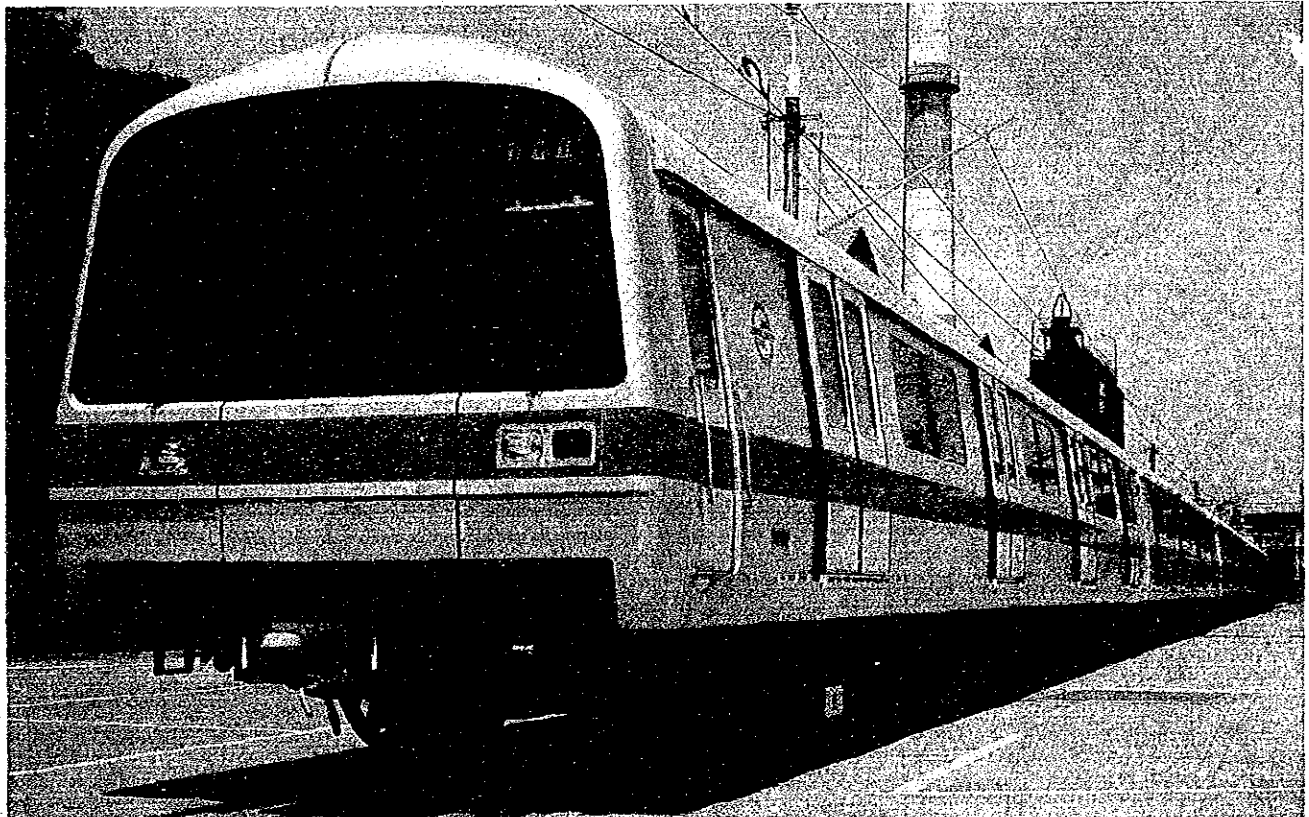


Bridge Connecting Japanese Garden and Chinese Garden  
Completed in May, 1987





Drawing of Projected M.R.T. Lines



Concept Drawing of M.R.T. Railway Cars

## 2-2 Schedule of Investigations

The schedule of investigations mentioned in this report is as shown below.

In the summary of the schedule of meetings: The basic proceedings of the investigation were to be to the holding of one meeting per week with J.E.E., our partners in the investigation, and some meetings for coordination with the organizations concerned, such as J.T.C. and S.T.P.B., as required.

The Summary of Schedule of Meetings

Date	Main items of the meetings	Attendants
3/24/87	For organizing the schedule of investigation Ways to proceed with work Orientation for the comers concerning entire Jerong district	Mr. Lim Sak Lan, JTC Mr. Lim Sip Li, JEE (Counterparts) Mrs. Kong Siew Eng., JEE (Counterparts) Mr. Yoneda, JICA 3 specialists
3/27	On maintenance and management of Japanese Garden - Hearing	2 counterparts 3 specialists
4/3	Meeting for forming concepts	2 counterparts 3 specialists
4/8	On tourist facilities - Hearing Policies of Singapore Tourist Promotion Board and positioning of Jurong district in tourist industry	Mrs. Pamela C Lee, STPB Mr. Ng Chew Song, STPB 2 counterparts of JEE 3 specialists
4/9	Explanation of summary of concepts Explanation of master plan	Mr. Lim Sak Lan, JTC 2 counterparts of JEE 3 specialists
4/13	Interim report delivered by JICA - Explanation of work progress	Mr. Tanaka, President Representative of JICA Mr. Yoneda, JICA 3 specialists
4/14	Interim report delivered by Japanese Embassy staff	Minister Murayama, from the Embassy Mr. Hibi, First Secretary of Embassy Mr. Yoneda, JICA 3 specialists

Date	Main items of the meetings	Attendants
4/21	Briefing session for interim report	Mr. Lim Sak Lan, JTC Mr. Henry Conceicao, JGC (Director of Jurong Golf Course) 3 counterparts, JEE 3 specialists
5/11	Final report session (at J.T.C. Town Hall) Explanation of master plan Explanation based on local experience Explanation of summary of construction costs	Mr. Yeo Seng Teck, Chairman of JTC Mr. Lim Sak Lan, General Manager of JTC 2 counterparts, JEE 2 specialists
5/14	Social meeting with the Japanese Association Singapore Explanation on Japanese Garden program and solicitation for participation in proposed events	Mr. Furukawa, General Secretary of Association Mr. Sugino, Assistant G.S. of Asso. 2 specialists
5/15	Final Reporting to Embassy	Mr. Hibi, First Secretary of Embassy Mr. Yoneda, JICA 2 specialists
5/18	Consultation concerning future countermeasures • Dispatch of specialists for execution drawing • Dispatch of counterparts • Coordination of construction processes	Mr. Lim Sak Lan, JTC Mr. Lim Sip Li, JEE 2 specialists
5/20	Final report and return greetings	Minister Murayama, from the Embassy Mr. Hibi, First Secretary of Embassy 2 specialists

## 2. Identifying Problems at Hand and Studying Countermeasures

The problems at hand are classified into the following 4 categories and each basic countermeasure is studied:

- 2-1 Problems of Japanese Garden as a Whole
- 2-2 Problems Concerning Parts of Japanese Garden
- 2-3 Problems Concerning Contents and Arrangement of Facilities
- 2-4 Problems Concerning Maintenance and Management

## 2-1 Problems of Japanese Garden as a Whole

Main problems	Basic countermeasures
<ul style="list-style-type: none"> <li>● Few shade trees and much heat and glare to visitors. (Refer to photo No. 1)</li> <li>● Inside and outside of the island seem empty and the garden lacks spatial uniformity. (Refer to photo No. 2)</li> <li>● Few attractions on the circular routes of the landscape garden provide little pleasure to visitors.</li> <li>● Few attractions at the pond. Fish are invisible due to muddy water. Arrangement of garden rocks at waterside does not match with water surface. (Refer to photo No. 3)</li> <li>● Gates and entrances lack identity of a Japanese Garden and no object services as a landmark.</li> <li>● No facilities and space from which the garden can be admired comfortably. Therefore there are few group visitors, few events and little time is spent in the garden.</li> <li>● Long distance between parking lots and main facilities.</li> <li>● Unusable on rainy days.</li> </ul>	<ul style="list-style-type: none"> <li>● To plant shade trees and build shelters, etc. along garden paths. To use water to create refreshing atmosphere.</li> <li>● To minimize space used at image of a Japanese Garden and adopt borrowed scenes.</li> <li>● To create characteristic garden spots by the landscaping method used for Japanese Gardens.</li> <li>● To improve waterside afforestation To improve water purifier. To lower level of water surface. To narrow garden paths to waterside.</li> <li>● To provide characteristic gate space and structures, which contrast well with surrounding garden space.</li> <li>● To reconstruct or newly construct guest-houses, etc. (with air-conditioners) To raise standards of stalls, display rooms. To rearrange lunchrooms.</li> <li>● To permit an approach in front of Japanese Garden.</li> <li>● To provide corridors, etc., to make facilities usable on rainy days.</li> </ul>



Should cover with tree's crown



Photo No. 1 No shade along garden paths to protect visitors from heat, glare, and the sight of high-rise building. The image of beautiful garden is spoiled.

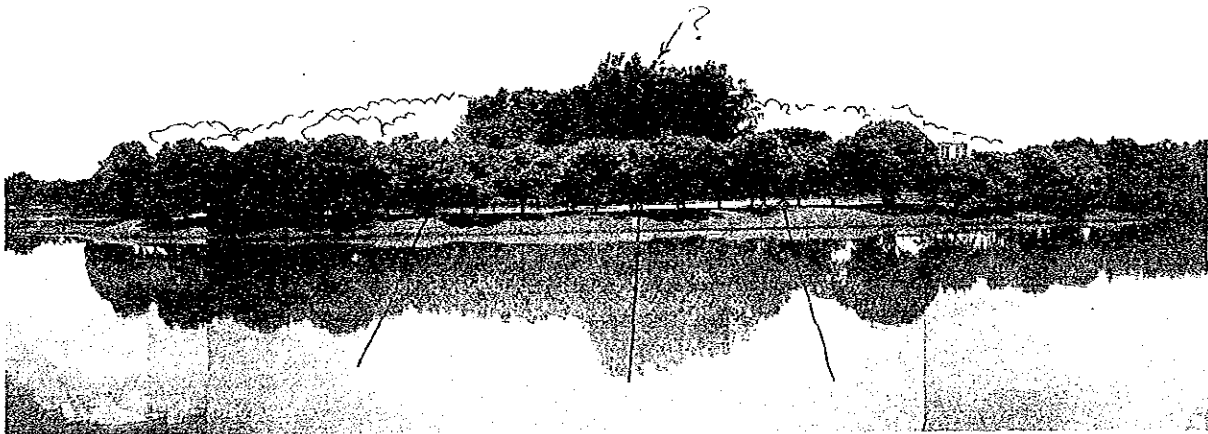


Photo No. 2 The space over the level of eyes is empty, making the scenery like that of public gardens or golf courses. The tall trees in the middle should be replaced by another kind that harmonize with the surroundings.

Must be changed to another tree



Photo No. 3 Shrubbery and water plants will harmonize with arrangement of garden rocks. The kind of trees in the background does not harmonize with the surroundings.

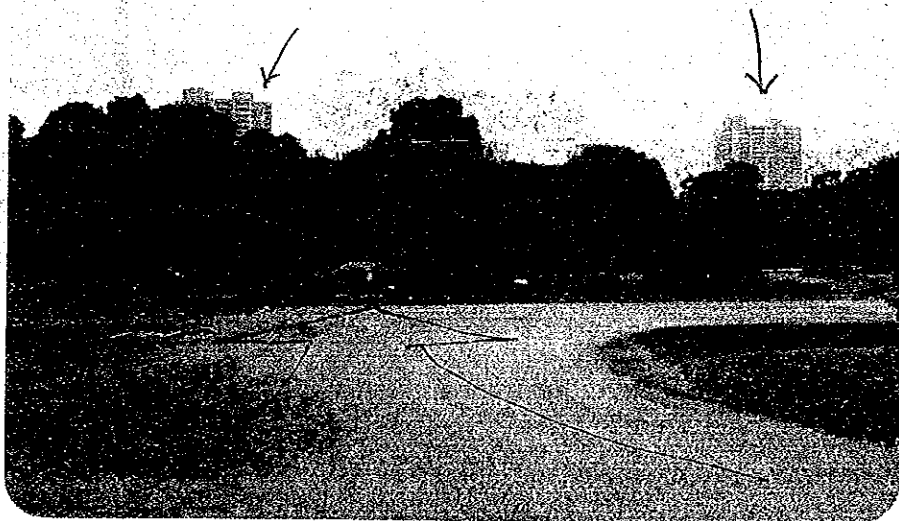


Photo No. 4 There are many problems here as a dry garden. Presentation of this space as a garden is inaccurate.

2-2 Problems Concerning Parts of Japanese Garden

Main problems	Basic countermeasure
<ul style="list-style-type: none"> <li>● The dry garden neighboring gate and entrance has a long distance of view and gives an impression of looseness. High-rise buildings can be seen in the distance. (Refer to photo No. 4)</li> <li>● Go-round lines of flow in this landscape garden are not clear.</li> <li>● Lawn plaza between dry garden and resthouse makes the scenery of entire garden seem incomplete. (Refer to photo No. 5)</li> <li>● The space at the approach of the bridge connecting Chinese Garden should be landscaped as a future front entrance. (Refer to photo No. 6)</li> <li>● It is impossible to command a view of the garden from the guest house. (Which is used now as a souvenir shop of Chinese folkcraft.)</li> <li>● Rest house is too spacious and lacks calmness. The view of the garden from it is also too large. (Refer to photos No. 7 &amp; 8)</li> <li>● The lower pond is situated far from the entrance and is hardly viewed.</li> </ul>	<ul style="list-style-type: none"> <li>● To reduce the size of dry garden and provide a new entrance nearby.</li> <li>● To minimize lines of flow as possible and make them clear and distinct.</li> <li>● To conceive other utilization than a garden, availing of short approach from entrance.</li> <li>● To landscape with gate and fences in harmony with landscaping at edge of bridge on Chinese Garden side.</li> <li>● To reconstruct guest house as well as arrange so that garden can be seen.</li> <li>● To landscape with artificial hill, vegetation, etc. conceive any method to minimize range of vision from rest house.</li> <li>● Lower pond is vital, judging from formation of entire scenery of garden. To conceive recreation facilities, availing of water-front.</li> </ul>



Photo No. 5 As there are no facilities nor vegetation suitable for normal gardens, it is uncertain how to use this place. The surrounding scenery would not be so attractive if any event is held in this place.



Photo No. 6 Scenery of the front of guest house seen from the side of Chinese Garden. Front entrance to Japanese Garden will be built at the edge of bridge.

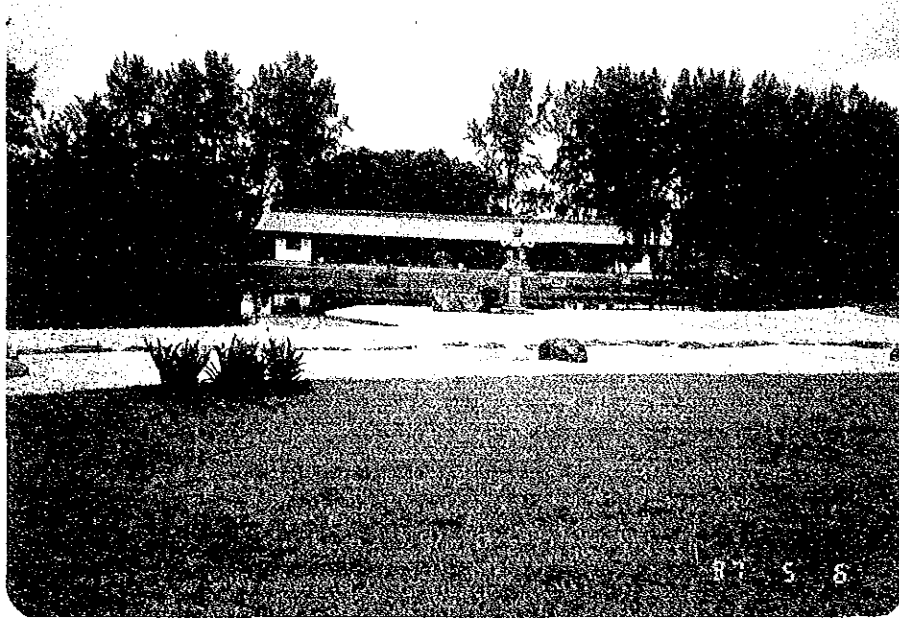


Photo No. 7 Front view of Rest house vegetation and building do not match.

May not seen the Linking Bridge

Not harmonize with other must be changed.

Need more earth mound and trees.

Too glary

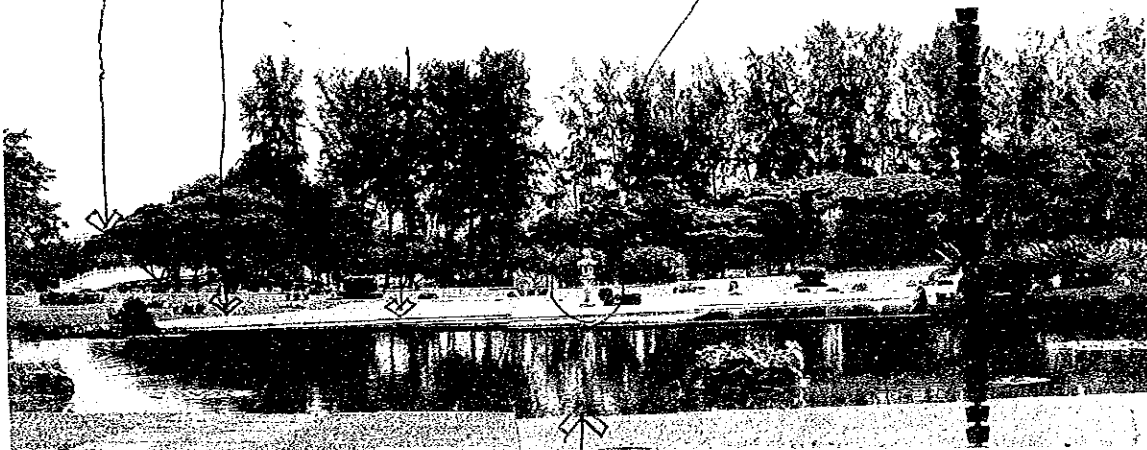


Photo No. 8 Kinds of trees seen in background do not harmonize with one another. Linking bridge can be seen. To hide it an artificial hill or screening vegetation is necessary. White gravels are dazzling. Water surface in foreground cannot be seen. Length of both right and left sides of pond is relatively short.

2--3 Problems Concerning Contents and Arrangement of Facilities

Main problems	Basic countermeasures
<ul style="list-style-type: none"> <li>● Sign display system in garden is insufficient. (Refer to photo No. 9)</li> <li>● Shortage of refreshment facilities. (Refer to photo No. 10)</li> <li>● Spaces used for gatherings, exhibition, events are not clear. Night utilization is impossible.</li> <li>● No facilities for selling articles such as souvenirs.</li> <li>● Devices and articles like stage properties which represent the characteristics of Japanese Garden are insufficient and their arrangement is not interrelated. Articles like stage properties are insufficient.</li> <li>● Level of maintenance of lavatories is low.</li> <li>● No attractive facilities.</li> </ul>	<ul style="list-style-type: none"> <li>● To develop signs suitable for Japanese Garden. To indicate number of go-round routes in Japanese landscape garden.</li> <li>● To provide facilities (not limited to Japanese style) to meet needs of users.</li> <li>● To provide outdoor function gardens in Japanese Garden and harmonize gardens to look at and gardens to use. To complete facilities for night utilization.</li> <li>● To provide such facilities near entrance for the benefit of visitors.</li> <li>● To arrange intensively earth walls, bamboo fences, fences hedges, entrances, gates, dry gardens, stepping stones, paper screens, latticeworks, pavilions, corridors, stone lanterns, shishiodoshi (bamboo pipe set on rock hits rock when it is full of running water, originally to expel coming deer) suikinkutsu (cave where running water rustles like playing "koto" (Japanese harp))</li> <li>● To provide a high-level lavatory in the building, equipped with air conditioning, but none outside.</li> <li>● To think of such facilities outside Japanese Garden. Contents of such facilities should harmonize with the garden where they exist.</li> </ul>

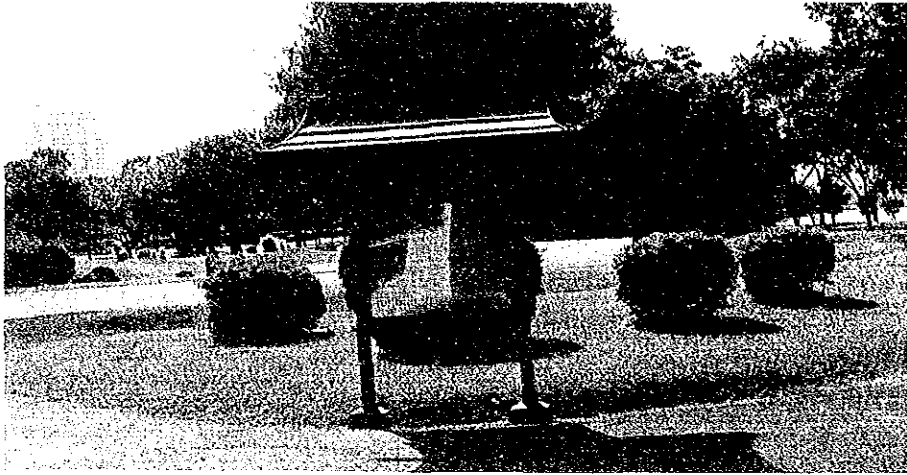


Photo No. 9

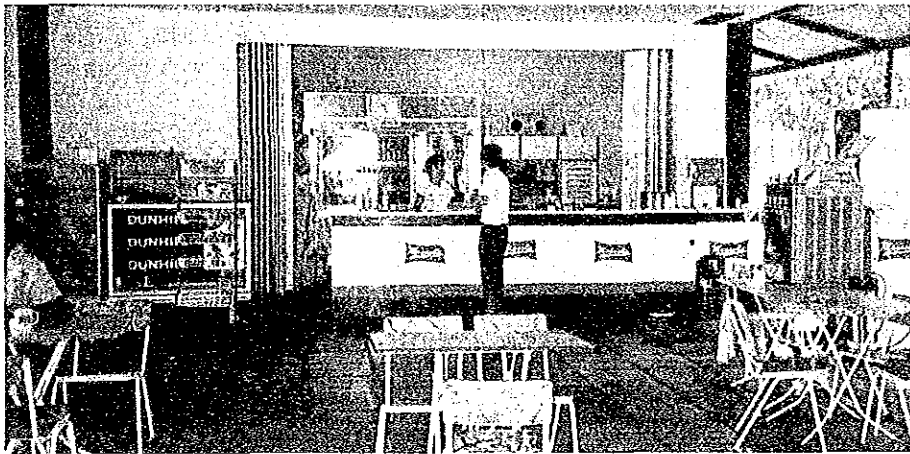


Photo No. 10 Counter in rest house

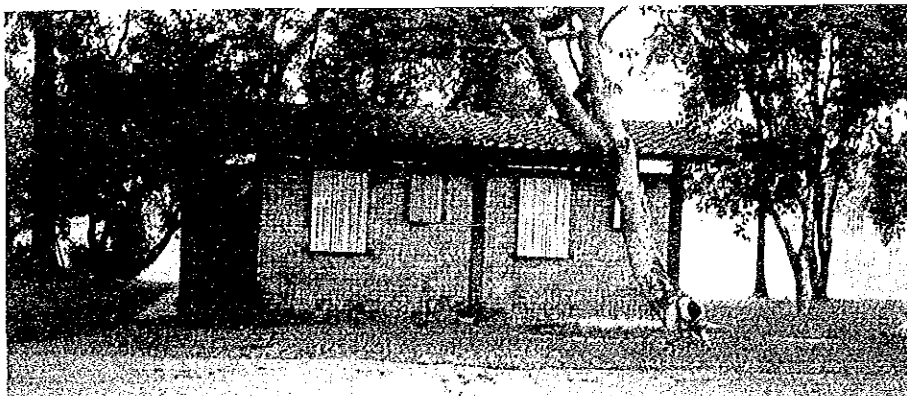


Photo No. 11 Independent lavatory

2-4 Problems Concerning Maintenance and Management

Main problems	Basic countermeasures
<ul style="list-style-type: none"> <li>● Inner-garden trams are necessary to utilize garden jointly with Chinese Garden. (Refer to photos No. 12 &amp; 13)</li> <li>● There are no regular events in Japanese Garden, and number of events is fewer than Chinese Garden.</li> <li>● Short age of planning, organizations and systems for holding events.</li> <li>● Shortage of investigation concerning users' needs, coordination among supporters' associations, actual conditions of utilization, etc., and of information gathered.</li> <li>● There are few trees suitable for Japanese Garden. Trees there grow too rapidly and are apt to become larger. Without seasonal changes it is difficult to represent characteristics of a Japanese Garden.</li> <li>● Too many places with plant cover make the garden look like a park.</li> </ul>	<ul style="list-style-type: none"> <li>● Small-sized trams, now in use in zoo are desirable.</li> <li>● To work out programs jointly with event programs in Chinese Garden and consider simultaneous opening and joint undertaking.</li> <li>● To consider integration of tourist and recreation organizations in all Jurong district by joint efforts of Government and private enterprises.</li> <li>● To consider joint investigation and information gathering by the above governmental and private cooperation. To provide travel agencies, private enterprises, schools and the like with public information are propaganda.</li> <li>● To choose kinds of trees suitable for Japanese Garden and replace unsuitable ones by them. Pruning should be timed for weather conditions.</li> <li>● To use medium sized trees and bushes to minimize places with plant cover. Provided that unique tree culture is adopted in a certain limit to avoid expensive culture expenses.</li> </ul>





Photo No. 12 Trams run in zoo. Similar type trams are used on trial in Botanical Garden. (Gasoline-engine trams) Smaller than those in use in Bird Park.

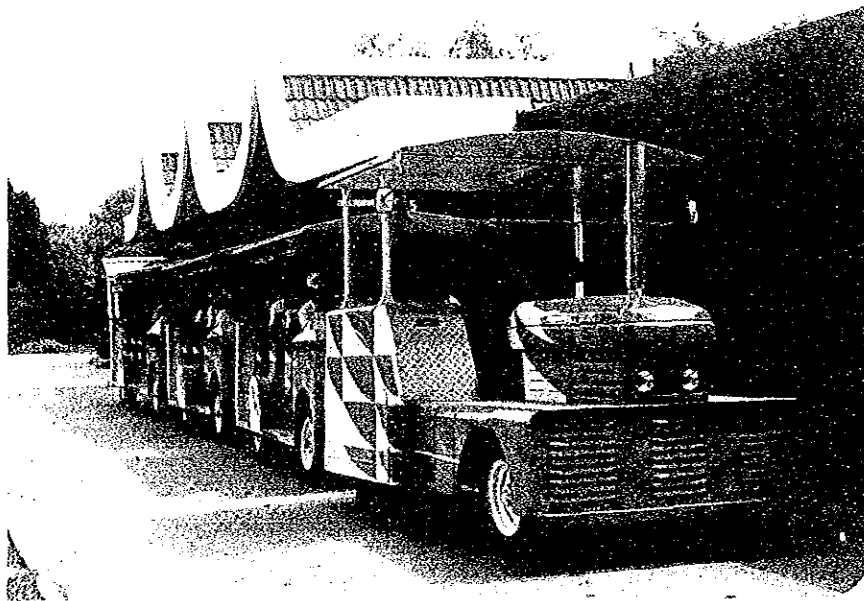


Photo No. 13 Trams used in Bird Park Roar of engine is a little noisy. (Diesel-engine tram) As there are many slopes in Park this type is preferable.

### 3. Basic Policies of Rearrangement

Basic ideas of reconstruction of Japanese Garden and land utilization of the entire island were worked out through the following processes:

- 3-1 Positioning of the Garden among the tourist and recreation facilities in Jurong district as a whole.
- 3-2 Basic ideas of the reconstruction program of Japanese Garden.
- 3-3 Ideas of spaces outside Japanese Garden.

### 3-1 Positioning of the Garden among the Tourist and Recreation Facilities in Jurong District as a Whole

#### 1) Analysis of Present Conditions

The tourist and recreation facilities in Jurong district can be roughly classified into 2 categories: east and west regions, and each facilities including the established and proposed ones has characteristics shown in the following list.

Region	Name of facilities ○ Established × Proposed	Proprietors	Characteristic of facilities										
			Observation	Adult	Infants	Sports	Education	Event	Food & drinks	Spectacle	Sales	Accommodation	
East region	○ Chinese Garden	J.E.E.	⊙	⊙	--	--	--	--	⊙	○	○	○	--
	○ Japanese Garden	J.E.E.	--	○	--	--	--	--	○	○	⊙	--	--
	○ Jurong Golf Course	J.E.E.	--	--	--	⊙	--	--	--	○	--	--	--
	○ Jurong Park	J.E.E.	--	--	--	○	--	--	--	--	○	--	○
	○ Science Center	Ministry of Education	--	--	--	--	⊙	○	--	--	--	--	--
	○ Planetarium	Ministry of Education	--	--	--	--	⊙	--	--	--	--	--	--
	○ C.N. West	Private	--	○	--	⊙	--	○	⊙	--	--	○	--
	○ Promenade	J.E.E.	--	--	--	○	--	--	--	--	--	--	--
	× M.R.T. Station	Gov.	--	--	--	--	--	--	--	--	--	○	--
	× Sports Complex	H.D.B.	--	--	--	⊙	--	--	--	--	--	--	--
West region	○ Jurong Bird Park	Private	--	⊙	--	--	⊙	○	○	○	○	○	--
	○ Jurong Observation Tower	J.E.E.	⊙	○	--	--	--	--	○	--	--	--	--
	× Crocodile Park	Private	--	○	--	--	--	--	⊙	○	⊙	--	--

The facilities of recreation that lacks in all Jurong district are as follows:

- Transportation system connecting functionally both east and west regions.
- Amusement facilities aiming at infants.
- Accommodation facilities.



2) Concept of Entire Jurong District

- Users of tourist and recreation facilities in Jurong district are not limited to tourist and local residents. To endeavor to promote repeated use by local people.
- To organize one day tour by combining current half day tour and additional tour going around some more facilities.
- To construct an integrate base of tourist and recreation facilities by making any facilities which lack now in the district around Jurong Lake.

(The base is tentatively called)

Jurong Central Park or

Jurong Communication World

3) Proposal for Alteration of Land Utilization

To remove part of Jurong Golf Course to Jurong Park and invite facilities to be constructed in Tong Garden to an island in Jurong Lake.

Thus Chinese Garden, Japanese Garden and Tong Garden are to be situated in Jurong Lake. It will be useful not only for management and utilization of facilities but also for preserving more surely the beautiful sceneries on the lake.

Moreover inner-garden flow line system of each garden will be made a circulation line by connecting 3 gardens and this will increase the effect of investments in linking bridges and others. To familiarize with, and easily identify, this garden complex, let's call it, for example, J.T.C. Garden, borrowing the first letter of the name of each garden.

Japanese Garden	J	
Tong Garden	T	J.T.C. Garden
Chinese Garden		

(Note) The acronym curiously coincides with J.T.C. for Jurong Twon Corporation.

4) Proposal for J.T.C. Garden Transportation System (Ref. Map—2)

- To build a flow line system connecting the east and west regions.

To adopt transportation means having amusement quality.

Examples: Monorail, Mini S.L., Shuttle Bus and others

- To build an approach flow line from M.R.T. Station. The nearest stations are Chinese Garden St., Lakeside St., and Jurong East St. and Chinese Garden St. will be the main approach station. (Distance from it to Chinese to Chinese Garden is about 300 m)

To build a loop promenade around Jurong Lake for pedestrians only, as well as contemplate a transportation network using ferries (attractive for sightseeing) and connecting Chinese Garden St. waterfront and three Gardens.

- To build a tram flow line connecting three Gardens (islands)

To lay bridges linking 3 Gardens with Japanese Garden in the middle, and render service to users by means of trams circulating the garden complex.

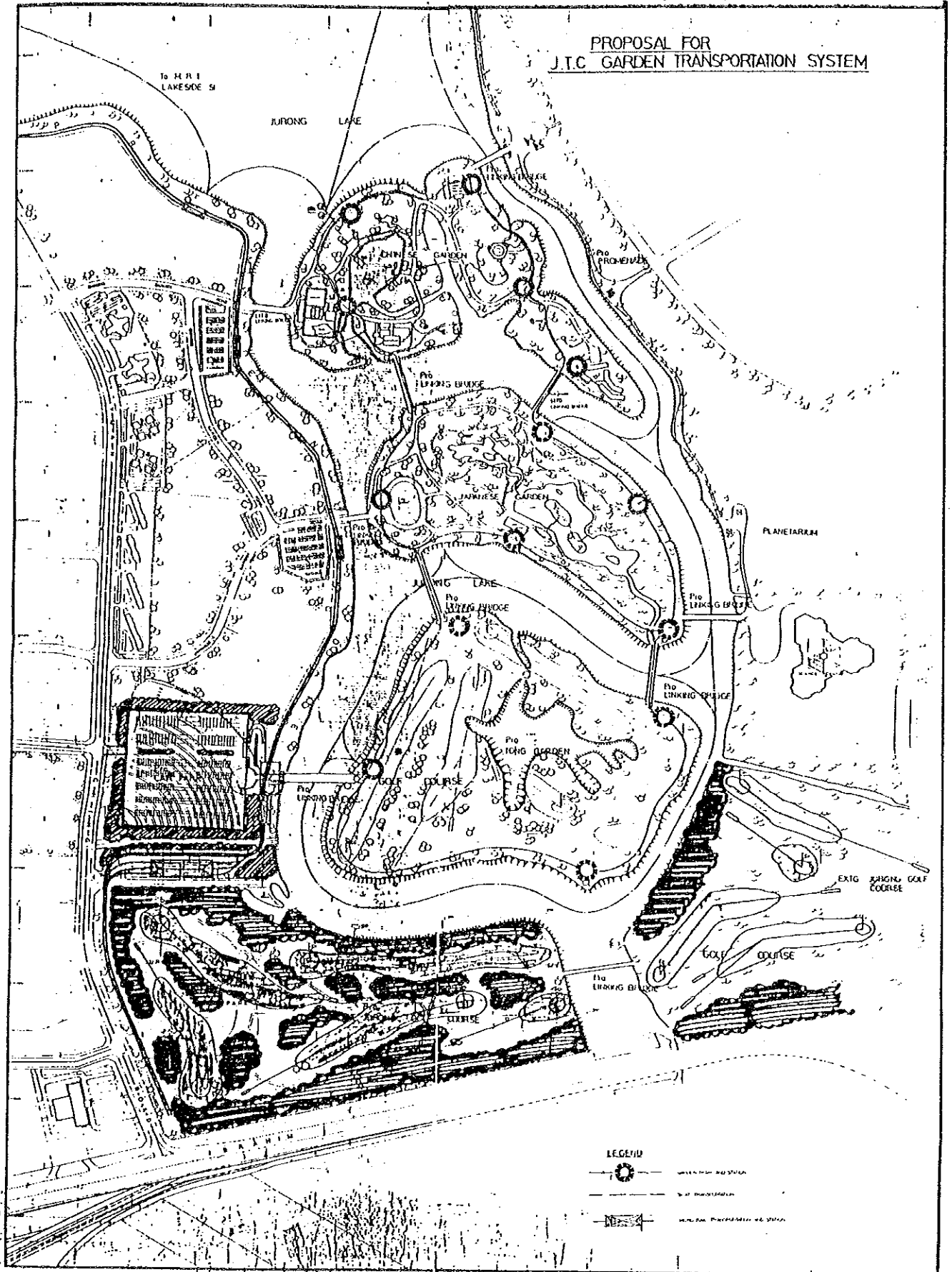
- To connect the following linking bridges, and entrances leading to each of 3 Gardens (islands) with the promenade:

(1) Bridge and entrance to Chinese Garden from Chinese Garden St. and back

(2) Bridge and entrance to Japanese Garden from Science Center and back

(3) Bridge and entrance to Tong Garden from former Car theater and back

PROPOSAL FOR  
J.T.C. GARDEN TRANSPORTATION SYSTEM

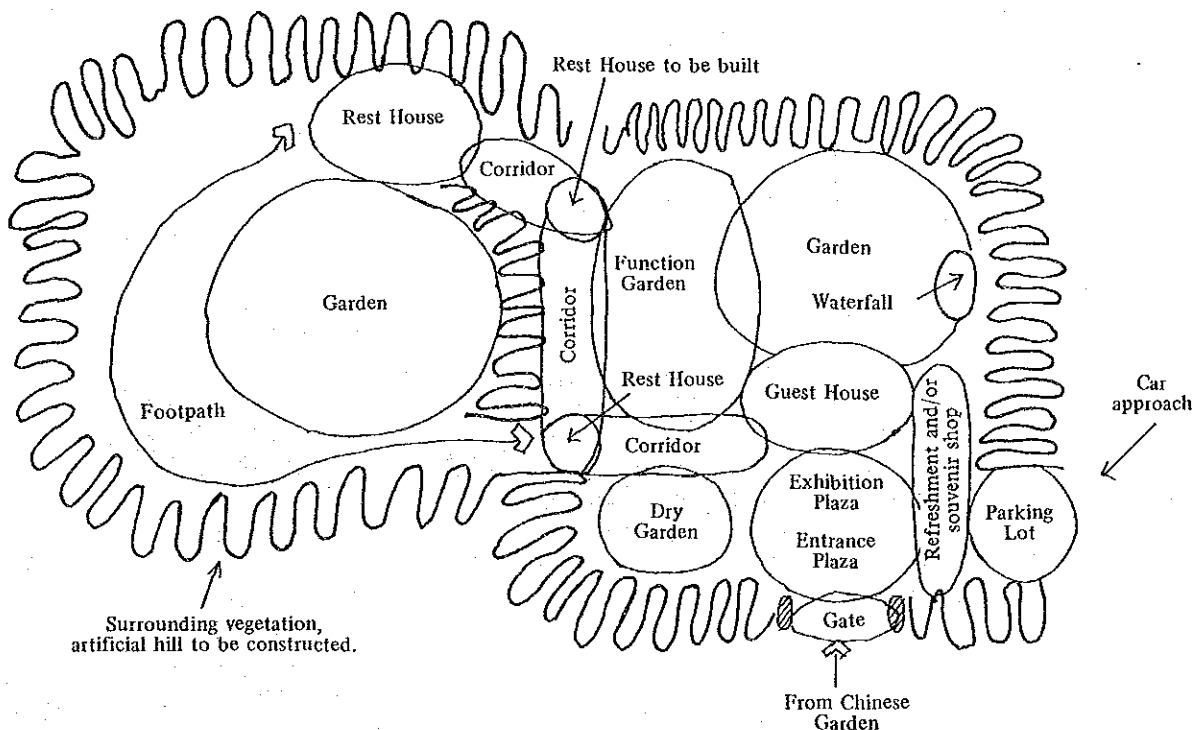


### 3-2 Basic Ideas of the Reconstruction Program of Japanese Garden

The basic ideas are as follows:

- 1) To leave the skeleton of Japanese Garden as it is, and try to make garden areas compact.  
To preserve and utilize pattern, ponds waterfall, streams and buildings in the Japanese landscape gardens in go-around style.
- 2) To promote all-weather and night utilization of Garden.  
To replace parking lot, main gate and dry garden, and to newly construct event space.
- 3) Completion of service facilities.  
To newly construct refreshment and/or souvenir stands luncheon-rooms, rest house, lavatories, Japanese culture information corner, etc.
- 4) To plan events to meet various needs.  
(Refer to Event Programs)
- 5) To landscape as Japanese Garden (To make entire island look like forest).  
To make spaces compact by arranging artificial hills, screening vegetation, earth walls, etc.

Drawing of Basic Arrangement Pattern of Japanese Garden

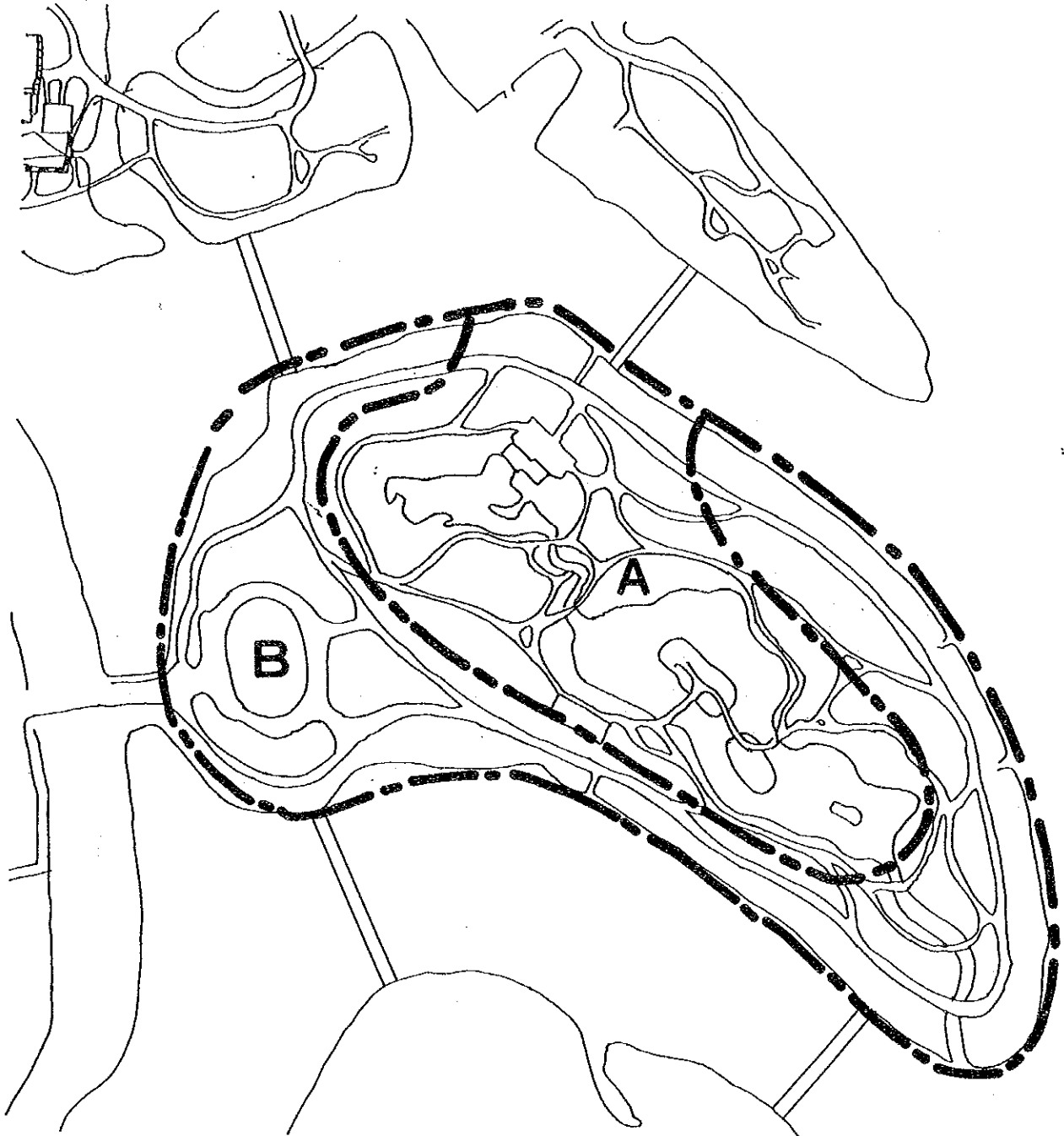




Zoning Chart - 1

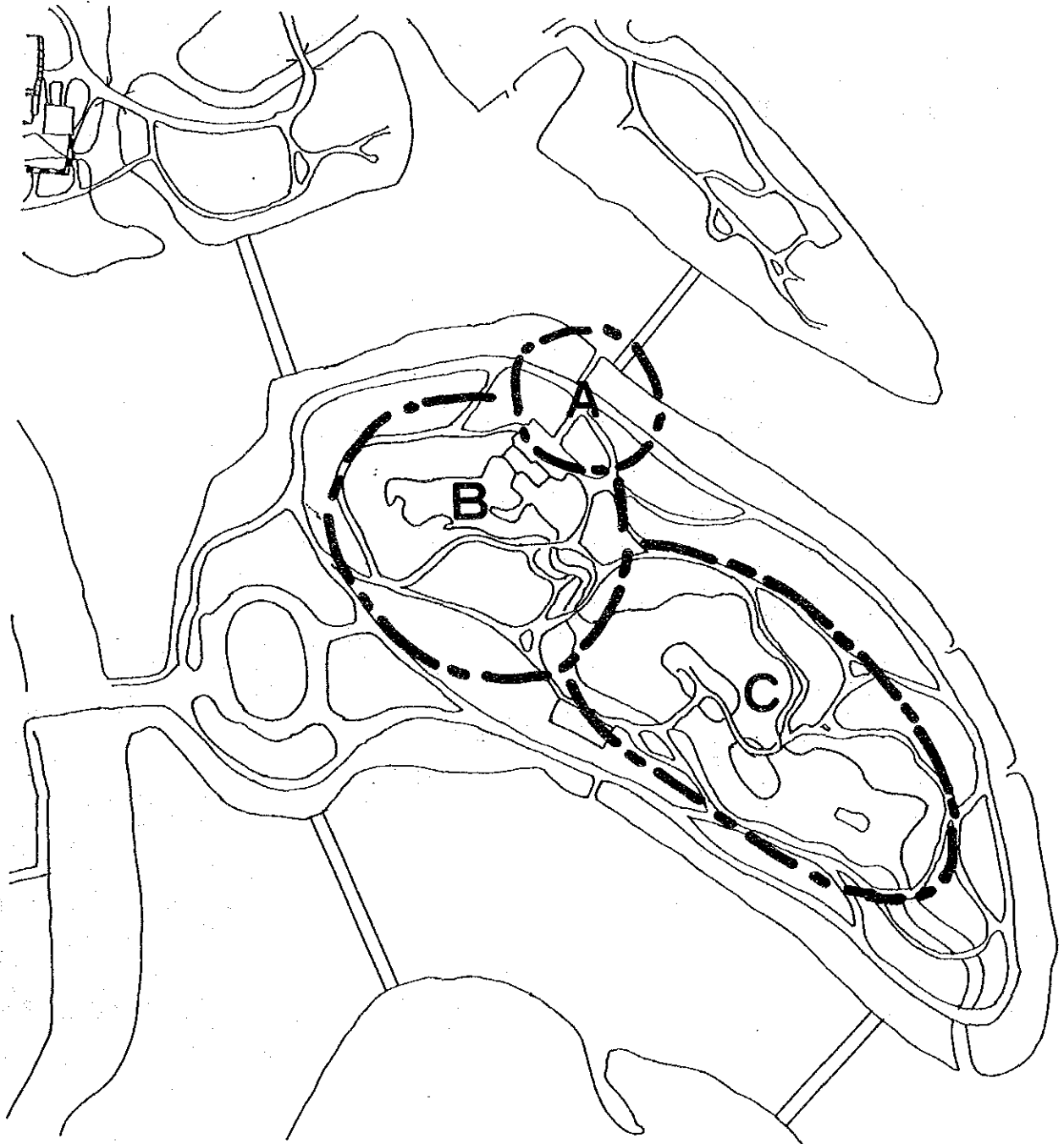
A Japanese Garden Zone

B Outer-Japanese Garden Zone



Zoning Chart - 2 (Japanese Garden Zone)

- A Parking lot and Entrance Plaza Zone (Service Facilities Zone)
- B Upper Pond Garden Zone (Garden Zone for Utilization)
- C Lower Pond Garden Zone (Garden Zone for Ornamental)



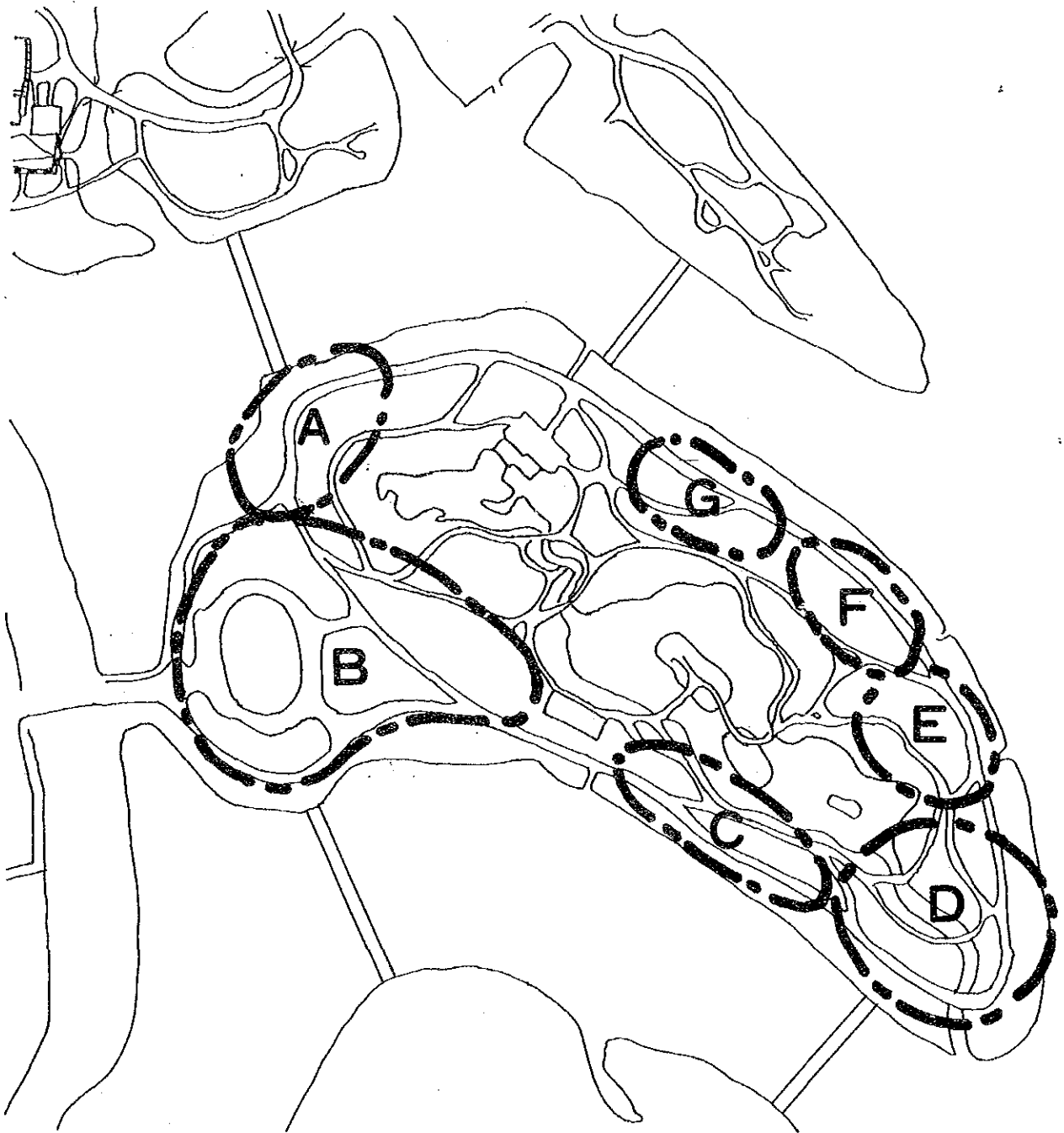
### 3-3 Ideas of Spaces Outside Japanese Garden

(i.e., Spaces left after making Japan style Garden area compact.)

- 1) To try to introduce facilities which would harmonize with Japanese Garden:  
Facilities of recreation relatively less active and artificial.
- 2) To try to introduce facilities to replenish lack of tourist and recreation facilities in entire Jurong district:  
Facilities in which putting emphasis on babies, infants and children (aged 0 – 10), aged and handicapped people can amuse themselves safely.
- 3) To provide places for communication between parents and/or aged people and children:  
Places where they can commune with nature (e.g., water, earth, small animals)
- 4) To try to introduce facilities to inspire in infants and little children creativity and imagination:  
E.g., scenes and figures, marionettes performances taken from fairytales and folklores.  
Room of "Wonderland".
- 5) To conceive systems to encourage frequent utilization:  
E.g., membership system for infants, contract with kindergartens for periodical utilization at discounted fees.
- 6) To issue admission tickets available common to proposed syndicate of gardens:  
Free ride of tram, free drinks by showing common mini-passport (marked paper cup, hat or badge).
- 7) To construct characteristic service facilities:  
All facilities in a scale of child without age, nationality, and letter and word.
- 8) To complete various service facilities:  
Childrens' room, childcare counseling, baby cars for hire or nothing and service rendered by helpers.
- 9) To complete facilities selling articles:  
To establish permanent corners for selling infants' goods.

Zoning Chart – 3  
(Zones outside Japanese Garden)

- |   |                       |   |                |   |                |
|---|-----------------------|---|----------------|---|----------------|
| A | Picnic Zone           | D | Dabbling Zone  | F | Adventure Zone |
| B | Infant Garden Zone    | E | Labyrinth Zone | G | Nursery Zone   |
| C | Exhibition Plaza Zone |   |                |   |                |



4. Master Plan

4-1 Overall Plan

4-2 Estimated Costs of Construction

4-3 Business Project

#### 4-1 Overall Plan

Based on the items mentioned in the basic policy the overall plan includes the following programs.

##### 1) Zoning

Japanese Garden Zone and the outside zone (tentatively called "Infant Garden") are to be clearly divided as shown in Zoning Chart.

Areas of Japanese Garden Zone and the other zone will be about 7.0 ha and about 6.0 ha, respectively, totalling about 13 ha.

Therefore proposed area of Japanese Garden will be about a half of current one, widely reducing administration expenses of plants and others. And vitalization of the life of the island and efficient utilization of entire island will be secured by leaving arrangement and management of outside zone to the hands of invited private enterprises, or by other measures.

##### 2) Flow line

Basic flow line patterns are as follows.

To construct flow line for maintenance services and construction work along periphery of the island from each approach, taking into account future tram flow line (inland transportation system).

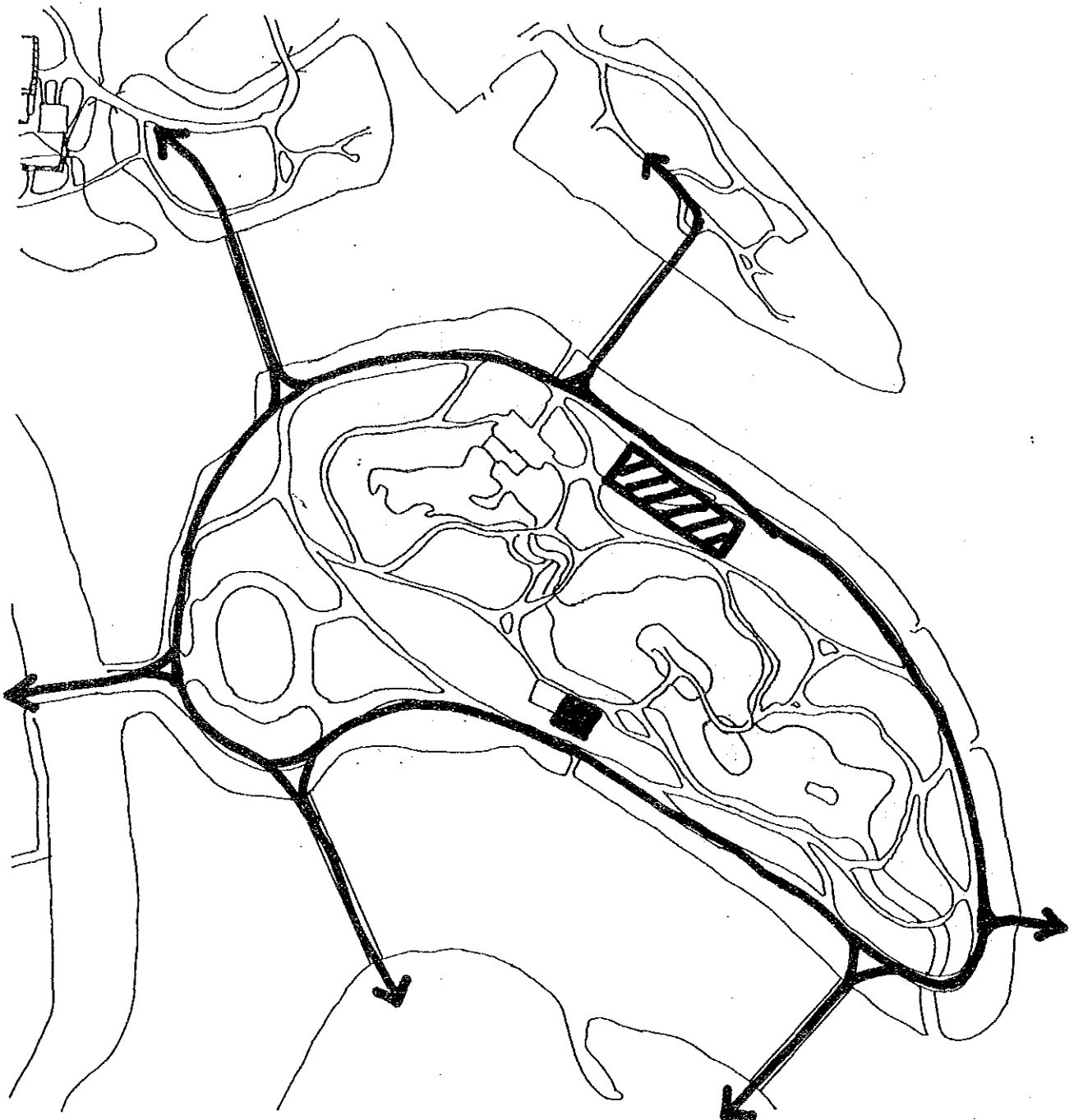
To construct parking lot in front of the present Guest House to be able to approach by cars approach flow line into Japanese Garden.

To construct betths in front of Guest House for future approach by ferries from M.R.T. stations or Chinese Garden Station.

To leave the present pattern of go-around flow line as it is, and rearrange the present go-around footpaths to make the pattern of such foot paths clearer.

Drawing of Flow Lines – 1  
 (Flow lines for maintenance)

- Maintenance office (in Rest House)
- ▨ Facilities for controlling nursery, etc.
- ← Flow line for maintenance and construction work  
 (Emergency flow line)



Drawing of Flow Lines -2  
(Inner-garden tram flow lines)

- Tram flow lines
- Tram stations





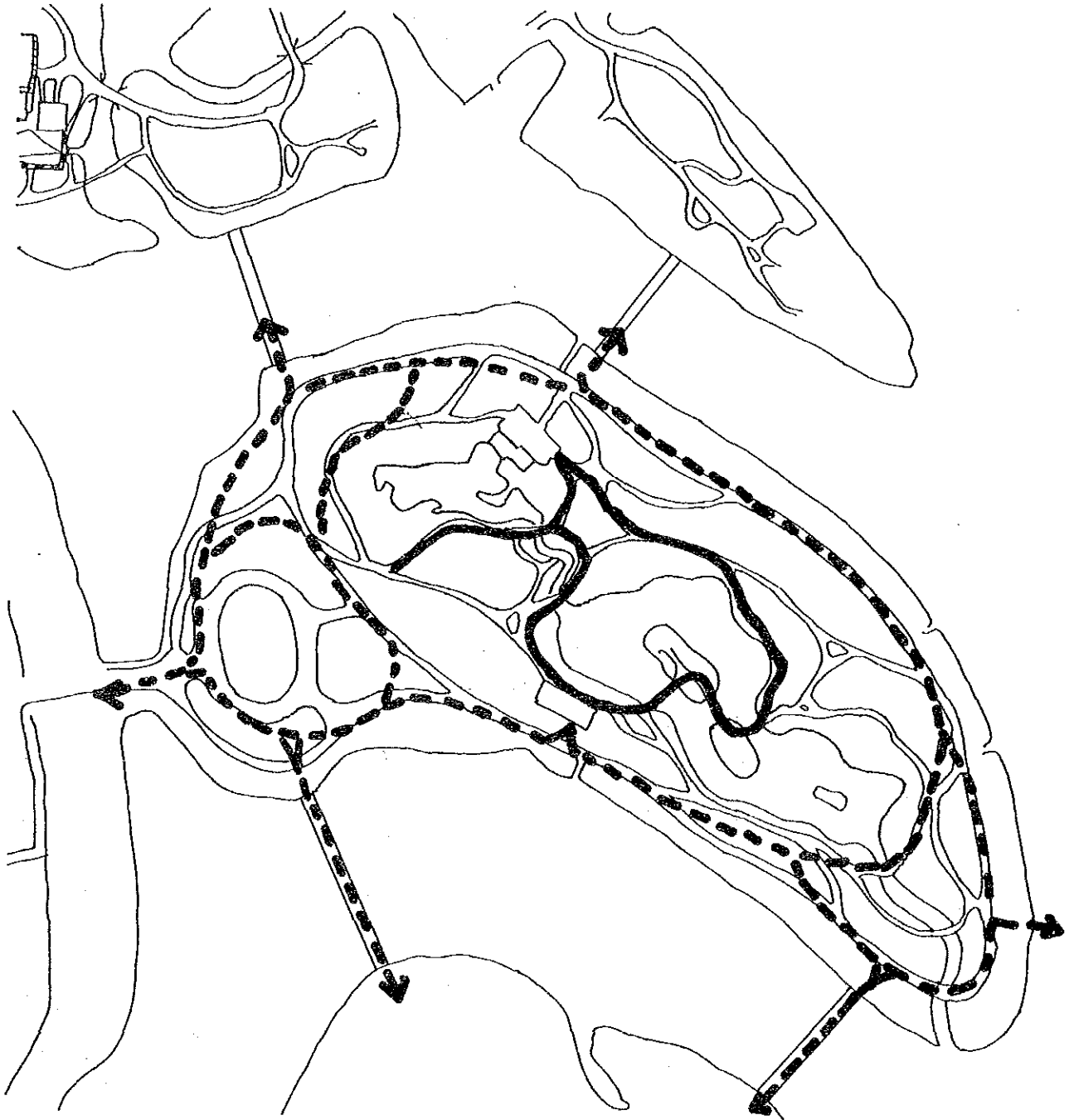
Drawing of Flow Lines -3  
(Visitors' approach flow lines)

- ← - - - Ferry boats
- ← - - - Car and bus approach
- Ⓟ Parking lot
- ← - - - Approach on foot



Drawing of Flow Lines -4  
(Inner-garden promenade flow lines)

- ← Go-round promenade flow lines
- ← Walking flow lines



### 3) Levelling Program

The basic concept of levelling can be worked out from the point of landscaping of entire island and a work to construct solid subsurface foundation.

- (1) To build in front of Guest House and Rest House an artificial hill (about 30,000 m<sup>3</sup>) expanding the present one to make the image of space more attractive as well as a scenic beauty of Japanese Garden. This makes the Garden seem compact and helps to landscape others.
- (2) As the entire island was made by reclamation, its shores with Jurong Lake and proportions do not look like natural. Therefore, it is necessary to rearrange the shores to make them seem natural and beautiful by another new reclamation.
- (3) The entrance area is connected to the island with a narrow strip of land. Therefore, pollutants and floating rubbish in the lake are apt to gather near and around the area. In order to avoid this it is necessary to cut off this bottleneck and span a bridge instead to clear the way for flowing lake water. (Public Utilities Board has already requested to this effect.)
- (4) In Japanese Garden, there is a lawn plaza in front of Guest House with plaza is lower than the level of water in the pond. Therefore, it is necessary to raise the level of the plaza when constructing the artificial hill as mentioned in (1) and slope it toward the pond.
- (5) There is a difference in height of about 1.5 m between entrance plaza in front of Guest House and the edge of bridge. Therefore, slope of entrance plaza should be levelled into 2 stages.

### 4) Garden Road and Foot path, and Plaza Program

Patterns of roads and footpaths should be in accordance with the flow line program above-mentioned.

#### (1) Trunk roads

Taking into consideration passage of various kinds of vehicles including trams, they are asphalt-paved (asphalt is the same kind which is used in the present pavement) and 4.0 m wide. No corner stones to be used.

(2) Footpaths in Japanese Garden

In principle, footpath which makes a pair with structure (such as corridor) is to be paved with natural stones (granite 600 x 300 x 50) and walking paths around the pond, with granite chips as usual. Stepping stones and stairs consisting of natural rocks are to be arranged in garden area (function garden area) in front of Guest House.

(3) Entrance plaza in Japanese Garden is to be paved with natural rocks (granite 600 x 300 x 50).

(4) Speaking of bridges linking with the island there is only one that connects Chinese Garden. In future one more bridge to Chinese Garden, and one to Science Center side and present entrance area to be reconstructed respectively and two to Chinese Garden side totalling six will be spanned.

5) Landscaping and Gardening Program

Basic overall landscaping and gardening includes the following:

(1) Generally speaking, vegetation density is low and especially green shade trees along roads and paths in garden are few. During reconstruction, dense plantation will be carried out together with building an artificial hill, and a vegetation zone will be set off around the periphery so that it may become a scenery of the garden and the inside of the island may not be seen from the outside.

(2) To select kinds of trees suitable for Japanese garden

Because of different weather conditions from Japan and kinds of trees available are limited it is difficult to do landscaping and gardening as it is done in Japan. In principle, to plant kinds of trees with egg-shaped profile and dark green leaves along periphery of the garden, and kinds of trees with beautiful trunks and branches, in the garden or near buildings in symbolic patterns.

To tend bushes, putting emphasis on pruning them into a round shape which conforms to nearby arrangement of stones.

(3) To plant tropical plants with beautiful flowers such as plumeria and bougainvillea here and there in the garden, thus adding variety.

(4) Landscaping on shores

As arrangements of rocks on shores around the pond, the garden looks like inelegant. To expand the present water plant area to give variety to shores and harmonize it with arrangements of rocks.

(5) To arrange positively ornamental objects in garden

The following garden furniture, and equipment are to be arranged:

- Stone lanterns as night-time lighting:

To arrange various kinds of lanterns suitable for places along go-round garden paths and provide lanterns in the pond for night-time water surface presentation. To provide and arrange symmetrically 4 bigger lanterns in entrance plaza. The lanterns do not require to be expensive or original. Any lanterns that common visitors consider to be something like symbols of a Japanese garden are thought of.

- Shishi odoshi (a bamboo pipe set on a rock and beats a piece of rock when it is full of running water. Originally a device to surprise and expel coming deer or wild boars, but nowadays it is a garden ornamental and they enjoy its intermittent sounds), Suikinkutsu (caves where running water rustles like playing Japanese harp), and Stone wash-basins:

To install the above at predominant points along garden roads and paths.

- Screen walls . . . H = 1.8 m made of concrete blocks

To provide as equipment surrounding entrance plaza and dry garden. This will make the (front) sight of Japanese Garden seen from the side of Chinese Garden set off to advantage.

- Wooden bridge . . . L = 5.0 m, W = 1.8 m

To span a wooden bridge without railings over a stream across the path from Guest House to Rest House.

- Others . . . To arrange benches covered with scarlet felt carpet, garden parasols, etc. as garden furniture.

6) Facilities Concerning Rest, Food & Refreshment, etc.

For more agreeable utilization of the Garden the following are contemplated.

(1) Agreeable utilization on rainy and fine days

To design so that visitors may move from entrance gate through buildings or corridors to Rest House, viewing the Garden whether it is rainy or hot. To equip rest rooms of rest corners on the way with air-conditioners to enable visitors to view the garden, killing the heat and drinking tea.

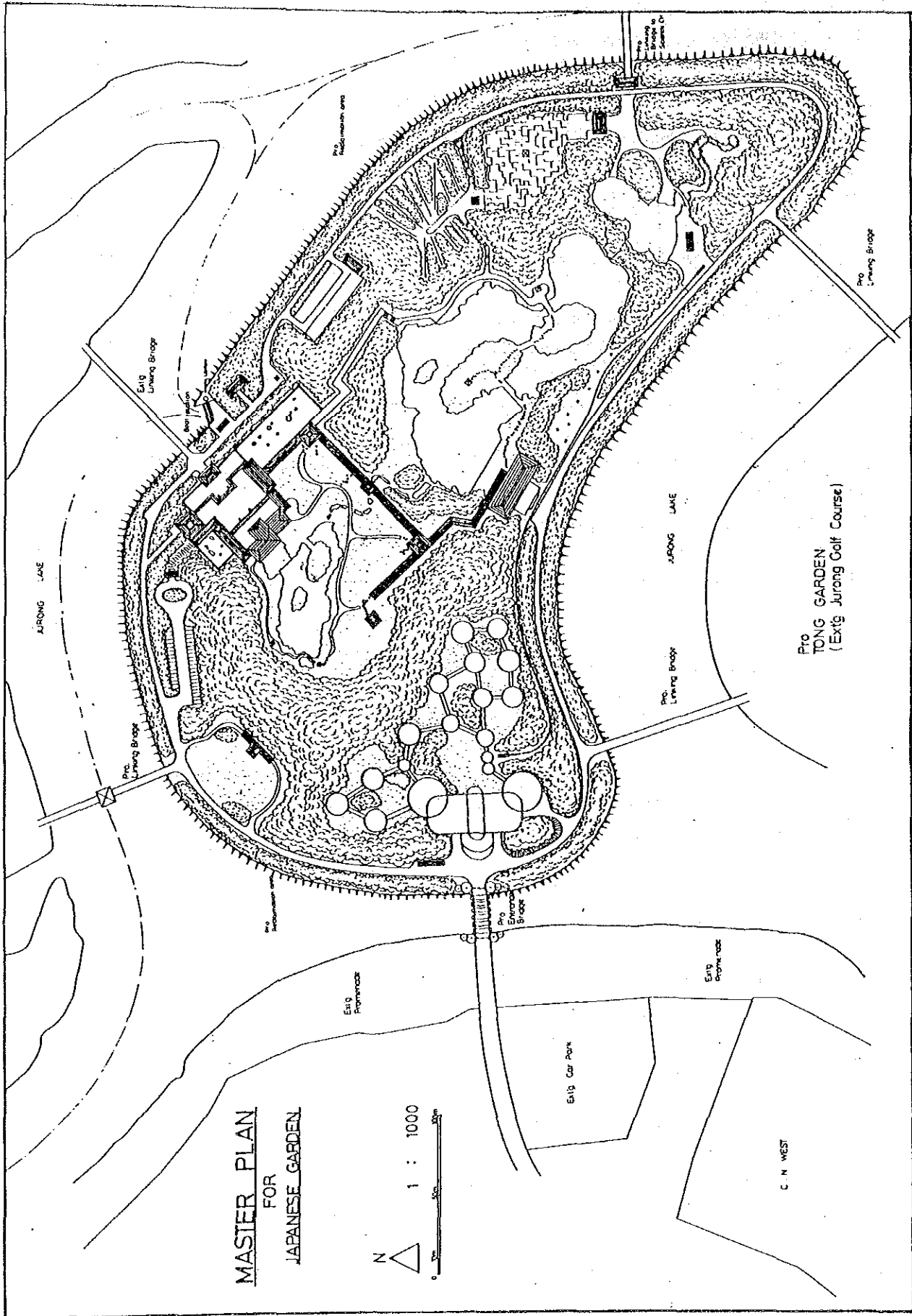
- (2) To establish a small-sized restaurant chiefly serving fast food (including Japanese food and a corner selling something Japanese (such as kites, Kokeshi dolls, umbrellas, parasols and others) within it. It would be difficult to invite a Japanese enterprise to set up and operate a genuine Japanese restaurant under the present circumstances and from the standpoint of profitability.

(3) Rearrangement of lavatories

To install clean Japanese style lavatories of high level in Guest House and Rest House. No independent open lavatories.

- (4) The present Rest House will be renovated and expanded to new Rest House (about 300 m<sup>2</sup>) which will be utilized not only as the rest house for Japanese Garden but also by visitors to areas other than the Garden. It is to be divided into 3 areas: light meal corner and lavatories, space for rest and administration office.

- (5) As a future plan it is considered that Chinese Garden, Japanese Garden and Tong Garden will be connected by an inter garden tram system to secure integrated and systematic utilization of those three gardens.



**MASTER PLAN  
FOR  
JAPANESE GARDEN**



#### 4-2 Estimated Expenses of Construction

##### PRELIMINARY ESTIMATES FOR IMPROVEMENT WORKS AT JAPANESE GARDEN (PHASE I)

1. Earth filling from contractor's own source and moulding to the required contours	\$330,000.00
2. R.C. bridge	270,000.00
3. Tarmac Road	110,000.00
4. Car park	40,000.00
5. Covered walk-ways (inclusive of pavillions)	581,000.00
6. Granite chipping footpath	50,000.00
7. 100 pieces of irregular shape granite stepping stone	5,000.00
8. 600 x 300 x 50 slates at open spaces and footpath	195,000.00
9. Screen wall	120,000.00
10. Proposed single story building for shops and kitchen	830,000.00
11. Wooden bridge	30,000.00
12. Renovation Works to Rest House	180,000.00
13. Renovation Works to Guest House	85,000.00
14. M & E Works (for AC, lighting & pump, etc.)	250,000.00
15. Soft landscaping works	300,000.00
16. Garden furnitures (stone lanterns, water basin, & umbrella, etc.)	100,000.00
	<hr/>
	\$3,476,000.00
Contigencies sum 5%	173,800.00
	<hr/>
Total Estimates:	<u><u>\$3,649,800.00</u></u>

This estimate was calculated based on Master Plan and upon consultation with Q.S. of J.T.C. Converted in yen it will amount to about 250 million yen.

#### 4-3 Business Project

Upon consultation with J.T.C. and J.E.C., the rearrangement of Japanese Garden and others is considered as follows:

1) Basic concept classified by business year

- The rearrangement will be completed in a period of 4 years ('87 - '90).
- Rearrangement of Japanese Garden will finish in 2 years.



- Rearrangement of areas other than Japanese Garden will be carried out during a period of 3 years.
- Reconstruction of Japanese Garden will be carried out in 2 phases, starting from areas around Japanese Garden followed by areas around Rest House.

Contents of Main Rearrangement, Classified by Business Year

- 1987 Levelling for subsurface foundation, Plantation, Installation of parking lot (Opening of Japanese Garden area). Relocation of dry garden.
- 1988 Rearrangement of area around Guest House (Area around Rest House is open)
- Rearrangement of Infant Garden (1)
- 1989 Rearrangement of area around Rest House (Area around Guest House is open)
- Rearrangement of Infant Garden (2)
- Construction of 2 linking bridges
- 1990 Rearrangement of area other than Japanese Garden (Japanese Garden Zone is open)
- Construction of 2 linking bridges
- Introduction of tram system
- 1991 Three gardens are all open.

Annual Program

Year	Re. other Facilities in Jurong District	Construction Program	Management Program
'87		Levelling (Reclamation, Artificial hill). Relocation of dry garden. Revamp of pond pump. Relocation of nursery. Repair of garden roads & paths. New installation of parking lot. Surrounding plantation. Screening plantation.	Making out of group utilization promotion system, etc. Publicity. Installation of advertisement boards. Preparation of posters. Holding of own events, medium- & small-sized third parties' events.
'88	Opening of Planetarium Relocation of Jurong Golf Course	Rearrangement of area around Guest House. Repair and installation of Entrance Gate. Repair & construction of garden roads & paths. Installation of screen walls & corridors. Rearrangement of Infant Garden-1.	Appointment of persons in charge of holding events. Preparation of pamphlets & guide-books. Issue of direct mails. Holding of own events, large-, medium- & small-sized third parties' events. Putting publicity & advertisement in papers. Formation of Japanese Culture Promotion Association.
'89	Completion & starting of MRT Chinese Garden St.  Starting of Monorail between Bird Park MRT St. and Chinese Garden St. (proposal)	Rearrangement of area around Rest House. New construction of linking bridges (Japanese Gardens & Chinese Garden). Rearrangement of trunk roads. Installation of new rest house. Rearrangement of Infant Garden-2. Improvement of water course. Construction of new bridge (in Japanese Garden & Chinese Garden).	Appointment of persons in charge of business & investigation. Business & investigation activity start. Holding of Utilization Promotion Conference. Formation of Volunteers' Organization. Training Course for receptionists of JEE.
'90	Tong Garden opens (expected)  Crocodile Farm opens (expected)	Installation of Tarzan Pulley Construction of outdoor gallery. Introduction of new mini-S.L. Construction of new bridges (in Japanese Garden & Science Center Introduction of tram). Construction of new bridges (in Japanese Garden & Tong Garden).	

## **5. Maintenance and Management Programs**

### **5-1 Maintenance Programs**

- 1) Maintenance (Charge) of Plants
- 2) Maintenance of Buildings and Structure
- 3) Maintenance (Charge) of Animals

### **5-2 Management Programs**

- 1) Events
- 2) Development of Merchandise
- 3) Publicity and Propaganda
- 4) Business Activities
- 5) Management Organization

## 5-1 Maintenance Programs

### 1) Maintenance (Charge) of Plants

To propose level of charge and techniques to maintain shapes, heights and width of vegetation in accordance with aims of plantation.

To maintain Japanese Garden after roughly dividing it into 3 regions:

- (1) Japanese Garden proper
- (2) Proposed Infant Garden, Maze (labyrinth), etc.
- (3) Buffering forest to surrounding vegetation

The region mentioned in (1) is to be maintained and charged by techniques of high level such as pruning, trimming, etc., rendered by high levelled technicians who studied charge of Japanese gardens. Efforts to maintain shapes of trees suitable for Japanese Garden is to be made.

The region mentioned in (2) is to be maintained and charged by techniques of common level of technicians who studied charge of common level.

The region mentioned in (3) occupies area corresponding about 1/10 to 1/20 of (2) and to be maintained and charged by unskilled workers, using mostly machines: leaving natural forests as they are as possible and keeping shapes of trees untouched to seduce creatures such as insects and birds.

## 5-2 Management Programs

### 1) Events

#### Customary Events

JEE celebrates repeatedly and successfully in Chinese Garden. New Year Festival from January 29 to February 1 and Lantern Festival from 2 to 4 September, attracting about 100 thousand admittants every time. Taking this fact into consideration, Japanese Garden contemplates two customary events, once in a period from May to June and that from October to November respectively, namely, between the above-mentioned two JEE festivals. Besides, JEE contemplates to hold medium or small-sized event once in a month except the above months of customary events.

## Kind and Contents of Events

One of attractive features of the proposed Japanese Garden is forests and it aims at inviting as many infants and children. Taking this fact into account, to propose events that parents, aged people, children can participate in using their own hands and feet, and putting emphasis on children. For example, parents and children make something together or play together. Aged people teach children how to make playthings or how to play or play with them. They experience and learn together wonders and value of life of plants and animals. To propose events availing of the techniques of charging plants which JEE especially has been developing for a long time.

## Event Managing Organization

Planning and management of events are to be carried out under the auspices of JEE and technical and detailed matters are to be proceeded with assistance of sponsors, Japanese Residents Association and various organization. For planning and management of large-sized event it is necessary to coordinate assistance and cooperation from various sources. Therefore, JEE is to set up a management committee and act as secretariat thereof.

## Size and Period of Events

Large-sized festivals which are celebrated twice a year such as Children Festival and Japanese Festival include medium or small events for about one week taking into account age, taste, etc. to attract widely ranged participants.

Medium and small events such as Marathon race rally which takes place eight times a year and Green Adventure are to be held once or twice for one or two days in weekend, limiting participants.

Annual schedule of events is shown in a separate page.

## Events by Third Parties

To promote utilization of the Garden, to offer it as event ground to enterprises, schools, kindergartens, etc. and as function garden to hotels, groups, etc., to publicize positively to promote utilization, and urge to use as supplementary ground of large-size events in Chinese Garden.

## Services to Visitors

To carry out plantation in memory of entrance and graduation of kindergartens, primary or middle schools, and of marriages, as part of services to visitors, and to replenish present shortage of trees in the Garden. Seedlings are nursed and provided by JEE. To improve utilization of the Garden by publicizing necessity of plants and endeavoring to spread proper methods of nursing trees and plants to the public.

### Annual Schedule of Events

(Planned according to the Calender of Singapore in 1987)

Date	Name of Events	Place
4/17 (Holiday)	Marathon race rally	Japanese & Chinese Gardens
5/1 – 5/3	Green Adventure	Entire Japanese Garden area
5/29 – 5/31	Children's Festival	Entire Japanese Garden area
7/5	Sketch/Photo Contest	Outdoor Gallery
8/9 – 8/10	Bonsai Course (Exhibition & sales)	Guest House
9/2 – 9/4	Lantern Festival	Chinese Garden
10/21 (Holiday)	Family Computer Contest	Guest House
11/22	Floriculture Course & Garden Stuff Fair	Guest House
12/20 – 12/27	Japanese Festival	Entire Japanese Garden area
88/1/1 (Holiday)	Rice-cake Making Party	Guest House
1/29 – 2/1	New Year's Festival	Chinese Garden
3/14 – 3/15	Fish Catching Party Exhibition of Carp	Dabbling Plaza

**Details of Japanese Festival**

Item	Children's Festival	Japanese Festival
Period	5/29 – 5/31	12/20 – 12/27
Events	Fireworks display Bon dance party Haunted house Firefly hunting Water melon crushing Cola quick drinking Beer quick drinking Stalls Kiddy land Children's athletic meeting	Making ice or snow images X'mas trees Snowy scenes Students' band Tea ceremony Flower arrangement Tea service in field Japanese plays (bamboo horse, bamboo dragonfly) Stalls Home-made chocolate course
Place	Entire Seiwa-En	Entire Seiwa-En
Promoter	IEE, JTC	IEE, Japanese Embassy, JTC
Cooperations, sponsors, etc.	Japan Chamber of Commerce & Industry in Singapore Japanese Residents Association Coca-cola & other drink manufacturing Cos. Suntory & other beer brewery Cos. Pokka Center & other fast food caterers Kindergartens & primary schools Mass media such as newspaper publishers Toy making Cos.	Japanese Residents Association Japan Chamber of Commerce & Industry in Singapore Jurong Chamber of Commerce & Industry Japanese Restaurants' Union Singapore University Mass media such as newspaper Fujiya & other confectionery makers
Publicity & propaganda	Newspapers (national & local) TV & radio Sending pamphlets to schools & clubs Posters, Display at MRT stations, housing complexes, etc. Hanging in MRT trains	Newspapers (national & local) TV & radios Enterprises' newspapers Bulletin of Japanese Residents' Association Posters, Display at MRT stations, housing complexes, etc. Hanging in MRT trains

2) Development of Merchandise

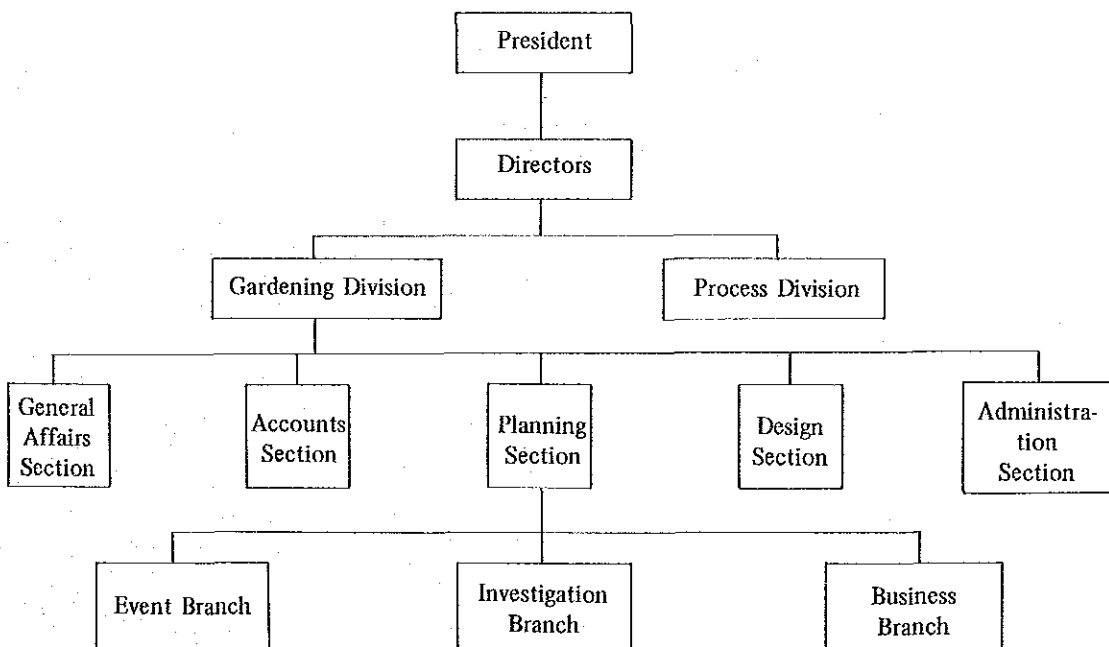
No merchandise to commemorate visiting of Japanese Garden is sold at present in Rest House. Therefore, it is proposed to develop merchandise unavailable in other places, such as small articles of Japanese style, illustrated post cards of Japanese Garden and T-shirts with Japanese characters, exhibit and sell them.

To produce original glasses for soft drinks and beer, sell contents and glasses in set for the first time and thereafter contents at discounted prices. Glasses brought home serve as souvenirs of Japanese Garden as well as advertisement.

3) Management Organization

In the field of hard maintenance of plants, buildings, structures, etc. successful performance and know-how were obtained by carrying out maintenance of Japanese and Chinese Gardens. With the rearrangement of both gardens, it is necessary to enrich soft maintenance such as publicity propaganda and business in order to promote utilization. For that purpose, an organization to cope with the above matters is required. It is proposed to set up Planning Division in charge of three sections of events, business and investigation respectively, and accept affairs from other organization in order to obtain information overseas and in Singapore. It is desirable that the staff of new sections is limited as possible but capable.

Organization Chart (Proposal) is as shown hereunder:





## 6. Future Problems and Proposals

### 6-1 Conclusions and Proposals

- The Government of Singapore recently endeavours to complete, renovate or rearrange tourist and recreation facilities in the country to earn foreign currencies.
  - Especially, the area around Jurong Lake where Japanese Garden is situated is a central park, so to speak, in the entire Jurong district, including substantial facilities such as Chinese Garden, Science Center, Planetarium, Golf Course.
  - The above facilities are now being reorganized to become active and attracting, and it is considered that those would become places of recreation and relaxation of not only tourist but also local residents.
  - The number of visitors to Japanese Garden is about 1/6 of that to Chinese Garden and the financial figures are in the red owing to higher expenses of operation and administration. To maintain Japanese Garden as it is will not only cost J.T.C. too much but also threaten to affect negatively the development of sightseeing and recreation in all Jurong district.
- (1) There are the following serious problems concerning Japanese Garden: Too large space of the garden, insufficient services facilities, and inadequate spaces for eating, drinking and resting, and, no preparations for daytime utilization and rainy days.
- (2) Main points of renovation of Japanese Garden
- To reduce area of Japanese Garden and increase points worth viewing
  - To cover paths with roofs (corridors)
  - To enable to approach garden entrance by car
  - To rearrange event ground
  - To convert buildings into Japanese styles
  - To introduce facilities aiming at children and infants in areas other than Japanese Garden

- To construct a bridge between Japanese Garden and its surrounding areas
  - To complete business activities for events
  - To enrich maintenance techniques of plants and facilities of Japanese Garden
- (3) Present conditions of renovation and rearrangement of tourist and recreation facilities in Jurong district

- MRT Chinese Garden Station

Now being rearranged and expected to open early '89.

- A linking bridge from MRT Chinese Garden Station to Chinese Garden

Now in contemplation. Will complete when the above station opens.

- Renovation program of Chinese Garden

Now in contemplation. Will be carried out in '88 and '89.

- Linking bridge between Chinese Garden and Japanese Garden completed. Open in July '89.

Another bridge is in contemplation.

- Linking bridge between Japanese Garden and Science Center is in contemplation.

- Tong Garden to be constructed within present Jurong Park is now in contemplation.

As mentioned above, various facilities and linking bridges connecting them are being rearranged or in contemplation, aiming at the opening to traffic of MRT in '89. It is desirable that the renovation of Japanese Garden will be finished by '89 at the latest.

#### (4) Proposals

There are many troubles when a Japanese garden is landscaped as if it were in Japan, under peculiar circumstances of the tropical zone. Present Japanese Garden that elapsed 14 years since the opening varifies this fact.

In spite of this, however, Japanese Garden must become more popular and loved as a place for showing Japanese culture, as the rearrangement and construction of other facilities in the district are going on, setting the goal at 1989.

For those purposes, it is necessary as a first step to convert the present Japanese Garden into a new garden which adapts itself to the local environmental conditions thus making the garden understandable to Singaporeans and tourists, and also enabling them to view the Garden agreeably in the midst of the extreme heat. It is also important to promote their understanding and familiarity, by their utilizing the Garden for holding events, gatherings, parties, etc.

Therefore, future problems will be as follows:

1. Making out of an execution design which fully exhibits characteristics of a genuine Japanese garden though the garden is small and transfer of techniques required by the design.
2. Guidance (during the construction) of gardening techniques and transfer of design ideas.
3. Guidance of garden maintenance (especially plant maintenance and transfer of techniques required).
4. Guidance of event planning and business activities (especially overall management of tourist and recreation facilities in the entire Jurong district), and transfer of techniques required.

## 6-2 Future Investigation

### 1st Dispatch

Guidance of execution design and transfer of techniques

Period '87/11 - 88/1 (3 mos.)

1 landscape architect

1 architect

3 persons

1 management specialist

## 2nd Dispatch

Guidance of design and maintenance, and transfer of gardening techniques

Period '88/4 – 89/3 (1 year)

1 landscape architect

2 persons

1 architect

## 3rd Dispatch

Guidance of garden maintenance and management, and transfer of techniques

Period '89/4 – 91/3 (2 years)

1 gardening technician

2 persons

1 specialist in management of  
events, etc.

## Training of counterpart partners

Training on the spot of garden maintenance and management  
(plant & Equipment maintenance)

Period '89/4 – 5 (2 mos.)







JICA