

5-2-4 Structural Design and Materials

(1) Structural Design and Material Selection Policy

The selection of the type of structure and materials for the construction is a factor of primary importance which influences not only the realization of a comfortable architectural space, the external view, the construction cost and term, but also the very architectural design.

The type of structure and materials for the Project are selected in conformity with the following selection policy.

- 1) The Center has an essentially public character, and special emphasis shall be put on safety and durability.
- 2) A comfortable architectural space shall be specially secured from humidity and salt injury due to the climatic condition and location of the site.
- 3) A maintenance-free system shall be incorporated.
- 4) In principle local construction methods and local materials should be adopted.
- 5) The construction term and cost should be reduced as much as possible.

The structural design and the materials to be incorporated in the Project are described as follows:

(2) Structural Design

The Kingdom of Tonga is located in an oceanic sub-tropical seismic zone, and damage caused by hurricanes and earthquakes has been recorded very frequently in the country. Therefore, it is necessary to pay special attention to the factors of wind load and earthquakes.

1) Earthquake load

$$Q_i = C_i \cdot W_i$$

$$C_i = Z \cdot R_t \cdot A_i \cdot C_o$$

$$1.0 \cdot 1.0$$

Standard shearing force coefficient $C_o = 0.3^*$

* The Japanese standard value adopted in primary design is 0.2 or more, but in this project the standard value is increased by 50% because earthquakes of considerable intensity occur very frequently in Tonga.

2) Wind load

$$\text{Wind velocity pressure: } q = 60 \sqrt{V/h}$$

(building height $h < 16.0 \text{ m}$)

Assuming $h = 13.5$ we have:

$$q = 220.45 \text{ kg/m}^2$$

On the other hand, we have:

$$q = \frac{1}{2} \rho v^2$$

where:

$$\rho = \text{Air density } 0.113 \text{ kg} \cdot \text{s}^2 \cdot \text{m}^{-4}$$

$v =$ Wind velocity

Since the maximum wind velocity recorded is approximately 61 m/sec., we have:

$$q = \frac{1}{2} \times 0.113 \times 61^2 = 210.24 \text{ kg/m}^2$$

The design wind velocity pressure is assumed to be

$$q = 220 \text{ kg/m}^2 \text{ (Exhibition building).}$$

3) Bearing value of soil

The maximum figure of the permissible bearing value is 8.0 t/m^2 , but the design bearing value is 5.0 t/m^2 for the sake of safety. The 5.0 t/m^2 figure is equal to the coefficient for Kanto loam.

4) Fixed load

The fixed load is obtained from the calculation of the dead weight of the structural materials and finishing materials.

5) Applied load

The applied loads will conform to the Architectural Standards Law of Japan.

(3) Structural Type

1) RC structure

RC structures are popular in Tonga, and the aggregate consists of crushed coral limestone. According to a report by the Ministry of Works, the compressive strength of concrete is approximately 246 kg/cm². It is necessary to consider countermeasures to prevent noxious effects of salt contained in the aggregate. The full-scale adoption of RC structure is not appropriate in this project, if the influence of form work, reinforcing bar work, etc. on the term of work is taken into consideration; partial use of RC structure is feasible.

2) Steel structure

Steel structure seems most appropriate from the points of weight, durability of the structure and shortening of the term of construction, and furthermore, it is advantageous in dimensional accuracy. In reality, however, it has demerits such as corrosion due to the salty air of this oceanic country and difficulty in procurement of materials in Tonga.

3) Concrete block structure

The adoption of concrete block structure is advantageous because of the availability of material in Tonga which will be effective in reducing the term and cost of construction.

Nevertheless, it is not appropriate for construction of wide structures. Therefore, its partial use to construct small buildings seems to be applicable.

4) Wooden structure

All timber used in Tonga is imported with the exception of coconut timber and, therefore, it is not appropriate due to the problems associated with the procurement of materials. Furthermore, timber structure has demerits in connection with durability and the risk of fire. In reality, however, its use in roof framing of small buildings is feasible.

(4) Construction Materials

Construction Materials of each building element shall be as listed below.

Foundation:	Reinforced concrete foundation on gravel of crushed coral limestone
Ground floor:	Trowel finished reinforced concrete slab on gravel of crushed coral limestone
1st floor:	Trowel-finished concrete slab on steel deck plate
Column and Post:	Steel and/or wood
Beam and Girder:	Steel and/or wood
Purlin:	Steel and/or wood
Roof:	Asphalt shingle on asphalt roofing felt
Wall:	Reinforced concrete, reinforced concrete block masonry and wood
Ceiling:	Exposed grid on T-1 plywood sheathing
Window:	Glass louver window with aluminum frame
Door:	Steel door and plywood flush door with oil paint finish

In view of the aforesaid considerations, an RC foundation has been selected for large scale buildup with steel to be used for other parts of the main structure. It has been decided to adopt a mixed structure consisting of steel and timber for small scale buildup.

5-2-5 Utilities Design

As far as the materials relating to the various kinds of utilities at the center, there is no local production, and their procurement relies totally on importation. The Ministry of Works and the Material Bureau, as well as individual markets and construction materials stores, contain stocks of a relatively wide variety of equipment and parts, most of which are imported from New Zealand. It goes without saying that the facilities will be designed in such a way as to minimize the running costs, but furthermore, priority will be given to the adoption of articles popularly used in Tonga, in order to facilitate maintenance. The proportional cost of utilities in this project is very low compared with similar construction in Japan, but the simplification of the system, the convenience of use and durability will be given top priority in view of the public character of the buildings in question.

(1) Design of Water Supply, Drainage and Sanitary Facilities

The running water pipe will branch off the mains located in the road in front of the construction site to supply water directly to the required places. No elevated tank will be constructed in this project, because the running water facilities will be constructed only in the one-storied parts of the center. The Tonga Visitors Bureau is a one-storied building, and all taps therein are direct-supply type ones. It is presumed that the direct-supply system is sufficient, in view in the 6-inch diameter of the mains of the front road and the water supply volume of Nuaku'alofa.

As mentioned in the "Situation of the Infrastructure," there is no public sewerage in Tonga, and night soil is disposed of by means of the infiltration system. The sedimentation chamber and the infiltration chamber are designed in accordance with local standards. A separate system will be adopted to process sanitary sewage and miscellaneous drainage, which will be discharged in the septic chambers located near the lavatories.

(2) Gas Facilities

Propane gas cylinders will be installed at places requiring gas service, such as kitchens, kitchenettes, etc. The centralized supply system has not been adopted because it requires lengthy gas piping and, furthermore, there are not many places requiring gas service. Individual piping with gas taps located at the required places will be provided instead.

(3) Design of the Exhaust System

A wall-mounted type exhaust fan will be installed in the lavatory and shower rooms. Natural exhaustion of hot air through the vent in the skylight of the roof will be provided in the exhibition room because it has a high ceiling and heat is expected to be accumulated therein. A roof fan will be provided in each inhabited room.

(4) Design of Electrical Facilities

1) Design of lighting and outlets

Electricity will be drawn from the Salote Road side into the administrative building and then it will be distributed to the various building.

a) Exhibition room building

Natural light will be used for overall lighting because in principle the lighting system will not be used during the night, and only subsidiary lighting by means of fluorescent lamps will be provided in order to secure 50Lx on the floor surface. Lighting of the exhibited items will be provided by spotlights. Wiring ducts will be hung at a position of 1,500 mm from the wall surface and 3,000 mm from the floor, and the required number of free-arm type spotlights of 100 W will be provided (1 unit/2 m in average) in order to cope with changes in the exhibition arrangements.

Upside-down-trapezium type fluorescent lamp fixtures of 40 W will be provided in the storerooms in order to secure an average illuminance of 100Lx.

b) Classroom building

Overall lighting of the dance hall will be provided by 250 W x 6 lamp highlights, with 4 more subsidiary spotlights, because it is a multipurpose space to be used for other events as well.

An average illuminance on the order of 150Lx will be provided in the other classrooms by fluorescent lamps. The minimum number of outlets will be provided in order to satisfy the requirements of slide projectors and other equipment.

c) Demonstration building

In principle, the demonstration building will be provided with fluorescent lamp lighting fixtures in order to secure an average illuminance on the order of 150Lx in each booth. The number of outlets will be kept to a minimum.

d) Administrative building

In principle, fluorescent lamp fixtures installed directly on the ceiling will be provided in the administrative building, in order to secure an average illuminance of 150Lx in each room.

The number of outlets will be approximately 2 in each room.

e) Amphitheater

Eight downlights in total will be provided under the pit eaves, and 3 spotlights for stage lighting will be provided from the pit eaves as well. As for the outlets, 4 waterproof type units will be provided in the stage, in addition to one at the center of the pit for the projector.

f) Exterior

Four downlights will be provided under the eaves of the gallery. The installation of outdoor lamps and 4 gate lamps will be taken charge of by the Tongan authorities.

2) Telephone system

The Tongan side will bring the telephone line to the MDF. The pipe wiring will be provided by the Japanese side. The external telephone line will be drawn into the administrative building. An intercom will be installed in the administrative building, exhibition building and demonstration building, respectively, totaling 3 units.

3) Lightning arrester

Hard-drawn copper wires will be installed on the roof top of the exhibition building and classroom building in order to function as a lightning arrester, because there are no tall buildings in the area.

5-2-6 Equipment

The equipment to be installed in this center is for the purpose of recording by audio-visual means, aspects of the traditional culture of Tonga such as handicraft techniques, canoe manufacturing techniques and oral traditions, that are being lost, as well as songs, dances, etc., which are changing with the changes occurring in lifestyle, in order to preserve and make them public.

Taking the actual state of things Tonga into consideration, the following equipment will be adequate to satisfy the said functions.

- 1) Video equipment
- 2) Photographic equipment
- 3) Projectors
- 4) Recording and playback equipment
- 5) Video and audio synchronizing equipment
- 6) Copy equipment

The functions and other relevant details of each kind of piece of equipment are described in the following.

(1) Video Equipment

Video equipment can be used to record in the most accurate way the handicraft techniques and construction techniques that are being lost, as well as songs and dances that are changing. The list of articles required to make the most of this kind of equipment and their details are described in the following:

- | | |
|------------------|---------|
| a) Video camera | 1 unit |
| b) Portable deck | 1 unit |
| c) Battery packs | 2 units |

One portable deck and two battery packs are regarded as necessary in order to secure sufficient mobility when filming cultural activities and other objects.

- d) Charger 1 unit
- e) TV set (26-inch) 1 unit

A TV set with a large screen is required because it will be used in the education & training building by a large number of viewers. It is thought that a 26-inch TV set is appropriate for this purpose.

(2) Photographic Equipment

Video equipment is most appropriate for recording activities of various kinds in the most accurate way but, on the other hand, photographs and slides are also very effective in connection with PR activities and diffusion activities. Details of the required photographic equipment are described in the following:

- a) 35 mm single-lens reflex camera (program type) 1 unit
More sophisticated equipment exists (such as 6 x 6 cameras) that make it possible to obtain very sharp pictures, but they are regarded as oversophisticated, and, therefore, an ordinary 35 mm single-lens reflex camera more appropriate for the needs of the Center.

Furthermore, it is concluded that a program type model with simple operation is more appropriate, in order to reduce the risk of failures when photographing.

- b) Rechargeable flash 1 unit
The flash is necessary to cope with insufficient illuminance when shooting.

- c) Carrying case 1 unit
The carrying case is necessary to protect and to carry the items a) and b).

(3) Projectors

- a) 35 mm slide Projectors 2 units
As mentioned above, photographs and slides are not as attractive as video equipment because they are unable to play back the actual situation, but on the other hand they have the advantage of being open to a large number of viewers. Furthermore, it is very easy to carry the equipment to provincial areas. Such being the case, it is concluded that the coupling of two units of automatic feeding type slide projectors is the most appropriate alternative to make the most of the advantages and to make up for the demerits of this kind of equipment.
- b) 16 mm film projectors (including accessory equipment) 2 units
These movie projectors will be used to project films of cultural activities and other subjects possessed by the Government of Tonga in the education & training building and exhibition of this center.
- c) Screen 2 units

(4) Recording and Playback Equipment

- a) Cassette tape recorder 2 units
The cassette tape recorder, to be used in combination with (3) a), is regarded as necessary to record precious cultural activities and other subjects of interest, in order to build high quality information.
- b) Amplifier 1 unit
The amplifier will be used in combination with (4) a) in order to make up for any power insufficiencies when presenting recorded materials to an audience of up to 100 persons.
- c) Loudspeakers 2 units
The loudspeakers are accessories of b).

(5) Video and Audio Synchronizing Equipment

- a) Audio-visual dissolve units 2 units

This equipment is necessary for co-ordination in the operation of (3) a) and (4) a).

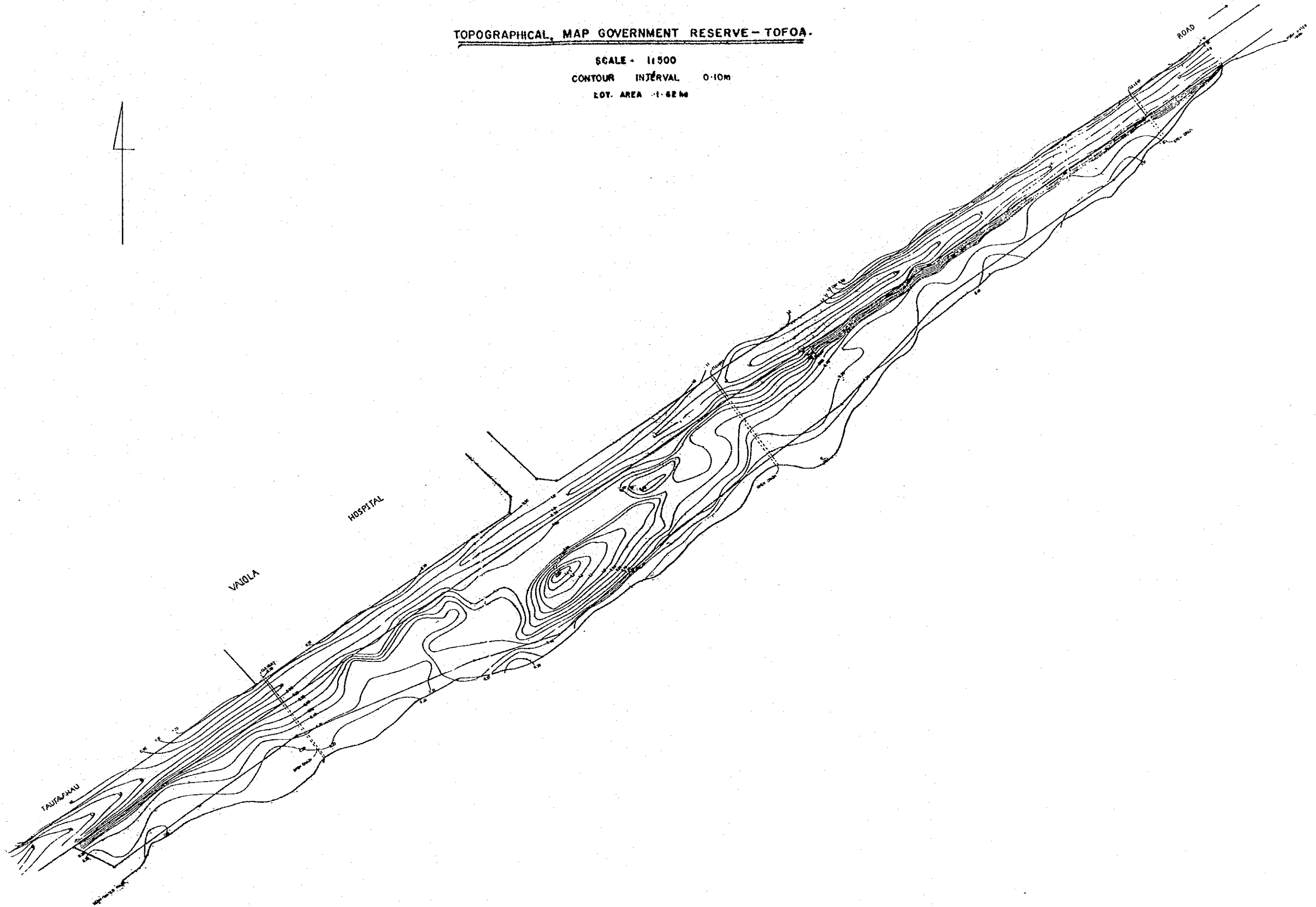
(6) Photocopy Equipment

- a) Copy machine

The photocopy machine is regarded as necessary in connection with the operation of the center, information sorting, and editing work.

TOPOGRAPHICAL MAP GOVERNMENT RESERVE - TOFOA.

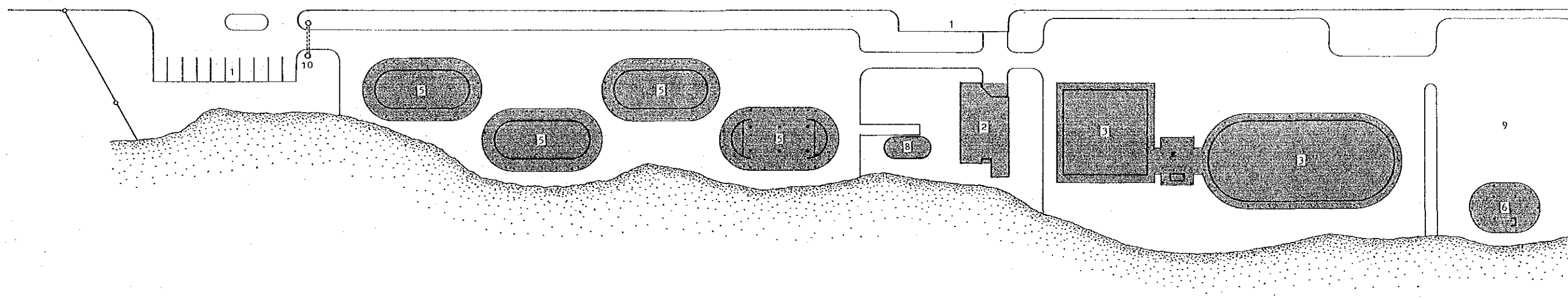
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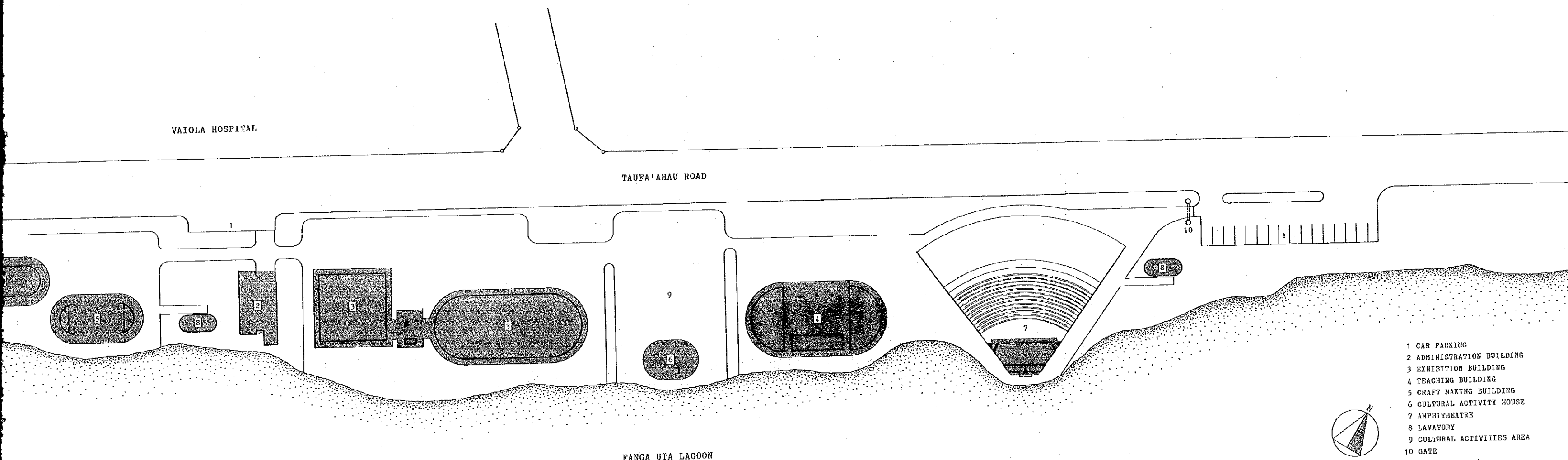


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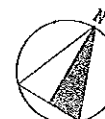
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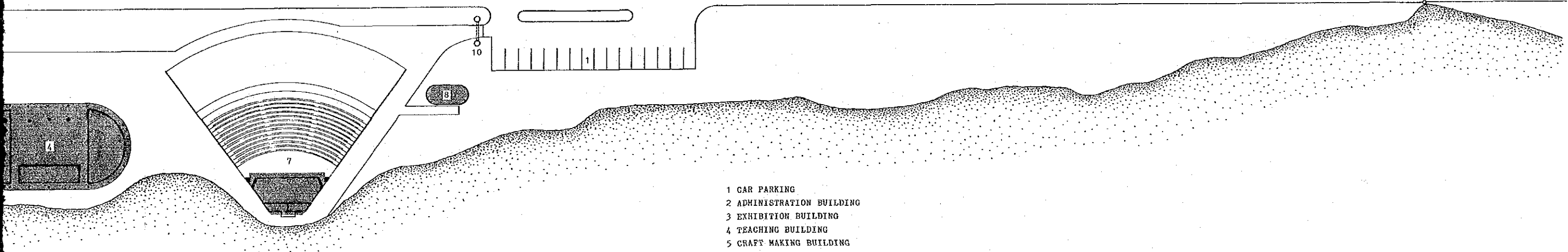
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- 3 EXHIBITION BUILDING
- 4 TEACHING BUILDING
- 5 CRAFT MAKING BUILDING
- 6 CULTURAL ACTIVITY HOUSE
- 7 AMPHITHEATRE
- 8 LAVATORY
- 9 CULTURAL ACTIVITIES AREA
- 10 GATE



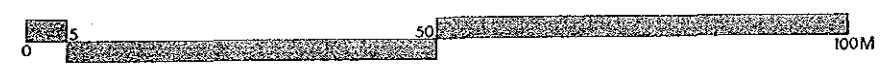
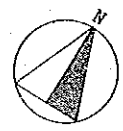
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PRESERVATION AND EXTENSION
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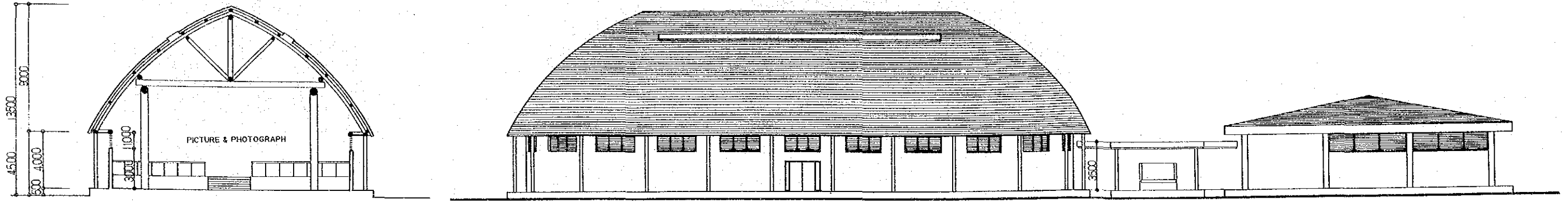
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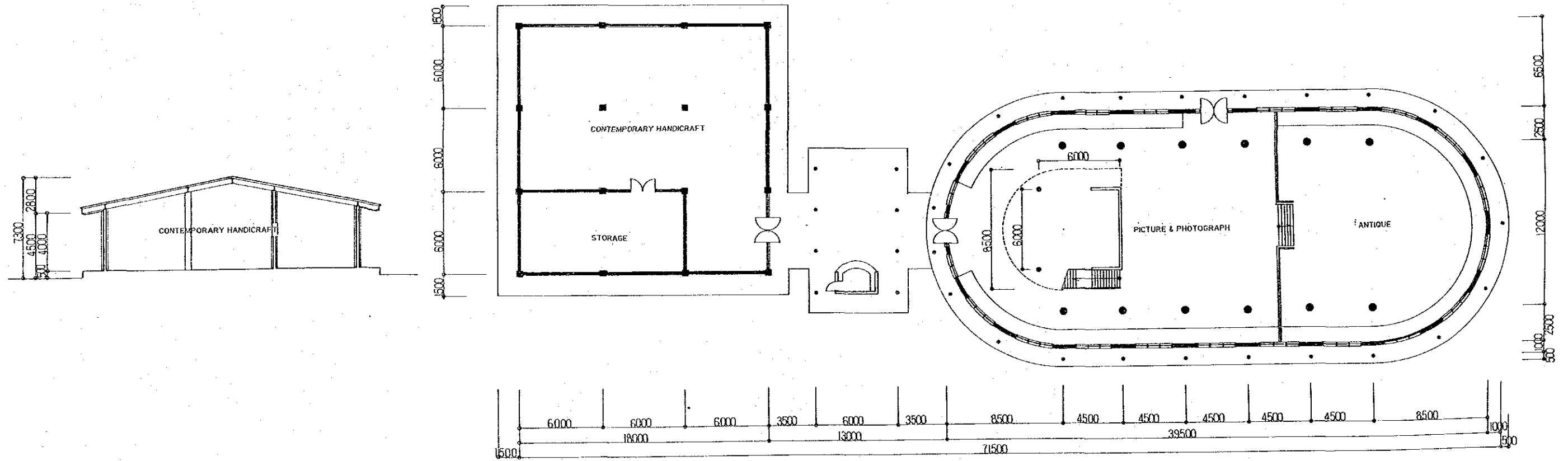
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- 6 CULTURAL ACTIVITY HOUSE
- 7 AMPHITHEATRE
- 8 LAVATORY
- 9 CULTURAL ACTIVITIES AREA
- 10 GATE



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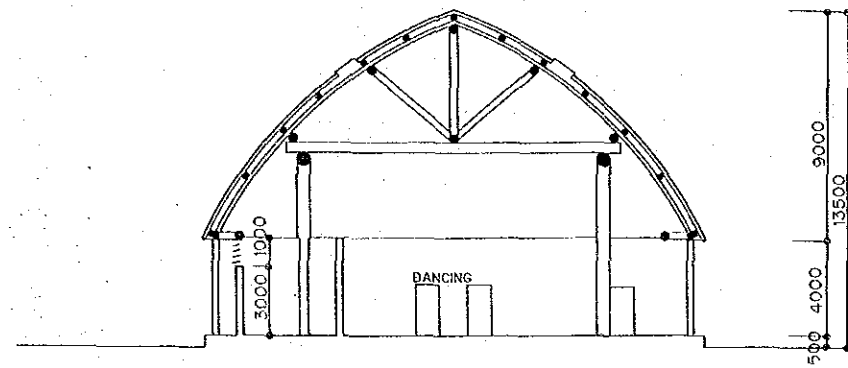
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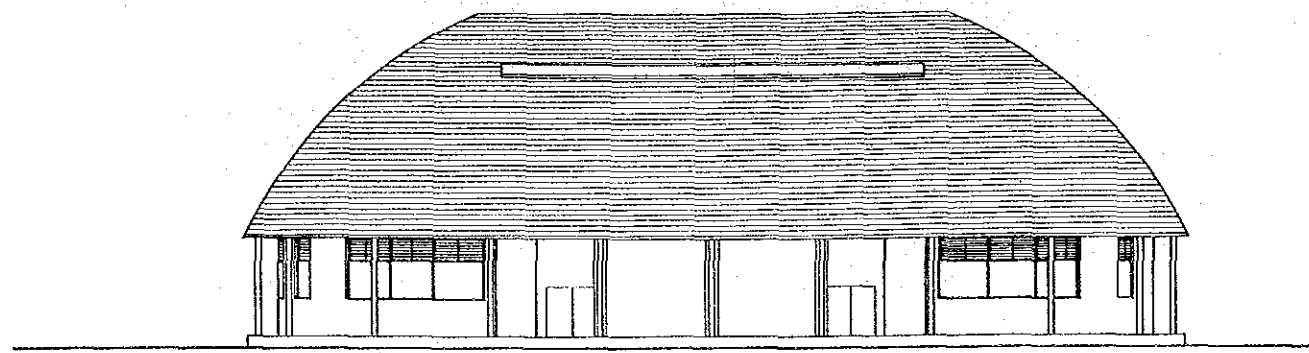
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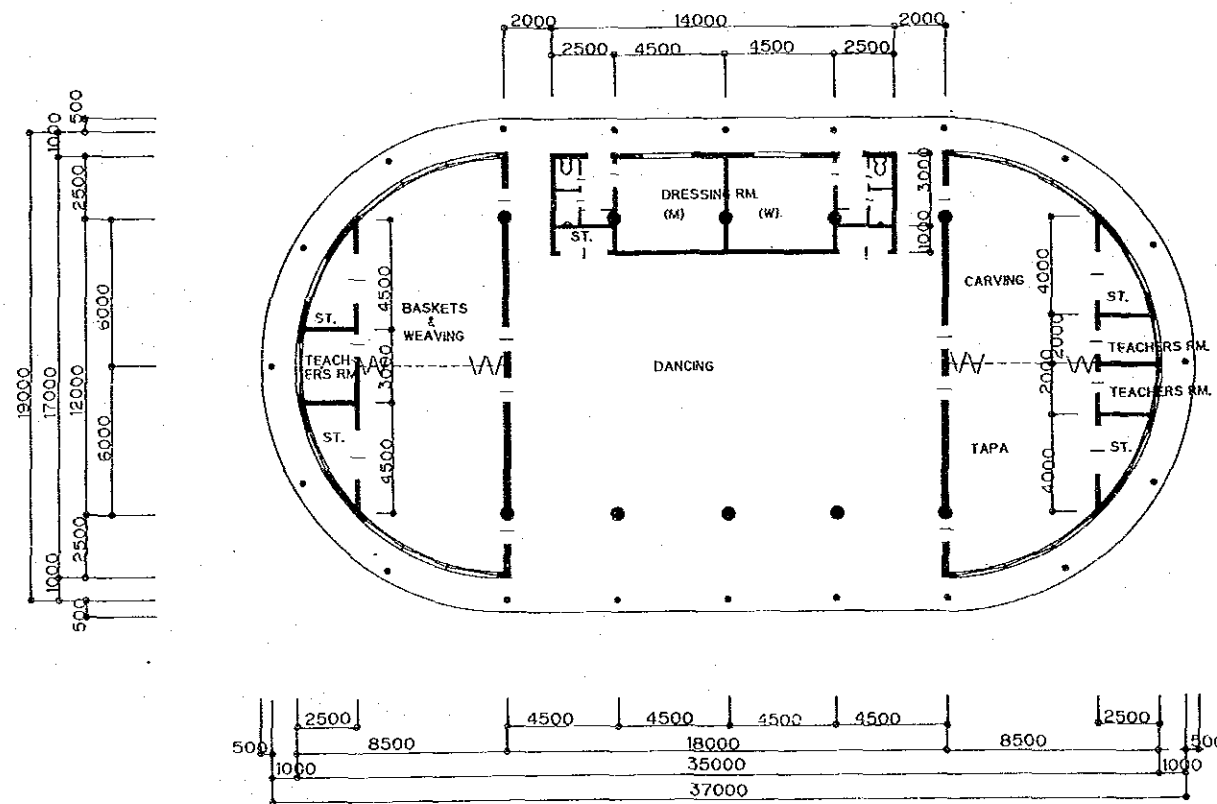
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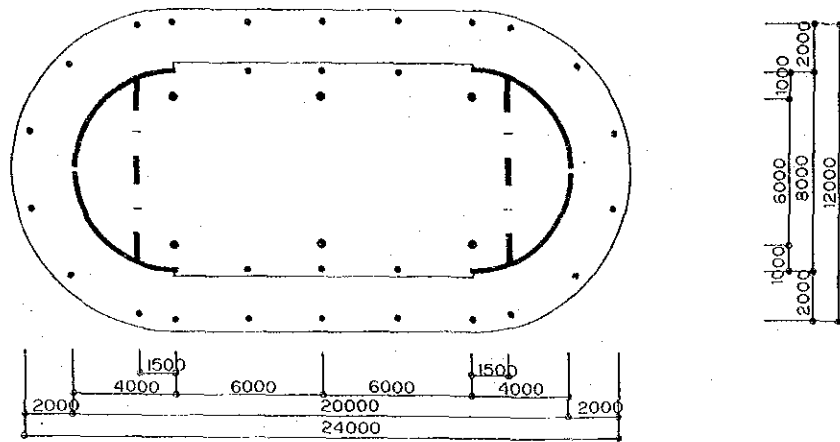
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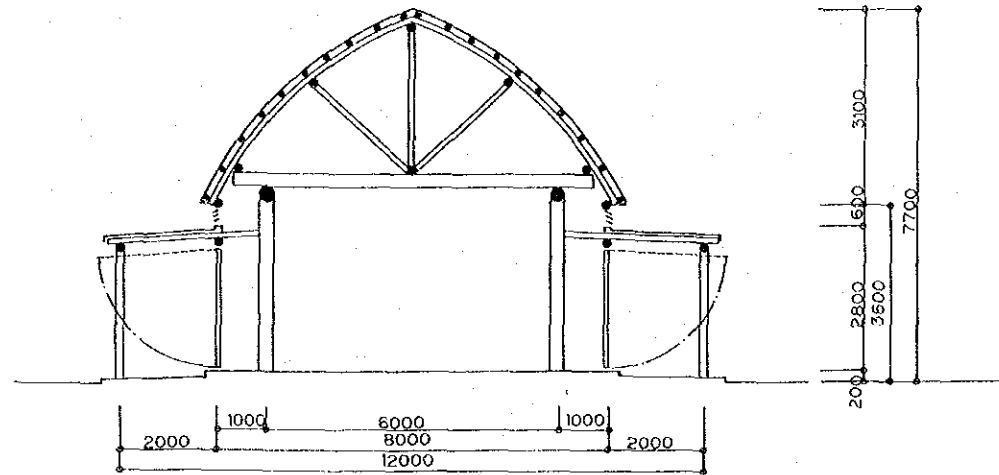
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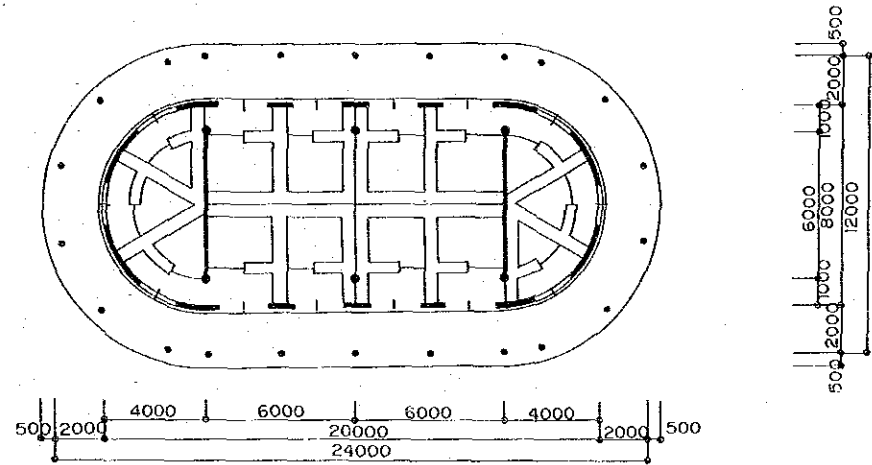
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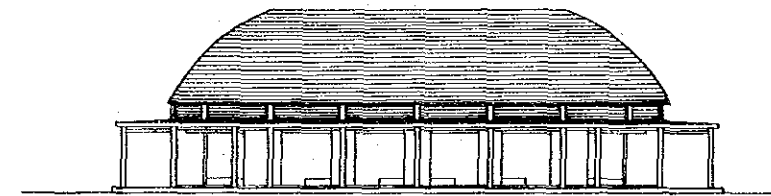
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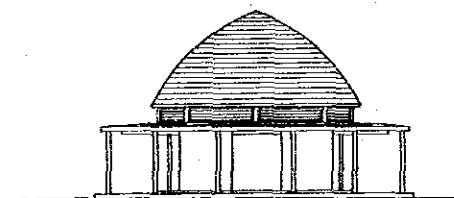
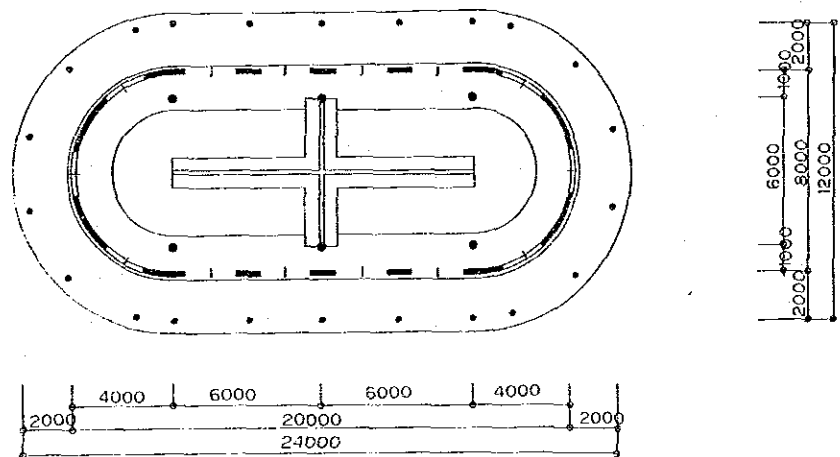
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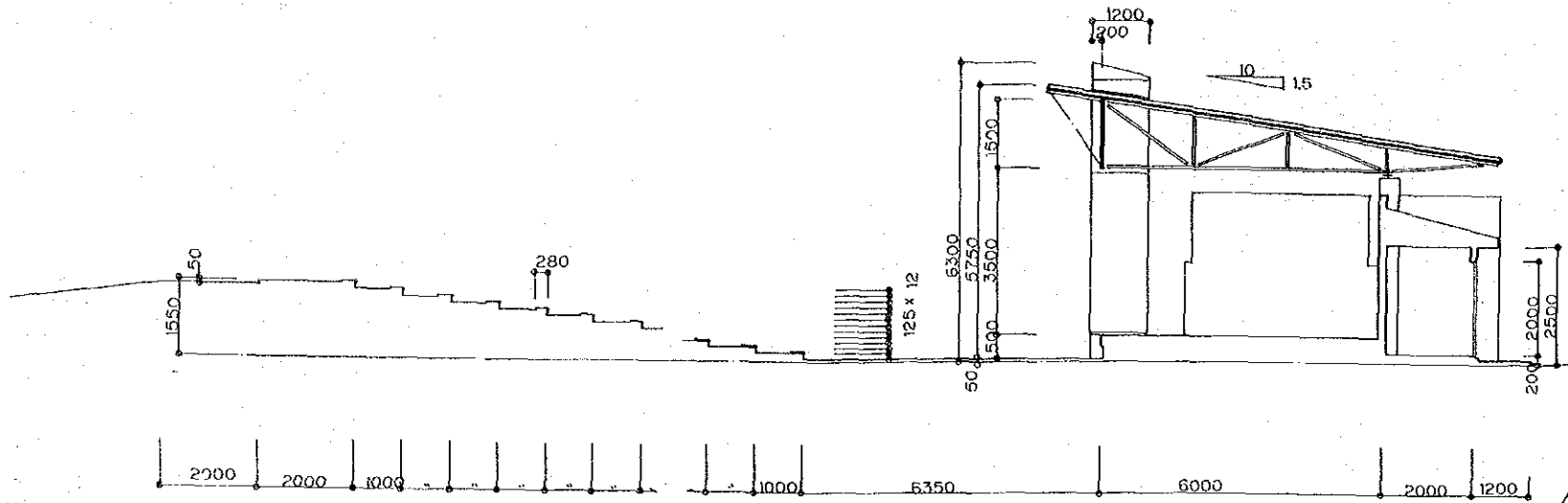
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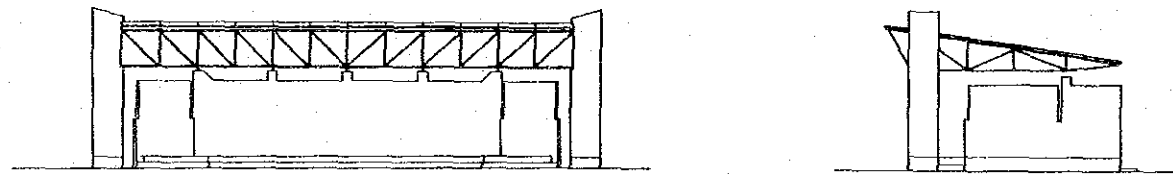
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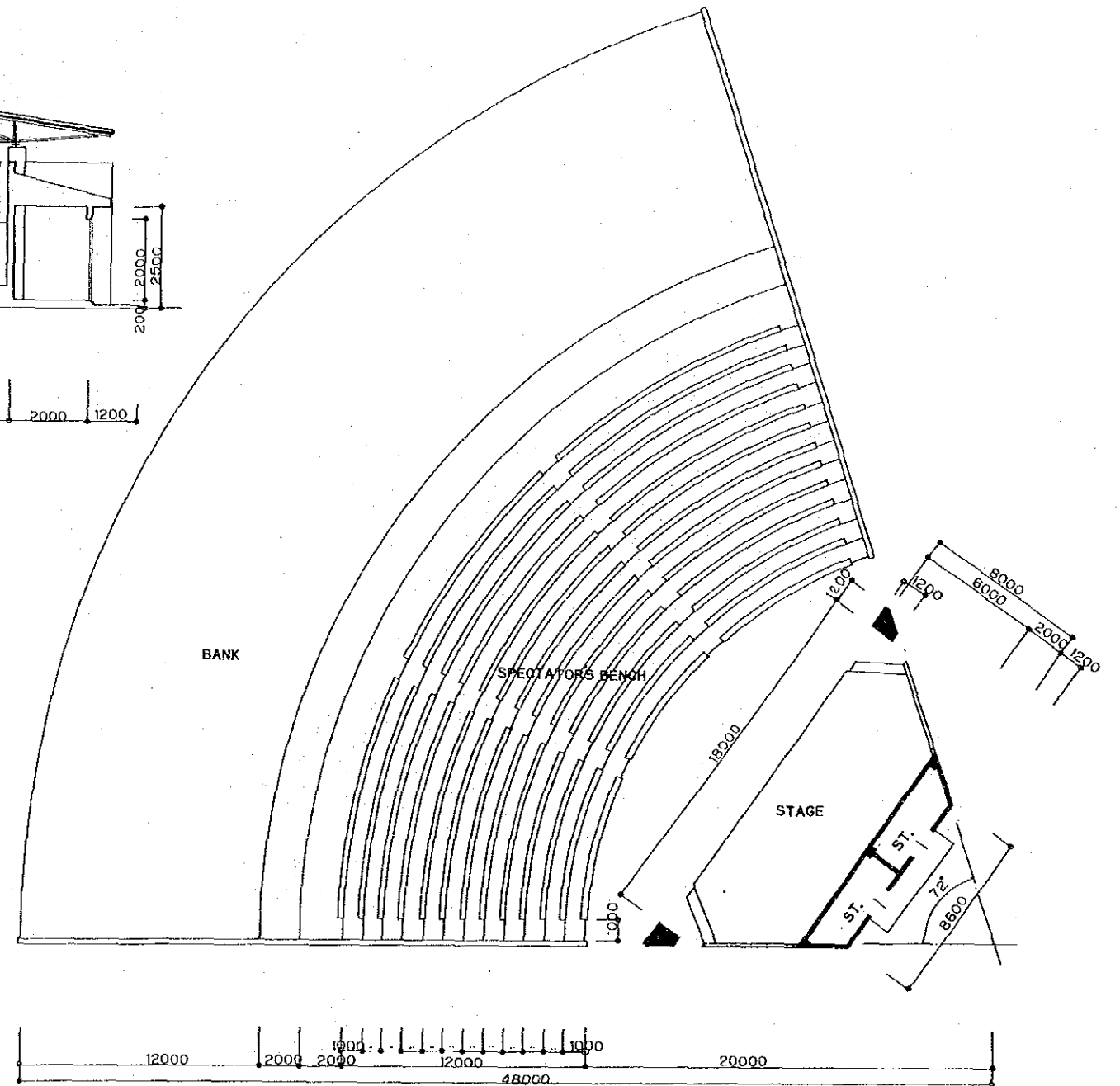
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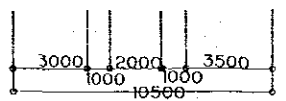
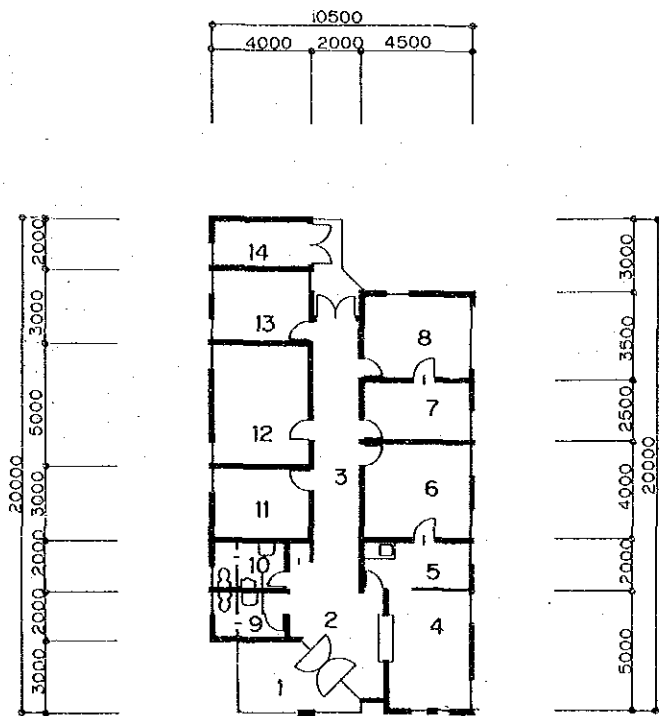


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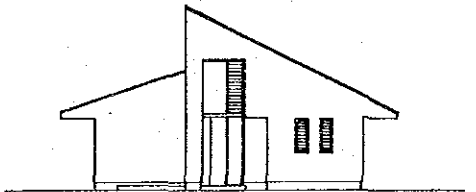
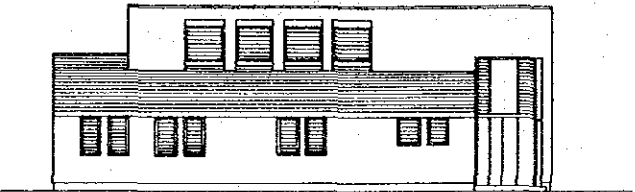


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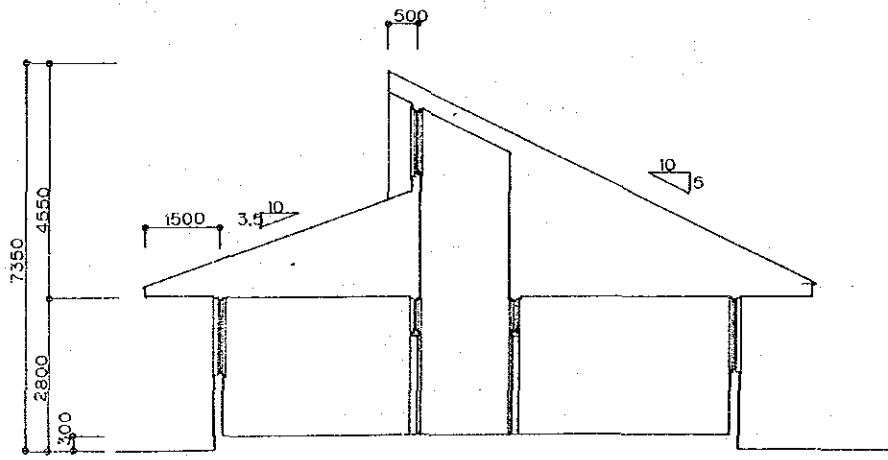
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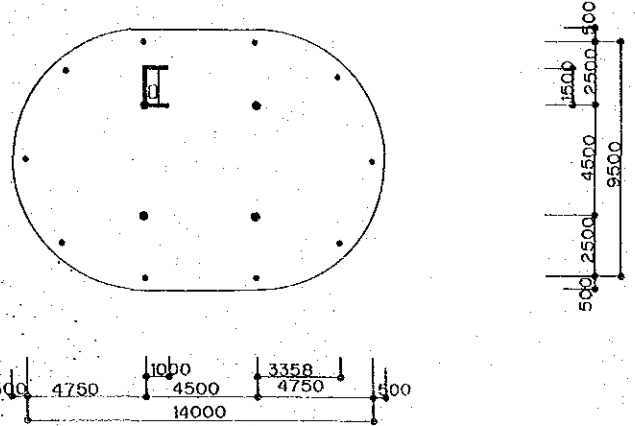
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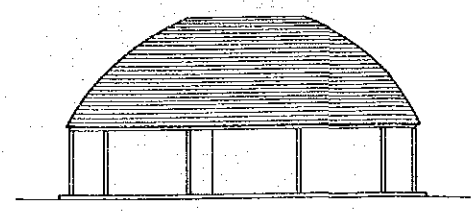
SECTION

- 1 ENTRANCE
- 2 LOBBY
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- 4 OFFICE
- 5 HOTWATER SURVICE, ROCKER ROOM
- 6 MANAGER'S ROOM
- 7 CULTURAL COORDINATER'S ROOM
- 8 PUBLISH EDITING ROOM
- 9 LAVATORY (FEMALE)
- 10 (MALE)
- 11 DATA STOCK ROOM
- 12 FILM LIBRARY
- 13 WAITING ROOM
- 14 STORAGE

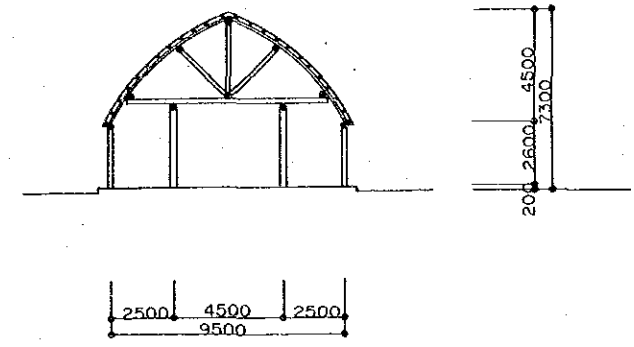
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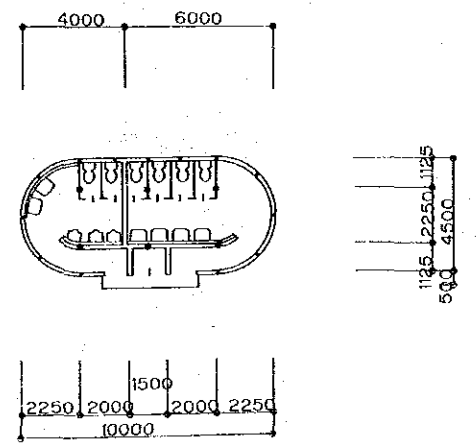
CULTURAL ACTIVITY HOUSE PLAN



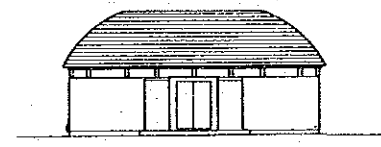
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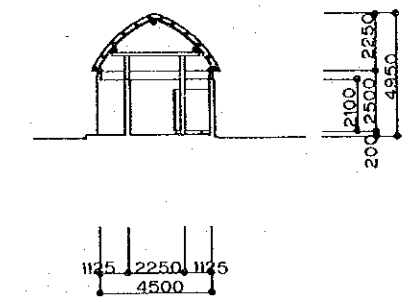
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LAVATORY PLAN



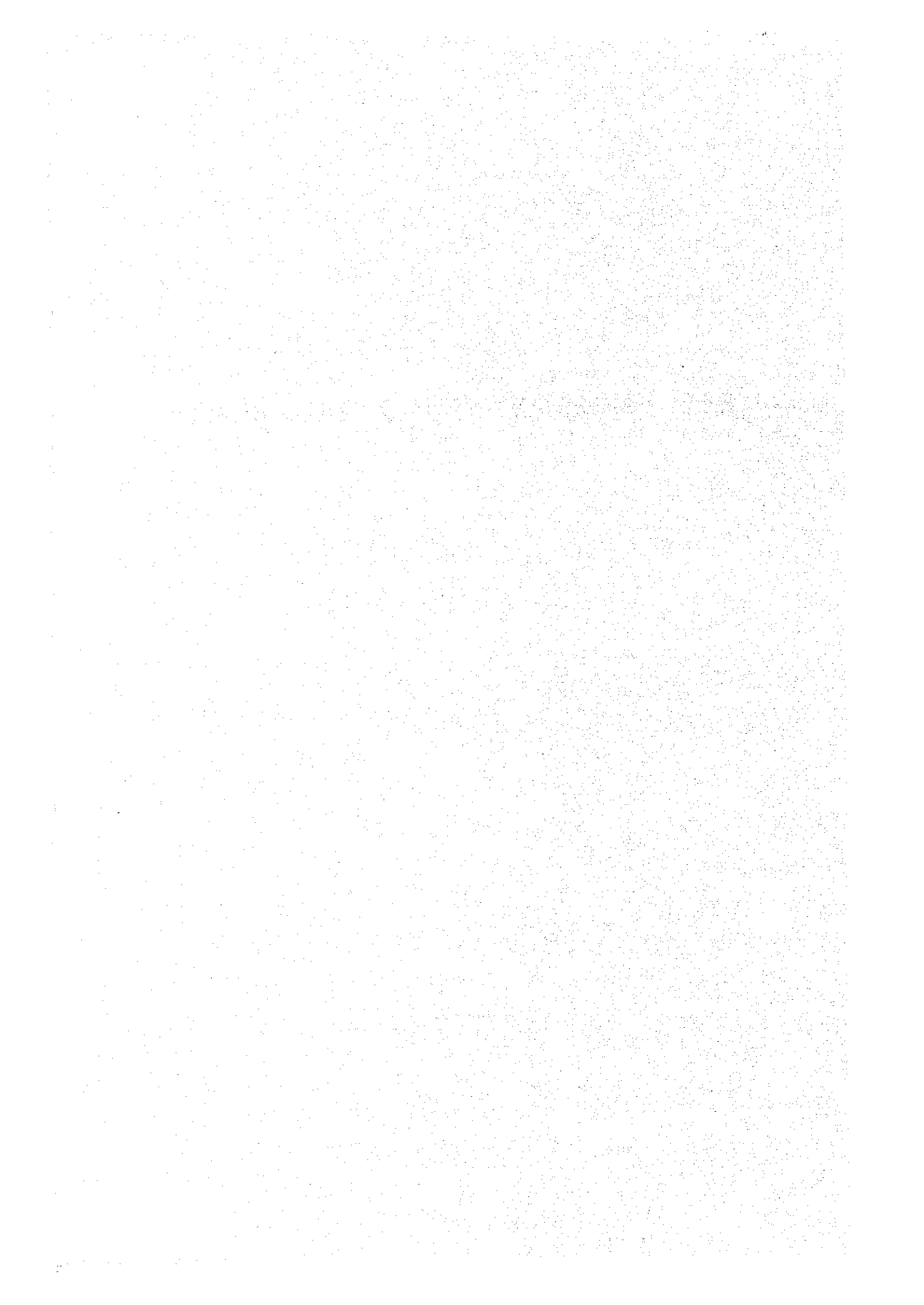
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				CULTURAL ACTIVITY HOUSE, LAVATORY	

CHAPTER 6 IMPLEMENTATION OF THE PROJECT



Chapter 6

Implementation of the Project

6-1 Organization for Implementation of the Project

6-1-1 Organization in Charge of the Implementation of the Project

The Ministry of Labour, Commerce and Industries (hereinafter referred to as the Ministry) will be the Organization in charge of the Implementation of the Project, therefore being the counterpart for every negotiation related to the construction work.

The ministry will provide assistance for the implementation of the Project representing the undermentioned governmental offices.

o Ministry of Works

The Ministry of Works is in charge of the construction, the cost of which will be borne by the Tongan side.

o Tonga Electric Power Board

The Tonga Electric Power Board is responsible for the bringing of electric power into the project site.

o Tonga Water Board

The Tonga Water Board, which belongs to the Public Health Division of the Ministry of Health, will be responsible for bringing city water pipes into the project site.

o Telegraph and Telephone Department

The Telegraph and Telephone Department, which is under the direct control of the Prime Minister's office, will take care of bringing telephone lines into the project site.

6-1-2 Operation of the Center

A manager reporting directly to the Secretary of the Ministry of Labour, Commerce and Industry will take charge of the operation of the Center, as shown in the organization chart of Figure 6-1 presented by the said Ministry. The manager had not yet been nominated at the time of the implementation of the present study, but he stands on an equal footing with the Tonga Visitors Bureau, Small Industries Center, Tonga Co-operative Dept., etc. An accountant and a cultural coordinator will report to the manager, and three vocational training teachers (weaving, wood-work and performing arts) will report to the cultural coordinator. For the time being, the cultural coordinator will take charge of the exhibition sector as well, but if this sector should become more fully equipped, it will be necessary to appoint a specialized coordinator.

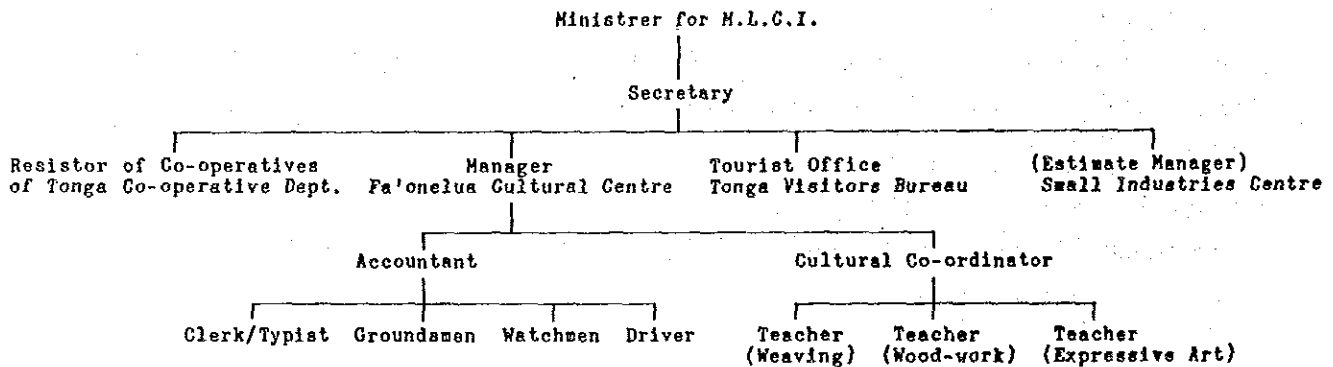


Fig. 6-1

6-2 Schedule of Construction

Consideration of the scale of the Project, the structural system of the buildings (a considerable part of the buildings will be made of wood), and the situation of the local construction industry (particularly the efficiency of the workers, construction capacity, manufacturing capacity, etc.), it is assumed that 14 months will be required for the construction including the time required for such preliminary work as the preparation of working drawings, ordering of steel structures, etc.

Particular attention shall be paid to the following in connection with the plan of execution.

- 1) The work efficiency shall be accurately examined, and the execution of each piece of construction shall be planned accurately in conformity with the staffing scheme and the term of work.

New construction machinery and new construction methods shall be introduced only when they do not exceed the local construction capacity, in order to prevent technical and financial difficulties.

- 2) In planning schemes for procurements of materials and equipment, time required for ordering and transporting shall be taken into consideration, and the scheme should be drawn up in conformity with the progress of the work. The types and the manufacturing capacity of local commodities of Tonga are limited; therefore, smooth handling of materials importation is essential for the management of the construction.

As described above, the plan of execution should essentially consist of the management plan of work progress with the consideration of the work efficiency of the local labour and the material procurement plan based on the situation of the local construction industry. Especially in this project a considerable amount of wood is being used; therefore, procurement of timber and the recruiting of well qualified carpenters will be very important factors.

6-3 Scope of Work

(1) Scope of Work to Be Borne by the Government of Japan

- 1) Construction of the buildings and the necessary facilities after the completion of the site preparation by the Government of Tonga.
- 2) External work concerning construction on the site with the exception of site preparation and gardening, which will be done by the Tongan side.
- 3) Supply of recording, educational, and training equipment.

(2) Scope of Work to Be Borne by the Government of Tonga

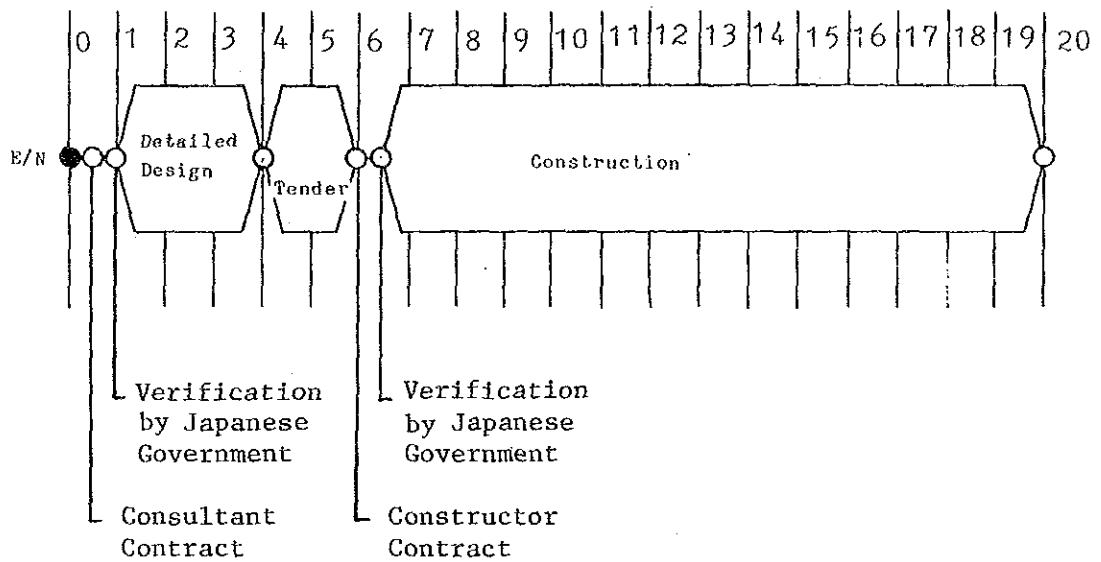
- 1) Provision of the project site.
- 2) Removal of trees from the site and levelling of ground through cutting and banking.
- 3) Supply of electricity up to the power receiving switchboard located in the project site.
- 4) Installation of city water lines up to the water meter located in the center.
- 5) Installation of the telephone lines up to the MDF located in the Center
- 6) Construction of the external facilities not included in the scope of work to be borne by the Government of Japan.
- 7) Supply of equipment, apparatus, furniture, etc., required for operation of the Center which are not included in the scope of work to be borne by the Government of Japan.

(3) Approximate Cost Estimation of the Main Works to Be Taken Charge of by the Government of Tonga:

1) Earth filling	T\$ 6,900
2) Site clearance & leveling	T\$ 8,100
3) Gate	T\$ 2,000
4) Electricity, telephone and city water	T\$ 3,000
5) Plants	T\$ 3,700
<hr/>	
TOTAL	T\$23,700

6-4 Implementation Schedule

As previously stated, the implementation of design and construction after E/N will require 20 months. The schedule of implementation is as follows:



6-5 Procurement

The plan for procurement of materials and equipment for construction of this center should be drawn up on the basis of the technical level and types matching the local construction industry. In reality, however, it must be kept in mind that the only materials that can be procured in Tonga are coral reef aggregate, concrete blocks (cement used for concrete blocks is imported), pandanus mats (which can be used as part of the finishing materials), coconut logs, etc. Thus, almost all materials and equipment incorporated in the work must be imported and procured from the undermentioned three sources.

- 1) Import from Japan
- 2) Import from third countries (mainly New Zealand, Western Samoa, etc.).
- 3) Procurement from the Commodities Board or from private importers.

The selection of any of the above depends on such factors as cost, term, availability of the materials and equipment at the necessary time during the term of work, etc. For the following reasons it is appropriate to import the following kinds of materials and equipment from Japan:

(1) Steel Structure

Reason: It is necessary to carry out the actual size inspection and shipment inspection at the manufacturing plant and it is easier to carry this out in Japan than in third countries. Furthermore, it can be carried out in a shorter term at a cheaper overall cost.

(2) Paint

Reason: The reliability of the product is better. There is some production of paint in Tonga, and in Fiji as well, but characteristics such as composition, specifications, and performance are not clearly indicated. Therefore, there is less risk in using Japanese products.

(3) Metallic Sashes

Reason: Laying aside simple glass louvers that can be procured in Tonga, if other metallic sashes can be procured in third countries, it would be necessary to go to the respective factories to carry out the actual size inspection, product inspection, etc., as in the case of steel structure. Therefore, it is regarded as more appropriate to procure them in Japan, in view of the reliability of the product, ease of ordering and inspection, and such.

Materials and equipment that should not be imported from Japan are those not readily available for use in maintenance, replacement, etc., after the completion of the building. In this case, examples include lighting fixtures, glass louvers, sanitary fixtures, etc.

6-6 Operation Scheme

The cost for maintenance, management and operation of the facilities of the Project, before the center becomes self-supporting, will be covered by the budget of the Tonga Visitors Bureau under control of the Ministry of Labour, Commerce and Industry. According to data obtained from the Tongan authorities in a field survey, it will take 3 to 4 years before the operation becomes self-supporting, but this center will, in principle, aim at operating as a community resource (i.e., such revenues as income earned by rental of amphitheater space, space for manufacture of handicrafts, display space, etc.), at a non-profit level. Therefore, only a minimum subsidy should be expected from the government.

The yearly expenditures of the center will be:

Salaries and Wages

Manager	T\$ 4,000/year
Accountant	2,000
Cultural Coordinator	2,300
Clerk/Typist	1,200
Teacher (3)	4,050
Night Watchman (2)	1,700
Gardener	900
Total	T\$ 16,150/year

Utilities

Power and Lighting

$32.86 \text{ kW} \times 8 \text{ H/day} \times 300 \text{ Day/year} \times 0.7 \text{ (Percentage of demand)} \times 0.0195 \text{ T\$/kWH} = 1,077/\text{year}$

Water

$15,300 \text{ /day} \times 300 \text{ Day/year} \times \text{T\$ } 0.085/4,546$
 $= \text{T\$ } 86/\text{year}$

Total T\$ 1,163/year

Miscellaneous Expenses

Transport and Travelling	T\$	500/year
Publications		500
Postages		200
Telephone and Telegrams		1,050
Maintenance Equipment		1,000
Custodial Services		4,800
Office Supplies		1,000
Advertising		1,200
		T\$ 10,250/year

The funding for the above expenses is to be acquired through community resources.

Amphitheatre Rental Fees

$T\$ 35/\text{time} \times 90 \text{ time/year} = T\$ 3,150/\text{year}$

Entrance Fees

$42,000 \text{ person/year} \times 0.35 \times T\$ 1.00/\text{person} +$
 $6,000/\text{person/year} \times T\$ 1.00/\text{person} = T\$ 20,700/\text{year}$

Handicraft-making Facilities Rental Fees

$T\$ 15/\text{month space} \times 34 \text{ space} \times 12 \text{ month/year} \times 0.7$
 $= T\$ 4,284/\text{year}$

Total T\$ 28,134/year

According to the above projections the anticipated annual budget will be approximately T\$ 571 in the black.

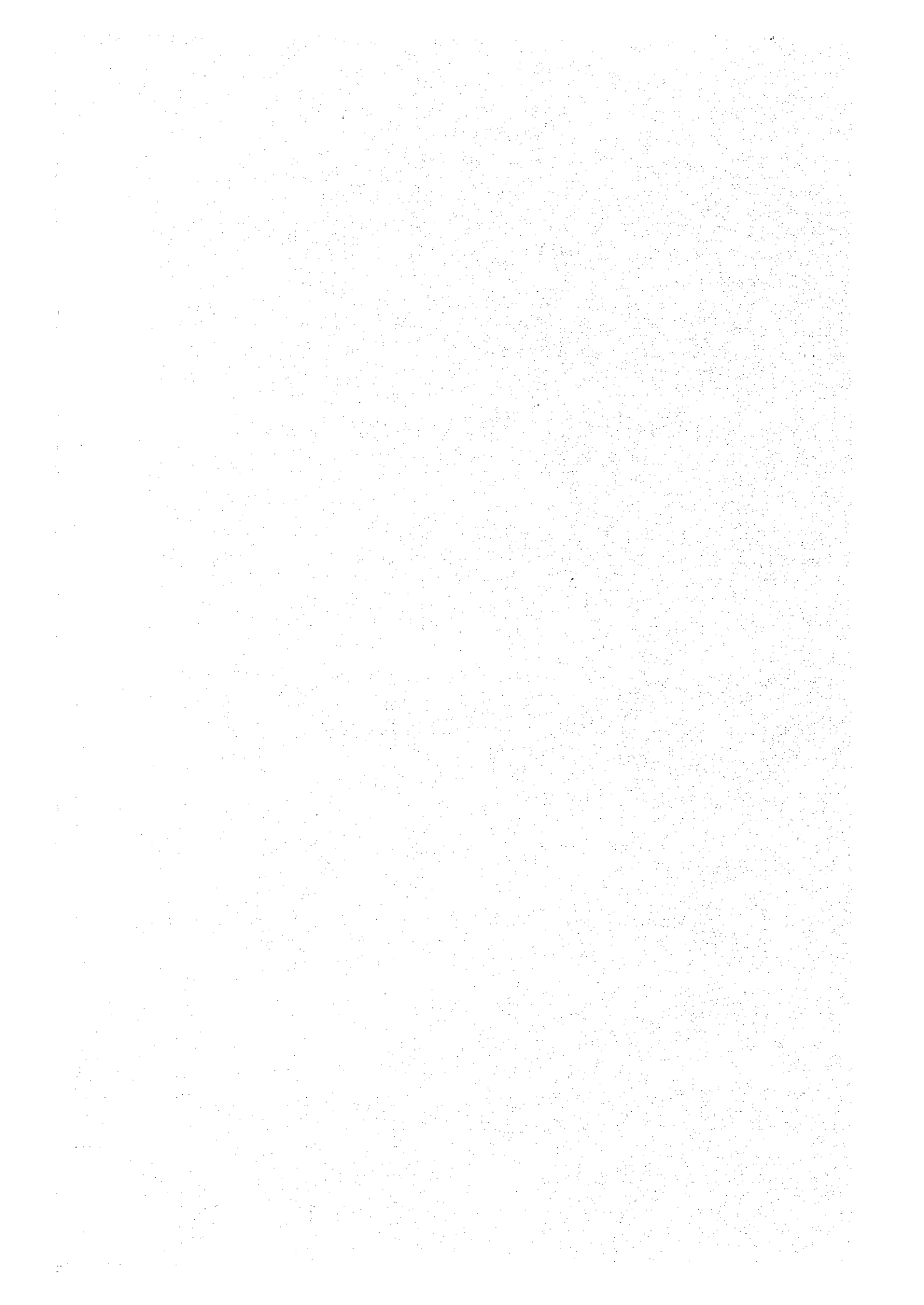
There will be additional expenditures incurred for the acquisition of exhibition artifacts. It is assumed, though, that most items will be donated to the center by the Tongan Government and private individuals. For that reason, no money has been presently allocated for acquisition purposes from within Tongan. For those items acquired from abroad, additional allocations may be necessary by the Tongan Government for such purposes.

Teachers will be selected from such organizations as Women's associations, churches, specific associations of villages, producers' cooperatives, schools, groups, and will take charge of the training program of this center.

The students and trainees will be Tongan citizens in general. "Because of their pride in their cultural heritage, there will be no concern about recruiting students for the Centre," according to the Authorities of the Ministry.

As for employee salary and wage expenditures, wages will be approximately the sums indicated in the table, in view of the wage levels prevailing in Tonga. The other operational, maintenance and management expenditure items seems to be appropriate, but it must be borne in mind that the purchase of display items, which is necessary from time to time, has not been taken into account. According to the explanation of the Tongan authorities in charge of the matter, this expenditure has not been taken into account because most of those display items are possessed by the Government of Tonga or will be donated by the general public. Furthermore, the government intends to buy back traditional Tongan handicrafts and articles dispersed all over the world, and the required funds will be provided separately by the Ministry.

CHAPTER 7 EVALUATION



Chapter 7

Project Evaluation

The Kingdom of Tonga has its own long history and original traditions of which the Tongan people are very proud. They are trying to preserve traditional culture, even as they pursue economic development, striving for a harmony between the two.

The purpose of the Project, which is to preserve and extend the Tongan traditional culture in the Kingdom and around the world, is very important. Therefore, it is very significant that through a grant-in-aid from Japan the facilities of this project shall be implemented.

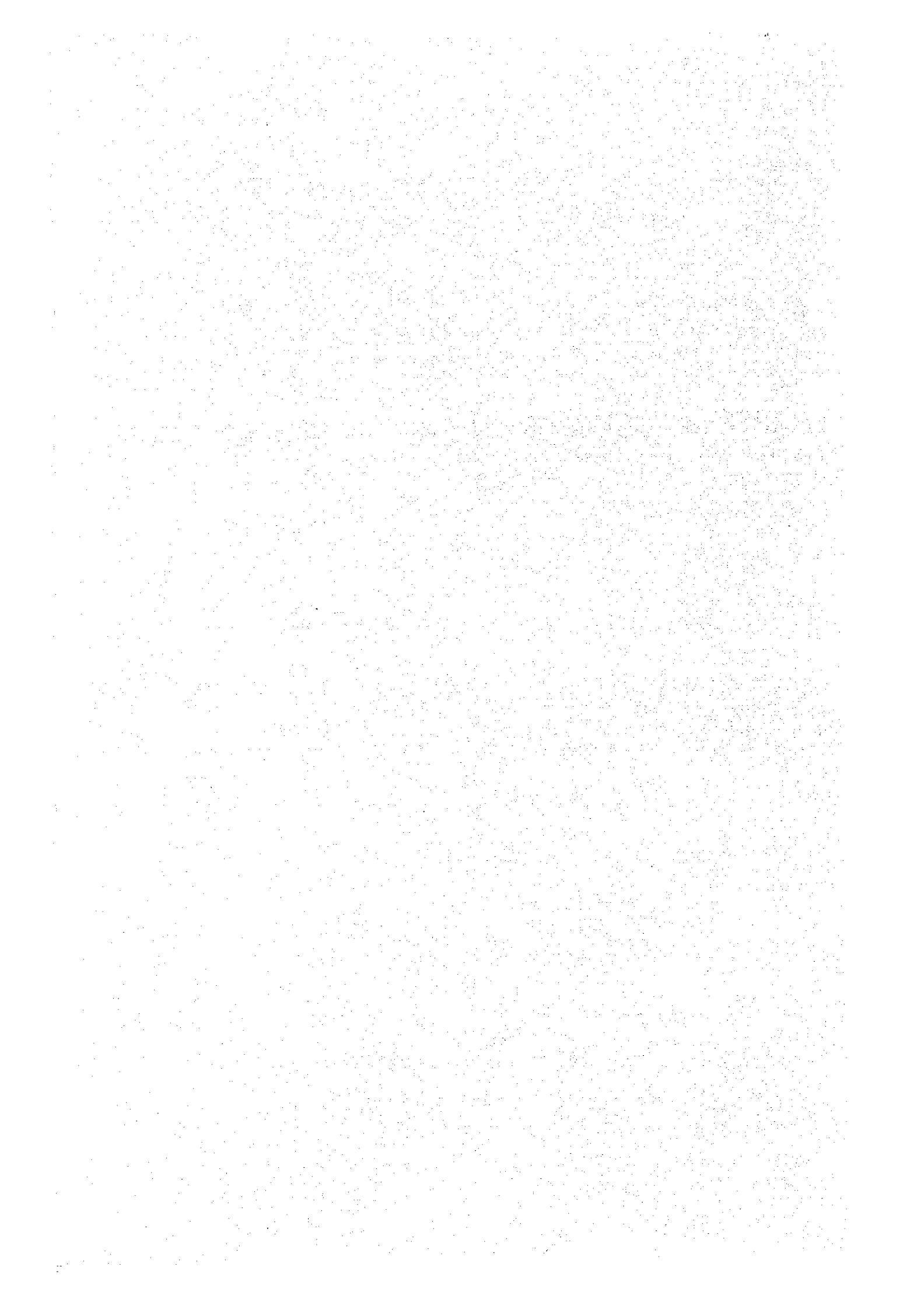
It is very difficult to make a conjecture about the effect of the Project because of the cultural nature of the facility, but the following can be said:

- 1) The Tongan people face the difficult problem of preserving their traditional culture, and pursuing economic development while being exposed to the influences of Western civilization. The Tongan people must evaluate the changes brought about by Western influences, and in other words, they must select what is good for them and their social structure. To correctly evaluate the changes, and the Tongans need the criteria of their traditional cultural values. In this context, the Center will be useful in providing a standard of values for this evaluation.
- 2) As for handicrafts, which exist in Tonga as a household industry, the Center is expected to provide an effective incentive for the preservation of techniques as well as the improvement of design and quality. Furthermore, it is expected to bring about secondary benefits such as regional development and expansion of exports.

- 3) A better understanding among the younger generations of their heritage can be promoted through the teaching of traditional arts and skills.

- 4) The center will be used by both Tongan people and overseas tourists. Therefore, it is assumed that the center will contribute to the establishment of an appropriate image of Tonga abroad, through these tourists, and will aid in the orderly development of tourism in the country through the activities which take place at the center.

CHAPTER 8 CONCLUSION AND RECOMMENDATION



Chapter 8

Conclusion and Recommendations

8-1 Conclusion

As a result of the basic studies carried out regarding the pertinency and effectiveness of this project, we have come to the conclusion that this project is highly significant and useful in addressing the social and cultural problems facing this nation, especially when it is implemented in conjunction with other economic development projects.

This Center is the first full-scale cultural facility to be established in Tonga and we are certain of the importance of its role in the preservation of the traditional culture of Tonga. With regard to the role it will play in the extension of traditional culture, its effectiveness will depend on the activities to be carried out in the facilities of the Center. Nevertheless, in light of the current financial situation of the Tongan Government, the operation and maintenance programs proposed for this project seem quite appropriate at the moment.

8-2 Recommendations

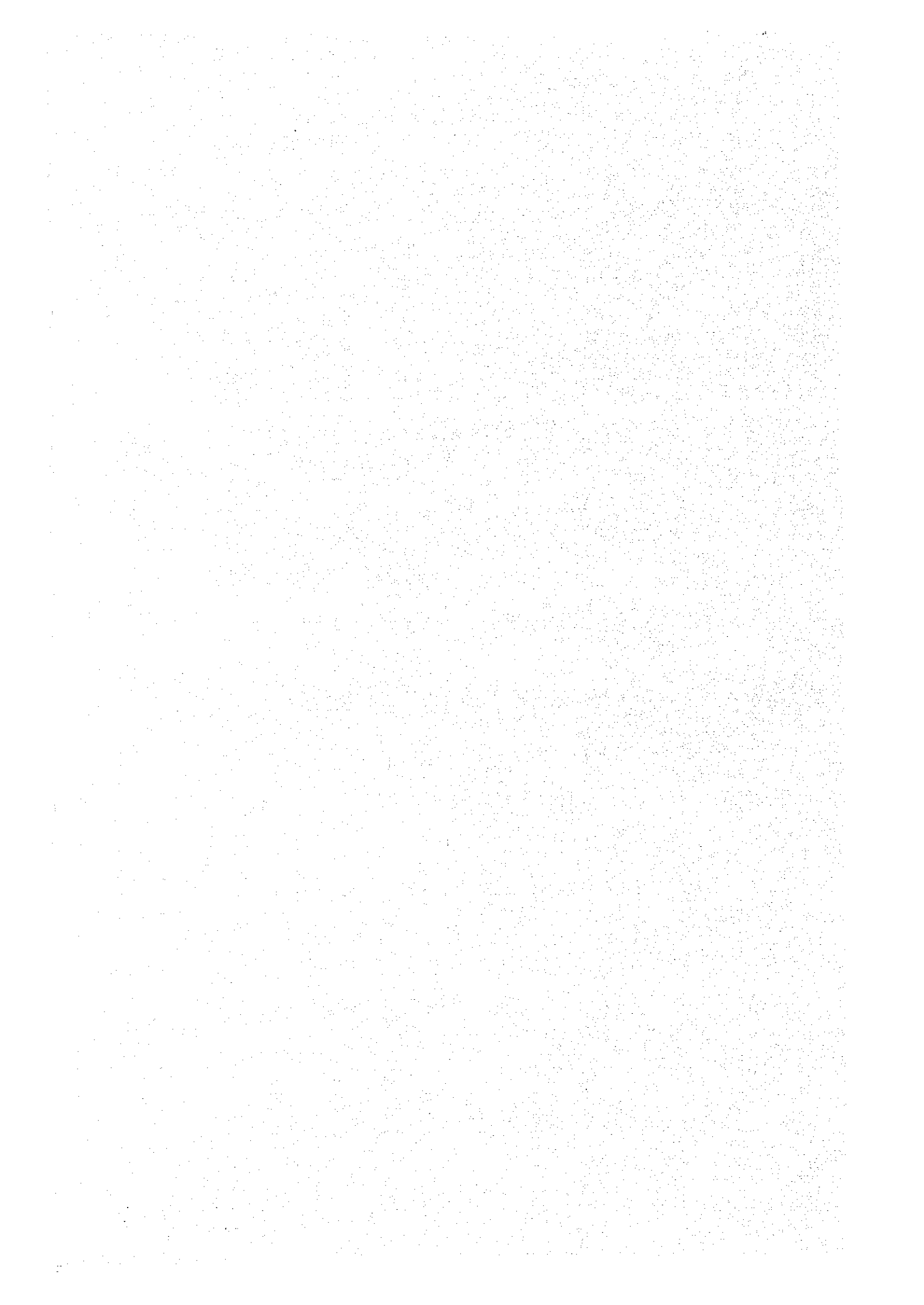
It is recommended that a three-fold plan be undertaken to augment the actual physical construction of the Center.

First, along with the construction of the center, the selection of the instructors by the Tongan authority as well as detail teaching curriculum should be decided.

In addition, a definite plan for the selection of cultural heritage artifacts to be displayed in the exhibition facility should be prepared, including the provision for the negotiated return of art and crafts from overseas.

Finally, after the completion of the center, it is our hope that it will be properly managed, to increase the knowledge of the Tongan people in their traditional culture and to encourage their succession, thereby contributing also to the orderly development of her tourist industry.

APPENDIX



1. SURVEY TEAM MEMBERS

<u>Team Leader</u>	Mr. Yuji OKADA	Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs
<u>Project Coordinator</u>	Mr. Minami NAGAI	Basic Design Division, Grant Aid Department, Japan International Cooperation Agency
<u>Architect Planner</u>	Mr. Kenji FUKUNAGA	Fukunaga Architects- Engineers
<u>Architect Designer</u>	Mr. Masayuki ASABUKI	Fukunaga Architects- Engineers
<u>Equipment Planner</u>	Mr. Yoshikazu SHIMADA	Fukunaga Architects- Engineers

2. ITINERARY

Day	Date	Itinerary	Contents of Survey
1st	Nov. 25 (Sun)	Leave Tokyo	
2nd	26 (Mon)	Arrive Fiji	Paid a courtesy visit to the Japanese Embassy to report on the Project and intended research.
3rd	27 (Tue)	Leave Fiji Arrive Tongatapu M.F.A. → M.L.C.I.	Visited the Ministry of Foreign Affairs (M.F.A.) and the Ministry of Labour, Commerce and Industries (M.L.C.I.) Presented explanation of the Inception Report and Questionnaire to M.L.C.I. Made survey arrangements.
4th	28 (Wed)	M.L.C.I.	Explanation of contents of the request by M.L.C.I. Discussion on objectives and contents of the Project.
5th	29 (Thu)	M.L.C.I. → The Project site	Discussion of the Project. Functional diagram of the Project was accepted by M.L.C.I. Explanation of JICA Grant Aid Programme. Survey of the site.
6th	30 (Fri)	Leave Tongatapu Arrive Vava'u	Observed demonstration of various kinds of handicrafts being made in Vava'u.
7th	Dec. 1 (Sat)		Discussion among team members.
8th	2 (Sun)		"
9th	3 (Mon)	Leave Vava'u Arrive Tongatapu M.L.C.I.	Explanation of the Project implementation plan was presented by M.L.C.I. Discussed the function of each area of the Project.

Day	Date	Itinerary	Contents of Survey
10th	Dec. 4 (Tue)		Conducted basic investigation of handicrafts and cultural activities. Survey team leader Mr. Okada arrived and held a meeting with survey team.
11th	5 (Wed)	M.L.C.I.	M.L.C.I. presented fiscal plans, including budget, anticipated expenditures and income. Discussed the function of the Project in detail.
12th	6 (Thu)	M.L.C.I.	Continued further discussion of the Project with M.L.C.I. Discussed prospective uses of the Center, including staff and students.
13th	7 (Fri)	M.L.C.I.	Discussion of draft plan of minutes.
14th	8 (Sat)		Conducted survey team meeting. Confirmation of minutes.
15th	9 (Sun)		
16th	10 (Mon)	M.L.C.I. → Statistics Dept. → Treasury Bureau → Ministry of Works (MOW)	Signing of minutes by M.L.C.I. and Survey team. Obtained information and data regarding the trade balance, governmental budget, Tongan traditional architectural style and data relating to the construction industry.
17th	11 (Tue)	M.L.C.I. → Land and Survey	Confirmation of requested function in detail. Exhibition Area - Items for exhibition and necessary utilities requirements Craft making Area - Types of crafts to be demonstrated Teaching Area - Confirmed teaching area functions Amphitheatre - Size of the theatre Request Land and Survey to survey the Project site for site map.

Day	Date	Itinerary	Contents of Survey
18th	Dec. 12 (Wed)	Central Planning Board → M.O.W. → M.L.C.I.	Gathering general and specific information on the Project and traditional construction; Materials and Machinery. M.L.C.I. presented the implementation and budget plan for the Center.
19th	13 (Thu)	Commodities Board Construction Division → M.L.C.I. → The site	Obtained information on building costs. Meeting regarding the site; requested detailed survey of the site. Investigation of geology and construction standards. Revision of the functional project diagram.
20th	14 (Fri)	M.L.C.I. → Aviation	Discussion and confirmation of the Project based on the functional diagram and project schedule after completion of survey. Obtained authorized site map, meteorological data on Nuku'alofa.
21st	15 (Sat)	Leave Tongatapu Arrive Nadi	
22nd	16 (Sun)	Leave Nadi Arrive Narita	

3. LIST OF INTERVIEWED PERSONS

Mr. S. Raghavan	Secretary	M.L.C.I.
Mr. Falekava Kupu	Acting Secretary	M.L.C.I.
Mrs. Sois'iana Tu'itavake	Acting Secretary	M.L.C.I.
Mr. Kevin A. O'connor	Handcraft Adviser	M.L.C.I.
Mr. Penisimani Latu	Acting Assistant Secretary	M.L.C.I.
Mr. D. B. Sahae	Industrial Promotion Officer	M.L.C.I.
Mr. Sione Faletau	Senior Executive	M.L.C.I.
Mr. Siaosi Aho	Secretary	M.F.A.
Miss Lupe Ilaiu	Assistant Secretary	M.F.A.
Mrs. Christina Sisifa	Senior Executive Officer	M.F.A.
Mr. Julian A. Marryshow	Marketing Adviser	T.V.B.
Mr. Sakopo Lolohea	Marketing Officer	T.V.B.
Mrs. Saane Tupou	Assistant Tourist	T.V.B.
Mr. David Abbott	Planning Officer	C.P.D.
Mr. William Harris		C.P.D.
Miss 'Ofa K. F. Afuha'amango	Project Economist	C.P.D.
Mr. Sione Taumoepeau	Director of Works	M.O.W.
Mr. Leveni Aho	Chief Architect	M.O.W.
Mr. Sione Tongilava	Superintendent	M.L.S.
Mr. Taniela Tukia		M.L.S.
Mr. Amanaki Punioni	Chief Surveyor	M.L.S.
Mr. Carl Asimus	Economist	Treasury
Mr. Lloyd H. Belz. P.E.	Project Director	WHO

M.L.C.I.: Ministry of Labour, Commerce & Industries

M.F.A. : Ministry of Foreign Affairs

T.V.B. : Tonga Visitors Bureau

C.P.D. : Central Planning Department

M.O.W. : Ministry of Works

M.L.S. : Ministry of Land & Survey

WHO : World Health Organization

4. MINUTES

MINUTES OF DISCUSSIONS
ON
THE CONSTRUCTION PROJECT
OF
PRESERVATION AND EXTENSION CENTRE
FOR
HANDICRAFT/CULTURAL RESOURCE

In response to the request made by the Government of the Kingdom of TONGA for Grant Assistance for the Construction Project of Preservation and Extension Centre for HANDICRAFT/CULTURAL RESOURCE (hereinafter referred to as "the Project"), the Government of Japan decided to carry out the Basic Design Study, and Japan International Cooperation Agency (hereinafter referred to as "JICA") has sent the basic design study team, headed by Mr Yuji OKADA, Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs, from November 25th to December 16th, 1984.

The study team had carried out field survey, held a series of discussions and exchanged views with the authorities concerned with the Project.

As the result of the study and discussions, both parties have agreed to recommend to their respective Governments to examine the results of the survey attached herewith towards the realization of the Project.

Nuku'alofa, December 10th, 1984.

.....
Y. Okada
.....
Mr Yuji OKADA
Team Leader
Japanese Study Team
JICA

.....
T. F. Shau
.....
Mr Taueli Falekava KUPU
Acting Secretary
Ministry of Labour, Commerce
& Industries

ATTACHMENT

1. The objective of the Project is to provide necessary facilities and equipment for the establishment of the Preservation and Extension Centre for Handicraft/Cultural Resource in Tonga. The aims and activities of the centre are defined as in Annex 1.
2. The proposed site of the Project has been acquired by the Government of Tonga (hereinafter referred to as "the Project site"), as attached in Annex II.
3. The Japanese Study Team will convey to the Government of Japan the desire of the Government of Tonga that the former takes necessary measures to co-operate in implementing the Project and provides necessary facilities and other items as listed in Annex III within the scope of Japanese economic cooperation in grant form.
4. The Government of Tonga has understood Japan's Grant Aid system explained by the Team which includes a principle of use of a Japanese consultant firm and Japanese general constructor for implementation of the Project.
5. The Government of Tonga will take necessary measures as listed in Annex IV on condition that Grant Assistance by the Government of Japan is extended to the Project.

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ANNEX - I

The aims and activities of the Centre have been defined as follows:

1. Preservation of Tongan culture through exhibition, demonstration, teaching and active encouragement to the young Tongans, general public and overseas visitors.
2. Preservation and promotion of Tongan handicraft skills through teaching, craft-making, demonstration and sales to the general public and overseas visitors.
3. Attainment of a positive and appropriate image of Tonga in the outside world through publicizing the uniqueness of Tongan culture : publishing and distributing films depicting cultural activities.

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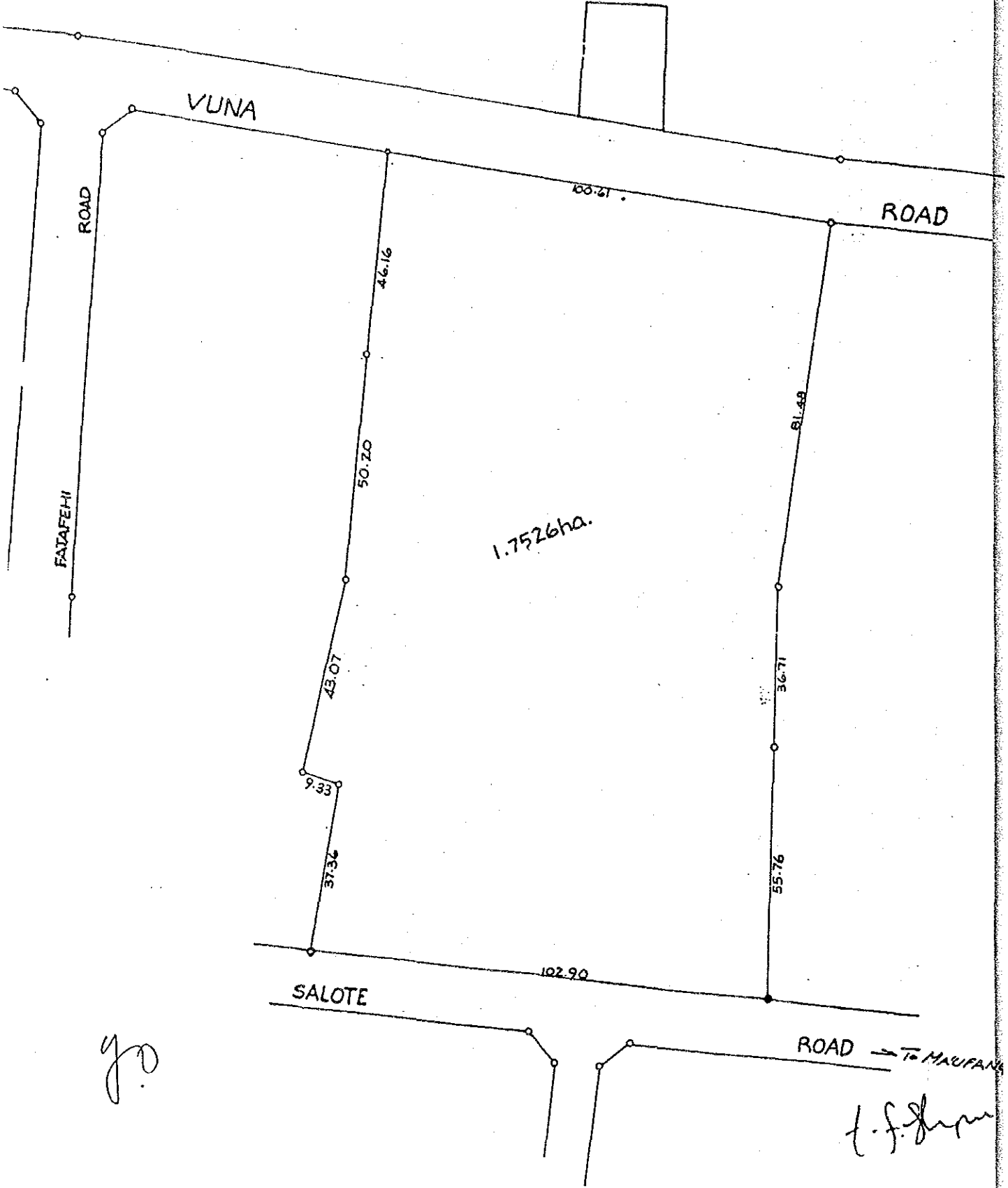
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ANNEX II - (2)

PART, PLAN of KOLOFO'OU
(FÄ'ONELUA PARK)

by: *[Signature]* 7.12.54

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The main components of the Centre requested by the Government of Tonga, the cost of which will be borne by the Government of Japan are:

1. Facilities for;
 - a. Administration
 - b. Exhibition
 - c. Teaching
 - d. Amphitheater
 - e. Craft-making
 - f. Selling
 - g. Cultural Activities
2. Equipment for teaching, recording and demonstrating cultural activities.

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T. F. Brown

The following arrangements will be required to be undertaken by the Government of Tonga.

1. To carry out site preparation such as clearing, filling, levelling before commencement of construction works.
2. To provide facilities for distribution of electricity, water supply, drainage, telephone lines and other incidental facilities to the proposed site.
3. To ensure prompt unloading, tax exemption, customs clearance at ports of disembarkation in Tonga.
4. To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in Tonga with respect to the supply of the products and services under the verified contracts.
5. To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such assistance as may be necessary for their entry into Tonga and stay therein for the performance of their work.
6. To maintain and use properly and effectively the facilities constructed and equipment purchased under the grant.
7. To undertake incidental civil works such as gardening, fencing, gates, guard house, and exterior lighting.
8. To furnish general furniture for the Centre.

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5. TEAM MEMBERS (Draft Report)

Team Leader	Mr. Akira KOJIMA	Japan International Cooperation Agency
Architect Designer	Mr. Masayuki ASABUKI	Fukunaga Architects- Engineers

6. ITINERARY

Date	Itinerary	Contents
Feb. 21 (Thu)	Leave Tokyo	
22 (Fri)	Arrive Nadi	
23 (Sat)	Leave Nadi Arrive Tongatapu	Presented the draft final report to M.L.C.I.
24 (Sun)		The team was informed at a meeting at M.F.A., that the site had been changed by the Government of Tonga. Subsequent meeting was held at M.L.C.I.
26 (Tue)		Team leader, Kojima, arrive and held a meeting with the Secretary at M.F.A. Presented the draft final report to the ministries concerning the Project at M.L.C.I.
27 (Wed)		Held a meeting on the draft final report and Minutes
28 (Thu)		Held a meeting on Minutes
March 1 (Fri)		Signing of minutes by M.L.C.I. and the team
2 (Sat)	Leave Tongatapu Arrive Nadi	
3 (Sun)	Leave Nadi Arrive Tokyo	

7. MINUTES

MINUTES OF DISCUSSION

THE DRAFT REPORT OF THE BASIC DESIGN STUDY
ON
PRESERVATION AND EXTENSION CENTRE
FOR
HANDICRAFT/CULTURAL RESOURCE

The Government of Japan has sent through Japan International Cooperation Agency (JICA), a basic Design Study team to the Kingdom of Tonga from February 23rd to March 2nd, 1985 for the purpose of presenting and explaining the draft of final report of the Basic Design Study (The Report) on the Construction Project of Preservation and Extension Centre for Handicraft/Cultural Resource in the Kingdom of Tonga.

The team held meetings with the officers of the Ministry of Labour, Commerce and Industries and other concerned Ministries to explain and discuss the Report. As the result of discussions, both parties have agreed as follows.

1. The Report principally satisfied the Tongan side and appropriate alterations in design agreed during the discussion will be incorporated in the Final Report.
2. The Final Report (20 Copies in English) on the project will be submitted to the Government of the Kingdom of Tonga by the end of April, 1985.
3. The team and the Ministry of Labour, Commerce and Industries of the Kingdom of Tonga understood and confirmed the measures to be undertaken by both parties for the Project.

小島明

Mr. Akira Kojima
Leader
Japanese Study Team

Sios'iana Tu'itavake

Mrs. Sios'iana Tu'itavake
Acting Secretary for
Ministry of Labour,
Commerce & Industries

DATE: March 1st, 1985

ATTACHMENT :


1. Upon the arrival of the Japanese team, it was informed by the Tongan side that the original site for the project was not available.

The team, therefore, requested of the Tongan side, that a new site be decided upon and its decision be conveyed to the Government of Japan as soon as possible.

2. Regarding the submission of the report, referred to in Clause (2) of the attached Minutes, the report is dependant on the Tongan Government having identified and confirmed a suitable site prior to 20th March 1985.
3. If, however, the Tongan Government has not been able to confirm such a site before the above date, it undertakes to find a suitable site; then advise the Government of Japan as soon as possible.



Mr. Akira Kojima
Leader
Japanese Study Team



Mrs. Siosi'ana Tu'itavake
Acting Secretary for
Ministry of Labour,
Commerce & Industries

DATE: March 1st, 1985

JICA