2-3-4 Basic Design

The contents of Basic Design of the Project are as follows.

Table 2-14 Contents of Basic Design

Item	Contents	Q'ty	Q'ty	Remark
A. Jetty of Kingstown Fish Market				
1. Facility				
1-1 Landing facility (1) New jetty (2) Additional step	 45.5m(L)×7m(B) 28m(L)×1.2m(B)	complete		
B. Fisheries center: Barrouallie & Chateaubelair		Barrouallie.	Chateaubelair	
1. Facility				
1-1 Fisheries center	Main building, toilet/shower room, fisherman's locker	complete	complete	Ice plants are installed on the 2nd floor.
(1) Main building	RC structure, partly two-storied, 152 ㎡	complete	complete	
a. Ice making room	32 ㎡	one unit	one unit	
b. Handling space	40 ㎡	one unit	one unit	
c. ice bin	600kg capacity	one unit	one unit	
d. Chilled room	600kg capacity, -5℃	one unit	one unit	
e. Office		one room	one room	* including spaces around ice bin and chilled room.
f. Store		one unit	one unit	
g. Retail shop	Total 80 ㎡, c to g*	one unit	one unit	

(2) Toilet/shower facility		complete	complete	
h. Toilet/shower room	5 booths each			
(3) Fisherman's locker		complete	complete	
i. Fisherman's locker	2m × 2m each	20 units	10 units	
(4) Oil supplying facility				
j. Oil terminal	3 ton tank	complete	complete	
2. Equipment & materials				
a. Ice-making machine	300kg/day plate ice,	one unit	one unit	with crusher
b. Fish box	Plastic, 25 kg	30 boxes	25 boxes	
c. Insulated box	Plastic, 100 *l*	10 boxes	7 boxes	
d. Scale	200 lbs platform	one unit	one unit	
	20 lbs spring	2 units	2 units	
e. Cart	300 kg capacity	2 units	2 units	
f. Shovel	Stainless steel	2 units	2 units	
g. Processing table	Stainless steel, 1.5m × 2m, double	3 units	3 units	
h. Selling table	Stainless steel 0.5m × 1.5m	2 units	2 units	
i. Winch	3000 kg capacity	one set	-	
j. Spare parts	For ice-making machine, ice bin, chilled room	complete	complete	

A Jetty of the Fish Market at Kingstown

Layout Plan

(1) Facility Layout Plan

The proposed construction site is located at a wide but not deep bay, facing the open sea. The capes on the both sides of the bay have little protective effect against waves due to the projection being less, and, since the slope of the sea bottom of the bay is very steep, waves from the ocean attack the site directly without decreasing their energy. The site is thus placed under severe natural conditions.

The allocation of the new jetty was studied on the basis of the result of site survey and the plan of existing jetty built in 1990, and the following 4 types was considered.

① To extent of existing jetty toward the offshore
② To extent of existing jetty toward the offshore and bent to the west.
③ To bent to the west along the existing jetty
④ To project out new jetty from the shoreline near the boundary between Fish market and bus terminal

On the other hand, the site has the following conditions to be noticed.

① Difficulties for berthing against the flow when flood discharges from the drainage at the east boundary
② The existing jetty structure, which has some damages at its lower portion, has been deteriorated.
③ The design wave height was 4 m for the existing jetty, while wave of 4.5m to 5.7m high is considered for the new marine structure based on the result of the wave estimation. Hence, when the new structure is connected to the existing jetty, a discrepancy of design condition occurs.
④ The water depth become bigger when the existing jetty is extended offshore.
⑤ Jetty, which is arranged as parallel with the shoreline, has heavy wave force

against the incoming wave and needs wider structure.

⑥ Extension of existing jetty more than 20 m is not allowed by the regulation due to access to the commercial port.

⑦ Due to the limitation with the bus terminal, it is not allowed to intrude deeply into the area.

After the due comparison and consideration of the practical operation system of the existing jetty, it is concluded that the new jetty shall be allocated at the area near the bus terminal and with parallel arrangement against the existing jetty, and its east face is to be on the same line with the boundary line between the jetty area and the Fish Market premises. The access way for new jetty shall be planned to allow ease approach from the Fish Market.

(2) Jetty Facility Plan

1) Facility allocation

The revetment in front of the Fish Market was constructed at time of reclamation in 1970s, consisting of rubble stones covered with armor stone of about 1 ton, with a slope of 1 : 1. The armor stone was scattered by the hurricane wave of August 1995. The depth at the tow of revetment is about –2 to –4 m. The slope of sea bottom near shoreline is very steep with a slope of 1: 7. Near the existing jetty, the middle-sized tuna fishing boats are anchored at an area some 12 m away from the approach revetment of the jetty, where the water depth is about 3 meters. Although, waves, in general, are very small, the new jetty shall be planned with consideration given to the berthing depth of fishing boats.

The main components of the jetty are as follows:

1)-1 Approach revetment

The access revetment from the Fish Market is necessary for the new jetty. The access on the revetment of the Fish Market is planned also as the entrance for the new jetty. The structural type of the approach revetment has the vertical concrete wall and it causes wave reflection, which effects the existing jetty. Further, the vertical massive structure may disturb the movement of the drifting sand along the shoreline. In order to avoid the reflection and the drift of shoreline material, the

length of the approach revetment shall be as short as possible. While the rubble of the existing revetment is scattered at the sea bottom, the length of the revetment is limited up to the area where pile can be driven. Then, the length of the revetment is 9.5m, which is almost same length of the approaching revetment of the existing jetty. The width of the approach is to be 14 m for the easy movement from the market area to the new jetty. In front of the approach revetment, armor stones shall be placed for the foot protection.

1)-2 Access jetty

From the approach revetment to the new jetty, the access jetty is arranged until the required depth is obtained. The length of the access jetty is 8 m. When the impermeable structural type of revetment is extended until the required depth is obtained, the reflection wave against the vertical wall may affect to the existing jetty and movement of the littoral drift may be disturbed. In order to avoid the trouble, the structure of the access jetty is of permeable type with steel pile foundation and concrete deck same as the new jetty.

1)-3 New Jetty (length of berth of new jetty)

The existing jetty is arranged for the exclusive use for small boat, while the new jetty is only for the middle-sized vessel. The new jetty is planned for 2-berth length for middle-sized vessel. The necessary length (BL) is calculated to allow two vessels to be moored along side at same time with the allowance (r) between vessels. The length is,

$$BL = 2 \times L + r = 2 \times 13.2 + 2 \fallingdotseq 28 \text{ m}$$

Therefore, the length of new jetty is planned to be 28 m.

1)-4 Determination of the clearance between jetties

On the allocation of the new jetty, the followings are considered to determine the distance for the existing jetty.

- Operation system of the existing and new jetties
- Dimensions of boat and vessel
- Method of berthing (single or double rows)

- Fish unloading work at the offshore side of vessels
- Chances that vessels pass between the jetties
- Allowance for passing vessels
- Possibility that vessels turn between the jetties

Then, the clearance is decided as follows.

$$L_1 = \alpha B_0 + \beta b_0 + \gamma + \delta$$

Where,

L_1 : Clearance between the existing and new jetties

B_0, α : Width and number of middle-sized vessels at berth (new jetty)

b_0, β : Width and number of small boats at berth (existing jetty)

γ : Clearance for passing middle (small) sized vessel between the jetties

δ : Clearance for turning vessels between the jetties

The utilization of two jetties is planned as follows;

① Function of the existing jetty and new jetty

The existing jetty is used for small boats only and the new jetty for middle-sized vessels.

② Size of vessel

	Long	width	draft	
Middle-sized vessel	13.2m	4.0m	1.5m	
Small boat	7.5m	2.0m	0.7m	(outboard engine)

③ Berthing (double or single mooring)

Double rows mooring of small boat is assumed at the west side of existing jetty. And middle-sized vessels will be also moored in double rows along the east of the new jetty. Mooring in more than 4 rows will not occur after the completion of the new jetty.

④ Unloading work at the offshore side of vessel

No offshore side unloading work is to be conducted.

⑤ Chances that vessels pass between the jetties

Since both jetties are longer than one-berth length, vessels pass between the jetties.

⑥ Allowance for passing vessels

Allowance shall be twice the width of the vessel for safe passing.

⑦ Possibility that vessels turn between the jetties

The space to allow the middle-sized vessel turn between the jetties shall be provided. The small boat will be able to go out astern.

Therefore, the clearance of the jetty is as follows.

$L_1 = 2 \times 4.0 + 2 \times 2.0 + (4.0) + 15.0 = 27.0\ m \sim (31.0\ m)$

As shown above, the clearance of the jetties requires 27.0 m at least to avoid simultaneous passing of a small boat and a middle-sized vessel between the jetties. At Kingstown, the clearance is decided to be 26.5 m because of the site limitation with the bus terminal. Although the clearance is 0.5 m less than the required, the middle-sized vessel operates only once or twice in a week, and, when necessary, small boats can wait temporary for the safe operation without any trouble.

Then, the allocation of jetty is as follows.

Approach Revetment	9.5 m
Access Jetty	8.0 m
Jetty	28.0 m
Total length	45.5 m

The total length of the jetty type structure is 36 m.

1)-5 Additional steps for small vessel at the existing jetty

At the west side of the existing jetty, steps for the small size vessel shall be provided. The length of the step is 28 m

1)-6 Auxiliary facilities

① Allocation of fender	: 2.4m
② Allocation of bits	: 4.8m
③ Concrete curb	: installed between bits
④ Light beacon	: 1 at the head of jetty
⑤ Lighting facilities	: 1 set
⑥ Water & fuel supply system	: 1 set
⑦ Cathodic protection	: 1 set

The layout of new facilities is shown in Figure 3,4,5..

2) Structural Plan

b. Structural arrangement

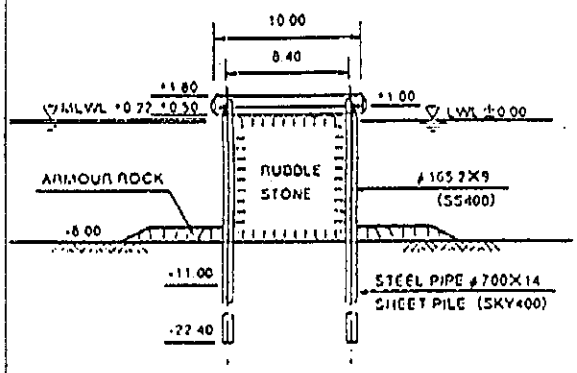
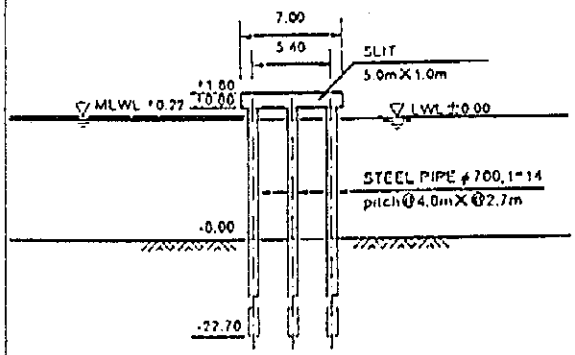
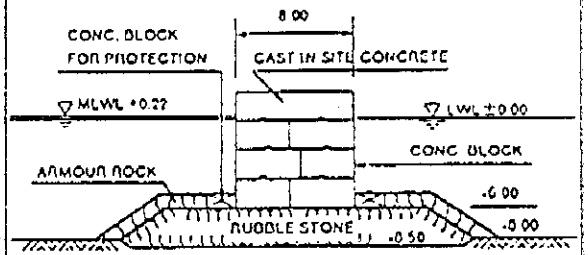
① New Jetty

The structural types of the new jetty are planned as a double steel pipe pile (or sheet pile) type, a steel pipe pile type and a concrete block type. As compared these types from aspects on advantages and disadvantages, construction period and cost as shown in the Table 2-15, the steel pipe pile type is selected. For the steel pipe type structure, up lift force of waves must be considered. The force is a quite large because of low elevation of concrete deck. In order to reduce the uplift force, slits are provided on the concrete deck and are covered with precast concrete cover. When big waves act on the deck slab, the cover may be scattered so that the up lift force of wave will be reduced. The same concept was applied for the jetty structures at Calliaqua.

As for the selection of pile type, a concrete pile has an advantage for prevention of rust and easy for maintenance. Taking the length of pile about 24 m, transportation, and connection of pile and driving of pile into consideration, however, the concrete pile has a lot of problems, and the steel pipe pile is selected for the foundation of jetty. As for the revetment, the steel pipe pile is selected for the foundation to

prevent the settlement. The jetty is arranged not to disturb the existing site condition such as revetment, keeping a sort of stability after several attacks of hurricane. And it is recommended to arrange new facilities without removing the armor stones scattered at the sea bottom as less as possible

Table 2-15 Comparison of Jetty Structure

	Jetty with Double Steel Pipe Pile Type	Jetty with Steel Pipe Pile	Jetty with Concrete Block
General Section			
Merit	Workability for top concrete construction is high. Durability of concrete is high due to less area affected with sea water. Stability is high due to resist wave force by steel pipe structure and rubble material inside. Stable against up-lift force of wave. High smoothness of the surface of concrete slab.	Small disturbance for littoral flow, and small reflection of wave. Main construction activities are pile driving and concrete work, only a few construction activities It is easy to drive piles. It is not difficult to get construction equipment.	Simple construction activity makes effective construction. It is stable to resist wave force by weight of concrete block. Aggregate, the main concrete material, is available in the country. High smoothness of the surface of concrete slab. Stable against up-lift force.
Demerit	All steel material are imported material. Long construction period need some caution against hurricane. Anti-corrosion protection is needed for steel material. Foot protection is required for the erosion of foundation. Big amount of filling rubble material are required. Many construction activities make the construction complicated. It is difficult to get material and equipment for construction. Disturbance of littoral flow may occur. Reflection of wave from jetty may hamper the operation of small fishing vessels and affect to the existing jetty structure.	All steel material are imported material. Friction force of pile are against to up-lift force. Wider jetty have not any advantages for up-lift force due to increase the up lift force. Anti-corrosion protection is needed for steel material. Smoothness of top concrete slab is not high due to the placing of slit cover. Consideration for concrete durability is dully necessary against sea water using admixture in concrete. Possibility of scatter of slit cover may happened.	Wide structure makes the long construction period and expensive. Cement and sand, the main material for concrete, are imported material. Wide area for fabrication of concrete block is required. Large construction equipment is required for move and settling the heavy blocks. Big amount of filling rubble material are required. Many construction activities make the construction complicated. It is difficult to get material and equipment for construction. Replacement of top sea bed soft material is required. Reflection of wave from jetty may hamper the operation of small fishing vessels and affect to the existing jetty structure. Leveling of rubble stone is difficult.
Cost	130	100	140
Period	14 months	11 months	15 months

② Additional steps for small fishing vessel

The fender system at the east of the existing jetty shall be provided along the fender beam. The elevation of the bottom of the beam is provided lower than the longitudinal beam of the jetty. When same fender beam is provided at the additional steps at the other side of the existing jetty, wave is hold under the jetty. In order not to disturb the flow of the wave, the bottom elevation of the new fender beam is not lower than the longitudinal beam of the jetty. Then, the number of the steps is two. And fender of old tires will be provided at the elevation of +0.7m, which is 0.2 m higher than that of east side. The elevation of the fender is seems higher for the usage of the small size of fishing vessels, thought it is not too hard for the small vessels to utilize the facility.

The structural type of the additional step is steel pile foundation with concrete slab, which is as same as the existing jetty.

b. Design Condition

① Design standard

Design standard for the structures in St. Vincent is fundamentally based on the Caribbean Uniform Building Code (CUBiC), which is mainly for the building structures. For the civil structures, the available code of CUBiC is applied as practical as possible, but the standards shown bellow are also considered.

a. Design standards for fishing port facilities in Japan : Japan Fishing Ports Association
b. Technical standards for concrete : Japan Society of Civil Engineers
c. Technical standards for port and harbor facilities in Japan : Japan Ports and Harbors Association
d. Technical standard for soil test : Japan Society of Soil Mechanics and Foundation Engineering

② Water level

Based on the result of investigation, design water level is as follows.

MHWL	CD+0.62 m
MWL	CD+0.42
MLWL	CD+0.22

③ Wave

Design wave condition is determined from the study and calculation of wave transformation in shallow water area for ordinary and hurricane waves considering the boundary condition and the transformation of approaching wave in front of construction site by a numerical model. The applied model is the one based on the Conservation Equation of Energy Flux Method by Karlsson (1969), that can calculate the transformation (refraction, diffraction and shoaling), of multispectral irregular wave.

The design offshore wave was forecasted by the previous study of "the Basic Design Study for the Construction of Fishing Center at Saint Vincent and the Grenadines in 1996 by JICA". As for the result of the study, the estimated offshore wave was determined for the hurricane wave of 30 years recurring period. For the study of the construction at the Kingstown at this moment, the waves forecast were based on the same study. But the result was reexamined considering the points of estimation and the direction of the wave. Then the wave was selected among the waves, which attack the Kingstown directly from SW to WSW direction. The characteristic of design offshore wave is determined as Wave height of Ho=5.0 m, Wave Period of To=10.0 sec, and Wave Direction of SW. Then the equivalent offshore wave height is determined by using value of Kr x Kd as the computation result by the Conservation Equation of Energy Flux Method as follows.

Equivalent offshore wave height Ho'= Ho x Kr x Kd =

=5.0 x 0.833

= 4.17 m

Then, design wave height in front of the structure, regarding the different depth, is as follows.

Depth (m)	8.0	6.0	4.6	4.0
Wave height(m)	4.38	5.00	5.71	5.42

Therefore, the design of jetty is based on the wave height of 5.7 m.

While, the design of the additional steps at the existing jetty, the wave of 4 m wave height is applied as of the same condition of the existing jetty.

④ Soil

Soil condition at the Kingstown site is determined from the result of soil investigation as follows.

Depth from sea bottom(m)	0～10	10～16	More than 16
Average elevation (m)	-6～-16	-16～-22	More than -22
Average N-Value (m)	4	10	More than 20
Remarks			Bearing stratum

⑤ Seismic Force

Part 2 of the Section 3 of the Caribbean Uniform Building Code (CUBiC) is applied for determining the seismic force of the jetty structure, considering the site condition as follows.

$V = K'W = (Z\ C\ I\ K\ S)\ W$

Where,

Z : Coefficient related to the seismicity of a region. St. Vincent is 0.5.

C : Coefficient related to natural period of structure as specified $1/(15\sqrt{T})$. 0.12 is applied.

I : Occupancy importance coefficient. 1.2 is applied.

K : Coefficient related to structural type. 2.0 is applied.

S : Coefficient for site-structure resonance of sub soil. 1.0 is applied.

Then, $K' = Z\ C\ I\ K\ S = 0.14$.

c. Operational conditions

① Size of vessel

: Small boat	: Length	: 20 to 30 ft
: Middle-sized vessel	: Length	: 42ft

② Maximum draft of vessel : 1.0 m

③ Berthing speed : 0.5 m/sec.

④ Traction of fishing vessel : 1 t/base

⑤ Load factor (Normal) : 1.0 t/m²

⑥ Load factor (Earthquake) : 0.5 t/m²

⑦ Load factor (Hurricane) : 0.0 t/m²

3) Material Plan

a. Corrosion of steel material

① Life time : 50 years

② Corrosion rates of steel

Corrosive environment		Corrosion rates(mm/year)
Sea side	Above HWL	0.03
	HWL~LWL-1.0 m	0.1~0.3
	LWL-1.0m~the sea bottom	0.1
	Below the sea bottom	0.03
Land side	In marine atmosphere	0.1
	In soil (above the residual water level)	0.03
	In soil (below the residual water level	0.02

Source: Design standards for fishing port facilities in Japan

③ Design condition for corrosion

Concrete cover or FRP cover is planned to protect the part where corrosion appears seriously up to 1.0 m below LWL. The corrosion allowance of thickness is taken for the part below 1.0 m of LWL. The allowable corrosion thickness is for 30 years long period, and cathodic protection method is applied for other 20 years.

b. Characteristic of construction material

Material	Unit weight (t/m^3)	Angle of internal friction (degree)	Remark
Structural steel	7.85		
Reinforced concrete	2.45		
Plain concrete	2.30		
Cement mortal	2.20		
Timber	0.80		
Sand and aggregate	1.8 (above water level)	35	Backfilling material
	1.0 (below water level)	35	Backfilling material
Gravel	1.8 (above water level)	30	Backfilling material
	1.0 (below water level)	30	Backfilling material

c. Constants of steel

- Young's modulus : 2.1×10^6 kg/cm²
- Shearing modulus : 8.1×10^5 kg/cm²
- Poisson's ratio : 0.30
- Coefficient of thermal expansion : 12×10^{-6} / ℃

d. Allowable stresses

① Structural steel

Kind of steel	Description	Allowable stress σ s (kg/cm²)
Steel pipe pile (SMA41)	Axial tensile stress	1,400
	Axial compressive stress	1,400
	Shearing stress	800
Structural steel (SS41)	Axial tensile stress	1,400
	Axial compressive stress	1,400
	Shearing stress	800

① Reinforcing bar

Kind of reinforcing bar	: SD30 A, SD30 B
Allowable tensile stress in general (kg/cm^2)	: 1,800 kg/cm^2

② Reinforcing concrete

Standard design strength	: 210 kg/cm^2
Allowable bending compressive stress	: 70 kg/cm^2
Allowable bond stress	: 14 kg/cm^2

In case of earthquake is considered, the allowable stresses can be increased by 1.50.

e. Covering for reinforcing steel bars

Net concrete cover for the reinforcing steel bars shall be more than 10 cm at the portion directly washed by sea water and portion subjected to severe sea breeze.

Figure-3 GENERAL LAYOUT PLAN S=1/600, 0.in

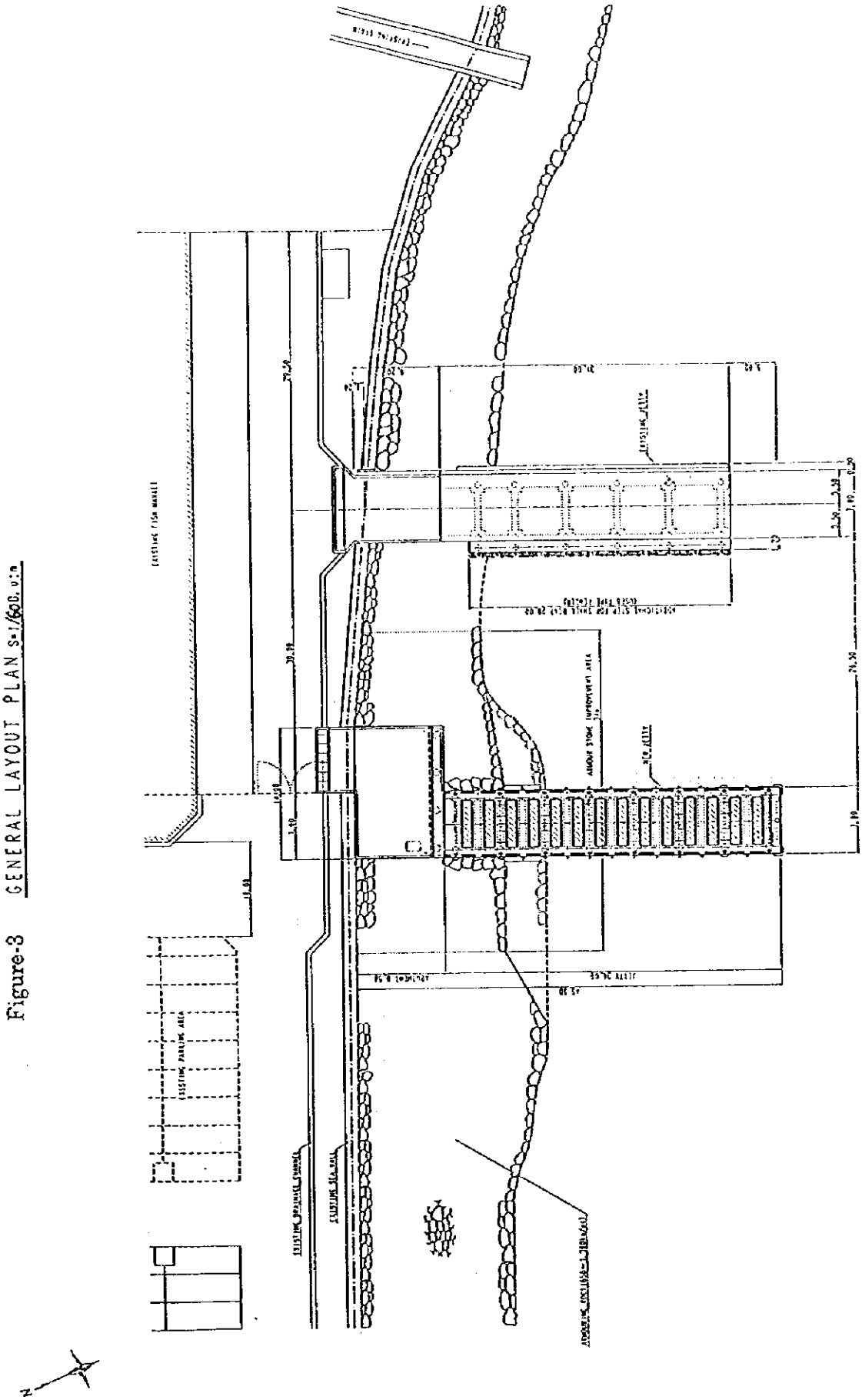


Figure-4 STRUCTURE OF JETTY (1/2) S=1/600, u:m

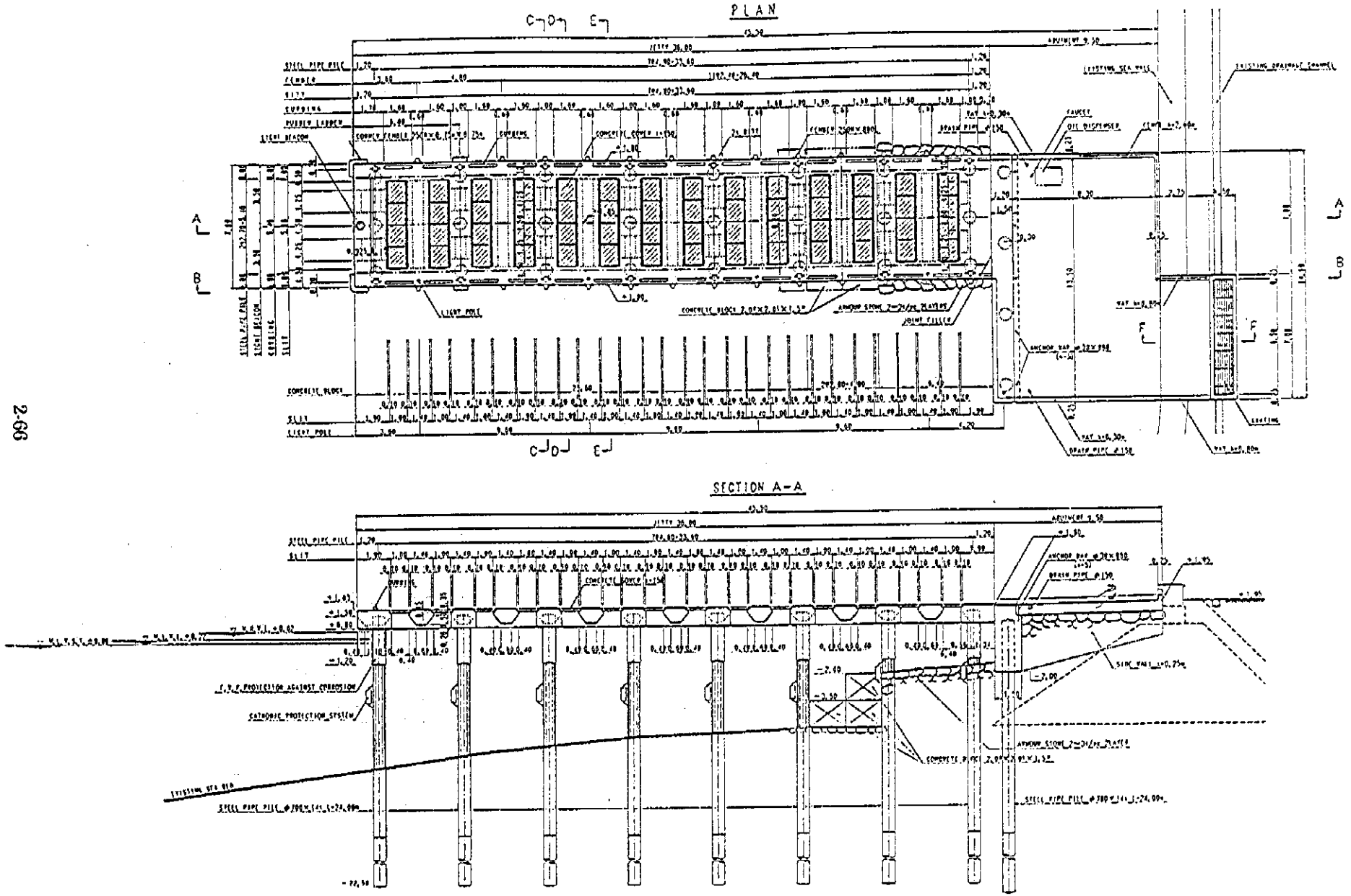
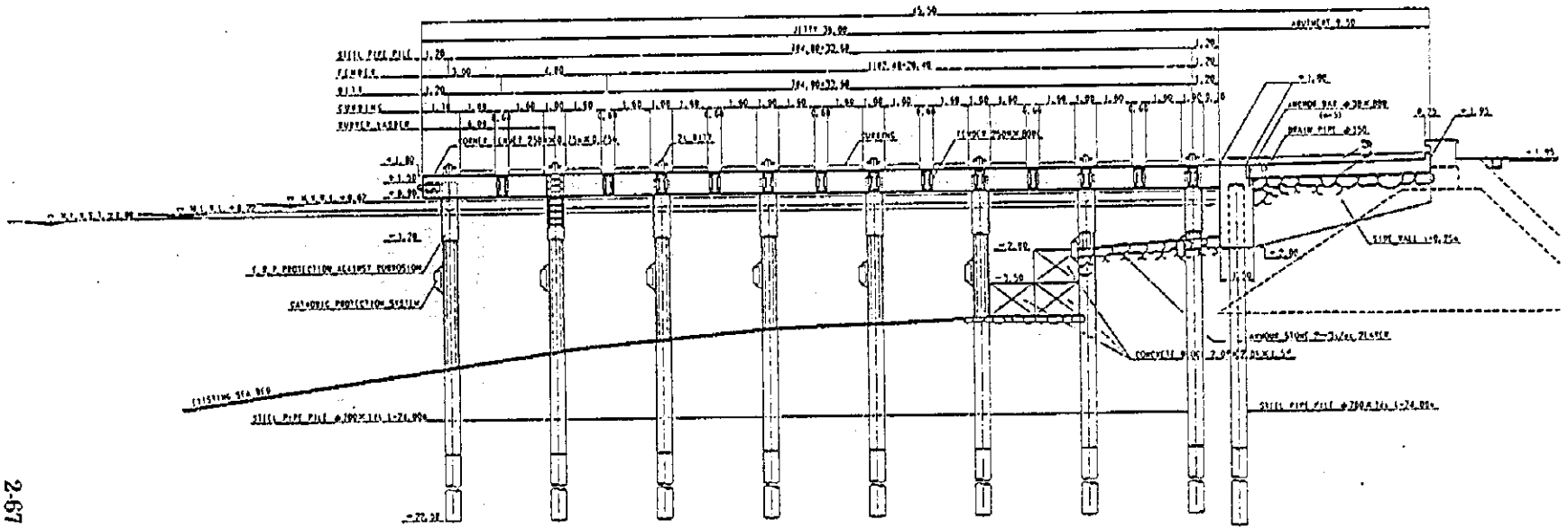
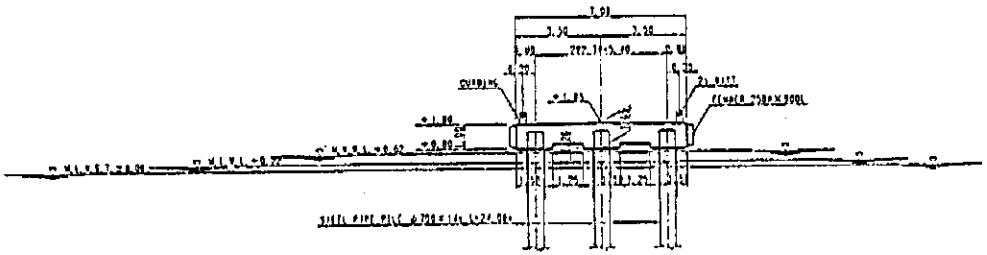


Figure-5 STRUCTURE OF JETTY (2/2) S=1/300, m

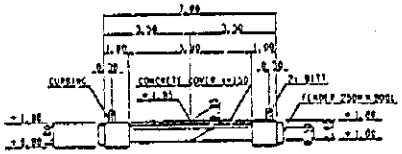
SECTION B-B



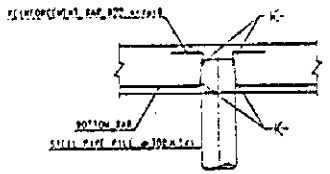
SECTION C-C



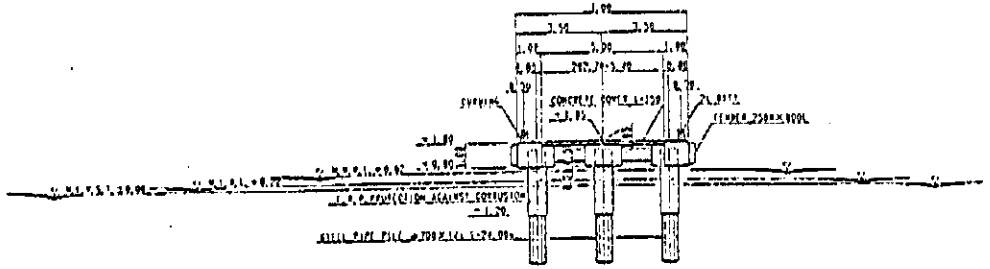
SECTION E-E



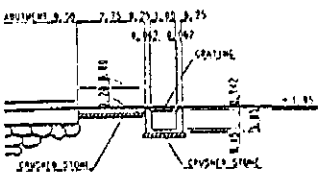
DETAIL OF PILE HEAD S=1/50, m



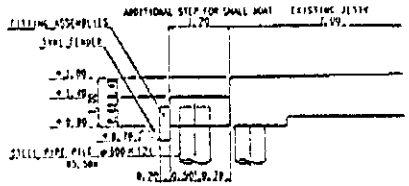
SECTION D-D



SECTION F-F



EXISTING JETTY IMPROVEMENT SECTION S=1/50, m



B. Fisheries Centers of Barrouallie and Chateaubelair

(1) Facility Layout Plan

1) Fisheries Center of Barrouallie

The plot is a rectangular site, stretching north to south, located between the seashore on the west and an access road (some 4 m wide) on the east. On the north side is a working place for fishermen, from which the site extends 52 m to the south, having a width of 18 m east to west, a sand beach with an area of about 940 ㎡.

Giving a priority to a flow line of activity of delivery of catch from the seashore in landing, the main building of the facility shall be placed on the northeastern end of the plot, and from there toward the south the oil terminal, toilet/shower facility, and fishermen's locker building shall be arranged in this order. The reason way the main building is placed on the north side is that the shipment of catch and supply of fuel oil are performable in close proximity to the access road, avoiding the congestion of the flow lines of activities. Arrangement of the toilet/shower room at a right angle to the shore, spacing a 3.5 m at least between the buildings, secures drafting and a view from the back of the site.

2) Fisheries Center of Chateaubelair

The plot is a long site extending east to west surrounded by sand beach on the north side and the Windward Road, a trunk road around the Island, on the south side, 37 m long east to west and 16 m wide south to north, having an area of some 600 ㎡.

The main building of the Center shall be placed, extending east to west, on the center of the site, and the toilet/shower room is arranged on the east of it, the fishermen's locker on the west. The oil terminal shall be placed on the northeast side of the main building, between the facility and the seaside, to make supplying oil to the seashore easier.

(2) Facility Plan

1) Plan and Section

a. Main building

Centering the handling space, on one side the office of 15 ㎡ and the store of 15 ㎡ are arranged seaward, and the retail shop of 18 ㎡ is placed on the road side. On another side, the ice bin of 7.3 ㎡ and the chilled room of 9.7 ㎡ are placed. The ice bin and the chilled room is a two-story building and its upper story is the machine room housing the ice plants, cooling system, condenser, maintenance tools, spare parts corner, etc.

b. Toilet/shower room

From the standpoint of area-saving and functional relation, the male toilet/shower room and female one shall be provided jointly. The toilet booth is 1.2 m × 1.6 m, and in front of male booth a urinal corner is planned and in front of female booth a wash stand.

The shower booth is 1.2 m × 1.2 m, and in front of each booth a shelf for changing clothes, is provided, and a rack is installed on the wall opposite the passage.

To make gravity flow of drainage to septic tank and under floor inspection of sanitary devices easier, the floor of toilet/shower room shall be 0.6 m high from the ground level.

c. Fisherman's locker

Stuff to be stored is such various articles as outboard motors, fishing gear, fishing net, spare fuel oil tank, changing clothes, etc. depending of boatowners. One unit of locker is planned to be 2 m×2 m. Each locker unit shall have a throating slope to prevent a rain puddle and a tools shelf which also serves as outboard motor rack is to be installed.

One building shall be of 10 units with an area of 40 ㎡, connected 5 units back to back.

d. Oil terminal

A cylindrical tank of 3 ton capacity shall be installed under the ground, and meters and instruments for selling are to be installed on the concrete paved surface ground.

e. Exterior

The Project needs such exterior works as pavement, drainage, and working

space construction for fishing net mending.

- Pavement

  To prevent outflow of soil within the premises by high waves due to abnormal weather, a U-shaped retaining wall shall be constructed on seaward side of the site, which is wholly paved.

- Drainage

  Drain ditch and catch basin shall be constructed to drain off rainwater promptly as well as flooding by waves,

- Working space

  A shading space is to be constructed with concrete pillars and beams for the various purposes including mending and drying fishing net. Its roof is of indigenous pandanus leaves to get good drafting.

2) Construction

a. Design standards and regulations

Regulations and standards concerning construction and designing of structures in St. Vincent are of Britain and the U.S. in origin. Also the CARIB CODE established by Caribbean states is applied. In the construction works of the Project, building standards of Japan is to be applied with reference to local regulations and standards.

b. Outline of structure

	Upper structure	Lower structure
Main building	Building: RC rigid framed structure Roof: Wooden roof truss Wall: Concrete block	Direct foundation with RC resisting pressure plate
Toilet/shower room	Building: Concrete block Roof: Wooden roof truss	RC continuous footing
Fisherman's locker	Building: Concrete block Roof: Wooden roof truss	RC continuous footing

c. Design load

- Dead load

  Weight of structural materials, finishing materials, and equipment are calculated separately. Unit weight of basic materials for building is as follows.

Concrete	2.3 ton/m^3
Reinforced concrete	2.4 ton/m^3
Mortal	2.0 ton/m^3
Concrete block	300 kg/m^2

- Live load

	Slab, beam	Pillar, beam, foundation	Earthquake
Roof	30	10	0
Office	300	180	80

- Wind load

  From the viewpoint of local hurricane conditions, a wind speed of 60 m/sec (225 kg/m^2) shall be applied.

- Earthquake load

  St. Vincent and the Grenadines is located in the volcanic zone in the Caribbean Sea. The same seismic factor as Japan, Co=0.2, shall be applied in designing.

- Measures against salt damage

  Careful quality control shall be done to prevent salt damage on structures due to local concrete aggregate. Its alkali-silica content shall be controlled to be below 300g/m^3, and adequate thickness of covering shall be given to concrete members. Adequate salt-resistant coating or galvanization shall be applied to steel bar and sheet.

3) Equipment

a Water supply

At both Barrouallie and Chateaubelair, water is to be supplied with 50 mm water piping connected to the Main under the ground of the access road south of the Project site. Water to each building is separately supplied with buried VU piping.

b. Drainage

Rainwater within the premises is to be drained directly to the sea with U-shaped ditch and catchment.

Drainage of waste water from the handling space shall be treated in a settling tank and then leachated through a seepage basin.

Drainage from the toilet/shower room shall be treated in a treatment tank before leading to a seepage.

c. Electronic equipment

- Main power line

In St. Vincent electricity is supplied through the electric power line of 3 phase/4 cores/400 V and lighting line of single phase/3 cores/230V, both on 50 Hz. A distributing board shall be installed in the main building, from which electricity shall be distributed on necessary voltage to each building with buried piping and wiring. Hand hole is to be equipped if necessary.

- Lighting and outlet

Lighting is to be planned in line with energy-saving and harmony with natural lighting. Fluorescent lamps are to be used inside, while mercury lamps outside. Outlets on splashing parts and in the exterior shall be of salt-resistant and water-proof type, and provided properly for installed equipment.

d. Special equipment

- Ice plant

The ice plant specified as below shall be installed at the upper story of the main building. Produced ice is stored in the ice bin on the ground floor.

Number of unit	1 unit
Production capacity	300 kg/day
Kind of ice	Plate ice, 12-15 mm
Ambient temperature	35° C
Raw water	Fresh water
Source	Single phase, 230 V, 50 Hz
Compressor	3.7 KW
Refrigerant	R-22
Condenser	Air cooling, salt-resistant type

Accessories	Stainless steel exhausting duct for condenser
Crusher	One step double cross drum type 11 t/h, 200 V, 50 Hz, 3 ϕ, 2.2 KW

- Ice bin

Number of unit	Complete
Storage capacity	600 kg
Dimensions	1.8 m(L) × 1.8m (W) × 2.2m (H)
Ambient temperature	35° C
Storage temperature	0 ~ -5° C
Source	Single phase, 230 V, 50 Hz
Compressor	1.5 KW
Refrigerant	R-22
Condenser	Air cooling, salt-resistant type
Panel	Colored steel plate covering, 100 mm thick insulation

- Chilled room

Number of unit	Complete
dimensions	2.7m (L) × 3.6m (W) × 2.2m (H)
Ambient temperature	35° C
Storage temperature	0~-5° C
Source	Single phase, 230 V, 50 Hz
Compressor	2.2 KW
Refrigerant	R-22
Condenser	Air cooling, salt-resistant type
Panel	Colored steel plate covering, 100 mm thick insulation
Accessories	Wooden Grating, thermometer (for Fahrenheit and Centigrade)

4) Construction materials

Since local availability of construction materials is limited in both kind and quantity, considerable part must be imported.

a. Exterior finish

- Roof Colored asphalt single roofing on water-proof veneer
- Exterior wall: Plastics emulsion coating on mortal troweling finish

b. Interior finish

	Floor	Wall	Ceiling
Main building -Handling space	Mortal brushing finish	Plastics emulsion coating on mortal troweling finish	Plastic emulsion coating on veneer
-Office	Plastics tiling on mortal troweling finish	Plastics emulsion coating on mortal troweling finish	Plastics emulsion coating on veneer
-Store	Mortal troweling finish	Plastics emulsion coating on mortal troweling finish	Plastics emulsion coating on veneer
-Retail shop	Mortal troweling finish	Plasstics emulsion coating on mortal troweling finish	Plastics emulsion coating on veneer
Toilet/shower room	50 mm square mosaic tiling on concrete troweling finish	50 mm square mosaic tiling on mortal troweling finish	Plastics emulsion coating on veneer
Fisherman's locker	Mortal troweling finish	Naked concrete block	Naked roofing foundation

(3) Equipment and materials

1) Barrouallie

a. Ice-making machine :Specifications are mentioned above.

b. Fish box

Quantity :30 boxes

Type :No lid type

Capacity :About 67 *l*

Material :Plastics

c. Insulated box

Quantity :10 boxes

Type :Lidded box type

Capacity :About 72 *l*

Material :Plastics

d. Scale

--For landing

Quantity :1 unit

Type :Platform type

Capacity :Over 200 lb

Material :Stainless steel covering

--For retailing

Quantity :2 units

Type :Spring type

Capacity :Under 20 lb

Material :Stainless steel hanging plate

e. Cart

Quantity :2 units

Type :Movable handle, 4 wheel

Dimensions :1.6 m× 0.9 m

Capacity :300 kg

Material :Wooden board with steel frame

f. Shovel

Quantity :2 units

Dimensions :About 280 mm × 360 mm

Material :Stainless steel, wooden stick

g. Processing table

Quantity :2 tables

Dimensions :2.0 m (L) × 1.5 m (W) × 0.8 m (H)

Type :2 boards, lower board with draining mesh

Material :Stainless steel, over 3 mm thick top board

h. Selling table

Quantity :2 tables

Dimensions :1.5 m (L) × 0.5 m (W) × 0.77 m (H)

Type :2 board, lower board with draining mesh

Material :Stainless steel, 1.2 mm thick top board

i. Winch

Quantity :1 unit

Type :Hand-operated type, reduction gear, anticorrosion stainless steel

Wire :Stainless steel, 16 mm × 50 m

Capacity :3 ton

Accessory :Iron block and others

j. Spare parts :Complete for ice-making machine, ice bin, chilled room

2) Chateaubelair

a. Ice-making machine :Specifications are mentioned above.

b. Fish box

Quantity :25 boxes

Others are same as Barrouallie.

c. Insulated box

Quantity :7 boxes

Others are same as Barrouallie.

d. Scale

- For landing

Quantity :1 unit

Others are same as Barrouallie.

-For retailing

Quantity :2 units

Others are same as Barrouallie.

e. Cart

Quantity :2 units

Others are same as Barrouallie.

f. Shovel

Quantity :2 units

Others are same as Barrouallie.

g. Processing table

Quantity :3 tables

Others are same as Barrouallie.

h. Selling table

Quantity :2 tables

Others are same as Barrouallie.

i. Spare parts :Complete. Others are same as Barrouallie.

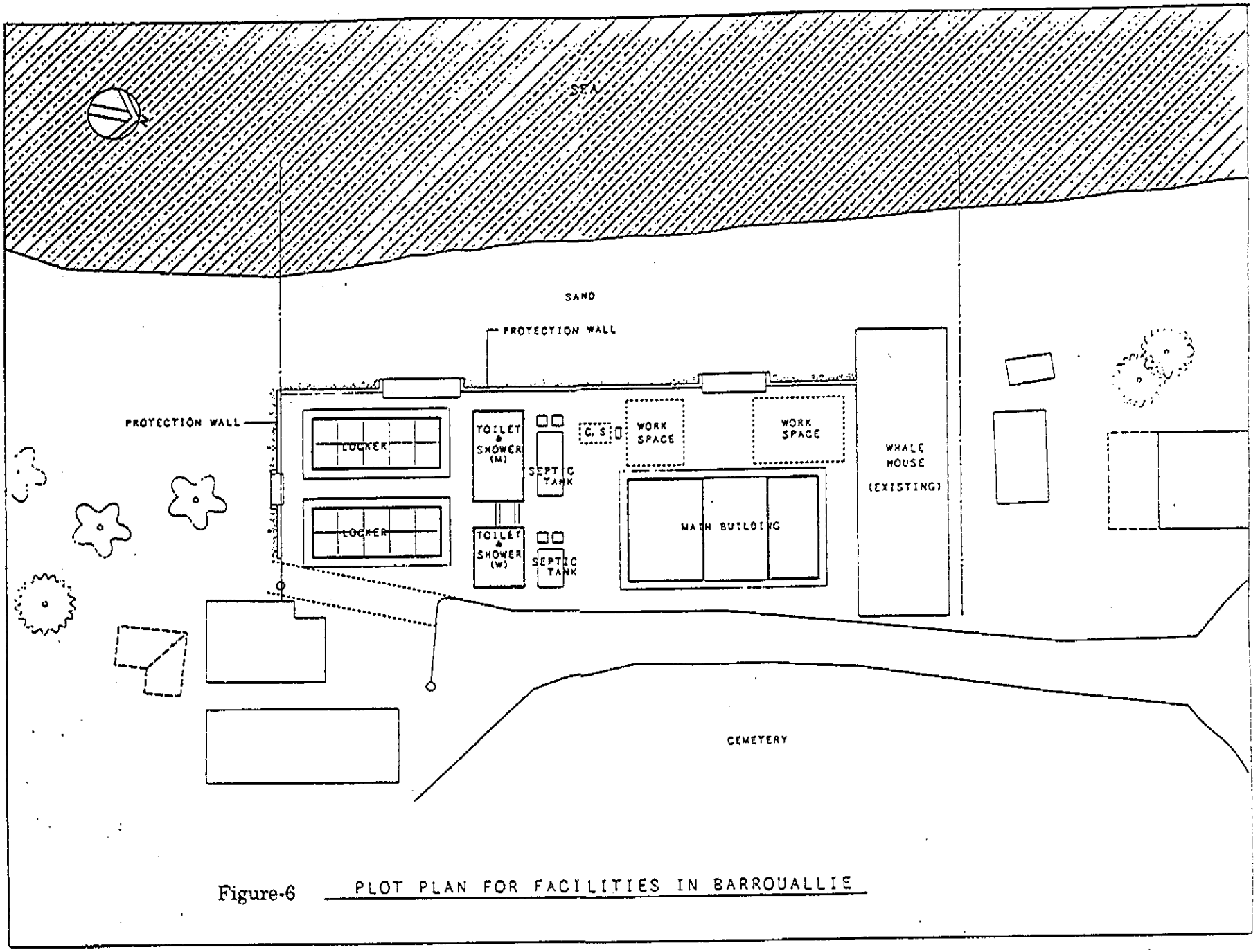


Figure-6 PLOT PLAN FOR FACILITIES IN BARROUALLIE

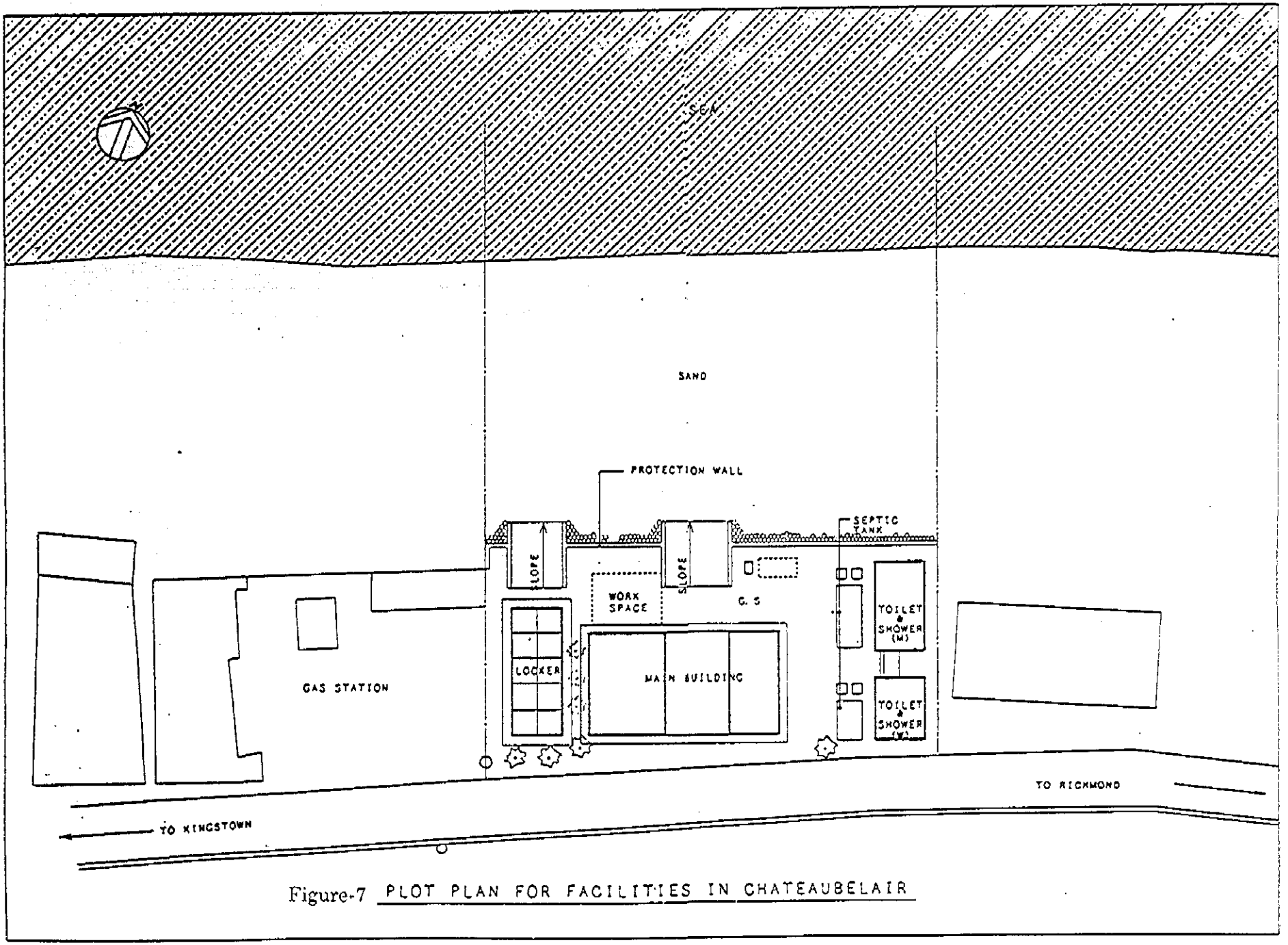
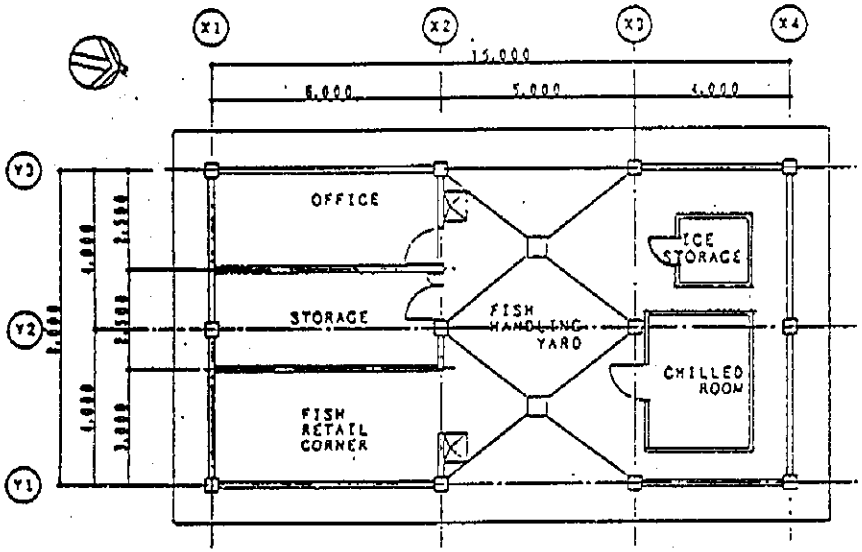
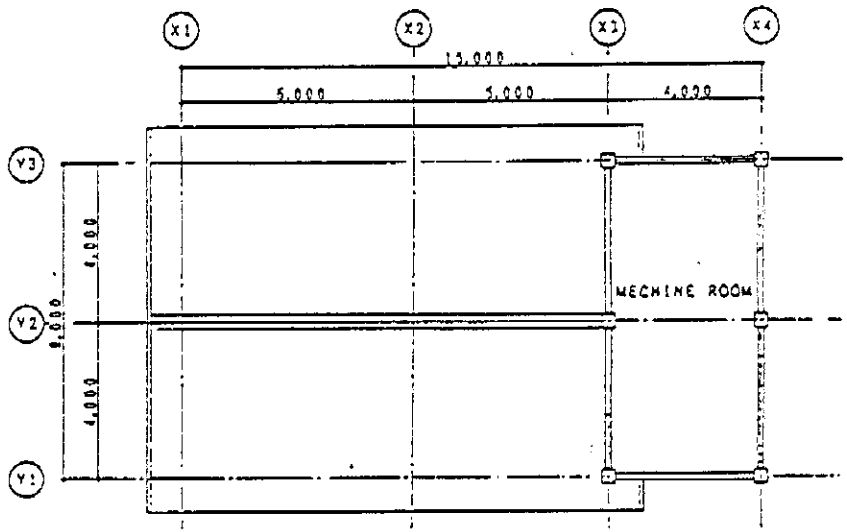


Figure-7 PLOT PLAN FOR FACILITIES IN CHATEAUBELAIR



FIRST FLOOR PLAN



SECOND FLOOR PLAN

Figure-8 1.2F PLAN FOR MAIN BUILDING

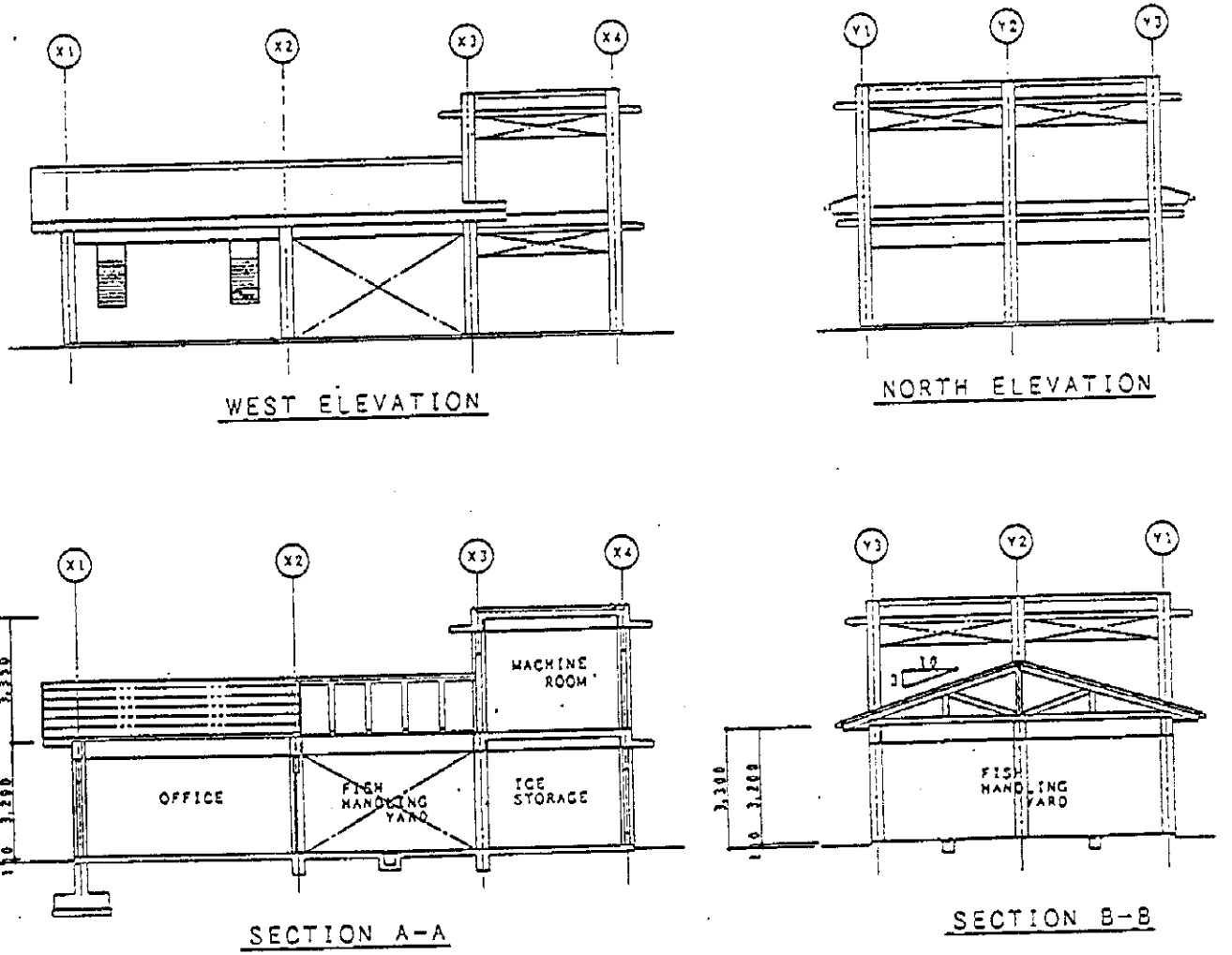
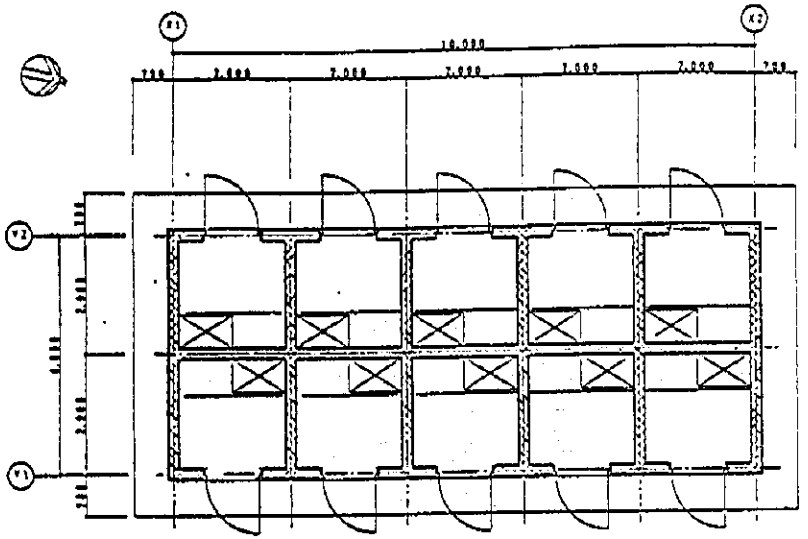
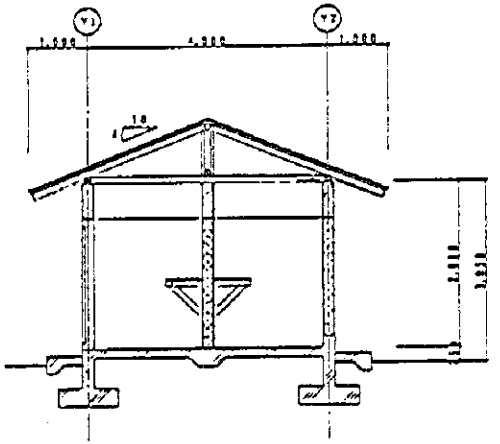


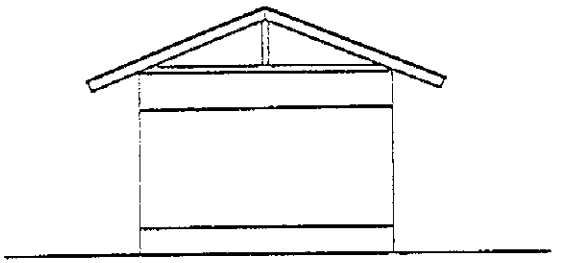
Figure-9 ELEVATION & SECTION FOR MAIN BUILDING



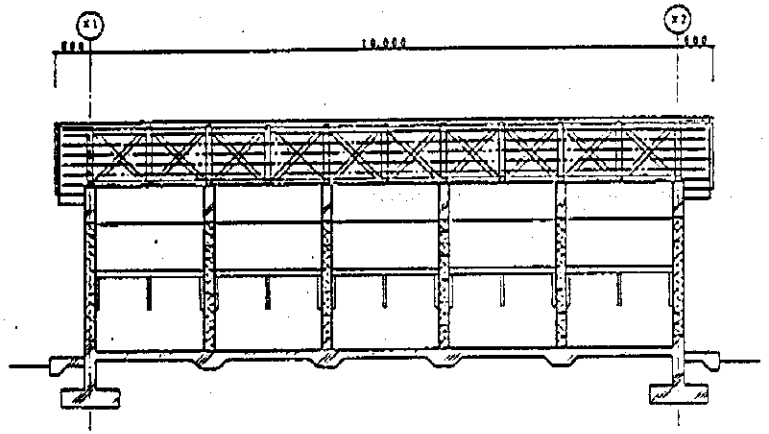
PLAN



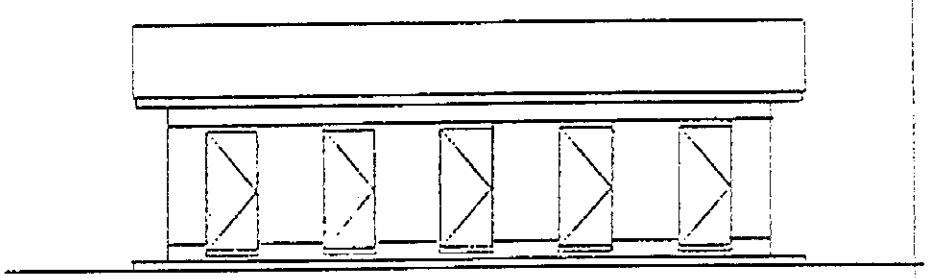
SECTION B-B



NORTH ELEVATION



SECTION A-A



WEST ELEVATION

Figure-10 LOCKER ROOM BUILDING

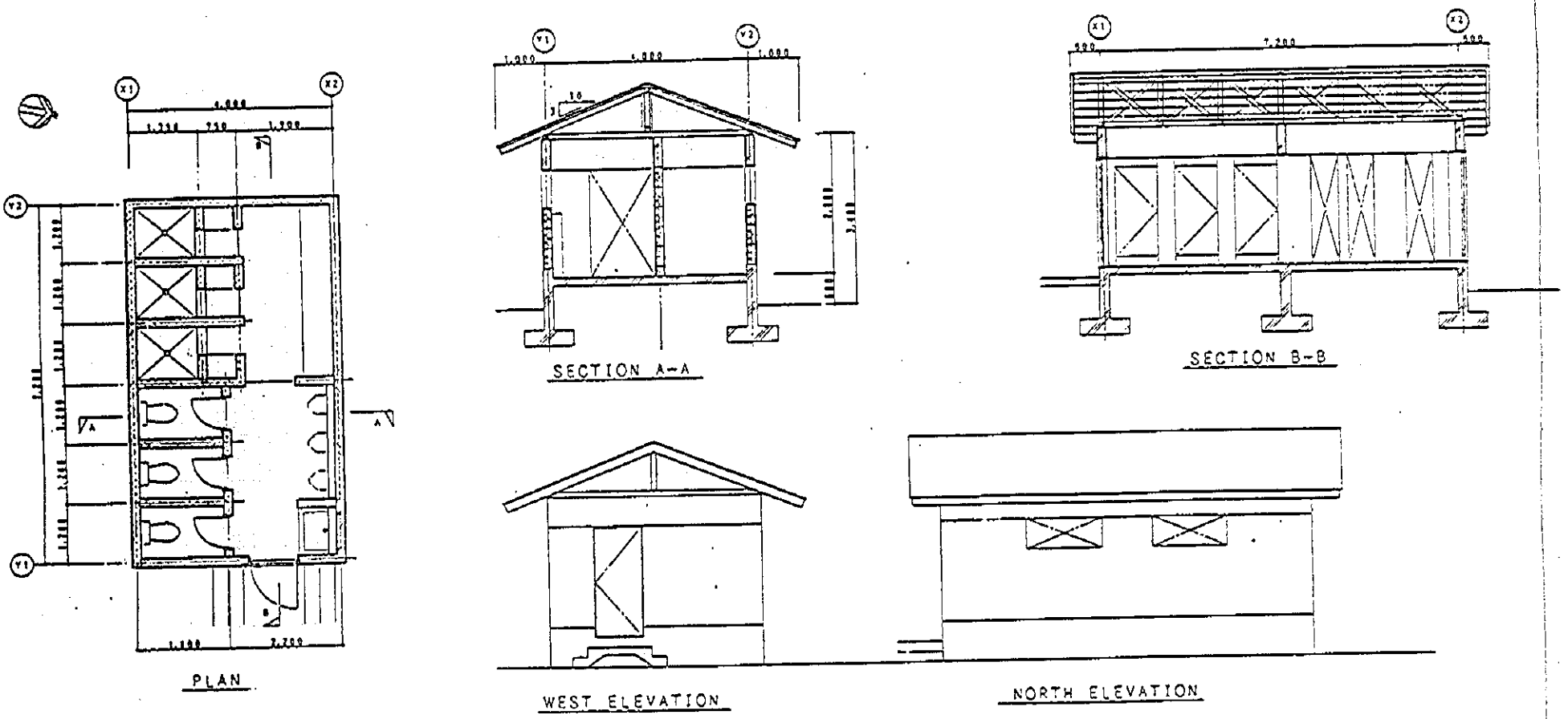


Figure-11 TOILET & SHOWER BUILDING (M)

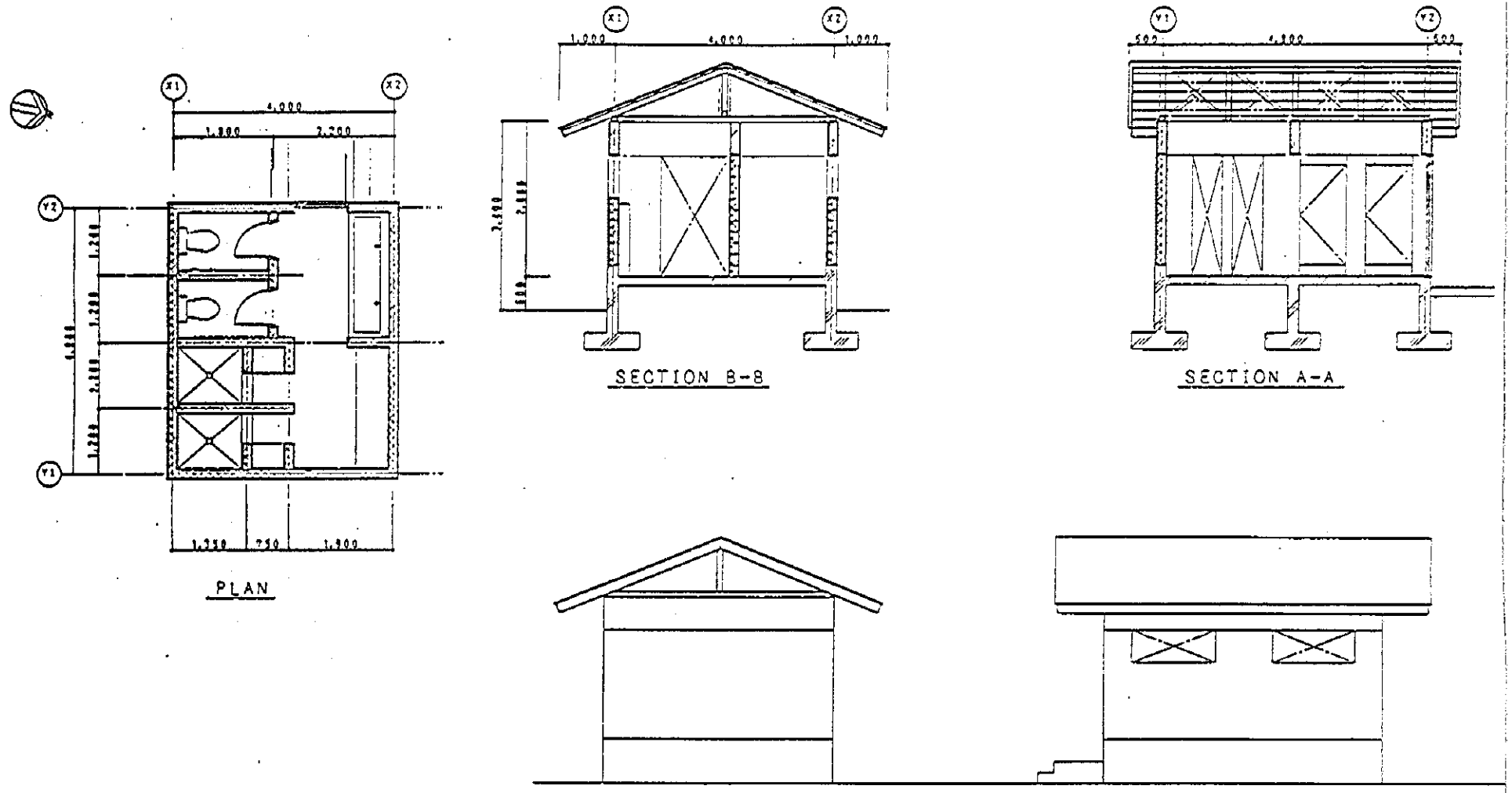


Figure-12 TOILET & SHOWER BUILDING (F)

2-4 Implementation arrangements of the Project

2-4-1 Implementing organizations

(1) Implementation arrangements of the St. Vincent side

The following organizations are involved in the Project.

-Responsible Ministry	:Ministry of Agriculture and Labor
-Implementing Agency	:Fisheries Division of the Ministry of Agriculture and Labor
-Executing Agency	
Fisheries Center	- Fisheries Division of the Ministry of Agriculture and Labor
Jetty	- Marketing Corporation of the Ministry of Agriculture and Labor

-Responsible Arrangements of Management

The Ministry of Agriculture and Labor is responsible for expediting the Project. The Fisheries Division of the Ministry is in charge of the management of the fisheries centers, while the jetty is to be transferred to the Marketing Corporation, which is responsible for the management and maintenance of it along with the existing jetty.

Following Exchange of Notes between the Governments of St. Vincent and the Grenadines and Japan, a Japanese consulting firm will make an agreement with the St. Vincent Government on the Detailed Design of the Project and the supervision of its implementation. Regarding the construction work of the Project, a Japanese contractor will make a construction contract with the St. Vincent Government and execute the work under supervision of the consulting firm (the Consultant). The Ministry of Agriculture and Labor, as responsible Ministry, has to manage the affairs relating to the Japan's grant aid concerning the Project (including arrangement of Banking Arrangement and Authorization to Pay, tender to select the Contractor, receipt of facilities and materials of the Project, issue of Completion Certificate, etc.). After the completion of the Project and its delivery to the St. Vincent Government, the facilities and materials are to be transferred to

the Fisheries Division of the Ministry of Agriculture and Labor and the Marketing Corporation of the Ministry of Finance and Planning for their management and maintenance. It is a matter of course that all the facilities and materials are the property of the St. Vincent Government.

(2) Operation and Maintenance Plan

(a) Fisheries center

As for the operation and maintenance plan of each fisheries center to be constructed at Barrouallie and Chateaubelair, the Fisheries Division intends to put both of them under its direct management by additional staff financed by the government budget or by personnel recruited locally, due to absence of any fishermen's cooperative at both of villages. This method was successfully adopted to the similar fisheries center at Union Island of the Grenadines, which has been granted from Japan too.

The fisheries center at Union Island can be managed independently because it is earning such proceeds of ice and others as are in the excess of its operation cost. The fisheries center at Barrouallie and Chateaubelair are also expected to gain sales of ice, fuel oil, etc. enough for independent operation, it seems necessary, however, to be placed under a direct control of the Fisheries Division for some time until the management ability of village people is developed. After that, aiming at self-management while organizing fishermen and establishing a cooperative in each village will be a practical way.

To be concrete, an officer from the Fisheries Division will be sent to each Complex as manager, one or two workers will be recruited at each village , and extension officers who finished appropriate training courses in Japan will go round to instruct how to operate and maintain such facilities as the ice plant and chilled room. This management form is recommended by the Japanese side, and the Fisheries Division also intends to apply for budget of it.

(b) Jetty

The jetty, the existing jetty alike, is to be managed and maintained by the Marketing Corporation as part of market facilities, and since no extra expense

and staff are required for its operation and maintenance, the management of it will offer no problem.

Chapter 3

Implementation Plan

Chapter 3 IMPLEMENTATION PLAN

3-1 Implementation Plan

3-1-1 Implementation Concept

In the implementation of the Project, the following concept is to be applied in accordance with the intention of Japan's Grant Aid Program.

(1) To promote smooth construction work, further efforts shall be made to achieve mutual understanding through full exchange of opinions between all the parties concerned; the Ministry of Agriculture and Labor, the Fisheries Division, the Ministry of Finance and Planning, St. Vincent Marketing Corporation, the Ministry of Transportation and Communication, the Maritime Affairs Division, the Consultant and the Contractor.

(2) The proposed construction sites are on the waterfront of the New Kingstown Fish Market and in two fishing villages of Barrouallie and Chateaubelair, which located 18km and 25km away from Kingstown respectively. In Kingstown it seems to be comparatively easy to get labor and equipment and materials necessary for the Project, while in Barrouallie and Chateaubelair it is difficult to carry large-sized construction machinery and transport materials in large quantities because of poor transport condition due to narrow roads, and thus the transport by sea shall be considered. In procurement, equipment and materials of good quality shall be secured and used without waste under an effective operation plan of machinery and skilled labor.

(3) All the Project sites are state-owned. Prior to commencement of work, taking the influence on surroundings during the construction work, the proper space to which the existing facilities in service are to be relocated, and the removal of existing buildings and other obstacles into consideration, a working method with the least working volume on the site shall be decided. A full explanation shall be given to the St. Vincent Government on the space for relocation so that the

Government can have enough time to cope with.

(4) To keep the accuracy and quality of construction work the followings should be considered.

1) Measures against salt damage

Since the construction site is subject to salt damage due to proximity to the sea, salt-resistant materials shall be selected and also appropriate measures against salt damage shall be taken to protect equipment and materials during the construction work.

2) Control of concrete quality

Special quality control shall be done for concrete to be used on the sea/ seaside work including the jetty work at the Fish Market. Regarding aggregate, its alkali-silica content shall be controlled to restrain below 300g/m^3, and also a mixing plan to use portland fly-ash cement instead of normal portland cement shall be examined. The cover shall be adequately thick in casting.

3) In order not to delay the completion and delivery of the Project, appropriate measures shall be taken in procurement of such materials necessary for the critical pass in construction works as main structural members of the foundation works, revetment, and building works.

3-1-2 Implementation Conditions

The large-scale civil engineering and construction works under way in St. Vincent are an improvement work of the Leeward Road running on the west coast of the island, a construction work of a ferry terminal south of the Kingstown commercial harbor, and a construction work of the Central Market near the Fish Market.
Almost all of the prime contractors of these big projects concurrently under way are foreign firms. Generally speaking, training of experts and skilled personnel is not adequate, and the technical level of local construction firms remains relatively low. Partly introduction of construction technique from aboard, then, will be necessary. In particular when similar scale construction works are planned concurrently, it is anticipated that a serious lack of engineers may took place. It is essential, thus, to seize the market situation of construction industry so that necessary equipment

and materials as well as general labors can be procured in time.

In addition, the following points shall be kept in mind.

- The major works will be performed in the rainy season (hurricanes may be frequent from August to December).
- The rainy season will last from September to December, having heavy rain in October and November.
- Almost all construction materials available locally are imported from the U. S. and Europe. Sand for concrete comes from Martinique and Guyana, cement and reinforced bars from Trinidad, steel piles from the U.S., Europe, and Japan. Aggregate and covering stones only are available in St. Vincent.
- The road from Kingstown to the Project sites, Barrouallie and Chateaubelair, is so narrow that the transport of large-sized construction machinery and materials in bulk is difficult. Transport by sea should be conducted.

3-1-3 Scope of Works

Table 3-1-1 below shows the scope of woks borne by Japan and St. Vincent and the Grenadines respectively.

Table 3-1 Scope of Works

Contents of works	Japan	St. Vincent
1. Securing land, removal of existing buildings, clearing and leveling site, securing relocation space, and measures to continue fishing activities.		○
2. Supplying utility to site (electricity, water, telephone, etc.)		○
3. Construction works (jetty of Fish Market of Kingstown and fisheries center at Barrouallie and Chateaubelair)	○	
4. Import procedure and customs clearance (1) Transport to St. Vincent and inland transport. (2) Tax exemption and customs clearance	○	 ○
5. Payment of commissions to Japanese foreign exchange bank regarding Banking Arrangement.		○

6. Convenience for Japanese staff engaging in the Project to entry into and departure from and stay in St. Vincent.		○
7. Appropriate and effective management and maintenance of facilities granted by Japan's Grant Aid Program.		○
8. Bearing all the expenses, other than those to be borne by the Grant, necessary for construction of facilities as well as for transport and installation of furniture and equipment.		○
9. All the procedure of application for approval or authorization concerning construction works.		○
10. Exemption of all the taxes including internal taxes and other fiscal levies which may be imposed in St. Vincent with respect to equipment and materials and services procured by the Contractor of the Project.		○

3-1-4 Consultant Supervision

Consultant supervision is conducted with attention paid to the following points.

(1) With the progress of the Project, the Consultant shall enhance contact with the executing agency, the Fisheries Division of the Ministry of Agriculture and Labor, so that smooth construction works can be carried out. From the standpoint of works executed in Japan, the schedule and specifications on securing the site, removal of existing buildings and other obstacles, and leveling of ground, in particular, should be fully discussed in advance.

(2) Prior to the commencement of the work the Consultant shall examine the construction planning and working diagrams submitted by the Contractor carefully, and inspect the appropriateness of the plan of temporary works, progress schedule, quality of materials to be used, construction method and so on.

(3) On the completion of the Project the Consultant shall check the final contents of works in conformity with the designed specifications, and give proper instructions to the Contractor when modifications are required.

(4) The Project Manager is responsible for comprehensive execution management of the Project with technical assistance of the civil engineer and architect.

3-1-5 Procurement Plan

Construction materials available locally are confined to sand/gravel for aggregate, concrete block. Apart from local stock, all of cement, reinforcing bar, plywood panel, electric/piping materials for general use depend simply on import from the U.S., Venezuela, Trinidad and Tobago, Brazil and others.

Construction materials (cement, reinforcing bar, wooden form, metal form, etc.) are in principle to be procured locally. Materials unavailable locally or unsuitable for the Project due to inferior quality or poor stock are to be procured in Japan or the third countries and transported to St. Vincent by sea.

Construction machinery for building construction is available locally, while a working craft for civil engineering and its machinery on board should be brought in from the neighboring Caribbean states.

Table 3-2 procurement List

Items	Transportation method
1. Construction equipment and materials	
(1) Construction machinery	
a. Large crane	Marine transport from the third countries
b. Working craft	Marine transport from the third countries
c. Winch boat	Marine transport from the third countries
d. Sand barge	Marine transport from the third countries
e. Tugboat	Marine transport from the third countries

Items	Transportation method
(2) Construction materials	
a. Steel bar	Marine transport from the third countries or Japan
b. Roofing materials	Marine transport from the third countries or Japan
c. Steel pile	Marine transport from the third countries or Japan

3-1-6 Implementation Schedule

In accordance with the Japan's Grant Aid Program, the work schedule is as follows.

Table 3-3 Implementation Schedule

Detail Design

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Site Survey														
Works in Japan														
Site Survey														

Consultant Supervision

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Kingstown site															
Preparation															
Materials & Equipment															
Revetment															
Remove															
Piling															
Concrete work															
Jetty															
Piling															
Concrete work															
Armor rocks															
Finishing															
Fisheries Center (1)															
Preparation															
Faundation															
Construction															
Finishing															
Equipment															
Exterior															
Fisheries Center (2)															
Preparation															
Foundation															
Construction															
Finishing															
Equipment															
Exterior															
Equipment															
Plan Approval															
Manufacturing / Procurement															
Transportation															

Spot supervision

3-1-7 Undertakings to be taken by the St. Vincent Government

Major undertakings to be taken by the St. Vincent Government are as follows. Among them, removal of existing buildings and other obstacles, leveling of ground, and the supply of utility (electricity, water, telephone) shall be finished by the construction work starts.

Table 3-4 Undertakings to be taken by the St. Vincent side

1)	Securing site
2)	Removal of existing buildings
3)	Leveling site
4)	Supply of electricity
5)	Supply of water
6)	Connection of telephone
7)	Securing relocation site for continuing fisheries activities
8)	Others (bank commissions, etc.

3-2 Cost Estimation

3-2-1 Estimation Cost to be borne by the St. Vincent side

Items	Amount
(1) Removal of the existing building and leveling of ground	EC$ 28,000
(2) Supply of electricity	EC$ 35,000
(3) Supply of water	EC$ 2,000
(4) Preparation of substitute site	EC$ 5,000
(4) Others (bank commissions, etc.)	EC$ 18,000
Total	EC$ 88,000

3-2-2 Management expenses

(1) Revenue and expenditure of the Project

Based on the discussions with the St. Vincent side, the items concerning revenue and expenditure of the Project are to be established as follows.

Jetty of Fish Market

Activity	Revenue	Expenditure
1. Management of Jetty Fisheries Center	no direct revenue	Management cost (budget)
1. Ice making/selling	Proceeds of ice	Ice making cost
2. Storage in chilled room	Storage fee	Operation cost
3. Fuel oil selling	Proceeds of oil	Prime cost
4. Management of Center	Rental fee	Management cost
5. Administration	Non-activity revenue	Administration expenses
	Total revenue	Total expenditure

(2) Calculation of appropriate rental fee

Revenue and expenditure of the Project are to be calculated on the basis of above-mentioned activity. The rental fee in particular shall be determined to be within appropriate range on fair selection of users.

No rental fee is imposed on using the jetty at present. Small fishing boats are using the jetty for only landing their catch to the Fish Market, and since the Market are collecting handling fee in proportion to their landings, no rental fee will offer no problem as before.

Tuna long-liners are also not imposed any fee, but there is no reason why a proper fee should not be collected from them because almost of all their catch are exported directly leaving only bycatch to sell to the Market and they are moreover occupying exclusively the mooring berth for the days from Monday to Wednesday. Aiming at promotion of effective utilization of the Center, the rental fee of the Center facility will be estimated on several model cases. Base on the results, appropriate rental fee will be recommended to the St. Vincent side, from the viewpoint of fisheries development and future self-management by fishermen's own organization.

Table 3-5 shows the estimation of revenue and expenditure of the Project.

table 3-5 Estimation of revenue and expenditure

Barrouallie Fisheries Center

(unit:EC $)

ITEM	CULCULATION GROUND	amount	
REVENUE		month	year
Proceeds of ice	for fishermen:300kg/Dx25Dx@0.3	2,250	27,000
Margine of FO sales	25L/4.5Gx24boatsx25Dx@0.5	1,667	20,000
Charge of fisherman's Locker	10x20unit	200	2,400
Storing fee	12boxes 0.5/Dx30D	180	2,160
Charge of shower room	5 x 50 persons	250	3,000
Total		4,547	54,560
EXPENDITURE			
Power rates	ice making machine 4.4KWHX0.85X18HX25Dx0.48=807	1,559	18,708
	ice bin 1.2KWHX0.85X17HX30Dx0.48=250		
	lighting 1KWHX0.30X10HX30Dx0.48= 44		
	chilled room 2.2KWHX0.85X17HX30Dx0.48=458		
Water charge	4 tons / D	120	1,440
Maintenance charge of equipment	1,000/M	1,000	12,000
Wage of Fisheries staff	no accounting. Fisheries budget	0	0
Wage of local staff	no accounting. Fisheries budget	0	0
Office	900/M	900	10,800
Depreciation	no accounting.	0	0
Total		3,579	42,948
Balance		968	11,612

Chateaubelair Fisherie center

(unit:EC $)

ITEM	CULCULATION GROUND	amount	
REVENUE		month	year
Proceeds of ice	for fishermen:250kg/Dx25Dx0.3	1,875	22,500
Margine of FO sales	25L/4.5Gx16 boats x25Dx@ 0.5	1,111	13,333
Charge of fisherman's Locker	10x10unit	100	1,200
Storing fee	10 boxes x0.5/Dx30D	150	1,800
Charge of shower room	5 x 50 persons	250	3,000
Total		3,486	41,833
EXPENDITURE			
Power rates	ice making machine 4.4KWHX0.85X18HX25Dx0.48x250/300=673	1,423	17,076
	ice bin 1.2KWHX0.85X17HX30Dx0.48=249		
	lighting 1KWHX0.30X10HX30Dx0.48= 44		
	chilled room 2.2KWHX0.85X17HX30Dx0.48=457		
Water charge	4tons /D	120	1,440
Maintenance charge of equipment	1,000/M	1,000	12,000
Wage of Fisheries staff	no accounting. Fisheires budget	0	0
Wage of local staff	no accounting. Fisheires budget	0	0
Office	900/M	900	10,800
Depreciation	no accounting.		
Total		3,443	41,316
Balance		43	517

Chapter 4

Project Evaluation and Recommendations

Chapter 4 EVALUATION OF THE PROJECT AND RECOMMENDATIONS

4-1 Verification of appropriateness and benefits of the Project

4-1-1 Benefits of the Project

The direct benefits generated by the Project will cover some 300 persons of fishermen and Fish Market-related people at Kingstown, and some 400 persons of fisheries related people at Barrouallie and Chateaubelair.
Also about 30 thousand people using the markets in the metropolitan area plus about 10 thousand inhabitants at Barrouallie, Chateaubelair, and inland areas will be indirectly benefited by the Project.
Furthermore the following effects will be brought by the construction of the jetty and Fisheries Centers.

Table 4-1 Improvement by the Project

Current situation and constraints	Measure taken by the Project	Effect and improvement produced by the Project
1. The existing jetty with only 3 berths for small boats is in confusion during landing hours when boats are concentrated, resulting in lowering of working efficiency and many waiting boats.	The existing jetty is used for only small boats and at the berth for middle-sized boats a step for small boats is constructed. By this the berth for small boats is doubled; 3 to 6.	The present more than 3 mooring rows are decreased to less than 2 rows, confusion being eased and landing efficiency being improved.
2. Tuna long-liners are moored in 4 rows on the only one berth of the existing jetty, resulting in restricting preparation work for sailing such as ice loading work.	A jetty alongside of the existing jetty is newly constructed for middle-sized boats only. By this the berth for tuna boats is doubled from 1 to 2.	Mooring in 4 rows of tuna boats is decreased to 2 rows, which effect improves the efficiency of preparation work for sailing and decreases loss of ice.

3. Unavailability of ice and preservation facilities makes difficult for fishermen to delivery their catch systematically to Fish Market and inland areas.	The ice-making machine, ice bin, and chilled room necessary for preservation are provided.	Effective use of ice and chilled room makes it possible to control quality; all of quality fish can be marketed at Kingstown, systematic shipment to inland areas can be made, effective management of resources can be achieved by decreasing post-harvest loss.
4. Absence of gas station at Barrouallie and limited business hour of the gas station at Chateaubelair restrict fishing activities.	The oil terminal capable of meeting the time requirements of fishermen is provided.	Fishermen are able to sail out for fishing whenever they want. Danger of storage of oil at home can be avoided.

4-1-2 Verification of appropriateness

The Fish Market area of Kingstown is now presenting brisk appearance as a key position of landing and selling of fish in the metropolitan area, a hub of traffic in the metropolis, and the central market district of the country, playing a very important role to fish traders and metropolitan inhabitants. Improving the present conditions of the jetty which is somewhat restricting these activities has an instant effect on activation of the Fish Market, contributing heavily to the prosperity of the area.

Provision of fisheries-related infrastructure allowing efficient collecting and delivering catch at Barrouallie and Chateaubelair, local fishing villages less developed in spite of major fish supplying areas, has an aspect of local development in a way, such as subsistence fishing village development, and thus it is expected to contribute to improve the living standard of fisherfolk being of lower social standing.

The state economy of St. Vincent depending heavily upon agriculture and tourism cannot be said to have a sound basis. The implementation of the Project in the

fisheries sector which has potential resources and which has a bright prospect of growing in future and which is a living ground of local people is, therefore, given an important status in strengthening the basis of the state economy with supplying protein to the people, obtaining foreign money by export, creating employment opportunities. Taking these points into consideration, it is judged that the implementation of the Project is of great importance and has a high necessity as well.

Also, the significance that the Project is implemented under Japan's Grant Aid and the appropriateness and rationality of the Project are appreciated from the following points.

(1) Since the Project covers both the metropolitan inhabitants and local people, as many people as some 40 thousand, 37% of the whole population, are benefited.

(2) There are a fish market and a meat market in the metropolitan market area, while a vegetables market is being constructed. To eliminate constraints of the Fish Market in such a general market area is in line with the urban development, and gives a visual effect to the metropolitan people coming together at the market area, which situation seems to prove that the impact given by Japan's Grant Aid is great.

(3) The construction of Fisheries Centers is much wanted by all the people as well as fisherfolk in local fishing villages without any particular facilities as provision of a place of activity.

(4) The budget for the work to be borne by the St. Vincent side was finalized, and staffing and funding were made in the implementation arrangements with proper technical level. According to financial estimation a self-supporting accounting is considered to be possible, and it is expected that the Project is managed successfully.

4-2 Technical corporation and linkage with other donors

The Fisheries Division is now training fishermen for introduction and development of suitable fishing gear, fishing ground development, and the spread of quality control of catch, and one Japanese expert of coastal fisheries is working to assist the

training in these fields.
On the implementation of the Project, the development of effective utilization of resources, in particular mass harvesting species, aiming at decreasing post-harvest loss will become an important subject. An addition of another expert of this field is desirous.
Also the overseas training for improvement of technical level of the Fisheries Division staff should be continued.

4-3 Recommendations

As mentioned above, that the Project is implemented under Japan's Grant Aid is of deep significance from the standpoint of a great effect as well as contribution to improvement of living standard of the people. In the implementation of the Project the followings are particularly recommended.

(1) Collecting reasonable fee or charge

At present no fee is charged on fishing boats for the utilization of the existing jetty. For the small boats it is a temporal mooring for a short time to land their catch to the Fish Market, and no fee on them is reasonable. However, the tuna long-liners to be moored at the jetty newly built under the Project should pay a proper charge because they will occupy the jetty for about half a week and almost all of their catch will export except bycatch to be landed at the Market. It is also hoped that these collected charges should be used as the maintenance/management cost of the jetty or funds for fisheries development.
At the Fisheries Centers too, from the benefit principle, proper water charges should be collected from regular users of the shower facilities after full discussion with fishermen, and these money should be used for sound management of the Centers.

(2) Staffing

It is recommended that the Fisheries Division should arrange necessary staffs to the Centers. For this purpose, it will be necessary to increase the staff of the Fisheries Division itself and to conduct pre-training for the locally-recruited personnel so that they can be immediately useful at starting operation of Centers.

(3) Establishment of financial management

It is recommended that a healthy financial management system should be established. It is easy to resolve various problems when the financial basis is sound. For this purpose, it is important to manage the proceeds of sales of ice and fuel oil and charge revenue properly and to establish a system to allow expenditure for repair and replacement. Also it is recommended that the profits should be reserved for maintenance of facilities or funds for transit of operation to a cooperative to be organized in the future.

Appendices

APPENDICES

1. Member list of the Survey Team

1-1 Basic Design Study

Yasuhiro YOSHIZUKA	Team Leader: Deputy Director, Fishing Port Planning Division, Fishery Agency
Yasuaki IWAMOTO	Grant Aid Planner: Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs
Kohsuke SHIMAZU	Chief Consultant/ Fishery Distribution Surveyor: CRC Overseas Cooperation Inc.
Eiji KAWABATA	Marine Engineer/ Natural Condition Surveyor: Pacific Consultants International
Kaname MOTOKI	Facilities and Equipment Planner/ Cost Estimation: CRC Overseas Cooperation Inc.

1-2 Draft Basic Design

Yasuaki IWAMOTO	Team Leader: Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs
Kohsuke SHIMAZU	Chief Consultant/ Fishery Distribution Surveyor: CRC Overseas Cooperation Inc.
Eiji KAWABATA	Marine Engineer/ Natural Condition Surveyor: Pacific Consultants International

2. Survey Schedule

2-1 Basic Design Study (26th of October, 1997～1st of December, 1997)

	Date	Week	Itinerary	Accomodation
1	10/25	Sat.	Tokyo→New York	New York
2	10/26	Sun.	New York→St. Vincent	Kingstown
3	10/27	Mon.	Independence Day Site survey (Kingstown, Barrouallie, Chateaubelair) Team Meeting	Kingstown
4	10/28	Tue.	Meeting at Fisheries Division: (Explanation of Inception Report, discussion about aims and schedule of Site Survey, presentation of Questionnaire and request of answer to it, etc.). Meeting with interests concerned about the survey on natural conditions.	Kingstown
5	10/29	Wed.	Courtesy call to: Ministry of Foreign Affairs, Tourism and Information, Ministry of Agriculture and Labor Meeting at Fisheries Division	Kingstown
6	10/30	Thu.	Survey of fisheries-related site: Visit to Calliaqua fisheries center. Meeting at Fisheries Division, Minutes of Discussion (draft), Starting boring survey. Team Meeting	Kingstown
7	10/31	Fri.	Meeting at Fisheries Division Visit on board the research vessel and Site Survey (Barrouallie and Chateaubelair)	Kingstown
8	11/1	Sat.	Meeting at Fisheries Division Minutes of Discussion (draft), Survey on natural conditions: Boring at waterfront of Kingstown.	Kingstown
9	11/2	Sun.	Team Meeting	Kingstown
10	11/3	Mon.	Meeting on the final draft of Minutes. Signing of Minutes of Discussion at Ministry of Agriculture and Labor Team Meeting	Kingstown

	Date	Week	Itinerary	Accomodation
11	11/4	Tue.	Official team members left St. Vincent.: St. Vincent → Trinidad and Tobago Reporting to Embassy of Japan Collecting of related-materials and Hearing Survey on natural conditions : Commencement of 25 hour tide survey. (Chateaubelair)	Port of Spain/ Kingstown/ On board the research vessel.
12	11/5	Wed.	Official team members: Trinidad and Tobago→Miami Meeting at Fisheries Division, Hearing Survey on fishing boats arriving at jetty. Survey on natural conditions: Completion of 25 hour tide survey. (Chateaubelair)	Miami/ Kingstown
13	11/6	Thu.	Governmental Officials : Miami → Chicago → Tokyo Survey on fishing boats arriving at jetty Survey on price of construction machinery and materials. Survey on national conditions: Boring at waterfront of Kingstown.	On board plane/ Kingstown
14	11/7	Fri.	Official team members arrived at Tokyo. Meeting at Fisheries Division about construction machinery and materials. Site Survey (Barrouallie and Chateaubelair) Survey of relocation space.	Kingstown
15	11/8	Sat.	Survey of fisheries -related site: Visit to fisheries center on Bequia Island (one day trip by ferry boat). Survey on natural conditions: Boring survey at Barrouallie.	Kingstown
16	11/9	Sun.	Meeting with a marine constructing firm from Barbados. Site survey with the firm.	Kingstown
17	11/10	Mon.	Meeting at Fisheries Division, outlining the fisheries center. Visit to Port Authority, explaining extension of jetty. Visit to St. Vincent Electricity Services Ltd to discuss supply of electricity to the site. Survey on national conditions: Boring survey at Chateaubelair.	Kingstown

	Date	Week	Itinerary	Accomodation
18	11/11	Tue.	Survey on landing situation of tuna, collecting and copying data. Survey on natural conditions: 25 hour tide survey at Barrouallie.	Kingstown/ on board the research vessel.
19	11/12	Wed.	Meeting of fisherfolk at Barrouallie. Hearing at Marketing Corporation. Hearing at CFRAMP. Checking up on Building Standards, etc. at Ministry of Finance and Planning. Survey on natural conditions: Completion of 25 hour tide survey at Barrouallie.	Kingstown
20	11/13	Thu.	Meeting of fisherfolk at Chateaubelair. Hearing on water supply/drainage in site at Central Water & Sewage Authority. Survey on natural conditions: 25 hour tide survey at Kingstown.	Kingstown/ On board the research vessel.
21	11/14	Fri.	Meeting at Fisheries Division, reporting and discussing intermediate survey results. Survey on natural conditions: Completion of 25 hour tide survey at Kingstown.	Kingstown
22	11/15	Sat.	Compilation of data, team meeting about results of site survey, listing up lacking data, etc.	Kingstown
23	11/16	Sun.	2 technical team members left St. Vincent for Tokyo via. Trinidad and Tobago, one technical member (marine engineer) stayed at Kingstown. Discussing results of survey on natural conditions with local firm.	Kingstown/ Port of Spain
24	11/17	Mon.	Works below were conducted by staying marine engineer. Investigation of construction situation, collecting and compiling data on natural conditions. (2 team members returning home reported at Embassy of Japan at Trinidad and Tobago and left Trinidad for New York)	Kingstown/ New York
25	11/18	Tue.	Investigation of construction situation, collecting and compiling data on natural conditions. (2 team members left New York for Tokyo)	Kingstown/ On board plane
26	11/19	Wed.	Discussion about jetty structure at Fisheries Division : Visit to Kingstown fishermen's cooperative. (2 team members arrived at Tokyo)	Kingstown

	Date	Week	Itinerary	Accomodation
27	11/20	Thu.	Environmental survey, collecting general information.	Kingstown
28	11/21	Fri.	Visit to Coast Guard, requesting data and information regarding tide and current. Visit to meteorological station at Air Port, requesting data regarding hurricanes.	Kingstown
29	11/22	Sat.	Study of jetty structure.	Kingstown
30	11/23	Sun.	Survey of back side situation of existing jetty. Cross sectioning of revetment.	Kingstown
31	11/24	Mon.	Water and environmental survey at Kingstown. Investigation of container harbor.	Kingstown
32	11/25	Tue.	Water and environmental survey at Chateaubelair.	Kingstown
33	11/26	Wed.	Water and environmental survey at Barrouallie. Final meeting at Fisheries Division.	Kingstown
34	11/27	Thu.	Left St. Vincent for Trinidad and Tobago Checking and discussion of results of survey on natural conditions with local firm.	Port of Spain
35	11/28	Fri.	Checking and discussion of results of survey on natural conditions with local firm.	Port of Spain
36	11/29	Sat.	Left Trinidad and Tobago for New York	New York
37	11/30	Sun.	Left New York for Tokyo	On board plane.
38	12/ 1	Mon.	Arrived at Tokyo.	

2-2 Draft Basic Study (8th of March, 1998~21st of March, 1998)

	Date	Week	Itinerary	Accomodation
1	3/8	Sun.	Tokyo →New York	New York
2	3/9	Mon.	Consultants : New York→St. Vincent Team leader: New York→San Juan	Kingstown/ San Juan
3	3/10	Tue.	Meeting at Fisheries Division: (Explanation of Draft final Report, discussion about schedule of Site Survey, etc.) Team leader: San Juan→ St. Vincent Courtesy Call to Ministry of Agriculture and Labor	Kingstown
4	3/11	Wed.	Meeting at Fisheries Division:	Kingstown
5	3/12	Thu.	Meeting at Fisheries Division Collection data at Electricity service Ltd., Central water authority and oil company	Kingstown
6	3/13	Fri.	Courtesy Call to Ministry of Foreign affairs, Tourism and Information Site Survey (Barrouallie and Chateaubelair)	Kingstown
7	3/14	Sat.	Related Site Survey (Canouan)	Kingstown
8	3/ 15	Sun.	Team Meeting	Kingstown
9	3/ 16	Mon.	Related Site Survey (Bequia)	Kingstown
10	3/ 17	Tue.	Signing of Minutes of Discussion at Ministry of Agriculture and Labor Collection of data	Kingstown
11	3/18	Wed	Team leader and one consultant member left St. Vincent to Trinidad and Tobago. Visit Embassy of Japan in Trinidad and Tobago Another consultant member collects data at St. Vincent	Ports of Spain/ Kingstown
12	3/19	Thu	Team leader and one consultant member left Trinidad and Tobago to U. S. Another consultant member left St. Vincent to U. S.	New York/ Los Angels
13	3/20	Fri	Left U. S.	On board plane
14	3/21	Sat	Arrive at Japan	

3. List of Party Concerned in the Recipient Country

3-1 Basic Design Study

Ministry of Foreign Affairs, Tourism and Information	Minister	Hon. Alpian Allen
	Acting Permanent Secretary	Mr. Breudon Browne
Ministry of Agriculture and Labour	Minister	Hon. Allan Cruickshank
	Acting Permanent Secretary	Ms. Patricia Martin
Fisheries Division	Chief Fisheries Officer	Mr. Kerwyn Morris
	Fisheries Officer-Extension	Ms. Jeniffer Cruickshank
	Fisheries Officer-Research	Mr. Raymond Ryan
	Fisheries Officer-Data	Mr. Leslie Straker
	JICA Expert	Mr. Motoki Hujii
Marketing Corporation	Coordinator	Mr. Lenroy Thomas
Ministry of Finance and Planning Central Planning Division	Physical Planning Officer	Mr. Ardon Nelson
Ministry of Transportation and Communication, Maritime Affaires	Harbour Master	Cap. Brenan King
St. Vincent Electricity Service Ltd.	Planning Engineer	Mr. Thornley Myers
CFRAMP	Biologist	Dr. Susan Sighn-Renton
Goodwill Fishermen Cooperative	President	Mr. Hugh Southerland
Lee Young & Partners		Mr. Selwyn Lee Young
Embassy of Japan in Trinidad and Tobago	Counselor	Mr. Kiyosi Suwa
	Second Secretary	Mr. Humiaki Sekine

3-2 Draft Basic Design Study

Ministry of Foreign Affairs, Tourism and Information	Minister	Hon. Allan Cruickshank
Ministry of Agriculture and Labour	Minister	Hon. Bernard Wyllie
	Permanent Secretary	Mr. Theophilus Shallow
Fisheries Division	Chief Fisheries Officer	Mr. Kerwyn Morris
	Fisheries Officer-Quality Control	Mr. Franklyn Murphy
	Fisheries Officer-Extension	Ms. Jeniffer Cruickshank
	Fisheries Officer-Research	Mr. Raymond Ryan
	JICA Expert	Mr. Motoki Hujii
Canouan Fisheries Center	OFCA Fisheries Adviser	Mr. Teruo Mita
Central Water Sewage Authority	Engineer	Mr. Brian George
Shell Antilles and Guianas Ltd	Sales Manager	Ms. Sandra John
Embassy of Japan in Trinidad and Tobago	Ambassador	Mr. Yasuhiko Tanaka
	Second Secretary	Mr. Humiaki Sekine

4. Minutes of Discussion

4-1 Basic Design Study

MINUTES OF DISCUSSIONS
BASIC DESIGN STUDY
on
the Project for
Construction of Fisheries Centres
in St. Vincent & the Grenadines

In response to the request from the Government of St. Vincent & the Grenadines, the Government of Japan decided to conduct a basic design study on the project for Construction of Fisheries Centres in St. Vincent & the Grenadines and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to St. Vincent & the Grenadines a basic design study team (hereinafter referred to as "the Study Team"), which is headed by Mr. Yasuhiro Yoshizuka, Deputy Director, Fishing Port Planning Division, Fishery Agency, and scheduled to stay in St. Vincent & Grenadine from October 26 to November 27, 1997.

The Study Team held a series of discussions with the officials concerned of the Government of St. Vincent & the Grenadines and conducted field surveys at the study areas.

Through the discussions and field surveys, both parties have confirmed several important points described in the attached sheets. The Study Team will proceed to further works in St. Vincent & the Grenadines and prepare the Basic Design Study Report.

Kingstown, November 3, 1997.

吉塚 靖浩

Mr. Yasuhiro Yoshizuka
Leader,
Basic Design Study Team,
JICA

Mr. Carlton Samuel
Permanent Secretary
Ministry of Agriculture & Labor
St. Vincent & the Grenadines

ATTACHMENT

1. Objective

The objective of the project is to construct fish landing and distributing facilities which are necessary for improving the fishing activities in St. Vincent Island.

2. Responsible Organization and Implementing Agency

Responsible Ministry : Ministry of Agriculture & Labor

Implementing Agency : Ministry of Agriculture & Labor,
Fisheries Division

3. Project Site

The Project site is shown in ANNEX-1

4. Major Items requested by the Government of St. Vincent & the Grenadines.

After the series of discussions, the items listed in ANNEX-2 are finally requested by the Government of St. Vincent & the Grenadines.

However, the final items, quantities and specifications covered under the project will be subject to further studies and space requirement.

5. Preparation for the Project.

The Government of St. Vincent & the Grenadines will take necessary measures including removal of fishing boats and buildings at the sites for smooth implementation of the Project.

6. Management and Maintenance.

The Ministry of Agriculture & Labor will maintain and use the equipment purchased under the Grant aid properly and effectively, and assign the necessary staff members for operation and maintenance of them as well as to bear all the expenses other than those to be borne by the Grant Aid.

7. Japan's Grant Aid System.

1) The Government of St. Vincent & the Grenadines has understood the system of the Japan's Grant Aid explained by the Study Team, the main feature is described in ANNEX-3.

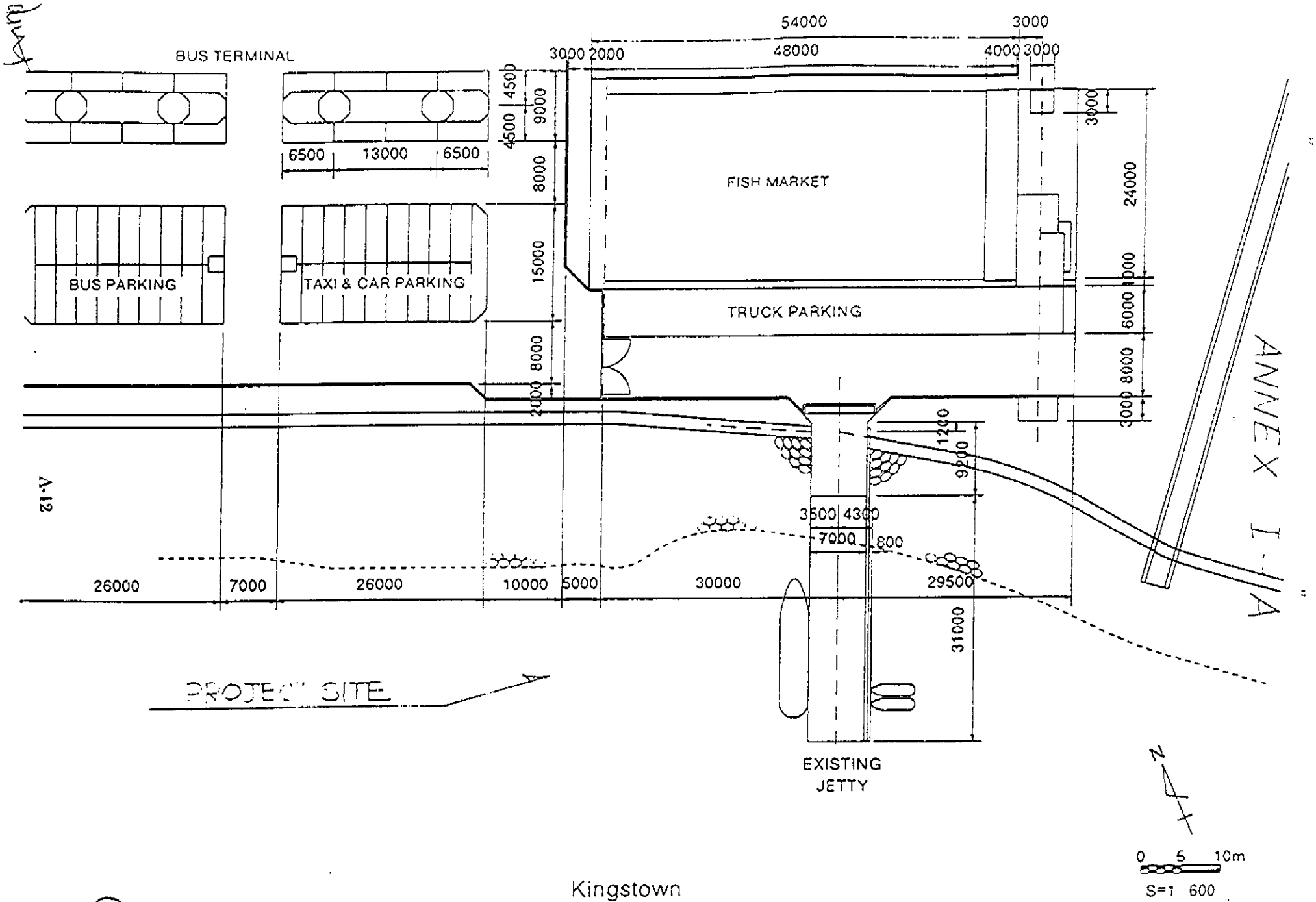
2) The Government of St. Vincent & the Grenadines will take the necessary measures, described in ANNEX-4 for the smooth implementation of the project on condition that the Grant Aid by the Government of Japan is extended to the Project.

8. Further Schedule of the Study

1) The Study Team will proceed to further studies in St. Vincent & the Grenadines until November 27, 1997.

2) Based on the result of the Basic Design Study, JICA will prepare the Draft Basic Design of the project and dispatch a team in January 1998 in order to consult with the Government of St. Vincent & the Grenadines on the outline of the Draft Basic Design.

3) Upon acceptance of the Draft Basic Design by the Government of St. Vincent & the Grenadines, JICA will complete the Basic Design Study Report and forward it to the Government of St. Vincent & the Grenadines around March, 1998.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ANNEX I-A
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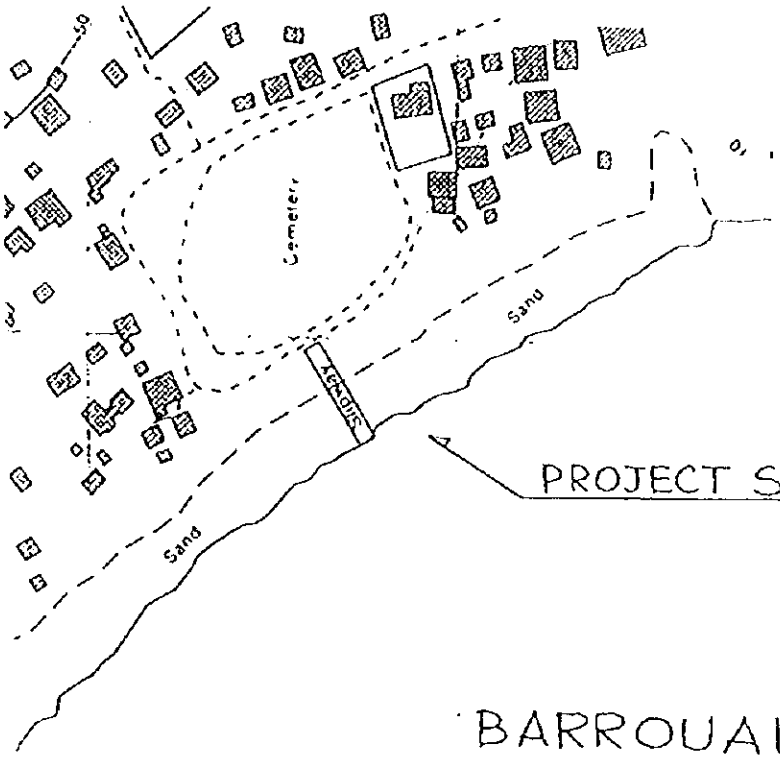
ANNEX I - B



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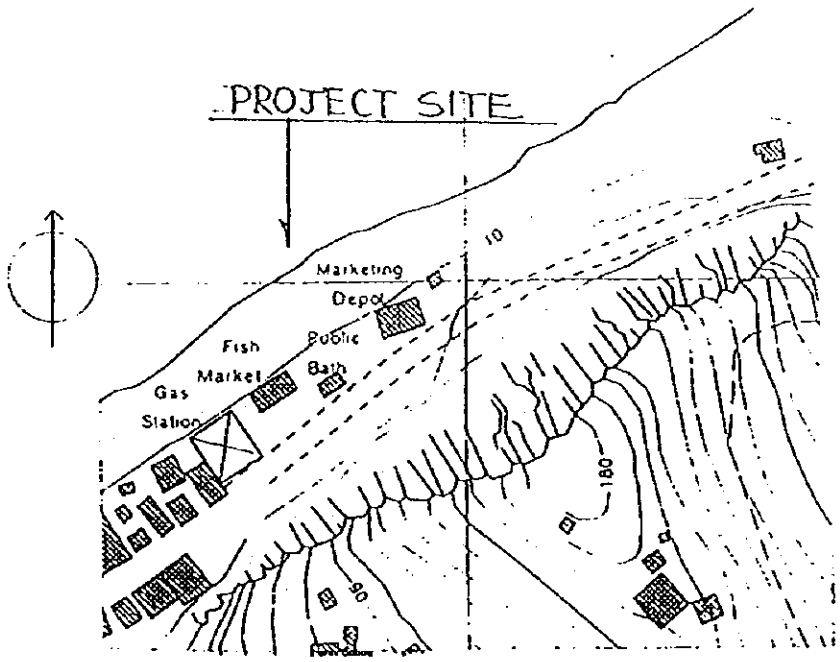

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ANNEX-2 : ITEMS FINALLY REQUESTED BY THE GOVERNMENT OF ST. VINCENT & THE GRENADINES

1. Addiional jetty facilities, Kingstown
2. Fishery Centres in Barrouallie and Chateaubelair
   (1) Fish preservation and marketing facilities (ice machine, ice storage, chilled room, fish handling and processing area, retail outlets and office)
   (2) Fisheries supportive facilities (fishermen's toilets, showers and lockers)
   (3) Utilities (electricity, water, sewage and fuel supply)
   (4) Supportive equipment (ice boxes, scales, carts and other related equipment)

ANNEX-3 : JAPAN'S GRANT AID SCHEME

1. Grant Aid Procedures

(1)The Japan's Grant Aid Program is executed through the following procedures.

Application	(Request made by a recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and Approval by Cabinet)
Implementation	(The Notes exchanged between the Government of Japan and the recipient country)

(2) Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid.

If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study), using (a) Japanese consulting firm(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

2. Basic Design Study

(1) Contents of the study

The aim of the Basic Design Study (hereinafter referred to as "the Study") conducted by JICA on a requested project (hereinafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the Japanese Government. The contents of the Study are as follows:

1) Confirmation of the background, objectives, and benefits of the requested Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.

2) Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view.

3) Confirmation of items agreed on by both parties concerning the basic concept of the Project.

4) Preparation of a basic design of the Project

5) Estimation of costs of the Project

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Study, JICA uses (a) registered consultant firm(s). JICA select (a) firm(s) based on proposals submitted by interested firms. The firms(s) selected carry(ies) out Basic Design Study and write(s) a report, based upon terms of reference set by JICA.

The consulting firm(s) used for the Study is(are) recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency and also to avoid any undue delay in implementation should the selection process be repeated.

3. Japan's Grant Aid Scheme

(1) What is Grant Aid ?

The Grant Aid Program provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

(2) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

(3) "The period of the Grant Aid" means the one fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contracts with (a) consultant firm(s) and (a) contractor(s) and final payment to them must be completed.

However in case of delays in delivery, installation or construction due to unforeseen factors such as whether, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two

Governments.

(4) Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.
When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However the prime contractors, namely, consulting constructing and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

(5) Necessity of the "Verification".

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals.
Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

(6) Undertaking required of the Government of the Recipient Country.

In the implementation of the Grant Aid project, the recipient country is required to undertake such necessary measures as the following:

1) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction.

2) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites.

3) To secure buildings prior to the procurement in case the installation of the equipment.

4) To ensure all the expenses and prompt execution for unloading, customs

clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid.

5) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts.

6) To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified Contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

7) "Proper Use"

The recipient country is required to maintain and use the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

8) "Re-Export"

The products purchased under the Grant should not be re-exported from the recipient country.

9) Banking Arrangements (B/A)

a) The Government of the recipient country or its designated authority should open an account in the name of Government of the recipient country in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.

b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an authorization to pay issued by the Government of the recipient country or its designated authority.

ANNEX-4 : NECESSARY MEASURES TO BE TAKEN BY THE GOVERNMENT OF ST. VINCENT & THE GRENADINES

The following necessary measures should be taken by the Government of St. Vincent & the Grenadines on condition that the Grant Aid by the Government of Japan is extended to the Project.

1. To secure a lot of land necessary for the Project and to clear the site.

2. To provide facilities for distribution of electricity, water supply, drainage and other incidental facilities outside the site.

3. To ensure prompt unloading, tax exemption and custom clearance at ports of disembarkation in St. Vincent & the Grenadines and internal transportation therein of the products purchased under the Grant aid.

4. To exempt Japanese nationals from customs duties, internal direct taxes and other fiscal levies which may be imposed in St. Vincent & the Grenadines 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 services under the verified contracts such facilities as may be necessary for their entry into St. Vincent & the Grenadines and stay therein for the performance of their work.

6. To maintain and use facilities constructed under the Grant Aid properly and effectively for the Project.

7. To bear commissions to the Japanese foreign exchange bank for its banking services based upon the Banking Arrangement, namely the advising commission of the "Authorization to Pay" and payment commissions.

8. To bear all the expenses, other than those covered by the Grant Aid, necessary for the Project.

MINUTES OF DISCUSSIONS
BASIC DESIGN STUDY ON
THE PROJECT FOR CONSTRUCTION OF
FISHERIES CENTRES
IN
ST. VINCENT & THE GRENADINES

(Consultation on the Draft Basic Design)

The Japan International Cooperation Agency (JICA) has dispatched a basic design study team on the Project for Construction of Fisheries Centres (hereinafter referred to as "the Project") to St. Vincent & the Grenadines in October and November 1997. As a result of the series of discussions in St. Vincent & the Grenadines, and technical examination of the results in Japan, JICA prepared the Draft Basic Design of the Project.

To inform the side of St. Vincent & the Grenadines with the components of the Draft Basic Design, JICA sent to St. Vincent & the Grenadines a study team headed by Mr. Yasuaki IWAMOTO, Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs. The team is scheduled to stay in St. Vincent & the Grenadines from March 9 to 18, 1998.

As a result of discussions, both sides have confirmed the main items as described on the attached sheets. The team will proceed to further works and finalize the Basic Design Study Report.

Kingstown March 17, 1998

Mr. Yasuaki IWAMOTO
Leader,
Draft Basic Design Team,
JICA

Mr. Theophilus Shallow
Permanent Secretary
Ministry of Agriculture & Labour
St. Vincent & the Grenadines

ATTACHMENT

1. Objective

The objective of the project is to construct fish landing and distributing facilities which are necessary for improving the fishing activities in St. Vincent Island.

2. Components of the Draft Basic Design

The Government of St. Vincent & the Grenadines has in principle accepted the components of the Draft Basic Design proposed by the team which are shown in ANNEX-1.

3. Responsible Organization and Implementing Agency

Responsible Ministry : Ministry of Agriculture & Labor

Implementing Agency : Fisheries Division, Ministry of Agriculture & Labor

4. Japan's Grant Aid System

1) The Government of St. Vincent & the Grenadines has understood the system of Japan's Grant Aid explained by the team. The main feature is described in ANNEX-2.
2) The Government of St. Vincent & the Grenadines will take necessary measures, described in ANNEX-3, for smooth implementation of the project on condition that the Grant Aid by the Government of Japan is extended to the Project.

5. Management and Maintenance

Ministry of Agriculture & Labor will maintain and use the facilities and the equipment purchased under the Grant Aid properly and effectively, and to assign the necessary staff members for operation and maintenance of them as well as to bear all the expenses other than those to be borne by the Grant Aid.

6. Issues to be noted

1) The Government of St. Vincent & the Grenadines will take necessary measures including removals of fishing boats, and other buildings at the site for smooth implementation of the Project.
2) Ministry of Agriculture & Labor shall take responsibility for securing sufficient budget for proper implementation of the Project, especially fisheries centres in Barrouallie and Chateaubelair

ANNEX-1 :COMPONENTS OF THE DRAFT BASIC DESIGN

A. Jetty of Kingstown Fish Market			
1. Facility			
1-1 Fish Landing Facility			
(1) New Jetty	Total length 45.5 m, width of apron 7 m		1 lot
(2) Additional step to the existing jetty	Total length 28 m, width 1.2m		1 lot
B. Fisheries center: Barrouallie & Chateaubelair		Barrouallie	Chateaubelair
1. Facility			
1-1 Fisheries center			
(1) Main building	RC structure, 2 stories : abt 104 ㎡		
a. Handling space	40 ㎡	1 lot	1 lot
b. Ice plant & ice bin	storage capacity 600 kg,-5℃	1 set	1 set
c. Chilled room	storage capacity 600 kg,-5℃	1 set	1 set
d. Office	Total space abt. 64 ㎡, b to f* including spaces around ice bin and chilled room.	1 lot	1 lot
e. Store		1 lot	1 lot
f. Retail space		1 lot	1 lot
(2) Toilet/shower facility			
g. Toilet/shower room	5 booths each	1 lot	1 lot
(3) Fisherman's locker			
h. Fisherman's locker	2m×2m each	20 units	10 units
(4) Oil supplying facility			
i. Fuel Oil terminal	3 ton tank and oil meter	1 set	1 set
2. Equipment & materials			
a. Ice making machine	300 kg/day, plate type ice, with crusher	1 set	1 set
b. Fish box	Plastic, 25 kg	30 boxes	25 boxes
c. Insulated box	Plastic, 100 *l*	10 boxes	7 boxes

d. Scale	200 lbs platform	1 unit	1 unit
	20 lbs spring	2 units	2 units
e. Cart	300 kg capacity	2 units	2 units
f. Shovel	Plastic	2 units	2 units
g. Processing table	Stainless steel 1.5m×2m, double	3 units	3 units
h. Selling table	Stainless steel, 0.5m×1.5m	2 units	2 units
i. Winch	3,000 kg capacity	1 set	-----
j. Spare parts	For ice making machine & storage bin and chilled room	1 set	1 set

ANNEX-2 : JAPAN'S GRANT AID SCHEME

1. Grant Aid Procedures

1) The Japan's Grant Aid Program is executed through the following procedures.

Application	(Request made by a recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and Approval by Cabinet)
Determination of Implementation	(The Notes exchanged between the Government of Japan and the recipient country)

2) Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid.
If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study), using Japanese consulting firm(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourth, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

2. Basic Design Study

1) Contents of the Study

The aim of the Basic Design Study (hereinafter referred to as "the Study") conducted by JICA on a requested project (hereinafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the

Government of Japan. The contents of the Study are as follows:

a) confirmation of the background, objectives, and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation;
b) evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from the technical, social and economic points of view;
c) confirmation of items agreed on by both parties concerning the basic concept of the Project;
d) preparation of a basic design of the Project; and
e) estimation of costs of the Project

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For smooth implementation of the Study, JICA uses a consulting firm selected through its own procedure (competitive proposal). The selected firm participates the Study and prepares a report based upon terms of reference set by JICA.

At the beginning of implementation after the Exchange of Notes, JICA recommends the same consulting firm which participated in the Study be used for the services of the Detailed Design and Construction Supervision of the Project. This is necessary in order to maintain the technical consistency between the Basic Design and Detailed Design as well as to avoid any undue delay caused by the selection of a new consulting firm.

3. Japan's Grant Aid Scheme

1) What is Grant Aid ?

The Grant Aid Program provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

2) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

3) "The period of the Grant Aid" means the one fiscal year which the Cabinet approves the project for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contracts with consulting firms and contractors and final payment to them must be completed.

However in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

4) Under the Grant, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However the prime contractors, namely, consulting, contracting and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

5) Necessity of the "Verification".

The Government of the recipient country or its designated authority will conclude

contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

6) Undertaking required to the Government of the recipient country.

a) to secure a lot of land necessary for the construction of the Project and to clear the site;

b) to provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities outside the site;

c) to ensure prompt unloading, tax exemption and customs clearance at ports of disembarkation in the recipient country and internal transportation therein of the products purchased under the Grant Aid.

d) to exempt Japanese nationals from customs duties, internal direct taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts.

e) to accord Japanese nationals whose services may be required in connection with the supply of the products and services under the verified contracts such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

f) to ensure that the facilities constructed and products purchased under the Grant Aid be maintained and used properly and effectively for the Project; and

g) to bear all the expenses other than those covered by the Grant Aid, necessary for the Project.

7) "Proper Use"

The recipient country is required to maintain and use the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign the necessary staff for operation and maintenance of them as well as to bear all the expenses other than those covered by the Grant Aid.

7) "Re-export"

The products purchased under the Grant Aid should not be re-exported from the recipient country.

7) Banking Arrangements (B/A)

a) The Government of the recipient country or its designated authority should

open an account in the name of Government of the recipient country in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the verified contracts.

b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an authorization to pay issued by the Government of recipient country or its designated authority.

ANNEX-3: NECESSARY MEASURES TO BE TAKEN BY THE GOVERNMENT OF ST. VINCENT & THE GRENADINES

The following necessary measures should be taken by the Government of St. Vincent & the Grenadines on condition that the Grant Aid by the Government of Japan is extended to the Project.

1. to secure a lot of land necessary for the Project;

2. to clear and level the site for the Project prior to the commencement of the construction;.

3. to provide a proper access road to the site;

4. to provide facilities for distribution of electricity, water supply, telephone trunk line, drainage and other incidental facilities outside the site.

5. to undertake incidental outdoor works, such as gardening, fencing, exterior lighting, and other incidental facilities in and around the site, if necessary;

6. to ensure prompt unloading and customs clearance of the products purchased under the Japan's Grant Aid at ports of disembarkation in St. Vincent & the Grenadines

7. to exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in St. Vincent & the Grenadines with respect to the supply of the products and services under the verified contracts;

8. to accord Japanese Nationals whose services may be required in connection with the supply of the products and services under the verified contracts such facilities as may be necessary for their entry into St. Vincent & the Grenadines and stay therein for the performance of their work.

9. to bear commissions, namely advising commissions of the Authorization to Pay (A/P) and payment commissions, to the Japanese foreign exchange bank for its banking services based upon the Banking Arrangement (B/A)

10. to provide necessary permissions, licenses and other authorization for implementing the Project, if necessary;

11. to ensure that the facilities constructed and equipment purchased under the Japan's Grant Aid be maintained and use properly and effectively for the Project; and

12. to bear all the expenses, other than those covered by the Japan's Grant Aid, necessary for the Project.