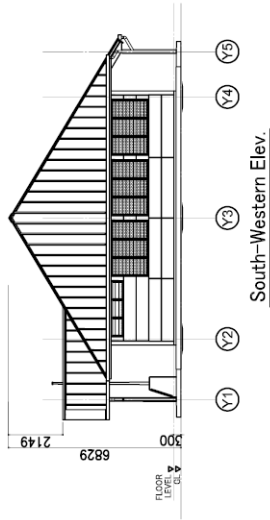
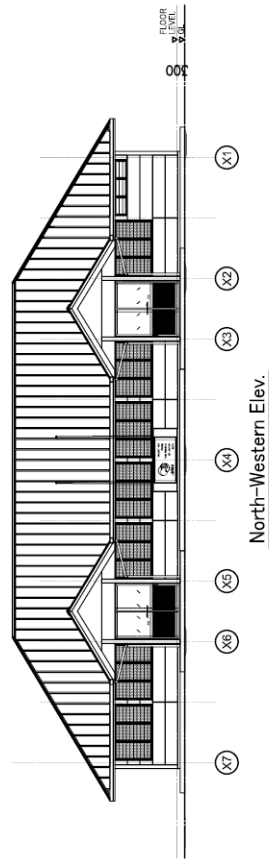


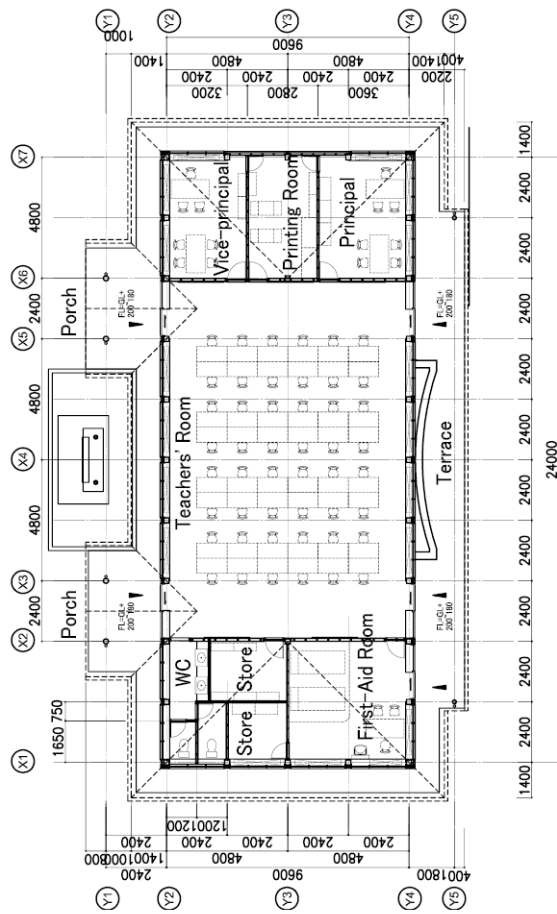
North-Eastern Elev.



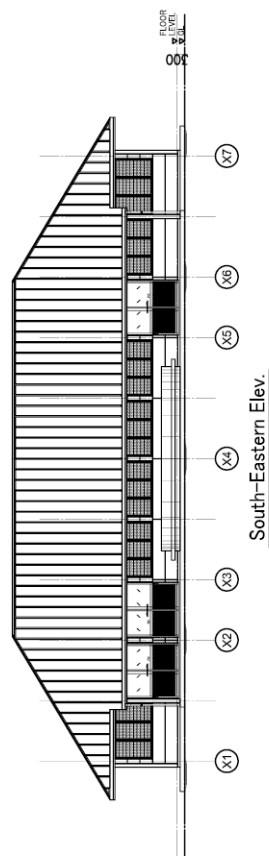
South-Western Elev.



North-Western Elev.



Floor Plan

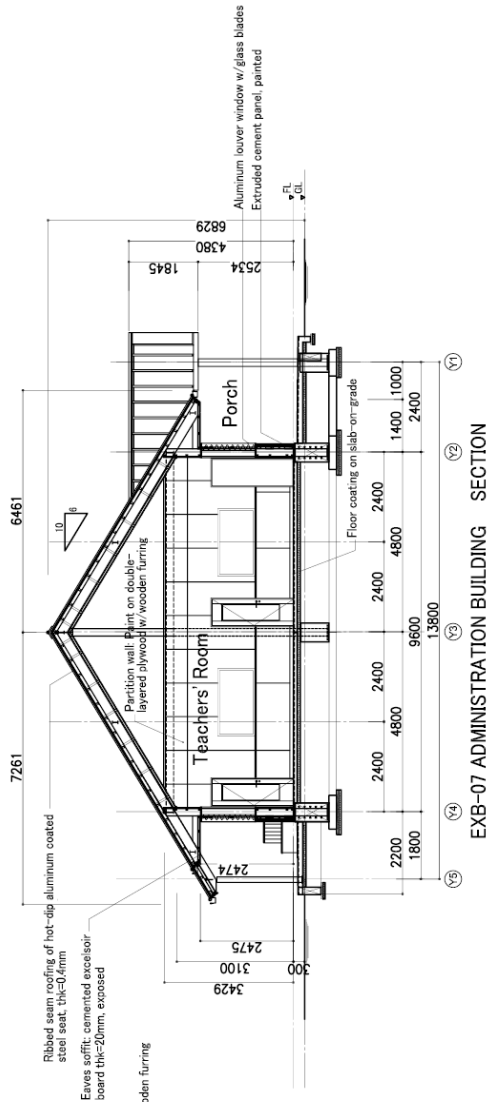


South-Eastern Elev.

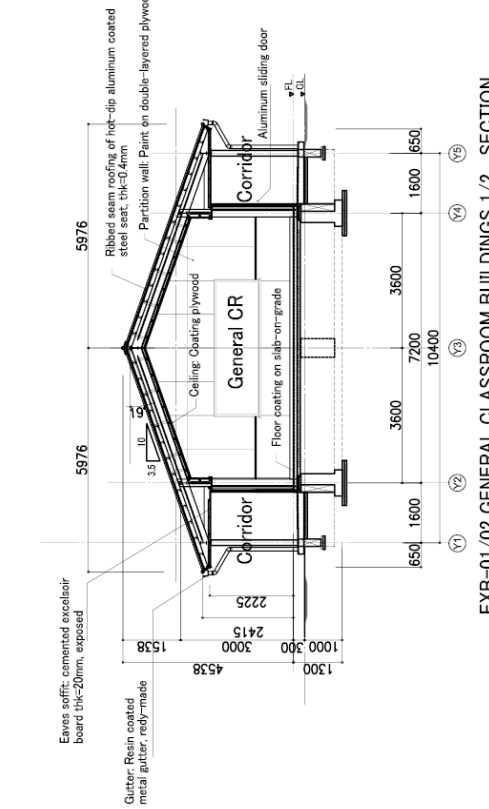
EXB-07 管理棟 平面図/立面図
 ADMINISTRATION BUILDING FLOOR PLAN & ELEVATIONS S=1/300

ツバル国モトフオア高等教育施設整備計画
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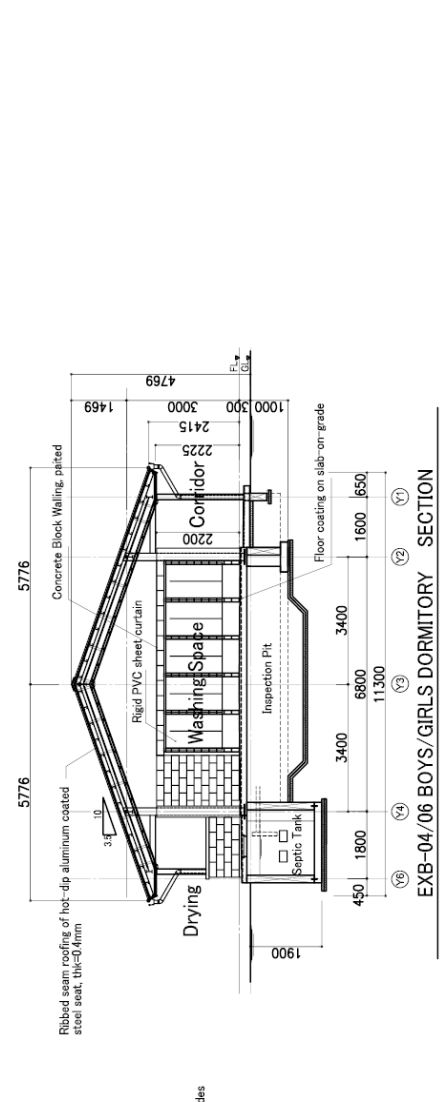
A-06



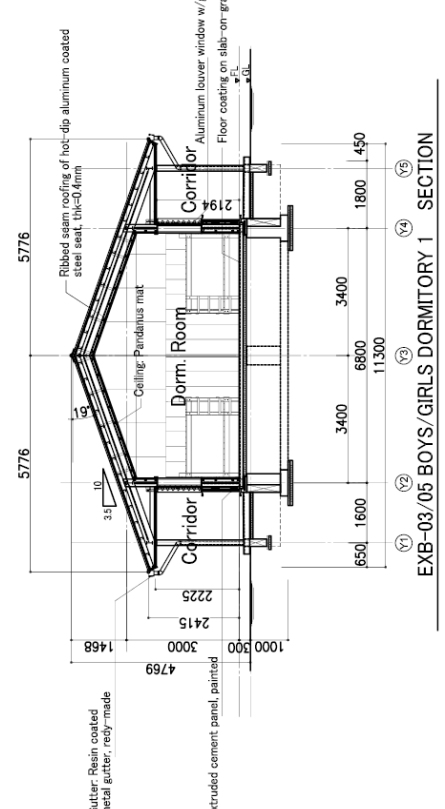
EXB-01/02 GENERAL CLASSROOM BUILDINGS 1/2 SECTION



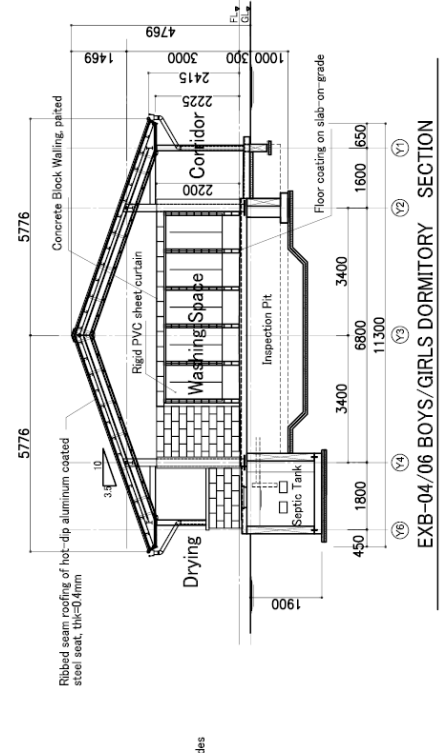
EXB-01/02 GENERAL CLASSROOM BUILDINGS 1/2 SECTION



EXB-07 ADMINISTRATION BUILDING SECTION



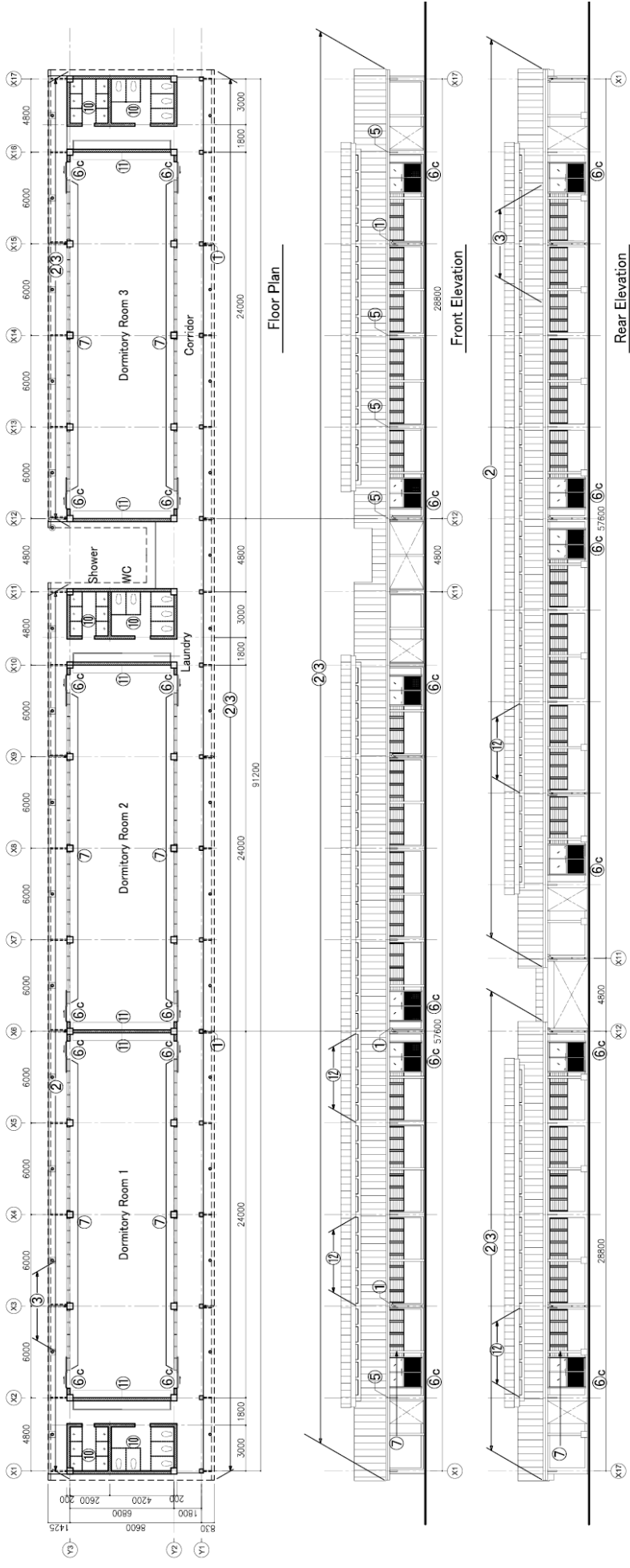
EXB-03/05 BOYS/GIRLS DORMITORY 1 SECTION



EXB-04/06 BOYS/GIRLS DORMITORY SECTION

EXB-01~07 増築施設 断面図 CROSS-SECTIONS S=1/200
 NEW BUILDINGS FOR EXPANSION CROSS-SECTIONS
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A-07



Item of Rehabilitation Work

【Renovation of Eaves Edge, Gutters, etc.】

- ①: To remove metal straps for gutter, etc., from damaged parts of eaves edge
- ②: To replace and repair damaged parts of ceiling board
- ③: To remove damaged fascia board, then to install new gutters with supports
- ④: To reconnect down spouts with buried rainwater piping
- ⑤: To renew metal plate for fixing wooden truss by rust removal and reinforcement

【Replacement/Reinstallation of Doors and Windows】

- ⑥.b.c.d: To install aluminum sliding door by the replacement of existing door
- ⑦: To replace aluminum louver windows with new ones w/ glass blades
- ⑧: To replace glass blades of high windows, fixing them to frame by caulking

【Rehabilitation of Water Supply, Drainage and Sewage System】

- ⑩: To renovate whole area of water section, including restoration of toilet and shower booths, rehabilitation of floor and walls, replacement of sanitary fittings, etc.

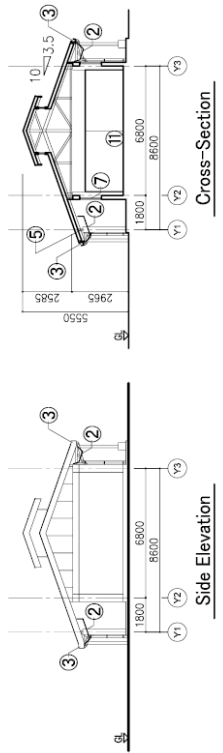
⑨: To construct new soak pit and to renew inlet piping from existing septic tank

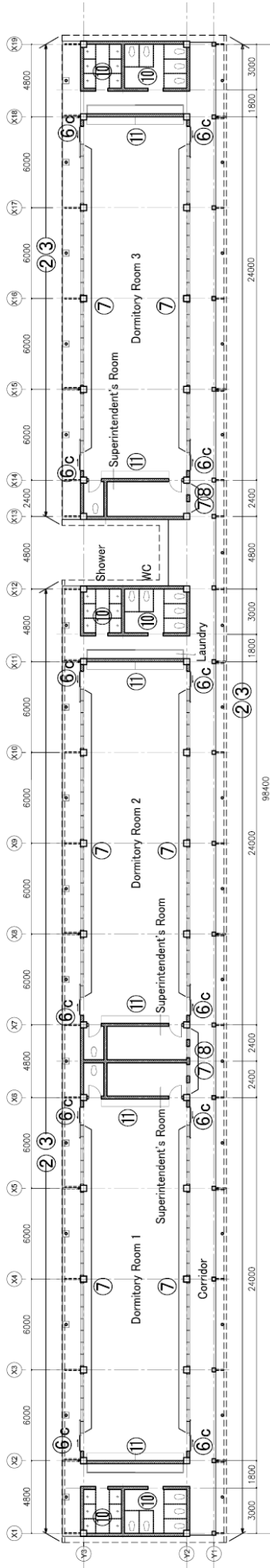
【Rehabilitation of Electrical Installations】

- ⑬: To replace whole electric system of the building, including switchboard and lighting/socket outlet system
- ⑭: To replace ceiling fans (classrooms/preparation rooms)

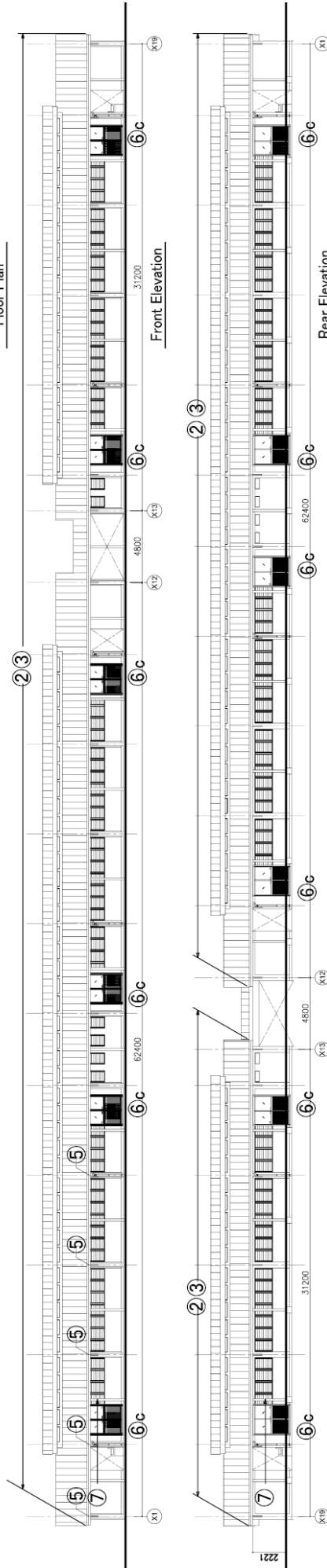
【Others】

- ⑪: To replace wooden closets





Floor Plan



Item of Rehabilitation Work

【Renovation of Eaves Edge, Gutters, etc.】

- ①: To remove metal straps for gutter, etc., from damaged parts of eaves edge
- ②: To replace and repaint damaged parts of ceiling board
- ③: To remove damaged fascia board, then to install new gutters with supports
- ④: To reconnect down spouts with buried rainwater piping
- ⑤: To renew metal plate for fixing wooden truss by rust removal and reinforcement

【Replacement/Reinstallation of Doors and Windows】

- ⑥a,c,d: To install aluminum sliding door by the replacement of existing door
- ⑦: To replace aluminum louver windows with new ones w/glass blades
- ⑧: To replace rusted security grilles with grilles of aluminum expanded mesh

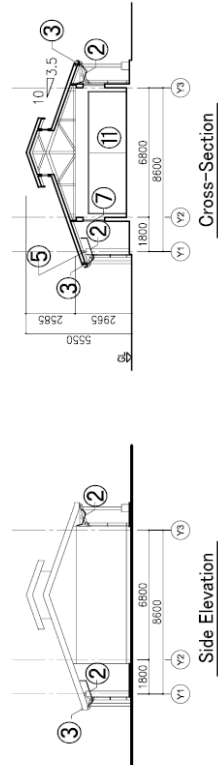
【Rehabilitation of Water Supply, Drainage and Sewage System】

- ⑩: To renovate whole area of water section, including restoration of toilet and shower booths, rehabilitation of floor and walls, replacement of sanitary fittings, etc.

⑨: To construct new soak pit and to renew inlet piping from existing septic tank

【Rehabilitation of Electrical Installations】

- ⑪: To replace whole electric system of the building, including switchboard and lighting/socket outlet system
- ⑫: To replace ceiling fans (classrooms/preparation rooms)
- 【Others】**
- ⑬: To replace wooden closets



NB-2 女子寮 (既存)
GIRLS DORMITORY

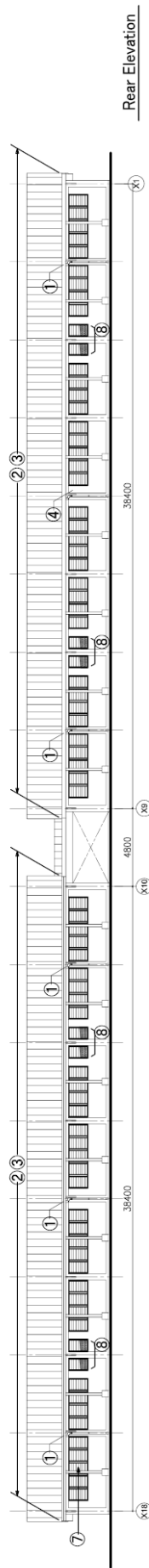
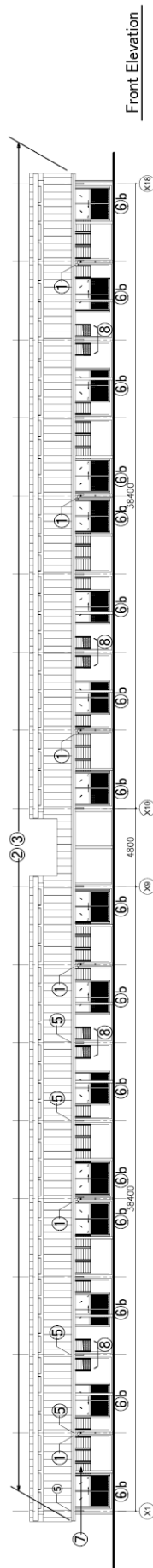
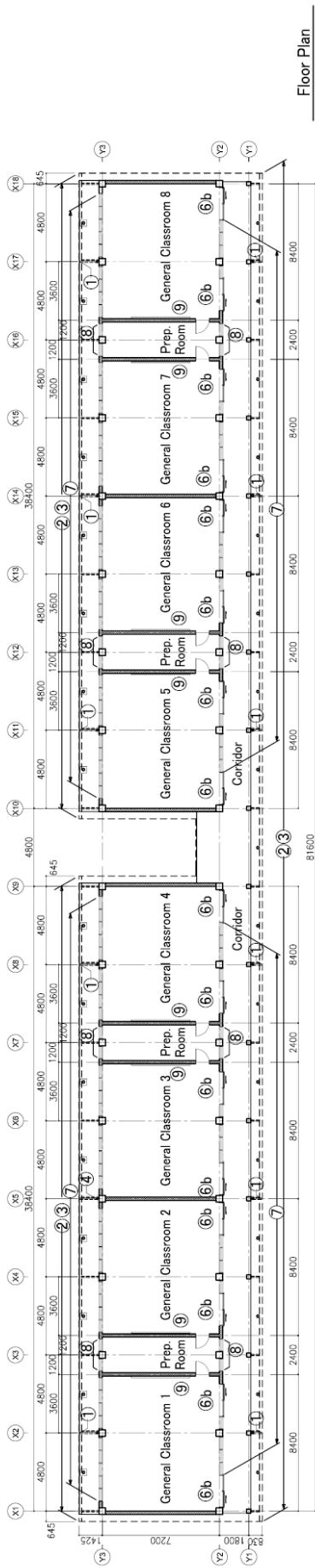
改修計画図
REHABILITATION PLAN

S=1/400

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The Project for Improvement of Educational Facilities
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A-09



Item of Rehabilitation Work

【Renovation of Eaves Edge, Gutters, etc.】

- ①: To remove metal straps for gutter, etc., from damaged parts of eaves edge
- ②: To replace and repair damaged parts of ceiling board
- ③: To remove damaged fascia board, then to install new gutters with supports
- ④: To reconnect down spouts with buried rainwater piping
- ⑤: To renew metal plate for fixing wooden truss by rust removal and reinforcement

【Replacement of Blackboard】

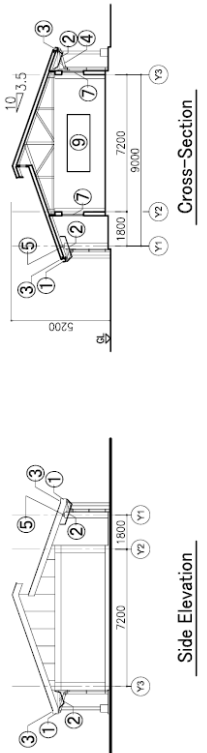
- ⑨: To replace blackboard with new one of wooden ready-made product

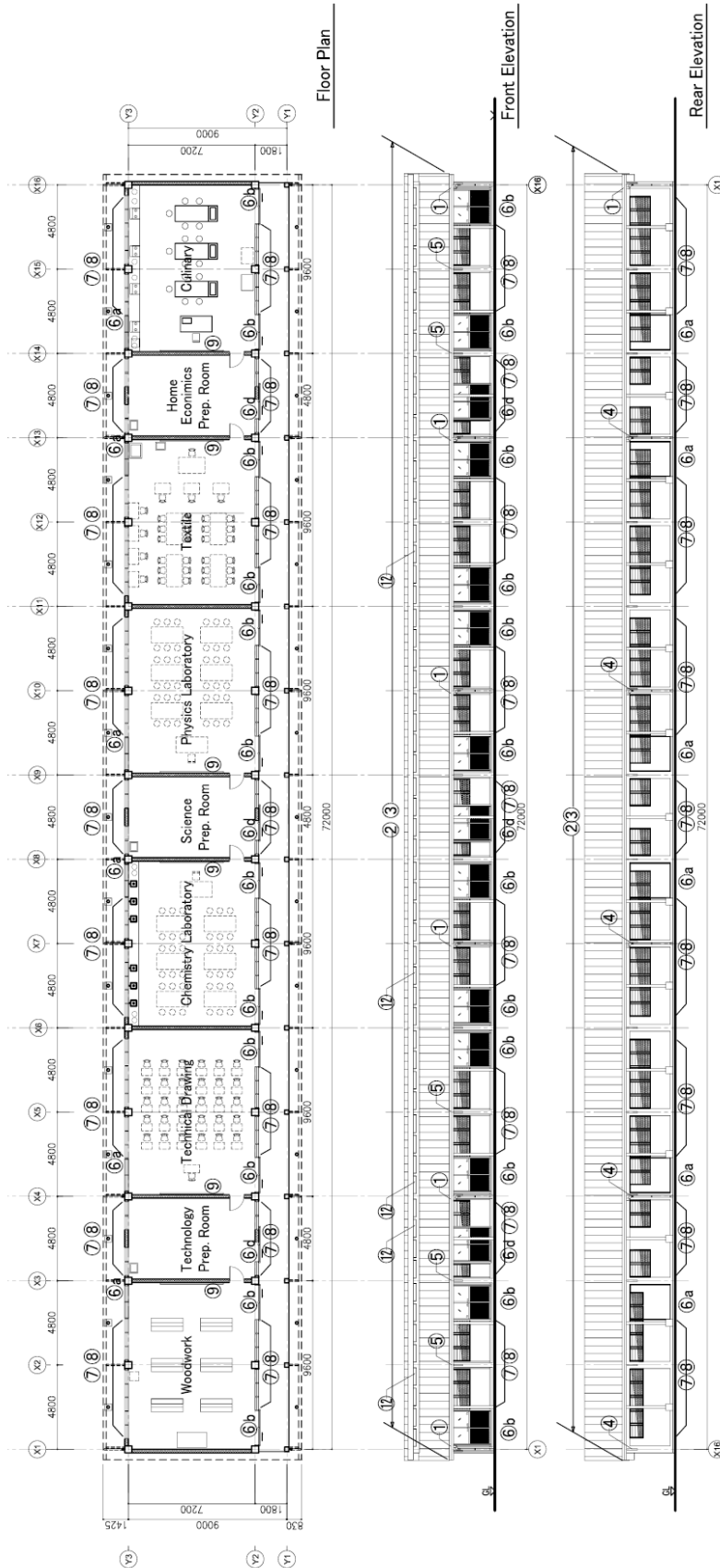
【Rehabilitation of Electrical Installations】

- ⑮: To replace whole electric system of the building, including switchboard and lighting/ socket outlet system
- ⑯: To replace ceiling fans (classrooms/preparation rooms)

【Replacement/Reinstallation of Doors and Windows】

- ⑥.b.c.d: To install aluminum sliding door by the replacement of existing door
- ⑦: To replace aluminum louver windows with new ones w/ glass blades
- ⑧: To replace rusted security grilles with grilles of aluminum expanded mesh





Item of Rehabilitation Work

【Renovation of Eaves Edge, Gutters, etc.】

- ①: To remove metal straps for gutter, etc., from damaged parts of eaves edge
- ②: To replace and repaint damaged parts of ceiling board
- ③: To remove damaged fascia board, then to install new gutters with supports
- ④: To reconnect down spouts with buried rainwater piping
- ⑤: To renew metal plate for fixing wooden truss by rust removal and reinforcement

【Replacement/Reinstallation of Doors and Windows】

- ⑥a: To shut door openings with fixed wooden panels w/ aluminum lower window
- ⑥b.c.d: To install aluminum sliding door by the replacement of existing door
- ⑦: To replace aluminum lower windows with new ones w/ glass blades
- ⑧: To replace rusted security grilles with grilles of aluminum expanded mesh
- ⑩: To replace glass blades of high windows, fixing them to frame by caulking

【Replacement of Blackboard】

- ⑨: To replace blackboard with new one of wooden ready-made product

【Rehabilitation of Electrical Installations】

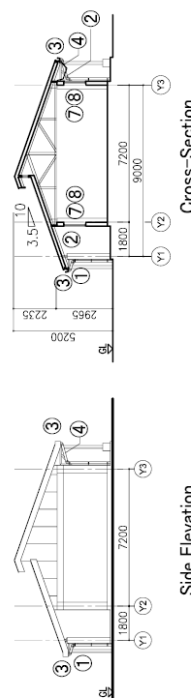
- ⑮: To replace whole electric system of the building, including switchboard and lighting/ socket outlet system
- ⑯: To replace ceiling fans (classrooms/preparation rooms)

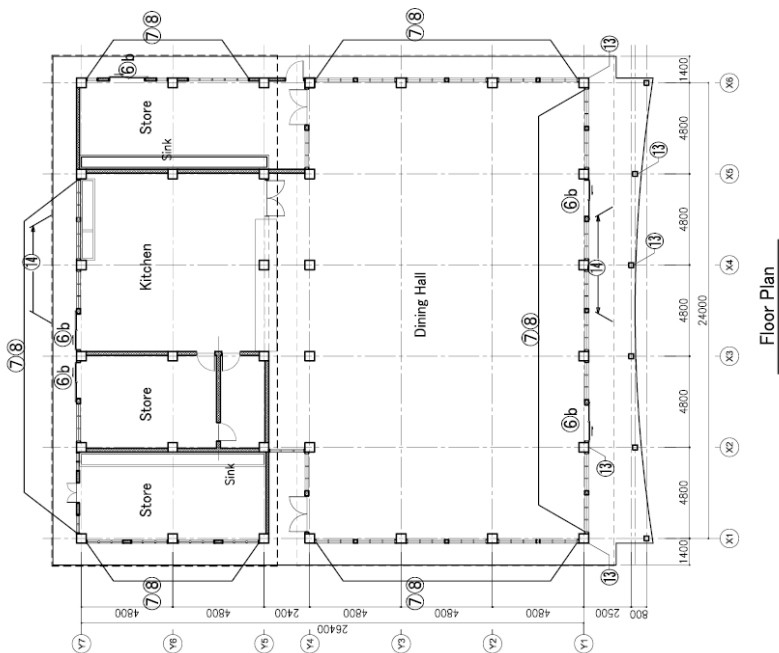
【Rehabilitation of Water Supply, Drainage and Sewage System】

- ⑰: To renovate water supply and drainage piping in accordance with proposed classroom layout (Chemistry Lab., Textile/Culinary Room)

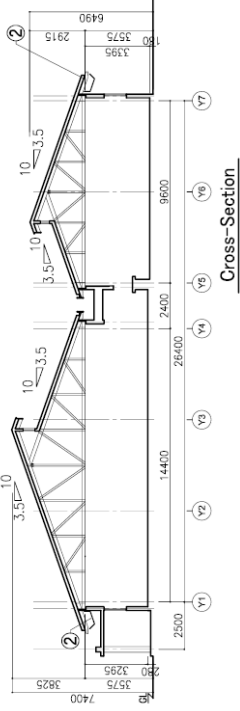
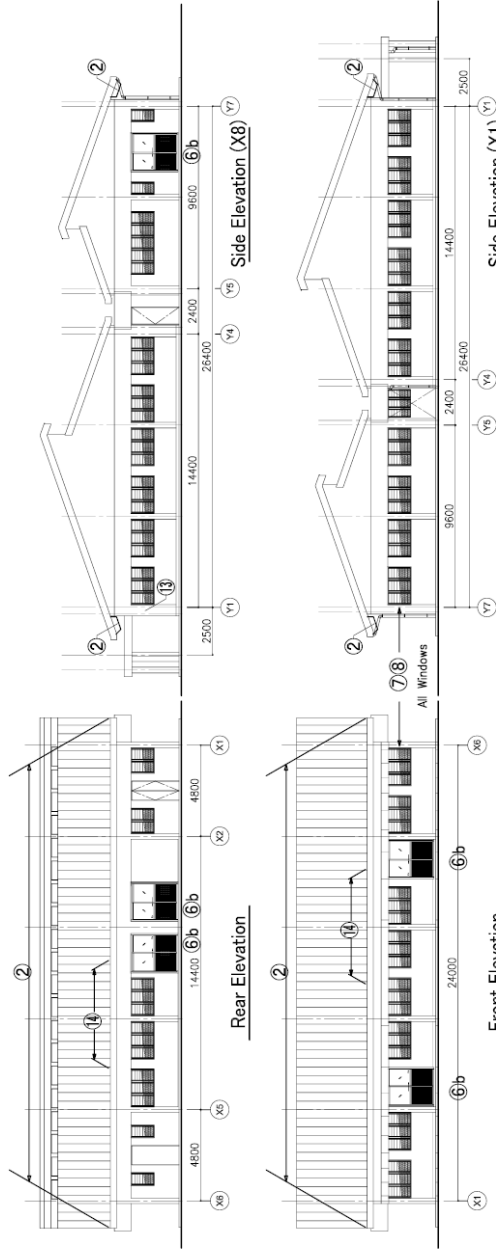
【Replacement of Equipment and Furniture】

- To replace furniture and equipment in accordance with proposed classroom layout (excepting Preparation Rooms and Textile Room for which existing furniture are utilised)





Floor Plan



Cross-Section

Item of Rehabilitation Work

【Renovation of Eaves Edge, Gutters, etc.】

- ②: To replace and repaint damaged parts of ceiling board
- ⑭: To replace damaged parts of fascia board

【Replacement/Reinstallation of Doors and Windows】

- ⑥.b.c.d: To install aluminum sliding door by the replacement of existing door
- ⑦: To replace aluminum louver windows with new ones w/ glass blades
- ⑧: To replace rusted security grilles with grilles of aluminum expanded mesh

【Others】

- ⑰: To repair cracks on concrete columns/walls

【Rehabilitation of Electrical Installations】

- ⑮: To replace whole electric system of the building, including switchboard and lighting/ socket outlet system

- ⑯: To replace ceiling fans (classrooms/preparation rooms)
- ⑰: To replace the main branch board

【Rehabilitation of Water Supply, Drainage and Sewage System】

- ⑱: To replace water supply and drainage piping to the kitchen
- ⑲: To construct new soak pit and to renew inlet piping from existing septic tank
- ⑳: To replace LPG gas piping in accordance with proposed kitchen arrangement

2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

(1) Basic Conditions for Implementation of the Project

This Project will be implemented in accordance with the framework of Grant Aid of the Government of Japan after signing of Exchange of Notes (E/N) between the Governments of Japan and the Government of Tuvalu and conclusion of a Grant Agreement (G/A) between JICA and the Government of Tuvalu, following the approval of the Project by the Japanese Cabinet. Subsequently, a Japanese consulting firm will sign a contract with the implementing agency of Tuvalu to develop the detail design of planned facilities and equipment. Upon completion of detailed design drawings and tender documents, a competitive tender will be held among Japanese contractors that meet certain qualifications. Selected companies will construct the facilities and procure equipment pursuant to the Works/Procurement Contract to be concluded with the Government of Tuvalu. Since equipment procurement occupies only a small portion of this Project and its delivery and installation are closely linked to the construction process of facilities, it would be desirable to hold a tender to select a single Contractor who can both provide construction work and supply equipment.

(2) Project Implementation System

Implementation System on the Tuvaluan Side

The Ministry of Education, Youth and Sports is the responsible organ for the execution of this Project. The Department of Education (DOE), as the implementation body, will take charge of coordinating and facilitating the entire Project. DOE also has jurisdiction over the signing of the Consultancy Agreement and the Works/Procurement Contract with Japanese companies, as well as various arrangements associated with opening a bank account and making payments, allocation of budget for the works to be undertaken by the Tuvaluan side, and obtaining of necessary permits and licenses. Among works to be done by the Tuvaluan side, preparation of the construction site and other arrangements to be done at the Project site will be carried out under the responsibility of the Principal of MSS according to the instructions of DOE.

Because DOE, the implementation body of this Project, does not employ engineering staff that is knowledgeable in building construction, it would be desirable to handle technical matters related to implementing the Project by seeking cooperation from the PWD. Also, establishing a cooperative relationship with the Vaitupu Island Council (Kaupule) during the stage of actual works, including the work to be done by the Tuvaluan side, is essential for the smooth implementation of the Project. Signing of the E/N between the both governments concerning the implementation of this Project falls under the jurisdiction of the Ministry of Foreign Affairs, External Trades, Environment and Tourism.

Japan International Cooperation Agency

Japan International Cooperation Agency (JICA) will sign a Grant Agreement with the Tuvaluan implementing agency and supervise the Project to ensure that it will be implemented properly in conformance with Japan's Grant Aid scheme.

Consultant

The Consultant will, pursuant to the Consultancy Agreement to be concluded with the Tuvaluan implementing agency, develop detailed designs of the facilities and equipment and supervise the construction work and equipment procurement according to the contents of this report. In addition, the Consultant will prepare tender documents and support the selection of a Contractor and the signing of the Works/Procurement Contract. In order to efficiently carry out these tasks, the Consultant will work cooperatively with the MEYS and DOE and dispatch a supervisor to the Project site during the construction/procurement stage.

Contractor

The Japanese Contractor selected through an open competitive tender will carry out the construction and procurement by the promised date pursuant to the Works/Procurement Contract to be signed with the Tuvaluan implementing agency and according to the contract documents. In constructing the buildings and procuring the equipment, the Contractor will establish an efficient construction/procurement system at the site that is appropriate for the scale and contents of this Project.

Project Implementation Structure

Relationships among various organizations and the project implementation structure during the implementation stage are shown in the diagram below.

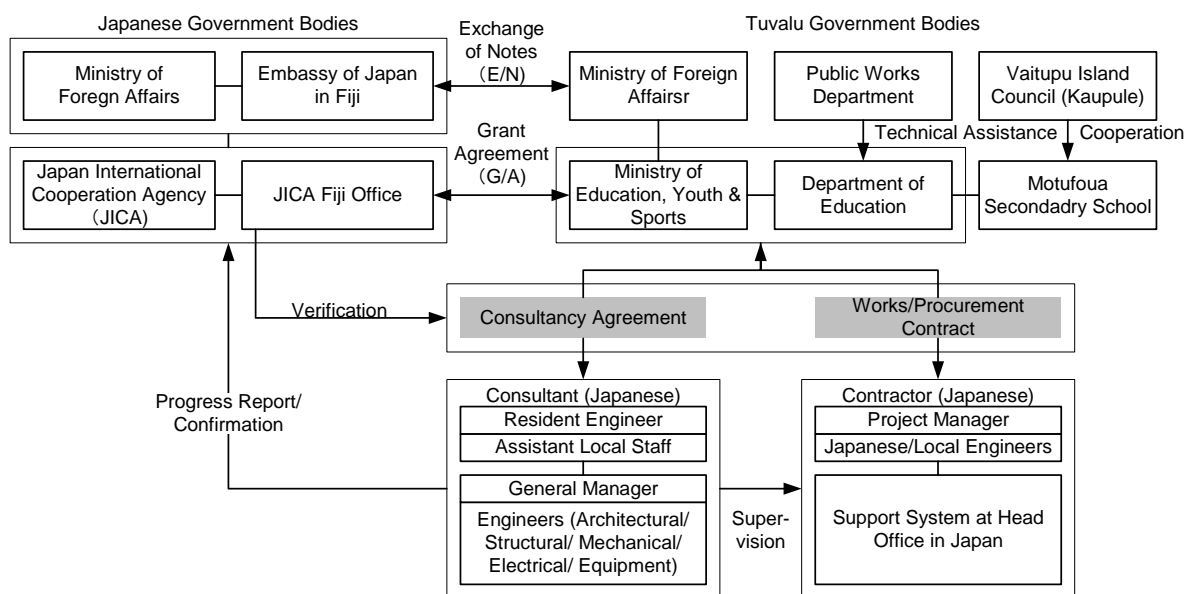


Figure 2-5 Project Implementation Structure

2-2-4-2 Implementation Conditions

(1) Availability of Labour

On Vaitupu, where the Project site is located, no construction company exists, and only a small number of skilled labourers and some general workers are available. The entire country, including the capital city Funafuti, suffers a scarcity of workers with specialized skills and engineers with experience in supervising construction work. Since such workers will not be locally available for this Project, the Japanese Contractor will, in implementing the Project, need to dispatch engineers and skilled workers from Japan or third countries, who will supervise local workers.

In procuring labourers, which includes determining the labour wages, coordination with the Vaitupu Island Council (Kaupule) will be necessary, since the Kaupule controls all labour-related matters and employment conditions on the island.

(2) Availability of Construction Materials

The construction materials locally available on Vaitupu is only aggregate (coral rocks and coral sand), which can be used to make concrete after treated with anti-salinity measures. Since coral rocks washed ashore by high tides and need to be gathered by manpower, the amount procurable per day is limited. Therefore, it is important to estimate the number of days needed to procure a required amount of coral rocks and start gathering them well ahead of time. Also, since the coastal areas are administered by the Kaupule, a permit needs to be obtained from Kaupule before gathering coral rocks.

All other materials will be imported from other countries. Although small amounts of cement and other basic materials can be purchased at the shop in Vaitupu or from suppliers in Funafuti that stock such products, the quantities required for this Project need to be imported via Funafuti. The most common supply source is Fiji, which is connected with Tuvalu (Funafuti) by regular cargo liners that can transport materials all year round. It should be noted, however, that rainy season should be avoided as much as possible for shipping materials since transportation between Funafuti and Vaitupu is often disrupted by storms.

(3) Other Points to Note

Tuvalu's outer islands have a closed environment surrounded by ocean and are vulnerable to environmental impacts. Therefore, disposal of waste generated by construction work, excavation of aggregate, use of well water for construction work, cutting of trees, disposal of excavated soil, and other activities that are likely to have negative environmental impact need to be carried out properly in accordance with the rules and instructions of the Kaupule that administers environmental affairs on the island.

2-2-4-3 Scope of Works

In the implementation of this Project by Japan's Grant Aid, works to be undertaken respectively by the Japanese side and the Tuvaluan side are listed below. Other general responsibilities under the Grant Aid scheme are described in the following chapter.

(1) Works to be Undertaken by the Japanese Side

1) Facility Construction (expansion)

- Construction of 2 General Classroom Buildings (12 classrooms in total), 4 Dormitories (2 Boys Dormitories and 2 Girls Dormitories, total capacity of 300 students), Administration Building.
- Installation of water supply, drainage and sewage system and mechanical/electrical facilities incidental to the above buildings.

2) Facility Rehabilitation

- Rehabilitation of buildings constructed under the previous project, i.e., General Classroom Building (8 classrooms), Special Classroom Building (6 classrooms), Dormitories (1 each for boys and girls), and Dining Hall & Kitchen. Specific works are as follows:
 - Rehabilitation of eaves gutters and eave edges and surrounding parts.
 - Replacement of doors and windows.
 - Rehabilitation of electrical installations (renewal of main feeder branch board and distribution board of each building, renewal of lighting fixtures and socket outlet system, renewal and additional installation of ceiling fans)
 - Installation of additional soakage pits.
 - Rehabilitation of toilet/shower/laundry of the Dormitories.
 - Rehabilitation of indoor plumbing facilities of the special classrooms.
- Rehabilitation of water supply, drainage and sewage system and mechanical/electrical installations within the school premises incidental to the above-listed facilities.

3) Procurement of Equipment

- Educational equipment (for general subjects, science experiments, practical training)
- Equipment for administration (for office/administrative work, First-Aid Room)
- Movable furniture needed for expanded facilities and existing special classrooms.

4) Other

- Responsibilities of the Japanese side as shown in the following section "Works to be

Undertaken by the Tuvaluan Side.”

(2) Works to be Undertaken by the Tuvaluan Side

- Obtain permits and licenses necessary for the implementation of the Project.
- Prepare the construction site:
 - Demolish and remove existing buildings (superstructures above the ground floor level of OB8 only)
 - Cut and uproot existing trees and bushes, then level the ground (about 5 meters from the outer edge of the planned buildings)
- Clean out existing septic tanks and dispose of sludge.
- Set up temporary facilities needed for school operation during the construction period (if needed as a result of demolishing OB8).
- Secure power supply for expanded facilities.
 - Modify the main switchboard in the solar power battery bank room and install a new branch circuit and circuit breaker.
 - Submit application to TEC to receive electricity for expanded facilities.
- Provide temporary facilities, etc. needed for construction.
 - Allow to use the old DOE building to a Japanese contractor (to be used as a management office and lodging during the construction period).
 - Secure temporary power supply (for office and lodging) and water supply (well water or rainwater) needed for construction.
- Prepare exterior facilities such as fences, gates, school ground, parking, planting, and pavement (if necessary).
- Extend or expand the existing telephone system (if necessary).
- Procure furniture, fixtures, utensils, educational materials, expendable items, etc., procurement of which is not the responsibility of the Japanese side.

Of the above works, specific contents of the works of the Tuvaluan side that are minimally necessary for the Japanese side to carry out its responsibilities, as well as the demarcation of work and the timing of implementation, are summarized in Table 2-13.

Table 2-13 Contents of Works Undertaken by the Recipient Side

Undertakings of Tuvalu side	Specific Target	Undertakings of Japan side	Must be finished by
1. Prior notice pursuant to Environmental Protection Regulations, obtain permit for project implementation	—	Provide drawings and other technical documents.	Start of the tender procedure.
2. Demolish/remove existing buildings.	OB8 (superstructure only)	Demolish concrete floor slab/foundation (plan the reuse thereof).	Start of the construction work in the target zone.
3. Remove existing trees and vegetations in and around construction site, level the ground.	EXB1~7	—	Start of the construction work in the target zone.
4. Clean out existing septic tanks and grease traps, dispose of sludge.	Septic tank: NB1 • NB2 Grease trap: NB4 • NB5	Provide necessary equipment such as a portable pump, etc.	Start of the rehabilitation work on the target buildings.
5. Provide temporary facilities needed for school operation during construction work.	1-2 temporary classrooms to be prepared by partitioning existing buildings, as needed.	—	Demolition of OB8
6. Permit the use of old DOE bldg. as a temporary facility during construction.	Old DOE Office.	Renovate, furnish, and equip the building as necessary for temporary use	Start of construction (rehabilitation) work at the project site.
7. Modify existing TEC switchboard (install new branch circuit and circuit breaker)	TEC solar power battery bank room.	Install wiring on the downstream side of breaker.	2 months prior to completion of the construction work.
8. Make application to receive power supply to newly constructed buildings.	EXB1~7	Provide technical information.	2 months prior to completion of construction work.

2-2-4-4 Consultant Supervision

(1) Basic Policy for Consultant Supervision

The Consultant will, based on the framework of Japan's Grant Aid and the intent of the outline design, carry out a series of tasks from detail design, tendering, supervision of construction and procurement work to handover. In supervising the construction/procurement work, the Consultant will communicate closely with the government agencies of Japan and Tuvalu while giving prompt and appropriate instructions to the Contractor in order to ensure that the facilities and equipment of specified qualities will be constructed and procured according to the contract documents without delay. Matters that call for special attention are as follows:

- Proper management of procurement/transportation schedule of materials and equipment and quality control at the place of procurement will be the key to accomplishing the work without delay on an outer island, where locally available resources and stable means of transportation

are lacking. The Consultant is required to carry out their work in unified manner by keeping close and constant communication between the resident supervisor and the headquarters staff in Japan.

- The construction work of this Project will take place while the school is still in operation using existing facilities. The Consultant should supervise the construction process by examining, discussing, and confirming with MSS staff the detailed arrangement of works, including arrangement of the works done by the Tuvaluan side, relocation of students to vacate the room or building, partial handover of the completed facilities, and so forth, to ensure smooth implementation of the project.
- During the rehabilitation work, the MSS maintenance team should be invited to take part in the works related to their job fields so that their skills in maintenance work will be improved under the guidance of engineers and skilled workers of the Contractor.
- In consideration of the underdeveloped medical services available in the outer island, maximum care should be taken to ensure strict safety control, which includes not only prevention of accidents during the construction work but also health management of workers.

(2) Supervisory System

To ensure that the construction work, including the rehabilitation of existing buildings, will be supervised properly, the Consultant will dispatch a Japanese architect to Tuvalu who will stay in the project site as a resident supervisor throughout the entire construction/ procurement period to perform the following tasks:

- Examine the construction plan, work schedule, construction equipment/materials procurement plan, furniture/equipment procurement plan, quality control plan, safety control plan, and so forth and, when necessary, give guidance/instructions to the Contractor to make necessary adjustments.
- Approve shop drawings, production drawings, samples, etc. submitted by the Contractor after checking their contents.
- Based on the thorough understanding of the entire construction/procurement processes, keep track of the progress of the actual work, give guidance/instructions to the Contractor when necessary, and periodically send a progress report to the agencies and organizations concerned in Japan and Tuvalu.
- Check the safety control plan of the Contractor and the actual safety measures implemented in the construction site to ensure safety during the construction work and give guidance and advice as necessary.
- Inspect the quality and workmanship of each construction work, and give guidance/advice to the Contractor.

- Coordinate technical matters concerning the works implemented by the Tuvaluan side and check the progress thereof.
- Support the approval of each payment and various other procedures at the completion of work.
- Check the specifications, contents, and quantities of equipment procured, and conduct necessary inspections.
- Conduct a completion inspection, and witness the handover of the facilities and equipment to check how the Contractor is instructing the operation and maintenance thereof.

In addition to overall supervision of the facility construction, Consultant's work of this Project involves smoothly carrying out a wide range of tasks, including making various arrangements associated with equipment procurement and communicating and coordinating with Tuvaluan agencies and organizations concerned. For this reason, a resident supervisor should be selected from those who have deep understanding on Japan's Grant Aid scheme, as well as ample expertise in architecture and building services. Also, by taking into consideration the unstable traffic/communication conditions on the outer island, an assistant staff will be hired locally who will be assigned to stay on Funafuti to assist the resident supervisor in making various arrangements that need to take place on the main island, such as communication and coordination with the agencies concerned.

In Japan, the Consultant will form a team, consisting of the project manager and engineers in charge of their respective fields of architecture, structure, electrical, mechanical, and equipment. They will conduct overall supervision of the Project, communicate and coordinate with Japanese agencies concerned, support the resident supervisor's task, and supervise various operations of their assigned fields, such as inspections of materials and equipment to be procured in Japan. Also, at each critical point along the progress of the construction work, specialized engineers may be dispatched to the Project site for a short period to witness inspections and give guidance on construction work.

On Vaitupu, the Kaupule office and MSS are the only two places that have communication systems (telephone, fax, and the Internet) connected to the outside world. However, their transmission speed and the number of lines are not adequate for expected demand to transmit drawings and other large data between the site and the Consultant's headquarters or other organizations concerned. Therefore, a high-speed satellite communication system needs to be equipped in the site office to facilitate daily and emergency communications.

2-2-4-5 Quality Control Plan

The planned facilities are single-storeyed with their main structures composed of reinforced concrete foundation and steel-framed superstructure. Therefore, the main focus of quality control will be on the structural framework (re-bars, steel frames, and concrete work), roofing, and exterior finishing, which affect the durability and other basic performance of the buildings, as well as

building services (such as water supply system). Quality control will be carried out according to the guidelines listed below. Since there is no organization on Vaitupu that conducts various tests related to construction, all tests need to be done under the Contractor's own responsibility, by using own testing instruments and applying the Japanese test methods and standards with necessary modifications while referring to the Australian and New Zealander standards if needed.

- Prior to commencement of principal items of work, work plan, which provide the work schedules, specifications, materials, construction procedures, testing methods, required quality, etc. will be prepared by the Contractor to be confirmed and approved by the Consultant.
- As for the level of foundation bed, the conditions of the soil after excavation will be checked to visually confirm that the conditions do not contradict the findings of the geotechnical survey of this study.
- The quality of re-bars will be checked at each delivery according to the product test report (mill sheet) submitted by the manufacturer.
- The quality of cement will be checked to see if it meets the required criteria based on the material test data submitted by the manufacturer at the time of mix design.
- Locally-available coarse aggregate (coral rocks) and coral sand will be used as aggregate. Coarse and fine aggregates will be tested separately using simple aggregate test equipment to be brought in from Japan to check their basic properties (specific gravity in absolute-dry or saturated surface-dry conditions, absorption rate, and particle size).
- Concrete will be mixed on-site based on the designed mix proportions established through trial mix. Slump, temperature, air content, chloride content of fresh concrete will be checked and verified at the time of mixing. Compressive strength of concrete will be checked by conducting compressive strength tests on three test pieces each taken at the time of casting (one set of three pieces per 50 m³ of casting or per each concrete placement), and strength after 1 week and 4 weeks from casting will be tested. Necessary test equipment will be brought in from Japan and tests will be conducted in compliance with JIS and other Japanese standards.
- In consideration of the hot climate with an average temperature of 27 – 28 °C throughout the year, all concrete should be controlled as “concrete under hot weather condition” by keeping the temperature of fresh concrete at the time of casting below 35°C by taking necessary measures, such as spraying water on aggregate or regulating the water temperature before casting. After casting, the surface of concrete shall be cured by covering it with sheets, etc.
- Chloride content of fresh concrete will be kept below 0.6kg/m³, which is the maximum tolerance allowed in concrete that requires anti-corrosion measures. In order to inhibit rusting, epoxy-coated re-bars will be used and aggregate will be rinsed with water to remove salinity.
- Design compressive strength of structural concrete will be set at $F_c=18\text{N/mm}^2$ by taking into account the use of porous coral aggregate, and its quality will be controlled by setting the

control strength at 21N/mm² by adding 3N/mm².

- Principal quality control of steel frames will be carry out in the manufacturing factory in Japan throughout the entire processes from checking the production drawings to manufacturing, to anti-corrosion-treatment/coating, to product inspection in accordance with applicable Japanese standards.
- Exterior walling and roofing will be checked according to the manufacturers' specifications and standard installation procedures in principle. Installation methods and construction details will be fully checked by examining work plans and shop drawings prior to shipping materials, then at the site, careful inspections will be done clarifying allowable tolerances and key attention points, such as joints with other elements and metal fittings.

2-2-4-6 Procurement Plan

(1) Construction Materials

Under this Project, all materials and equipment, except for concrete aggregate, need to be imported by ocean freight. For this reason, such materials need to be selected from comprehensive standpoints of quality, cost, supply channel, ease of maintenance, and other factors. At the same time, the number of supply sources and the timing of shipping should be limited or concentrated as much as possible to minimise the transportation cost. Fiji, which is linked to Tuvalu with stable shipment routes, will be considered as a third-country supply source in comparison with Japan in selecting the most appropriate supply source. Table 2-14 lists the major items and their specifications and supply sources.

(2) Construction Equipment

Vaitupu, where the project site is located, has only a limited number of construction equipment for minor works such as road repair and housing construction (a few 2-ton trucks, tractors with trailers, etc.). Although PWD owns a certain amount of machinery in the capital city Funafuti, they cannot lease their equipment for a long period of time. Therefore, this Project will import minimally necessary construction equipment from Japan in one shipment to reduce transportation cost and use the same equipment throughout the entire construction period. The major items of construction equipment and their specifications and supply sources are listed in Table 2-15.

Table 2-14 Supply Sources of Major Construction Materials

Material	Procured in			Remarks
	Local	Third country	Japan	
Fine aggregate (sand)	○			Coral sand is procurable locally and can be used after sieving and washing out salt contents.
Coarse aggregate (gravel)	○			Coral stone is procurable locally and can be used after sieving and washing out salt contents.
Cement		○		To import Fijian general purpose cement (40kg bag), which is the most common in Tuvalu.
Reinforcing bar			○	To import epoxy coated bars from Japan, since anti-corrosion treatment is required.
Structural steel			○	To import pre-fabricated and pre-coated units from Japan, considering easy and unified control of quality and time schedule.
Extruded cement panel			○	To import pre-cut and pre-coated panels from Japan. Durable and light in weight among walling material for dry-construction method.
Plywood (coated/uncoated)			○	To import Japanese products, considering its competitive price, high quality and stable supply.
Timber (structural/finish)		○		To procure Fijian products, being processed under similar environmental conditions so that less defects will be expected.
Aluminum door			○	To import Japanese products, considering its competitive price, high quality and stable supply.
Aluminum louver window		○		To employ Fijian products, considering its competitive prices and acceptable quality.
Glass		○		To be procured together with louver windows.
Hot-dip aluminum coated steel roofing sheet			○	To import rolls of the sheet and fabricate on site. Enough durability and corrosion resistance is proved as the roofing of the existing buildings.
Ceiling material (internal)		○		To import "pandanus mats" which have high performance of moisture control from Fiji.
Wood-based boards			○	To import Japanese cemented excelsior board, considering its competitive price, high quality and stable supply.
Paint		○		To select products easily procured in the general market in Fiji, considering the ease of future maintenance.
Wiring materials		○		Ditto
Distribution boards		○	○	To employ products of molded plastic enclosure, procurable in the general market in Fiji, for distribution boards at each building.
Lighting fixtures		○		Easy to find products of salt-resistant or heavy duty salt-resistant grades with competitive prices in Fiji.
Ceiling fan		○		Ditto
Sanitary fixtures		○		To select products easily procured in the general market in Fiji, considering the ease of future maintenance.
Plumbing materials		○		Ditto
Pumps		○		Ditto

Table 2-15 Supply Sources of Major Construction Equipment

Item (Specifications)	Local	Third country	Japan	Remarks
- Cargo crane truck (4 t) - Concrete mixer (diesel type, portable) - Air compressor and concrete breaker (portable) - Small backhoe - Diesel generator (15kVA)			○	"Unic truck"
- Rough terrain crane (12 t), mobile			○	To procure an used item in Japan

(3) Equipment

Equipment to be procured under this Project consists of educational equipment, office equipment, and furniture, most of which are basic items that do not require specialized skills for maintenance. There are no suppliers in Tuvalu that deal with these items, and DOE purchases these items directly from overseas suppliers. From the standpoint of reducing transportation cost, this Project will limit the supply sources to two countries, namely, Japan and Fiji, the only third country having stable transportation routes to Tuvalu. Specific supply sources will be determined according to the following guidelines:

- Equipment items that require periodic maintenance/repair services or replenishment of expendables and spare parts will be procured from Japan or a third country in the vicinity of Tuvalu upon confirming if the suppliers have an agent or system in Tuvalu or a neighbouring country (Fiji) that can provide after sales services for the Project.
- Bulky furniture and equipment, as well as equipment of special specification unique to the region (Oceanian map, some tools, etc.) will be procured from neighbouring countries in principle.
- Supply sources of other items will be determined by comparing quality, cost, and supply system.

Table 2-16 Supply Sources of Equipment

Category	Local	Japan	Third country	Remarks
Teaching material for general subjects		○	○	
Laboratory equipment		○	○	
Equipment for practical subjects		○	○	Some of western hand tools for woodwork will be procured from Fiji.
Office equipment		○	○	Availability of after sales service will be taken into account.
Medical equipment		○	○	
Furniture			○	Wide range of imported and Fijian products can be procured in Fiji.

(4) Transportation Plan

Most of the equipment and materials for this Project will be transported via ocean. Transportation routes and methods are planned as follows by considering comprehensively the cost, travel time, reliability, and safety:

- Equipment and materials procured in Japan will be transported in two shipments by space charter arrangement from the port of embarkment in Japan to Funafuti. The estimated travel time is between 15 to 20 days. Since there are no regular liners connecting Japan and Funafuti, cargos usually need to be transshipped to another vessel in Fiji (at Port of Suva). With space charter (up to 1,000FT/trip), however, touching at Funafuti will be possible.

- Equipment and materials procured in Fiji will be shipped by regular liners that travel from Port of Suva to Funafuti once or twice a month. This route is used by large vessels even during the rainy season when the ocean becomes rough, and has a stable track record of transporting cargos.
- Equipment and materials arriving at Funafuti Port will be unloaded, temporarily stored in a bonded warehouse, and together undergo a customs clearance procedure before shipped to Vaitupu atoll by ocean.
- From Funafuti to Vaitupu, equipment and materials will be transported in several shipments by chartering a landing craft of a neighbouring country that travels back and forth between the two islands. Because landing crafts are shallow draft vessels capable of directly berthing at ports, they can swiftly and efficiently unload and load cargos using the existing slipways.
- A Tuvaluan passenger-cargo ship travels between Funafuti and Vaitupu once or twice a month, which can be used as contingency. However, this ship has some constraints, as it cannot directly berth at Vaitupu Port and needs a smaller boat to load/unload cargos offshore.
- The land route (approx. 2km unpaved road) from Vaitupu Port to the Project site can be used all year round and poses no particular problems for transporting goods.

2-2-4-7 Soft Component (Technical Assistance) Plan

At MSS, a team of six fulltime technicians (specialized in woodwork, plumbing, and machinery) is organized to take charge of the operation and maintenance of the existing facilities, which, however, have not been maintained properly. Although the organizational system is in place, and each technician is carrying out daily maintenance work within their technical capacities and available resources, they have been unable to handle troubles and failures properly besides taking temporary or makeshift measures due to lack of technical skills and planning ability. In order to ensure that the facilities to be constructed under this Project will be maintained properly, the capacity of the maintenance team needs to be enhanced, for which technical guidance by Japanese engineers is deemed effective. However, implementation of soft component will not be necessary because the most effective and efficient approach to improving their skills is to train them at the actual construction site through OJT under the guidance of Japanese engineers and skilled craftsmen dispatched by the Contractor. In this Project, proper future maintenance will be ensured by setting forth in the tender documents provisions concerning technical guidance related to the rehabilitation and maintenance work by the Japanese Contractor and by including certain amounts of spare parts for items that require them for maintenance.

2-2-4-8 Implementation Schedule

This Project will be implemented through Grant Aid of the Government of Japan after the signing of E/N and G/A between the Governments of Japan and the Governments of Tuvalu by going through the following stages:

(1) Detailed Design (approx. 3.5 months)

The Consultant will enter into an Agreement with the Tuvaluan implementing agency and will prepare detailed design drawings and tender documents based on this outline design. The Consultant will have discussions with Tuvaluan agencies concerned at the commencement and completion of the detailed design work, which is deemed complete when the final outputs are approved. The time from signing the contract to completing the work is estimated at around 3.5 months.

(2) Tender (approx. 2.5 months)

After approval of tender documents by the Tuvaluan implementing agency, the Consultant, on behalf of the implementing agency, will conduct prequalification (P/Q) of bidders in Japan through public announcement and hold a competitive tender in the presence of parties concerned, inviting qualified Japanese contractors. The lowest bidder, after approved of the appropriateness of its bid, will be awarded a Works/Procurement Contract, which the successful bidder will conclude with the Tuvaluan implementing agency. The time from the announcement of P/Q to the conclusion of the contract is estimated at around 2.5 months.

(3) Construction/Procurement (approx. 12.5 months)

After the conclusion of the Works/Procurement Contract, the Contactor will begin the preparation work, such as drafting of construction/procurement plans, procuring/transporting of equipment and materials that will be needed at the beginning of the construction work, and dispatching of engineers to the Project site. The construction work is roughly divided into rehabilitation of existing facilities and construction of new facilities, which need to be carried out while the school is in operation. Therefore, the rehabilitation work will be started first, and rehabilitated facilities will be put into use one at a time as they are finished while new facilities are being constructed. New facilities will be constructed in as short a period as possible by using the dry construction method (steel frame) in the superstructure. The rehabilitation work is estimated to take about 3.5 months from commencement on site to completion. The expansion work is estimated to take about 9 months. In addition, about 1.5 months will be needed for the preparation work. A part of the expansion work can overlap the rehabilitation work by starting the expansion work about 1.5 months before the end of the rehabilitation work. The entire work is estimated to take a total of 12.5 months.

Since most of the equipment items to be procured will be used in the existing facilities to be rehabilitated, they will be delivered together, except for furniture for expanded facilities, to the Project site at the completion of the rehabilitation work.

Transportation during the rainy season hit by many cyclones from November to March should be avoided as much as possible, as shipping to the outer island by a small boat will be treacherous. If it becomes unavoidable, ample leeway should be allowed in the transportation schedule.

The implementation process of this Project is summarized in Table 2-17.

Table 2-17 Project Implementation Schedule

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	
Detailed Design	Field Survey												(Total: 3.5 months)	
				Detailed Design Work in Japan										
Tender				Field Survey			Notice-Prequalification-Preparation for Tender						(Total: 2.5 months)	
							Tender Opening/Signing of Contract							
Month	1	2	3	4	5	6	7	8	9	10	11	12	13	
Construction & Procurement	【Construction】													
	Preliminary Work													(Total: 12.5 months)
	Transport of Material						Transport of Material							
	Temporary Works													
				Rehabilitation Works										
					Earth-Foundation Works									
							Structural Steel-Roofing Works							
									Floor Slab Work					
										Doors & Windows-Finishing Work				
											Building Services Works			
【Procurement of Equipment】														
						Fabrication						Fabrication		
				Transport-Installation							Transport-Installation			
										Inspection-Handover				

2-3 Obligations of Recipient Country

Obligations of the Tuvaluan side associated with the implementation of this Project, as confirmed in the field surveys, are as follows:

- [1] To secure the land necessary for construction of the facilities by demolishing and removing superstructures of existing buildings, clearing vegetations on and around the construction areas, etc. that may obstruct the construction work.
- [2] To set up temporary facilities needed for school operation during construction.
- [3] To construct exterior fences, gates, school ground and other exterior facilities as necessary.
- [4] To provide an additional branch circuit in the main switchboard to draw electricity into the facilities to be constructed by this Project.
- [5] To expand the existing telephone system or install additional telephone facilities as necessary.
- [6] For the facilities to be rehabilitated, to dispose of sludge and clean out the inside of existing

septic tanks. Sludge disposal shall be done in accordance with the environmental standards set forth by the Government of Tuvalu and Vaitupu Kaupule.

- [7] To obtain authorities' approvals and/or permits necessary for the implementation of the Project, and follow all procedures related to environmental regulations in Tuvalu, such as preliminary screening for Environment Impact Assessment.
- [8] To afford Japanese and third-country personnel whose service may be required in connection with the implementation of the Project, such facilities as may be necessary for their entry into and stay in Tuvalu.
- [9] To exempt Japanese nationals from customs duties, internal taxes, and other fiscal levies which may be imposed in Tuvalu with respect to the supply of the products and services under the Project.
- [10] To ensure prompt execution for unloading, customs clearance, and domestic transportation within Tuvalu of the products, machineries, equipment and materials to be procured under the Project.
- [11] To allocate necessary budget and personnel to properly and effectively operate and maintain the facilities and equipment provided under the Project.
- [12] To procure general furniture, equipment, fixtures and supplies that are not included in the scope of the Japanese side.
- [13] To provide the unused existing building (former DOE Office) for the Contractor to use as a project office and lodging throughout the construction period, and permit temporary use of electricity and water supply (well water) for construction work.
- [14] To bear the advising commissions of the Authorization to Pay (A/P) and the payment commissions to a Japanese bank for banking services based on the Banking Arrangement (B/A).
- [15] To bear all expenses necessary for the implementation of the Project, except for those to be borne by the Japanese Grant.

Of the above obligations, specific tasks to be performed by the Tuvaluan side that are critical for the Japanese side to perform its obligations are described under "Section 2.4.3. Scope of Works."

DOE, the implementing agency on the Tuvaluan side, has experienced the former project under Japan's Grant Aid. However, its personnel have been completely reshuffled since, and it is now left with no one who took part in the previous project. In order to ensure smooth progress of each process of planning, budget allocation, and execution for their obligations, DOE needs to seek advice from other government agencies (Office of the Prime Minister and agencies that have implemented Grant Aid projects in the past) with regard to general procedure associated with Japan's Grant Aid and, for carrying out specific works, establish cooperative relationships with PWD, relevant financial departments, and local authorities (MSS and Kaupule).

2-4 Project Operation and Maintenance Plan

2-4-1 Operation Plan

The facilities and equipment to be provided by this Project will be operated and maintained by MSS under the supervision of DOE. MSS is headed by the Principal and Vice-Principal. To manage academic affairs, a Head of Department (HOD) is assigned to each of the seven subject field, under whom general teachers are deployed. The number of teachers, including the Principal and the Vice-Principal, is 35 (as of 2010). A total of 49 teachers have been established, including those on an overseas study for upgrading the qualification, on loan to other institutions and on maternity or sick leaves, and their personnel cost has been appropriated in the initial budget estimate.

No increase of teaching staff associated with the implementation of this Project is being planned. Judging from the deployment of teachers at present and after the completion of the Project (numbers of students and lesson periods per teacher, see table below), no increase would be necessary if all the 49 established teachers are assigned to work at MSS as planned. However, because the number of students/periods per teacher varies depending on the subject, and the TVET program that was launched in 2009 is planned to be expanded under this Project, there may be a need for deploying more technical teachers to be able to provide a wide variety of practical training programs. It is desirable to select such additional technical teachers from the already-established teachers' posts.

Table 2-18 Deployment of Teachers

	No. of teachers	No. of students	No. of streams	Students /teacher	No. of allotted lesson periods per teacher (1 period=40 minutes)	
Present status (Y2010)	35	493	19	14.1	24.3	(4.9 periods/day)
Project target (Y2013)	49	624	22	13.0	19.1	(3.8 periods/day)
Average of Japan's public school (Y2009)	-	-	-	14.0	18.8*	

* Number of lesson periods was converted at 40 minutes to a period.

Besides the teachers, MSS also employs support staff that take care of school administration and operate/maintain the school facilities (see table below). Since this Project will not expand facilities that will require an increase of support staff, the current staff will be sufficient to operate the school.

Table 2-19 Support Staff of MSS

Category	No.	Remarks
Executive Officer	1	In charge of financial matters
Administrative Staff	4	Clerical Officer(2, records/typing and equipment), Librarian/Assistant Librarian(2)
Kitchen Workers	15	Chief/ Assistant Chief Cook(2), Senior Cooks/Cooks(6, double shift), Stewards(6, double shift), Storekeeper(1)
Maintenance Team	6	Carpenter(2), Plumber(3), Mechanic/Electrician(1)
Wardens/Matrons	8	4 each for boys/girls dormitory, shift system
Other Staff	5	Watchman(2, for night time, double shift), Toddy Cutter(2), Driver(1)
TOTAL	39	

2-4-2 Maintenance Plan

Maintenance System

Daily maintenance of facilities and equipment is carried out by the teachers and support staff under the command of the Principal. Operation and maintenance of water-supply/ sewage/ drainage/ electrical systems, as well as maintenance of buildings, furniture, etc., are performed by a maintenance team composed of full-time technicians. The composition of the maintenance team and the responsibility of each member are shown in the table below. Although there is no electrician that can handle the electrical systems, which are presently operated and maintained by the mechanic of the maintenance team, TEC engineers are assigned to stay on Vaitupu to provide total support for MSS and handle daily maintenance and repair.

Under this Project, the maintenance team members will participate in the rehabilitation work to improve their technical skills through OJT. Also, in order to ensure that maintenance work will be carried out properly, certain quantities of maintenance supplies will be provided to be kept as stock.

Table 2-20 Activities of Maintenance Team

Category	Duties	Activities
Plumber 1	Maintenance of water supply, sewage and drainage system	Monitors and inspects the overall water supply, sewage and drainage system and performs minor repair and modification in case of trouble.
Plumber 2		
Plumber 3	Operation and monitoring of water supply system	Manually operates the water system, such as lifting water to the elevated water tanks, according to consumption.
Carpenter 1	Maintenance of school facilities	Performs minor repair and remodelling in case of trouble in school buildings, including teachers' residence, and furniture.
Carpenter 2		
Mechanic	Maintenance of vehicles, mechanical/electrical equipment	Performs daily maintenance of machines owned by MSS (vehicle, lawnmower, pump, generator, etc.) and electrical facilities, as well as minor repair and modification in case of trouble.

Educational equipment is controlled by personnel appointed by the HOD of each subject field, and administrative equipment is controlled by personnel appointed by the Principal. When accessories, spare parts, and expendables are needed, a request is submitted via the administrative staff in charge of equipment to DOE, which will procure such items. Although sophisticated items that require specialized maintenance/repair skills are excluded from this Project, troubles in some office equipment, woodworking machines, etc. will need to be handled by calling engineers from Funafuti or Fiji if they require specialized repair work.

Maintenance Methods

While the facilities under this Project are designed not to include advanced systems and complicated specifications as much as possible for easy maintenance, daily cleaning and regular inspection by the maintenance team, as well as early response to trouble caused by wear and tear and aging, will be essential to maintain the facilities in good conditions for a long period of time,.

- Periodic cleaning: classrooms and dormitories shall be cleaned daily by students under the

guidance of teachers. The administrative staff will clean the Administrative Zone. On weekends, the entire school properties will be cleaned by dividing them into sections, each of which will be assigned to a group of students who share the same dormitory room.

- Regular repair work of facilities: no repair work may be necessary for a few years after the handover if periodic inspection and cleaning, as well as proper daily management, are carried out. After the first few years, periodic repair and repainting of painted sections (once every ten years), as well as inspection and adjustment of doors and windows (once a year or so) will become necessary. Since rusting, damage, deformation, and other defects in steel frames particularly need to be repaired in early stages, tools and supplies for such repair work will be stocked regularly so that damage can be repaired as soon as it is discovered.
- Maintenance of building services: daily operation management and periodic inspection of building services are particularly important to avoid serious repair work or parts replacement. Although most of the service systems of this Project are commonly used in Tuvalu and do not contain complicated elements, a routine system for maintenance should be established to ensure that the facilities will be managed by the technical staff through regular routines, such as periodic inspections, minor repair work, and limited parts replacement, according to the maintenance manual handed over at the completion of the construction work.
- Maintenance of exterior facilities: in addition to the daily cleaning of areas surrounding the school buildings, the soakage pits will be inspected and cleaned twice or so a year, and the septic tanks will be cleaned and removed of sludge once a year.
- Maintenance of equipment: equipment will be maintained and inspected, and expendable parts replenished or replaced, according to the attached manual. The department that manages the equipment needs to maintain the equipment systematically by creating an inventory, maintenance record, etc.

It takes at least one month to procure supplies and equipment needed for maintenance work, except for basic construction materials that are stocked in Funafuti. In order to be able to swiftly attend to problems when they occur, it is important to develop a system, under which certain quantities of spare parts and expendables that need to be replaced or replenished at regular intervals, as well as glass, paints, and other supplies that are needed for regular maintenance work, will be stocked at the Project site and replenished as they are consumed in a planned manner.

2-5 Project Cost Estimation

2-5-1 Initial Cost Estimation

The breakdown of costs to be borne by the Tuvalu side based on the aforementioned scope of works, as well as the conditions of estimation under Section (2) below, are shown in the tables below.

(1) Initial Cost to be borne by the Tuvalu Side

Table 2-21 Initial Cost to be borne by the Tuvalu Side

Total Cost: Approx, 49 thousand AU\$

Item	Estimated cost (AU\$)	(million yen)
Demolition and removal of the existing building (superstructure only)	11,527	0.97
Clearing and grubbing of the construction areas	13,259	1.12
Provision of temporary classrooms	6,923	0.58
Cleaning up the existing septic tanks	6,473	0.55
Refurbishment of the main switchboard	3,000	0.25
Commission to the bank based on the B/A	8,200	0.69
TOTAL	49,382	4.16

(2) Conditions of Estimation

- 1) Estimation as of : June, 2010
- 2) Foreign exchange rate : 1AU\$=84.21 yen, 1US\$=92.12 yen, 1FJ\$=48.37 yen
- 3) Implementation period : As shown in the project implementation schedule
- 4) Other conditions : The Project will be implemented in accordance with the grant-aid scheme of the Government of Japan

2-5-2 Operation and Maintenance Cost

The cost needed for operating and maintaining the facilities and equipment after the completion of the Project is estimated as follows.

(1) Operation Cost

1) Personnel Cost

Implementation of this Project will not cause an increase of teachers and support staff. Based on the assumption that all the 49 currently established teachers (including the Principal) will return to their teaching duties and be deployed as planned, their personnel cost has already been appropriated in the initial budget, thus requiring no additional budget.

2) Facility Operation Cost

The cost required for operating the facilities and equipment is estimated as follows:

- Water supply: since rainwater and well water within the Project site will be utilized, implementation of this Project will not cause an increase in the water-supply cost.
- Communication: we do not calculate communication cost in this section, because telephone and other communication systems will be installed at the expense of the Tuvaluan side on an as-needed basis.
- Electricity: electricity cost minimally required for operating the school facilities under normal usage conditions is estimated based on the assumptions listed below. The result is shown in the following table.
 - The number of operating days per year is set at 280 days, which is equivalent to 40 weeks (13 weeks in each of 1st and 2nd terms and 14 weeks in 3rd term). That of the administrative division is set at 300 days by adding 20 days for preparatory work.
 - The number of hours per day to use the facilities is set as follows:
 - Classrooms/administrative facilities: 10 hours on weekdays consisting of 7 hours of class (8:00 – 15:00) plus 3 hours for extracurricular activities, supplementary lessons, and homework. 3 hours on weekends for the latter activities.
 - Dormitories: 6 hours derived by subtracting the classroom hours (10 hours on weekdays) from 16 hours from rise to lights-out (5:30 – 21:30).
 - Dining Hall & Kitchen: 6 hours comprised of 2 hours each for three meals, including the time for cooking, eating, and clearing.
 - The number of hours of use per day by load is set as follows:
 - Loads (air conditioning, refrigerator) that require constant operation will be operated 24 hours a day when the school is in operation.
 - Natural lighting and ventilation will be utilized as much as possible. Thus, lights and ceiling fans are assumed to be used at 50% of the time when the facilities are used.
 - Load of facilities that will continue to be used outside the scope of this Project is assumed at 20% of the total load for the rehabilitated/expanded facilities.

As a result of the calculation, the annual electricity cost to be incurred after the implementation of this Project is estimated to be about 2.2 times the amount appropriated in the initial budget for 2010 (21,000AU\$).

Table 2-22 Estimation of Electricity Cost

Code No.	Type of loads	Electricity consumption		Assumptions for calculation
		kWh/day	kWh/year	
EXB-1/2 NB-3/4	General/Special CRs	Weekday: 110.0 Weekend: 33.0	24,640	No. of operational days per year: 280 days : CRs/dormitories/dining hall/kitchen [weekday=200 days, weekend=80 days] 300 days: Administration [weekday=215 days, weekend=85 days] Average demand factor Socket outlet : 0.05 ACs/refrigerators: 1.00 Others (lighting/ceiling fan, etc.): 0.60 Electricity tariff For government institutions: 55 ¢ /kWh
EXB-7	Administration	Weekday: 20.0 Weekend: 6.0	4,810	
EXB-3/4/5/6 NB-1/2	Dormitories	69.0	19,320	
NB-5	Dining hall/ Kitchen	8.4	2,352	
(EXB-7、NB-5)	Air conditioners/ Refrigerators	84.0	25,200	
NB-6/7/8 OB-1/9/10, etc.	Facilities out of the project scope	30.6	8,568	
TOTAL		Weekday: 322.0 Weekend: 231.0	84,890	

(2) Maintenance Cost

1) Facility Maintenance Cost

Estimated costs required for maintaining the facilities and equipment to be constructed and installed under this Project are shown in Table 2-23. This maintenance cost is for regular maintenance work only, such as partial repair of exterior walls, exterior/interior iron parts, painted wooden parts, and finishing and roofing materials, as well as replacement of broken metal fittings and light bulbs, partial replacement and repair of plumbing/electrical installations, and replacement of broken parts of furniture. For large-scale repair work for long-term usage, a separate fund needs to be appropriated in the investment budget managed by DOE.

Table 2-23 Estimation of Facility Maintenance Cost

Facilities		Annual cost for facility maintenance (AU\$)			
Category	Total floor area m ²	Facilities	Building services	Furniture	TOTAL
Expanded facilities	3,000.72	5,101	3,901	2,101	11,103
Rehabilitated facilities	3,535.10	6,010	4,596	2,475	13,081
Other facilities *	2,537.66	4,314	3,299	1,776	9,389
TOTAL	9,073.48	15,425	11,796	6,352	33,573

* 6 existing buildings which are to be used after the completion of the Project

* The ordinary maintenance costs for the facilities are calculated as follows, according to the contents and specifications of the facilities, based on building maintenance cost data of similar facilities in Japan.

- Facility maintenance cost: Initial construction cost for architectural works x 0.2%=1.7 AU\$/m²
- Building services maintenance cost: Initial construction cost for electrical/mechanical works x 1.2%=1.3 AU\$/m²
- Furniture maintenance cost: Initial cost for furniture work x 1.5%=0.7AU\$/m²

2) Equipment Maintenance Cost

Most of the items are basic educational equipment, the majority of which does not incur special maintenance cost if used under normal conditions. Estimated maintenance cost of each item that requires periodic replenishment of expendables or parts replacement is listed in the table below.

Table 2-24 Estimation of Equipment Maintenance Cost (AU\$)

Code No.	Item	Q'ty	Expendables, etc.	Annual usage	Unit price	Annual amount
SCI-04	Waste Water Treatment Apparatus	1	Filter paper	2 (carton of 100 sheets)	11.52	23.04
SCI-05	Falling Body Accelerate Bar	1	Flush lamp (xenon)	1	3.68	3.68
SCI-06	Drop Tube	1	Oil for vacuum pump	1	48.69	48.69
SCI-09	Ripple Tank	1	150W light bulb	2	6.23	12.46
SCI-13	Monochord	1	Spare chord	2 (bundle of 6 strings)	19.00	38.00
SCI-17	Material set for Aquarium	1	30W fluorescent tube	1	4.04	4.04
SCI-18	Celestial Globe	1	Spare lamp	2	4.99	9.98
WW-01	Electric Circular Saw	2	Spare blade	5	59.38	296.90
WW-02	Belt Grinder for Wood	1	Spare belt	5	118.75	593.75
WW-03	Thicknesser	1	Spare blade	5	43.94	219.70
FNT-01	Whiteboard	2	Set of marker pen	30	7.13	213.9
ADM-03	Personal Computer Set	1	Toner cartridge	5	134.97	674.86
Total						2,139.00

(3) Summary of Operation and Maintenance Costs

Table 2-25 summarizes the results of the above estimations, according to which the implementation of this Project will require an increase of about 31,400 AU\$ (approx. 2.64 million yen) in the annual operation/maintenance cost from the FY2010 budget (approved). This accounts for 2.1% of the total operation budget for secondary education (MSS), or 19.9% after subtracting the personnel cost and ration.

The budget for secondary education accounts for 24.5% of the total budget (FY2010) of the MEYS and is on the trend of increase, registering an average annual increase of 8.5% in the initial budget between 2007 and 2010. MEYS has announced a policy to steadily increase the recurrent budget for the educational sector, except for personnel cost, through the development of the Medium Term Expenditure Framework (MTEF) under the support of Australia. Therefore, the Tuvaluan side is deemed to be able to secure the budget to cover all the extra expenses to be incurred by the implementation of this Project.

Table 2-25 Result of Estimating Annual Operation/Maintenance Cost (AU\$)

Category	O&M Budget for Secondary Education (MSS)	Amount of O&M cost required after the implementation of the Project		Burden sharing of the increase from
	FY 2010 (Budget)	Estimated amount	Increase from FY2010	FY 2010 (Budget)
	[A]	[B]	[C]=[B]-[A]	[C]/[A]
Goods & Services (excluding ration)	490,200 (90,200)		25,690	5.2% (28.5%)
Electricity charge	21,000	46,690	25,690	122.3%
Maintenances	37,500		16,030	42.7%
General maintenance	30,000	33,573	3,573	11.9%
Equipment maintenance	5,000	2,139*	2,139*	42.8%
Secondary education: total (excluding personnel cost)	1,493,446 (557,450)		31,402	2.1% (5.6%)
(excluding personnel cost & ration)	(157,450)			(19.9%)

* Maintenance cost for equipment is estimated just counting necessary cost for the equipment procured under the Project, so that the figure shows the additional cost to the current amount of the cost for equipment maintenance.

2-6 Other Relevant Issues

The following issues may have direct impact on the smooth implementation of the Project, and thus need careful attention.

(1) Preparation of the Construction Site

For the facilities to be newly constructed (Boys Dormitory, Girls Dormitory, General Classroom Buildings, and Administration Building), the areas where these facilities will be constructed need to be prepared by removing trees and existing structures and leveling the ground at the expense of the Tuvaluan side. To lessen the burden on the Tuvaluan side, it was decided that, with respect to the existing building to be removed, Tuvaluan side would be responsible only for demolishing and clearing the superstructure of the old General/Special Classroom Building (OB8). However, since MSS would lose four classrooms as a result of demolishing OB8, the demolition work should begin immediately before the commencement of the construction work in the area, by which time temporary classrooms need to be set up to transfer and accommodate the classes that have been using OB8.

(2) Vacation of the Existing Facilities before Rehabilitation Work

In this Project, rehabilitation work of the existing buildings needs to be done while the school is operating. In order not to disrupt the school's normal operation as much as possible, the rehabilitation work will be carried out and handed over in sections as they are completed. The MSS staff needs to have detailed discussions with the Japanese parties concerned (Consultant and

Contractors) on construction processes and scheduling, based on which to formulate a school operation plan during construction, so that the facilities to be rehabilitated or demolished will be vacated without delay.

(3) Smooth Implementation of Tax Exemption and Customs Clearance

Most of the equipment, materials, and construction machinery for this Project will be imported from overseas countries (Fiji and Japan). Goods from Japan will be transported in two shipments to save freight cost, which means that any delay in transportation will directly lead to a delay in construction work. Imported cargo will be unloaded at Funafuti, temporarily stored in a bonded warehouse to undergo taxes exemption and customs clearance procedure, and then transhipped and delivered to the construction site. A delay in the duty-free customs-clearance and unloading/loading procedures will affect the domestic transportation schedule by a charter ship and could incur unnecessary extra cost. In order to ensure that duty-free customs clearance and port loading/unloading will be carried out under close coordination and cooperation with the Department of Marine, the Department of Finance, and other related agencies, good communication and relationships should be established beforehand with these organizations.

(4) Authorization to Pay According to Banking Arrangement

The Government of Tuvalu will, after signing of E/N with the Government of Japan, conclude a Banking Arrangement (B/A) with a Japanese Bank, based on which the Tuvaluan government needs to issue an Authorization to Pay (A/P) immediately after signing Consultant Agreement and Construction/Procurement Agreement. Because A/P advisory fees and other charges associated with each payment are to be borne by the Tuvaluan side, MEYS needs to make preparations by having the finance authority to appropriate sufficient budget beforehand so that payments can be made without delay. Due note should be taken that delay in payment could directly affect the progress of the construction work.

Chapter 3. Project Evaluation

Chapter 3 Project Evaluation

3-1 Recommendations

3-1-1 Prerequisites of Project Implementation

Listed below are the responsibilities of the Tuvaluan side as prerequisites of this Project.

(1) Establishment of Cooperative Relations Among Related Tuvaluan Government Agencies

The Department of Education, the implementing agency of this Project, has limited personnel and no staff who have the technical background in facilities construction. In order to ensure smooth implementation of this Project, the personnel in charge at the Department of Education should play a central role in establishing close cooperative relationships among the Office of the Prime Minister, the Ministry of Finance and Economic Planning, the Public Works Department, the Department of Environment, and other related government organizations to obtain necessary assistance for facilitating the progress of the Project. Also, since the means of communication and transportation between Funafuti and Vaitupu, where the Project site is located, are limited, it is necessary to establish a system led by the principal of MSS to obtain cooperation from Vaitupu Kaupule, etc. as necessary to facilitate the implementation of the Project.

(2) Obtaining Necessary Permits, Licenses, and Consents

In commencing the construction work, it is necessary to undergo preliminary screening associated with Environmental Impact Assessment and obtain approval of the Project. The Department of Education, the implementing agency of this Project, needs to prepare necessary documentation based on this Outline Design and complete required procedures in consultation with the Department of Environment prior to the implementation of the Project.

(3) Performance of Obligations by the Tuvaluan Side

In implementing this Project, it is mandatory that the Tuvaluan side carries out its agreed upon obligations without delay or omission. Particularly it is important to appropriate sufficient budget and clearly define the execution procedure (direct operation by MSS or outsourcing, etc.) for items that need to be carried out prior to the commencement of construction work, such as preparing the construction site (removal of existing trees and structures, and leveling of the ground) and setting up temporary facilities needed for school operation during construction, to ensure its smooth implementation.

3-1-2 Preliminary and External Conditions for the Achievement of Overall Plan

Tasks that the Tuvaluan side is required to undertake as preliminary conditions, as well as external

factors, for producing results and sustaining the effects of the Project, are listed below.

(1) Tasks to be Undertaken by the Recipient Side

1) Deployment of Established Teachers

Presently, 35 out of 49 established teachers (including the principal and vice-principal) are actually working at MSS because the rest are studying abroad or loaned to other organizations to upgrade their qualifications, or on long-term leave due to childbirth, sickness, or injury. After the completion of this Project, it becomes necessary to assign all 49 teachers to work at MSS and effectively utilize the newly provided facilities and equipment in order to provide quality education as planned. Also, qualified technical teachers need to be hired additionally for the TVET stream, which has already been opened and will be expanded in the future.

2) Rehabilitation and Utilization of Existing Facilities Not Covered by the Project

Due partially to budgetary constraint on the Japanese side, this Project will cover only the expansion and rehabilitation of facilities that are minimally necessary for MSS to function properly. With regard to the existing facilities, deteriorated paint, peeling of floor finishes, and other such conditions that do not directly affect the required function will not be covered by the Project and thus need to be repaired by MSS on an as-needed basis. The Resource Centre, Old Chapel, “Maneaba”, and Old Laboratory Building, which were excluded from the Project, also need to be rehabilitated or repaired by the Tuvaluan side as necessary. For the Recourse Centre, in particular, MSS needs to formulate a specific plan as to how to utilize the vacant space that becomes available after relocating the administrative department to the new Administration Building, and carry out rehabilitation work based on such plan. MEYS and the Department of Education are required to appropriate a sufficient budget for and proceed with the rehabilitation work in a systematic manner.

3) Sustainable and Systematic Maintenance

In order to ensure that the facilities to be upgraded by this Project will be properly maintained and effectively utilized for a long period, it is necessary to conduct continuous maintenance in an organized manner. For daily maintenance of facilities that does not require special skills or extra budget, MSS will organize its own system by clarifying the roles and enhancing the capacity of the existing maintenance team. At the same time, the central government is required to appropriate a sufficient maintenance budget on a continuous basis to meet the needs of MSS, and establish a cooperative relationship with the PWD to provide technical support for MSS staff and supervise MSS’ maintenance activity through periodic monitoring.

(2) External Conditions

1) Government Strategic Plans Related to Primary and Secondary Education

The basic framework of this Project is designed in line with the primary/secondary education policies and plans of the Department of Education, under which the entrance examination for MSS will continue while those who failed the exam will be provided with an opportunity to study at the Community Training Centre (CTC) established in each island or in the TVET stream on an upper-secondary level at MSS. The Department of Education aims to establish an educational system where each student can choose a course according to their ability and/or orientation. In order to sustain the fruits of this Project in alignment with these flows, the Tuvaluan side needs to upgrade the re-established CTCs to enable them to function fully as educational/training institutions while formulating appropriate curriculum and certification systems for the TVET stream on upper-secondary level so that the two flows will complement each other under a new integrated system.

2) Stable Handling of Economy and Finance and Increase of Non-Personnel Budget for Education Based on MTEF

Tuvalu, with a majority of its economy and finance being dependent on external revenue, is vulnerable to such external factors as the stagnation of world economy, rise in fuel prices, and fluctuation of aid money. To counter the situation, the Government of Tuvalu has been trying to stabilize its finances through the sound operation of the Tuvalu Trust Fund and other measures, and is formulating MTEF to optimize budget allocation according to the priorities set under the National Strategic Plan. The MTEF, which will be launched in fiscal 2011 on a trial basis in the education and health sectors, has established policies, including rationalization of various scholarship programs and budgetary increase for the school sector. In order to sustain the positive effects of this Project, it is necessary that sufficient budget will be appropriated in a stable manner for the utilization and maintenance of the facilities and equipment of MSS, for which the Government of Tuvalu is required to successfully stabilize and optimize its finances so that an appropriate budget will be allocated for the education sector continuously in the future.

3-2 Project Evaluation

3-2-1 Relevance

Beneficiaries of the Project

While this Project will directly benefit around 600 students studying at MSS and about 90 teachers and other staff members, improvement of the facilities and learning environment of Tuvalu's only public secondary school will widely benefit the entire nation.

Goal and Urgency of the Project

The objectives of this Project are to improve the learning environment of secondary education in Tuvalu and provide access to alternative education/training opportunities for children and young

adults who have dropped out of the formal educational system. The target school is needing urgent improvement measures, as it is being forced to operate the school using deteriorated buildings, temporary classrooms and other inappropriate facilities due to lack of usable facilities.

Relevance in Terms of Operation and Maintenance

The facilities and equipment to be provided under this Project are designed to exclude as much as possible sophisticated systems and complicated specifications for the purpose of easy maintenance. At MSS, a maintenance team of specialized engineering staff has been organized to conduct daily operation and periodic maintenance of the facilities and equipment, as well as to carry out ordinary repair and parts replacement work within a limited budget, indicating that the facilities and equipment to be provided by this Project will also be operated and maintained within the financial, personnel, and technical capabilities of the Tuvaluan side.

Contribution to Mid- to Long-Term Development Goals

This Project is to assist the upgrading of secondary-level educational facilities as part of the important agendas of the National Strategy for Sustainable Development 2005 – 2015, Tuvalu’s national development plan, and the Tuvalu Education Strategic Plan 2006 – 2010, an overall plan for the educational sector, that aim to improve the facilities of all levels of education. Through the provision of an appropriate teaching/learning environment, this Project will contribute to the achievement of the overall goal that aims to “provide quality education for sustainable living for all.”

Profitability

This Project is to improve the facilities and the learning environment of a public secondary educational institution. Although a small amount of tuition (150AU\$ annually) is required of each student, other operational costs, including the cost of running the dormitories, are covered by the national treasury. Thus, no profit will be directly generated from the implementation of this Project.

Negative Impact on Environment and Society

This Project is to conduct rehabilitation and construction work within the premises of an existing school. Although it involves cutting of existing trees, installation of wastewater treatment facilities, disposal of construction wastes, and exploitation of natural resources (aggregate, water, etc.), the Project is designed to minimize negative impact on the environment to the extent possible. Also, a slight increase in the enrolment as a result of this Project is projected to cause no negative impact on the local community, as the students’ lives are basically contained within the school premises.

Feasibility as a Grant Aid Project

Judging from the experiences of past grant aids that have been implemented in Tuvalu, it is deemed that this Project will be implemented under Japan’s Grant Aid scheme without particular difficulties.

Necessity and Advantage of Using Japanese Technologies

In order to ensure a certain level of quality while reducing cost in carrying out the construction work in a remote island with very little available resources, it is effective to minimize on-site work and maximize the use of prefabricated or industrialized materials as much as possible. Utilization of Japanese technology in this Project is highly effective, as Japanese construction materials and equipment are superior in terms of quality and cost due partially to competitive market and favourable exchange rate, and their use will be accompanied by technical transfer related to construction and maintenance by Japanese engineers.

3-2-2 Effectiveness

(1) Quantitative Effects

Outputs of this Project that are expected to produce quantitative effects are as follows:

- Construction of 12 additional classrooms will enable MSS to eliminate the 6 temporary classrooms and 4 aged classrooms that are recommended to be removed. This will reduce the number of students per permanent classroom from 55 to 28.
- The number of total classrooms at MSS will increase from 19 (including 10 temporary and aged classrooms that are inappropriate as educational facilities) to 22, which will provide an environment that will allow about 150 newly enrolled students to complete 4-year educational programs. This will create new educational opportunities (TVET) for about 50 children annually who drop out of school by failing examinations, improving the rate of students who will reach the final year (Form 6) from the current 76.2% to a higher percentage.
- Construction of dormitories with total capacity of 300 students and rehabilitation of the existing ones with total capacity of 324 students will provide improved living environments to all the students who have been forced to stay in unsafe and poor conditions in terms of hygiene and functionality. This will improve the percentage of students who enjoy their stay in permanent facilities from 50% to 100%.

Table 3-1 Expected Quantitative Effect

Indicator	Baseline (2010)	Target (2016)	Note
(Reduction in) no. of students per permanent classroom	55 students/ permanent classroom	28 students/ permanent classroom	10 of 19 classrooms in baseline year are temporary or aged.
(Improvement of) rate of students reaching the final school year	76.2%	100%	No. of students in Form 6 / no. of students in Form 3 of the relevant cohort.
(Improvement of) percentage of students living in permanent facilities	50%	100%	

(2) Qualitative Effects

Outputs of this Project that are expected to produce qualitative effects are as follows:

- Construction of new dormitories with a capacity of 300 students plus rehabilitation of existing dormitories with a capacity of 324 students will improve the living environment for all enrolled students (up to 624 students) who have been forced to live in unsafe, unsanitary, and dysfunctional facilities.
- Construction of the Administration Building that can accommodate all teachers will create an appropriate environment for teachers to carry out daily duties and hold meetings, which is expected to enhance classroom management and improve the quality of education through close communication among teachers.
- Replenishment and procurement of educational equipment that was lacking due to malfunctioning, etc. will enable teachers to teach classes effectively according to the curriculum and provide better-quality education, which will lead to the improvement of students' performance.

Appendices

- 1 Member List of the Survey Team
- 2 Survey Schedule
- 3 List of Parties Concerned in the Recipient Country
- 4 Minutes of Discussions (M/D)
- 5 Other Relevant Data
 - Cost Estimation to be borne by the Recipient Country
 - Survey Map
 - Abstract of the Geotechnical Investigation Report
- 6 References

1. Member List of the Survey Team

1-1 Member of the Field Survey 1 (March 7 to March 29, 2010)

Mr. Juichiro Sasaki	Team Leader	Resident Representative, JICA Fiji Office
Ms. Ayako Watenabe	Project Coordinator	Basic Education Division 1, Human Development Department, JICA
Mr. Tomohiro Osawa	Project Manager, Facility /Education Planning	Matsuda Consultants International Co., Ltd.
Mr. Naoto Nishiya	Construction/Procurement Planning, Cost Estimation	Matsuda Consultants International Co., Ltd.

1-2 Member of the Field Survey 2 (June 6 to June 30, 2010)

Mr. Satoru Mimura	Team Leader	Director, Pacific Division, Southeast Asia 1 & Pacific Department, JICA
Mr. Naoki Umemiya	Project Coordinator	Basic Education Division 1, Human Development Department, JICA
Mr. Tomohiro Osawa	Project Manager, Facility /Education Planning	Matsuda Consultants International Co., Ltd.
Mr. Hiroyuki Iguchi	Architectural Design	Matsuda Consultants International Co., Ltd.
Mr. Naoto Nishiya	Construction/Procurement Planning, Cost Estimation	Matsuda Consultants International Co., Ltd.
Mr. Tomohiro Tamaki	Equipment Planning, Cost Estimation	INTEM Consulting Inc. .
Mr. Toshio Tamura	Mechanical Design	Matsuda Consultants International Co., Ltd.
Mr. Shinichi Karibe	Electrical Design	Matsuda Consultants International Co., Ltd.

1-3 Member of the Field Survey 3 (January 9 to January 30, 2010)

Mr. Satoru Mimura	Team Leader	Director, Pacific Division, Southeast Asia 1 & Pacific Department, JICA
Mr. Tomohiro Osawa	Project Manager, Facility /Education Planning	Matsuda Consultants International Co., Ltd.
Mr. Naoto Nishiya	Construction/Procurement Planning, Cost Estimation	Matsuda Consultants International Co., Ltd.

2. Survey Schedule

2-1 Field Survey 1

	2010 March		Officials		Consultants		
			Team Leader	Project Coordinator	PM/Facility Planning /Educational Planning	Construction & Procurement Planning/ Cost Estimation	
1	7	S		Narita→Seoul·Inchon→			
2	8	M		→Nadi (Fiji) Transfer to Suva by a car			
			Courtesy call to JICA Fiji				
3	9	T	Suva (Fiji) →Funafuti (Tuvalu)				
			Courtesy call to Minister of Education, Youth & Sports(MEYS)				
			Meeting with MEYS officials				
4	10	W	Transfer to Vaitupu by sea				
5	11	T	Meeting with officials at Motufoua Secondary School (MSS)				
			Survey on existing facilities and equipment				
			Meeting with Kaupule (island council) members, Visit to Community Training Center (CTC)				
			Visit to Clinic (by Japan's grassroots aid), Aquaculture pond (by Republic of China)	Survey on existing facilities and equipment			
6	12	F	Meeting with MSS officials				
			Visit to the new building for the island's primary school (funded by EU)				
			Survey on existing facilities and equipment	Survey on existing electrical system with TEC			
7	13	S	Survey on the site conditions, Team meeting, Documentation (Stay in Vaitupu was prolonged due to bad weather)				
8	14	S	Team meeting, Documentation				
9	15.	M	Discussion on M/D at MSS	Survey on existing utilities			
			Survey on the site conditions				
10	16	T	Signing M/D, supplementary site survey, survey on general conditions in Vaitupu				
			Discussion with the secretary of Kaupule				
11	17	W	Team meeting, Documentation				
12	18.	T	Transfer to Funafuti by sea				
13	19	F	Discussion with MEYS (Re-arrangement of survey schedule, collection of answers to the questionnaire)				
			Discussion with Ministry of Finance	Survey at PWD, Meteorological Office, TEC			
			Interview by Radio Tuvalu	Data collection at MEYS	Survey on transportation		
14	20	S	Visit to Nauti Primary School, project sites & facilities funded by Japanese aids, etc.				
15	21	S	Visit to Tuvalu Maritime Training Institute (TMTI), Team meeting, Documentation				
16	22	M	Visit to educational institutions in Funafuti (Fetuvalu SS, USP-AFP, USP Tuvalu extension campus), Discussion with MEYS			Survey on environmental protection & transportation	
17	23	T	Funafuti→Suva	Survey at MEYS		Funafuti→Suva	
				Suva→Nadi	Collection of statistics		
18	24	W		Nadi→ Seoul→Narita	Supplementary survey on procurement & transportation		
					Material survey in Fiji		
					Survey on local engineers		
19	25	T	TEC: Tuvalu Electricity Corporation			Discussion with MEYS	Survey on procurement
						Funafuti→Suva	Material survey
20	26	F	PWD: Public Works Department			Documentation	
			USP: University of South Pacific			Report to JICA Fiji Office & Embassy of Japan in Fiji	
21	27	S	Documentation				
22	28.	S	Suva→Nadi				
23	29	M	Nadi→Seoul→Narita				

2-2 Field Survey 2

2010			Officials		Consultants				
June			Team Leader	Project Coordinator	PM/Facility & Educational Planning	Architectural Design	Construction Planning/ Cost Estimation	Equipment Planning/ Cost Estimation	Mechanical/ Electrical Design 1/2
1	6	S	Narita→Seoul (Inchon)→						
2	7	M	→Nadi, Transfer to Suva Meeting with JICA Fiji•EOJ						
3	8	T	Suva →Funafuti Discussion with MEYS		Narita→Seoul (Inchon)→				
4	9	W	Discussion with MEYS Other project Documentation		→Nadi, Transfer to Suva Survey on procurement in Fiji				
5	10	T	Signing M/D Other project Funafuti→		Suva →Funafuti Courtesy call to MEYS				
6	11	F	Other project Seoul→Narita		Visit to similar or relevant facilities in Funafuti				
7	12	S			Team meeting, Documentation				
8	13	S			Transfer from Funafuti to Nukufetau by sea				
9	14	M	Other project		Visit to Primary School in Nukufetau, Transfer to Vaitupu by sea				
10	15	T	Funafuti→ Suva→Nadi		Discussion with MSS, Site survey (Topographic/geotechnical survey, survey on existing utility systems, equipment, etc.)				
11	16	W	Nadi→Seoul →Narita		Ditto				
12	17	T			Ditto				
13	18	F			Transfer from Vaitupu to Funafuti by sea				
14	19	S			Arriving at Funafuti				
15	20	S			Team meeting, Data analysis				
16	21	M			Discussion with Department of Education (DOE) Survey at Dept. of Environment, PWD, etc.				Meeting at TEC, Tuvalu Telecom
17	22	T			Facility planning			Funafuti→Suva	
18	23	W			Documen- tation		Cost survey	Survey on equipment	Suva →Nadi
19	24	T			Wrap-up meeting with DOE Supplementary survey			Ditto	Nadi→Seoul Seoul→Narita
20	25	F			Supplementary survey Funafuti→Suva			Ditto	
21	26	S			Meeting with AusAID Report to JICA Fiji Office		Cost survey	Ditto	
22	27	S			Suva→Nadi Furniture		Suva→Nadi Furniture		
23	28	M			Data analysis				
24	29	T			Nadi→Seoul →Narita		Survey on transportation, procurement		Nadi→Seoul →Narita
25	30	W			Cost survey Suva→Nadi				
					Nadi→Seoul Seoul→Narita				

2-3 Field Survey 3 (Explanation of Draft Report)

	2011 January		Official	Consultants	
			Team Leader	PM/Facility & Educational Planning	Construction Planning/ Cost Estimation
1	9	S	Suva →Funafuti	Narita→Seoul (Inchon)→	
2	10	M	Other project	→Nadi, Transfer to Suva Meeting with JICA Fiji	
3	11	T	Discussion with Ministry of Education, Youth and Sports (MEYS)	Meeting with JICA Fiji	
4	12	W	Discussion with MEYS on M/D	Supplementary survey of construction material Meeting with JICA Fiji	
5	13	T	Signing M/D Funafuti→Suva	Suva →Funafuti Discussion with MEYS (Explanation on draft report)	
6	14	F		Discussion with MEYS (Explanation on draft report) Briefing to Public Works Department Briefing to Tuvalu Electricity Corporation	
7	15	S		Documentation	
8	16	S		Documentation	
9	17	M		Discussion with MEYS (Technical Notes) Discussion with Department of Environment Supplementary survey at MEYS	
10	18	T		Signing Technical Notes Funafuti→Suva→Nadi	
11	19	W		Nadi→Seoul (Inchon)→Narita	

3. List of Parties Concerned in the Recipient Country

Institutions in Tuvalu (Field Survey I & II)

【Ministry of Education, Youth and Sports】

Dr. Falesa Pitoi	Minister
Ms. Orioliga Iosua	Permanent Secretary
Ms. Katalina P. Taloka	Director, Department of Education (DOE)
Ms. Evotia Tofuola	Acting Director, DOE
Mr. Lapana Ene	School Supervisor (TVET Officer), DOE
Mr. Kapuaua Eli	Head of Department Mathematics, Motufoua SS

【Motufoua Secondary School】

Mr. Mosese Halofaki	Principal
Mr. Siautele Lito	Deputy Principal
Mr. Neaki Letia	Head of Department, Technology
Mr. Pati Eka	Acting Head of Department, Social Science
Mr. Peteli Paulo	Acting Head of Department, Science
Ms. Loosa Naroba	Graduate Teacher, Home Economics
Mr. Tony Kwato	Graduate Teacher, Mathematics
Mr. Taniela Kepa	Teacher, Agriculture
Mr. Leotasi Kautu	Teacher, Physical Education
Ms. Lauto Tito	Nurse, School Clinic
Mr. Founuku Teatule	Plumber, Maintenance Team
Mr. Vailele Vailele	Mechanics, Maintenance Team

【Ministry of Finance and Economic Planning】

Ms. Lototasi Morikao	Senior Aid Advisor
Mr. Steohen Boland	Budget Management Specialist

【Office of the Prime Minister】

Mr. Kazuyoshi Ogawa	Development Policy Advisor
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【Vaitupu Island Kaupule (Island Council)】

Mr. Silu Malaga	Pule Kaupule
Mr. Lonataua Peia	Secretary
Mr. Viliame Slanapa	Kaupule
Mr. Silo Timobi	Kaupule
Mr. Pelusia Tauetia	Kaupule

【Fetuvalu Secondary School】

Mr. Penehuro Hauma	Principal
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【Tuvalu Augmented Foundation Program】

Ms. Petely Niuatui Coordinator

【University of South Pacific Tuvalu Extension Center】

Ms. Fetagisi Titivalu Acting Campus Director

【Tuvalu Electricity Corporation】

Mr. Mafalu Lotolua General Manager

Mr. Taeka Satupa Acting General Manger

Mr. Tealu Chief mechanics/electrician, Vaitupu branch

【Public Works Department, Ministry of Public Works and Energy】

Mr. Ampelosa M. Tehulu Director

Mr.Gunter Kopke, Engineer

Mr. Elekawa Tofinger Engineer

【Tuvalu Telecom Corporation】

Mr. Simeti Lopati General Manager

【Department of Transportation, Ministry of Communication and Transportation】

Mr. Taasi Pitoi Director

【Department of Agriculture, Ministry of Natural Resource and Environment】

Mr. Itaia Lausaveve Director

【Department of Environment, Ministry of Natural Resources and Environment】

Mr. Mataio T. Mataio Director

【AusAID】

Mr. Noa Seru Program Manager

Institutions in Tuvalu (Field Survey III- Explanation on Draft Report)

【Ministry of Education, Youth and Sports】

Ms. Paulson Panapa Permanent Secretary

Ms. Katalina P. Taloka Director, Department of Education (DOE)

Mr. Siautele Lito Principal of Motufoua Secondary School

Mr. Michael Noa Senior Education Officer, DOE

【Office of the Prime Minister】

Mr. Nobuaki Matsui Development Policy Advisor

【Tuvalu Electricity Corporation】

Mr. Mafalu Lotolua General Manager

【Public Works Department, Ministry of Communication, Transport & Public Utilities】

Ms. Orioliga Iosua Permanent Secretary

Mr. Ampelosa M. Tehulu Director

【Dept. of Environment, Ministry of Foreign Affairs, External Trade, Environment & Tourism】

Mr. Mataio T. Mataio Director

Mr. Solo Lotoala Assistant Biodiversity Officer

Japanese Institutions

【Embassy of Japan in Fiji】

Mr. Yutaka Yoshizawa Ambassador

Mr. Takato Maki First Secretary

Yukihiro Tsujimura Second Secretary

【JICA Fiji Office】

Juichiro Sasaki Resident Representative

Nariaki Mikuni Deputy Resident Representative

Kentaro Suekane Assistant Resident Representative

4. Minutes of Discussions (M/D)

4-1 Field Survey 1

MINUTES OF DISCUSSIONS
ON
PREPARATORY SURVEY
ON
THE PROJECT FOR UPGRADING AND EXPANSION
OF EDUCATIONAL FACILITIES
AT MOTUFOUA SECONDARY SCHOOL (PHASE II)
IN
TUVALU

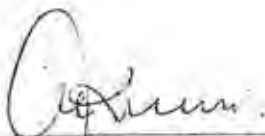
In response to the request from the Government of Tuvalu (hereinafter referred to as "Tuvalu"), the Government of Japan decided to conduct a Preparatory Survey on the Project for Upgrading and Expansion of Educational Facilities at Motufoua Secondary School (Phase II) (hereinafter referred to as "the Project") and entrusted the survey to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Tuvalu the Preparatory Survey Team (hereinafter referred to as "the Team"), which is headed by Mr. Juichiro SASAKI, Chief Representative, JICA Fiji Office and is scheduled to stay in the country from March 9, 2010 to March 25, 2010.

The Team had a series of discussions with the Tuvaluan officials concerned and conducted field surveys.

In the course of discussions and field survey, both parties confirmed the main items described on the attached sheets.

Vaitupu, Tuvalu
March 16, 2010



Ms. Olioliga IOSUA
Secretary,
Ministry of Education, Youth & Sports
Tuvalu



Mr. Juichiro SASAKI
Leader
Preparatory Survey Team
Japan International Cooperation Agency

(Witness)



Mr. Mosese G. HALOFAKI
Principal,
Motufoua Secondary School
Tuvalu

ATTACHMENT

1. Objective of the Project

The objective of the Project is to improve learning environment by upgrading dilapidated facilities being in poor and unsafe condition at Motufoua Secondary School (hereinafter referred to as "MSS"), in Tuvalu.

2. Project Site

Motufoua Secondary School, Vaitupu Island in Tuvalu, as ANNEX-1.

3. Responsible and Implementing Organization

The responsible organization of the Project is the Ministry of Education, Youth and Sports (hereinafter referred to as "MEYS"), and implementation organization is the Education Department of MEYS. Organizational Charts are shown in ANNEX-2.

4. Project Components

4-1. Tuvaluan side specified the priority order of the requested facilities as ANNEX-3.

4-2. Since a list of requested equipments attached to the application form includes some unnecessary items, Tuvaluan side shall submit a revised list of requested equipment to JICA Fiji Office by April 10th 2010.

4-3. The Team will assess the necessity and appropriateness of the requested items, and make some tentative plans of the Project in consideration of the priority order of Tuvaluan side.

5. Japan's Grant Aid Scheme

5-1. Tuvaluan side understands the Japan's Grant Aid described in ANNEX 4, ANNEX 5 and ANNEX 6, which were explained by the Team.

5-2. Tuvaluan side assured to take the necessary measures, as described in ANNEX 6, for the smooth implementation of the Project.

6. Schedule of the Survey

The consultants will proceed to further studies in Tuvalu until March 25, 2010.

Based on the analysis of this survey, Japanese side will make some tentative plans. Japanese side will send another preparatory survey team in June 2010, to propose and discuss the tentative plans, and to conduct detail survey.

7. Other Relevant Issues

7-1. Tuvaluan side requested that the students of the Tuvalu Vocational Education Training (TVET) for Form 5 and Form 6 should be incorporated into the tentative plans since it had started in January 2009 and the total of 34 students at present are in MSS according to the cabinet decision. The Japanese side explained that the further analysis should be done especially taking into consideration the curriculum of TVET and other donor assistances, for example the AusAID.

7-2. Tuvaluan side explained that the National Year Eight Examination (NYEE) will be continuously applied for Year8 students. Those who failed the NYEE will have the opportunity to enroll the Community Training Center (CTC) in each island and to repeat Year8 for the failed subject(s) (maximum 2 years).

7-3. The Fiji Junior Certificate Examination (FJCE) for Form 4 will be abandoned from 2011 according to the Fiji education system. In stead, the MEYS will apply the Tuvalu Internal Assessment and Examination.

7-4. Tuvaluan side requested to make two story buildings for new construction because of the shortage of space. Japanese side replied that it will entail the extra cost and much longer construction period; however the request will be analyzed into the tentative plans.

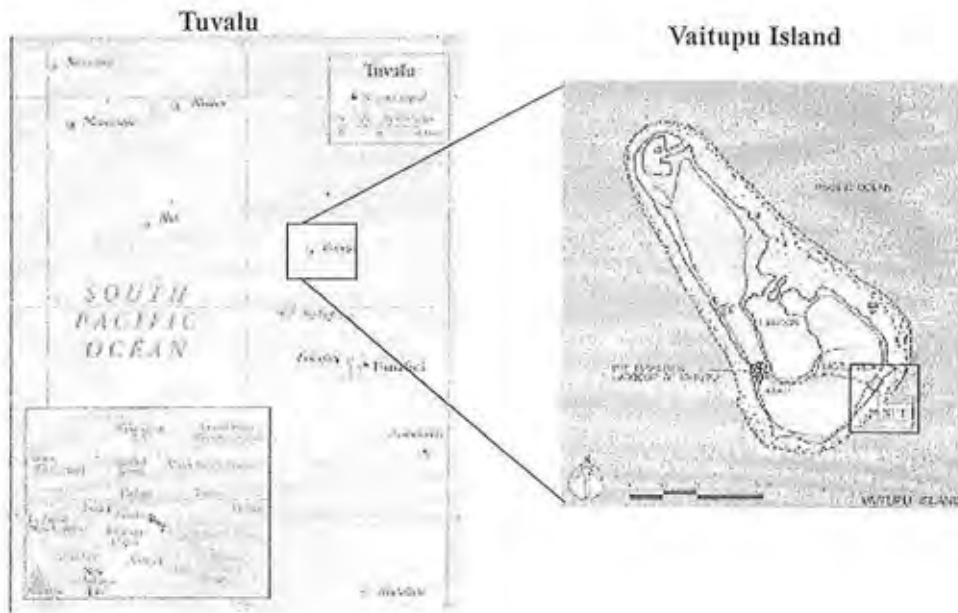
7-5. Japanese side emphasized the responsibility for the proper use and maintenance of facilities and products by Tuvaluan side. Tuvaluan side agreed to ensure the necessary budget and maintenance plan for the Project.

END

- ANNEX 1: Site Location Map
- ANNEX 2: Organizational Charts of MEYS and Education Department
- ANNEX 3: The list of Requested Items with Priorities of Tuvaluan side
- ANNEX 4: Japan's Grant Aid
- ANNEX 5: Flow Chart of Japan's Grant Aid Procedures
- ANNEX 6: Major Undertakings to be Taken by Each Government



ANNEX 1. Site Location Map



Motufoua Secondary School

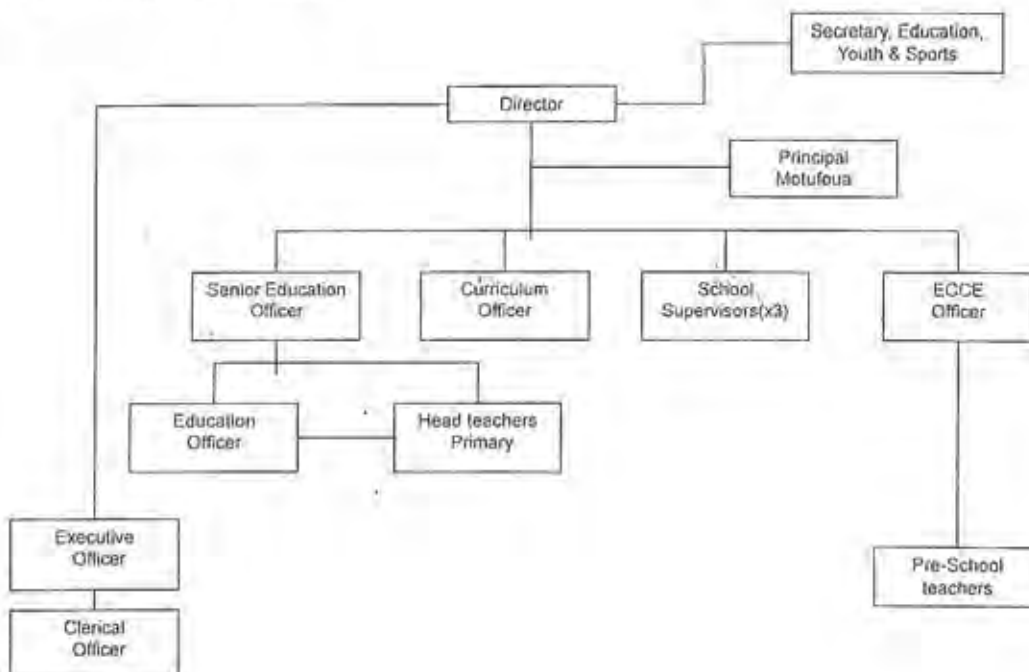


ANNEX-2. Organizational Charts of MEYS and Education Department

(1) MEYS



(2) Education Department



ANNEX 3. The List of Requested Facilities with Priorities of Tuvaluan Side

- Priority "A" means that it is indispensable.
- Priority "B" means that it is not indispensable but important.
- Priority "C" means that it will be eliminated from the viewpoints of the objective and the budget limitation of the Project.

<New Construction>

Items	Priority
General Classroom building	A(*1)
Special Classrooms building	B(*1)
Boys Dormitory	A
Girls Dormitory	A
Teacher's Quarters	B(*2)
Water Cistern (tanks)	A
Administration Building	B(*3)
Gymnasium	C
Multipurpose Hall(Falekaupule)	B
Tennis, Volleyball and Basketball Courts	C

<Rehabilitation>(*4)

Items	Priority
New Boys Dormitory(NB1)	A
New Girls dormitory(NB2)	A
New General Classroom Building(NB3)	A
New Special Classroom(NB4)	A
New Dining Hall and Kitchen(NB5)	A
Class Room (Old Science Lab) (OB9)	B
School Carpentry Workshop	B(*5)

(*1) The number of classrooms shall be proposed by Japanese side after analysis in Japan. The general classroom will be planned flexibly so as to be converted to the special classroom.

(*2) In order to have the high standard of education, the continuous assignment of the qualified teachers is the key issue. In 2009 six teachers resigned because of the lack of incentives. The teacher's quarter could be the high incentive for teachers to be retained.

(*3) Since teachers' room is too small for the number of teachers, Tuvaluan side requested that in case the administration building is excluded from the Project, proper space as teachers' room will be secured in other building.

(*4) Tuvaluan side put emphasis on the necessity for rehabilitation of facilities which constructed by Japanese Grant Aid (Phase I, in 1998).

(*5) In original request, "School Carpentry Workshop" was "Old Building 14(OB14)", but the OB14 has already demolished. The workshop of the public works department was



transferred to the property of MSS including two maintenance workers, and Tuvaluan side regards it needs to be improved for the school maintenance and the class education. On a basis of situation above, both sides agreed that "School Carpentry Workshop" means hereafter the transferred one.



Annex 4

JAPAN'S GRANT AID

The Government of Japan (hereinafter referred to as "the GOJ") is implementing the organizational reforms to improve the quality of ODA operations, and as a part of this realignment, a new JICA law was entered into effect on October 1, 2008. Based on this law and the decision of the GOJ, JICA has become the executing agency of the Grant Aid for General Projects, for Fisheries and for Cultural Cooperation, etc.

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

1. Grant Aid Procedures

The Japanese Grant Aid is supplied through following procedures :

- Preparatory Survey
 - The Survey conducted by JICA
- Appraisal & Approval
 - Appraisal by the GOJ and JICA, and Approval by the Japanese Cabinet
- Authority for Determining Implementation
 - The Notes exchanged between the GOJ and a recipient country
- Grant Agreement (hereinafter referred to as "the G/A")
 - Agreement concluded between JICA and a recipient country
- Implementation
 - Implementation of the Project on the basis of the G/A

2. Preparatory Survey

(1) Contents of the Survey

The aim of the preparatory Survey is to provide a basic document necessary for the appraisal of the Project made by the GOJ and JICA. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of relevant agencies of the recipient country necessary for the implementation of the Project.
- Evaluation of the appropriateness of the Project to be implemented under the Grant

7



Aid Scheme from a technical, financial, social and economic point of view.

- Confirmation of items agreed between both parties concerning the basic concept of the Project.
- Preparation of a basic design of the Project.
- Estimation of costs of the Project.

The contents of the original request by the recipient country are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed based on the guidelines of the Japan's Grant Aid scheme.

JICA requests the Government of the recipient country to take whatever measures necessary to achieve 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 of the recipient country which actually implements the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA employs (a) registered consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

(3) Result of the Survey

JICA reviews the Report on the results of the Survey and recommends the GOJ to appraise the implementation of the Project after confirming the appropriateness of the Project.

3. Japan's Grant Aid Scheme

(1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the Exchange of Notes (hereinafter referred to as "the E/N") will be signed between the GOJ and the Government of the recipient country to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Government of the recipient country to define the necessary articles to implement the Project, such as payment conditions, responsibilities of the Government of the recipient country, and procurement conditions.

(2) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the



Survey will be recommended by JICA to the recipient country to continue to work on the Project's implementation after the E/N and G/A.

(3) Eligible source country

Under the Japanese Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When JICA and the Government of the recipient country or its designated authority 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, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals".

(4) Necessity of "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 JICA. This "Verification" is deemed necessary to fulfill accountability to Japanese taxpayers.

(5) Major undertakings to be taken by 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 Annex.

(6) "Proper Use"

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

(7) "Export and Re-export"

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

(8) Banking Arrangements (B/A)

- a) The Government of the recipient country or its designated authority should open an account under the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). JICA 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 JICA under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

(9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions paid to the Bank.

(10) Social and Environmental Considerations

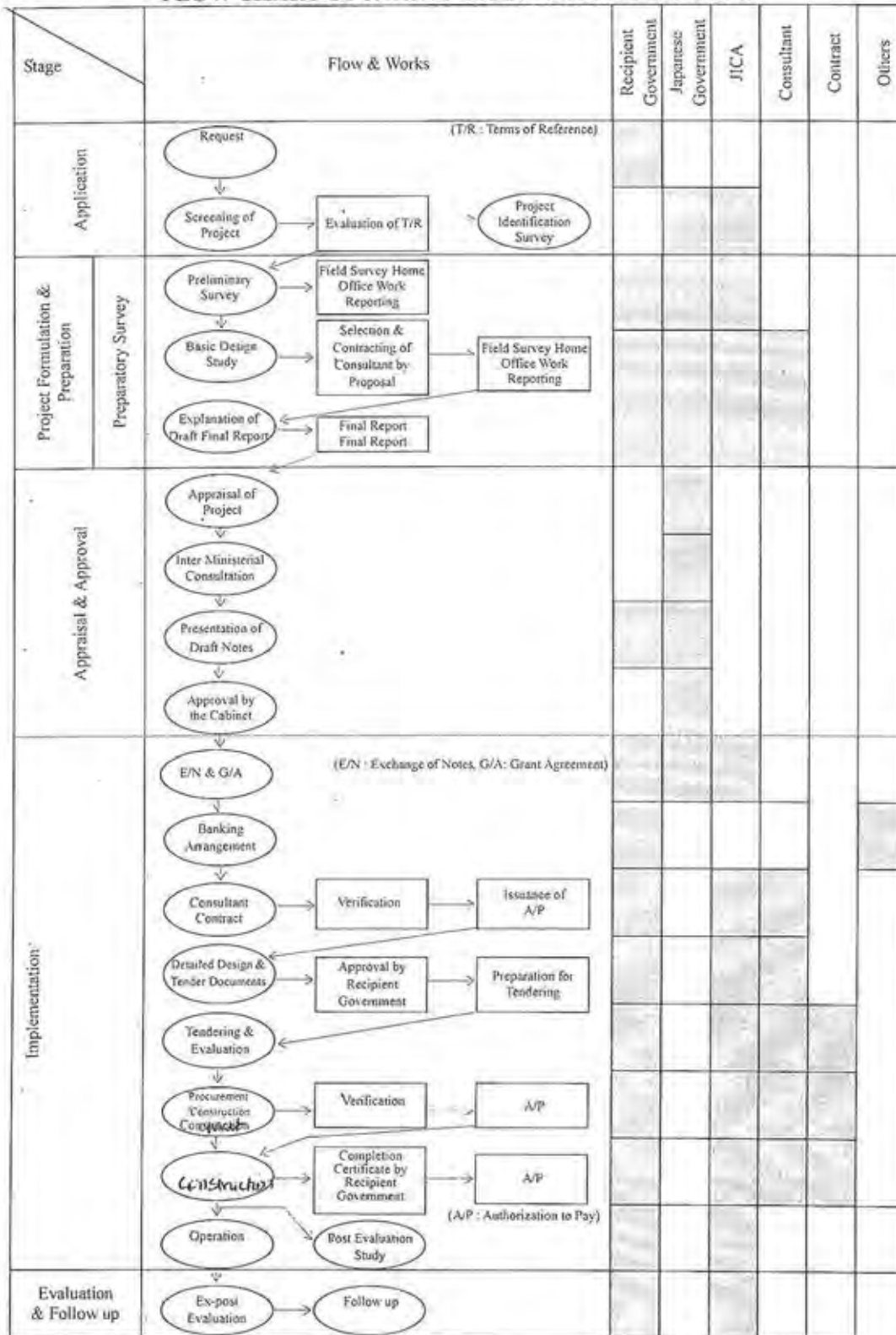
A recipient country must carefully consider social and environmental impacts by the Project and must comply with the environmental regulations of the recipient country and JICA socio-environmental guidelines.

(End)



Annex 5

FLOW CHART OF JAPAN'S GRANT AID PROCEDURES



Annex 6

Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To secure a lot of land necessary for the implementation of the Project and to clear the site;		●
2	To construct the following facilities		
	1) The building	●	
	2) The gates and fences in and around the site		●
	3) The parking lot		●
	4) The road within the site	●	
	5) The road outside the site		●
3	To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities necessary for the implementation of the Project outside the site		
	1) Electricity		
	a. The distributing power line to the site		●
	b. The drop wiring and internal wiring within the site	●	
	c. The main circuit breaker and transformer	●	
	2) Water Supply		
	a. The city water distribution main to the site	-	-
	b. The supply system within the site (receiving and elevated tanks)	●	
	3) Drainage		
	a. The city drainage main (for storm sewer and others to the site)	-	-
	b. The drainage system (for toilet sewer, common waste, storm drainage and others) within the site	●	
	4) Gas Supply		
	a. The city gas main to the site	-	-
	b. The gas supply system within the site	●	
	5) Telephone System		
	a. The telephone trunk line to the main distribution frame/panel (MDF) of the building		●
	b. The MDF and the extension after the frame/panel	●	
	6) Furniture and Equipment		
	a. General furniture		●
	b. Project equipment	●	
4	To ensure prompt unloading and customs clearance of the products at ports of disembarkation in the recipient country and to assist internal transportation of the products		
	1) Marine (Air) transportation of the Products from Japan to the recipient country	●	
	2) Tax exemption and custom clearance of the Products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	●	
5	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the purchase of the products and the services be exempted		●
6	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
7	To ensure that the Facilities and the products be maintained and used properly and effectively for the implementation of the Project		●
8	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project		●
9	To bear the following commissions paid to the Japanese bank for banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
10	To give due environmental and social consideration in the implementation of the Project.		●

(B/A : Banking Arrangement, A/P : Authorization to pay)

4-2 Field Survey 2

**MINUTES OF DISCUSSIONS
ON
PREPARATORY SURVEY
ON
THE PROJECT FOR UPGRADING AND EXPANSION
OF EDUCATIONAL FACILITIES
AT MOTUFOUA SECONDARY SCHOOL (PHASE II)
IN
TUVALU**

In response to the request from the Government of Tuvalu (hereinafter referred to as "Tuvalu"), the Government of Japan decided to conduct a Preparatory Survey on the Project for Upgrading and Expansion of Educational Facilities at Motufoua Secondary School (Phase II) (hereinafter referred to as "the Project") and entrusted the survey to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Tuvalu the second Preparatory Survey Team (hereinafter referred to as "the Team"), following the first Preparatory Survey conducted in March 2010. The team is headed by Mr. Satoru MIMURA, Director, Pacific Division, Southeast Asia 1 and Pacific Department, JICA, and is scheduled to stay in the country from June 8, 2010, to June 24, 2010.

The Team had a series of discussions with the Tuvaluan officials concerned. In the course of discussions, both parties confirmed the main items described on the attached sheets.

Funafuti, Tuvalu
June 10, 2010



Ms. Ofioliga IOSUA
Secretary,
Ministry of Education, Youth & Sports
Tuvalu



Mr. Satoru MIMURA
Leader
Preparatory Survey Team
Japan International Cooperation Agency

1. Scale of Needed Facilities

The both sides confirmed the followings as the basis for consideration on the scale both of needed existing facilities to be utilized and of facilities to be newly constructed:

(1) Education programs to be taken into consideration by the Project

The Project will take into consideration the following education programs which are currently provided at Motufoua Secondary School (MSS):

- Form 3/4 (2 year program for junior secondary level),
- Form 5 academic program (1 year course based on TSC)
- Form 6 academic program (1 year course based on PSSC)
- Form 5/6 vocational program (2 year course for post-compulsory TVET)

(2) Number of students

The number of students for each program is projected with the following conditions:

- Only children who have passed the selection exam (NYEE) will be accepted to enter MSS
- All the students who enter MSS will be retained until Form 6 at MSS
- Vocational streams for Form 5 and 6 will accommodate failures of the promotion exams at the end of Form 4 and 5.

The projected total number of students is 624, as summarized in the table and diagram in ANNEX 1.

(3) Number of general classrooms

22 general classrooms are needed on assumption that each classroom accommodates 30 students on average.

(4) Number of special classrooms

Analysis on the occupancy shows that one purpose-designed classroom is required for each of eight (8) specialized subjects, i.e., Science/Physics/Biology/Chemistry & Woodwork/Technical Drawing/ Food/ Textile, as shown in ANNEX 2. Therefore, eight (8) special classrooms are needed.

(5) Capacity of dormitories

Dormitories should have capacity to accommodate all the 624 students.

(6) Utilization of existing facilities

Maximum utilization of the existing facilities is necessary as proposed in the table in ANNEX 3. There are 10 existing general classrooms, eight (8) special classrooms and dormitories with capacity for 324 students, which could be continuously used with necessary rehabilitation.

(7) Facilities to be newly constructed

The scale of facilities that need to be newly constructed will be as follows:

- 1) 12 general classrooms
- 2) Dormitories with capacity for 300 students

2. Contents of Project

The Team explained that, due to the budget limitation, the Project will not be able to cover all the items that were confirmed by the Tuvaluan side with high priorities in the first Survey as in ANNEX 3 of the Minutes of Discussion signed by the two parties on March 16, 2010.

In response, the Tuvaluan side expressed that higher priority should be given to those facilities that students most regularly use, including classrooms and dormitories, over other facilities including the Administration Building and Multi-Purpose Hall, even though they are also important. Accordingly, the Tuvaluan side revised the priority order of the requested items as in ANNEX 4.

In addition, while the Team proposed to construct four new dormitory buildings each of which can accommodate 75 students, the Tuvaluan side requested to construct six new buildings each of which can accommodate 50 students, as 50 is the number of students in one group in dormitories in the current practice, which is the best number in terms of their social function and management. The both sides agreed to further discuss this issue through and after the field survey.

Finally the Team explained that, while the detailed cost estimation will be made based on the result of this survey, further cut down of the facility component, such as the followings, could be required.

- To eliminate a superintendent's room from the Girls' Dormitories
- To narrow the width of the dormitories

3. Rehabilitation of Existing Facilities

The both sides confirmed the necessity of the rehabilitation of the existing buildings built under the previous Japan's Grant Aid, which could include the following works:

- Rehabilitation of edge of eaves, including replacement of fascia board, metal gutters, down spouts, damaged ceiling board, et.
- Re-installation of wooden doors and aluminum framed louver windows, and replacement of rusted security grilles with new ones
- Checking and restoration of electrical circuits, and replacement of inoperative fixtures such as lighting fixtures, ceiling fans, switchgears and socket outlets
- Checking and restoration of water and gas supply and drainage system at NB4 (Special Classrooms)
- Overall rehabilitation of toilets and shower rooms, including replacement of un-working soak pits
- Rehabilitation of rainwater collection and water supply system which may include rehabilitation of old water cisterns

The both parties also confirmed that the following items will not be covered by the Project:

- Repainting
- Touch-up of damaged plastic floor tiles
- Restoration of the existing public address system and water level detection and alarm system

4. Basic Principles for Outline Design of Facilities

The both sides confirmed that the facilities will be designed based on the following principles:

- Buildings will be designed to achieve the purpose of the Project and to maximize its effect,

- respecting the standards and regulations on construction and educational facilities in Tuvalu.
- Design and specifications of buildings should satisfy the minimal functions as basic educational facilities, taking into consideration of the contents of the education programs.
 - Buildings will be designed to reflect the evaluation of facilities completed under the previous Japan's Grant Aid Projects, taking into account of how they are used and maintained.
 - Buildings will be designed to be durable enough against severe natural conditions in and around the site.
 - Buildings will be designed to achieve as much cost reduction as possible, while satisfying required functions and minimum qualities.
 - In principle, buildings will be designed to be of single-story, which needs less cost for construction.
 - The size of classrooms will be reduced to the extent of the size similar to the other school construction projects in the region,
 - The building design (especially roof design) will be simplified so as to make maintenance easy and to enable a much cost reduction,
 - A dry construction method for the superstructure of the building will be employed, using structural steel as a main frame and industrialized concrete panels as external walling

5. Selection Criteria for Equipment

The both sides confirmed that the equipment to be provided by the Japan's Grant Aid shall be prioritized according to the following criteria:

- (1) Equipment which are indispensable for conducting lectures in accordance with the curriculum,
- (2) Equipment which are already used in the school and whose effectiveness are proved,
- (3) Equipment which are indispensable for managing and maintaining the school properly.

The both parties also confirmed that the following equipment shall not be appropriate for the Japan's Grant Aid:

- (1) Equipment which do not have definite purpose of its usage or can be replaced by other equipment,
- (2) Equipment which require expensive spare parts or particular items which are difficult to be procured,
- (3) Equipment which require special or complicated techniques for maintenance,
- (4) Consumable supplies.

6. Major Undertakings to be taken by the Tuvalu side

The both sides confirmed the followings as major undertakings to be taken by the Tuvaluan side, in addition to those already confirmed in the ANNEX 6 in the Minutes of Discussions signed by the two parties on March 16, 2010:

- (1) To remove existing structures (superstructures only) and/or obstacles, and to clear the site, in consideration of appropriate measures for waste disposal.
- (2) To provide temporary facilities which might be required during construction.



- (3) To conduct incidental outdoor works, such as landscaping, construction of gate, fences and playground, etc.
- (4) To provide necessary facilities to the Japanese and third country personnel engaged in the Project for their entry into Tuvalu and stay therein.
- (5) To obtain Authority's approval for construction projects, such as a building permit, prior to the implementation of the Project.
- (6) To complete procedures required for clearance of the environmental regulation, such as screening for Environmental Impact Assessment and Initial Environmental Examination, prior to the implementation of the Project.
- (7) To allow temporary use of former DOE building as a contractor's site office and/or accommodations and power supply for construction.

7. Maintenance of Facilities

The Team emphasized the importance of good maintenance of facilities at MSS. The Tuvaluan side affirmed that they make their best efforts for good maintenance by securing necessary recurrent budget for maintenance in the Mid-term Expenditure Framework which is under preparation.

END

ANNEX 1: Projection of Number of Students/Classes by Education Program

ANNEX 2: Analysis on Necessary Number of Special Classrooms

ANNEX 3: Proposed Plan for Utilization of Existing Facilities

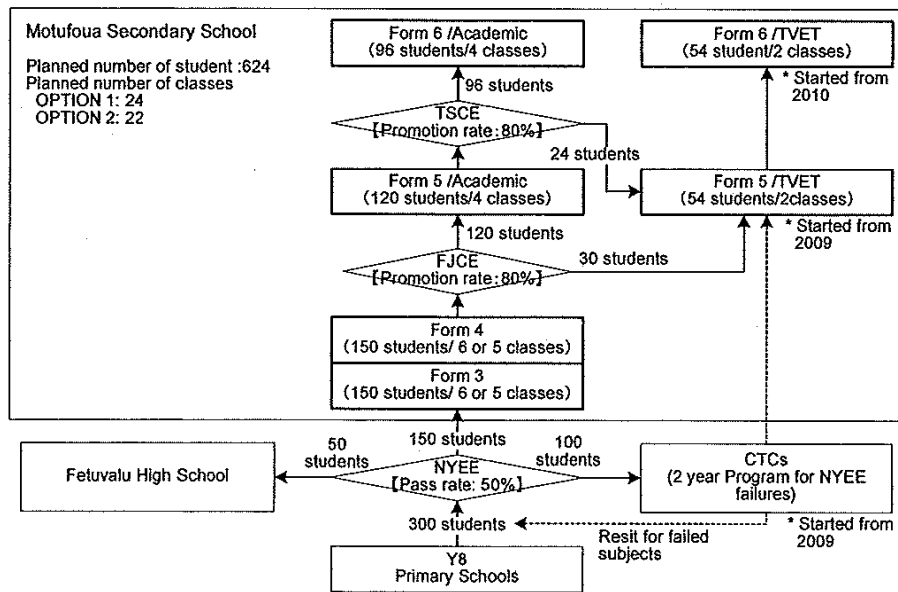
ANNEX 4: The List of Requested Facilities with Priorities of Tuvaluan Side

ANNEX 1. Projection of Number of Students/Classes by Education Program

Grade	Curriculum /Course	Planned number of classes	Planned number of students	Remarks
A: Number of Students/Classes required for accepting the selected graduates from primary schools				
Form 3/4 (Year 9/10)	Regular course for Fiji Junior Certificate or its replacement	5 per grade (30 students per class on average)	150 per grade 300 in total	On the assumption that 50% of students who sit the entrance exam. will pass and enter the school *1
Form 5 (Year 11)	Academic course for Tuvalu School Certificate	4	120	On the assumption that 80% of Form 4 students will be promoted to Form 5 *2
Form 6 (Year 12)	Academic course for Pacific Senior Secondary Certificate	4	96	On the assumption that 80% of Form 5 students will be promoted to Form 6 *3
B: Number of Students/Classes additionally required for retention of all the students until Form 6 level				
Form 5	Vocational course	2	54 (30+24)	Accept failures of FJCE or its replacement (30) from Form 4 and failures of TSCE (24) from Form 5
Form 6	Vocational course	2	54	No examination will be required for promotion to Form 6
Total (A+B)		22	624	

Notes: No increase in school-aged population is taken into consideration since only negligible change is projected according to SPC (Secretariat of the Pacific Community) projection.

- *1 Average number of students who sat NYEE was 304 per year during 2004-2009, with an average pass rate of 36.1%, which has improved to more than 40% over the past 3 years.
- *2 Average pass rate of FJCE over the past 5 years was 56.9%, while promotion rate from Form 4 to Form 5 for the same periods was 84.6% on average.
- *3 Average pass rate of TSCE over the past 5 years was 80.9%, while promotion rate from Form 4 to Form 5 for the same periods was 82.1% on average.



ANNEX 2. Analysis on Necessary Number of Special Classrooms

Subject	Number of periods per week [B]										Percentage of periods for which special CRs is used [C]	Result of calculation				
	Form 3/4 [FJC]	Form5 [TSC]					Form6 [PSSC]					Total no. of periods per week $\Sigma A \times B \times C = [D]$	Required no. of CRs *3	Occupancy rate D/40		
		C	A	S	T	V	C	A	S	T					V	
Planned no. of classes [A]	12	1	1	1	1	2	1	1	1	1	2					
Laboratory	Science	5										40%	24	1	60.0%	
	Physics				7	7				7	7	100%	28	1	70.0%	
	Chemistry				7	7				7	7	100%	28	1	70.0%	
	Biology				7	7				7	7	100%	28	1	70.0%	
Workshop	Basic Tech. /Design Tech. *1	5				7	12				7	12				
	-Woodwork	2.5				3.5	6				3.5	6	100%	34 *2	1	85.0%
	-Tech. Drawing	2.5				3.5	6				3.5	6	100%	34 *2	1	85.0%
	-Food/Cooking	2.5				3.5	6				3.5	6	100%	34 *2	1	85.0%
	-Textile	2.5				3.5	6				3.5	6	100%	34 *2	1	85.0%

Stream for F5/F6: C=Commerce, A=Arts, S=Science, T=Technology, V=Vocational

Assumptions:

- *1 Periods for Basic Technology (Form 3/4), Technical Drawing & Woodwork/Foods & Textile (Form 5) and Design Technology (Form 6) are allocated evenly to the paired subjects (i.e. Technical Drawing=50%+Woodwork=50%, Food=50%+Textile=50%).
- *2 As for Form 3/4 Basic Technology (Technical Drawing/Woodwork or Home Economics) and vocational subjects for Form 5V/6V, 2 classes are jointly given the lesson, so that number of target classes is multiplied by 1/2
- *3 Number of required classrooms is set for each subject so that calculated occupancy rate is not exceeding 85%.

ANNEX 3. Proposed Plan for Utilization of Existing Facilities

No.	Building	Present Arrangement	Proposed Plan
NB3	General CRs	General CRs x 8	General CRs x 8
NB4	Special CRs	2 empty rooms (former WS for Woodwork, Tech. Drawing), Food/Cooking, Textile/Sewing, Chemistry Lab, Biology Lab	To recover the original functions (4 workshops + 2 laboratories)
NB7	Old Chapel	General CRs x 1	General CRs x 2
OB8	Old Long Bldg.	General CRs x 4 + Special CR (Tech. Drawing)	To be demolished
OB9	Old Lab.	General CR x 1 (temporary) Special CR (Science Lab.)	Special CRs x 2 (Physics, Science Lab.)
OB10	Fale Kaupule	General CRs x 2 (temporary)	To recover the original function
OB12	Old Canteen	General CRs x 2 (temporary)	To be demolished
OW2	Wooden Shed	General CRs x 1 (temporary)	To be demolished
TOTAL: General CRs		19 CRs (for 20 classes)	10 CRs existing
TOTAL: Special CRs		3 Science Labs.+ 5 Workshops	4 Labs+4 WSs existing
NB1	Boys Dorm.	Rooms for 50 students x 3	Rooms with a capacity of 54 students x 3
NB2	Girls Dorm.	Rooms for 50 students x 3	Rooms with a capacity of 54 students x 3
OB2/3	Old Boys Dorm.	Rooms for 40~50 students x 3	To be demolished
OB5-7	Old Girls Dorm.	Rooms for 40~50 students x 3	To be demolished
TOTAL: Dormitories		6 rooms with total capacity of 540~600 students	6 rooms (max. capacity of 324 students) existing

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ANNEX 4. The List of Requested Facilities with Priorities of Tuvaluan Side

- Priority “A” means that it is indispensable.
- Priority “B” means that it is not indispensable but important.
- Priority “C” means that it will be eliminated from the viewpoints of the objective and due to the budget limitation of the Project.

<New Construction>

Items	Priority confirmed in the first Survey	Priority confirmed in this second Survey
General Classroom building	A	A
Special Classrooms building	B	B
Boys Dormitory	A	A
Girls Dormitory	A	A
Teacher’s Quarters	B	C
Water Cistern (tanks)	A	A
Administration Building	B	B
Gymnasium	C	C
Multipurpose Hall(Falekaupule)	B	B
Tennis, Volleyball and Basketball Courts	C	C

<Rehabilitation>

Items	Priority	Priority
New Boys Dormitory (NB1)	A	A
New Girls dormitory (NB2)	A	A
New General Classroom Building (NB3)	A	A
New Special Classroom (NB4)	A	A
New Dining Hall and Kitchen (NB5)	A	A
Class Room (Old Science Lab) (OB9)	B	C
School Carpentry Workshop	B	C

4-3 Field Survey 3 (Explanation of Draft Report)

□ M/D


**MINUTES OF DISCUSSIONS
ON
PREPARATORY SURVEY
ON
THE PROJECT FOR IMPROVEMENT OF EDUCATIONAL FACILITIES
AT MOTUFOUA SECONDARY SCHOOL
IN
TUVALU
(EXPLANATION ON DRAFT REPORT)**

From March 2010 to June 2010, the Japan International Cooperation Agency (hereinafter referred to as "JICA") had conducted two field surveys as a part of the Preparatory Survey on the Project for Improvement of Educational Facilities at Motufoua Secondary School (hereinafter referred to as "the Project") in Tuvalu. Based on the results of these field surveys and subsequent technical examination conducted in Japan, JICA prepared the Draft Preparatory Survey Report.

In order to explain and to consult the Tuvaluan side on the components of the draft report, JICA sent the Preparatory Survey Team (hereinafter referred to as "the Team") for draft report explanation. The team was headed by Mr. Satoru Mimura, Director, Pacific Division, Southeast Asia 1 and Pacific Department, JICA who stayed in Tuvalu for the Team from January 9 to January 13, 2010. The consultant members, who will stay from January 13 to January 18, will further provide technical details of the draft report

The Team had a series of discussions with the Tuvaluan officials concerned. In the course of discussions, both parties confirmed the main items described on the attached sheets.

Funafuti, Tuvalu
January 13 2010


Mr. Paulson Panapa
Permanent Secretary,
Ministry of Education, Youth & Sports
The Government of Tuvalu


Mr. Satoru Mimura
Leader
Preparatory Survey Team
Japan International Cooperation Agency

ATTACHMENT

1. Contents of the Draft Report

The Tuvaluan side agreed and accepted in principle the contents of the draft report as explained by the Team. Technical details will be described by consultants during their stay in the country until January 18 and to be confirmed by technical notes which will be signed by Mr. Tomohiro Osawa, Chief Consultant for the Japanese side.

2. Japan's Grant Aid Scheme and Major Undertakings

The Tuvaluan side understood Japan's Grant Aid Scheme, and the Tuvaluan side assured that it shall take necessary measures, as described in ANNEX-6 of the Minutes of Discussion signed by both parties on March 16th, 2010. In particular, the Tuvaluan side ensured that it would complete the site clearance before the commencement of construction works (around by the end of December 2011) at the site and acquire the necessary certificate for the construction before the public notice of procurement.

3. Final Report of the Preparatory Survey

JICA will complete the final report in accordance with the result of discussions and forward it to the Tuvaluan side by the end of June 2011.

4. Confidentiality of the Information Related to the Project

Both sides confirmed that all information related to the Project including design documents of facilities and furniture shall not be released to any outside parties before concluding all contracts for the Project. Furthermore, both sides agreed that the estimated cost of the Project as described in ANNEX-1 shall never be duplicated or released to any outside parties before concluding all contracts for the Project.

5. Other relevant issues

5-1. Name of the Project

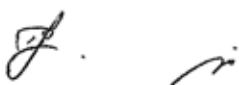
Both sides agreed on the name of the Project as "the Project for Improvement of Educational Facilities at Motufoua Secondary School".

5-2. Components and Facilities Covered by the Project

Both sides agreed on the list of components and facilities to be covered by the Project as shown in ANNEX-2. The Tuvaluan side agreed that the Japanese side would make a final decision on this matter through further study in Japan.

5-3. Project Cost Estimation

The Tuvaluan side understood that the Project cost estimation described in ANNEX-1 was not final at this stage and subject to change in the examination of the Government of



Japan for an approval of the Project.

5-4. Allocation of Necessary Budget and Personnel

The Tuvaluan side agreed to allocate necessary budget and personnel for the proper operation and maintenance of the facilities to be covered by the Project.

5-5. EIA procedures

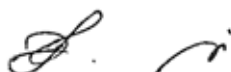
Although the Project is likely to have minimal or no adverse impacts on the environment or society, it is necessary that the Tuvaluan side completes the procedures related to EIA in consultation with DOB before the announcement of the tender, the details of which shall be explained further by the consultant members. The Tuvaluan side assured the Team that it would complete the procedures on time.

5-6. Proper Use and Maintenance

Both sides understood that proper use and maintenance of the facilities was indispensable for their long-term use. The Tuvaluan side assured the Team that it would facilitate the proper use and maintenance of the facilities in the schools to be covered by the Project with the active involvement of concerned parties such as the headmaster, teachers and other concerned organizations.

ANNEX-1 Project cost estimation

ANNEX-2 Facilities to be covered by the Project



ANNEX-2 Facilities to be covered by the Project

1. New Construction (3,000.7 m² in total)

Items	Nos.	Note
General Classroom building (EXB-1, EXB-2)	2	12 classrooms
Boys Dormitory (EXB-3, EXB-5)	2	capacity of 150
Girls Dormitory (EXB-4, EXB-6)	2	capacity of 150
Administration Building (EXB-7)	1	

2. Rehabilitation (3,535.1 m² in total)

Items	Nos.	Note
New Boys Dormitory (NB1)	1	
New Girls dormitory (NB2)	1	
General Classroom Building (NB3)	1	8 classrooms
Special Classroom Building (NB4)	1	6 classrooms
Dining Hall and Kitchen (NB5)	1	300 seats

Appendix-3 Cost Estimation to be borne by the Tuvalu Side

No. Items	Quantity	Unit Price AU\$	Amount AU\$	Remarks	Implementation Schedule
1 Demolition and removal of existing buildings (superstructure only) - OB8 (Old long building)	576.36 m ²	20.00	11,527	Single storey, wooden/CB masonry structure with pitched roof of wooden trusses and sheet metal roofing.	Between completion of the rehabilitation work and commencement of the expansion work
			11,527		
2 Clearing vegetation and grubbing the construction areas - Clearing and grubbing within 5m of planned buildings - Cutting and uprooting of existing coconut trees	7,938 m ²	1.60	12,701	Construction areas are almost flat. Cutting down and uprooting some coconuts trees are required.	Prior to commencement of the expansion work
	25 pcs	22.30	558		
3 Provision of temporary classrooms - NB7 Old chapel: to be converted to 2 classrooms by setting up a partition wall (9.8x3.0m) - OB2 Boys dormitory: to be converted to 4 classrooms by setting up partition walls (6.2x3.0m) - Installation of blackboards (reuse)	29 m ²	100.70	2,961	Wooden partition wall with double layer of plywood on both sides. Used blackboards can be set temporary for cost saving.	Between completion of the rehabilitation work and commencement of the expansion work, and prior to the demolition of OB8
	38 m ²	100.70	3,827		
	6 pcs	22.50	135		
4 Cleaning up existing septic tanks - Kitchen: a grease separator (0.8m ³) - Boys dormitory: 3 septic tanks (capacity: 3.0m ³ each) - Girls dormitory: 3 septic tanks (capacity: 3.0m ³ each)			6,473	Including disposal of sludge in an appropriate manner. A septic pump will be provided by the Project.	Prior to commencement of the rehabilitation work
	1 unit	275.00	275		
	3 units	1,033.00	3,099		
	3 units	1,033.00	3,099		
5 Refurbishment of the main switchboard for distribution of electricity to expanded facilities	1 unit	3,000.00	3,000	To be done by TEC upon request by DOE	Prior to completion of the expansion work
6 Commission to the bank based on the Banking Arrangement - On the consulting agreement - On the works contract			8,200	0.1% of the contract amount	After signing of the agreement After signing of the contract
	1 unit	1,200.00	1,200		
	1 unit	7,000.00	7,000		
TOTAL			49,382	(Approx. 4,200,000 JPY)	

□ Technical Notes

**PREPARATORY SURVEY ON
THE PROJECT FOR IMPROVEMENT OF EDUCATIONAL FACILITIES
AT MOTUFOUA SECONDARY SCHOOL
IN TUVALU**

EXPLANATION ON DRAFT REPORT

TECHNICAL NOTES

After the signing of the Minutes of Discussions on January 13, 2011, the consultant team provided further technical details on the contents of the draft report and had a series of discussions with the Tuvaluan officials concerned from January 13 to January 17.

In the course of discussions, both parties confirmed the following items:

1. Outline design of the facilities

The Tuvalu side accepted in principle the design policies and the outline of the facility design, specifications and site layout plan presented and explained by the consultant team.

Both side confirmed that minor modifications to the outline design described below were requested by the Tuvalu side, and will be incorporated into the final report after consultations with relevant authorities in Japan.

1) Change of the layout of the Girls' Dormitory

In order to avoid a nuisance caused by bad smell, the ablution block of the Girls Dormitory will be laid out at the southwest end of the buildings as shown on ANNEX-1, taking a predominant wind direction into account.

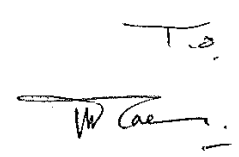
2) Change of the ceiling material

Ceiling material for the General Classroom Buildings and the Dormitories will be changed from "pandanus mat" to 12mm thick urethane coated plywood considering durability and easiness of maintenance. Ceiling material for the Administration Building will be unchanged in order to retain special characteristics as one of the central facilities, but 5.5mm thick plywood will be added as a base of "pandanus mat" to avoid damages which might be caused by rats.

3) Change of the water supply system

The supply source of water for laundries both in the existing dormitories and in the new dormitories will be changed in compliance with the request by the Tuvalu side which aims at saving as much use of rain water as possible. Modified diagram of the planned water supply system and clarification of the water source by each water supply points are shown on ANNEX-2.

In addition, the Tuvalu side asked the possibility to use energy saving lights as general lightings for the facilities, instead of regular fluorescent lamps. The consultant team explained difficulties to procure such lamps in the outer islands, and there will be few fixtures applicable to such a large space as a classroom. As a result, the both sides confirmed no change would be required on the original design.



2. List of equipment

The consultant team presented the list and specification sheets of the equipment to be procured by the Project and explained the result of selection of equipment. The Tuvalu side accepted in principle items and quantities of equipment as shown in the draft report, while expressing the necessity of printing equipment such as a duplicating machine and a video camera set which were excluded from the list. The consultant team further explained that it is not possible to include these items in the Project in accordance with the criteria set for the selection and the general policies of the Japanese Grant Aid.

3. System and schedule of the project implementation

The consultant team explained the necessary procedures and the schedule for implementation of the Project. The Tuvalu side understood that the Project would be implemented in a manner described in the draft report, as explained by the consultant team.

4. Works to be done by the Tuvalu side

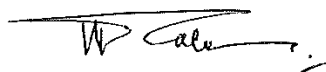
The consultant team explained the detailed contents of works to be done by the Tuvalu side as shown in ANNEX-3. The Tuvalu side agreed to complete the required works by the due date.

5. Allocation of necessary budget for operation and maintenance

The Tuvalu side agreed and committed to secure appropriate recurrent budget for proper and sustainable operation and maintenance of the facilities and equipment provided under the Project, as explained by the consultant team. Since the rehabilitated facilities and most of the equipment will be handed over to the school immediately after the completion of the rehabilitation work, the Tuvalu side is requested to prepare necessary budget starting from the fiscal year in which the rehabilitation work will be completed.

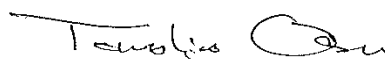
Based on the above items, the Preparatory Survey Team will proceed to further works for compiling the final report which will be forwarded to the Tuvalu side by the end of June 2011.

Funafuti, Tuvalu
January 18, 2011



Ms. Katalina P. Taloka

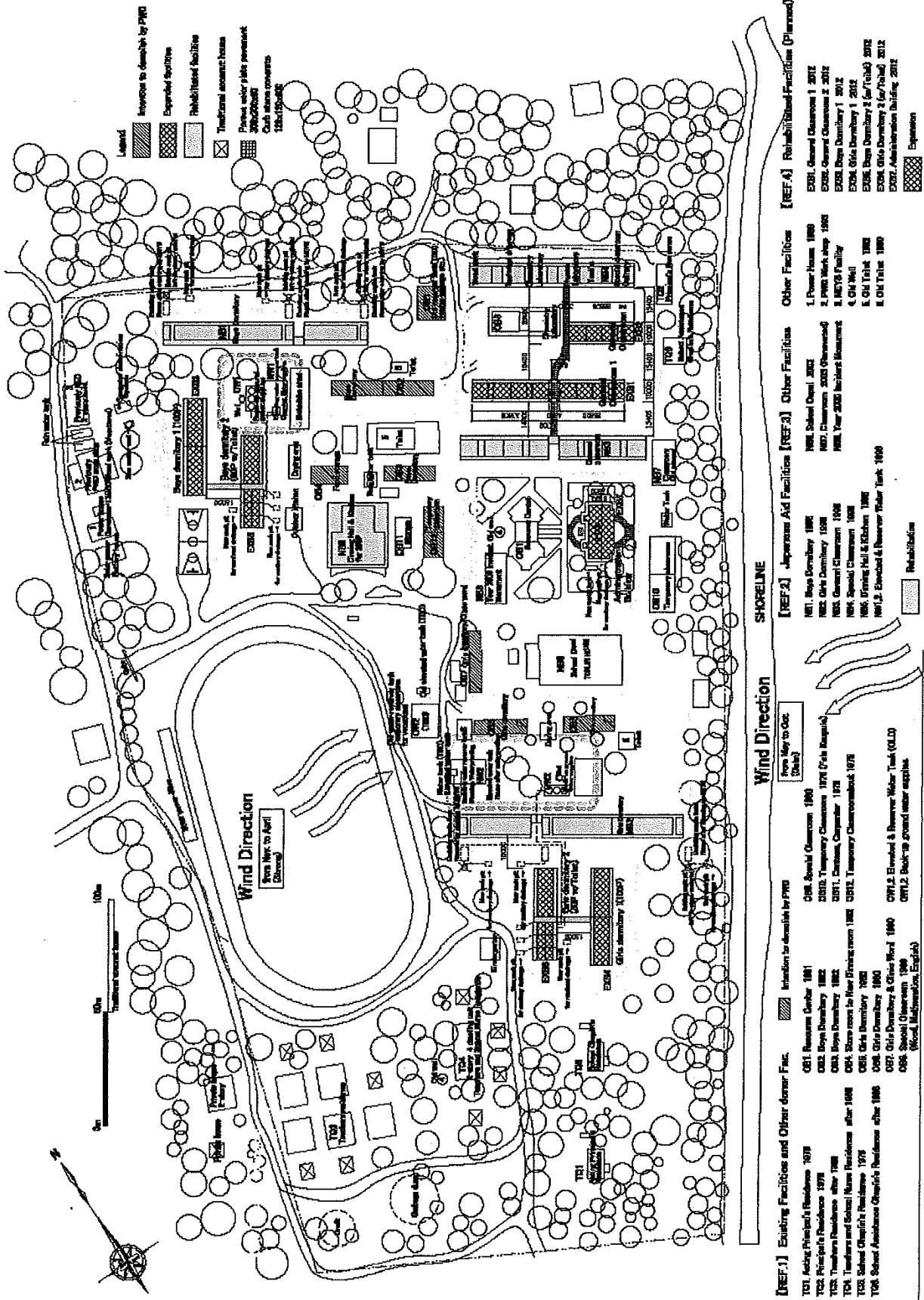
Director
Department of Education
Ministry of Education, Youth and Sports
Tuvalu



Mr. Tomohiro Osawa

Chief Consultant
Preparatory Survey Team
Matsuda Consultants International Co., Ltd.
Japan

ANNEX-1 Change of the building layout of the Girls' Dormitory

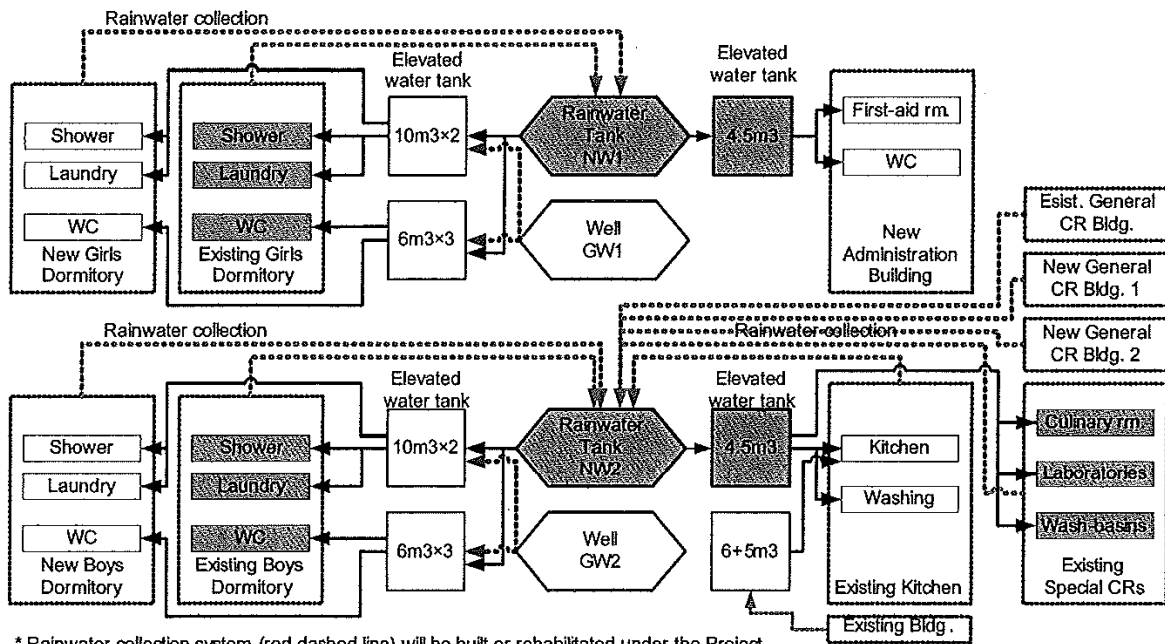


- Legend**
- ▨ Inspection to demolish by PWD
 - ▤ Expanded structure
 - ▥ Rehabilitation facilities
 - ▧ Traditional masonry masonry
 - ▩ Precast water pipe pavement
 - Cast-in-place concrete
 - Cast-in-place concrete
 - ▬ 150x150x450

- Wind Direction**
From May to Oct (Rainy)
- SHORELINE**
- [REF.1] Existing Facilities and Other former Fac.**
- T01 Acting Principal's Residence 1978
 - T02 Principal's Residence 1978
 - T03 Teachers' Residence after 1988
 - T04 Teachers and School Nurse Residence after 1988
 - T05 School Chemist's Residence 1978
 - T06 School Assistant Chemist's Residence after 1988
 - G01 Resource Center 1981
 - G02 Boys Dormitory 1982
 - G03 Boys Dormitory 1982
 - G04 Stone room to New Dining room 1982
 - G05 Girls Dormitory 1982
 - G06 Girls Dormitory 1980
 - G07 Girls Dormitory & Glass Wing 1980
 - G08 School Classroom 1989 (Wood, Multistorey, English)
 - G09 School Classroom 1980
 - G10 School Classroom 1980
 - G11 School Classroom 1978 (F.A. Magasin)
 - G12 Caravan, Carpenter 1978
 - G13 Temporary Classroom 1978
 - G14 School Classroom 1988
 - G15 Dining Hall & Kitchen 1988
 - G16 Elevated & Reserve Water Tank 1980
 - G17 Elevated & Reserve Water Tank (OLD)
 - G18 Back-up ground water supplies
 - N01 Boys Dormitory 1988
 - N02 Girls Dormitory 1988
 - N03 General Classroom 1988
 - N04 School Classroom 1988
 - N05 Dining Hall & Kitchen 1988
 - N06 Elevated & Reserve Water Tank 1980
 - N07 School Chem 2002
 - N08 Classroom 2002 (Greenwood)
 - N09 Year 2002 Student Movement
 - N10 Power House 1989
 - N11 Workshop shop 1989
 - N12 MEVYS Facility
 - N13 C.A. Hall
 - N14 C.A. Toilet 1988
 - N15 C.A. Toilet 1989
- [REF.2] Japanese Aid Facilities [REF.3] Other Facilities**
- E201 General Classroom 1 2012
 - E202 General Classroom 2 2012
 - E203 Boys Dormitory 1 2012
 - E204 Girls Dormitory 1 2012
 - E205 Boys Dormitory 2 (for Total) 2012
 - E206 Girls Dormitory 2 (for Total) 2012
 - E207 Administration Building 2012
- [REF.4] Rehabilitation Facilities (Planned)**
- ▨ Inspection to demolish by PWD
 - ▤ Expanded structure
 - ▥ Rehabilitation facilities
 - ▧ Traditional masonry masonry
 - ▩ Precast water pipe pavement
 - Cast-in-place concrete
 - Cast-in-place concrete
 - ▬ 150x150x450

ANNEX-2 Change of the water supply system

Modified diagram of the planned water supply system



* Rainwater collection system (red dashed line) will be built or rehabilitated under the Project.

* Shaded parts will be fully renovated under the Project.

* Blue lines show well-water system, while black lines show rain-water system.

Water source by each water supply points

Water supply point		Elevated water tank	Principal source	Backup source
Dormitory	Shower, laundry	←Plastic tanks (upper stand)	←Rainwater reservoir	←Existing well
	Toilet	←Plastic tanks (lower stand)	←Existing well	←Rainwater reservoir
Administration Building		←Concrete tank	←Rainwater reservoir	Non
Dining Hall & Kitchen		←Concrete tank	←Rainwater reservoir	Non
Special Classroom Building		←Concrete tank	←Rainwater reservoir	Non

To.

ANNEX-3 Works to be done by the Tuvalu side

Works /Undertakings	Completion deadline	Note
1. Obtain authority's approval and/or permissions necessary to implement the Project, such as environmental clearance	Before the announcement of the tender	Drawings and other technical documents will be provided by Japanese consultant.
2. Demolish/remove existing buildings (superstructure of OB8)	Before commencement of the construction work for new classroom buildings	Demolition of sub-structure will be done by Japanese contractor.
3. Remove existing trees in and around construction site, level the ground (EXB1~7)	Before commencement of the construction work in the target zone	—
4. Clean out existing septic tanks (NB1/NB2) and grease separators (NB4/NB5), dispose of sludge.	Before commencement of the rehabilitation work in the target buildings	A septic pump will be provided by the Project.
5. Provide temporary facilities needed for school operation during the construction work (at least 1-2 temporary classrooms to be prepared by partitioning existing buildings)	Before demolition of the existing classrooms in OB8 (Old long building)	Necessary number of classrooms depends on the school operation during the construction work.
6. Allow the temporary use of the old DOE building as a contractor's site office and/or accommodations	Before commencement of the rehabilitation work	Renovation, furnishing, and equipment of the building will be done by Japanese contractor.
7. Modify existing TEC main switchboard and install new branch circuit with a circuit breaker	2 months before the completion of the construction work	Wiring on the downstream side of breaker is within the scope of Japanese side.
8. Make application to receive power supply to newly constructed buildings.	2 months before the completion of the construction work	Technical information will be provided by Japanese side.
9. Pay commissions to a Japanese bank based on the Banking Arrangement (advising commissions of the Authorization to Pay and payment commissions for each payment)	As soon as possible after signing of the agreement/contract	Amount will be 0.1% of the contract price.

T.O.
