

**Department of Fisheries
Ministry of Natural Resources
Tuvalu**

**PREPARATORY SURVEY REPORT
ON
THE PROJECT FOR
CONSTRUCTION OF THE MULTI-PURPOSE VESSEL FOR
OUTER ISLAND DEVELOPMENT
IN
TUVALU**

October 2018

**Japan International Cooperation Agency (JICA)
Fisheries Engineering Co., Ltd.**

PREFACE

Japan International Cooperation Agency (JICA) decided to conduct the preparatory survey and entrust the survey to Fisheries Engineering Co., Ltd.

The survey team held a series of discussions with the officials concerned of the Government of Tuvalu, and conducted a field investigations. As a result of further studies in Japan, the present report was finalized.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

Finally, I wish to express my sincere appreciation to the officials concerned of the Government of Tuvalu for their close cooperation extended to the survey team.

October, 2018

Kenichi SHISHIDO
Director General,
Rural Development Department
Japan International Cooperation Agency

SUMMARY

1 Country Profile

Tuvalu is an island country in the Southern Pacific Ocean consisting of nine atolls scattered in the area between latitude 5° south and 11° south and between longitude 176° east and 180° east. Its total land area is approx. 26 km² and the islands in the nine atolls are dispersed in an oval area that is approx. 150 km-long in the east-west direction and approx. 700 km-long in the north-south direction. There is no domestic flight service in the country and passengers and cargo are transported by sea between these islands.

According to the result of the census in 2012, the total population of Tuvalu is 10,782. Among them, 57.1 %, or 6,152, live in the capital Funafuti and 42.9 %, or 4,630, live on the other eight remote atolls. These figures show the marked concentration of population in the capital, Funafuti Atoll. Approx. 80 % of the residents of Funafuti Atoll were born on the remote atolls. Because those residents often visit their home towns on remote islands and their relatives living there often visit them in Funafuti, there is a large volume of traffic of people between Funafuti and remote islands. To meet the demand for such domestic transport, the Government of Tuvalu operates regular maritime transport services.

The percentage of the people working at government and public offices to the total population of workers is high in all atolls. Meanwhile, the number of the people engaged in subsistence fishing, farming, livestock rearing and handicraft production accounts for more than half of the population in all the atolls (except Funafuti Atoll), which suggests that these subsistence activities support the economy of the remote atolls. *Per capita* average annual incomes are 2,421 Australian dollars (AUD) and 1,470 AUD in Funafuti and the remote atolls, respectively. While the wage earnings and subsistence activities (fishing, farming, livestock rearing and handicraft production) account for 73 % (*i.e.*, 1,776 AUD) and 20 % (*i.e.*, 478 AUD), respectively, of the income in Funafuti, they account for 40 % (*i.e.*, 582 AUD) and 58 % (*i.e.*, 846 AUD), respectively, in the remote atolls, or, the income from the subsistence activities is larger than that from wages in these atolls. An analysis of household incomes in Funafuti and the eight remote atolls reveals that the selling of fishery products accounts for 7 % to 11 % of the household income. This finding shows that fishing is an important means to ensure food supply and cash income in Tuvalu.

2 Background of the Project

The Government of Tuvalu is taking measures to improve the living conditions in the remote atolls and reduce economic disparity between Funafuti and the atolls to alleviate the situation where approx. 60 % of the total population of the country is concentrated in the capital Funafuti. Subsistence fishing, in particular, is important as an industry supporting the economy of the remote atolls and it is necessary to utilize fish caught in subsistence fishing effectively to ensure food security.

The Government of Tuvalu has established a Community Fishing Centre in remote atolls and provided technical and management guidance in the fisheries. To support this effort of the Government of Tuvalu, the Government of Japan provided the existing RV Manau, a ferry connecting remote fishing communities/fishery extension vessel, to the Tuvalu Fisheries Department (TFD) in a grant aid for fisheries project in 1988. The vessel has been used not only for fisheries-related services including fisheries extension work, survey of fisheries resources, transport of fish catches and maintenance of artificial reefs, but for transport of materials, equipment and personnel of other ministries and agencies in recent years. It is also used for chartered services as one of the important lifelines in the cases of emergency.

“Te Kakeega III (2016-2020)” formulated by the Government of Tuvalu continues to take “island development (to provide equal services and create more opportunities for development)” as one of the priority areas as the national development plans in the past. The document also includes strategies particularly concerned with fisheries, *i.e.*, 1) private sector development, expansion of employment opportunities and export, 2) stability of society and economy through effective use of natural resources, 3) conservation and sustainable use of ecosystems (environment) and 4) sustainable development of oceans and marine resources. TFD of the Ministry of Natural Resources has formulated a three-year plan, “Corporate Plan,” and annual action plans, “Annual Work Plans,” based on these priority strategies. The Government of Tuvalu considers the development and maintenance of a safe domestic transport network essential for sustainable development and mentions the building of a vessel to replace the one currently operated by TFD as a priority project in the maritime transport sector in “Fakafoou – to Make New” that was formulated in 2017.

Meanwhile, the existing RV Manau provided by the Government of Japan in 1988 is over 30 years of age and has experienced numerous troubles recently. In fact, it was out of order for a period of more than five months in 2014 and a total period of nine months in 2015. It also has had out-of-order periods of two to three weeks in the other years. Since the vessel was built and provided as a fishing vessel, it is not designed to accommodate passengers. Therefore, the people on board the vessel other than its crew stay under a cover temporarily erected on the front deck while at sea. As wind blows and rain falls under the cover in rough weather, passengers may be forced to spend a whole day in wet clothes. As the wet floor on the vessel is slippery, the risk of accidents such as falls is very high. In fact, cases in which passengers injured in accidents on board have been taken to hospitals have occurred several times recently.

As mentioned above, the existing RV Manau has problems regarding safety and convenience and it is too old and deteriorated to be operated regularly. Against this background, this project is to be implemented to realize safe and reliable operation of a vessel for developing fisheries and maintaining and improving a lifeline.

3 Summary of survey results and contents of the Project

The Government of Japan decided to conduct a preparatory survey for this project upon a request from the Government of Tuvalu and JICA dispatched a study team to Tuvalu from 7th to 26th January 2018.

In the field survey, the Study Team confirmed that TFD owned two vessels, the existing RV Manauai and RV Tala Moana. The RV Tala Moana is older than the RV Manauai. The team confirmed that TFD had no plan to continue using the RV Tala Moana after the completion of the NAPA II Project because of its age and that the department intended to use the new vessel to continue providing its services in remote atolls.

After it was operated 27 times in 2013, the existing RV Manauai was operated only 12 times (in five months) due to defects on the hull in 2014 and only five times (in two months) due to breakdown of the main engine and winch in 2015. After the repair of the defective parts with assistance from OFCF in 2015, it was operated 17 times (in five months) in 2016. TFD was unable to operate the vessel for six months in 2016 because of the retirement of the captain. It was operated reliably in 2017 for 24 trips (in nine months).

Although the overhaul of the main engine with assistance from OFCF in 2015 improved the condition of the existing RV Manauai, spare parts of the main engine currently installed on the vessel are no longer manufactured and almost out of stock. Because of this current situation, it is doubtful whether the main engine can be repaired when it fails again.

Based on the findings in the field survey, the Study Team conducted studies on the specification of the new vessel, its outline design, the schedule for the shipbuilding and the schedule for the procurement of equipment required for its operation and maintenance and estimated the project cost. After completing the above-mentioned work, the Study Team was dispatched to Tuvalu from 26th August to 7th September 2018 to explain the outline design. During this period, the Tuvaluan side and the team discussed, confirmed and agreed on the contents of the outline design and responsibilities of the Tuvaluan side. The agreed outline design is summarized in the following.

【Contents】

Multi-purpose vessel:	1 unit (including spare parts for preventive maintenance)
Equipment:	Replacement rails, vessel lifting equipment, equipment for workshop and mooring buoy

Main specifications of the vessel

Type	Multi-purpose vessel
Length overall	19.00 m
Length between perpendiculars	16.56 m
Breadth, molded	5.00 m
Depth, molded, to the upper deck	2.10 m
Design draft, molded	1.21 m
Gross tonnage (international)	Approx. 66 t
Dead-weight capacity	Approx. 16 t
Service speed	9+ knots at 85 % output with 15 % sea margin
Main engine	Approx. 200 kW x 1 unit
Accommodation capacity	Passengers: 10, Crew: 7, Total: 17
Cargo hold capacity	Approx. 8 m ³
Spare parts for preventive maintenance	1 set

4 Project period and Project cost estimation

It will take 8.0 months for the detailed design and tender, 16.0 months for the shipbuilding and 2.5 months for the preparation for the transport, transport and acceptance inspection and handover in Tuvalu of the vessel to complete this project entirely.

The cost to be borne by the Tuvaluan side for the implementation of this project is estimated at 2.4 million Japanese yen (approx. 27,000 AUD). The Cost at the Japan side is not disclosed hereupon keeping confidential until completion the shipbuilding contract through the tender process.

5 Project Evaluation

This project will contribute to “Island development” clearly stated in “Te Kakeega III (2016-2020)” formulated in 2016 and the improvement of the maritime transport mentioned in “Fakafoou – to Make New” formulated in 2017.

The new vessel will be designed and built with Japanese design and shipbuilding technology to rectify the defects found in the existing RV Manau, improve safety, work efficiency and comfort and realize cost reduction through the improvement of fuel efficiency.

The purpose of this project is to develop fisheries and maintain and improve a lifeline in Tuvalu including the remote atolls by realizing safe and reliable operation of the new vessel. The implementation of this project is expected to have not only quantitative effects including the increase in the number of overnight stays in the remote atolls (because the crew and passengers can stay overnight on board the new vessel), the reduction in the number of out-of-order mooring days and the reduction in the operating and maintenance costs, but qualitative effects including improved on-board safety, comfort and work efficiency.

For the reasons mentioned above, this project is considered to have high relevance and effectiveness.

CONTENTS

Preface

Summary

Contents

Location Map / Perspective

List of Figures & Tables

Abbreviations

CHAPTER 1. BACKGROUND OF THE PROJECT1-1

CHAPTER 2. CONTENTS OF THE PROJECT.....2-1

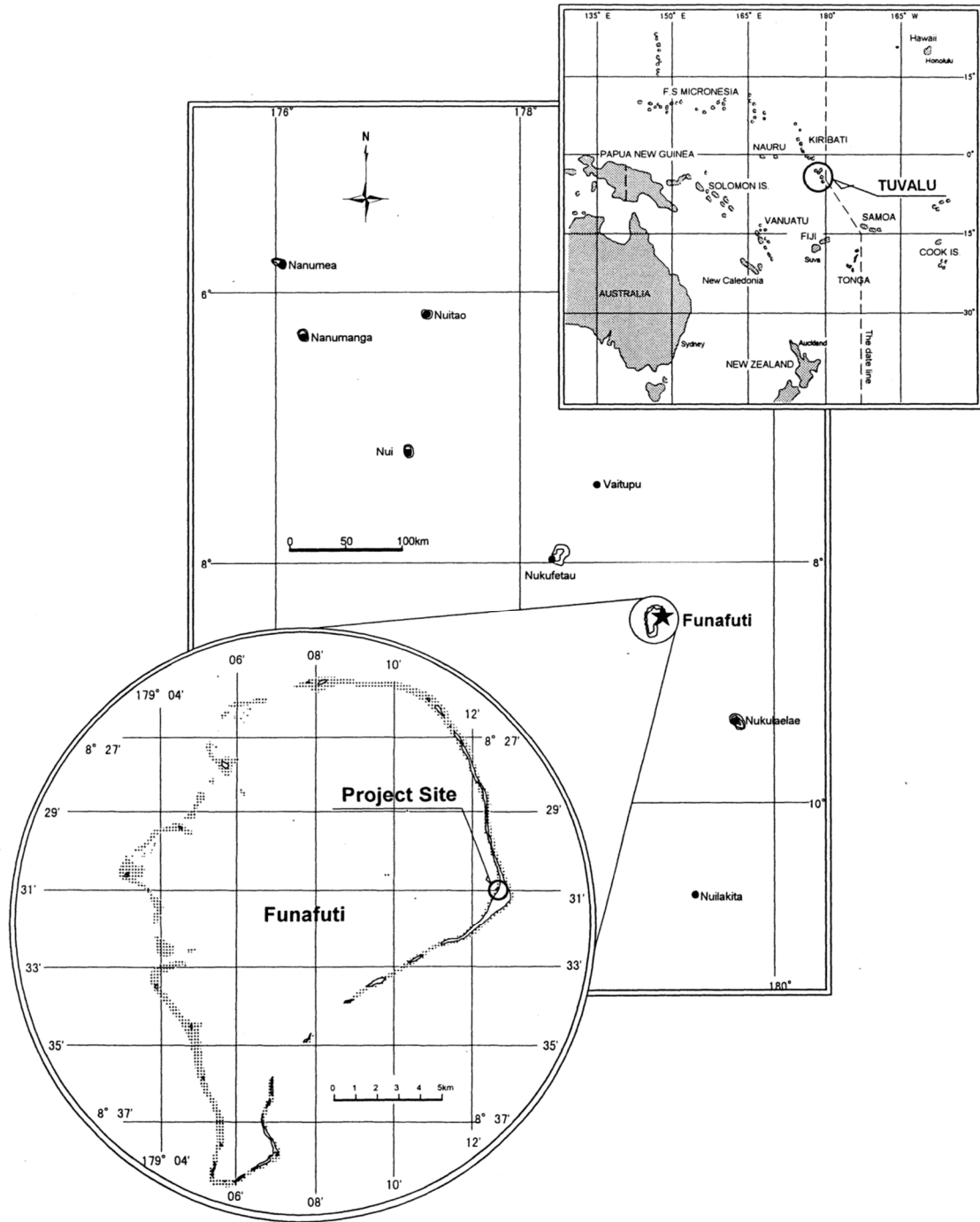
2-1	Basic Concept of the Project	2-1
2-2	Outline Design of the Japanese Assistance	2-2
2-2-1	Design Policy	2-2
2-2-2	Basic Plan.....	2-3
2-2-2-1	Vessel.....	2-3
2-2-2-2	Equipment to be procured	2-15
2-2-2-3	PMP Spare Parts Procurement Plan.....	2-18
2-2-3	Outline Design Drawing.....	2-20
2-2-3-1	General Arrangement Plan	2-20
2-2-3-2	Hull lines	2-21
2-2-3-3	Machinery Arrangement.....	2-22
2-2-4	Implementation Plan.....	2-23
2-2-4-1	Implementation policy.....	2-23
2-2-4-2	Special consideration with regard to Construction and Procurement.....	2-25
2-2-4-3	Scope of Works.....	2-26
2-2-4-4	Consultant Supervision.....	2-27
2-2-4-5	Quality Control Plan.....	2-28
2-2-4-6	Procurement Plan	2-29
2-2-4-7	Operational Guidance Plan.....	2-29
2-2-4-8	Soft Component (Technical Assistance) Plan.....	2-29
2-2-4-9	Implementation Schedule	2-29
2-3	Obligations of the Recipient Country.....	2-33
2-4	Project Operation Plan.....	2-34
2-4-1	Vessel operation body.....	2-34
2-4-2	Vessel maintenance.....	2-34
2-5	Project Cost Estimation.....	2-35
2-5-1	Initial Cost Estimation.....	2-35
2-5-2	Operation and Maintenance Cost	2-35

CHAPTER 3. PROJECT EVALUATION3-1

- 3-1 Precondition3-1
- 3-2 Necessary Inputs by Recipient Country3-1
- 3-3 Important Assumptions.....3-1
- 3-4 Project Evaluation3-2
- 3-4-1 Relevance3-2
- 3-4-2 Effectiveness3-2

APPENDIX

- 1. Member List of the Study Team
- 2. Study Schedule
- 3. List of Parties Concerned in the Recipient Country
- 4. Minutes of Discussions
- 5. Reference



Location Map



List of Figures & Tables

Table 2-1	The characteristics and actual use of each crane.....	2-7
Table 2-2	Nautical Instruments installed on the existing RV Manauai.....	2-8
Table 2-3	Replacement parts.....	2-10
Table 2-4	Specification of the Plan vessel.....	2-11
Table 2-5	Materials for replacement rails.....	2-15
Table 2-6	Vessel lifting equipment.....	2-16
Table 2-7	Equipment for Workshop.....	2-17
Table 2-8	Mooring Buoy.....	2-18
Table 2-9	Quality Control Plan.....	2-28
Table 2-10	Implementing schedule overview.....	2-31
Figure 2-1	Tank Test Results: Estimated Power Curve.....	2-6
Figure 2-2	General Arrangement plan.....	2-20
Figure 2-3	Lines plan.....	2-21
Figure 2-4	Machinery Arrangement.....	2-22
Figure 2-5	Project schedule.....	2-32

Abbreviations

ADB	Asian Development Bank
CFC	Community Fisheries Center
FADs	Fish Aggregating Devices
FAO	Food and Agriculture Organization of the United Nations
FFA	Forum Fisheries Agency
GEF	Global Environment Facility
GOT	Government of Tuvalu
NAPA II	National Adaptation Programme of Action II
OFCF	Overseas Fishery Cooperation Foundation of Japan
PROP	Pacific Regional Oceanscape Programme
TFD	Tuvalu Fisheries Department
UNDP	United Nations Development Programme

CHAPTER 1. Background of the Project

The Government of Tuvalu (GOT) is taking measures to improve the living conditions in the remote atolls and reduce economic disparity between Funafuti and the other atolls to alleviate the situation where approx. 60 % of the total population of the country is concentrated in the capital Funafuti. The percentages of the number of households engaged in fisheries to the total number of households in Funafuti Atoll and the other eight atolls in Tuvalu are approx. 20 % (175 households in 2012) and 51 % (468 households in 2012), respectively. These numbers indicate that subsistence fishing is a particularly important industry supporting the economy in Tuvalu. Under such circumstances, the Government of Tuvalu have established a Community Fishing Centre in remote atolls and provided technical and management guidance in the fisheries. To support this effort of the Government of Tuvalu, the Government of Japan provided the existing RV Manau, a ferry connecting remote fishing communities/fishery extension vessel, to the Tuvalu Fisheries Department (TFD) in 1988. The vessel is currently used not only for fisheries-related services including fisheries extension work, survey of fisheries resources, transport of fish catches and maintenance of artificial reefs, but for transport of materials, equipment and personnel of TFD and other ministries and agencies. It is also used for chartered services as one of the important lifelines in the cases of emergency.

“Te Kakeega III (2016-2020)” formulated by the Government of Tuvalu in 2016 took “Island development (to provide equal services and create more opportunities for development)” as one of the priority areas. The document also includes strategies particularly concerned with fisheries, including 1) private sector development, expansion of employment opportunities and export, 2) stability of society and economy through effective use of natural resources, 3) conservation and sustainable use of ecosystems (environment) and 4) sustainable development of oceans and marine resources. TFD of the Ministry of Natural Resources has formulated a three-year plan, “Corporate Plan,” and annual action plans, “Annual Work Plans,” based on these priority strategies. The Government of Tuvalu considers the development and maintenance of a safe domestic transport network essential for sustainable development and mentions the building of a vessel to replace the one currently operated by TFD as the priority project in the maritime transport sector in “Fakafoou – to Make New” that was formulated in 2017.

Meanwhile, the existing RV Manau provided by the Government of Japan is 30 years of age and has experienced numerous troubles recently. In fact, it was out of order for a period of more than five months in 2014 and a total period of nine months in 2015. It also has had out-of-order periods of two to three weeks in the other years. Since the vessel was built and provided as a fishing vessel, it is not designed to accommodate passengers. Therefore, passengers on board stay under a cover temporarily erected on the front deck while at sea. As wind blows and rain falls under the cover in rough weather, passengers may be forced to spend a whole day in wet clothes. As the wet floor on the vessel is slippery, the risk of accidents such as falls is very high. In fact, cases in which passengers injured on the vessel have been taken to hospitals have occurred several times recently.

As mentioned above, the existing RV Manau, which is operated also for purposes other than the original

purposes, has troubles regarding safety and convenience and it is too old and deteriorated to be operated regularly. Against this background, this project is to be implemented to realize safe and reliable operation of a vessel for developing fisheries and maintaining and improving a lifeline.

CHAPTER 2. Contents of the Project

2-1 Basic Concept of the Project

(1) Overall Goal and Project Purpose

The Government of Tuvalu (GOT) formulated “Te Kakeega III – National Strategy for Sustainable Development 2016 to 2020 (TKIII)” in 2016. This document describes “Falekaupule and Outer Islands Development (Provide equal services and create more opportunities for development)” as one of its strategic areas. Among the strategic areas in TKIII, “6) Private Sector development, Employment and Trade,” “8) Natural resources: Maximize their social and economic returns and sustainability,” “10) Environment: Protect, restore, and promote sustainable use of terrestrial ecosystems” and “12) Oceans and seas: Conserve oceans, seas, and marine resources for sustainable development” are concerned with fisheries. The Fisheries Department of the Ministry of Natural Resources of Tuvalu (TFD), which will be the implementing organization of this project, has formulated a three-year plan, “Corporate Plan” and annual action plans, “Annual Work Plans,” based on the description in TKIII on the above-mentioned strategic areas. GOT considers the development and maintenance of a safe domestic transport network essential for the sustainable development of the country and mentions the construction of vessels to replace the ones currently being operated by TFD as a priority project in the marine transport sector in “Fakafoou – To Make New: Tuvalu Infrastructure Strategy and Investment Plan” formulated in 2017.

Fisheries are the main industry of Tuvalu where natural resources and land are limited. However, the scale of the fisheries practiced in Tuvalu is at the level of meeting the domestic demand. In Tuvalu where agriculture cannot be practiced, seafood is important food in remote islands in which 40 % of its people live. In order to promote economic self-reliance of these islands based on fisheries, GOT has established Community Fishing Centres (CFCs) in these islands and installed ice-makers, freezers and other equipment in these centres. TFD has also provided guidance on fishing technology and fishery operation. The RV Manauai provided to TFD by the Government of Japan (GOJ) with the Grant Aid for Fisheries has been used for transporting materials, equipment and advisory staff to CFCs.

While the RV Manauai was used mainly for the projects of the fisheries sector at the beginning, it has been used not only for the transport materials, equipment and personnel of TFD and other government offices, but for the emergency transport of residents of remote islands and extended chartered services to remote islands. At present, the RV Manauai serves for TFD mainly in the maintenance of 14 FADs (Fish Aggregating Devices) and installation of FADs in the waters of Tuvalu and the transport of materials and personnel to remote islands.

Two vessels constructed within the Japan’s Official Development Assistance Scheme, the MV Nivaga III (an international passenger vessel, 1,337 t, built in 2015) and the MV Manu Folau (a domestic cargo-passenger vessel, 582 t, built in 2002) are mainly used for transporting cargo and passengers between remote islands in Tuvalu. However, as these vessels are operated for regular services, it is difficult to use them for

emergency transport or chartered transport to remote islands. The RV Manauai is performing an important role of complementing their services in the above-mentioned.

The 30-year-old RV Manauai has had many breakdowns recently. In fact, it could not be operated for more than five months in 2014 and a total of around nine months in 2015 due to breakdown and there were periods of two to three weeks in which its operation was suspended due to breakdown in the other years. Because the RV Manauai was constructed as a fishery vessel, it was not designed to accommodate passengers. Therefore, passengers stay under the temporary cover on the front deck while at sea. As wind and rain may blow into this temporary shelter in stormy weather, passengers may have to spend a day and a night in wet clothes. The wet floor surface of the vessel is slippery and increases the risk of accidents including falls. The cases in which passengers injured in on-board accidents were transported to hospitals have occurred several times in recent years.

The RV Manauai, which has been operated for purposes different from the one intended at the beginning, has problems in safety and convenience for passengers as mentioned above and a problem of unreliable availability due to its age and deteriorated condition. Against this background, this project aims at promoting fisheries and maintaining and improving people's lifelines by realizing safe and stable operation of a vessel.

(2) Outline of the Project

A multi-purpose vessel shall be constructed and equipment associated with its operation and maintenance shall be procured in this project to achieve the above-mentioned purpose. The implementation of this project is intended to maintain and improve the functions performed by the RV Manauai and expected to improve the quality of surveys and technical capacity in the fisheries sector and maintain and improve the complementary marine transport services. Japanese Assistance shall consist of the construction of a multi-purpose vessel and procurement of the equipment for the workshop and slipway and spare parts for preventive maintenance.

2-2 Outline Design of the Japanese Assistance

2-2-1 Design Policy

The new vessel will be used for multiple purposes, including the maintenance of the existing FADs and the installation of FADs in the waters of Tuvalu, transport of materials and people to remote islands, fishery resource surveys, emergency transport of residents of remote islands and extended chartered services to remote islands for other Ministry of GOT and private companies.

The record of the operation of the existing RV Manauai shall be used as reference in designing the new vessel. The new vessel shall be of a scale that is sufficient to perform all the functions that the multi-purpose vessel is expected to perform and to have required space to accommodate passengers and that allows it to be hoisted on the existing slipway in Tuvalu. The basic policy mentioned below shall be used for designing a vessel that

satisfies the above-mentioned conditions.

(1) Transport Capacity

The record of the operation of the existing RV Manauai shall be studied to estimate the transport capacity that the new vessel needs to have. This estimated capacity shall be used to determine the scale of the new vessel.

(2) Safety Requirement

The new vessel shall be sufficiently safe to be operated in the waters of Tuvalu.

(3) Environmental Measures

Measures to control NOx emissions in the exhaust gas from diesel engines compliant with MARPOL 73/78 shall be included in the design of the new vessel.

(4) Economic Efficiency

The new vessel shall be designed to be fuel-efficient by minimizing the resistance of its hull by optimizing its shape and equipping it with a propeller of an efficient design.

(5) Passenger Facilities

The new vessel shall have sufficient comfortable space to accommodate and serve its passengers.

(6) Durability and Maintenance

Durability of a vessel depends on quality of the material that is used and levels of maintenance. Highly corrosion-resistant materials shall be selected for the construction of the new vessel wherever possible. Not only performance but ease of maintenance shall be considered when selecting equipment for the new vessel. A preventive maintenance program (PMP) including regular overhauls shall be prepared for the new vessel to reduce breakdown and extend its lifetime. Spare parts of equipment required for the PMP shall be procured in this project.

2-2-2 Basic Plan

2-2-2-1 Vessel

(1) Principal Particulars

It is desirable to make the new vessel as long as possible to ensure sufficient passenger space and achieve good propulsion performance. However, it has been revealed that the length of the existing RV Manauai is close to the upper limit of the length of a vessel that can be hoisted on the existing slipway. Therefore, the upper limit of the total length of the new vessel has been set at 19 m, the approximate length of the existing RV Manauai. Although the ideal beam of the new vessel calculated with the ideal length-breadth (L/B) ratio is less than 4 m, it will be impossible to accommodate all required space in the vessel or to ensure the stability of the vessel with this breadth value. In addition, the center of gravity of the new vessel is expected to be

higher than that of the existing one due to the extension of living quarters. With these facts taken into consideration, the upper limit of the beam has been set at approx. 5 m. It is desirable for the new vessel to have as large depth as possible to have sufficient freeboard and allow the living quarters below the upper deck sufficient head clearance. However, as the increase in depth directly leads to the rise of the center of gravity, the depth has been set at slightly larger than the depth of the existing RV Manauai, 1.75 m. Although it is desirable for the new vessel to have a shallow draft for the ease of hoisting, a shallow draft will lead to poor propulsion performance (increase in fuel cost) and an increase in the area presented to the wind. As is the case with the setting of the depth, the draft of the existing RV Manauai (1.15 m) has been adopted as the standard draft of the new vessel.

(2) Service Area

The new vessel shall be used in the waters of Tuvalu, like the existing one, and it shall not be used in international waters.

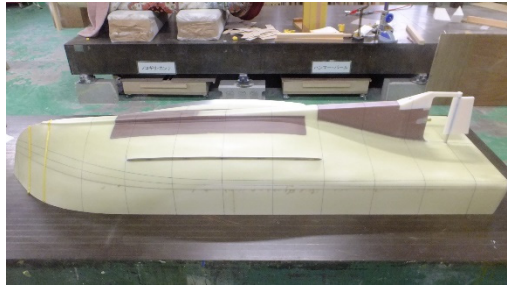
(3) Numbers of Crew Members and Passengers

The number of the crew members shall be seven, the same as the existing RV Manauai at sea. The target of the maximum number of passengers was set at ten based on the operational record of the Manauai in recent years and the final decision was made with the stability of the vessel and limitations imposed by its principal particulars taken into consideration. The new vessel shall have a long forecastle to accommodate the living quarters of the crew members and passengers: the living quarters shall be constructed in the front part on the upper deck and the bridge shall be constructed above them.

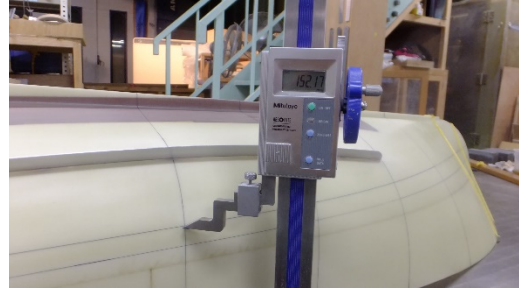
(4) Speed

There has been no strong request for a higher speed. The simulation with various power estimation methods has revealed that the maximum speed of a vessel of the principal particulars of the new vessel will increase only by 1.0 and 1.5 knots with the twofold and threefold increases of the power of the main engine, respectively, because the wave-making resistance of the vessel increases drastically when its speed exceeds nine knots. Therefore, the design speed of the new vessel has been set at nine knots. Because the different power estimation methods gave largely different results when the speed of the vessel was around nine knots and above, a towing tank test consisting of the resistance and self-propulsion tests with a model vessel was conducted at Hiroshima University. The test confirmed that the design speed of nine knots could be achieved even with an appropriate design margin included. (A speed of 9.5 knots was achieved in the test.)

The photos of the tank test and the power curves of the tests' results are shown below.



1. Tank test model



2. Accuracy check



3. Model set on the test mount



4. Towing test (fore)



5. Towing test (aft)



6. Towing Tank, Univ. Hiroshima

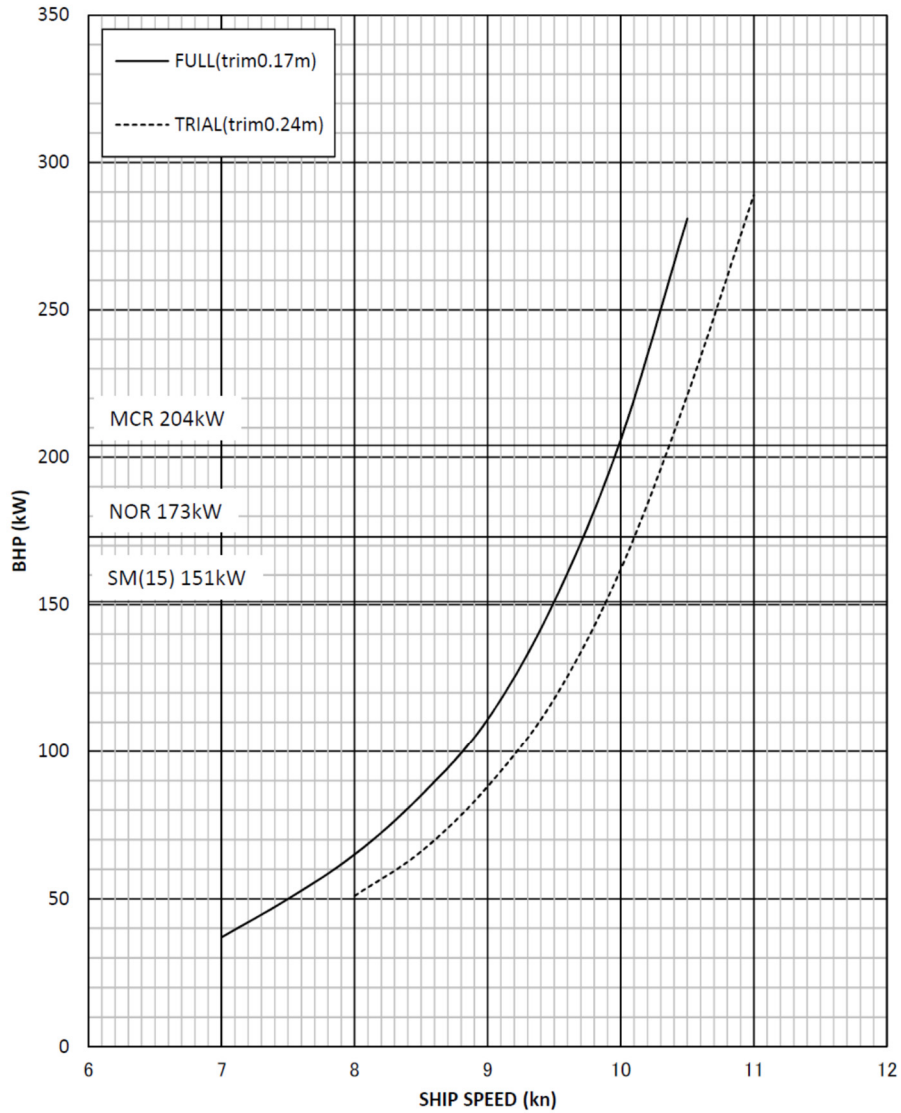


Figure 2-1 Tank Test Results: Estimated Power Curve

(5) Cruising Distance

The design cruising distance of the new vessel has been set at 1,200 nautical miles, the same as that of the existing RV Manui. The capacity of the fuel tank of the new vessel shall be larger than the volume of fuel required for the cruising distance.

(6) Hull Material

TFD requested the construction of the hull with FRP. FRP vessels have been repaired in Tuvalu and FRP materials are readily available in Fiji. It is not possible to repair curved parts of hulls of vessels made of steel in Tuvalu because of the lack of equipment to bend such materials. While a steel vessel requires frequent overall and touch-up coating to protect it from corrosion. With these facts taken into consideration, the hull of the new vessel shall be constructed with FRP materials.

(7) Fuel Tank

The Tuvaluan side requested that the new vessel be equipped with a fuel tank larger than that in the existing vessel for extended activities near remote islands. Because of the space in the vessel is limited, an increase of the fuel tank capacity by 50 to 100 % from that in the existing RV Manauai (3.4 m³) has been set as a design target.

(8) Freshwater Tank

The Tuvaluan side also presented a similar request concerning the freshwater tank. In response, an increase of the tank capacity by 50 to 100 % from that of the existing RV Manauai (1.3 m³) has been set as a design target. In addition, the Tuvaluan side strongly requested the use of freshwater in showers. As a very large quantity of freshwater is to be consumed in showers, it will not be possible to cover the whole water demand in showers with the freshwater supply from the tank alone. Therefore, a reverse osmosis fresh water generator, the type of fresh water generator that has been widely used in Tuvalu, shall be installed in the vessel.

(9) Cargo Hold

Since the existing RV Manauai is also engaged in cargo transport, the new vessel shall have a cargo hold of the same capacity as the RV Manauai (8.8 m³). It was concluded in a consultation between the Tuvaluan and Japanese sides that it would not be necessary to install a refrigerated fish tank in the vessels. Installation of the tank will require additional space for heat insulation and maintenance of a freezer. The fish tank in the existing vessel has not been in use. For these and other reasons, fish tanks shall not be installed in the new vessel. A portable freezer shall be procured for the transport of frozen fish and goods. The freezer shall be loaded on the deck when transporting such goods.

(10) Cargo Handling System

The new vessel shall have to be equipped with a cargo lifting device for loading and unloading a workboat and handling cargo. Each of the three Tuvaluan vessels provided in the ODA scheme of the Government of Japan, *i.e.*, the RV Manauai, MV Manu Folau and MV Nivaga III, is equipped with a different type of crane. The characteristics and actual use of each crane are summarized in the following table.

Table 2-1 The characteristics and actual use of each crane

Type of Crane	Derrick	Jib crane	Knuckle boom/telescopic crane
Name of the vessel	RV Manauai	MV Nivaga III	MV Manu Folau
Construction	Simple	Relatively simple	Complex
Operation	Require lot of hands	Easy	Easy
Cost	Cheap	Medium	Expensive
Length of hanging sling	Long	Long	Short
Handling under bad weather	Difficult	Difficult	Easy

The new vessel is a small vessel and it will roll and pitch greatly in stormy weather. Handling heavy goods and the workboat in such a condition will be very dangerous. Therefore, a telescopic crane requiring short slings for lifting shall be installed on the vessel for safety purposes.

(11) Workboat

Vessels may not be able to dock on remote atolls in Tuvalu. In such places, workboat installed on vessels are used for transporting passengers and cargo to the atolls. Passengers and cargo on a vessel drifting off the coast are transferred to a workboat lowered to the sea, which may be rough at times, and transported to the atolls on it. A workboat carrying passengers and cargo may have to make several trips between the vessel and beaches on the atolls. Because such a workboat must come alongside a vessel in the rough sea, rigid-hull inflatable boats shall be procured for the new vessel.

(12) Nautical Instruments

Because the new vessel is small and intended to be a coastal vessel, the list of the nautical instruments (including compasses, radar, GPS system and echo sounder) installed on the existing RV Manauai was used as reference in selecting the nautical instruments to be installed in the new vessel.

Table 2-2 Nautical Instruments installed on the existing RV Manauai

Item	Specification
Magnetic compass	150 mm table top type x1
Autopilot	Controlled by Magnetic Compass x1
Radar	X band, 5kW, 48 nm range x1
Echo sounder	1
GPS Plotter	1

Because a magnetic compass requires regular adjustment and is likely to be affected by disturbance, a GPS compass shall be added to the instrument list. Signals from the GPS compass shall be used to control the auto-pilot system. Because the performance of the echo sounder installed on the existing RV Manauai, which is only capable of measuring depth to approx. 300 m below sea level, is not sufficient for placing FADs, an echo sounder with the largest possible measuring range shall be installed on the new vessel. While TFD requested installation of an echo sounder with a measurement range of 2,000 m below sea level or more, the transducers of echo sounders of such performance are too large to be installed on the new vessel. Therefore, the measurement range of the echo sounder to be installed on the vessel has been decided at a practical value, 1,200 m below the sea level.

(13) Radio Equipment

The new vessel shall be equipped with VHF, MF and HF radio systems. It shall also be equipped with a weather fax to receive meteorological information. As the lack of a public addressor in the RV Manauai has made it difficult for its crew members to communicate, a public addressor and a walkie talkie shall be installed in the new vessel. The new vessel is not required to have an automatic identification system (AIS)

by law. However, as AIS will contribute significantly to navigational safety of the vessel, there is a ground AIS station in Tuvalu and RV Manauai has AIS, an AIS (class B) device shall be installed in the new vessel. As the space in the bridge is limited, an integrated navigation information display shall be installed in the bridge to display various types of information on a single screen.

Because Tuvalu has no rescue aircraft and only one search patrol boat, the life raft and the work boat to be installed on the new vessel shall be equipped with satellite-communication-based emergency position indicating radio beacons. Some fishermen on remote islands have been provided with these beacons. Three of them used the beacons to be rescued from the sea in 2017 alone. This observation has proved the effectiveness of these beacons.

(14) Measures to Prevent Marine Pollution

The new vessel shall be equipped with diesel engines that satisfy the international standards on NOx emissions for environmental considerations. Sewage generated in the existing RV Manauai has been directly discharged into the ocean without any treatment. However, as discharge of sewage within atolls is prohibited, the new vessel shall be equipped with a sewage storage tank.

(15) Policy for Extending Lifetime of Vessel and Equipment

The schedule for the maintenance of vessels at the workshop shall be improved. In addition, materials resistant to failure, corrosion, wear and tear and easy to maintain shall be used for constructing the hull and manufacturing fittings of the new vessel. For example, fittings, such as handrails, to be installed in areas exposed to seawater shall be made of stainless-steel, aluminum and/or FRP and gland packings, instead of mechanical seals, shall be used on pumps as far as practicable.

(16) Equipment in Engine Room

Water-cooled diesel engines shall be installed in the new vessel as the main engine and generator as such engines can be maintained in Tuvalu. The output of the main engine shall be approx. 200 kW, which will be sufficient to achieve the design speed, and a reduction drive with the largest possible reduction gear ratio shall be used to improve fuel efficiency. As the generator in the vessel will not have to supply electric power outside the vessel, a generator with the output sufficient to operate facilities and equipment in the vessel, *i.e.*, approx. 30 kVA, shall be installed in the vessel.

(17) Living Quarters

A room for two and another for four crew members shall be prepared in the new vessel with the possibility of female crew members working on the vessel in future taken into consideration. The vessel shall also have two rooms for passengers to satisfy the minimum requirement for accommodating female passengers. The lack of space for female divers to change into wetsuits in the existing vessel is a serious problem in protecting their privacy. Therefore, a small dressing room for divers shall be installed in the new vessel to protect the privacy of persons changing clothes.

(18) Replacement Parts

The new vessel shall be provided with the replacement parts mentioned below. Lessons learned from the provision of vessels to other South Pacific countries and records of vessel maintenance and inspection kept in these countries were used as reference in selecting these parts. They include parts required for the vessel to return to a port without drifting away when breakdown has occurred at sea, the frequent change of filters required immediately after the handover, and responding quickly to corrosion when it is discovered. Packings and other parts required for restoring equipment disassembled in emergency inspection shall also be provided.

Table 2-3 Replacement parts

Name of parts	Q'ty
Main engine	
O ring and seal packing for special survey overhaul	2 sets
Cooling fresh water thermostat and seal	1 engine
Engine attached cooling seawater pipes (steel and rubber)	1 set
LO and FO filter element (in case of paper filter)	10 engines
Pressure gauge	1 set
Thermometer	1 set
Pressure switch	1 set
Temp. switch	1 set
Tachometer	1 set
Exhaust line bellow	1 set
Gasket for turbo charger	1 set
Gear box	
Pressure gauge	1 set
O ring, seal packing for special survey overhaul	2 sets
Main generator engine	
Cooling fresh water thermostat and seal	1 engine
Engine attached cooling seawater pipes (steel and rubber)	1 engine
O ring and seal packing for special survey overhaul	2 sets
LO and FO filter element (in case of paper filter)	10 engines
Pressure gauge	1set
Thermometer	1set
Pressure switch and temp switch	1set
Tachometer	1set
Exhaust line bellow	1set
Gasket for turbocharger	1set
Propeller	1
Mechanical seal ring and associated parts	1set
O ring for propeller	1set

Name of parts	Q'ty
O ring and seal packing for shell and tube coolers	2 ships
Crane	
Filter	5
Oil hose	1set
Seal kit for cylinder	1set
Wire rope	1set
Reduction gear oil	1set
Anodes for hull	1set
Anodes plate and bar for engine room seawater system	4 sets
Packing for the above	1set
Anodes for propeller shaft	1set
Sacrifice pipe piece	1set
Zinc round bar (1m)	2
Navigation light bulb	1set
Projector light bulb	1set
Search light bulb	1set
Spare LED light bulb	10%
Glass glove	2 each size
Fuse	5 each size
Receptacle and plug (waterproof)	1 set
Receptacle and plug (non-waterproof)	1 set
Anchor	1 set

(19) Principal Particulars of the New Vessel

The following table shows the principal particulars of the new vessel. The Outline Design Drawing are shown in 2-2-3.

Table 2-4 Specification of the Plan vessel

Item	Specifications
1. Principal particulars	
Type of the vessel	Multi-purpose vessel
Flag	Tuvalu
Classification	-
Rules to apply	Tuvalu Merchant Shipping Act, JG Class 4 Coastal
Hull material	FRP
Length overall	19.00m
Length bp	16.56m
Breadth, molded	5.00m

Item	Specifications
Depth, molded	2.10m
Design draft	1.21m
Gross tonnage, international	About 66 tons
Deadweight	About 16 tons
Loaded speed	About 9+knots at design draft
Main engine	About 200 kW x 1
Complement	
Passengers	10
Crews	7
Total	17
Tank capacity	
Fuel oil tank	About 6m ³
Fresh water tank	About 3m ³
Cargo hold	About 8m ³
2. Deck machinery	
Windlass	1(Chain wheel (1.0t x 9m/min) x2 with Capstan(1.0t x 15m/min)x1)
Mooring Capstan	Hydraulic driven x 1 (1.0t x 15m/min)
Crane	0.8/0.45 t SWL x approx. 3/5 m(Telescopic type)
Hydraulic pump unit	Main engine driven、 30lit/min x 20MPa x 1
Steering Gear	Hydraulic (Main engine driven)、 Autopilot by GPSx1
3. Anchor	
Anchor	Danforth type (71.25kg)x2
Anchor chain	14mm dia. X 75m x 2
Working mooring rope	Polypropylene 24mm dia x 35m x 2
Rule mooring rope	Polypropylene 24mm dia x 80m x 1
Towing rope	Polypropylene 26mm dia x 110m x 1
4. Accommodation	
Captain room	Single bunk
Crew cabin	Single bunk x 6
Passenger cabin	Two bunk
Galley equipment	Gas cooking range (LPG 2) x1、 Refrigerator (450lit.) x 1、 Microwave (1,000W) x 1
Working / Mess room	6
Toilet	2 (Large size seat)
Shower room	1
Sewage handling	Direct discharge and holding tank (0.5m ³) x1 (with non return valve for discharge line)

Item	Specifications
5. Dry cargo hold	
Number of hold	2
Hatch cover	FRP
Bottom covering	Wooden gratings
Refrigerated cargo	700 lit. Portable freezer x2(Stored on upper deck)
6. Workboat	
Specification	about 3.9 mL x1 RIB type (FRP)
Outboard engine	30HP or more x 1(2 stroke)
7. Lifesaving apparatus	
Inflatable life raft	20pax x 1
Life jacket	For all complement 17 + 2 =19 For children x 2
Radio apparatus	EPIRB x1
Satellite distress signal	2(for life raft and workboat, ACR Res Q Link+ or equiv.)
Misc. apparatus	Life buoy x2, Self igniting light x1、 Self activating smoke signal x 1 , Signal rocket x2、 Parachute signal x4
8. Firefighting equipment	
Main engine room	Self-dispersion fire extinguisher (1.5kg) x 2, Portable fire distinguisher (5 kg) x 2
Portable fire extinguisher	Powder (5kg) x 4
Fire blanket	1 for galley
9. Ventilation	
Machinery room	Elect. fan (0.4kW) x 2
Galley	Elect. fan (0.2kW) x 1
Toilet, Shower room	Elect. fan (24V) x 3
Cabin, working space	Elect. fan (0.2kW) x 2
Air conditioning	Domestic type (for Cabin、 Working space、 Navigation bridge)、 Spot type for galley
10. Machinery Equipment	
Main engine	High speed diesel 200kW x 1(IMO Tier II、 LCD remote monitoring from navigation bridge)
Propeller	4 blades、 fixed pitch x 1
Main generator	Diesel generator(30kVA x 225V x 50Hz) x1
Cooling sea water pump for M.E.	Main engine driven x1
Fire / General service / Ballast / Bilge pump	Electric motor driven (20m3/h 3.7kW)x1
Bilge pump	Electric motor driven (DC 24V 90W 50lit/min) x1

Item		Specifications
	Portable bilge pump	Engine driven (12m ³ /h) x1、 for Machinery room flooding
	Fresh water pump	Electric motor driven (0.4kW 50lit/min) x1
	Sewage pump	Electric motor driven (0.75kW 6m ³ /h) x1、 cutter type
	Water maker	Reverse osmosis (1.5t/day) x1
	Fresh water sterilizer	Ultra violet (1m ³ /h) x1、 for galley
11. Electric supply		
	Main switch board	1 in Engine room
	Battery	for M.E. (24V 100AH)、 for General use (24V 100AH) x 2 each
	Receptacle	220V (Berth, Navigation bridge, Gallery, Working space)
	Electric supply for small electronics	USB type(for working space and navigation bridge)
12. Inboard communication		
	Public addressor	1(2W speaker x3、 5W speaker x1、 20W speaker x1) with radio / CD / MP3 player
13. Lighting		
	On board light	LED
	Navigation light	1 per COLREG (LED)
	Floodlight	100 W Halogen x 4
	Search light	300W x 1 Manual control
14. Navigation equipment		
	Magnetic compass	Desktop type、 150mm dia x 1
	GPS compass	3 antenna type x 1
	Steering control	1、 GPS autopilot / Remote control
	Radar	X band、 5kW、 48 nm x1
	Echo sounder	1 range more than 1200m
	GPS plotter	1(including chart of Tuvaluan water, combined with integrated navigation information system)
	Integrated navigation information system	1 (NAVNET or equiv., 15" display)
	Electric horn	1(Grade IV)
	AIS	1(Class B)
	Helm indicator	1(90mm dia. analog type)
	M/E rev. indicator	1(90mm dia. analog type)
	Prop. shaft rev. indicator	1(90mm dia. analog type)
15. Radio apparatus		
	VHF radio telephone	1 (25W、 marine VHF)
	MF/HF SSB radio telephone	1 (150W)
	EPIRB	1 (406MHz、 121.5MHz)

Item	Specifications
SART	1 (9GHz)
Navigation fax	1 (Wall mount, 8" or more paper size)
Transceiver	4 (UHF, immersion proof, for onboard communication 2W)
16. Misc.	
Fish finder	1(same as RV Manauai)
Access for diver	Rear gate and retractable platform
Cylinder storage	Rack for 18-20 cylinders, stored on deck / inside cargo hold
Tank for cylinder charging	for 2 cylinders
Washing tub	1 for washing diving gears
Drying bar	1 for wetsuits
Diver's shower	Fresh water shower
Compressor	Electric driven (100lit/min) x1
Window wiper	Each for navigation bridge front window
Removable awning	for aft most deck area, removable stanchion
Other weather exposed deck fittings	Material for exposed deck fittings(handrail, step, cleat etc.) to be corrosion resistant such as stainless steel, aluminum, FRP etc. as far as practicable
Loading gear for vessel	Sling 20t x15mx2(broad type with cover), lifting beam, wooden cradle

2-2-2-2 Equipment to be procured

(1) Replacement Rails

Because the corrosion of the approx. 20 m parts directly above the sea level of the existing rails on the slipway is in an advanced stage, replacement rails shall be provided. The rails to be provided shall be cut into eight 5 m-long pieces for the transport in a container. These rails shall be fastened to a concrete base with metal fasteners and bolts at approx. 350 mm intervals. The rails and fasteners to be procured shall be of heavy-duty anticorrosion specifications for the use on slipways. Table 2-5 shows a set of materials required for installing the replacement rails.

Table 2-5 Materials for replacement rails

Item	Specification	Q'ty
Replacement rail	JIS N50, 5m	8
Rail fastener system	Fastener plate, bolt and nut, seat metal	8
Rail clip	Galvanized (middle part)	148
Rail clip	Galvanized (connection part)	32
T-bolt and nut	Galvanized	180
Seat metal	Spring type, galvanized	180
	Flat type, galvanized	180

Item	Specification	Q'ty
Bed plate	Galvanized (middle part)	74
Bed plate	Galvanized (connection part)	8
Seat metal for chemical anchor	Galvanized	180
Chemical anchor capsule		180

(2) Vessel lifting equipment

Because the cradles on the existing slipway are old and deteriorated, the shape of the new vessel will be different from that of the existing one and the new vessel will be slightly larger than the existing one, cradles to hoist the new vessel to the slipway and a pulley to be installed on the front cradle shall be procured as components of the vessel hoisting equipment. The cradles will be moved on the rails into the water and the vessel will be slowly settle on them. Then, the vessel secured in the cradles will be hoisted to the ground with a winch. If the cradles are too tall, it will be difficult to settle the vessel on them and it can only be hoisted to the ground at the time of high tide. Therefore, the cradle shall be as short as possible. The cradles shall be designed in such a way that they can support the hull at appropriate places, with the weight of the vessel and the locations of bulkheads taken into consideration. Multiple cradles connected with chains shall be used to support the hull so that the cradles shall be at the deepest possible locations when the hoisting begins. The front cradle shall be equipped with a pulley, which is to be used when hoisting the vessel with a winch.

Table 2-6 Vessel lifting equipment

Item	Specification	Q'ty
Cradles	2.2m x 3m x 0.7m / per unit Galvanized + paint additional fitting and woods	1
Pulley	Steel	2

(3) Equipment for Workshop

Equipment sufficient and necessary for the maintenance of the vessel shall be provided to the workshop. The request of TFD received and the result of the inspection of the workshop conducted in the field survey and the plan for future assistance shall be studied comparatively to select types of equipment to be procured. Tools, such as drills, shall be selected by taking into consideration the fact that they can also be used for installing slipway rails. The equipment to be provided to the workshop shall be procured not in third countries but in Japan because equipment manufactured in Japan has been used in the workshop and TFD is requesting provision of equipment manufactured in Japan. Because all the outboard engines used in Tuvalu are those manufactured by Yamaha and Yamaha has a local agent in Tuvalu, the outboard engine maintenance kits of Yamaha shall be procured.

Table 2-7 Equipment for Workshop

Item	Specification	Q'ty
Tool box	Cabinet type	1
	Tool box type	1
Bench grinder	150mm type with down trans	1
Hand grinder	100mm type, with down trans.	2
	Spare grind stone	12
Bench Drill	For steel work 13mm type with down trans	1
	Drill bit 25 set	1
Hand drill	Vibration drill, for steel and concrete with down trans	2
	Drill bit: for steel and concrete work	1
Multi tester	Digital, 4000 count, Sanwa CD800a for ref.	2
Bench Vice		2
Arc welding machine	Portable, 130A, 1.6~5.0mm	2
Chain block	2 tons, rail type	2
Air compressor	Engine driven, 265Lit./min. 15m horse with gun	1
Water blast cleaner	Engine driven, 600Lit./h for bottom clean	1
Battery charger	Quick charger	1
Torque wrench	1~15kg	2
	10~40kg	2
Heavy duty floor jack	For 2 tons	1
Automatic welding shield	Auto mask with spare battery	2
Fuel transfer pump	Hand driven, 1 lit./cycle	1
Outboard motor tool kit	For Yamaha	1

(4) Mooring Buoy

Mooring buoy shall be provided for the ease of mooring of the vessel within an atoll. The buoy shall be of the smallest possible design for the ease of installation. The buoy shall be used exclusively for mooring the new vessel and shall not be used for mooring other vessels. MB-1 type mooring buoy equipped with fender or equivalent shall be procured with a set of metal fittings required for their installation, as this type of buoy is appropriate for the scale of the new vessel and the hydrographic characteristics (slow tidal current and small waves) of the waters in the atolls in Tuvalu. Concrete anchors required for the installation of the buoys shall be prepared by the Tuvaluan side because they are too heavy to be transported a long distance and it is easy to manufacture them.

Table 2-8 Mooring Buoy

Item	Specification	Q'ty
Mooring Buoy	MB-1 type or equivalent with fenders ϕ 1.4m x 0.9m	1
Fitting	22 mm Stud link chain, etc.	1

2-2-2-3 PMP Spare Parts Procurement Plan

As Tuvalu is far from the industrial supply chain, it takes time to procure spare parts and receive maintenance services in Tuvalu. Once a piece of important equipment in a vessel has broken down, its operation has to be suspended. Therefore, routine and systematic maintenance will be particularly important for the continuous operation of the new vessel. As no maintenance program has been formulated specifically for the existing RV Manau, makeshift measures have often been taken against breakdown and problems. The lack of a maintenance program and implementation of the makeshift measures have led to the repeated suspension of the operation of the vessel, which sometimes lasted for several months, due to equipment breakdown in recent years.

To minimize unexpected breakdown, a preventive maintenance program (PMP) shall be prepared for the new vessel before its operation begins and the staff of TFD shall be trained to conduct routine and regular maintenance on the vessel and at the workshop in accordance with the PMP. Under the policy for extending lifetime, replacement parts of the equipment on the vessel for the regular preventive maintenance shall be provided as spare parts. In practice, a set of major parts of the main engine including the cylinder heads and piston assemblies and a pump attached to the engine that will wear rapidly shall be provided. A gear box, propeller shaft seals and replacement parts of the generator shall also be provided as spare parts for PMP. It is impossible to perform a maintenance of the life raft on the existing RV Manau in Tuvalu. This life raft needs to be maintained by its manufacturer or a plant designated by the manufacturer once a year. However, the nearest designated plant is in Fiji. Therefore, the life raft of the RV Manau has regularly been sent to Fiji for maintenance and sent back to Funafuti after the maintenance. As a gas bottle for inflating the raft is installed in it, it cannot be transported by air. Therefore, it is transported to Fiji and back by the MV Nivaga III or other vessels. For the duration of the transport and maintenance of the raft, the RV Manau cannot be operated. To eliminate this suspension of the operation, the procurement of an additional life raft as a spare part for PMP and maintenance of the two rafts in turns shall be considered. The provision of a spare raft will facilitate obligatory maintenance of the rafts and enable the improvement of the safety of the vessel operation. The items mentioned below shall be provided as spare parts for PMP of the new vessel.

Main engine

Cylinder head assembly	1 engine
Piston and connecting rod assembly (with crank pin metal)	1 engine
Piston ring	1 engine
Cylinder liner assembly (with seal, ring, etc.)	1 engine
Main bearing (base and center) and thrust bearing metal	1 engine

Crank pin metal	1 engine
Connecting rod bolt	1 engine
Fuel injection pump complete	1 engine
Fuel injection valve	1 engine
Nozzle assembly	1 engine
Suction valve, Exhaust valve, valve seat and valve guide	1 engine
Governor	1 engine
Turbo charger	1 engine
Engine driven pumps (FW, SW, FO, LO)	1 engine
Tool for piston ring insert, cylinder liner withdrawing, etc.	1set
Gear box	
LO pump	1 engine
LO cooler side cover	1 engine
Main generator engine	
Cylinder head assembly	1 engine
Piston ring	1 engine
Main bearing (base and center)	1 engine
Crank pin metal	1 engine
Fuel injection pump complete	1 engine
Fuel injection valve	1 engine
Nozzle assembly	1 engine
Governor	1 engine
Turbo charger	1 engine
Engine driven pumps (FW, SW, FO, LO)	1 engine
Generator	
Ball valve	1set
Crane	
Load holding valve	1set
Sequence valve	1set
Life raft	
Life raft	1set

2-2-3 Outline Design Drawing
 2-2-3-1 General Arrangement Plan

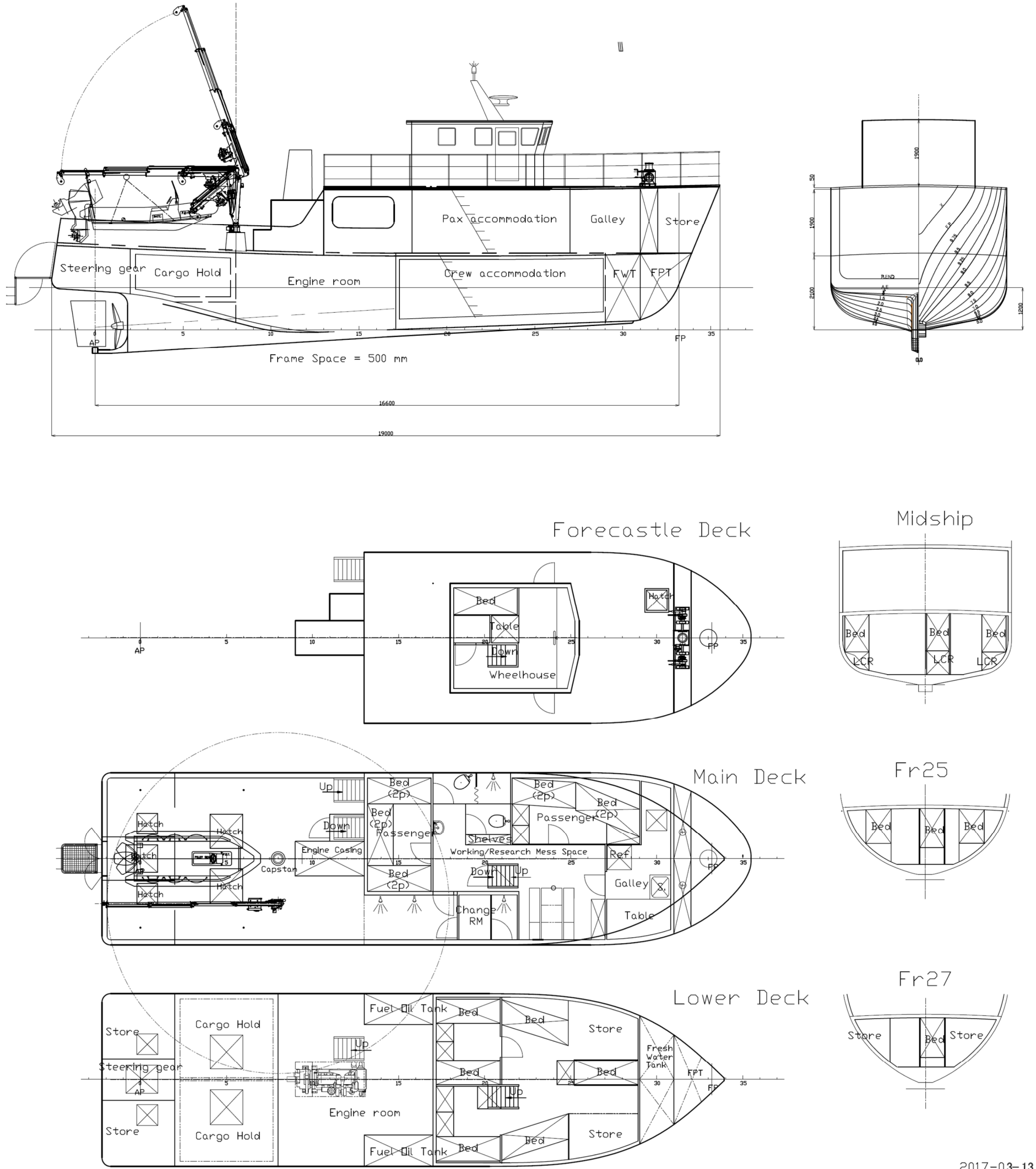


Figure 2-2 General Arrangement plan

2017-03-13

2-2-3-2 Hull lines

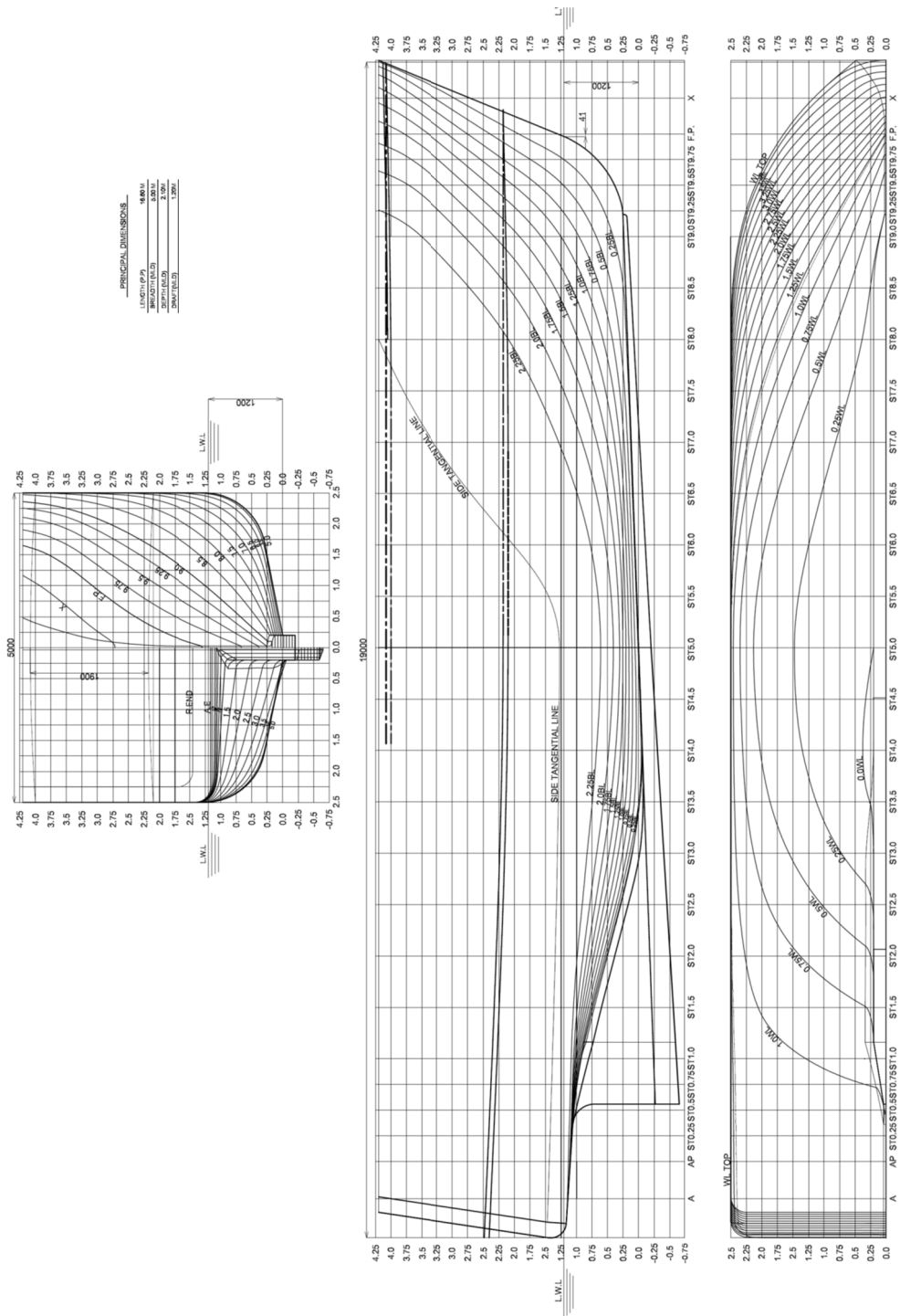


Figure 2-3 Lines plan

2-2-3-3 Machinery Arrangement

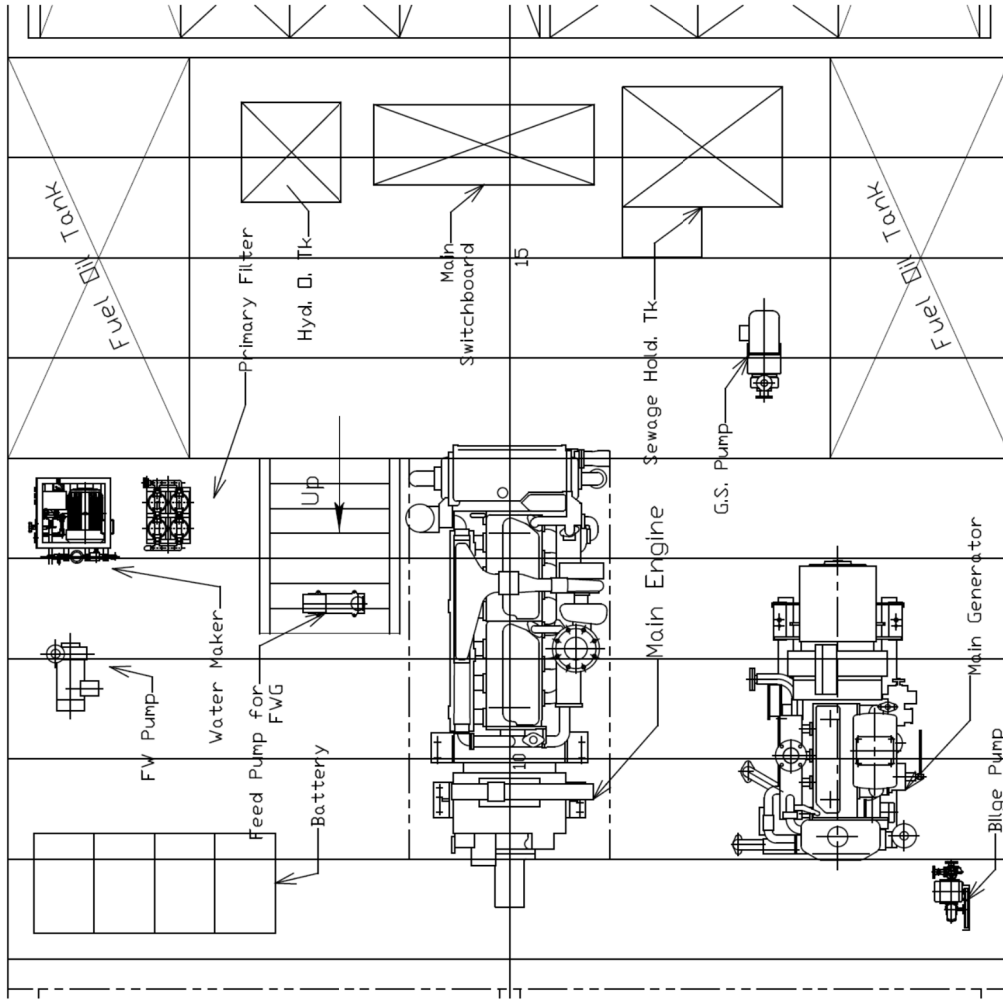


Figure 2-4 Machinery Arrangement

2-2-4 Implementation Plan

2-2-4-1 Implementation policy

(1) Procedure

The Plan vessel will be planned, documented and constructed along following procedure under the Japanese Grant Aid scheme of the Government of Japan.

- 1) Exchange of Notes between the Government of Japan and the Government of Tuvalu and Grant Agreement between Japan International Cooperation Agency (JICA) and the Government of Tuvalu, for the implementation of the Project.
- 2) Conclusion of a Consultant Agreement between a Consultant recommended by JICA and the Project Implementing Agency established by the Government of Tuvalu, for the Consultant's work to implement the Project.
- 3) Verification of the Consultant Agreement by JICA.
- 4) The Consultant prepares detail designs and draft tender documents, and obtains approval by the Government of Tuvalu. These include methods of pre-qualification, technical specifications, general arrangement plan, project cost estimates, and draft shipbuilding contract.
- 5) Based on the approved Tender Qualification procedure, the Consultant conducts Tender qualification examination, obtains the approval of the Government of Tuvalu, and selects applicants. The Applicant must be Japanese ship building firm(s).
- 6) The Consultant carries out the Tender process, in the presence of the Government of Tuvalu, and examines the Tender documents submitted by the applicants. Based on the results of the applicant evaluations, the Consultant recommends the intended contractor to the Government of Tuvalu.
- 7) The Consultant assists in contract negotiations with the Government of Tuvalu and witness the Contract.
- 8) Verification of the signed shipbuilding contract by JICA.
- 9) Based on the shipbuilding contract, the Contractor builds and conducts sea trials of the Vessel, and hand-over the Vessel and the Equipment. The Consultant, in accordance with the Consultant Agreement, provides construction supervision, conducts sea trials, and witness the hand-over of the Vessel and the Equipment.

10) The new vessel and equipment shall be transported to Funafuti in Tuvalu on freighters for the hand-over.

(2) Basic provisions related to the Project procedures

Basic items related to the Project procedures under Japan's Grant Aid scheme are as follows.

1) Line Agency and Executing Agency for the Project

The Ministry of Natural Resources (MNR) and the Fisheries Department (TFD) of MNR shall be the Line Agency of the Government of Tuvalu (GOT) and Executing Agency of this project, respectively. In principle, TFD shall perform all the practical work required for the implementation of this project including receipt of all the documents, and powers of giving permission and approval.

2) Consultant

Following the Exchange of Notes and the Grant Agreement, a Consultant Agreement will be concluded between the Government of Tuvalu and the Consultant, which is Japanese firm recommended by JICA. As the proxy of the Government of Tuvalu, the Consultant will prepare the tender documents including technical specifications and give assistance as necessary in the tender bidding and contractual phases, and further provide continuous supervision of the Vessel construction. For the purposes of carrying out this supervisory function, the Consultant will dispatch responsible engineers and outfitting experts to the shipyard, as necessary during the construction process.

3) The Plan vessel building and Equipment procurement

For the vessel building and related equipment procurement, qualification data submitted by Japanese firms will be evaluated first, and those who had passed the qualification appraisal are allowed to participate in the tender bidding. The tender is conducted along with the procedure established in advance. The successful tenderer signs the Contract for building the Vessel and procurement of related Equipment. The Contractor builds the Vessel, and conducts sea trials, procures the Equipment and transports the Vessel and the Equipment to Funafuti in Tuvalu on freighters for turnover.

4) Shipbuilding plan of the Plan vessel

To build the Vessel, the Contractor, pursuant to the contract and technical specifications, designs the hull and outfitting for building in the Contractor's yard facilities. Following preparation of the construction design by the Contractor, the Vessel shall be built along shipbuilding process: hull construction, outfitting (deck, machinery and electrical), tests, and then transport to Tuvalu. The following areas must be given careful consideration when examining the Construction Plan.

- a) As this Project is being implemented under the Japanese Grant Aid scheme, strict adherence to the construction schedule is the major premise. The building plan must be prepared so as to fulfill all contract conditions within the term validity stipulated in the Exchange of Notes.
- b) With regard to the delivery deadlines for machinery and equipment, careful consideration must

also be given to preventing disruption of the construction work flow by maintaining tight control of machinery and equipment procurement and linking the hull construction and outfitting program to delivery schedules of the relevant machinery and equipment.

- c) Various tests stipulated by the regulations on vessels of Tuvalu and the maritime regulations of Japan shall be conducted. Sea trials of the new vessel shall be conducted as stipulated in the regulations at the end of the shipbuilding process to verify its performance.
- d) After the receipt of the provisional certificate of nationality from GOT, the new vessel shall be self-navigated or transported on a barge from a dock of the shipbuilding contractor to the nearest large-scale port. The new vessel shall be loaded on a freighter at this port and transported to Funafuti. To prevent damage during the transport, the mast shall be dismantled from the vessel or retracted and on-board equipment such as radar equipment shall be dismantled from the vessel and stored in the vessel. If the vessel has to be transferred to another freighter in Fiji, an engineer of the shipyard shall oversee the transfer. After the absence of damage to the vessel during the transport has been confirmed in Funafuti, the dismantled equipment shall be reinstalled on the vessel. After the reinstallation, a verification run of the vessel shall be conducted in the waters of Tuvalu. Then, the final inspection of the vessel shall be conducted before the handover of the vessel to GOT.

5) Procurement plan of the Equipment

The contractor for the procurement shall procure the Equipment required for the operation and maintenance of the new vessel in accordance with the contract and the technical specifications attached thereto. The procured equipment shall be transported to a major cargo port. When all the procured equipment has arrived at the port, it shall be loaded in containers and transported to Funafuti.

6) Dispatch of engineers

The shipyard that has constructed the new vessel shall dispatch two engineers (in the deck and engine room outfitting) to Tuvalu to oversee the equipment reinstallation after the transport and the verification run before the handover of the new vessel. They shall also provide necessary technical guidance on ship handling, engine operation and maintenance of the vessel and its equipment. Another engineer of the same shipyard shall be dispatched to Tuvalu for 0.7 months to provide guidance on the rail replacement. The above-mentioned engineer in the engine room outfitting shall also participate in this rail replacement.

2-2-4-2 Special consideration with regard to Construction and Procurement

- a) The procedure of hull assembly and outfitting should be established taking into consideration of the Vessel layout and special features.
- b) For those materials, machinery and equipment, whose delivery is not very firm, delivery possibility should be followed up frequently and reflect the change in the work schedule promptly.
- c) Quay tests for various machinery and equipment and sea trials should be in detail planned and included in the work schedule.
- d) The work schedule should be regularly (at least once in a week) followed up and updated.

2-2-4-3 Scope of Works

Scope of Works at Japanese side and Tuvalu side are generally as follows.

- a) Building of the Vessel, procurement of the Equipment and their transportation from Japan to Tuvalu are all undertaken by the Japanese side.
- b) Tuvalu side is to undertake arrangement of all licenses and certificates necessary for the execution of the Project.
- c) Tuvalu side is to undertake arrangement of the facility for PMP spare parts for the new vessel.

After completion of the delivery of the new vessel in Tuvalu, Tuvalu side is to undertake all arrangements necessary to operate the Vessel, i.e. crew, operator, running costs, hull insurance, government subsidy, etc., to operate the Vessel safely and smoothly.

Following is the further breakdown of the works at Japanese side and Tuvalu side.

(1) Scope of work at Japanese side

The followings are the scope of work at Japanese side, as the Project under the Japan's Grant Aid scheme.

- Design and construction of the new vessel.
- Procurement of the related equipment for the Project.
- Transportation of the new vessel and the equipment on a freighter from Japan to Funafuti, Tuvalu.
- Consultant services for detail design, assistance in tender and supervision during shipbuilding and equipment procurement.

(2) Scope of work at Tuvalu side

The followings are the scope of work at Tuvalu side.

(Arrangement during implementation of the Project)

- Conclusion of Banking Arrangement with an authorized foreign exchange bank in Japan, issuance of a authorization to pay, and bearing necessary commissions to the bank, for the contracts verified by JICA in relation with this Project
- Acquisition of approval and licenses including the radio station license and provisional certificate of nationality from GOT required for the construction and sea trials of the new vessel in Japan

(Arrangements when each vessel has arrived at Tuvalu)

- Exemption of the new vessel and equipment from customs duties, internal taxes and fiscal levies, and prompt customs clearance.
- Exemption of Japanese nationals from customs duties, internal taxes and fiscal levies for their services in Tuvalu.

(Installation of equipment)

- Installation of the mooring buoy and removal of the existing rails and installation of replacement rails on the slipway

(Shore facilities in Tuvalu)

- Preparation of parts store in Funafuti for large spare parts of the new vessel.

(Other)

- Any other items which are not covered under the Project.

2-2-4-4 Consultant Supervision

(1) Basic Concept of the Consultant Supervision

The basic policy for the Consultant's work, including verification of the compliance of the shipbuilding and procurement schedules prepared by the respective contractors with the grant aid assistance scheme of Japan, preparation of shipbuilding and procurement supervision plans based on the contractors' schedules, inspection of the shipbuilding process for the compliance with the drawings, specifications and quantities stipulated in the contract documents, schedule management and supervision of the execution of the shipbuilding and procurement, is described below.

(a) Approvals of drawings and technical specification

The Consultant should examine, approve and/or gives instructions to correct the construction plan, work schedule, production design drawings and specifications promptly, and should reply to the questions from the Contractor promptly as well, so as to prevent disruption in the project schedule.

(b) Work schedule supervision

The Consultant should always grasp progress of the work schedule, and order whenever necessary to adjust working schedule to ensure on-time completion.

(c) Quality inspection

Along with building progress, the supervisor(s) in charge of outfitting and equipment should be dispatched for the necessary periods to workshops and the shipyard to inspect construction at site, checking machinery and outfitting work with the contract drawings, specifications, and approval documents. The supervisor(s) should conduct inspections of the equipment and outfitting work, based on the approved test procedure and the Contractor's in-house standards.

(d) Turnover business

After transporting the new vessel and the Equipment to Funafuti, Tuvalu, the Consultant should be present at all inspections at the wharf and issue the certification documents required for local turnover.

(e) Construction report

The Consultant should make monthly reports on construction progress and schedules work for the succeeding month, appending factory photos. These reports should be submitted to both the Government of Tuvalu and JICA.

(2) Supervisory arrangement

The Consultant should establish a project team consisting of the project manager, naval architect, outfitting staff, machinery staff, electric staff, joiner work staff and equipment procurement staff, and prepare implementing detail design and exercise supervision over the construction and procurement activities.

2-2-4-5 Quality Control Plan

Quality control of raw materials and installed machinery/equipment for the new vessel and the equipment for the Project should be conducted as follows.

Table 2-9 Quality Control Plan

Items		Quality control
Materials	FRP materials	JIS-certified glass fiber base materials and the fiber base materials and resins compliant with the provisional standards for FRP vessels shall be used.
	Piping materials and valves	JIS-certified piping materials and valves shall be procured.
	Wood materials	The Consultant shall inspect wood materials when they are delivered to the shipyard.
	Fireproof structural materials	Fireproof bulkhead and liner materials, fireproof insulating materials and fireproof doors compliant with the maritime regulations of Japan whose prototypes have already be tested and approved shall be used for constructing fireproof structures in the living quarters.
On board equipment and outfitting	Diesel engine	Diesel engines whose detailed designs are compliant with the maritime regulations of Japan, whose prototypes have already been tested and approved by the Ministry of Land, Infrastructure, Transport and Tourism of Japan and that have been manufactured in a plant approved by the same ministry shall be used. The component force measurement test of the completed engines including a test in an overload condition shall be conducted on a test table in the manufacturer's plant.
	Auxiliaries	Equipment of JIS-compliant designs shall be installed. The Consultant shall conduct an inspection while the vessel is being constructed in the shipyard. In case of applicable, 3quipment of detailed designs compliant with the maritime regulations of Japan and type-approved by Nippon Hakuyohin Kentei Kyokai (HK) on behalf of GOJ shall be installed.
	Firefighting and lifesaving equipment	Equipment of detailed designs compliant with the maritime regulations of Japan and type-approved by Nippon Hakuyohin Kentei Kyokai (HK) on behalf of GOJ shall be installed.
	Inventories	Statutory equipment type-approved by HK on behalf of GOT shall be installed.
	Deck outfitting	Deck fittings of JIS-compliant designs shall be installed. The Consultant shall conduct an inspection while the vessel is being constructed in the shipyard.
Equipment	Rails	Replacement rails and cradles made of JIS-certified materials shall be procured and installed.
	Workshop equipment	Equipment appropriate for the services provided in the workshop shall be selected from the workshop equipment widely available in the Japanese market.

Because the new vessel is a small vessel for domestic services, the Nippon Kaiji Kyokai has never inspected a FRP vessel and there is no regulation that requires an owner of a vessel to obtain a classification certificate for it, such certificate will not be obtained for the new vessel. The survey of the vessel to be required in Tuvalu shall be conducted with the following procedure: The Consultant will submit drawings for approval to the relevant authority of Tuvalu as required and respond to the comments on the drawings of the authority requiring a response while the vessel is being built. An inspector of the Ministry of Communications and Transport of Tuvalu (MCT) will be invited to the sea trial of the vessel to conduct the final inspection with the cost paid by the shipbuilder from the budget for inspection. The Survey Team and MCT have agreed that MCT shall instruct the Consultant and shipbuilder about the changes in relevant regulations while the vessel is being built. The above-mentioned procedure is almost the same as the one taken when a cargo-passenger vessel was provided to Tuvalu in the past. The preliminary inspection prescribed by the Ministry of Land, Infrastructure, Transport and Tourism of Japan shall be conducted on the vessel while it is being built (though the ministry will not issue any certificate for the new vessel because it will not sail under the Japanese flag).

2-2-4-6 Procurement Plan

Machinery and equipment to be on board the Vessel and associated Equipment will be in general of Japanese products, which are stable in quality, delivery and price.

2-2-4-7 Operational Guidance Plan

(1) Operation training

Three engineers (captain, chief engineer and engineer) are invited to Japan from Tuvalu to have operation training from shipyard engineers and maker engineers, approx. 0.5 months before the completion of the construction of the new vessel. All necessary costs, i.e. airfare, domestic transport, accommodation, daily allowance and insurance, are to be borne by the shipbuilder as a part of the shipbuilding contract.

(2) Guarantee engineer

Engineer dispatched for turning-over of the new vessel, shall be engaged as the guarantee engineers to cope with machinery malfunctions which usually concentrate in the early time after the delivery. Those engineers will be given instructions on PMP, operation of machinery, system and maintenance as far as possible.

2-2-4-8 Soft Component (Technical Assistance) Plan

No soft component and technical assistance are included in the Project.

2-2-4-9 Implementation Schedule

(1) Portion of work at Tuvalu side for the Project during construction and procurement stage

After the shipbuilding and equipment procurement contracts, the project implementation does not rely on the

work to be shared by Tuvalu side, except for national licenses, e.g. the Radio Station License and the Provisional Certificate of Nationality, which must be issued by the Government of Tuvalu. Undertakings at Tuvalu side are the works necessary for the operation of the Plan vessel including preparation of spare parts store.

(2) Detail of building schedule of the Plan vessel

In building the Plan vessel, the shipbuilding Contractor first carries out production designs of hull structures and various outfitting based on the contract and associated technical specifications, and besides based on the shipbuilder's own facility. With the completed production design drawings, hull construction, deck outfitting, machinery outfitting and electric outfitting follow as below.

a) Hull construction

A hull that has the buoyancy required of a structural part of the vessel and the strength sufficient to withstand external force including that of waves shall be constructed. This process usually consists of manufacturing of a wooden frame for the construction of an FRP hull, manufacturing of the FRP hull and assembly of the hull on a slipway.

b) Deck outfitting

Outfitting shall be performed after the completion of the hull construction. It shall include the installation of the mooring, steering, sanitary, lifesaving, firefighting and cargo handling equipment and equipment in the living quarters.

c) Machinery outfitting

The engine room outfitting shall include the installation and fitting of the main engine, power generation system/generator and various pumps, installation of accessory equipment of the above-mentioned equipment and piping work.

d) Electric outfitting

This work is for installation of electric apparatus, control panels, etc. and for electric cable installation to supply electric power to all electric equipment on board.

e) Transport

After the completion of the construction in the shipyard and required sea trials, the new vessel shall be self-navigated or transported on a barge to a international port near the shipyard. The new vessel shall be loaded on a freighter at the intenational port and transported to Funafuti in Tuvalu. Meanwhile, the procured equipment shall be transported to a major port in Japan. When all procured equipment has arrived at the port, it shall be loaded in containers and transported to Funafuti in Tuvalu. The contractor for the shipbuilding shall be responsible for the transport as a condition stipulated in the shipbuilding contract.

Implementing schedule of the Vessel is as shown below.

Table 2-10 Implementing schedule overview

From Exchange of Notes/Grant Agreement to the Contract	From the Contract to the completion of construction work	Preparation of the transport, local inspection and turn-over	Total schedule From the Contract to turn-over to Tuvalu
8 months	16.0 months	2.5 months	26.5 months

The projected building schedule of the Vessel is shown on the next page.

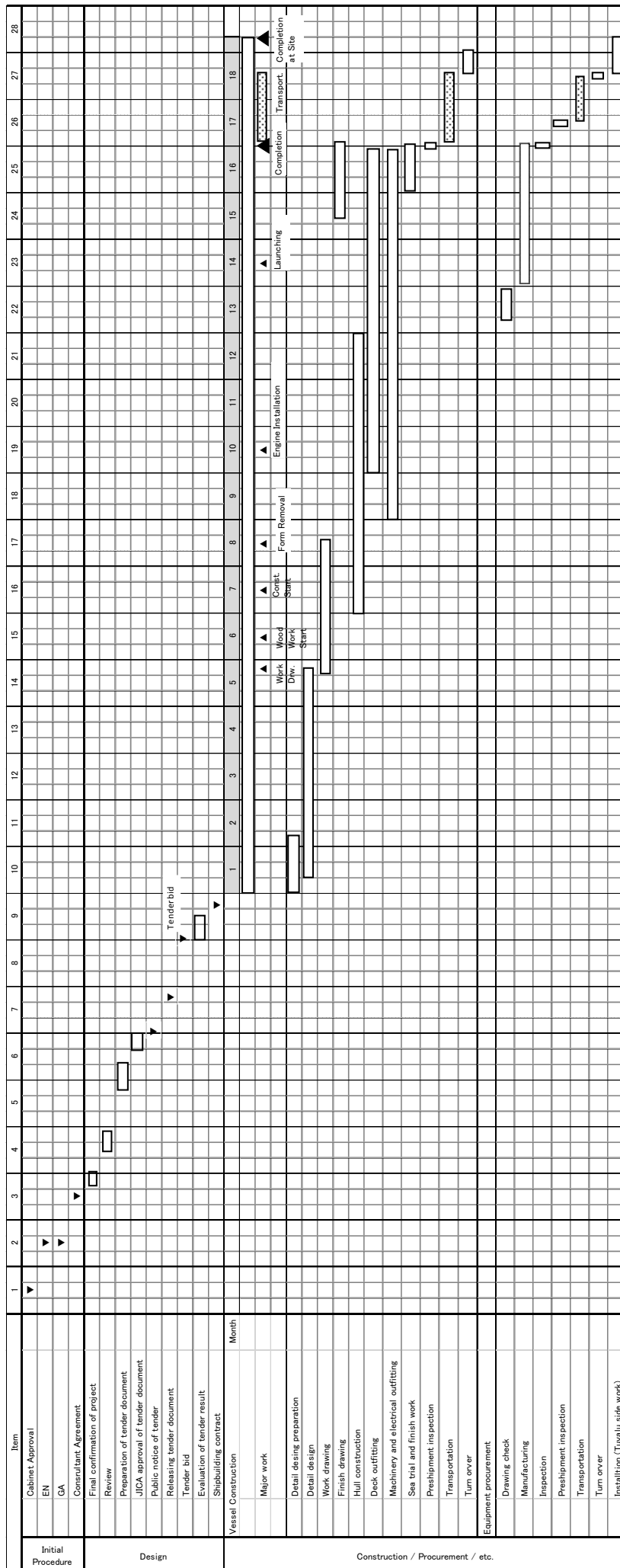


Figure 2-5 Project schedule

2-3 Obligations of the Recipient Country

Since the construction of the new vessel and procurement of equipment shall be performed exclusively in Japan, GOT will have no obligation in the construction or the procurement. Since the existing ground facilities will be used as they are for the operation of the new vessel, GOT shall have no obligation concerning the operation of the new vessel.

GOT shall have to secure the places for the installation of mooring buoy and manufacture and install concrete anchors for the places where they are needed. It is an obligation of GOT to remove the existing rails and install replacement rails on the slipway.

In addition, GOT shall be responsible for various types of office work, operation and maintenance of the vessel, tax exemption and banking procedures including payment of commissions as referred to in the Minutes of Discussion signed on January 18, 2018.

2-4 Project Operation Plan

2-4-1 Vessel operation body

TFD shall be responsible for the management of the operation of the new vessel. The department comprises Oceanic Fisheries, Coastal Fisheries and Operation & Development (O&D) Divisions under the supervision of the Director. The new vessel shall be managed by the O&D Division. The O&D Division comprises the three units responsible for the workshop, RV Manauai and training & development, respectively. After the new vessel is commissioned, it will replace the RV Manauai.

The O&D Division shall formulate and implement an integrated operation and assignment plan of the new vessel. The plan shall be prepared not to put too much workload on the new vessel. The plan shall allocate a sufficient number of days to the required maintenance and repair work on the vessel in the slipway of TFD.

Almost all the positions of the senior crew members of the deck and engine departments including the captain and chief engineer and ratings of the new vessel shall be filled by the transfer of the crew of the RV Manauai and from the RV Tala Moana. As Tuvalu has a seafarer training institute, there will be no major problem in employing ratings.

2-4-2 Vessel maintenance

TFD shall also formulate and implement an integrated plan for the maintenance of the new vessel. The crew of the vessel and engineers of the workshop shall perform the routine maintenance of the vessel. TFD has an on-shore workshop, where the RV Manauai has been maintained and repaired without problems. A PMP for the new vessel shall be established in accordance with the procedure mentioned below to reduce faulty maintenance and breakdowns due to wear and tear of parts.

- 1) Maintenance programs (weekly, monthly and annual): Programs consisting of not only the maintenance of each piece of equipment, but also daily corrosion-prevention care shall be prepared.
- 2) Replacement parts required for PMP shall be procured.
- 3) Tools required for PMP shall be procured.
- 4) The captain, chief engineer and other engineers of the new vessel shall be invited to Japan and provided with the training on the PMP before the completion of the construction of the vessel.

2-5 Project Cost Estimation

2-5-1 Initial Cost Estimation

All shipbuilding cost including transportation of the new vessel and the related equipment from Japan to Funafuti is to be borne by the Japan side. As no shore facility which need be newly erected by the Tuvalu side is intended, the cost which the Government of Tuvalu has to bear will be for the bank commission and charges, installation fee of replacement rails and mooring buoy estimated about AUD27,000.

(1) Cost at the Japan side

The cost is not disclosed hereupon keeping confidential until completion the shipbuilding contract through the tender process.

(2) Cost at the Tuvalu side

- 1) Bank commission approx. 5,500AU\$
- 2) Installation and replacement of rails and buoy approx. 22,000AU\$

(3) Conditions of Estimation

- 1) Time of estimate January 2018
- 2) Exchange rate US\$1.00 = ¥113.97, AU\$1.00 = ¥88.85
- 3) Construction period The time schedule for carrying out the detailed design, construction, procurement of equipment is as shown on the Project Implementation Schedule.
- 4) Others The plan will be implemented in accordance with the grant aid scheme of the Japanese Government.

2-5-2 Operation and Maintenance Cost

Because no large expenses are expected for the operation of the new vessel for a while after being commissioned, except in the case of initial failure, the maintenance cost can be reduced. TFD has inspected and maintained the RV Manauai regularly every year on its slipway. TFD not only performs basic maintenance work but replaces a main engine and nautical instruments and repairs the hull of the vessel on the slipway. It will be possible to operate the new vessel appropriately if it is inspected and maintained regularly with appropriate budget allocation in the same way as the RV Manauai has been. TFD spent 7,999 AUD (667,000 JPY) for the maintenance of the RV Manauai in 2016. As only expenses for basic maintenance work such as the replacement of lubricant oil filters and oil and application of anticorrosive zinc will be required for the maintenance of the new vessel, the maintenance cost is expected to be approx. 6,000 AUD (500,000 JPY).

CHAPTER 3. Project Evaluation

3-1 Precondition

As this project is for the provision of a vessel, it has no specific precondition for the implementation, such as land acquisition.

3-2 Necessary Inputs by Recipient Country

As the shipbuilding and procurement of associated equipment are to be conducted in Japan, the Tuvaluan side shall provide the following necessary inputs:

(Administrative procedures during the project implementation)

- ① Conclusion of a banking agreement with a Japanese bank, issuance of authorization to pay and payment of commissions for the above-mentioned procedures for the implementation of this project
- ② Acquisition of licenses and permits required to be issued in Tuvalu for the building and transport of the vessel, including the radio station license and provisional certificate of registry

(Procedures after the arrival of the vessel in Tuvalu)

- ③ Exemption from the customs duties, taxes including value added tax and other levies on the vessel and associated equipment to be imported into Tuvalu and quick customs clearance
- ④ Domestic transport in Tuvalu and installation in facilities of the procured equipment
- ⑤ Exemption from taxes and levies on service provision by the Japanese involved in the project in Tuvalu

(Development of associated facilities)

- ⑥ Preparation of a warehouse to store spare parts
- ⑦ Installation of the replacement rails, vessel lifting equipment, equipment for the workshop and mooring buoy (including preparing anchor)

(Others)

- ⑧ Other matters required for the implementation of this project that are not included in the scope of responsibilities of the Government of Japan

3-3 Important Assumptions

There is no important assumption for the realization and maintenance of the project effects other than exceptional events such as radical political change and unexpected natural disaster in Tuvalu.

3-4 Project Evaluation

3-4-1 Relevance

A study was conducted on the relevance of implementing this project under the grant aid assistance of the Government of Japan. The following are its findings.

- 1) While “Te Kakeega - III, National Strategy for Sustainable Development 2016 to 2020” formulated in 2016 states “Natural Resources” as one of the twelve strategic areas in the development and more specifically, advocates the need for further development of the fisheries, this project is expected to contribute to the development of the fisheries.
- 2) This project is expected to contribute to the improvement of the sea transport mentioned in the chapter, “5. Falekaupule and Island Development,” of “Te Kakeega - III, National Strategy for Sustainable Development” and “Fakafoou – to Make New - Tuvalu Infrastructure Strategy and Investment Plan” that was prepared in 2017.
- 3) This project is relevant to one of the visions in the Leaders’ Declaration at the Eighth Pacific Islands Leaders Meeting (held in May 2018), “Maritime Order based on the Rule of Law and Sustainability of Ocean Resources.”
- 4) The Government of Japan mentions “sustainable economic development” as one of the priority areas of its assistance to Tuvalu and states that the “Program for Economic Infrastructure Development and Improvement of Management and Maintenance” is to be implemented in its Country Assistance Policy for Tuvalu (December 2012).

Based on the above-mentioned findings, the Survey Team concludes that the relevance of this project is high.

3-4-2 Effectiveness

(1) Quantitative Effects

The provision of the new vessel is expected to solve the problem of long-term suspension of the sea transport services resulting from the frequent breakdown of the old and deteriorated RV Manau and increase the numbers of days on which such services are available. The installation of facilities for passengers including cabins will make it possible for them to stay a night in the vessel while it is anchored at a remote island and eliminate the need to leave the vessel every night. The renewal of old and

deteriorated equipment is expected to reduce the maintenance cost. Based on the above-mentioned expectations, it has been decided to use the indicators mentioned below to evaluate the quantitative effects of this project.

Table 3-1 Indicators of quantitative effects

Indicator	Baseline value (actual value in FY 2016-17)	Target value (2024) 【 three years after the completion of the project】
Number of days at sea per year	111	150
Number of overnight moorings and stays per year	0	100
Number of out-of-order mooring days per year	14	2
Reduction in the operating and maintenance costs per year (in AUD)	7,999	6,000

(2) Qualitative Effects

The following qualitative effects are expected from the implementation of this project.

- Safety and comfort on board will be improved.
- Efficiency of the work on board will be improved.
- The convenience of Tuvaluan nationals travelling between Funafuti and remote atolls will be improved.

For the positive effects mentioned above, this project is expected to be effective.

[Appendices]

1. Member List of the Study Team
2. Study Schedule
3. List of Parties Concerned in the Recipient Country
4. Minutes of Discussions
5. Reference

1.Member List of the Study Team

1-1 Field Survey

Title	Name and Organization	
Team Leader	Mr. Nariaki MIKUNI	Senior Assistant Director Team 2, Agricultural and Rural Development Group 1 Rural Development Department Japan International Cooperation Agency
Project Manager / Hull Design	Mr. Shuhei SOEDA	Fisheries Engineering Co., Ltd.
Hull and Machinery Design	Mr. Akio MARUYAMA	Fisheries Engineering Co., Ltd.
Equipment and procurement planning / Cost estimation	Mr. Akio YAMADA	Fisheries Engineering Co., Ltd.
Management and Maintenance planning	Ms. Yuka AKAI	Fisheries Engineering Co., Ltd.

1-2 Draft Outline Design Survey

Title	Name and Organization	
Team Leader	Mr. Nariaki MIKUNI	Senior Assistant Director Team 2, Agricultural and Rural Development Group 1 Rural Development Department Japan International Cooperation Agency
Project Manager / Hull Design	Mr. Shuhei SOEDA	Fisheries Engineering Co., Ltd.
Hull and Machinery Design	Mr. Akio MARUYAMA	Fisheries Engineering Co., Ltd.

2. Study Schedule

2-1 Field Survey

	2018		Project Manager / Hull Design	Hull and Machinery Design	Equipment and procurement planning / Cost estimation	Management and Maintenance planning	JICA
1	7, Jan.	Sun	Tokyo→				
2	8, Jan.	Mon	→Nadi→Suva Meeting with JICA Fiji Office				
3	9, Jan.	Tue	Suva→Funafuti Meeting with Fisheries Department				
4	10, Jan.	Wed	Visit to RV Manau, Slipway and RV Tala Moana Meeting with the Ministry of Communication and Transport (Licenses and regulations) Meeting with Director of Fisheries Department				
5	11, Jan.	Thu	Meeting with Oceanic Fisheries Division Site survey (MV Manau and Slipway)				
6	12, Jan.	Fri	Meeting with Oceanic Fisheries Division and the staff of NAPA II				
7	13, Jan.	Sat	Data analysis Site survey (Slipway)				
8	14, Jan.	Sun	Internal Meeting				Tokyo→
9	15, Jan.	Mon	Data collection from Fisheries Department				→Nadi→Suva
10	16, Jan.	Tue	Meeting with the Ministry of Natural Resources, Fisheries Department and the Ministry of Communication and Transport Site survey (RV Manau, Slipway and Workshop and related facilities)				Suva→ Funafuti
11	17, Jan.	Wed	Internal Meeting Meeting with Fisheries Department and preparation of Minutes of Discussions				
12	18, Jan.	Thu	Signing of the Minutes of Discussions Data collection				Funafuti→ Suva
13	19, Jan.	Fri	Data collection Technical Meeting with Fisheries Department				
14	20, Jan.	Sat	Internal Meeting				Suva→Nadi
15	21, Jan.	Sun	Internal Meeting				Nadi→Tokyo
16	22, Jan.	Mon	Data Collection Meeting with Project Manager of Outer Island Infrastructure Project Meeting with Director of Fisheries Department				
17	23, Jan.	Tue	Meeting with the Ministry of Communication and Transport (Licenses and regulations)				
18	24, Jan.	Wed	Final Meeting with Director of Fisheries Department Report to the Minister and Permanent Secretary of Natural Resources				
19	25, Jan.	Thu	Funafuti→Suva Report to Japanese Embassy and JICA Fiji Office Suva→Nadi				
20	26, Jan.	Fri	Nadi→Tokyo				

2-2 Draft Outline Design Survey

	2018		Consultant	JICA
1	26, Aug.	Sun	Tokyo→Nadi	
2	27, Aug.	Mon	Nadi→Suva Meeting with JICA Fiji Office	
3	28, Aug.	Tue	Suva→Funafuti Courtesy call to the Ministry of Natural Resources Explanation of Draft report to Fisheries Department	
4	29, Aug.	Wed	Signing of the Minutes of Discussion	
5	30, Aug.	Thu	Technical discussion with Fisheries Department	Funafuti→suva→Nadi
6	31, Aug.	Fri	Technical discussion with Fisheries Department	Nadi→Tokyo
7	1, Sept.	Sat	Internal meeting	
8	2, Sept.	Sun	Internal meeting	
9	3, Sept.	Mon	Final Discussion with Fisheries Department	
10	4, Sept.	Tue	Flight cancel	
11	5, Sept.	Wed	Funafuti→Suva	
12	6, Sept.	Thu	Report to Japanese Embassy and JICA Fiji Office Suva→Nadi	
13	7, Sept.	Fri	Nadi→Tokyo	

3. List of Parties Concerned in the Recipient Country

Name	Title and organization
【Ministry of Natural Resources】	
Ms. Paukena Boreham	Minister of Natural Resources
Mr. Nikolasi Apinelu	Permanent secretary, Ministry of Natural Resources
【Ministry of Communication and Transport】	
Mr. Monise Tuivaka Laafai	Minister of Communication and Transport
Mr. Taasi Falesa Pitoi	Director Marine and Port Services, Ministry of Communication and Transport
【Fisheries Department】	
Mr. Sam Finikaso	Director, Fisheries Department, Ministry of Natural Resources, Tuvalu
Ms. Fulitua S TEALEI	Deputy Director, Fisheries Department, Ministry of Natural Resources
Mr. Semese Alefaio	Principal fisheries officer, Coastal section, Fisheries Department
Mr Tupulaga Poulasi	Principal fisheries officer, Operation & Development Section, Fisheries Department
Mr. Viliamu Pataia	Training & Development officer
Mr. Nelly Seniola	National Fisheries Project Officer (NAPA II)
Ms. Matelina Stuart	Fisheries Information Officer, Fisheries Department
Ms. Pafini Fepuali	Fisheries Officer, Operation & Development Section, Fisheries Department, Ministry of Natural Resources
【Advisor of Fisheries Department】	
Mr. Garry Preston	Advisor for Director of Fisheries Department
Ms. Ursula Kaly	Advisor/PhD, Tuvalu Fisheries Department
【Crew of RV Manau】	
Mr. Koloa Toafaga	Skipper
Mr. Ielemia Saitala	Chief Engineer
Mr. Simon Salesa	Chief Mate
Mr. Limasene OLikene	Bosun
Mr. Penani Tumau	Able seaman
Mr. Ofeni Fuli	Able seaman
Mr. Kokea Toaki	Cook
【Wrokshop】	
Mr. Aso V.Lesaa	Chief Mechanical Foremen, (Chief of Workshop)
Mr. Fulo. O.	Workshop

【Japanese Embassy in Fiji】	
Mr. Masahiro Omura	Ambassador Extraordinary and Plenipotentiary
Mr. Tsuguyoshi Hada	Counsellor & Deputy Chief of Mission
Mr. Genta Yamada	First Secretary
Mr. Masataka Mizutani	Second Secretary
【JICA Fiji Office】	
Ms. Yukari Ono	Resident Representative
Mr. Shinya Tamio	Deputy Resident Representative
Ms. Atsumi Kani	Project Formulation Advisor for Regional Infrastructure
【OFCF】	
Mr. Tetsuro Sakonjyu	Technical Expert
Mr. Toma Hayashi	Fisheries Technical Expert

4. Minutes of Discussions

4-1 Field Survey

**Minutes of Discussions
on the Preparatory Survey for the Project for
Construction of the Multi-purpose Vessel for Outer Island Development
in Tuvalu**

In response to the request from the Government of Tuvalu, the Government of Japan decided to conduct a Preparatory Survey for the Project for Construction of the Multi-purpose Vessel for Outer Island Development (hereinafter referred to as “the Project”), and entrusted the Preparatory Survey to Japan International Cooperation Agency (hereinafter referred to as “JICA”).

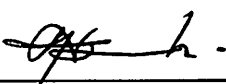
JICA sent the Preparatory Survey Team for the Outline Design (hereinafter referred to as “the Team”) to Tuvalu, headed by Mr. Nariaki MIKUNI, Senior Assistant Director, Rural Development Department, JICA, and is scheduled to stay in the country from January 9 to 25, 2018.

The Team held a series of discussions with the officials concerned of the Government of Tuvalu, and conducted a field survey in the Project area. In the course of the discussions, both sides have confirmed the main items described in the attached sheets. The Team will proceed to further works and prepare the Preparatory Survey Report.

Funafuti, January 18, 2018



Mr. Nariaki MIKUNI
Leader
Preparatory Survey Team
Japan International Cooperation Agency
Japan



Mr. Nikolasi Apinelu
Permanent secretary,
Ministry of Natural Resources
Government of Tuvalu

ATTACHEMENT

1. Objective of the Project

The objective of the Project to assist the Fisheries Department to deliver its annual work plan (fisheries resource assessment and monitoring, fishing technology / post-harvest training and FAD deployment) authorized by Cabinet and improve marine navigation and safety by construction of the Multi-purpose Vessel for Outer Island Development, thereby developing fisheries sector and maintaining marine transportation service.

2. Title of the Preparatory Survey

Both sides confirmed the title of the Preparatory Survey as “the Preparatory Survey for the Project for Construction of the Multi-purpose Vessel for Outer Island Development”.

3. Project Site

Both sides confirmed that the site of the Project is in Funafuti, which is shown in Annex 1.

4. Line Agency and Executing Agency

Both sides confirmed the line agency and executing agency as follows:

- 4-1. The line agency is Ministry of Natural Resources, which would be the agency to supervise the executing agency.
- 4-2. The executing agency is Fisheries Department. The executing agency shall coordinate with all the relevant agencies to ensure smooth implementation of the Project and ensure that the undertakings are taken by relevant agencies properly and on time. The organization charts are shown in Annex 2.

5. Items requested by the Government of Tuvalu

- 5-1. As a result of discussions, both sides confirmed that the items requested by the Government of Tuvalu are shown in Annex 3.
- 5-2. JICA will assess the feasibility of the above requested items through the survey and will report findings to the Government of Japan. The final scope of the Project would be decided by the Government of Japan.

6. Procedures and Basic Principles of Japanese Grant

6-1. The Tuvaluan side agreed that the procedures and basic principles of Japanese Grant as described in Annex 4 shall be applied to the Project.

As for the monitoring of the implementation of the Project, JICA requires Tuvaluan side to submit the Project Monitoring Report that the form is attached as Annex 5.

6-2. The Tuvaluan side agreed to take the necessary measures, as described in Annex 6, for smooth implementation of the Project. The contents of the Annex 6 will be elaborated and refined during the Preparatory Survey and be agreed in the mission dispatched for explanation of the draft Preparatory Survey Report.

The contents of Annex 6 will be updated as the Preparatory Survey progresses, and eventually will be used as an attachment to the Grant Agreement.

7. Schedule of the Survey

7-1. The Team will proceed with further survey in Tuvalu until January 25, 2018.

7-2. JICA will prepare a draft Preparatory Survey Report in English and dispatch a mission to Tuvalu in order to explain its contents around June, 2018.

7-3. If the contents of the draft Preparatory Survey Report is accepted and the undertakings for the Project are fully agreed by the Tuvaluan side, JICA will finalize Preparatory Survey Report and send it to Tuvalu around August, 2018.

7-4. The above schedule is tentative and subject to change.

8. Environmental and Social Considerations

8-1. The Tuvaluan side confirmed to give due environmental and social considerations during implementation of the Project, and after completion of the Project, in accordance with the JICA Guidelines for Environmental and Social Considerations (April, 2010).

8-2. The Project is categorized as C because the Project is not located in a sensitive area, nor has it sensitive characteristics, nor falls it into sensitive sectors under the Guidelines, and its potential adverse impacts on the environment are not likely to be significant.

9. Other Relevant Issues

9-1. Operation and Maintenance for the vessel

The Tuvaluan side shall allocate necessary human resources to operate and maintain the vessel and to accomplish the aims of the Project.

9-2. Securing Budget by the Government of Tuvalu for the project

The Tuvaluan side shall secure necessary budget to cover the cost for taking necessary major undertaking to be covered by Tuvaluan side for the Project.

9-3. Questionnaire

Fisheries Department shall answer to the Questionnaire submitted by the Team with relevant documents by the end of the survey.

Annex 1 Project Site

Annex 2 Organization Chart

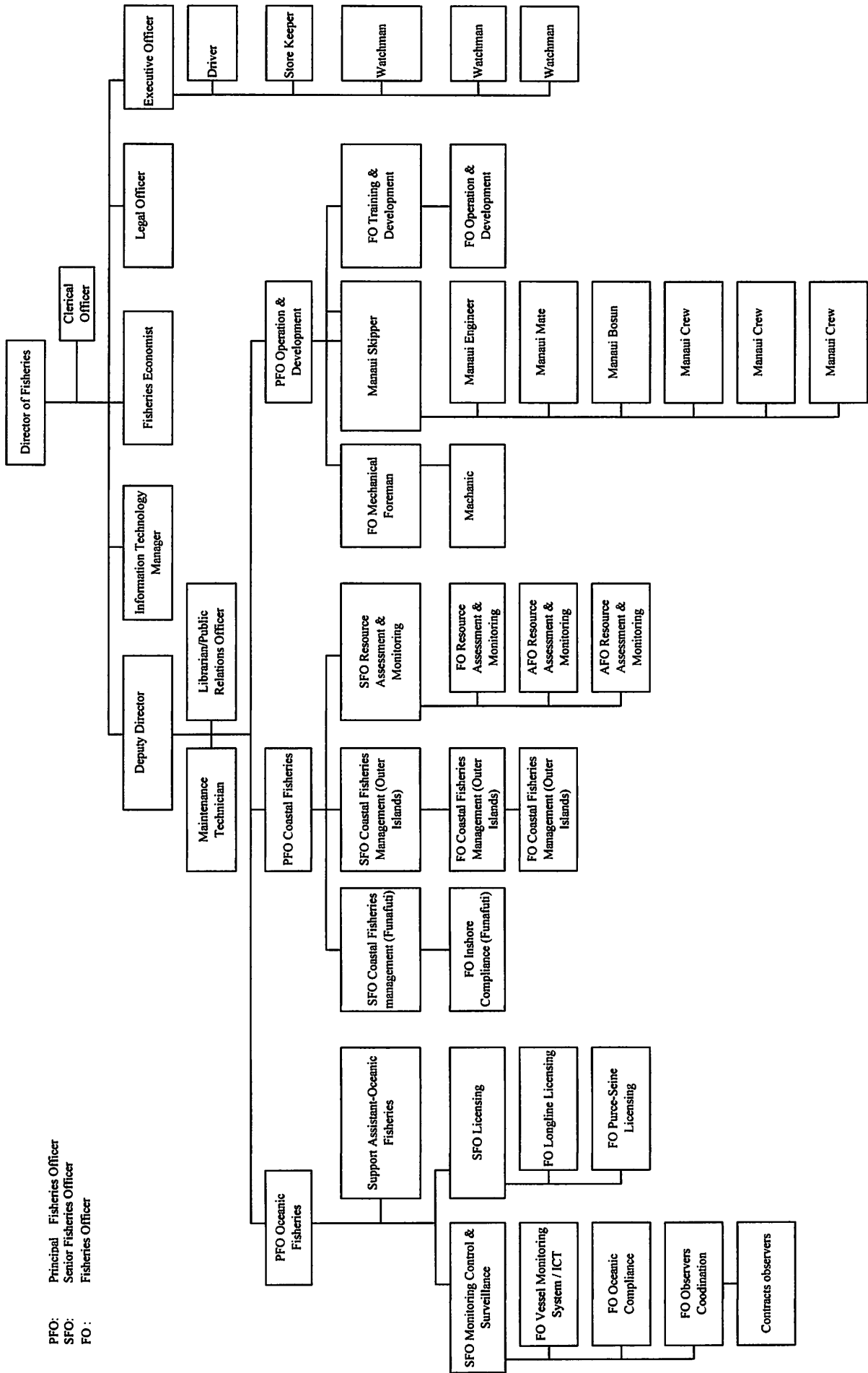
Annex 3 Revised List of Requested Items

Annex 4 Japanese Grant

Annex 5 Project Monitoring Report (template)

Annex 6 Major Undertakings to be taken by Government of Tuvalu

Annex 2



PFO: Principal Fisheries Officer
 SFO: Senior Fisheries Officer
 FO: Fisheries Officer

Organization Chart of Fisheries Department

NA

13

Annex-3

Revised List of Requested Items

- (a) Multi-purpose vessel - 1
Vessel for fisheries resource assessment and monitoring, fisheries training, and cargo and passenger transportation.
Loa: approx. 19m, 1 Main engine (about 200kW), space for crews, researchers and passengers

- (b) Spare parts for Multi-purpose vessel - 1 set
Spare parts to adopt preventive maintenance policy system

- (c) Workshop tools for maintenance of Multi-purpose vessel - 1 set
Tools for maintenance work such as chain block, hand tools, etc.

- (d) Equipment for Dock Works - 1 set
Cradle and rails for Multi-purpose vessel

JAPANESE GRANT

The Japanese Grant is non-reimbursable fund provided to a recipient country (hereinafter referred to as “the Recipient”) to purchase the products and/or 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. Followings are the basic features of the project grants operated by JICA (hereinafter referred to as “Project Grants”).

1. Procedures of Project Grants

Project Grants are conducted through following procedures (See “PROCEDURES OF JAPANESE GRANT” for details):

(1) Preparation

- The Preparatory Survey (hereinafter referred to as “the Survey”) conducted by JICA

(2) Appraisal

- Appraisal by the government of Japan (hereinafter referred to as “GOJ”) and JICA, and Approval by the Japanese Cabinet

(3) Implementation

Exchange of Notes

- The Notes exchanged between the GOJ and the government of the Recipient

Grant Agreement (hereinafter referred to as “the G/A”)

- Agreement concluded between JICA and the Recipient

Banking Arrangement (hereinafter referred to as “the B/A”)

- Opening of bank account by the Recipient in a bank in Japan (hereinafter referred to as “the Bank”) to receive the grant

Construction works/procurement

- Implementation of the project (hereinafter referred to as “the Project”) on the basis of the G/A

(4) Ex-post Monitoring and Evaluation

- Monitoring and evaluation at post-implementation stage

2. Preparatory Survey

(1) Contents of the Survey

The aim of the Survey is to provide basic documents necessary for the appraisal of the 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 necessary for the implementation of the Project.

- Evaluation of the feasibility of the Project to be implemented under the Japanese Grant 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 an outline design of the Project.
- Estimation of costs of the Project.
- Confirmation of Environmental and Social Considerations

The contents of the original request by the Recipient are not necessarily approved in their initial form. The Outline Design of the Project is confirmed based on the guidelines of the Japanese Grant.

JICA requests the Recipient to take 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 executing agency of the Project. Therefore, the contents of the Project are confirmed by all relevant organizations of the Recipient based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA contracts with (a) 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 feasibility of the Project.

3. Basic Principles of Project Grants

(1) Implementation Stage

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 to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Recipient to define the necessary articles, in accordance with the E/N, to implement the Project, such as conditions of disbursement, responsibilities of the Recipient, and procurement conditions. The terms and conditions generally applicable to the Japanese Grant are stipulated in the “General Terms and Conditions for Japanese Grant (January 2016).”

2) Banking Arrangements (B/A) (See “Financial Flow of Japanese Grant (A/P Type)” for details)

a) The Recipient shall open an account or shall cause its designated authority to open an account under the name of the Recipient in the Bank, in principle. JICA will disburse the Japanese Grant in Japanese yen for the Recipient to cover the obligations incurred by the Recipient under the verified contracts.

b) The Japanese Grant will be disbursed when payment requests are submitted by the Bank to JICA under an Authorization to Pay (A/P) issued by the Recipient.

3) Procurement Procedure

The products and/or services necessary for the implementation of the Project shall be procured in accordance with JICA’s procurement guidelines as stipulated in the G/A.

4) 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 to continue to work on the Project’s implementation after the E/N and G/A.

5) Eligible source country

In using the Japanese Grant disbursed by JICA for the purchase of products and/or services, the eligible source countries of such products and/or services shall be Japan and/or the Recipient. The Japanese Grant may be used for the purchase of the products and/or services of a third country as eligible, if necessary, taking into account the quality, competitiveness and economic rationality of products and/or services necessary for achieving the objective of the Project. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm, which enter into contracts with the Recipient, are limited to "Japanese nationals", in principle.

6) Contracts and Concurrence by JICA

The Recipient will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be concurred by JICA in order to be verified as eligible for using the Japanese Grant.

7) Monitoring

The Recipient is required to take their initiative to carefully monitor the progress of the Project in order to ensure its smooth implementation as part of their responsibility in the G/A, and to regularly report to JICA about its status by using the Project Monitoring Report (PMR).

8) Safety Measures

The Recipient must ensure that the safety is highly observed during the implementation of the Project.

9) Construction Quality Control Meeting

Construction Quality Control Meeting (hereinafter referred to as the “Meeting”) will be held for quality assurance and smooth implementation of the Works at each stage of the Works. The member of the Meeting will be composed by the

NA

Recipient (or executing agency), the Consultant, the Contractor and JICA. The functions of the Meeting are as followings:

- a) Sharing information on the objective, concept and conditions of design from the Contractor, before start of construction.
- b) Discussing the issues affecting the Works such as modification of the design, test, inspection, safety control and the Client's obligation, during of construction.

(2) Ex-post Monitoring and Evaluation Stage

- 1) After the project completion, JICA will continue to keep in close contact with the Recipient in order to monitor that the outputs of the Project is used and maintained properly to attain its expected outcomes.
- 2) In principle, JICA will conduct ex-post evaluation of the Project after three years from the completion. It is required for the Recipient to furnish any necessary information as JICA may reasonably request.

(3) Others

1) Environmental and Social Considerations

The Recipient shall carefully consider environmental and social impacts by the Project and must comply with the environmental regulations of the Recipient and JICA Guidelines for Environmental and Social Considerations (April, 2010).

2) Major undertakings to be taken by the Government of the Recipient

For the smooth and proper implementation of the Project, the Recipient is required to undertake necessary measures including land acquisition, and bear an advising commission of the A/P and payment commissions paid to the Bank as agreed with the GOJ and/or JICA. The Government of the Recipient shall ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the Recipient with respect to the purchase of the Products and/or the Services be exempted or be borne by its designated authority without using the Grant and its accrued interest, since the grant fund comes from the Japanese taxpayers.

3) Proper Use

The Recipient is required to maintain and use properly and effectively the products and/or services under the Project (including the facilities constructed and the equipment purchased), to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Japanese Grant.

4) Export and Re-export

The products purchased under the Japanese Grant should not be exported or re-exported from the Recipient.

PROCEDURES OF JAPANESE GRANT

Stage	Procedures	Remarks	Recipient Government	Japanese Government	JICA	Consultants	Contractors	Agent Bank
Official Request	Request for grants through diplomatic channel	Request shall be submitted before appraisal stage.	x	x				
1. Preparation	(1) Preparatory Survey Preparation of outline design and cost estimate		x		x	x		
2. Appraisal	(2) Preparatory Survey Explanation of draft outline design, including cost estimate, undertakings, etc.		x		x	x		
	(3) Agreement on conditions for implementation	Conditions will be explained with the draft notes (E/N) and Grant Agreement (G/A) which will be signed before approval by Japanese government.	x	x (E/N)	x (G/A)			
	(4) Approval by the Japanese cabinet			x				
3. Implementation	(5) Exchange of Notes (E/N)		x	x				
	(6) Signing of Grant Agreement (G/A)		x		x			
	(7) Banking Arrangement (B/A)	Need to be informed to JICA	x					x
	(8) Contracting with consultant and issuance of Authorization to Pay (A/P)	Concurrence by JICA is required	x			x		x
	(9) Detail design (D/D)		x			x		
	(10) Preparation of bidding documents	Concurrence by JICA is required	x			x		
	(11) Bidding	Concurrence by JICA is required	x			x	x	
	(12) Contracting with contractor/supplier and issuance of A/P	Concurrence by JICA is required	x				x	x
	(13) Construction works/procurement	Concurrence by JICA is required for major modification of design and amendment of contracts.	x			x	x	
	(14) Completion certificate		x			x	x	
4. Ex-post monitoring & evaluation	(15) Ex-post monitoring	To be implemented generally after 1, 3, 10 years of completion, subject to change	x		x			
	(16) Ex-post evaluation	To be implemented basically after 3 years of completion	x		x			

notes:

1. Project Monitoring Report and Report for Project Completion shall be submitted to JICA as agreed in the G/A.
2. Concurrence by JICA is required for allocation of grant for remaining amount and/or contingencies as agreed in the G/A.

<p><u>Project Monitoring Report</u> on <u>Project Name</u> Grant Agreement No. <u>XXXXXXXX</u> 20XX, Month</p>
--

Organizational Information

Signer of the G/A (Recipient)	_____ Person in Charge (Designation) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____
Executing Agency	_____ Person in Charge (Designation) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____
Line Ministry	_____ Person in Charge (Designation) _____ Contacts Address: _____ Phone/FAX: _____ Email: _____

General Information:

Project Title	
E/N	Signed date: Duration:
G/A	Signed date: Duration:
Source of Finance	Government of Japan: Not exceeding JPY _____ mil. Government of (_____): _____

1: Project Description	
-------------------------------	--

1-1 Project Objective

--

1-2 Project Rationale

- Higher-level objectives to which the project contributes (national/regional/sectoral policies and strategies)
- Situation of the target groups to which the project addresses

--

1-3 Indicators for measurement of "Effectiveness"

Quantitative indicators to measure the attainment of project objectives		
Indicators	Original (Yr)	Target (Yr)
Qualitative indicators to measure the attainment of project objectives		

2: Details of the Project

2-1 Location

Components	Original <i>(proposed in the outline design)</i>	Actual
1.		

2-2 Scope of the work

Components	Original* <i>(proposed in the outline design)</i>	Actual*
1.		

Reasons for modification of scope (if any).

(PMR)

VA

2-3 Implementation Schedule

Items	Original		Actual
	<i>(proposed in the outline design)</i>	<i>(at the time of signing the Grant Agreement)</i>	

Reasons for any changes of the schedule, and their effects on the project (if any)

--

2-4 Obligations by the Recipient

2-4-1 Progress of Specific Obligations

See Attachment 2.

2-4-2 Activities

See Attachment 3.

2-4-3 Report on RD

See Attachment 11.

2-5 Project Cost

2-5-1 Cost borne by the Grant(Confidential until the Bidding)

Components			Cost (Million Yen)	
	Original <i>(proposed in the outline design)</i>	Actual <i>(in case of any modification)</i>	Original ^{1),2)} <i>(proposed in the outline design)</i>	Actual
	1.			
Total				

Note: 1) Date of estimation:
 2) Exchange rate: 1 US Dollar = Yen

2-5-2 Cost borne by the Recipient

Components			Cost (1,000 Taka)	
	Original <i>(proposed in the outline design)</i>	Actual <i>(in case of any modification)</i>	Original ^{1),2)} <i>(proposed in the outline design)</i>	Actual
	1.			

NA

- Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar =

Reasons for the remarkable gaps between the original and actual cost, and the countermeasures (if any)

(PMR)

2-6 Executing Agency

- Organization's role, financial position, capacity, cost recovery etc,
- Organization Chart including the unit in charge of the implementation and number of employees.

Original (at the time of outline design)

name:

role:

financial situation:

institutional and organizational arrangement (organogram):

human resources (number and ability of staff):

Actual (PMR)

2-7 Environmental and Social Impacts

- The results of environmental monitoring based on Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- The results of social monitoring based on in Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- Disclosed information related to results of environmental and social monitoring to local stakeholders (whenever applicable).

3: Operation and Maintenance (O&M)

3-1 Physical Arrangement

- Plan for O&M (number and skills of the staff in the responsible division or section, availability of manuals and guidelines, availability of spareparts, etc.)

Original (at the time of outline design)

Actual (PMR)

3-2 Budgetary Arrangement

- Required O&M cost and actual budget allocation for O&M

Original (at the time of outline design)

Actual (PMR)

4: Potential Risks and Mitigation Measures

- Potential risks which may affect the project implementation, attainment of objectives, sustainability
- Mitigation measures corresponding to the potential risks

Assessment of Potential Risks (at the time of outline design)

Potential Risks	Assessment
1. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
2. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
3. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:

NA

	Contingency Plan (if applicable):
Actual Situation and Countermeasures	
(PMR)	

5: Evaluation and Monitoring Plan (after the work completion)

5-1 Overall evaluation

Please describe your overall evaluation on the project.

--

5-2 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

--

5-3 Monitoring Plan of the Indicators for Post-Evaluation

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

--

NA

Attachment

1. Project Location Map
 2. Specific obligations of the Recipient which will not be funded with the Grant
 3. Monthly Report submitted by the Consultant
- Appendix - Photocopy of Contractor's Progress Report (if any)
- Consultant Member List
 - Contractor's Main Staff List
4. Check list for the Contract (including Record of Amendment of the Contract/ Agreement and Schedule of Payment)
 5. Environmental Monitoring Form / Social Monitoring Form
 6. Monitoring sheet on price of specified materials (Quarterly)
 7. Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (PMR (final) only)
 8. Pictures (by JPEG style by CD-R) (PMR (final)only)
 9. Equipment List (PMR (final) only)
 10. Drawing (PMR (final) only)
 11. Report on RD (After project)

AVA

Monitoring sheet on price of specified materials

1. Initial Conditions (Confirmed)

Items of Specified Materials	Initial Volume A	Initial Unit Price (¥) B	Initial total Price C=A×B	1% of Contract Price D	Condition of payment	
					Price (Decreased) E=C-D	Price (Increased) F=C+D
Item 1	●●t	●	●	●	●	●
Item 2	●●t	●	●			
Item 3						
Item 4						
Item 5						

2. Monitoring of the Unit Price of Specified Materials

(1) Method of Monitoring : ●●

(2) Result of the Monitoring Survey on Unit Price for each specified materials

Items of Specified Materials	1st month, 2015	2nd month, 2015	3rd month, 2015	4th	5th	6th
Item 1	●	●	●			
Item 2						
Item 3						
Item 4						
Item 5						

(3) Summary of Discussion with Contractor (if necessary)

.
. .

Report on Proportion of Procurement (Recipient Country, Japan and Third Countries)
 (Actual Expenditure by Construction and Equipment each)

	Domestic Procurement (Recipient Country) A	Foreign Procurement (Japan) B	Foreign Procurement (Third Countries) C	Total D
Construction Cost	(A/D%)	(B/D%)	(C/D%)	
Direct Construction	(A/D%)	(B/D%)	(C/D%)	
Cost others	(A/D%)	(B/D%)	(C/D%)	
Equipment Cost	(A/D%)	(B/D%)	(C/D%)	
Design and Supervision Cost	(A/D%)	(B/D%)	(C/D%)	
Total	(A/D%)	(B/D%)	(C/D%)	

Annex 6

Major Undertakings to be taken by the Government of Tuvalu

1. Specific obligations of the Government of Tuvalu which will not be funded with the Grant

(1) Before the Tender

NO	Items	Deadline	In charge	Estimated Cost	Ref.
1	To open bank account (B/A)	within 1 month after the signing of the G/A			
2	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant	within 1 month after the signing of the G/A			
3	To submit Project Monitoring Report (with the result of Detail Design)	before preparation of bidding document(s)			

(2) During the Project Implementation

NO	Items	Deadline	In charge	Estimated Cost	Ref.
1	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the Supplier(s)	within 1 month after the signing of the contract(s)			
2	To bear the following commissions to a bank in Japan for the banking services based upon the B/A				
	1) Advising commission of A/P	within 1 month after the signing of the contract(s)			
	2) Payment commission for A/P	every payment			
3	To ensure prompt unloading and customs clearance at ports of disembarkation in the country of the Recipient and to assist the Supplier(s) with internal transportation therein including Tax exemption of the products at the port of disembarkation, and payment of any stevedore fee, etc. for handling products at the recipient country	during the Project			
4	To accord Japanese physical persons and/or physical persons of third countries 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 country of the Recipient and stay therein for the performance of their work	during the Project			
5	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the products and/or the services be exempted.	during the Project			
6	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project	during the Project			
7	To secure necessary storage room with adequate condition for the spare parts at the workshop	during the Project			

NO	Items	Deadline	In charge	Estimated Cost	Ref.
8	To issue letter, certificate, license and other necessary documents necessary for designing, delivery, construction and operation of the vessel (example: issuance of radio station license, Provisional Certificate of Registry)	during the Project			
9	1) To submit Project Monitoring Report after each work under the contract(s) such as shipping, hand over, installation and operational training	within one month after completion of each work			
	2) To submit Project Monitoring Report (final)	within one month after signing of Certificate of Completion for the works under the contract(s)			
10	To submit a report concerning completion of the Project	within six months after completion of the Project			

(3) After the Project

NO	Items	Deadline	In charge	Estimated Cost	Ref.
1	To maintain and use properly and effectively the vessel constructed and equipment provided under the Grant Aid 1) Allocation of maintenance cost 2) Operation and maintenance structure 3) Routine check/Periodic inspection	After completion of the construction			
2	To carry out any installation works required for the equipment	After completion of delivery the equipment			

4-2 Draft Outline Design Survey

Minutes of Discussions
on the Preparatory Survey for the Project for
Construction of the Multi-purpose Vessel for Outer Island Development
in Tuvalu
(Explanation on Draft Preparatory Survey Report)


With reference to the minutes of discussion signed between the Ministry of Natural Resources of the Government of Tuvalu (hereinafter referred to as “Tuvalu”) and the Japan International Cooperation Agency (hereinafter referred to as “JICA”) on January 18, 2018 and in response to the request from the Government of Tuvalu dated June 20, 2017, JICA dispatched the Preparatory Survey Team (hereinafter referred to as “the Team”) for the explanation of Draft Preparatory Survey Report (hereinafter referred to as “the Draft Report”) for the Project for Construction of the Multi-purpose Vessel for Outer Island Development (hereinafter referred to as “the Project”).

As a result of the discussions, both sides agreed on the main items described in the attached sheets.

Funafuti, August 29, 2018



Mr. Nariaki MIKUNI
Leader
Preparatory Survey Team
Japan International Cooperation Agency
Japan



Mr. Nikolasi Apinelu
Permanent secretary,
Ministry of Natural Resources
Government of Tuvalu

ATTACHEMENT

1. Objective of the Project

The objective of the Project to improve the survey and technology in fisheries sector and marine navigation and safety by construction of the Multi-purpose Vessel for Outer Island Development, thereby developing fisheries sector and maintaining marine transportation service.

2. Title of the Preparatory Survey

Both sides confirmed the title of the Preparatory Survey as “the Preparatory Survey for the Project for Construction of the Multi-purpose Vessel for Outer Island Development”.

3. Project Site

Both sides confirmed that the site of the Project is in Funafuti which is shown in Annex 1.

4. Responsible authority for the Project

Both sides confirmed the authorities responsible for the Project are as follows:

4-1. The Fisheries Department will be the executing agency for the Project (hereinafter referred to as “the Executing Agency”) The Executing agency shall coordinate with all the relevant agencies to ensure smooth implementation of the Project and ensure that the undertakings for the Project shall be taken care by relevant authorities properly and on time. The organization charts are shown in Annex 2.

4-2. The line ministry of the Executing Agency is the Ministry of Natural Resources. The Ministry of Natural Resources shall be responsible for supervising the Executing Agency on behalf of the Government of Tuvalu.

5. Contents of the Draft Report

After the explanation of the contents of the Draft Report by the Team, the Tuvaluan side agreed to its contents.

6. Cost estimate

Both sides confirmed that the cost estimate explained by the Team is provisional and will be examined further by the Government of Japan for its approval.

7. Confidentiality of the cost estimate and technical specifications

Both sides confirmed that the cost estimate and technical specifications of the Project should never be disclosed to any third parties until all the contracts under the Project are concluded.

8. Procedures and Basic Principles of Japanese Grant

The Tuvaluan side agreed that the procedures and basic principles of Japanese Grant as described in Annex 4 shall be applied to the Project. In addition, the Tuvaluan side agreed to take necessary measures according to the procedures.

9. Timeline for the project implementation

The Team explained to the Tuvaluan side that the expected timeline for the project implementation is as attached in Annex 3.

10. Expected outcomes and indicators

Both sides agreed that key indicators for expected outcomes are as follows. The Tuvaluan side will be responsible for the achievement of agreed key indicators targeted in year 2024 and shall monitor the progress based on those indicators.

[Quantitative indicators]

Indicator	Standard Indicator (2016/2017 average)	Target Indicator (2024, 3 years after the Project completion)
Number of days of voyage	111	150
Total number of passengers' stays onboard at remote island	0	100
Inoperable days due to malfunction	14	2
Maintenance Cost	7,999 AUSS	6,000 AUSS

[Qualitative indicators]

- Improve safety and comfortability onboard vessel
- Improve workability on deck and in cabin
- Improve convenience for people travel between Funafuti and outer islands

11. Undertakings of the Project

Both sides confirmed the undertakings of the Project as described in Annex 5. With regard to exemption of customs duties, internal taxes and other fiscal levies as stipulated in (2)-5 of Annex 5, both sides confirmed that such customs duties, internal taxes and other fiscal levies, which shall be clarified in the bid documents by the Ministry of Natural Resources during the implementation stage of the Project.

The Tuvaluan side assured to take the necessary measures and coordination including allocation of the necessary budget which are preconditions of implementation of the Project. It is further agreed that the costs are indicative, i.e. at Outline Design level. More accurate costs will be calculated at the Detailed Design stage.

Both sides also confirmed that the Annex 5 will be used as an attachment of G/A.

12. Monitoring during the implementation

The Project will be monitored by the Executing Agency and reported to JICA by using the form of Project Monitoring Report (PMR) attached as Annex 6. The timing of submission of the PMR is described in Annex 5.

13. Project completion

Both sides confirmed that the project completes when all the facilities constructed and equipment procured by the grant are in operation. The completion of the Project will be reported to JICA promptly, but in any event not later than six months after completion of the Project.

14. Ex-Post Evaluation

JICA will conduct ex-post evaluation after three (3) years from the project completion, in principle, with respect to five evaluation criteria (Relevance, Effectiveness, Efficiency, Impact, Sustainability). The result of the evaluation will be publicized. The Tuvaluan side is required to provide necessary support for the data collection.

15. Schedule of the Study

JICA will finalize the Preparatory Survey Report based on the confirmed items. The report will be sent to the Tuvaluan side around October 2018.

16. Environmental and Social Considerations

The Team explained that 'JICA Guidelines for Environmental and Social Considerations (April 2010)' (hereinafter referred to as "the Guidelines") is applicable for the Project. The Project is categorized as C because the Project is likely to have minimal adverse impact on the environment under the Guidelines.

17. Other Relevant Issues

17-1. Disclosure of Information

Both sides confirmed that the Preparatory Survey Report from which project cost is excluded will be disclosed to the public after completion of the Preparatory Survey. The comprehensive report including the project cost will be disclosed to the public after all the contracts under the Project are concluded.

17-2. Operation and Maintenance for the vessel

The Tuvaluan side shall allocate necessary human resources to operate and maintain the vessel and to accomplish the aims of the Project.

17-3. Securing Budget by the Government of Tuvalu for the project

The Tuvaluan side shall secure necessary budget to cover the cost for taking necessary major undertaking to be covered by Tuvaluan side for the Project.

17-4. Installation of the slipway's rails

The Tuvaluan side shall remove the current rails of the slipway and install new rails which will be procured by the Project. The dispatch of one engineer to instruct installation work for new rails is included in the project scope.

17-5. Installation of the mooring buoy

The Tuvaluan side shall secure the location to settle mooring buoy, prepare necessary concrete anchors and install mooring buoy.

Annex 1 Project Site

Annex 2 Organization Chart

Annex 3 Japanese Grant

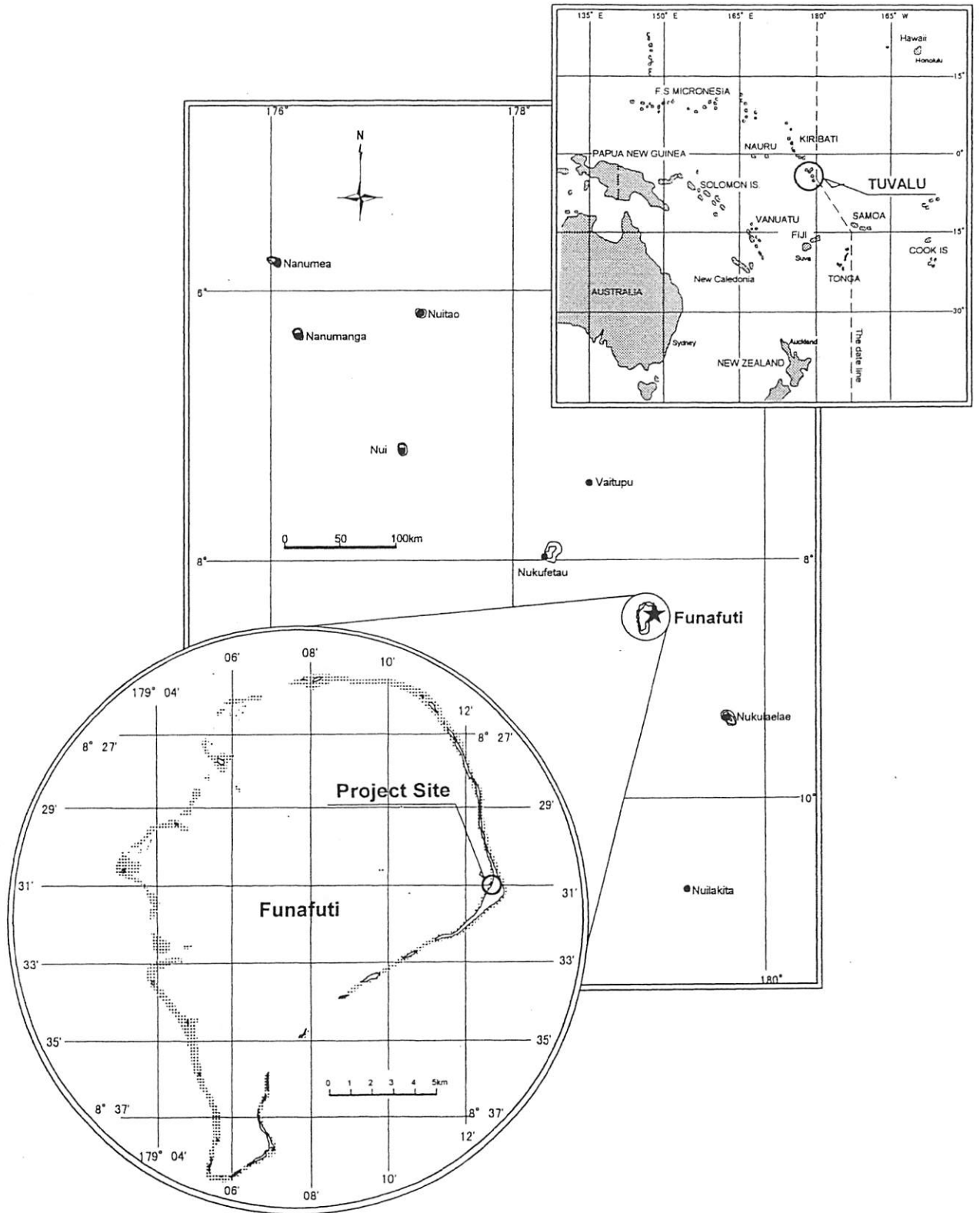
Annex 4 Project Implementation Schedule

Annex 5 Major Undertakings to be taken by Government of Tuvalu

Annex 6 Project Monitoring Report (template)



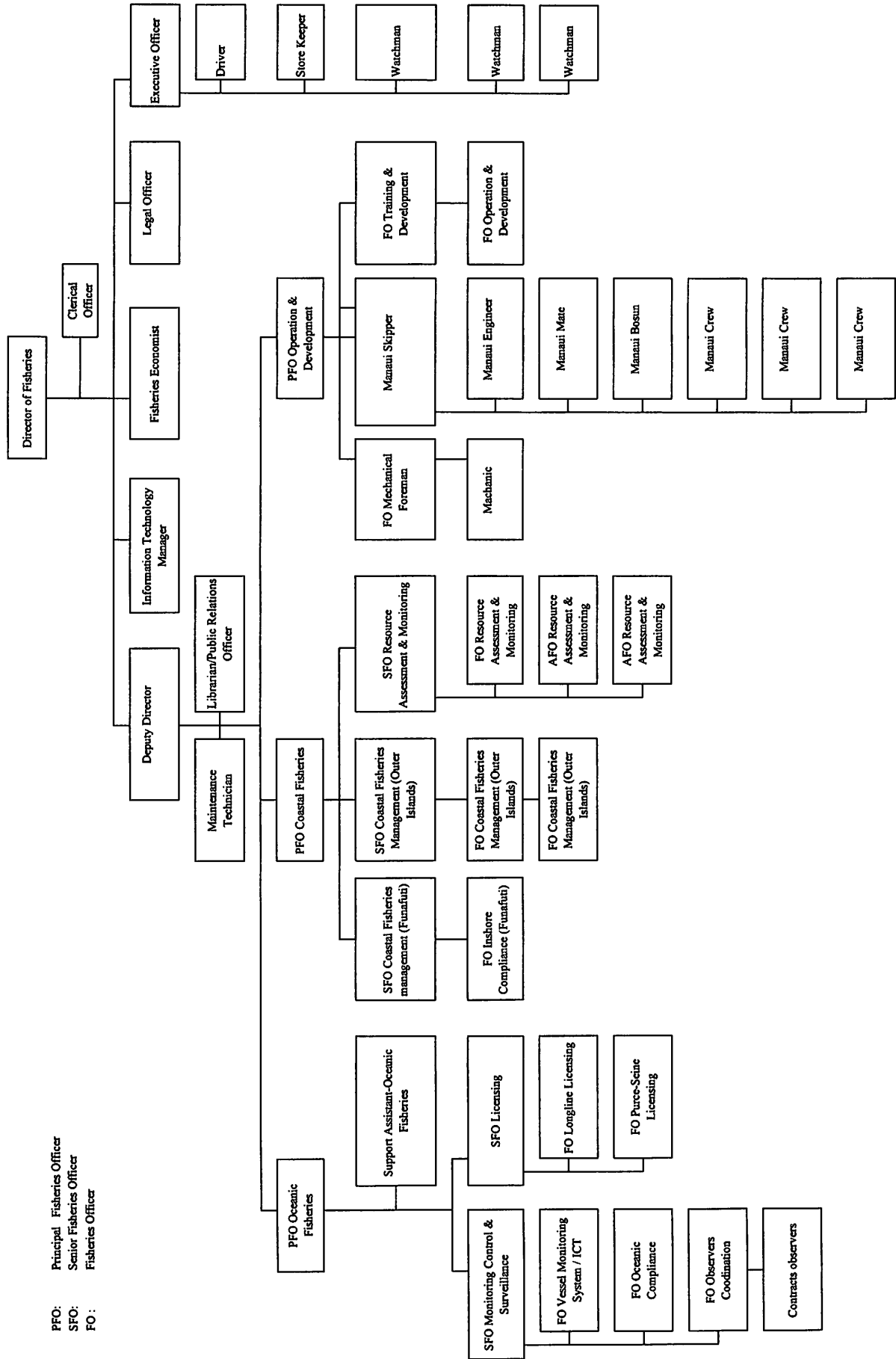
Annex 1 Project Site



Handwritten mark resembling a stylized '3' or 'Z' inside a circle.

Handwritten initials 'NR'.

Annex 2



PFO: Principal Fisheries Officer
 SFO: Senior Fisheries Officer
 FO: Fisheries Officer

Organization Chart of Fisheries Department

2

NA

JAPANESE GRANT

The Japanese Grant is non-reimbursable fund provided to a recipient country (hereinafter referred to as “the Recipient”) to purchase the products and/or 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. Followings are the basic features of the project grants operated by JICA (hereinafter referred to as “Project Grants”).

1. Procedures of Project Grants

Project Grants are conducted through following procedures (See “PROCEDURES OF JAPANESE GRANT” for details):

(1) Preparation

- The Preparatory Survey (hereinafter referred to as “the Survey”) conducted by JICA

(2) Appraisal

- Appraisal by the government of Japan (hereinafter referred to as “GOJ”) and JICA, and Approval by the Japanese Cabinet

(3) Implementation

Exchange of Notes

- The Notes exchanged between the GOJ and the government of the Recipient

Grant Agreement (hereinafter referred to as “the G/A”)

- Agreement concluded between JICA and the Recipient

Banking Arrangement (hereinafter referred to as “the B/A”)

- Opening of bank account by the Recipient in a bank in Japan (hereinafter referred to as "the Bank") to receive the grant

Construction works/procurement

- Implementation of the project (hereinafter referred to as “the Project”) on the basis of the G/A

(4) Ex-post Monitoring and Evaluation

- Monitoring and evaluation at post-implementation stage

2. Preparatory Survey

(1) Contents of the Survey

The aim of the Survey is to provide basic documents necessary for the appraisal of the 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 necessary for the implementation of the Project.

- Evaluation of the feasibility of the Project to be implemented under the Japanese Grant 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 an outline design of the Project.
- Estimation of costs of the Project.
- Confirmation of Environmental and Social Considerations

The contents of the original request by the Recipient are not necessarily approved in their initial form. The Outline Design of the Project is confirmed based on the guidelines of the Japanese Grant.

JICA requests the Recipient to take 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 executing agency of the Project. Therefore, the contents of the Project are confirmed by all relevant organizations of the Recipient based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA contracts with (a) 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 feasibility of the Project.

3. Basic Principles of Project Grants

(1) Implementation Stage

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 to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Recipient to define the necessary articles, in accordance with the E/N, to implement the Project, such as conditions of disbursement, responsibilities of the Recipient, and procurement conditions. The terms and conditions generally applicable to the Japanese Grant are stipulated in the “General Terms and Conditions for Japanese Grant (January 2016).”

Recipient (or executing agency), the Consultant, the Contractor and JICA. The functions of the Meeting are as followings:

- a) Sharing information on the objective, concept and conditions of design from the Contractor, before start of construction.
- b) Discussing the issues affecting the Works such as modification of the design, test, inspection, safety control and the Client's obligation, during of construction.

(2) Ex-post Monitoring and Evaluation Stage

- 1) After the project completion, JICA will continue to keep in close contact with the Recipient in order to monitor that the outputs of the Project is used and maintained properly to attain its expected outcomes.
- 2) In principle, JICA will conduct ex-post evaluation of the Project after three years from the completion. It is required for the Recipient to furnish any necessary information as JICA may reasonably request.

(3) Others

1) Environmental and Social Considerations

The Recipient shall carefully consider environmental and social impacts by the Project and must comply with the environmental regulations of the Recipient and JICA Guidelines for Environmental and Social Considerations (April, 2010).

2) Major undertakings to be taken by the Government of the Recipient

For the smooth and proper implementation of the Project, the Recipient is required to undertake necessary measures including land acquisition, and bear an advising commission of the A/P and payment commissions paid to the Bank as agreed with the GOJ and/or JICA. The Government of the Recipient shall ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the Recipient with respect to the purchase of the Products and/or the Services be exempted or be borne by its designated authority without using the Grant and its accrued interest, since the grant fund comes from the Japanese taxpayers.

3) Proper Use

The Recipient is required to maintain and use properly and effectively the products and/or services under the Project (including the facilities constructed and the equipment purchased), to assign staff necessary for this operation and maintenance and to bear all the expenses other than those covered by the Japanese Grant.

2) Banking Arrangements (B/A) (See “Financial Flow of Japanese Grant (A/P Type)” for details)

- a) The Recipient shall open an account or shall cause its designated authority to open an account under the name of the Recipient in the Bank, in principle. JICA will disburse the Japanese Grant in Japanese yen for the Recipient to cover the obligations incurred by the Recipient under the verified contracts.
- b) The Japanese Grant will be disbursed when payment requests are submitted by the Bank to JICA under an Authorization to Pay (A/P) issued by the Recipient.

3) Procurement Procedure

The products and/or services necessary for the implementation of the Project shall be procured in accordance with JICA’s procurement guidelines as stipulated in the G/A.

4) 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 to continue to work on the Project’s implementation after the E/N and G/A.

5) Eligible source country

In using the Japanese Grant disbursed by JICA for the purchase of products and/or services, the eligible source countries of such products and/or services shall be Japan and/or the Recipient. The Japanese Grant may be used for the purchase of the products and/or services of a third country as eligible, if necessary, taking into account the quality, competitiveness and economic rationality of products and/or services necessary for achieving the objective of the Project. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm, which enter into contracts with the Recipient, are limited to "Japanese nationals", in principle.

6) Contracts and Concurrence by JICA

The Recipient will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be concurred by JICA in order to be verified as eligible for using the Japanese Grant.

7) Monitoring

The Recipient is required to take their initiative to carefully monitor the progress of the Project in order to ensure its smooth implementation as part of their responsibility in the G/A, and to regularly report to JICA about its status by using the Project Monitoring Report (PMR).

8) Safety Measures

The Recipient must ensure that the safety is highly observed during the implementation of the Project.

9) Construction Quality Control Meeting

Construction Quality Control Meeting (hereinafter referred to as the “Meeting”) will be held for quality assurance and smooth implementation of the Works at each stage of the Works. The member of the Meeting will be composed by the

4) Export and Re-export

The products purchased under the Japanese Grant should not be exported or re-exported from the Recipient.

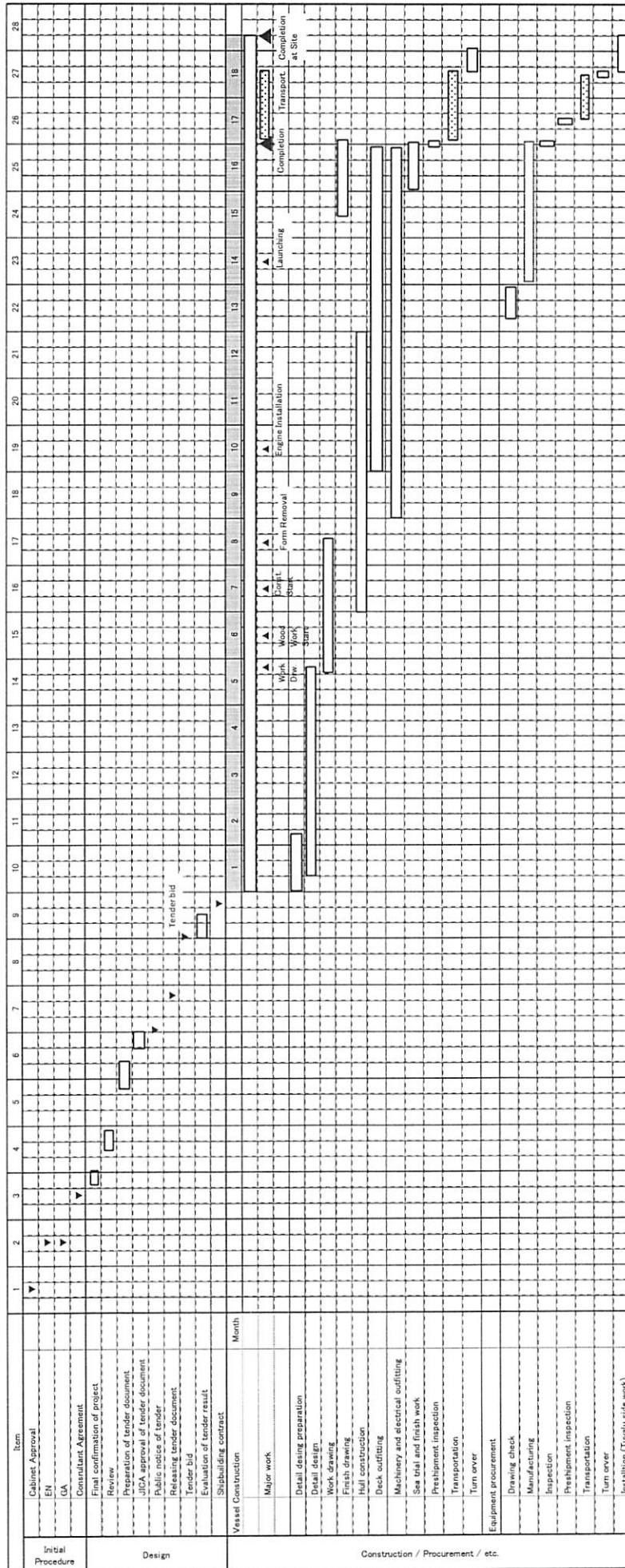
PROCEDURES OF JAPANESE GRANT

Stage	Procedures	Remarks	Recipient Government	Japanese Government	JICA	Consultants	Contractors	Agent Bank
Official Request	Request for grants through diplomatic channel	Request shall be submitted before appraisal stage.	x	x				
1. Preparation	(1) Preparatory Survey Preparation of outline design and cost estimate		x		x	x		
2. Appraisal	(2) Preparatory Survey Explanation of draft outline design, including cost estimate, undertakings, etc.		x		x	x		
	(3) Agreement on conditions for implementation	Conditions will be explained with the draft notes (E/N) and Grant Agreement (G/A) which will be signed before approval by Japanese government.	x	x (E/N)	x (G/A)			
	(4) Approval by the Japanese cabinet			x				
3. Implementation	(5) Exchange of Notes (E/N)		x	x				
	(6) Signing of Grant Agreement (G/A)		x		x			
	(7) Banking Arrangement (B/A)	Need to be informed to JICA	x					x
	(8) Contracting with consultant and issuance of Authorization to Pay (A/P)	Concurrence by JICA is required	x			x		x
	(9) Detail design (D/D)		x			x		
	(10) Preparation of bidding documents	Concurrence by JICA is required	x			x		
	(11) Bidding	Concurrence by JICA is required	x			x	x	
	(12) Contracting with contractor/supplier and issuance of A/P	Concurrence by JICA is required	x				x	x
	(13) Construction works/procurement	Concurrence by JICA is required for major modification of design and amendment of contracts.	x			x	x	
	(14) Completion certificate		x			x	x	
4. Ex-post monitoring & evaluation	(15) Ex-post monitoring	To be implemented generally after 1, 3, 10 years of completion, subject to change	x		x			
	(16) Ex-post evaluation	To be implemented basically after 3 years of completion	x		x			

notes:

1. Project Monitoring Report and Report for Project Completion shall be submitted to JICA as agreed in the G/A.
2. Concurrence by JICA is required for allocation of grant for remaining amount and/or contingencies as agreed in the G/A.

Annex 4 Project Implementation Schedule



35

2/A

Annex 5

Major Undertakings to be taken by the Government of Tuvalu

1. Specific obligations of the Government of Tuvalu which will not be funded with the Grant

(1) Before the Tender

NO	Items	Deadline	In charge	Estimated Cost	Ref.
1	To open bank account (B/A)	within 1 month after the signing of the G/A	MNR		
2	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the consultant	within 1 month after the signing of the G/A	MNR		
3	To submit Project Monitoring Report (with the result of Detail Design)	before preparation of bidding document(s)	MNR / TFD		

(2) During the Project Implementation

NO	Items	Deadline	In charge	Estimated Cost	Ref.
1	To issue A/P to a bank in Japan (the Agent Bank) for the payment to the Supplier(s)	within 1 month after the signing of the contract(s)	MNR		
2	To bear the following commissions to a bank in Japan for the banking services based upon the B/A				
	1) Advising commission of A/P	within 1 month after the signing of the contract(s)	MNR	approx. 5,500 AUSS\$	
	2) Payment commission for A/P	every payment			
3	To ensure prompt unloading and customs clearance at ports of disembarkation in the country of the Recipient and internal transportation therein including Tax exemption of the products at the port of disembarkation, and payment of any stevedore fee, etc. for handling products at the recipient country	during the Project	MNR / TFD		
4	To accord Japanese physical persons and/or physical persons of third countries 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 country of the Recipient and stay therein for the performance of their work	during the Project	MNR / TFD		
5	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the country of the Recipient with respect to the purchase of the products and/or the services be exempted.	during the Project	MNR / TFD		
6	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project	during the Project	MNR / TFD		
7	To secure necessary storage room with adequate condition for the spare parts at the workshop	during the Project	TFD		

N/A

NO	Items	Deadline	In charge	Estimated Cost	Ref.
8	To obtain certificate and license such as Provisional Certificate of Registry and radio station license necessary for designing, delivery, construction and operation of the vessel.	two month before completion of shipbuilding	MNR / TFD / MCT		
	To remove the exciting rails of slipway and install the new rails procured by the Project	one month before completion of the Project	MNR	6,700 AUSS	
	To manufacture/ install the concrete anchors and to connect the mooring buoy procured by the Project	one month before completion of the Project	MNR	15,000 AUSS	
9	1) To submit Project Monitoring Report after each work under the contract(s) such as shipping, hand over, installation and operational training	within one month after completion of each work	TFD		
	2) To submit Project Monitoring Report (final)	within one month after signing of Certificate of Completion for the works under the contract(s)	MNR / TFD		
10	To submit a report concerning completion of the Project	within six months after completion of the Project	MNR		

(3) After the Project

NO	Items	Deadline	In charge	Estimated Cost	Ref.
1	To maintain and use properly and effectively the vessel constructed and equipment provided under the Grant Aid 1) Allocation of maintenance cost 2) Operation and maintenance structure 3) Routine check/Periodic inspection	After completion of the construction	TFD		
2	To carry out any installation works required for the equipment (example: to remove the current rails of the slipway and installing new rails, to prepare necessary concrete anchors and install mooring buoy)	After completion of delivery the equipment	TFD	Approx. 22,000 AUSS	

MNR: Ministry of Natural Resources

TFD: Tuvalu Fisheries Department

MCT: Ministry of Communication and Transportation

2. Other obligations of the Government of Tuvalu funded with the Grant

NO	Items	Deadline	Amount (Million Japanese Yen)*
1	To build the multi-purpose vessel		/
2	To procure the equipment for multi-purpose vessel		
3	To conduct the following transportation Marin (Air) transportation of the products from Japan to the country of the Recipient		
4	To implement detailed design, bidding support and procurement supervision (Consulting Service)		
	Total		/

3)

NA

Project Monitoring Report
on
Project Name
Grant Agreement No. XXXXXXXX
20XX, Month

Organizational Information

Signer of the G/A (Recipient)	<hr/> Person in Charge (Designation) _____ Contacts _____ Address: _____ Phone/FAX: _____ Email: _____
Executing Agency	<hr/> Person in Charge (Designation) _____ Contacts _____ Address: _____ Phone/FAX: _____ Email: _____
Line Ministry	<hr/> Person in Charge (Designation) _____ Contacts _____ Address: _____ Phone/FAX: _____ Email: _____

General Information:

Project Title	
E/N	Signed date: Duration:
G/A	Signed date: Duration:
Source of Finance	Government of Japan: Not exceeding JPY _____ mil. Government of (_____): _____

1: Project Description

1-1 Project Objective

1-2 Project Rationale

- Higher-level objectives to which the project contributes (national/regional/sectoral policies and strategies)
- Situation of the target groups to which the project addresses

1-3 Indicators for measurement of "Effectiveness"

Quantitative indicators to measure the attainment of project objectives		
Indicators	Original (Yr)	Target (Yr)
Qualitative indicators to measure the attainment of project objectives		

2: Details of the Project

2-1 Location

Components	Original <i>(proposed in the outline design)</i>	Actual
1.		

2-2 Scope of the work

Components	Original* <i>(proposed in the outline design)</i>	Actual*
1.		

Reasons for modification of scope (if any).

(PMR)



2-3 Implementation Schedule

Items	Original		Actual
	<i>(proposed in the outline design)</i>	<i>(at the time of signing the Grant Agreement)</i>	

Reasons for any changes of the schedule, and their effects on the project (if any)

2-4 Obligations by the Recipient

2-4-1 Progress of Specific Obligations

See Attachment 2.

2-4-2 Activities

See Attachment 3.

2-4-3 Report on RD

See Attachment 11.

2-5 Project Cost

2-5-1 Cost borne by the Grant(Confidential until the Bidding)

Components			Cost (Million Yen)	
	Original <i>(proposed in the outline design)</i>	Actual <i>(in case of any modification)</i>	Original ^{1),2)} <i>(proposed in the outline design)</i>	Actual
1.				
Total				

Note: 1) Date of estimation:
 2) Exchange rate: 1 US Dollar = Yen

2-5-2 Cost borne by the Recipient

Components			Cost (1,000 Taka)	
	Original <i>(proposed in the outline design)</i>	Actual <i>(in case of any modification)</i>	Original ^{1),2)} <i>(proposed in the outline design)</i>	Actual
1.				

- Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar =

Reasons for the remarkable gaps between the original and actual cost, and the countermeasures (if any)

(PMR)

2-6 Executing Agency

- Organization's role, financial position, capacity, cost recovery etc,
- Organization Chart including the unit in charge of the implementation and number of employees.

Original (at the time of outline design)

name:

role:

financial situation:

institutional and organizational arrangement (organogram):

human resources (number and ability of staff):

Actual (PMR)

2-7 Environmental and Social Impacts

- The results of environmental monitoring based on Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- The results of social monitoring based on in Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- Disclosed information related to results of environmental and social monitoring to local stakeholders (whenever applicable).

3: Operation and Maintenance (O&M)

3-1 Physical Arrangement

- Plan for O&M (number and skills of the staff in the responsible division or section, availability of manuals and guidelines, availability of spareparts, etc.)

Original (at the time of outline design)

Actual (PMR)

3-2 Budgetary Arrangement

- Required O&M cost and actual budget allocation for O&M

Original (at the time of outline design)

3

WA

Actual (PMR)

4: Potential Risks and Mitigation Measures

- Potential risks which may affect the project implementation, attainment of objectives, sustainability
- Mitigation measures corresponding to the potential risks

Assessment of Potential Risks (at the time of outline design)

Potential Risks	Assessment
1. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
	Contingency Plan (if applicable):
2. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
	Contingency Plan (if applicable):
3. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:

	Contingency Plan (if applicable):
Actual Situation and Countermeasures	
(PMR)	

5: Evaluation and Monitoring Plan (after the work completion)

5-1 Overall evaluation

Please describe your overall evaluation on the project.

5-2 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

5-3 Monitoring Plan of the Indicators for Post-Evaluation

Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

Attachment

1. Project Location Map
2. Specific obligations of the Recipient which will not be funded with the Grant
3. Monthly Report submitted by the Consultant
- Appendix - Photocopy of Contractor's Progress Report (if any)
 - Consultant Member List
 - Contractor's Main Staff List
4. Check list for the Contract (including Record of Amendment of the Contract/Agreement and Schedule of Payment)
5. Environmental Monitoring Form / Social Monitoring Form
6. Monitoring sheet on price of specified materials (Quarterly)
7. Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (PMR (final) only)
8. Pictures (by JPEG style by CD-R) (PMR (final) only)
9. Equipment List (PMR (final) only)
10. Drawing (PMR (final) only)
11. Report on RD (After project)

Monitoring sheet on price of specified materials

1. Initial Conditions (Confirmed)

Items of Specified Materials		Initial Volume A	Initial Unit Price (¥) B	Initial total Price C=A×B	1% of Contract Price D	Condition of payment Price (Increased) E=C+D	Condition of payment Price (Decreased) F=C-D
1	Item 1	●●t	●	●	●	●	●
2	Item 2	●●t	●	●	●		
3	Item 3						
4	Item 4						
5	Item 5						

2. Monitoring of the Unit Price of Specified Materials

(1) Method of Monitoring : ●●

(2) Result of the Monitoring Survey on Unit Price for each specified materials

Items of Specified Materials		1st month, 2015	2nd month, 2015	3rd month, 2015	4th	5th	6th
1	Item 1	●	●	●			
2	Item 2						
3	Item 3						
4	Item 4						
5	Item 5						

(3) Summary of Discussion with Contractor (if necessary)

.
. .

ala

Report on Proportion of Procurement (Recipient Country, Japan and Third Countries)
(Actual Expenditure by Construction and Equipment each)

	Domestic Procurement (Recipient Country) A	Foreign Procurement (Japan) B	Foreign Procurement (Third Countries) C	Total D
Construction Cost	(A/D%)	(B/D%)	(C/D%)	
Direct Construction	(A/D%)	(B/D%)	(C/D%)	
Cost others	(A/D%)	(B/D%)	(C/D%)	
Equipment Cost	(A/D%)	(B/D%)	(C/D%)	
Design and Supervision Cost	(A/D%)	(B/D%)	(C/D%)	
Total	(A/D%)	(B/D%)	(C/D%)	

5. Reference

Project Monitoring Report
on
Project Name
Grant Agreement No. XXXXXXX
20XX, Month

Organizational Information

Signer of the G/A (Recipient)	_____ Person in Charge (Designation) _____ Contacts _____ <u>Address:</u> _____ <u>Phone/FAX:</u> _____ <u>Email:</u> _____
Executing Agency	_____ Person in Charge (Designation) _____ Contacts _____ <u>Address:</u> _____ <u>Phone/FAX:</u> _____ <u>Email:</u> _____
Line Ministry	_____ Person in Charge (Designation) _____ Contacts _____ <u>Address:</u> _____ <u>Phone/FAX:</u> _____ <u>Email:</u> _____

General Information:

Project Title	The Project For Construction Of The Multi-Purpose Vessel For Outer Island Development
E/N	Signed date: Duration:
G/A	Signed date: Duration:
Source of Finance	Government of Japan: Not exceeding JPY _____ mil. Government of (_____): _____

1: Project Description

1-1 Project Objective

Construction of a multi-purpose vessel and procurement of the equipment for the workshop and slipway and spare parts for preventive maintenance

1-2 Project Rationale

- Higher-level objectives to which the project contributes (national/regional/sectoral policies and strategies)
- Situation of the target groups to which the project addresses

Te Kakeega III – National Strategy for Sustainable Development 2016 to 2020 (TKIII)
Private Sector development, Employment and Trade,
Natural resources: Maximize their social and economic returns and sustainability
Environment: Protect, restore, and promote sustainable use of terrestrial ecosystems
Oceans and seas: Conserve oceans, seas, and marine resources for sustainable development

Fakafoou – To Make New: Tuvalu Infrastructure Strategy and Investment Plan
Development and maintenance of a safe domestic transport network

The implementation of this project is intended to maintain and improve the functions performed by the current research vessel and expected to improve the quality of surveys and technical capacity in the fisheries sector and maintain and improve the complementary marine transport services.

The current research vessel, RV Manau, has problems in safety and convenience for passengers as mentioned above and a problem of unreliable availability due to its age and deteriorated condition.

1-3 Indicators for measurement of “Effectiveness”

Quantitative indicators to measure the attainment of project objectives		
Indicators	Original (Yr 2016)	Target (Yr 2014)
Number of days at sea per year	111	150
Number of overnight moorings and stays per year	0	100
Number of out-of-order mooring days per year	14	2
Reduction in the operating and maintenance costs per year (in AUD)	7,999	6,000
Qualitative indicators to measure the attainment of project objectives		
<ul style="list-style-type: none"> •Safety and comfort on board will be improved. •Efficiency of the work on board will be improved. •The convenience of Tuvaluan nationals travelling between Funafuti and remote atolls will be improved. 		

2: Details of the Project

2-1 Location

Components	Original <i>(proposed in the outline design)</i>	Actual
1. Multi-purpose vessel	Funafuti port	
2. Replacement rails	Slipway	
3. Vessel lifting equipment	Slipway	
4. Equipment for workshop	Workshop	
5. Mooring buoy	Funafuti port	

2-2 Scope of the work

Components	Original* <i>(proposed in the outline design)</i>	Actual*
1. Multi-purpose vessel	1 - 19m L FRP vessel	
2. Replacement rails	8 - 5m rails etc.	
3. Vessel lifting equipment	1 - Cradle for vessel lifting etc.	
4. Equipment for workshop	2 - Tool box, 1 - Bench grinder, 1 - Bench drill, 1 - Arc welding machine, 1 - Air compressor, 1 - Outboard motor tool kit etc.	
5. Mooring buoy	1 - Mooring buoy etc.	

Reasons for modification of scope (if any).

(PMR)

2-3 Implementation Schedule

Items	Original		Actual
	<i>(proposed in the outline design)</i>	<i>(at the time of signing the Grant Agreement)</i>	
1. Multi-purpose vessel	26 months after Grant Agreement		
2. Replacement rails			
3. Vessel lifting equipment			
4. Equipment for workshop			
5. Mooring buoy			

Reasons for any changes of the schedule, and their effects on the project (if any)

--

2-4 Obligations by the Recipient

2-4-1 Progress of Specific Obligations

See Attachment 2.

2-4-2 Activities

See Attachment 3.

2-4-3 Report on RD

See Attachment 11.

2-5 Project Cost

2-5-1 Cost borne by the Grant(Confidential until the Bidding)

Components			Cost (Million Yen)	
	Original <i>(proposed in the outline design)</i>	Actual <i>(in case of any modification)</i>	Original ^{1),2)} <i>(proposed in the outline design)</i>	Actual
	1.			
Total				

Note: 1) Date of estimation:
2) Exchange rate: 1 US Dollar = Yen

2-5-2 Cost borne by the Recipient

Components			Cost (1,000 Taka)	
	Original <i>(proposed in the outline design)</i>	Actual <i>(in case of any modification)</i>	Original ^{1),2)} <i>(proposed in the outline design)</i>	Actual
Bank commission	To bear the following commissions to a bank in Japan for the banking services based upon the B/A 1) Advising commission of A/P 2) Payment commission for A/P		5,500 AUS\$	
Installation work	To carry out any installation works required for the equipment (example: to remove the current rails of the slipway and installing new rails, to prepare necessary concrete anchors and install mooring buoy)		22,000 AUS\$	
			27,500 AUS\$	

Note: 1) Date of estimation: August 2018
2) Exchange rate: 1 US Dollar =

Reasons for the remarkable gaps between the original and actual cost, and the countermeasures (if any)

(PMR)

2-6 Executing Agency

- Organization's role, financial position, capacity, cost recovery etc,

- Organization Chart including the unit in charge of the implementation and number of employees.

<p>Original (<i>at the time of outline design</i>) name: Fisheries Department role: Fisheries Department acts as a responsible custodian of oceanic or designated inshore fishery resources and fisheries rights so that they generate national revenues and sustainable employment opportunities. The Department also supports Kaupule (Island Council) and Falekaupule (Traditional Leaders) to manage inshore fisheries to support livelihoods and provide local food security. financial situation: Good (Fiscal Budget 639,925 AUS\$, 2017) institutional and organizational arrangement (organogram): attached human resources (number and ability of staff): 44 staffs including certified marine officers and engineers.</p>
<p>Actual (<i>PMR</i>)</p>

2-7 Environmental and Social Impacts

- The results of environmental monitoring based on Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- The results of social monitoring based on in Attachment 5 (in accordance with Schedule 4 of the Grant Agreement).
- Disclosed information related to results of environmental and social monitoring to local stakeholders (whenever applicable).

3: Operation and Maintenance (O&M)

3-1 Physical Arrangement

- Plan for O&M (number and skills of the staff in the responsible division or section, availability of manuals and guidelines, availability of spareparts, etc.)

<p>Original (<i>at the time of outline design</i>) 12 staffs in Operation & Development section including certified marine officers and engineers. Manual for vessel will be provided by the shipbuilder. All spare parts to be imported.</p>
<p>Actual (<i>PMR</i>)</p>

3-2 Budgetary Arrangement

- Required O&M cost and actual budget allocation for O&M

<p>Original (<i>at the time of outline design</i>) 47,139 AUS\$ for the research vessel operation in 2016. Actual expenses 44,673 AUS\$</p>
<p>Actual (<i>PMR</i>)</p>

4: Potential Risks and Mitigation Measures

- Potential risks which may affect the project implementation, attainment of objectives, sustainability
- Mitigation measures corresponding to the potential risks

Assessment of Potential Risks *(at the time of outline design)*

Potential Risks	Assessment
1. (Description of Risk) N.A.	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
2. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
3. (Description of Risk)	Probability: High/Moderate/Low
	Impact: High/Moderate/Low
	Analysis of Probability and Impact:
	Mitigation Measures:
	Action required during the implementation stage:
Actual Situation and Countermeasures	

(PMR)

5: Evaluation and Monitoring Plan (after the work completion)

5-1 Overall evaluation

Please describe your overall evaluation on the project.

5-2 Lessons Learnt and Recommendations

Please raise any lessons learned from the project experience, which might be valuable for the future assistance or similar type of projects, as well as any recommendations, which might be beneficial for better realization of the project effect, impact and assurance of sustainability.

5-3 Monitoring Plan of the Indicators for Post-Evaluation

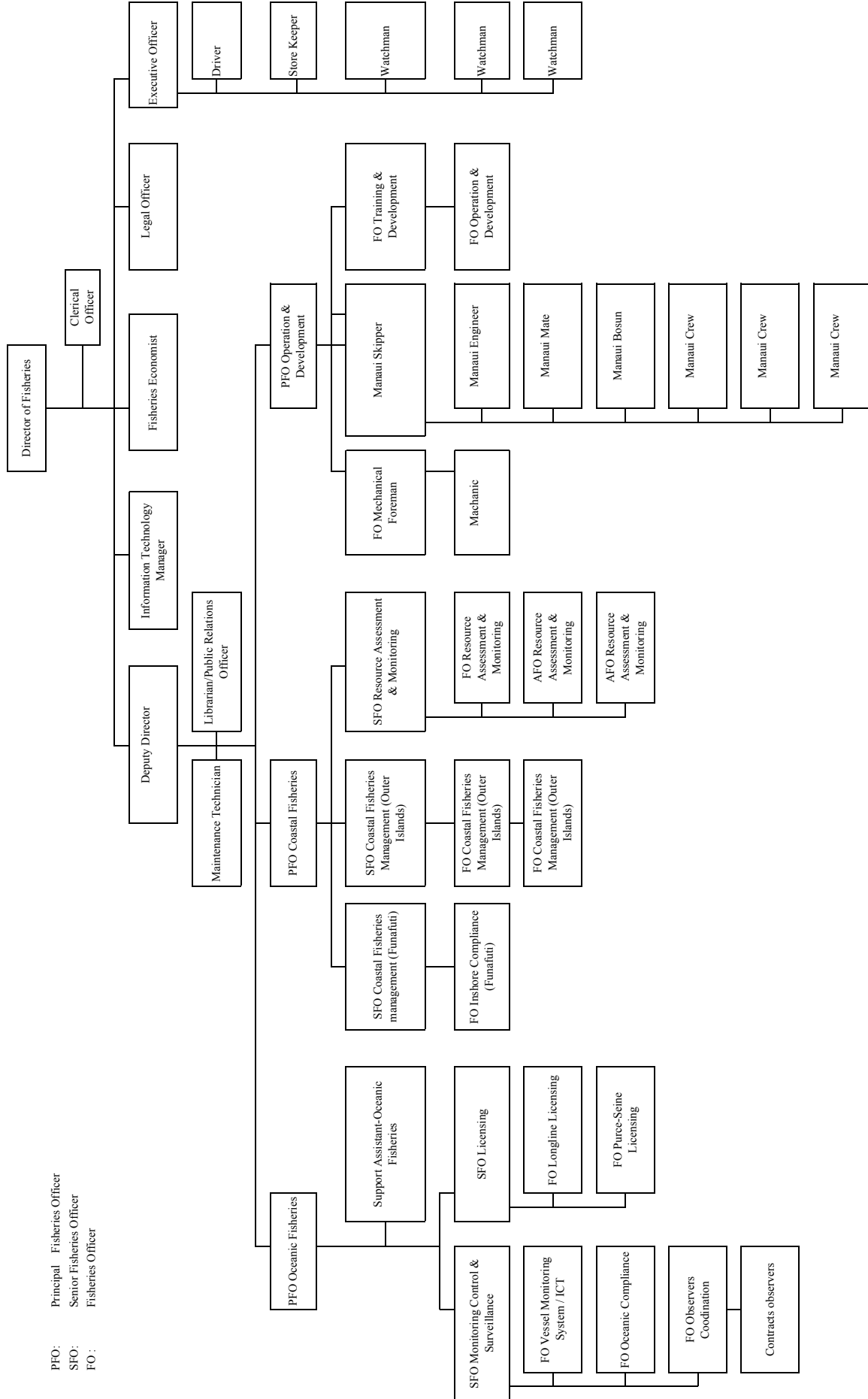
Please describe monitoring methods, section(s)/department(s) in charge of monitoring, frequency, the term to monitor the indicators stipulated in 1-3.

Attachment

Organization Chart

1. ~~Project Location Map~~
2. ~~Specific obligations of the Recipient which will not be funded with the Grant~~
3. ~~Monthly Report submitted by the Consultant~~
- Appendix ~~Photocopy of Contractor's Progress Report (if any)~~
 - ~~–Consultant Member List~~
 - ~~–Contractor's Main Staff List~~
4. ~~Check list for the Contract (including Record of Amendment of the Contract/Agreement and Schedule of Payment)~~
5. ~~Environmental Monitoring Form / Social Monitoring Form~~
6. ~~Monitoring sheet on price of specified materials (Quarterly)~~
7. ~~Report on Proportion of Procurement (Recipient Country, Japan and Third Countries) (PMR (final) only)~~
8. ~~Pictures (by JPEG style by CD-R) (PMR (final) only)~~
9. ~~Equipment List (PMR (final) only)~~
10. ~~Drawing (PMR (final) only)~~

Annex 2



PFO: Principal Fisheries Officer
 SFO: Senior Fisheries Officer
 FO: Fisheries Officer

Organization Chart of Fisheries Department

Sheet 1 Tax with respect to corporate income (Corporate Tax)

Items		Exemption	How to exempt	Applicable Law	rate(%)	How to calculation	Necessary Information	Previous Results, Lessons and Learned, etc
	License fee	<input type="radio"/>	Exempt (Advance d)	License Act 3(1)	Fix	Commercial industry \$ 200 Construction Company \$ 100	Organization in charge : Minister of Finance Procedure : Duration :	
	Income tax (Company tax)	<input type="radio"/>	Exempt (Advance d)	Income Tax Act Part 8-82/84/85, Sch. 1	40%	taxable income (gross income less deductible costs) x tax rate	Organization in charge : Minister of Finance Procedure : Duration :	

- Exempt (Advanced)
- Exempt (borne by the Recipient)
- Reimburse

先方担当者: Mr. Kelesi Sikela (Tax officer) email: ksikele@gov.tv, Ms. Tongamamao Tautai (Tax officer) ttatai@gov.tv
ツバル国では免除に關して明確な手続き方法を定めていない法や規則は無い(用紙の形式、申請先、申請時期等)。ツバルの税制度では財務大臣 (Minister of Finance) に一般的に免除権限が与えられている。実際に実施機関から大臣に申請をしている事実はなく、ODA事業ではEN等のタイミングで包括的な免除を財務大臣が与えそれを徴税官にアナウンスするという形で運用している。

税目	免稅方式	免稅法、免稅率	免稅率	計算方法	【免稅に必要な情報 (申請先、手順、所要期間)】	過去の実績、問題の有無、内容
ライセンス税 (本邦企業、第三国企業)	<input type="radio"/>	Exempt (Advance d)	Fix	Commercial industry \$ 200 Construction Company \$ 100	実施機関より財務大臣に申請。手続き規定は特になし。	特に問題なし
ライセンス税 (現地企業)		License Act 3(1)	Fix	Commercial industry \$ 200 Construction Company \$ 100		念に1度 Local Government に支払い、ライセンスを取得する必要がある。
所得税 (本邦企業、第三国企業)	<input type="radio"/>	Exempt (Advance d)	40%	taxable income (gross income less deductible costs) x tax rate	実施機関より財務大臣に申請。手続き規定は特になし。	特に問題なし
所得税 (現地企業)		Income Tax Act Part 8-82/84/85, Sch. 1	40%	taxable income (gross income less deductible costs) x tax rate		

(Sheet3) indirect tax etc (such as VAT, Commercial Tax)

(Points of Attention) [Reference]						
Items	Exemption	How to exempt	Applicable Law rate(%)	How to calculation	Necessary Information	Previous Results, Lessons and Learned, etc
Consumption tax	○	Exempt (Advanced)	Consumption Tax Act Part II-6 (1) (i) & (3) c)	7%	Organization in charge : Minister of finance Procedure : Duration :	

- Exempt (Advanced)
- Exempt (borne by the Recipient)
- Reimburse

先方担当者: Mr. Kelesi Sikele (tax officer) email: ksikele@gov.tl, Ms. Tongameao Tautai (tax officer) ttautai@gov.tl ツバル国では免除に関して明確な手続き方法を定めている法や規則は無い(用紙の形式、申請先、申請時期等)。ツバルの税制度では財務大臣 (Minister of Finance) に一般的に免除権限が与えられている。実際に実施機関から大臣に申請をしている事実はなく、ODA事業ではEW等のタイミングで包括的な免除を財務大臣が与えそれを徴税官にアナウンスするという形で運用している。						
税目	免税	免税方式	根拠法、条項	税率	計算方法	【免税に必要な情報(手順、申請先、所要期間)】 過去の受渡、問題の有無、内容
Consumption Tax	○	Exempt (Advanced)	Consumption Tax Act Part II-6 (1) (i) & (3) c)	7%		政府機関が輸入する物品については法律上無税(機材、建築用資材、船舶等、ODAプロジェクトでツバル国に輸出するものは原則これに該当)。その他のものについては実施機関より財務大臣に申告。

(Sheet4) Duties etc.

[Points of Attention]
[Reference]

Items	Exemption	How to exempt	Applicable Law	rate (%)	How to calculation	Necessary Information	Previous Results, Lessons and Learned, etc
Duty	○	Exempt (Advanced)	Customs Revenue and Board Protection Act Schedules 1-Imports (2) 9& 12			Organization in charge : Procedure : Duration :	
Import Levy	○	Exempt (Advanced)	Import Levy Order Schedule (Paragraph 4). 5&6				

○ Exempt (Advanced)
- Exempt (borne by the Recipient)
Reimburse

税目	免税	免税方式	課税法、条項	税率	計算方法	【免税に必要な情報 (手続、申請先、所要期間)】	過去の実績、問題の有無、内容
関税	○	Exempt (Advanced)	Customs Revenue and Board Protection Act Schedules 1-Imports (2) 9& 12			船用品や港湾用品は法律上免税。輸入時に Customs Officer に申告。政府使用機器も法律上免税。実施機関に輸入時に立会を求め、Customs Officer に申告する。	過去の実績、問題の 特に問題なし。
Import Levy	○	Exempt (Advanced)	Import Levy Order Schedule (Paragraph 4). 5&6			ODA の品物と政府輸入品については免除。実施機関に輸入時に立会を求め Customs Officer に申告する。	特に問題なし。

(Sheet 5) Other taxes and levies

【Points of Attention】
【Reference】

Items	Exemption	How to exempt	Applicable Law	rate(%)	How to calculation	Necessary Information	Previous Results, Lessons and Learned, etc
						Organization in charge : Procedure : Duration :	

- Exempt (Advanced)
- Exempt (borne by the Recipient)
- Reimburse