

National Fisheries Authority
Milne Bay Provincial Government
Independent State of Papua New Guinea

**PREPARATORY SURVEY REPORT
ON
THE PROJECT FOR REHABILITATION OF
ALOTAU TOWN MARKET AND FISHERIES
FACILITIES
IN
THE INDEPENDENT STATE OF
PAPUA NEW GUINEA**

APRIL 2017

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

OAFIC CO., LTD.

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PREFACE

Japan International Cooperation Agency (JICA) decided to conduct the preparatory survey and entrust the survey to OAFIC Co., Lt.

The survey team held a series of discussions with the officials concerned of the Government of the Independent State of Papua New Guinea, and concluded 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 the Independent State of Papua New Guinea for their close cooperation extended to the survey team.

April, 2017

Mr. Hiroto MITSUGI
Managing Director
Rural Development Department
Japan International Cooperation Agency (JICA)

SUMMARY

SUMMARY

I. Country overview

The Independent State of Papua New Guinea (hereafter, “PNG”) is located in the South Pacific between 0° and 14° south latitude and between 141° and 160° east longitude, about 160km north of Australia. It occupies the eastern half of the island of New Guinea (the western half which is occupied by Irian Jaya Province, Indonesia) as well as over 700 large and small islands and atolls. PNG possesses the largest landmass and highest population of all of the Pacific island nations, and it is rich in natural resources. It has played a central role in the region since gaining independence in 1975.

The project site is Alotau Town. Located at 10°18'S 150°26'E, it is the capital of Milne Bay Province on the eastern edge of the country. With a land area of approximately 16,000 km², Milne Bay Province accounts for only 3% of PNG's entire land area of 462,000 km², but the area of the ocean attributed to the outlying islands on which 64% of the province's population lives is 253,000 km², or roughly the size of Japan's islands of Honshu and Kyushu combined. In the local language, Alotau means harbor. The town is located on the north shore 40km from the mouth of Milne Bay, a bay on the eastern edge of New Guinea that measures 40 km wide at the mouth and 50 km deep. Behind the town stand mountains ranging in height from a few hundred to 700m, and its climate classification is tropical rainforest.

Society-wise, PNG had been administered by the O'Neill-Dion coalition government since the general election of 2012, but since general elections are held once every five years, an election is scheduled to be held in 2017 in line with the expiration of the five-year term. In recent years, likely due to the continued stagnation of oil prices, the government has been unable to achieve its policies, and there has been a noticeable decline in its power. In the capital of Port Moresby, robbery and other incidents causing concern for safety are commonplace, so over the short term, there is significant potential for increasing social and political unrest leading up to the general election in 2017.

PNG has a long-standing dual economy that features a subsistence sector and a money-based sector, and manufacturing, a key primary industry, remains undeveloped. Primary exports include natural gas and other minerals, gold, silver, palm oil, wood, and coffee. Major minerals, including gold and silver, account for nearly 70% of all exports by value. PNG's key trading partners on the export side are Japan, Australia, China, Taiwan and Indonesia, while most of its imports come from Australia, Singapore, China, the United States, Indonesia, Taiwan, and Japan. PNG recorded between PGK 5 and 10 billion in trade surpluses between 2011 and 2013 on the back of liquefied natural gas (LNG) production. In 2014, the value of its exports nearly doubled year-on-year, but the value of imports increased 2.7-fold, leading to a trade deficit of PGK 13 billion. In terms of economic policy, the Medium Term Development Plan 2016-2017 (hereinafter, “MDTP2”) calls for development aimed at the effective use of PNG's abundant natural resources as a means to stimulate long-term economic development.

II. Project background, course of development, and objectives

The agricultural and fisheries sectors account for about 30% of PNG's GDP (2012), and they are important industries considered as priority areas by both the Medium Term Development Plan 2011-2015 (hereinafter, "MDTP1") and MDTP2. However, activities in these industries are still extremely small and subsistence-based. Surplus agricultural and fishery products, i.e., products that are not exported or consumed for personal use, are sold at local markets, and they constitute a valuable source of cash income and livelihood for non-urban residents, who account for 80% of the country's population. In response to MDTP1 and MDTP2, the National Fisheries Authority (hereinafter, "NFA"), the responsible agency for this project, defined the development of the coastal fisheries industry in Milne Bay Province - where 81% of the working age population is engaged in subsistence farming and fishing - as a priority issue of its action plan.

Alotau is the capital of Milne Bay Province, and the Alotau Town Market, which is located in the city center, serves as the distribution center for the agriculture and fishery products brought in from the outlying areas. Not only is the Alotau Town Market a retail market for residents of the city, it also functions as a vital center where rural inland farmers and fishermen from the outlying islands can earn cash. However, more than 45 years have passed since the market was opened in 1969, so the facilities have grown quite old. At the same time, with only 316 vendor tables under the roofed section of the market, there is not enough space for the 500 to 900 vendors who typically work there, so many of them have occupied the corridors and other open spaces to sell their foods and other wares. Sanitation issues also abound. Due to the limited space and disorderly occupation of open areas, seafood, processed foods, and fresh produce are all sold in close proximity to each other, and often times they are placed directly on the ground. Furthermore, the toilets in the market are out of order due to issues with the drain pipes and septic tanks. Moreover, the garbage generated on a daily basis is left sitting on a patch of land inside the market for up to one week.

The total population of Milne Bay Province is about 300,000, of which around 190,000 live on one of 10 comparatively large islands or 150 small islands and atolls. Boats from these islands use the wharf in Sanderson Bay to deliver and pick up passengers and supplies. Constantly crowded with many different boats, Sanderson Bay is located about one kilometer from Alotau Town Market, making it difficult for fishermen and islanders to access the market. Excluding the people on the outlying islands, most of the residents who live along Milne Bay on the island of New Guinea access Alotau Town Market from an adjacent beach, not Sanderson Bay. In 1999, a jetty was constructed on this beach to provide access to the market, but since it was a temporary wooden structure, it has deteriorated over time, and it was requested to renovate this into a permanent jetty composed of steel tube pilings and a reinforced concrete superstructure.

In light of this backdrop, in an effort to improve and invigorate the distribution of agricultural and fishery products in Milne Bay Province and to improve the livelihoods of the fishermen and farmers in the province, the Government of PNG, under the names of NFA and the Milne Bay Provincial Government, formulated the "Project for the Rehabilitation of Alotau Town Market and Fisheries Facilities" in May 2013 and based on this, it requested grant aid from the Government of Japan for the renovation and upgrading of the aging Alotau Town Market and related facilities.

III. Summary of Survey Results and Project Details

In response to the aforementioned request from PNG, the Government of Japan decided to conduct a Preparatory Survey. After a detailed consideration of the necessity, suitability, and urgency of the requested project and a deliberation of the appropriateness of the details of scope of this project to receive Grant Aid for Fisheries, Japan International Cooperation Agency (hereafter, “JICA”) sent a preparatory survey team to review the Project for the Rehabilitation of Alotau Town Market and Fisheries Facilities so that the outline design of the necessary facilities and equipment could be formulated.

Outline Design Survey: May 17 – July 23, 2016

Draft of Outline Design Explanation Survey: December 10 – 19, 2016

With the outline design survey, the survey team analyzed the situation in the country to assess the following: the background and content of the project, management and maintenance plans, natural conditions, construction conditions, and the materials procurement situation. As a result of this survey, the survey team formulated the following preliminary design, which calls for the construction of the following facilities to be covered by Japanese development aid: market space, market sheds & building, fisheries center, administration building, market toilet, gate houses, corridors, PMV stand, standby rubbish bays, public parking area, pavement, riverbank protection, and a small mooring wharf. The aim of this is to improve market facilities and related sanitation and fisheries facilities as well as external facilities within the project site whose area had been expanded to include the existing market and adjacent lot. The ultimate goal is to contribute to the sustainable economic growth of the region by responding to the needs of market users and local residents in an effort to i) improve the usage environment and sanitation and ii) improve user (i.e., retailers and customers) satisfaction and to stabilize and enhance the lives of the users of Alotau Town Market—which local farmers and fishermen within the project areas depend on to earn a living and where local residents go to buy daily necessities.

Facilities	Content
Market Space	Retail for nut crops, Reinforced concrete foundation, Steel superstructure, Single storey, Floor Area: 795.24m ² , Floor sales type, (Foundation and floor slab only)
Market Shed-I	Retail for pulses & luxury grocery items, Reinforced concrete foundation, Steel superstructure, Single storey, Floor Area: 264.00 m ² , Table sales type
Market Shed-II	Retail for fruits & vegetables, root crops, tubers, Reinforced concrete foundation, Steel superstructure, Single storey, Floor Area: 392.70 m ² , Floor sales type
Market Shed-III	Retail for greens, fruits & vegetables, Reinforced concrete foundation, Steel superstructure, Single storey, Floor Area: 563.85 m ² , Table sales type
Market Building-IV	Retail for cooked food, Reinforced concrete foundation & hollow concrete block structure, Single storey, Floor Area: 146.05 m ² , Table sales type
Market Shed-V	Retail for Fresh & smoked seafood, Reinforced concrete foundation, Steel superstructure, Single storey, Floor Area: 94.40 m ² , Table sales type
Market Shed-VI	Retail for items other than agricultural/ fishery products, Reinforced concrete foundation, Steel superstructure, Single storey, Floor Area: 70.15 m ² , Floor sales type

Fisheries Center	Ice making room, ice station, fisheries office, coastal fishery resource center, Reinforced concrete foundation & hollow concrete block structure, Single storey, Floor Area: 132.48 m ²
Administration Building	Market supervisor's office, accountant's office, staff room, first aid room, vendors' storeroom 1&2, market storeroom, kitchenette, corridor, etc., Reinforced concrete foundation & hollow concrete block structure, Single storey, Floor Area: 186.75 m ²
Market Toilet	Men's toilet, women's toilet, toilet for disabled users, market staff toilet, fee station, water station, etc., Reinforced concrete foundation & hollow concrete block structure, Single storey, Floor Area: 100.80 m ²
Gate Houses 1 to 3	Fee collection space, Connecting corridor, Reinforced concrete foundation, Steel superstructure, Single storey, Floor Area: 110.86 m ²
Corridors	Connecting corridors' width using a typical dimension of 1,950 mm, Reinforced concrete foundation, Steel superstructure, Single storey
External Works	PMV stand, Standby rubbish bays, Septic tank and Absorption wells, Rainwater drainage trenches, Interlocking pavement 2,010 m ² , Market parking space and road 1,541 m ²
Small Mooring Wharf	Mooring 15 dinghies, Precast concrete blocks & reinforced concrete upper structure, Wharf length 70.5m, Revetment 59.2m
Riverbank Protection	Geo-Cell retaining wall construction, Height: 2.5 to 3m, Total length: 240m

Equipment	Usage purpose/ Main specifications
Garbage Truck	Transport and disposal of the garbage generated at the market. Q'ty=1, Mechanical-type, Maximum load capacity: roughly 4 m ³ , 1.2t, Carrosserie: 2t class

IV. Project Construction Schedule and Cost Estimate

If this project is to be implemented with Japanese grant aid, it will take about 4.0 months to obtain approval for the detailed designs and bidding documents, about 3.5 months to conduct P/Q, bidding and sign a construction/ procurement contract, and about 14.0 months from the approval of shopdrawings after the conclusion of a contract with a contractor until the completion of construction, procurement of equipment and inspection, making for a total construction/ procurement schedule of roughly 21.5 months. The total project cost required by the PNG side is estimated to be PGK 7,391,400 (JPY 256 million).

V. Project Evaluation

The implementation of this project has been deemed suitable for the following reasons.

- 1) The beneficiaries of this project are local residents, including poor ultra-small-scale farmers, fishermen and retailers, the number of whom is quite large.
- 2) This project will contribute to the achievement of the goals stated PNG's MTDP2.
- 3) The facilities and equipment for this projects can by appropriately managed and maintained using PNG's own funds, human resources, and technical capacity.

- 4) The income generated by the operation of this project should be able to be put to use for the sustainable and effective management and maintenance of the facilities and equipment.
- 5) The implementation of this project will have a social impact on the market users since a temporary relocation will be necessary during construction, but appropriate measures have been taken to reduce said impact.
- 6) This project is consistent with Japan's aid policies.

In terms of project effectiveness, anticipated quantitative effects are as follows.

- 1) The total number of retailers who will be able to conduct sales in Alotau Town Market, either from tables or floor spaces, will increase from 316 to 737 per day.
- 2) The area of an individual sales space within Alotau Town Market will increase from 0.45 m² to 0.64 m².
- 3) The annual operating income of Alotau Town Market will increase from PGK 314,866 to PGK 404,500.
- 4) The number of people who use the toilet in Alotau Town Market will increase from 0 to 1,300 per week.
- 5) The number of dinghies that can moor at the coastal area in front of Alotau Town Market will increase from 10 to 15.

The anticipated qualitative effects are as follows.

- 1) By improving rainwater drainage, reducing mud with a paved interior, and promoting proper trash management with improved standby rubbish bays, the state of sanitation at Alotau Town Market will improve.
- 2) By controlling the market entrance, improving the corridors, reducing uneven surfaces, and promoting soft zoning, the user environment (for shopping etc.) and sanitary conditions of the renovated Alotau Town Market will improve, thereby improving the satisfaction of the users (i.e., retailers and customers).
- 3) The upgraded small mooring wharf will provide users with more convenient access to Alotau Town Market from the sea. This will also lead to improved working conditions for duties such as unloading fresh seafood and hauling it into the market.
- 4) Food safety for the residents of Milne Bay Province, the primary users of Alotau Town Market, will improve.
- 5) An uptick in transaction volume at Alotau Town Market will help to invigorate the economy of the Milne Bay region.

For these reasons, the use of Japanese grant aid to implement the items in this project that fall under the scope of cooperation is hereby deemed suitable.

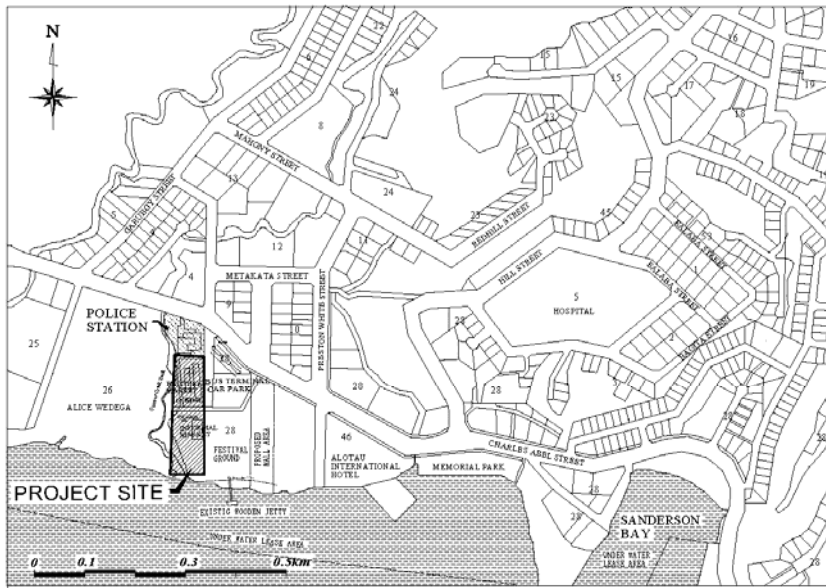
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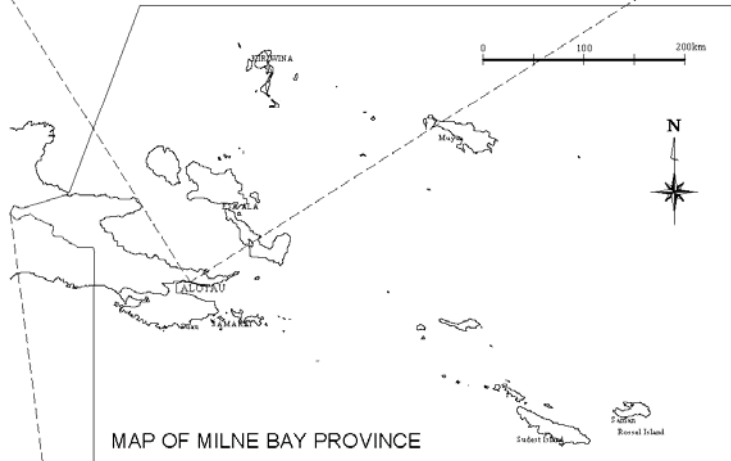
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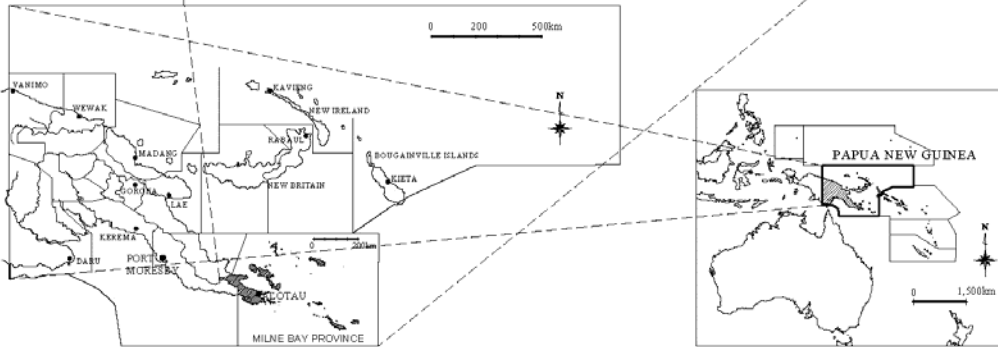
LOCATION MAP



LOCATION OF PROJECT SITE



MAP OF MILNE BAY PROVINCE



MAP OF PAPUA NEW GUINEA



PERSPECTIVE

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ABBREVIATIONS

Abbreviations	Formal Name
NFA	National Fisheries Authority
LLG	Local Level Government
GDP	Gross Domestic Product
Vision 2050	Papua New Guinea Vision 2050
DSP 2030	Development Strategic Plan 2010-2030
StaRS	National Strategy for Responsible Sustainable Development for Papua New Guinea
MTDP	Medium Term Development Plan
MTDP1	Medium Term Development Plan 2011-2015
MTDP2	Medium Term Development Plan 2016-2017
PMV	Public Motor Vehicle
CEPA	Conservation of Environmental Protection Authority
DEC	Department of Environmental Conservation
EPA	Environment Permit Application
PNC	People's National Congress

Chapter 1 Background of the Project

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1-1 Background of the Project

1-1-1 Background of the Request

The agricultural and fisheries sectors account for about 30% of GDP (2012) of the Independent State of Papua New Guinea (hereinafter, “PNG”), and they are important industries considered as priority areas by both the Medium Term Development Plan 2011-2015 (hereinafter, “MDTP1”) and Medium Term Development Plan 2016-2017 (hereinafter, “MDTP2”). However, activities in these industries are still extremely small and subsistence-based. Surplus agricultural and fishery products, i.e., products that are not exported or consumed for personal use, are sold at local markets, and they constitute a valuable source of cash income and livelihood for non-urban residents, who account for 80% of the country’s population. In response to MDTP1 and MDTP2, the National Fisheries Authority (hereinafter, “NFA”), the responsible agency for this project, defined the promotion of the coastal fisheries industry in Milne Bay Province—where 81% of the working age population is engaged in subsistence farming and fishing—as a priority issue of its action plan.

Alotau is the capital of Milne Bay Province, and the Alotau Town Market, which is located in the city center, serves as the distribution center for the agriculture and fishery products brought in from the outlying areas. Not only is the Alotau Town Market a retail market for residents of the city, it also functions as a vital center where rural inland farmers and fishermen from the outlying islands can earn cash. However, more than 45 years have passed since the market was opened in 1969, so the facilities have grown quite old. At the same time, with only 316 vendor tables under the roofed section of the market, there is not enough space for the 500 to 900 vendors who typically work there, so many of them have occupied the corridors and other open spaces to sell their foods and other wares. Sanitation issues also abound. Due to the limited space and disorderly occupation of open areas, seafood, processed foods, and fresh produce are all sold in close proximity to each other, and often times they are placed directly on the ground. Furthermore, the toilets in the market are out of order due to issues with the drain pipes and septic tanks. Moreover, the garbage generated on a daily basis is left sitting on a patch of land inside the market for up to one week.

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In light of this backdrop, in an effort to improve and invigorate the distribution of agricultural and

fishery products in Milne Bay Province and to improve the livelihoods of the fishermen and farmers in the province, the Government of PNG, under the names of NFA and the Milne Bay Provincial Government, formulated the “Project for the Rehabilitation of Alotau Town Market and Fisheries Facilities” in May 2013 and based on this, it requested grant aid from the Government of Japan for the renovation and upgrading of the aging Alotau Town Market and related facilities.

1-1-2 Necessity of Japanese Government Grant Aid and Project Scope

The project site of Milne Bay Province accounts for only 3.8% of PNG’s entire population, but it features many outlying islands. Because of this, the construction of social infrastructure is behind schedule when compared to other regions of the country. This province also has the largest proportion of residents who are forced to pursue ultra-small scale subsistence farming and fishing, occupations that do not provide much cash income. For these residents of Milne Bay Province, the Alotau Town Market is a valuable source of cash income, so renovating and improving the market as part of this project can help improve and invigorate the distribution of agricultural and fishery products in the region, and it can contribute significantly to improving the livelihoods of the farmers and fishermen who live in the province. With regard to improving the livelihoods of the farmers and fishermen, *Vision 2050*, a list of PNG’s ultimate goals for the country, states that efforts will be made to “improve Papua New Guinea’s Human Development Index (HDI) ranking to 50.” Therefore, PNG has formulated a responsible development plan that focuses heavily on sustainability, and two common principles within this plan are i) improved food security and ii) improved quality of life through poverty reduction. The farmers and fishermen mentioned earlier are the people who use the market included in the scope of this project, so in the very least, the number of people who will directly benefit from this project stands at more than 7,700. This figure reaches more than 39,000 when the family members of these farmers and fishermen are included. From this perspective, this project can be deemed as highly necessary, and it would be suitable to implement it with Japanese grant aid.

Forty-seven years have passed since Alotau Town Market first opened, but over the past five years, the number of users has been increasing gradually every year. According to the national census of 2011, the population of Milne Bay Province increased at a rate of 2.5%, so the number of market users can be expected to increase at an equal rate. In planning the design of this project, it would be appropriate to consider for the size of the project to be based on the current number of users. Because though the rate of population increase is only 2.5%, the number of retailers who currently use the market range between 500 and 900-plus from day to day, therefore, it would be appropriate to use the average number of retailers obtained during the field survey (728) as the current number of users. When the maximum number of retailers is in the market, it will be about 200 more than the daily average, but these additional users can be expected to be absorbed by using the space under the eaves of the planned Market Sheds. In the very least, the current problem of retailers having to sell wares on the ground in the open air, which is unsanitary when it is raining and muddy, should be sufficient alleviated.

A standard grading system will be used for the planned facilities to avoid excessive specifications that

could lead to construction cost overruns. Just east of the project site lies the National Canoe and Kundu Festival Site. This festival is held every November, but since 2007 in particular, the Milne Bay Provincial Government has made this the centerpiece of its tourist development efforts. The size of the festival grows every year and since it is a national event, it attracts people from other provinces in PNG as well as an increasing number of foreign tourists. Given that Alotau Town Market is situated right next to a place that attracts numerous people from other regions, this location can be used to make an appeal to the public about the achievements of Japan's grant aid. At the same time, this is an important factor that will also need to be taken into consideration when planning the facilities. In addition to the annual National Canoe and Kundu Festival mentioned above, every year, about 30 large cruise ships from Australia and other countries make ports of call in Sanderson Bay, and every time they dock, several thousand tourists disembark to visit Alotau Town Market. If retail space can be allocated for souvenirs and traditional crafts targeting these tourists, it could contribute to Milne Bay Province's tourism development efforts, and it could be significant.

1-1-3 Course of Development since the Preparatory Survey and Summary of Survey Results

The first preparatory survey for outline design was conducted from May to July 2016 in response to the requests mentioned in the previous section. During the first preparatory survey period, a discussion about the details of the requests was held with PNG government officials on June 10, and each component was ranked A, B or C, with A being the highest priority. The results of agreement reached by both sides can be found in Table 1-1.

Table 1-1. Results of the Confirmation for Requested Items

Facilities			
Requested Component		Description	Priority
1-1	Common Market Shed I (food, vegetables)	One story, table sales type, steel structure 670.39m ²	A
1-2	Common Market Shed II (non food item)	One story, table sales type, steel structure, 670.39m ²	A
1-3	Cooked Food Market Building	One story, extension from current building with ice and fresh fish holders, 80m ²	A
1-4	Administration Building	TBD	A
1-5	Corridor with roofing	5m width	A
1-6	Chiller Building for storage	One story, raised concrete floor, steel structure, 6m x 10m	B
1-7	Kiosk Building	TBD	C
1-8	Interlocking Pavement	Market interior area (within fenced area)	A
1-9	Public Toilet	Market toilet (one building with partition separating male and female toilets – female: 3 toilets, male: 2 toilets, 1 urination area)	A
1-10	Market Parking Space	Gravel compacting, 900m ²	A
1-11	Market Outdoor Facilities	Refreshment space, drainage trenches, standby rubbish bays	A
1-12	Fish landing & sorting shed with ice sales section	One story, open space, concrete floor, steel structure, 6m x 15m, <i>including enclosed partition room to serve as a coastal artisanal fisheries resource centre (For dissemination of information in the form of charts, brochures, pamphlets on the conservation of coastal environment and sustainable management of coastal fisheries resources to the public, schools, fishermen etc. The centre will be manned jointly by Provincial Fisheries & AULLG. NFA will provide information).</i>	A
1-13	T-shape Market Jetty Improvement	W:5m, L:13m), Access section (W:3.5m, L: 20m), steel piling, reinforced concrete upper section, rubber fender, etc.	C
1-14	Standby Generator	30KVA	C
1-15	Gate houses/huts (additional)	To be allocated at the main gates for the vendors and the customers	A

1-16	<i>Public Parking area for customers (additional)</i>		<i>Public parking will provided outside where</i>	B
1-17	<i>PMV terminal (additional)</i>		<i>Specific terminal for PMVs that vendors used to bring their produce and as transport to return homes.</i>	B
1-18	<i>Market drainage improvement works (additional)</i>		<i>Improvement works along the creek to protect erosion and damage to the market premises</i>	B
1-19	<i>Fish Retail Market section</i>		<i>Retail section for the fish market vendors to sell fish and other marine produce</i>	A
Equipment				
	Requested Component	Q'ty	Description	Priority
2-1	High pressure washer	3	70kg/cm ²	C
2-2	Rubbish Pick-up truck	1	<i>Garbage Truck- specifically for the up keeping of the Market.</i>	B
2-3	<i>PA system (additional)</i>	<i>1</i>	<i>The PA system will be used for making announcement and awareness on daily upkeep and general usage of the Market facilities</i>	A

Priority Level A: Highly necessary, B: There is a recognized need C: Under consideration for removal from the project

The items in italics in Table 1-1 are additional requests from the PNG side that were raised during the first preparatory survey. For each component, details were confirmed with the PNG side after the discussion, and the results of considerations on the preparatory survey outcomes are as follows.

(1) Facilities

a) 1-3: Cooked Food Market Building

The original request was to construct this building by extending on to the current building with ice-making building in the Alotau Town Market; however, since the PNG side decided to dismantle all existing structures on the project site, it now plans to establish an independent facility.

b) 1-4: Administration Building

The Administration Building will be the base of operations for the market. The plan is to keep the building as small as possible while still complying with the management and maintenance plan for this project. In the joint consultation with representatives from Milne Bay Province, which was held as part of the preparatory survey, a request was made for a first-aid station where market users (especially women with children) could rest in the event of a sudden illness or wait to be transferred to a hospital. Since large numbers of people come to the market every day, it would be beneficial to have this kind of space. Keeping the cost in mind, there is no need to build a free-standing facility. Instead, one room could be added to the Administration Building for this purpose, so it was decided that the layout plan for the Administration Building should take into account the operation of this space.

c) 1-6: Chiller Building for Storage

A wide range of products are sold at Alotau Town Market, including vegetables, fruits, root crops, potatoes, fresh seafood, smoked seafood, and cooked food. Of these, leftover fresh seafood and vegetables are either taken home by the retailers to give to their relatives or discarded. For this reason, the PNG side requested the construction of a chiller building for storage inside the market so that leftover fresh foods can be stored and put out for sale the following day. However, these leftover fresh foods are products that have been on display for many hours in the tropical rainforest climate of the region, so keeping in mind competition among vendors, even if these products are refrigerated overnight, it is highly likely that they could end up going unsold again if new batches of the same kinds of fresh foods are brought in on a daily basis. From this point of view, the need for a chiller building for storage can be deemed as low.

On the other hand, there is little impact on fruit, root crops, and potatoes because if they are stored overnight at room temperature, they can still compete with new batches of the same kinds of foods brought in for sale the next day. Furthermore, when the retailers in the market were surveyed, it was found that they take home relatively heavy leftovers, such as fruit, root crops, and potatoes, by public motor vehicle (PMV). Many of these retailers bring these products back to market the following day, which is inconvenient heavy labor, especially for female retailers. Many retailers said that if there was a storeroom where they could store these kinds of leftover products, they would even pay money to use it. Considering the demand for non-refrigerated storage, it was determined that a storeroom for retailers was highly necessary, so it was agreed that it would be installed inside the Administration Building.

d) 1-7: Kiosk

Upon conducting the preparatory survey, it was confirmed that there are two kiosk facilities inside the existing market but both of them are closed. They were forcibly closed by the market administrator (Huhu LLG) because the lessees had failed to pay rent. Since the same problem could recur and due to sanitation management risks, it was confirmed that kiosks would not be easy to operate. Also, since the priority level of kiosks was deemed to be low in comparison to other the Market Sheds and other facilities, after the discussion with the PNG side, the kiosks were given a priority level of C and removed from the scope of the project. That being said, this decision does not serve to deny the need for improvement, so it was agreed that in the overall facility layout plan, room (i.e., physical space) would be left to include kiosks in future plans for the project site.

e) 1-13: T-shape Market Jetty Improvement

Keeping in mind cost effectiveness, both sides agreed that the installation of a jetty of the same size and shape of the existing wooden one was not very appropriate in light of the current state of use of said jetty. For this reason, this item was given a priority level of C; however, the PNG side strongly requested that the Japan side consider a seawall-style wharf like the one installed in the similar “Project for the Rehabilitation of Madang Town Market” as an alternative. The JICA survey team agreed to take this into consideration after adequately verifying the demand and need for said facility in its survey.

f) 1-14: Standby Generator

The standby generator was requested because it would have been necessary for the operation of the requested chiller building for storage, but since the need for the latter facility was deemed as low, it was agreed that this item would also be given a priority level of C. Furthermore, since it was explained that the need for a standby generator is even lower because blackouts occur infrequently, both sides agreed to remove this from the scope of the project.

g) 1-16: Public Parking Area for Customers

The market is located in the center of Alotau, the capital of Milne Bay Province, immediately to the west of the spacious National Canoe and Kundu Festival Site and to the southwest of the Main Bus Stop, which serves as the keystone of overland transportation for the entire Alotau District. Many of the retailers and customers who visit Alotau Town Market use PMVs, but some also come in personal vehicles which they park in a corner of the Festival Site to the east of the market. Since the parking area is not paved, it turns muddy when it rains, and when the weather is dry, dust from the lot is blown into the air and carried into the market. For these reasons, the unpaved lot has a negative impact on both market access and sanitation. The PNG side has requested that this area east of the market be paved and used as a public parking area in order to reduce these negative impacts. Since improving market sanitation is one of this project's objectives, and since this is a useful component with a comparatively high public nature, it was agreed that this item would be considered after fully ascertaining the actual usage of the parking area during the preparatory survey.

h) 1-17: PMV Terminal (PMV stand)

For retailers, access to the aforementioned Alotau Town Market site is from the eastern side. Everyday, in the early hours of the morning, numerous retailers enter the market with the bags of products they have brought with them on PMVs, but at present, since they head towards the market entrance from the public parking area mentioned in the preceding item, when it rains, everyone rushes to get to the market before everyone else, making for an extremely congested entrance. The PNG side has requested a PMV terminal (PMV stand) to ensure the smooth flow of foot traffic from where the retailers disembark PMVs with their products to the market entrance. Placing the stand alongside the gate house would likely allow for the orderly flow of retailers into the market, which would in turn enable the steady collection of market fees. This would not only be convenient for retailers, it would be beneficial in terms of market administration. It was agreed that in the facility layout plan, the road that PMVs would use to access the market from the main road would be considered in light of compatibility with the aforementioned public parking area.

i) 1-18: Market Drainage Improvement

The project site is a long and narrow trapezoid measuring 65 m east to west and 230 m north to south, and overall, it is flat. The coast lies to the south side of the site, and rainwater generally drains from north to south down a long, gentle slope; however, because this slope is long and gentle, it takes a long time for water to drain, and this is one cause of mud inside the market. There is a creek to the west of the project site which acts as a natural embankment because of the difference in elevation between

this creek and the project site. Typically, there is no current in this creek, but when a substantial amount of rain falls in the hilly region that lies inland, it flows down the creek and drains into the ocean. Therefore, when torrential rains occur in a short period of time, the rainwater discharges in a surge, and the banks of the creek have eroded in some places. Going forward, when the rainfall surges down the creek or there are flash floods, the potential for damage from these eroding banks is not insignificant.

With regard to the request for market drainage improvement, it would be reasonable to make the drainage route shorter by routing it toward the creek in order to ensure more effective drainage of the market premises. This would require the construction of drainage ditches in the creek bank, so concurrently installing retaining walls on the creek could protect the land and facilities on project site from erosion. From this perspective, it was agreed that the installation of drainage ditch including retaining walls for riverbank protection would be considered.

(2) Equipment

a) 2-1: High Pressure Washer

The high pressure washer was requested for cleaning the market, but it cannot be deemed an appropriate piece of equipment because, during cleaning, there is a possibility that it would spread trash around or cause it to collect in the drainage ditches. After explaining this to the PNG side, it was agreed that the high pressure washer would be given priority level of C, and it was removed from the scope of the project.

b) 2-2: Rubbish Pick-up Truck

The purpose of this truck is to carry garbage generated inside the market to the disposal site. The original request was for a 500 kg four-wheel drive single-cabin pickup truck, but this was changed to a garbage truck since the purpose of use needed to be clarified. At present, garbage is collected from Alotau Town Market only about once a week, so the situation is unsanitary. Therefore, it was agreed that this item would be considered after ascertaining the current state of garbage collection in Alotau Urban LLG and Huhu LLG.

c) 2-3: PA System

A PA system was requested in order to make it easier to direct administrative announcements to the market users. Since this is a component that belongs in the facilities section, rather than the equipment section, it was agreed that it would be considered in the section on construction and electric work.

1-2 Natural Conditions

Papua New Guinea (hereafter, “PNG”) is located in the South Pacific between 0° and 14° south latitude and between 141° and 160° east longitude, about 160km north of Australia. It occupies the eastern half of the island of New Guinea (the western half which is occupied by Irian Jaya Province, Indonesia) as well as over 700 large and small islands and atolls. PNG possesses the largest landmass and highest population of all of the Pacific island nations, and it is rich in natural resources. It has played a central role in the region since gaining independence in 1975.

The project site is Alotau Town. Located at 10°18'S 150°26'E, it is the capital of Milne Bay Province on the eastern edge of the country. With a land area of approximately 16,000 km², Milne Bay Province accounts for only 3% of PNG's entire land area of 462,000 km², but the area of the ocean attributed to the outlying islands on which 64% of the province's population lives is 253,000 km², or roughly the size of Japan's islands of Honshu and Kyushu combined. In the local language, Alotau means harbor. The town is located on the north shore 40km from the mouth of Milne Bay, a bay on the eastern edge of New Guinea that measures 40 km wide at the mouth and 50 km deep. Behind the town stand mountains ranging in height from a few hundred to 700m, and its climate classification is tropical rainforest.

The project site is a trapezoidal plane with an upper section measuring 54.975 m, a lower section measuring 67.000 m, an altitude of 233.385 m, and a surface area of 14,233 m². It is bordered by the National Canoe and Kundu Festival Site to the east, Waduwadu Creek to the west, Milne Bay to the south, and the police station to the north. The land is generally flat, and the highest altitude, at C.D.L. + 6.00, is at the northern east end of the site. There are gradual slopes from north to south toward the ocean and from east to west from the Festival Site to the Waduwadu Creek, and each has a grade of approximately 1/60. Since the creek to the west is part of the project site, the actual land area where facility construction can be performed is approximately 12,000 m².

The surface soil of the project site on the coastal side is sand mixed with small gravel, while the other surface soils are sandy silt mixed with gravel. Crushed concrete debris can be seen in places of the filled area on the south side. Although the underground soil differs in thickness, it is generally composed of sand on the surface layer, followed by a gravel layer, and a well packed layer of gravel mixed with fine sand. Coral gravel can be seen on the beaches around the mouth of Milne Bay, but it is not present in the soil of the project site. There also does not appear to be a layer of clay underground. The filled area is sufficiently hard, and the quality of the foundation for the entire project site is good. Since the envisioned land-based facilities will be single-story structures, a design with a direct foundation that does not require pilings would be both technically and economically appropriate.

1-3 Environment and Social Consideration

1-3-1 Environmental Impact Assessment

1-3-1-1 Overview of Components that Exert Environmental and Social Impact

The anticipated environmental and social impact of the project is confined to the project site, and because no irreversible impacts are projected, ordinary measures should suffice to manage such impact. In addition, the project does not fall under “Sensitive Sectors”, “Sensitive Characteristics”, and “Sensitive Areas” outlined in the Japan International Cooperation Agency Guidelines for Environmental and Social Consideration; April 2010 (hereafter, “JICA Guidelines”). Accordingly, the project is categorized under “Category B” of the JICA Guidelines.

1-3-1-2 Environmental and Social Consideration Systems and Organization in the Recipient Country

(1) Legal Systems Related to Environmental and Social Consideration

(Environmental Impact Assessment, Information Disclosure, etc.)

The principal law governing the environment in PNG is the Environment Act, which was enacted in 2000. The Environment Act requires the acquisition of an environment permit and implementation of an environmental impact assessment prior to any project construction related to development plans or industry. The project category will be different for individual components of the project, but the classification will likely be Level 1 or Level 2 based on the project characteristics. Table 1-2 provides an overview of required procedures for the anticipated categories.

Table 1-2 Anticipated Categories Based on Project Characteristics

Scenario	Project Characteristics	Anticipated Category
1	Rehabilitation of existing market, reinforcement of drainage waterway (adjacent creek)	Level 1
2	Rehabilitation of existing market, reinforcement of drainage waterway (adjacent creek), development of fishery products unloading point	Level 2

Source: Compiled by JICA Survey Team based on answers received from CEPA in written questionnaire (June 2016)

(2) Roles of Institutions Involved in Project

The institution that will take charge of application procedures for the environmental permit, mitigation measures, management of the environment and monitoring will be the National Fisheries Authority (NFA). The Milne Bay Provincial Government and Huhu LLG will provide support as needed.

1-3-1-3 Comparative Examination of Alternative Proposals (Including Zero Option)

The site for the project has been finalized, and the scale and volume of project components are essentially being examined in accordance with the demands of the recipient country. Table 1-3 summarizes a comparison of each project component, contrasting “with” (envisioned conditions after project is implemented) and “without” (current conditions of existing facilities/ zero option) approaches. An analysis of effects accompanying project implementation is also included from the standpoint of the environment, sanitary conditions, socio-economics and safety.

Table 1-3 With-Without Comparison

Project Components		Current Conditions (Zero Option) Without Project		Conditions after Project Completion With Project	
Buildings	Market sheds (Roof/tables/walkways/flooring)	△	Existing facilities are in poor condition.	○	Conditions will be improved, allowing usage by a larger number of users.
	Cooked-food market building	△	Existing facilities are in poor condition.	○	Conditions will be improved.
	Toilets	×	Existing facilities are not functioning properly.	○	The project will ensure that the facilities function properly.
	Kiosk	—		○	User convenience will be improved.
	Administration building	—		○	The project will contribute to an improvement of the administration organization.
	Storeroom (for materials and equipment)	○	The existing facility can be used without any problems.	—	No changes in particular.
	Chiller building for Storage (for food products)	—		○	The project will facilitate storage of unsold inventory and other items, thus reducing the burden on users (retailers).
	Fee collection space	△	The existing market fee collection space lacks a proper fee collection organization.	○	The project will facilitate suitable market fee collection.
	Products unloading space (land-side)	×	There is no designated unloading space.	○	The space will facilitate effective unloading.
	Standby rubbish bays	△	The existing garbage collection points are not properly managed.	○	Garbage will be properly managed.
Civil Engineering work	Fishery products unloading space (sea-side)	×	The existing wooden jetty does not function as an unloading point.	○	The project will facilitate effective unloading.
	Drainage trenches	×	Not provided.	○	Flood damage will be avoided.
External elements	Market pavement	×	Not provided.	○	Pavement will be added, improving impact of rain water and dust clouds.
	Public parking space	×	Not provided.	○	Pedestrians and vehicles will be separated appropriately.
Equipment	Garbage truck	—		○	The frequency of garbage collection will improve.

Assessment Item	Current Conditions (Zero Option) “Without Project”		Conditions after Project Completion “With Project”	
Environment	○	No environmental impact associated with construction work for new market development.	×	Temporary environmental impact associated with construction work.
	×	Inappropriate disposal of waste products and wastewater is a burden on the environment.	○	The environmental burden from waste and wastewater will be reduced.
Sanitary conditions	×	The management of sanitary conditions for food handling, toilets, garbage collection and other facilities is poor.	○	Suitable facilities will be provided, and the management of sanitary conditions will be improved.
Socio-economics	△	The market area and facilities are insufficient to meet the demands of users.	○	The new market area will be expanded, allowing usage by a larger number of people and promoting efficient and effective trading activity.
Safety	△	Vehicles enter the market irregularly, resulting in risk of traffic accidents involving pedestrians.	○	Public parking space development and market placement will be improved, reducing the risk of traffic accidents.
Comprehensive Assessment	△: The current market is operational, but conditions are poor.		○: While there will be a temporary impact on the environment during construction associated with market development, the conditions of the market following completion of construction will be improved across the board and deliver positive effects for a larger number of users.	

Source: Compiled by JICA Survey Team

Table 1-4 compares three alternative proposals for the fishery products unloading space (sea-side), which is one of the project components outlined above. The examined items were selected based on interviews with existing users of the wooden pier (dinghy operators, passengers, fishermen, etc.) and on the results of a field investigation. Based on the results of the comparison and our examination, Proposal 3 (small mooring wharf + unloading space) looks promising.

Table 1-4 Alternative Proposals for Fishery Products Unloading Space

Items Compared & Examined	Proposal 1: Wooden Jetty (Without Project Implementation)	Proposal 2: T-Shaped Jetty	Proposal 3: Small Mooring Wharf + Unloading Space
Ease of use as unloading point (accessibility, convenience, safety)	Bad: Does not function as an unloading space.	Moderate: Usage is affected by weather conditions and tidal currents.	Good: Can be used without impact from tidal currents.
Damage to dinghies	Bad: No consideration for damage to dinghies in structural terms (when jetty cannot be used, the unloading point is moved to the beach, resulting in risk of bilge damage).	Good: Can help avert damage to dinghies (only during high tide).	Good: Can be used without dinghies sustaining damage.

Environmental consideration	—: No change from current situation.	Bad: Some temporary impact during construction.	Bad: Some temporary impact during construction.
Social consideration	Bad: Does not function as unloading point, and no consideration for use by women, children, seniors and people with disabilities.	Good: Convenience and safety will be improved, allowing usage by a larger number of people.	Good: Convenience and safety will be improved, allowing usage by a larger number of people.
Comprehensive Assessment	Bad: Does not function as unloading point.	Moderate: Usage is affected by weather conditions and tidal currents.	Good: Preferable from the standpoint of accessibility, convenience, safety, social consideration and construction costs.

Source: Compiled by JICA Survey Team

1-3-1-4 Results of Environmental and Social Consideration Investigation and Impact Analysis

With regard to project items for which impact is expected based on the results of the scoping, an initial environment examination (IEE) was implemented through collection and confirmation of existing materials, interviews with related institutions and market users, as well as a site survey. Because the project does not include any construction of large structures, the extent of IEE was confined to the project site and surrounding area.

Based on the IEE results, it was determined that implementation of the project is not expected to have a notable and large scale negative impact. The negative impact of the project mainly consists of temporary and on-site pollution during construction and impact on the social environment, and it was deemed possible to avert or minimize such impact by implementing appropriate mitigation measures. Moreover, negative impact is estimated to mainly consist of post-construction impact that is temporary, local in nature and of a level that can be averted or minimized through appropriate environment management for the new market. The environmental impact assessment based on the IEE results is shown in Table 1-5. The assessment shows impact without factoring in preventive or mitigation measures (i.e., assuming no mitigation measures are implemented).

Table 1-5 Results of Impact Assessment

Classification	No.	Assessment Item	Impact Assessment at Time of Scoping		Assessment Impact Based on IEE Results		Grounds for Assessment	
			Prior to Construction During Construction	Post-Construction	Prior to Construction During Construction	Post-Construction	Prior to construction During construction	Post-construction
Pollution Control	1	Air Quality	B-	D	B-	N/A	# The demolition of existing structures will generate dust. # The operation of construction machinery and vehicles will generate exhaust gas emissions.	# No impact is expected.

Classification	No.	Assessment Item	Impact Assessment at Time of Scoping		Assessment Impact Based on IEE Results		Grounds for Assessment	
			Prior to Construction During Construction	Post-Construction	Prior to Construction During Construction	Post-Construction	Prior to construction During construction	Post-construction
	2	Water Quality	B-	B-	B-	B-	# The demolition of existing structures, upgrading of the T-shaped jetty or seawall development work, and reinforcement of the drainage trenches are expected to generate turbidity.	# Drainage water from rain, miscellaneous drainage water from the market, and sewage water from toilets will be generated. Inappropriate management of septic tanks may result in water pollution.
	3	Waste	B-	B-	B-	B-/+	# The demolition of existing structures will generate construction-related waste. However the existing structure uses woods and steel sheet and not includes hazardous substances such as asbestos. # The establishment of a temporary market will generate organic waste.	# Market activities are expected to generate organic waste as before. (-) # Waste management conditions are expected to improve. (+)
	4	Soil	D	D	N/A	N/A	—	—
	5	Noise and Vibration	B-	D	B-	N/A	# The carrying in of construction vehicles and equipment, the demolition of existing structures, and foundation and other work are expected to generate noise and vibration.	—
	6	Odors	D	B-	N/A	B-	# There is no plan to conduct construction work that is accompanied by offensive odors.	# Inappropriate management of waste products associated with market activities may result in offensive odors.
Natural environment	7	Protected Areas	C	C	D	D	# There are no protected areas on or surrounding the project site.	# There are no protected areas on or surrounding the project site.

Classification	No.	Assessment Item	Impact Assessment at Time of Scoping		Assessment Impact Based on IEE Results		Grounds for Assessment	
			Prior to Construction During Construction	Post-Construction	Prior to Construction During Construction	Post-Construction	Prior to construction During construction	Post-construction
	8	Topography and Geology	C	C	B-	B-	# The natural bank and river bed of the Waduwadu Creek, which is located adjacent to (west of) the market, is planned to be developed. However, the development work is only planned along a limited section of the creek, and there is no expectation for large-scale impact.	# The development work for Waduwadu Creek may result in changes in sedimentation at the mouth of the creek, but the area of impact should be partial and the scale expected to be small. The current volume of soil and sand supply from the creek is small, and there is not much water flow and sand movement from the mouth of creek towards the coast direction, so no significant impact on coastal line is expected.
	9	Water Phenomena	C	C	B-	B-	# There may be changes to the water flow and riverbed at Waduwadu Creek's mouth, but the scope and scale of the impact should be small.	# There may be changes to the water flow and riverbed at Waduwadu Creek's mouth, but the scope and scale of the impact should be small.
	10	Ecosystems	C	C	B-	B-	# No ecologically important corals or rare species in need of protection have been confirmed. # There may be temporary changes to the water environment (habitat and breeding environment for aquatic organisms and plants) at Waduwadu Creek's mouth, but the scope and scale of the impact should be negligible.	# The water environment at Waduwadu Creek's mouth will be affected, but the scope and scale of the impact should be small. Moreover, the areas surrounding the project site contain vast stretches of pristine natural environment, so it is believed that the water environment will be gradually restored after the construction work is completed.
Social environment	11	Resettlements	D	D	N/A	N/A	—	—

Classification	No.	Assessment Item	Impact Assessment at Time of Scoping		Assessment Impact Based on IEE Results		Grounds for Assessment	
			Prior to Construction During Construction	Post-Construction	Prior to Construction During Construction	Post-Construction	Prior to construction During construction	Post-construction
	12	Living & Livelihood	B-/+	B+	B-/+	B+	# While the market is temporarily closed and relocated, market usage patterns may change for retailers and customers. (-) # Employment opportunities will be generated. (+)	# The usage environment and management organization will be improved, and trading at the new market will thrive. In this way, the project is expected to contribute to an improvement in the lifestyles and livelihood of users. (+)
	13	Poor Class	B-	B-/+	B-/+	B+	# Market usage patterns of poor households among market users may be temporarily affected. (-) # Employment opportunities will be generated. (+)	# The project is expected to contribute to an improvement in the lifestyles and livelihood of poor households that use the market.
	14	Cultural Heritage	D	D	N/A	N/A	—	—
	15	Landscape	C	C	D	D	# There are no plans for construction of structures that will adversely affect the landscape.	# Operation of the new market is not expected to adversely affect the landscape. In addition, the new market may also serve as a landmark for Alotau.
	16	Minority and Indigenous Groups	C	C	D	D	# No rights or other factors related to ethnic groups, region-specific cultures, customs, lifestyles, land, or local resources have been confirmed that require special consideration.	# No rights or other factors related to ethnic groups, region-specific cultures, practices, lifestyles, land, or local resources have been confirmed that require special consideration.
	17	Gender	C	C	D	B+	# No negative impact is expected. # Because a large number of market users are female, consideration will be required for market facilities, layout, and the number and placement of provisional toilets for women.	# The market usage environment (consideration for transportation, unloading, and carrying-in of heavy agricultural produce and other products, for toilets for women, and for users accompanied by children) is expected to improve.

Classification	No.	Assessment Item	Impact Assessment at Time of Scoping		Assessment Impact Based on IEE Results		Grounds for Assessment	
			Prior to Construction During Construction	Post-Construction	Prior to Construction During Construction	Post-Construction	Prior to construction During construction	Post-construction
	18	Imbalance of Damages and Benefits; Conflicts of Interest in the Region	C	C	D	D	# No problems such as opposition among retailers have been confirmed for the existing market.	# No problems such as opposition among retailers have been confirmed for the existing market.
	19	Infectious Diseases such as HIV/AIDs	B-	D	D	N/A	# Because population migration is already occurring in the area, implementation of the project is not expected to raise the risk of illnesses or deaths.	—
	20	Labor Environment	B-	B-	B-	B+	# The inappropriate labor environment is expected to result in risk of accidents or illnesses.	# The labor environment for market users will be improved.
Others	21	Accidents	B-	C	B-	B+	# Because the site for the new market is located next to the existing main bus stop, consideration will be required for traffic accidents involving construction-related vehicles, public transportation and pedestrians.	# The improvement of the market environment and operational organization is expected to reduce the risk of accidents.
	22	Cross-border processing of waste, acid rain, ozone layer depletion, global warming	D	D	N/A	N/A	—	—

A+/-: Significant positive/negative impact is expected.

B+/-: Positive/negative impact is expected to some extent.

C+/-: Extent of positive/negative impact is unknown. (A further examination is needed, and the impact could be clarified as the study progresses)

D: No impact is expected.

1-3-1-5 Mitigation Measures and Related Costs

Mitigation measures and related costs are shown in Table 1-6.

Table 1-6 Mitigation Measures and Related Costs

Planning/Pre-Construction Stage						
No.	Items	Expected Impact	Mitigation Measures	Responsible Agency	Implementing Agency	Necessary Budget
	Preparation of Temporary Market and Relocation of Market Function	<ul style="list-style-type: none"> Changes in pattern and habit of market users. Negative impact on living and livelihood of market users. 	<ul style="list-style-type: none"> Set up a temporary market before demolishing the existing market. Conduct consultation and involve stakeholders in planning Inform the market relocation plan and schedule well in advance. 	NFA and Milne Bay Provincial Government (MBPG)	Contractor	Construction of temporary market
Construction Stage						
No.	Items	Expected Impact	Mitigation Measures	Responsible Agency	Implementing Agency	Necessary Budget
1	Air Quality	<ul style="list-style-type: none"> Dust from demolishing the existing facilities. Dust and exhaust gases from construction machinery and vehicles 	<ul style="list-style-type: none"> Spray water where necessary. 	NFA and Milne Bay Provincial Government (MBPG)	Contractor	Water fee
2	Water Quality	<ul style="list-style-type: none"> Run-off water from construction site. Temporary sedimentation along Waduwadu Creek and coastal line. 	<ul style="list-style-type: none"> Avoid or minimize removal of existing vegetation. Set up water drainage and/or buffer basin to prevent run-off water and sediments where necessary. Apply a fence around the construction site in marine water. 	NFA and MBPG	Contractor	Waste water treatment fee
3	Waste	<ul style="list-style-type: none"> Waste from demolishing the existing structures. However the existing structure uses woods and steel and not includes hazardous substances such as asbestos. General waste from temporary market. 	<ul style="list-style-type: none"> Reuse/recycle the material as much as possible to minimize the disposal of waste. Appropriately dispose non-reusable/non-recyclable material. 	NFA and MBPG	Contractor	Waste treatment fee
4	Noise and Vibration	<ul style="list-style-type: none"> Noise and vibration from use of machinery and vehicle, demolishing activities and, foundation works. 	<ul style="list-style-type: none"> Inform the construction schedule and time to public in advance. Comply the construction hours to daytime. Select construction machinery with lower noise impact. Control driving speed where necessary. 	NFA and MBPG	Contractor	N/A

No.	Items	Expected Impact	Mitigation Measures	Responsible Agency	Implementing Agency	Necessary Budget
5	Topology	<ul style="list-style-type: none"> • Civil work (alteration of features on the river-bank and river-bed) is planned only along the mouth of Waduwadu Creek. 	<ul style="list-style-type: none"> • Consider design and construction method to minimize the area of alternation. 	NFA and MBPG	Contractor	N/A
6	Hydrology	<ul style="list-style-type: none"> • Possibility of changes in water flow of the Waduwadu Creek but only in limited section of the mouth of the creek. 	<ul style="list-style-type: none"> • Consider design and construction method to minimize the area and scale of impact. 	NFA and MBPG	Contractor	N/A
7	Ecology	<ul style="list-style-type: none"> • Possibility of changes in riparian environment of the Waduwadu Creek but only in limited section of the mouth of the creek. 	<ul style="list-style-type: none"> • Consider design and construction method to minimize the area of environmental modification. • Avoid or minimize removal of vegetation. If removed, relocate and replant them as much as possible. 	NFA and MBPG	Contractor	N/A
8	Living and Livelihood and Poverty	<ul style="list-style-type: none"> • Possibility of changes in pattern of market use in the temporary market. (-: Negative Impact) • Changes in concept and function of temporary market may adversely affect poor households included in the market users. (-: Negative Impact) • Possibility of job creation in construction works. (+ Positive Impact) 	<ul style="list-style-type: none"> • Ensure the same function at the temporary market. • Conduct consultation for the market users to explain the plan of the temporary market (including the location, procedure and timing of the relocation). • Job position shall be open to anyone. 	NFA and MBPG	Contractor	N/A
9	Working Conditions	<ul style="list-style-type: none"> • Risk of industrial accidents and health problems without appropriate health and safety management. 	<ul style="list-style-type: none"> • Implement occupational safety and health training program for workers. • Install safety equipment • Manage potential hazard. 	NFA and MBPG	Contractor	N/A
10	Impact during Construction	<ul style="list-style-type: none"> • Risk of traffic accident. • Nuisance to people from noise, vibration, dust, exhaust gases etc. 	<ul style="list-style-type: none"> • Separate the space and traffic flow between vehicle for construction activities and vehicle and pedestrian around the adjacent main bus stop. • Put up signs and/or reduce driving speed where necessary. • Conduct consultation and develop awareness of project activities. 	NFA and MBPG	Contractor	N/A

Implementation Stage						
No.	Items	Expected Impact	Mitigation Measures	Responsible Agency	Implementing Agency	Necessary Budget
1	Water Quality	<ul style="list-style-type: none"> Waste water will be generated from market drainage and toilet facilities. 	<ul style="list-style-type: none"> Develop drainage system within the market area. Market waste water shall be discharged via septic tank and absorption wells. 	NFA and MBPG	Huhu LLG and AULLG	Maintenance fee of septic tank
2	Waste	<ul style="list-style-type: none"> Solid waste (mainly organic waste) will be produced from market activities and sludge from septic tank. 	<ul style="list-style-type: none"> Facilitate a proper waste dumping pit within the market. Solid waste shall be collected regularly by market owned truck(s), transported and disposed to the final disposal site within town. Sludge from septic tank shall be vacuumed regularly and transported to the treatment plant by a contracted operator. 	NFA and MBPG	Huhu LLG and Contracted Operator(s)	Waste management fee
3	Odor	<ul style="list-style-type: none"> Unpleasant odor will be emitted from organic waste and toilet facilities without appropriate management. 	<ul style="list-style-type: none"> Manage waste water and solid waste regularly and appropriately. 	NFA and MBPG	Huhu LLG and Contracted Operator(s)	Maintenance fee of septic tank and waste management
4	Topology and Hydrology	<ul style="list-style-type: none"> Possibility of changes in water flow and deposition of sand at the mouth of Waduwadu Creek but the area and scale of impact is small. 	<ul style="list-style-type: none"> Conduct monitoring and consult with experts if any significant changes are observed. 	NFA and MBPG	Huhu LLG	Monitoring staff fee
5	Ecology	<ul style="list-style-type: none"> Possibility of changes in riparian environment of the Waduwadu Creek after completion of construction works. 	<ul style="list-style-type: none"> Avoid unnecessary removal of vegetation along the creek to enhance recreation of natural environment. 	NFA and MBPG	Huhu LLG	Monitoring staff fee
6	Living and Livelihood, Poverty and Gender	<ul style="list-style-type: none"> Improvement in living and livelihood of market users including poor households as a result of improvement in both hard and soft components of the new market. (+ Positive Impact) Improve gender aspects (e.g. easier loading/unloading of products, availability of public toilets and showers, better environment for bringing children). (+ Positive Impact) 	<ul style="list-style-type: none"> Improve the operation and maintenance of the new market to ensure better and sustainable use of new market. Conduct monitoring (interviews to the users) to assess and feedback for better operation. 	NFA and MBPG	Huhu LLG	Monitoring staff fee

1-3-1-6 Environmental Management and Monitoring Plans

The monitoring plans to be applied prior to, during, and after construction are outlined in Table 1-7. Taking into account local measuring capabilities, a recording method will be proposed that uses a monitoring form and relies on visual inspection of changes (or the absence thereof) and management conditions. The monitoring will essentially be conducted by the construction contractor or the Huhu LLG, and will be supervised by NFA and the Milne Bay Provincial Government. In addition, the monitoring results will be reported periodically by NFA to JICA.

Table 1-7 Monitoring Plans

Before the Tender					
Environmental Item	Monitoring Items	Location	Frequency and Period	Responsible Agency	Implementing Agency
Living and Livelihood	•Progress and Status of Action Plan	• At the existing Alotau Town Market and the Informal Market	Monitor/record every month	NFA	Technical Working Committee (MBPG and Huhu LLG)
Construction Stage					
Environmental Item	Monitoring Items	Location	Frequency and Period	Responsible Agency	Implementing Agency
Air Quality	•Occurrence of dust	• At construction site	Monitor/record every day and report every 3 months	NFA and MBPG	Contractor
Water Quality	•Occurrence of erosion, sedimentation and turbidity.	•Waduwadu Creek and construction site of marine unloading facility	Monitor/record every day and report every 3 months	NFA and MBPG	Contractor
Waste	•Volume, items and management condition	•At construction site	Monitor/record every day and report every 3 months	NFA and MBPG	Contractor
Noise and Vibration	•Public grievance on noise and vibration from the public	•N/A	Record all cases and report every 3 months	NFA and MBPG	Contractor and/or Huhu LLG
Living and Livelihood	•Concerns and grievance from users	•N/A	Record all cases and report every 3 months	NFA and MBPG	Contractor and/or Huhu LLG
Working Conditions	•Occurrence industrial accidents and health problems	•At and around construction site	Record all cases and report every 3 months	NFA and MBPG	Contractor
Impact during Construction	•Occurrence of traffic conjunction and accident •Public grievance	•At and around construction site	Record all cases and report every 3 months	NFA and MBPG	Contractor (Huhu LLG for public grievance)
Implementation Stage					
Environmental Item	Monitoring Items	Location	Frequency and Period	Responsible Agency	Implementing Agency
Water Quality	•Status of septic tank •Status of drainage system	•Septic tank •Water drainage channel and rain gutter	Monitor/record monthly and report every 6 months for two years after completion	NFA and MBPG	Huhu LLG

Environmental Item	Monitoring Items	Location	Frequency and Period	Responsible Agency	Implementing Agency
Waste	•Volume, items and management condition	•At dumping site	Monitor/record every time disposed and report every 6 months for two years after completion	NFA and MBPG	Huhu LLG
Topography	•Topographic changes around the site	•Shoreline both side of Marine Structure •Around the mouth of Waduwadu Creek	Monitor/record every six months for two years after completion	NFA and MBPG	Huhu LLG
Living and Livelihood	•Impact on market users (interview)	•At market	Conduct interviews to customers and vendors and report every six months for two years after completion	NFA and MBPG	Huhu LLG
Working Condition (For Vendors)	•Working condition of the new market for vendors	•At market	Conduct interviews to vendors and report every six months for two years after completion	NFA and MBPG	Huhu LLG

*Note: Monitoring Report shall be informed to JICA through NFA once a year during construction and three years after completion of work.

1-3-1-7 Talks with Stakeholders

During the IEE period, talks with stakeholders were held on two occasions.

The first session aimed to explain the purpose of the proposed project to market users (retailers and customers). To inform the public about the explanatory meeting, posters were put up at over six different locations across Alotau Town ahead of the event. On the day of the meeting, an explanation was provided at the Alotau Town Market, covering an overview of this survey and its positioning, an outline of the project plan, and other information. This was followed by Q&A time.

The second session aimed to facilitate a more dynamic exchange of opinions, and stakeholder groups were therefore contacted in advance to invite 1-2 representatives to attend the event. On the day of the meeting, the outline of the project was explained, followed by discussion about present conditions and challenges as well as needs and concerns for each component of the project.

(Refer to Appendices 8. for a record of the Stakeholders Meeting).

1-3-1-8 Required Procedures Up to Project Implementation and Roles of Related Institutions

(1) Acquisition of Environmental Approval

This section assumes the project will be categorized as Level 2, and outlines the procedures required to obtain environmental approval.

Table 1-8 Procedure Required for Level 2 Project

STEP 1: Project Registration
At the stage of preparing for a feasibility or related study, the institution that implements the project must report its intention to implement the project to Conservation and Environment Protection Authority (CEPA), which will register the project. (Local laws do not distinguish between an initial environmental examination (IEE) and an environmental impact assessment (EIA), so the screening process is not included under the EIA in PNG.
STEP 2: Notification of Environmental Category
After receiving a report from the institution that is implementing the project, CEPA will determine the environmental and social impact of the project, examine the environmental category of the project and required information (whether to compile EIA report or EPA report) and notify their findings to the project operator.
STEP 3: Application for Approval of Environmental Permit, Submission of EPA Report
Projects that are assigned an environmental category of Level 2A or 2B by CEPA are required to compile an environmental impact report, which takes the form of an Environment Permit Application (EPA). The project operator must compile the EPA, pay the screening fees and submit the application to CEPA. Information to be attached to the EPA will be determined by the CEPA Director for each individual project, but materials that are generally requested include the outline and objectives of the project, the project schedule, site selection, baseline around project site, project details, anticipated environmental impact and related factors, measures to mitigate environmental impact and a project map.
STEP 4: Examination of EPA report
CEPA will examine the submitted EPA report to confirm all required items are covered. If the project is assigned a Level 2A category: Announcements in newspapers and other media as well as public hearings are waived. CEPA will submit the EPA report and a summary of opinions obtained through the aforementioned procedure to an internal deliberation committee. If the project is assigned a Level 2B category: As a next step, the project operator will receive a notification that requires it to announce the fact that it is implementing the project in newspapers and other media, and broadly solicit opinions from town residents. It will also be required to notify a written statement of the opinions received to CEPA within 28 days of receipt. Following announcement of the project implementation, CEPA will distribute the EPA report for the applicable project to the relevant government institutions that will be involved in the project implementation. These government institutions will be required to submit their opinions to CEPA within 28 days. Thereafter, CEPA will hold a public hearing related to the project implementation, and also listen to the opinions of residents. At such time, CEPA will inspect the project site.
STEP 5: Examination by Internal Deliberation Committee
Following an examination of the submitted EPA report and other materials, the CEPA internal deliberation committee will determine whether to approve the application. If the application is not approved based on the examination, the project operator will be requested to resubmit an EPA report.
STEP 6: Approval by CEPA Director
Once the CEPA Director receives a report that the EPA and related documents have been approved by the environment deliberation committee, the CEPA Director will in principle issue the environmental permit for the project within one week.
STEP 7: Issuance of Environment Permit
After receiving the approval from the CEPA Director, CEPA will in principle approve the environmental permit for the project within five days.

Source: Environment Act 2000, Guideline for Submission of an Application for an Environment Permit to Discharge Waste

Table 1-9 Roles of Institutions Involved in Environmental Permit Procedure and Required Time

Process	NFA	MBPG	CEPA	Level 2A	Level 2B
STEP 1: Application for environmental permit acquisition	●				
STEP 2: Determination of environmental category and notification of results			●	3 weeks	3 weeks
STEP 3: Compilation and submission of EPA report	●	●		2 months	2 months
STEP 4: Examination of EPA report			●	1 month	2-3 months
STEP 5: Examination by deliberation committee			●	3 weeks	3 weeks
STEP 6: Approval by CEPA Director			●	1 week	1 week
STEP 7: Issuance of environmental permit			●	2-5 days	2-5 days
Total required time				5 months	6-7 months

(2) Acquisition of Project Plan Approval and Implementation

With regard to plan implementation by PNG going forward, the policy is to move forward using a Technical Working Committee consisting of the members appointed by the Provincial Administrator.

(i) Temporary Relocation of Market

The Technical Working Committee has selected a plot of land in Alice Wedega Park as the site for temporary relocation of the Alotau Town Market and permanent relocation of the Informal Market, as shown in Figure 1-1.

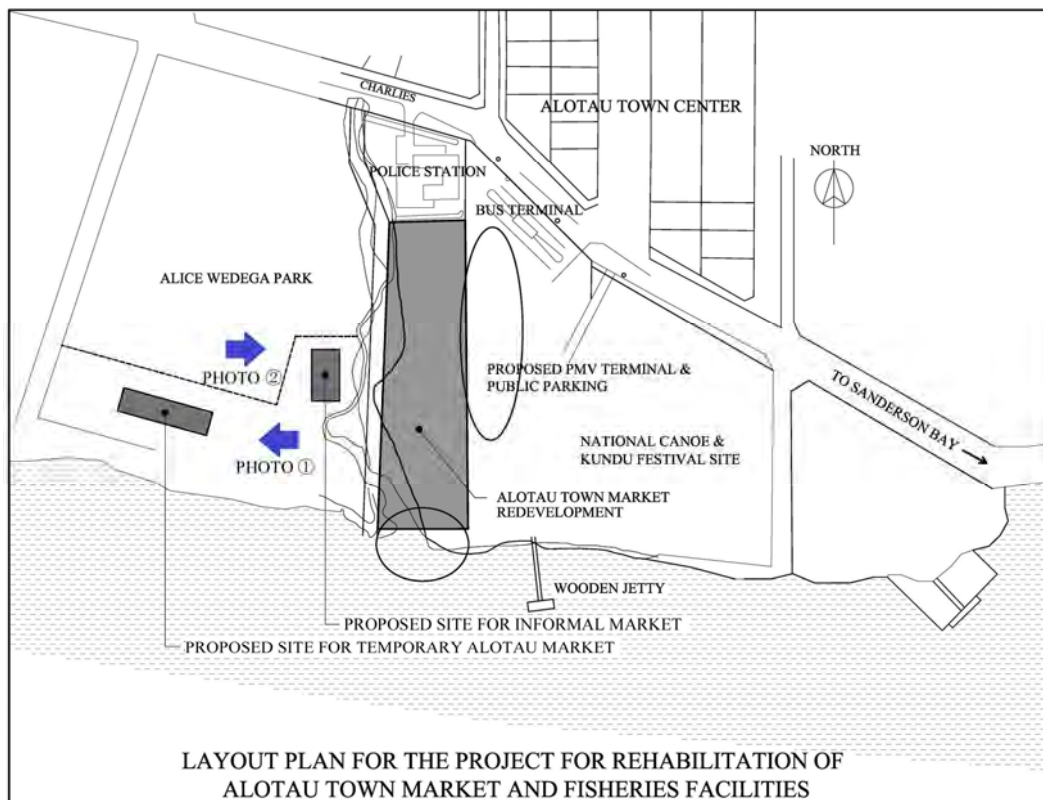


Figure 1-1 Project Site Scope and Relocation Site for Each Facilities



PHOTO ①



PHOTO ②

Figure 1-2 Temporary Relocation Site for Existing Market

(ii) Project Plan Approval Procedure

The project plan approval procedure and plan implementation will be carried out as outlined below in cooperation with the Technical Working Committee and under the direction of NFA, which serves as the principal project implementation body.

Table 1-10 Project Plan Approval Procedure and Temporary Market Relocation Procedure

Step	Planned Actions/Tasks	By Who	Timing of Action Taken or Period of Time Required
1	Provide site plans (map) and specifications in relation to informal market.	Physical Planner from Provincial Land and Physical Planning	By the beginning of July 2016
2	Provide costing for relocation works.	Provincial Works Supervision Unit	By the beginning of July 2016
3	Project Proposal to Provincial Cabinet/Provincial Executive Council by submitting project outline, layout plan, copies of current titles for the proposed site.	Technical Working Committee	By the mid to late-July 2016
4	Notice of Approval	Provincial Cabinet / Provincial Executive Council (PEC)	Within 14 days after submission of proposal, By the mid-August 2016
5	Preparation and Submission of Conceptual Plan to Provincial Land and Physical Planning	Technical Working Committee	By November 2016 / during the next PEC Meeting
6	Notice of Approval of the Conceptual Plan	Provincial Land and Physical Planning	Within 14 days after submission of conceptual plan
7	Preparation and Submission of Detail Plan to Provincial Land and Physical Planning	Technical Working Committee	By the second quarter of 2017, when the detailed plan is made available by the consultant

Step	Planned Actions/Tasks	By Who	Timing of Action Taken or Period of Time Required
8	Notice of Approval of the Detail Plan (1)	Provincial Land and Physical Planning	Within 14 days after submission of detail plan
9	Notice of Approval of the Detail Plan (2)	Provincial Building Board	Within 14 days after submission of detail plan
10	Construction of Temporary Alotau Town Market and Informal Market at the proposed locations.	Local Contractor lead by Works Unit cooperation with Technical Working Committee	Launched by March 2017 and Completed by the end of August 2017
11	Relocation of Alotau Town Market and Informal Market at the proposed locations.	Local Contractor lead by Works Unit cooperation with Technical Working Committee	By the beginning of September 2017
12	Demolishing the existing Alotau Town Market and Informal Market.	Local Contractor under supervision of Technical Working Committee	By October 2017
13	Hand over the project site for construction works	Technical Working Committee	By the beginning of November 2017
14	Construction of New Alotau Town Market	Contractor under supervision of Project Supervision Consultant	By November 2017*

*Note: The schedule of Step 14 is subjected to the timing of project approval by the donor.

Source : Provincial Land and Physical Planning

1-3-2 Site Acquisition and Resident Relocation

The project will not require the acquisition of a site or the relocation of residents.

1-3-3 Others

The Environmental and Social Monitoring Form and Environmental Check List are shown on the following Appendices.

Appendices 6.: Environmental and Social Monitoring Form

Appendices 7.: Environmental Check List

Chapter 2 Contents of the Project

Chapter 2 Contents of the Project

2-1 Basic Concept of the Project

2-1-1 Ultimate Objective and Project Objectives

With an eye on the ultimate goals it set forth in *Vision 2050*, the Government of the Independent State of Papua New Guinea (hereinafter, “PNG”) has indicated a set of long-term goals in its *Development Strategic Plan 2010-2030* (“DSP2030”), and in March 2015, it formulated its *Medium Term Development Plan 2 2016-2017* ((hereinafter, “MDTP2”). The MDTP2 defines food security and the reduction of poverty to improve the quality of life as important goals and it aims to do this by developing channels by which rural villagers can access the monetary and economic markets.

By rehabilitating the market and related facilities in Alotau Town, an important center in the project area Milne Bay Province where self-sufficient rural villagers from the surrounding areas can earn a living and where local residents can purchase daily supplies, this project aims to improve the sanitary conditions, operating environment, and market functions of the Alotau Town Market and to stabilize and enhance the daily lives of the market users.

2-1-2 Project Overview

To achieve the aforementioned goals of this project, improvements will be made to market facilities, related sanitation facilities, drainage, parking spaces and other external facilities as well as to the small mooring quay, and these facilities shall be administered in a sustainable manner. This will expand market building floor area and is expected to reduce the percentage of venders trading in the open air and on the ground and to increase the total number of venders trading from tables or floor spaces, and increase the frequency with which the sanitation facilities in Aloau Town Market are used, and enable the daily transportation and disposal of garbage generated in the market. As part of these efforts, the required Japanese assistance shall cover the procurement of a garbage truck and the construction of the following: a facility composed of the market sheds & building, fisheries center, administration building, market toilet, gate houses, and corridors; a standby rubbish bays, a septic tank and absorption wells; drainage trenches; roads inside the site; a market parking space; external facilities, including interlocking pavement; riverbank protection; and a small mooring wharf.

2-2 Outline Design of the Japanese Assistance

2-2-1 Design Policy

2-2-1-1 Basic Policy

In performing the outline design of the required Japanese assistance, the following items shall comprise the basic policy.

- 1) To undertake construction that improves the user environment and enhances market functions in order to address the issues currently faced by Alotau Town Market.
- 2) With regard to improving the user environment, to undertake construction that improves the sales conditions (e.g., dealing with rainfall, mud, sunlight, unsanitary conditions, convenient shopping for daily necessities), increases the frequency with which sanitary facilities are used, and improves access to Alotau Town Market.
- 3) With regard to enhancing market functions, to undertake construction that offers sales space suite to the current user base, improves convenience for shopping for daily necessities, and enables barrier-free access to a wide range of users.
- 4) To employ a simple, unadorned design to facilitate maintenance and reduce operating costs.
- 5) To formulate a plan that focuses on ensuring the smooth operation of the new and improved Alotau Town Market.

2-2-1-2 Policy for Natural Requirements

Alotau is one the most scenic, nature-rich areas of PNG, and the people are highly conscious of the natural environment. The basic design policy for this project not only satisfies natural conditions and takes the environment into account, it also accounts for the following items:

- 1) Due to the hot, humid, rainy tropical climate of the project site, to employ a facility design that uses natural airflow for ventilation and natural lighting and that is shielded from rainfall and direct sunlight.
- 2) To undertake rust-proofing since the project site is located near to the coast and will be affected by sea breezes.
- 3) To make use of the natural slope of the land site to ensure effective drainage of on-site storm water.
- 4) To use underground drainage for toilet wastewater to prevent the pollution of the ocean.

The parameters for natural conditions pertaining to the design of a facility that takes into account the results of our survey of natural conditions are as shown in Table 2-1.

Table 2-1: Parameters for Natural Conditions pertaining to Facility Design

Item	Parameter	Basis
Air temperature	Max: 36.8° C	Historical observation data for 2015
Humidity	Average: 85%	Historical observation data
Rainfall	Rainfall intensity: 100 mm/hour	
Wind pressure	Wind speed: 40 m/s	Value prescribed by PNG for the Alotau region.
Seismic force	Horizontal seismic coefficient: 0.1 (Rigid frame construction) 0.15 (Masonry construction)	Standard value for Zone 4, PNG's seismic classification of the Alotau region.

2-2-1-3 Policy for Socioeconomic Requirements

The following items constitute the policy for socioeconomic requirements.

- 1) To use a layout that can offer more sales space to vendors in light of the fact that earnings from the market represent the primary cash income for vendors.
- 2) To formulate a construction plan strives as much as possible to ensure that vendors' sales activities are not hindered.
- 3) Keeping in mind facility maintenance expenses, consideration will be made to set market and related facility fees at levels that are not excessive for users.
- 4) The National Canoe and Kundu Festival Site, which is located just east of the project site, is a well-known spot in Alotau that attracts tourists and many other people; the construction plan for the project site must bear this fact in mind.

2-2-1-4 Construction and Procurement Policy

1) Building Permit Procedures

Construction work for this project will require the permission of the Milne Bay Provincial Government. Based on the application filed with the responsible agency, the National Fisheries Authority (hereinafter, "NFA"), the provincial government's Building Board will screen and approve the construction. It will take between two weeks to one month from application to approval.

2) Design Standards

Taking into consideration the following circumstances, the design of facilities for this project shall be governed by the standards listed in Table 2-2.

- a) Since the project site is susceptible to hurricanes and earthquakes, the structural analysis will need to take into account wind pressure and seismic forces. Although the structural standards of PNG resemble those of Japan, Japan's standards are superior in some aspects. Also, since the primary structural materials of steel and rebar will be procured from Japan, it would be appropriate to apply the Japanese standards for structural design.

- b) For designing offshore structures, PNG typically uses Japanese or British standards, so that it has determined that the Japanese standards would be appropriate to apply for designing.
- c) For all other items, PNG has adequate standards.

Table 2-2: Facility Design Standards

Item	Applicable Standards
Construction	PNG’s Building Act & Building regulation
Structural design	Japan’s Building Standard Law and the structural design standards by the Architectural Institute of Japan
Equipment and facilities	PNG’s Public Health Act and Fire Service Act
Offshore structures	Japan’s “Manual on Fishing Port and Fishing Grounds Facility Design”

3) Procurement of Construction Materials

- a) As a basic rule, construction materials that can be procured from PNG shall be procured locally.
- b) Even if something can be procured from PNG, to compare local suppliers with suppliers in Japan or neighboring third countries for construction materials whose type and quantity are limited in PNG and for materials requiring special specifications.

2-2-1-5 Local Contractor Usage Policy

As much as possible, to use general specifications so that PNG-based local contractors can service this project, and to formulate a construction plan that uses simple, standard methods.

2-2-1-6 Operations and Maintenance Policy

The following items constitute this policy.

- 1) With an eye on the smooth commencement of operations and maintenance of the renovated Alotau Town Market, it shall be formulated an operations and maintenance plan consisting as much as possible of simple rules and regulations that will make use of the existing operational framework while avoiding an operations plan that requires an excessive level of technical skill.
- 2) To improve market functions and services and keeping in mind additional duties, such as accounting, operations personnel will need to be added, but these additions will be kept to the necessary minimum for ensuring the sound and sustained operation of the market.
- 3) To ensure the sustainable operation of Alotau Town Market while keeping independent profitability in mind, it shall be developed an accounting system that will ensure that future maintenance costs are covered.

2-2-1-7 Policy for Assigning Grades to Facilities and Equipment

The following items constitute this policy.

- 1) When assigning grades to facilities and equipment subject to grant aid under this project, it shall be taken a simple approach that focuses on functionality.
- 2) Similar existing facilities will be used as reference points for assigning grades to facilities, and factors such as safety, durability, ease of maintenance, and economy shall be comprehensively assessed. A standard grading system will be used for the planned facilities to avoid excessive specifications that could lead to construction cost overruns.
- 3) The configuration and specifications of facilities and equipment will be graded using the standard grading system generally used in PNG.
- 4) Since the scope of this project is a retail market, which is a highly public place with a diverse array of users, the design will also accommodate wheelchair users.

2-2-1-8 Policy for Construction and Procurement Methods and the Construction Schedule

The following items constitute this policy.

- 1) To formulate a plan that does not employ special skills or construction methods and that is simple as possible while ensuring that construction can be carried out locally.
- 2) Since the general construction machinery scheduled to be used for this project is available in PNG, it will be procured locally.
- 3) Given the highly rainy climate, to strive to shorten the construction schedule, and to employ dry construction methods as much as possible when working on superstructures.
- 4) Given that marine transport is the primary method for the delivery of materials, to formulate an appropriate plan for the procurement of materials and machinery that takes transport time into consideration.

2-2-2 Basic Plan

2-2-2-1 Grounds and Facilities Plan

The project site is located in central Alotau Town, which is the capital of Milne Bay Province. As is shown in Figure 2-1, the project site is a 14,233-m² area of land in the shape of a long and narrow trapezoid that includes the current Alotau Town Market, which is situated on the south side of Alotau Police Station, and further extends to the sea (Milne Bay) to include existing facilities (informal market, public toilet, etc.) on the south side. On the west side of the site is Waduwadu Creek, and across the creek, on its west side, is a large sports ground called Alice Wedega Park. On the east side of the site are the Festival Site and Main Bus Stop. The project site is largely flat, with a generally gradual slope that goes from the police station to the north down to Milne Bay to the south. The plan for the project is to remove all of the existing facilities on the site that are shown in Figure 2.1 and to build new market sheds and other facilities. Accordingly, all of the land of the project site will be provided for the project.



Figure 2-1: The Project Site and Surrounding Existence

(1) Overall Usage Plan for the Grounds

1) Access to the Market

The entrance to Alotau Town Market faces the Festival Site. Many market users come by ride-share minibuses, Public Motor Vehicles (PMV), or other vehicles. Bus passengers walk between the Main Bus Stop and the market. Vehicles that are not buses proceed to the Festival Site via access roads on the east and west sides that come from an arterial road, Charles Abel Street, that runs north of the site. Those vehicles park in an area in front of the market, where their passengers get in and out. On the

other hand, many other residents walk to the market from the city’s environs. Those who walk can move freely through the Festival Site, including along the routes that vehicles use. Facilities near the Festival Site include not only Alotau Town Market but also the informal market and wooden market jetty, and vehicles come and go to those facilities as well. Consequently, the area in front of the market is congested with people and vehicles moving about and therefore hazardous, particularly during the afternoon hours when many people are gathered.

Alotau Town Market can be reached not only from the land roads but also from a sea route via the beach in front of the market. According to the results of a movement survey of users that was conducted as part of a baseline survey, approximately 15% of venders and approximately 11% of customers—totaling an average of approximately 270 people per day—access the market from the sea. Those that use the sea route are residents of Alotau’s nearby areas as well as farming and fishing villages of the Huhu Rural Local Level Government (hereinafter, “LLG”) that are situated in Milne Bay. Market users come by ride-share dinghies (outboard-motor boats of between 6 and 7.5 meters in length) to an existing wooden jetty adjacent to the market-front beach or to a nearby beach. The dinghies come up to the shore on nearby beaches, and then their passengers have no choice but to put their feet into the seawater as they load or unload their goods or get in or out. The wooden jetty was built for market users in 1999 with donations from private enterprises in Alotau. The jetty was improved once in 2005. It was originally built so that dinghies could come alongside it. However, the surface of the ocean fluctuates with the tides, and particularly during low tide the height from the ocean’s surface to the jetty’s floor approaches two meters, creating a distance to the dinghies’ gunwales of more than 1.5 meters. This makes the jetty difficult to use for loading and unloading goods and passengers during many hours of the day. Consequently, it is mainly used as a mooring facility when dinghies are to be tied up. However, due to age, the wooden jetty is already in a state that makes it difficult to use as a jetty. The floor planks have fallen out in several places, leaving wide spaces. And the central section has corroded, leaving a number of wooden piles hanging in the air. It is highly likely that it will collapse in several places within the next few years. If it does, a suitable mooring facility will be lost. This will present a major obstacle to access to Alotau Town Market from the sea, and the market’s usage environment will suffer as a result.

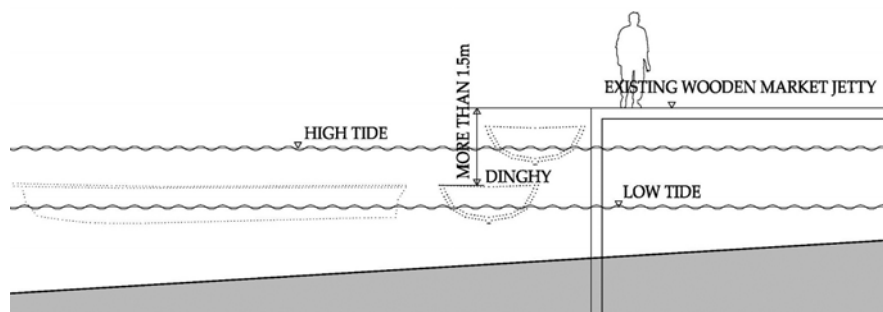


Figure 2-2: Diagram showing the Correlation between the Wooden Jetty’s Floor and Tide Level

To address the above-stated issues, it shall be planned following steps to improve the usage environment of the market in terms of market access.

a) Market entrance

As was stated above, the current entrance to Alotau Town Market is on the Festival Site side, which is on the east side of the Project Site. This is a logical location given the site's surroundings, and thus it will be similarly located the entrance on the site's east side after the renovations.

b) Market access road

As with the market entrance, it shall be located the access road from the arterial road on the site's east side. Additionally, to raise the utility value of the road by extending it to the shore and connect it to access from the sea route.

The paved road in the Festival Site is maintained at and around the Main Bus Stop only, and the entanglement of pedestrian-vehicle and vehicle-vehicle traffic in the area in front of Alotau Town Market is partly caused by the lack of clearly marked vehicle lanes within the Festival Site. It shall be secured safer access for Alotau Town Market users by establishing a pedestrian walk on the market side of the access road and clearly marking areas for vehicle and pedestrian traffic.

c) Public parking space

To build a public parking space for users coming to Alotau Town Market by vehicle at the location of the square in front of the market, where PMVs and other vehicles currently park.

The public parking space was requested by the PNG side as an additional item at the time of the on-site survey. The space in front of the market is unpaved. Consequently, when it rains, the area becomes muddy, and on sunny days, clouds of dust rise from the area and scatter throughout the market. The area therefore negatively affects not only users' access but also sanitation in the market. Turning this land in front of the market into a paved parking space will alleviate such negative effects. Improving sanitation in the market is one of the objectives of this project. Additionally, improving access is thought to be a component with comparatively high effectiveness in terms of securing the market's public nature. In user awareness interviews that the JICA survey team conducted as part of the baseline survey, approximately 80% of users responded that the traffic situation around the market is bad. For these reasons, it shall be judged that there is a strong need for the building of a public parking space.

The number of PMVs and other vehicles that park in the area in front of the market constantly changes depending on the number of vendors and customers. The tendency seems to be that the greatest number of vehicles are present in the evening before the market closes. According to the information from the PNG side, the hours around 2:00 P.M. on weekdays can be considered the time when the market is in its normal average state. When the JICA survey team conducted a survey of the number of parked vehicles during this time, the team obtained the results shown in Table 2-3. It shall be planned to build the parking space to accommodate 12 PMVs, which is a number that provides a slight amount of leeway compared to the average number of vehicles. It shall be arrived at this number by considering that if the number of spaces is too small, unnecessary congestion in

front of the market by vehicles waiting to park could easily result, and if the number is clearly too large, this might encourage vehicles that are not associated with the market to park there.

Table 2-3: Results of the Numerical Survey on Parked Vehicles in Front of Alotau Town Market

Vehicle type	6/29	6/30	7/1	7/2	7/3	7/4	7/5	Average
PMV	8	6	5	2	3	2	6	4.6
Passenger car, etc.	2	4	5	15	5	5	5	5.9
Total	10	10	10	17	8	7	11	10.5

Because the market access road and public parking space mentioned in the items above will be situated outside of the Project Site, it shall view them as undertakings whose expense shall be borne by PNG side.

d) Improvement of access from the sea route by building a small mooring wharf

To improve the market use environment in terms of access from the sea route, it shall be built a small mooring wharf at the beach in front of the market. This wharf will allow the loading and unloading of goods and passengers from dinghies without to put their feet into the seawater.

In improving access from the sea route, the PNG side asked for a T-shaped jetty improvement. Specifically, the PNG side requested that the existing wooden jetty be left in place, and that a new jetty that will allow loading and unloading of goods and passengers with a steel-pipe pile, reinforced concrete superstructure be constructed on the beach in front of the market. The requested jetty is a pile-type jetty with a berthing area length of 13 meters and access section of 20 meters. However, from bathymetry survey results, it is thought that, if the jetty is built, it will require an access section length of about 45 meters, or roughly equal that of the existing wooden jetty. Such a jetty would be more expensive to build, and thus constructing it would inappropriate from the standpoint of cost effectiveness. The PNG side fully understood this point and withdrew its request for a T-shaped jetty improvement. However, considering the importance of securing access for the sea route, JICA study team received a strong request from the PNG side to study alternative proposals for the dinghy landing area.

As was mentioned above, the existing wooden jetty is being used as a mooring facility. It can appropriately handle up to ten dinghies. Table 2-4 shows the results of a survey of the number of dinghies that are tied up to the wooden jetty and its vicinity that the JICA study team conducted as part of the on-site survey.

Table 2-4: Results of Numerical Survey of Tied-up Dinghies at and around the Wooden Jetty

Survey date	6/11	6/14	6/16	6/17	6/18	6/20	6/23	6/24	6/27	6/28	6/29	6/30	Average
Dinghies	26	19	20	23	27	17	14	20	21	15	11	17	19.2

From the survey's results, the study team confirmed that between 11 and 27 dinghies are tied up, with the average being 19.2. Because there are no other mooring facilities in the area, this means that an average of nine dinghies cannot moor. Thus, dinghies that intend to tie up continue to face inconvenient circumstances.

Table 2-5 provides the results of a comparative study of construction costs that it will be conducted for the pile-type jetty being considered for this project, as well as a small mooring wharf as an alternative proposal.

As shown in Table 2-4, although there was some variation in the number of dinghies moored at the jetty and its vicinity, the lowest figure recorded in our survey was 11. Even at this level, when considering that facility usage rate of 70 to 75% is desirable, it shall hereby set the number of anticipated dinghies at 15 for this project.

Table 2-5: Table for Comparative Study of Construction Cost Index

Item	This project		Remarks
	Pile jetty	Small mooring wharf	
No. of dinghies expected to use jetty per day	15		
Per-dinghy construction cost index	1.00	0.23	
Facility service life	50 years	50 years	Ordinance of the Ministry of Finance in Japan

A mainly reinforced concrete structure is assumed for all service life figures.

The comparison of costs with the Pile jetty and Small mooring wharf shown in Table 2-5 reveals that the per-dinghy construction cost in the case of the Small mooring wharf is 0.23 times that of the Pile jetty. Thus, in terms of cost effectiveness, it is thought that construction can be deemed reasonable if a Small mooring wharf is built instead of Pile jetty.

2) Improved Rainwater Drainage in the Market

a) Rainwater drainage trenches

Under present circumstances, rainwater that falls within the project site drains by flowing over the ground from the north side to south side following the natural slope. Because no rainwater drainage facilities have been built within the market, the ground throughout the market becomes muddy whenever rain falls, forcing market users to endure great inconvenience. When even heavier rains fall, the areas outside of the market's sheds begin to resemble a river, as can be seen in the photo of Figure 2-3, and make sales outside impossible. As the market handles food, improving its rainwater drainage facilities is an urgent issue in terms of not only convenience by also sanitation.



Figure 2-3: The Situation within Alotau Town Market during Heavy Rain

A reasonable means of addressing this problem would be to appropriately construct a rainwater drainage structure that can steadily drain out rainwater in the site. Given the natural conditions existing at the project site, the discharge destinations for rainwater would be the sea on the south side or the creek on the west side. The creek is, in fact, a public drainage channel into which rainwater that falls on the surrounding land area flows. Thus, making it a rainwater discharge destination should not be problematic in any sense, even when viewed in terms of the environment. If it is decided to make a drainage channel from the north side to the south side, with the discharge destination being the sea, the channel's length will become longer, comparatively. This will result in longer drainage time. On the other hand, if the discharge destination is made to be in the direction of the creek to the west, the length of the drainage channel will be shorter. This approach is rational and technically reasonable. Moreover, using multiple drainage systems would ensure even smoother drainage. Accordingly, it shall be planned to build a rainwater drainage structure comprised of three systems that run north-south across the long and narrow grounds and discharge rainwater into the creek in the west.

b) Riverbank protection for Waduwadu Creek

On the boundary between the creek and the project site is a natural embankment that creates a height difference. Ordinarily the adjacent creek does not flow. However, when a certain amount of rain falls in the interior hilly region to the north of Alotau and the surrounding area, the creek becomes a drainage channel that discharges the water into the sea. Accordingly, the amount of rainwater discharged from the creek varies depending on the circumstances of precipitation, and when torrential rains fall in a short period of time, the creek becomes a raging stream.



Normal time



During rainfall

Figure 2-4: Views of the Creek (North Side of the Police Station)

Not all of the rainwater discharged into the creek falls in the interior. Some of the rainwater that falls on the adjacent Main Bus Stop and Festival Site is also discharged into the creek from a concrete drainage channel on the grounds of the police station, which is adjacent to the project site's north side. The slope of the embankment near the discharge mouth of this channel is clearly being eroded. Additionally, some rainwater drains from the ground's surface in the project site along the natural embankment's slope, and as a result erosion of the embankment slope is evident within the site in some areas.



Drainage channel discharge mouth



Embankment within the site

Figure 2-5: Erosion of the Creek's Natural Embankment

It will be necessary to consider the possibility that further erosion damage to the embankment slope may occur in the future, depending on the circumstances of torrential rains in the creek's upstream watershed and surrounding area.

The discharge mouth of the rainwater drainage structure to be built on the project site's grounds will be construction on the creek's embankment. When constructing the drainage structure's

discharge mouth, it will be important to prevent erosion by also protecting the creek's slopes and thereby guard the site's grounds and facilities against the risk of erosion. As for the scope of slope protection, one approach could be to focus solely on the area around the discharge mouth and already eroded areas. However, if only portions of the area are protected, the possibility that the effects of new erosion will become concentrated in unprotected areas rises. Thus, protection will be made continuous. Additionally, slope protection will involve altering the current embankment. However, in the interest of controlling unpredictable effects that could result by changing the natural topography, the protection will follow the currently meandering creek flow.

(2) Facility Layout Plan

Figure 2-6 provides an overview of the facility arrangement.

- 1) The entire facility will be arranged on the north side at an appropriate density and with space left on the south side by taking advantage of the project site's long north-south topography and gradual slope toward Milne Bay. The space will be kept for a kiosk and future expansion of the market facility, and be used for temporary facilities needed for work as well as a temporary materials storage yard during project construction.

- 2) Looking at the arrangement plan for the market sheds, the fishery products zone will be on the south side, nearer to Milne Bay; the agricultural products zone will be on the north side; and the administration building, market restrooms, and other facilities will be in the central area.

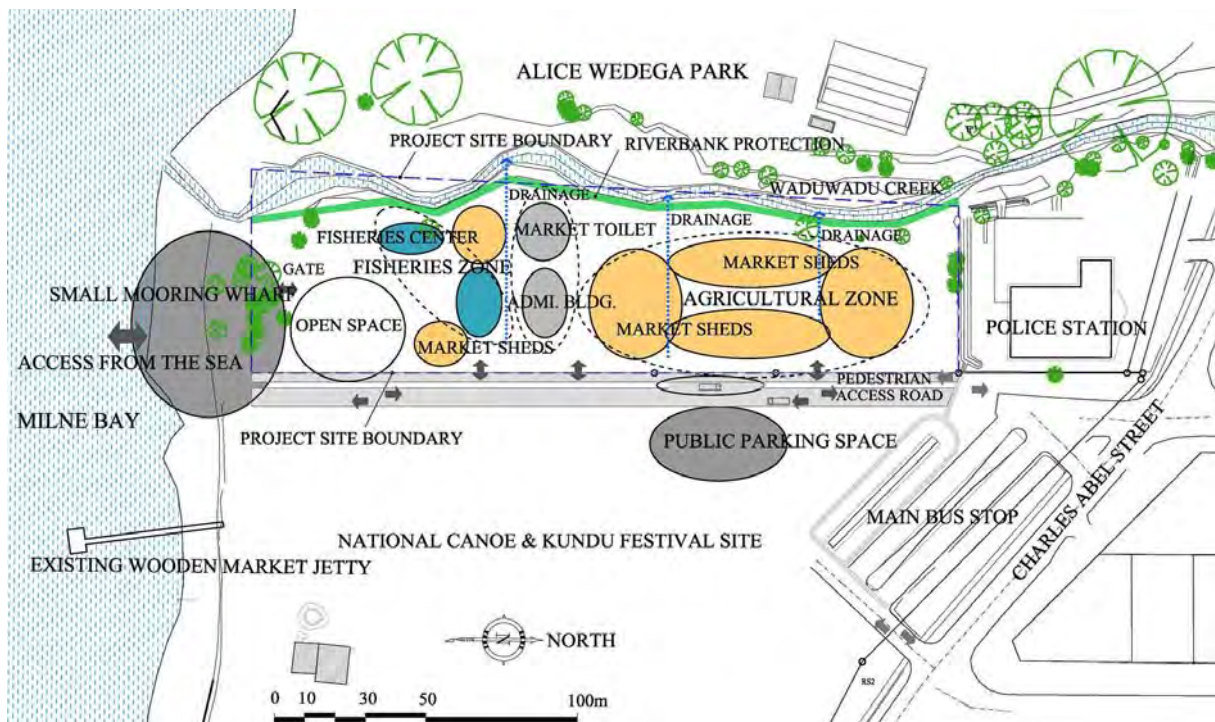


Figure 2-6: Facility Layout Plan

(3) Temporary Market

As mentioned above, under this project, it shall be prepared a temporary market so that the functions of Alotau Town Market can continue while the new facility is under construction. In similar projects undertaken in PNG to date, temporary markets were planned, but the relocation was not always effectively implemented. As a result, preparations to open new markets were adversely affected, which led to bottlenecks in assuming operations by the parties on the PNG side. To ensure that this same problem does not recur in this project, the JICA study team have held multiple discussions with the PNG government in order to formulate a more feasible temporary market relocation plan. Regarding the location of the temporary market while the new market is under construction, in similar projects in the past, it shall be formulated plans to use nearby existing market that could temporarily absorb the venders, but there are no existing markets near Alotau Town Market of a size that could absorb the venders. Therefore, for this project, it must first prepare a temporary market before removal of the existing facilities from inside Alotau Town Market. Figure 1-1 shows the draft layout proposed by PNG side during the on-site survey period. This proposed layout was approved by the Alotau Town Market Project Technical Working Committee.

The temporary market will be housed in a corner of Alice Wedega Park, which is located to the west of the project site on the other side of Waduwadu Creek. Since the Milne Bay Provincial Government owns the rights to this land and there are no physical obstructions such as existing buildings, the construction of the facility will not be hindered. PNG side will be responsible for preparing for and carrying out the relocation to the temporary market site as outlined below:

- 1) Construction expenses for the temporary market shall be borne by NFA.
- 2) The informal market that will be dismantled will be set up in a corner of Alice Wedega Park along with the temporary market facility. Since the informal market is administered by the Alotau Urban LLG, it is not covered by this Project. Therefore, the informal market shall be relocated to a newly built permanent facility instead of the temporary market.
- 3) Existing public toilet located next of present informal market will be demolished also. There is an existing another similar size of public toilet is located in the Alice Wedega Park, next of the place where planning to build new informal market, and this public toilet will be used by the users of both Alotau temporary market and informal market. This toilet will be necessary to renovate. The construction of new informal market and renovation of existing public toilet expenses shall be borne by NFA and Milne Bay Provincial Government.
- 4) Market relocation schedule: Build temporary market and the new informal market facility → Relocate Alotau Town Market and the informal market → Carry out construction under this project → Upon completion, relocate Alotau Town Market back to the new facility

By following this schedule, market users, especially venders, will be able to stay in business while the new facility is under construction.

2-2-2-2 Building Plan

(1) Floor Plans

1) Market Sheds

Because making improvements vis-à-vis current problems is the project's basic policy, it shall be planned the market sheds' size based on the current number of users.

Table 2-6 shows the results of a numerical survey of the number of venders that we conducted as part of the on-site survey.

Table 2-6: Results of the Numerical Survey on the Number of Venders at Atolau Town Market

Survey date	6/14 (Tue)	6/15 (Tue)	6/16 (Wed)	6/17 (Thu)	6/18 (Fri)	6/19 (Sat)	6/20 (Su)	Total (people)
Greens	123	105	134	123	156	105	128	874
Coconuts, bananas	77	73	89	94	95	49	49	526
Other fruits & vegetables, root crops	45	66	84	82	56	18	22	373
Tubers	62	53	82	80	65	34	49	425
Pulse (peanuts)	40	39	42	42	36	29	38	266
Nut crops	297	200	289	319	387	216	183	1,891
Fresh seafood	4	8	10	14	17	10	6	69
Smoked seafood	29	23	21	29	21	4	8	135
Cooked food	34	32	37	36	45	22	31	237
luxury items	43	52	51	46	43	13	39	287
Other	1	2	4	1	2	1	2	13
Total (people)	755	653	843	866	923	501	555	5,096
Average number of venders per day = $5,096 \div 7$ days = 728 people/day								

As is shown in the table, the survey found that the minimum number of venders was 501 and the maximum was 923, with the daily average being 728. Although there are three existing market sheds at Alotau Town Market, the total number of spaces for wooden sales stands in the sales sheds totals 316. This means that there are not enough spaces to handle times constantly. Because of this, venders who cannot get a stand use the spaces under the sales sheds' roofs or eaves to avoid direct sunlight and rain. They spread out sheets on the concrete there to display their products. There is enough space under the roofs and eaves to accommodate as many as 180 venders. Accordingly, when the number of venders reaches its maximum, more than 420 (= 923 - (316 + 180)) have no choice but to use bare earth in the open air.

Appropriate places of sales can be divided into "table" or "on the floor (ground)," depending on the type agricultural or fishery product being sold. Sales at table is appropriate for green vegetables and processed foods, while sales on the floor is appropriate for tubers and root crops. There is general zoning by agricultural or fishery product type in the market, and specific products tend to be sold together in specific places. This is advantageous for customers who come to buy at the market, and thus it shall be prepared an arrangement plan that includes this kind of general zoning in the market sheds after the improvements are made.

Bearing in mind that the average number of vendors obtained from the survey was 728, it shall be prepared the arrangement and floor plans for the market sheds and building by considering layouts for each sales space in terms of stand or floor sales, reflecting the agricultural/ fishery product-specific zoning on a building-by-building basis, and arranging the number of sales spaces within the market facilities (Market Space and Market Shed and Building from I to VI) after making fine-tuned adjustments as necessary. Approaching zoning on a building-by-building basis will increase the number of facility buildings accordingly. However, it will also increase the area under the eaves, which has the advantage of expanding the amount of space available under the roof when the number of vendors exceeds the planned number of sales spaces.

Market Space and Market Shed-I to V will be for retail sales of agricultural and fishery products. The “other” shown in Table 2-6 includes firewood, unglazed earthenware, folk crafts, and other items that cannot be categorized as agricultural or fishery products. Due to their product characteristics, such items require a larger sales space than other agricultural and fishery products, and therefore integrating uniformly with agricultural and fishery products are inappropriate. The sales of folk crafts and other such products within Alotau Town Market when tourists visiting the Festival Site drop by the market offers the advantage of expanding the market’s patronage. Thus, in the case of Market Shed-VI, it will be given the building a size equivalent to about 20 sales spaces but will plan it as a “free zone”-type facility without established spaces. This will give it the capability to handle sales of local folk crafts and other such items when large numbers of visiting tourists are anticipated. Additionally, it will serve as a “buffer” facility during ordinary times for products such as firewood, unglazed earthenware, and folk crafts that require more space than the uniform sales spaces can provide, and cases in which the number of vendors exceeds the planned number of sales spaces.

Table 2-7 lists the numbers of sales spaces for each market as a summary of the above-mentioned plan.

Table 2-7: Numbers of Sales Spaces by Market Shed

Shed or Building	Group/type	Products	No. of sales spaces	Sales method
Market Space	Nut crops	Nut crops (270)	270	Floor
Market Shed-I	Pulse, luxury items	Peanuts (38), luxury items (41)	79	Table
Market Shed-II	Fruits & vegetables, root crops, tubers	Coconuts, taros and other tubers, pumpkins (154+6*)	160	Floor
Market Shed-III	Greens, fruits & vegetables	Vegetables, monkey bananas	160	Table
Market Building-IV	Cooked food	Seafood dishes (11), vegetable dishes (23)	34	Table
Market Shed-V	Fresh & smoked seafood	Fresh fish (5+1*), shellfish (5+1*), smoked seafood (19+1*)	32	Table
Market Shed-VI	Items other than agricultural/ fishery products	Firewood, unglazed earthenware, folk crafts, etc. (2+free zone)	2	Floor
		Total	728+9*1=	737

*1: The “+9” is a number added as a result of fine-tuning in consideration of the sales space layouts.

Market Space, Market Sheds-I to -III, -V, and Market Shed-VI in Table 2-7 will be open facilities built of pillars and a roof only. Only Market Building IV will have outside walls, as it will handle

cooked foods and will thus tend to attract flies, etc. However, its outside walls will be given comparatively large openings with insect screens to allow as much natural ventilation as possible. Additionally, it shall be positioned small chamber at the entrances as a way of keeping flies and other insects out.

For the areas of the sales spaces, to set 0.64 m² (800 mm x 800 mm) as the area of a single table sales space. This area will serve as the average size of all as-is sales spaces. For on-the-floor sales spaces, it will add 400 mm as a space for the vender to sit to this 0.64 m² to arrive at 0.96 m² (800 mm x (800 mm + 400 mm)). However, the dimensions of sales spaces where fresh seafood is stored in insulated cooler box will be set at 0.675 m² (900 mm x 750 mm) to include the dimensions of the coolers.

To give the central corridor-type market aisle a standard width of 2,400 mm. At the current Alotau Town Market, most customers visit between the afternoon and early evening, and each day the number of customers almost doubles that of the vendors. In other words, some 3,000 users can be inside Alotau Town Market at its most crowded times. While this means that the market is bustling, it also produces a situation in which the aisles of the current facility are extremely congested and customers have difficulty moving around to make their purchases. This is therefore a problem for which users have high hopes of improvement. The width of 2,400 mm has been applied to similar projects in PNG and is suitable for this project.

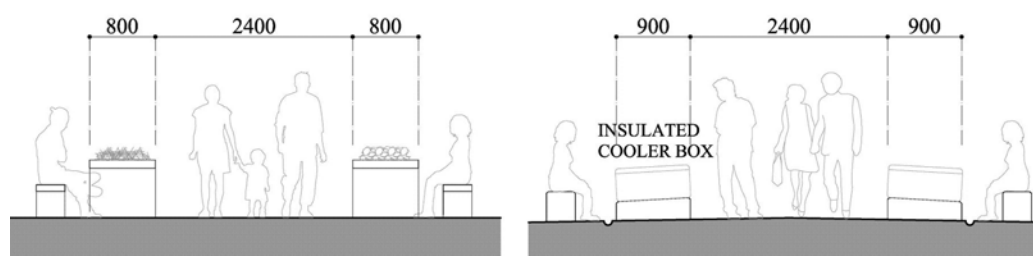


Figure 2-7: Cross-Section of Sales Spaces

Table 2-8 lists the floor spaces of the individual market sheds based on the numbers of sales spaces provided in Table 2-7.

Table 2-8: Floor Spaces of the Market Sheds

Sheds or Building	Overall facility dimensions	Floor area (m ²)	Remarks
Market Space	28.2 m × 28.2 m	795.24	The scope of the grant aid is to the foundation and floor slab.
Market Shed- I	6.0 m× 44.0 m	264.00	
Market Shed-II	10.2 m× 38.5 m	392.70	
Market Shed-III	17.9 m× 31.5 m	563.85	
Market Building-IV	12.7 m× 11.5 m	146.05	
Market Shed-V	5.9 m× 16.0 m	94.40	
Market Shed-VI	Approx. 5.2 m x 9.0 m	70.15	Hexagonal shape
	Total	2326.39	

2) Fisheries Center

Among the requested items is a facility indicated as a “Fish landing & sorting shed with ice sales section.” Currently, insulated cooler boxes are used in the transport of fresh seafood that is brought to Alotau Town Market from the beach in front of the Project Site or the Sanderson Bay wharf. This is a reasonable method of transporting seafood from the standpoint of maintaining freshness and thus it shall be planned to use the same method at Alotau Town Market after its renovation. For this reason, it shall be excluded the fish catch sorting center from facility construction, as sorting will not take place up to the point of fresh fish sales.

On the other hand, ice-making and ice sales and fresh fish sales take place at the existing ice-making building of the current Alotau Town Market. Because the plan is to continue this business at the renovated market, a facility like the existing one will be required. Moreover, at the time of the on-site survey, the PNG side made an additional request for the establishment of a “coastal artisanal fisheries resource center” in a part of this facility. The center would educate local students, fishermen, and other members of the public by form of charts, brochures and pamphlets concerning the conservation of coastal environment and sustainable management of coastal fisheries resources, and other relevant topics readily available. It will thus develop the Fisheries Center to serve as a facility that integrates such fishery-related facilities and functions. It shall be planned the facility’s size based on the size of the existing ice-making building. It will be believed, however, that a room about the same size as the ice sales office in the existing ice-making building will be sufficient for the “coastal artisanal fisheries resource center.” Table 2-9 shows the floor areas of the Fisheries Center.

Table 2-9: Floor Areas of the Fisheries Center

Room	Room dimensions	Floor area (m ²)	Remarks
Ice-making room	7.0 m × 7.2 m	50.4	The existing ice-making plant and existing freezer
Ice station	5.0 m × 7.2 m	36.0	Sink and two existing chest freezers
Fisheries office	4.0 m × 3.6 m	14.4	
Coastal fishery resource center	4.0 m × 3.6 m	14.4	
Outdoor machinery area	2.4 m × 7.2 m	17.28	
	Total	132.48	

3) Administration Building

The administration building will be comprised of a market supervisor’s office, accountant office, staff room, first aid, kitchenette, corridor, vendors’ storeroom, market storerooms, and other rooms.

- a) To plan the market supervisor’s office’s size by taking into account the actual sizes of the private room-type offices of section chiefs in local government-affiliated offices.
- b) Given that the accountant’s main duty will be to routinely handle cash collected in the market, a

private room-type office is deemed appropriate. Like the market supervisor's office, to plan the accountant office's size by taking into account the actual sizes of local assistant section chiefs.

- c) To plan the staff room as a public space that can be used for breaks, meetings, and other activities by market personnel who do not have an office.
- d) To plan the first aid as a place where market users and others (particularly women with children) who suddenly fall ill can temporarily rest, wait for transport to a hospital, etc. The room will be large enough for an ill person on a single bed and two attendants to use.
- e) Three storerooms

One storeroom will be used for market management and will contain cleaning supplies and other items needed to manage the market.

One storeroom will be for venders. At the current Alotau Town Market, venders often take root crops, tubers, and other unsold products home with them by PMV or other means and then bring them back to the market to sell the next day. This amounts to heavy work, particularly for female venders. This storeroom will be used to provide a service that stores products at a reasonable price, thus relieving venders of the burden of taking unsold products home. This service, which does not exist at the current Alotau Town Market, will contribute to a better usage environment at the market.

And one room will be rented as an intermediate warehouse for potatoes to an intermediate wholesaler. Although Alotau Town Market is fundamentally a retail market, an intermediate potato wholesaler does business in the current market by renting a room within an existing sales shed. This intermediate wholesaler procures potatoes grown in highland region viat Lae, Morobe Province, and distributes them to venders in Alotau Town Market. A cycle takes place whereby whenever potatoes sell out at the market, the wholesaler procures a new load using a 20-foot marine dry container. Although many types of tuber are retailed in Alotau Town Market, potatoes are not grown in Milne Bay Province, and consequently this intermediate wholesaler has a monopoly on the source of potatoes. Considering that maintaining a supply of potatoes will be important even after the market is renovated, it shall be planned to provide a storeroom for them.

Given that three 20-foot containers are on the grounds of the current Alotau Town Market and used as a management storeroom, and that the amount of potatoes procured by the intermediate wholesaler each time is equivalent to that held by a 20-foot container, it shall be made each storeroom the size of a 20-foot container.

Although one possible approach is to build the rooms in a separate building as an independent facility, it shall be made them part of the administration building. This decision is based on consideration of the advantages that having them adjacent to the administration building will bring when it comes to collecting storeroom usage fees and other operations, and of the fact that combining the storerooms and administration building will be more economical in terms of construction cost than building them separately. Table 2-10 provides the floor areas of each room in the administration building, and Figure 2-8 provides a floor plan.

Table 2-10: Floor Areas of Administration Building Rooms

Room	Overall dimensions	Floor area (m ²)	Remarks
Market supervisor's office	4.0 m × 3.0 m	12.0	
Accountant's office	2.5 m × 4.0 m	10.0	
Staff room	3.5 m × 4.5 m	15.75	
First aid	2.5 m × 4.5 m	11.25	
Vendors' storeroom 1	6.0 m × 2.5 m	15.0	
Vendors' storeroom 2	6.0 m × 2.5 m	15.0	
Market storeroom	6.0 m × 2.5 m	15.0	Cleaning supplies and other market equipment and supplies
Kitchenette, corridor, etc.	-	41.0	
Outside passage	2.3 m×22.5 m	51.75	
	Total	186.75	

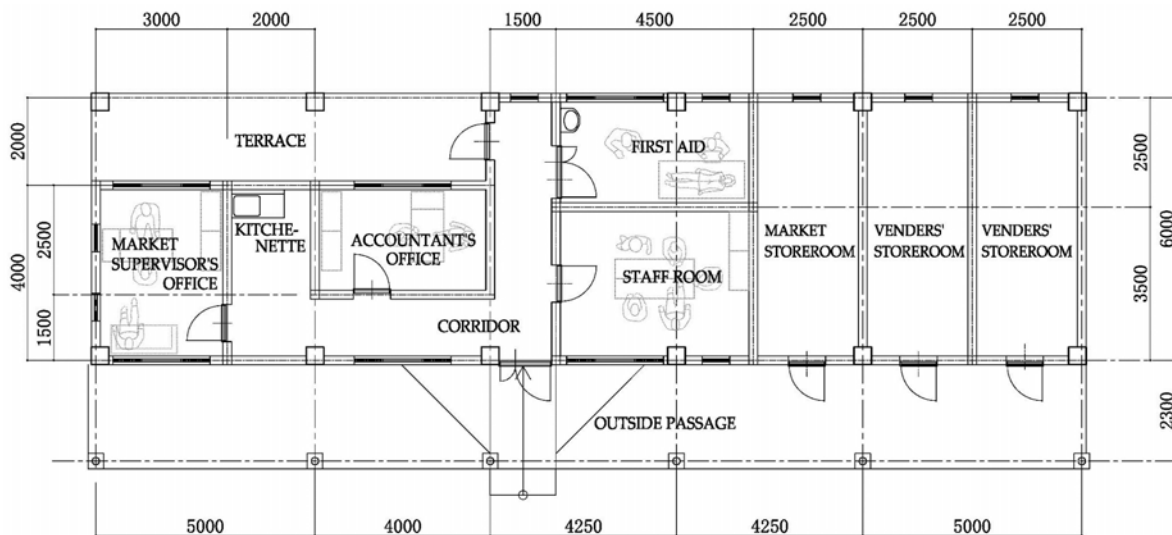


Figure 2-8: Administration Building Floor Plan

4) Market Toilet

PNG's Public Health Act should serve as the basis for determining the numbers of sanitary fixtures, etc., in the restrooms. The JICA study team held discussions on the following items pertaining to Alotau Town Market Toilet with the Environmental Health Officer of Alotau Town who has jurisdiction over the market, and reached the conclusion that the numbers of sanitary fixtures presented in Table 2-11 are appropriate.

- a) The numbers of sanitary fixtures in the toilet of Alotau Town Market will be based on the reference values for "600 to fewer than 1,000 facility users" that are specified in the Public Health Act.

- b) In consideration for the sanitary convenience of users visiting the market on overnight stays from island or inland regions, showers will be installed in the men’s and women’s toilet.
- c) One cleaning sinks will be installed in the men’s toilet and in the women’s toilet so that the toilet interiors can be kept in a consistently clean state and properly maintained.
- d) Because the market has a highly public nature, and because consideration for users with disability is required, one toilet for disabled users will be installed.
- e) To reduce burden on the environment and construction costs, the toilet for market staff will not be built in the administration building but rather in a part of the market toilet and will share the same septic tank and absorption well.

Table 2-11 lists the floor spaces of the market toilet based on the planned numbers of sanitary fixtures and other fixtures of each room.

Table 2-11: Numbers of Sanitary Fixtures in the Market Toilet and Floor Areas of each Room

Room	Sanitary fixture					Floor area (m ²)
	Bowl toilets	Urinals	Basin	Showers	Cleaning sinks	
Men’s toilet	2	3	3	1	1	29.65
Women’s toilet	5	—	4	1	1	34.15
Toilet for disabled users	1	—	1	—	—	5.75
Market staff toilet	1	—	1	—	—	4.60
Fee station, water station, etc.					1	26.65
Total						100.80

- f) In consideration of the market’s sanitary environment, it is also important for venders, who are also market users, to maintain their own cleanliness. Given this, a shower will be installed in the men’s toilet and in the women’s toilet so that venders can wash off perspiration caused by commuting to Alotau Town Market from surrounding areas and working in the market. Showers were similarly installed in the Madang Town Market, which was a similar project in PNG, and they are being used effectively.

5) Connecting Corridors

Giving attention to local climatic conditions, which are marked by comparatively heavy rainfall throughout the year and bright sun, it shall be improved convenience for market users by connecting the facilities of each shed and building with corridors. It shall be planned the connecting corridors’ width using a standard dimension of 1,950 mm, which is arrived at making the effective internal width 1,200 mm, considered to be the width needed by a person using crutches, and adding a standard walking width of 750 mm.

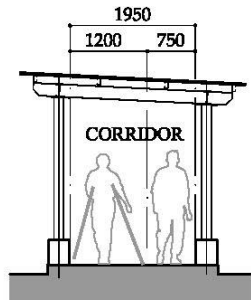


Figure 2-9: Cross-Section of the Connecting Corridors

6) Gate Houses

It shall be positioned gate houses at the entrance gates to the market. In the current Alotau Town Market, there are four entrance gates in total: three on the Festival Site side, which in on the project site’s east side, and one in the direction of the beach, south side. Entrance gates shall be installed based on the current market after renovation, and will position spaces for collecting market usage fees from venders at two entrance gates on the Festival Site side and one on the beach side.

The gate houses will be comprised of a fee collection space and connecting corridor to a market shed. The fee collection spaces will be made the minimum size necessary for the smooth and accurate execution of fee collection by one or two market employees. Table 2-12 lists the floor areas of the gate houses.

Table 2-12: Floor Areas of the Gate Houses

Shed	Room	Dimensions	Floor area (m ²)	Remarks
Gate House 1	Fee collection space	2.3 m × 2.3 m	5.29	
	Connecting corridor	-	53.36	
	Subtotal		58.65	
Gate House 2	Fee collection space	2.3 m × 1.8 m	4.14	
	Connecting corridor	2.3 m × 12.7 m	29.21	
	Subtotal		33.35	
Gate House 3	Fee collection space	2.3 m × 1.8 m	4.14	
	Connecting corridor	-	14.72	
	Subtotal		18.86	
		Total	110.86	

7) External Facilities

It shall be built the following external facilities by limiting their sizes to the minimum necessary.

a) Interlocking pavement and open space

Interlocking pavement shall be laid to the minimum extent necessary to prevent muddying of the ground within the market. Although open spaces will be created on the grounds, these spaces will be kept for future facility expansions and to foster a natural environment that fits with the surrounding landscape through the planting of plants and trees to create green areas. It should be noted that the planting of plants and trees will be an item covered by the PNG side.

b) Market parking space and road

A special parking space shall be built for market management and operations only near the administration building. It shall be positioned the road to the market parking space by extending it to provide access to a standby rubbish bays that will be located in the far back of the market. The road will be made with 150 mm-thick concrete pavement.

c) PMV Stand

The entrances to Alotau Town Market are extremely congested during the early morning hours when the market opens, which inconveniences users, particularly when it rains. The congestion is caused because venders unloading of the products they bring by PMV and their queuing to enter the market at the entrances are not conducted systematically. To facilitate smoother and more systematic execution of this series of daily routines, PMV stand shall be built near the market entrance on the market access road. The canopy and benches shall be given to the PMV stand so that users can sit and wait out of the rain and sun until the PMV they will ride home in departs.

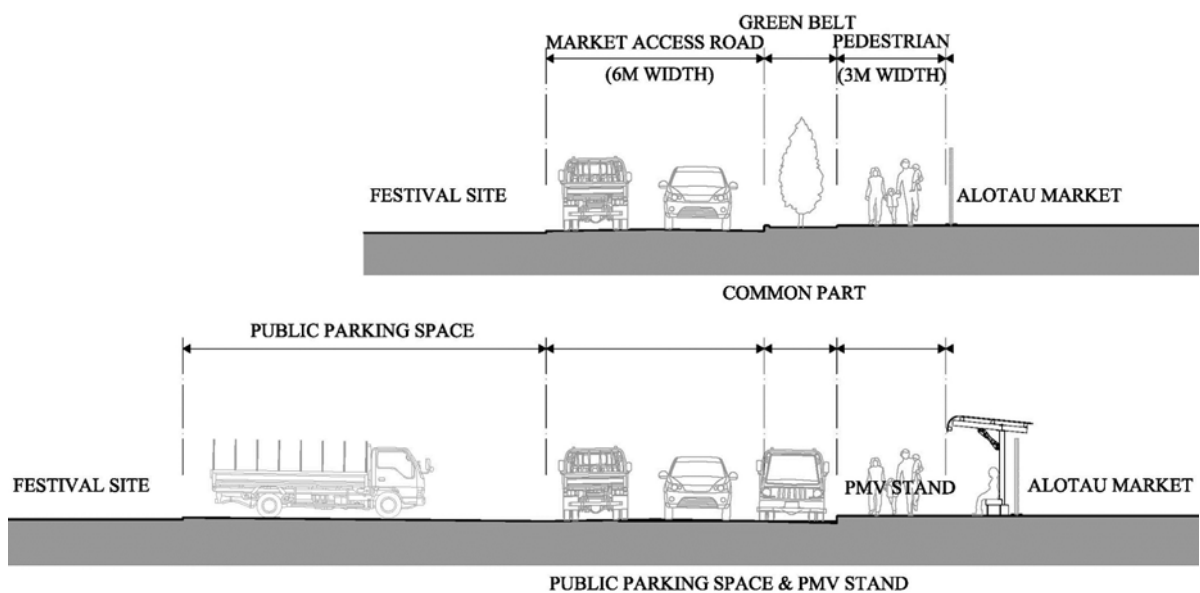


Figure 2-10: Cross-Section of the PMV Stand

d) Standby rubbish bays

Each day, between 4 and 5 m³ of waste is generated at Alotau Town Market. At the present time, garbage is accumulated in a space on the grounds and then sent to disposal about once a week. The market incinerates some garbage to cut down on the amount it pays to the waste disposal contractor. Consequently, the area around the garbage collection site is unsanitary. Moreover, incineration not only has a negative effect on the surrounding environment but also creates the risk of accidental fire. To resolve these current problems affecting Alotau Town Market, it shall be improved that the market's sanitary environment by building a standby rubbish bays where waste produced in the market can be temporarily stored for daily disposal by a garbage truck.

- » Seeing the amount of garbage that can be stored as the daily amount of waste that is generated in the current market, and taking the separation of combustible and incombustible garbage into account, it shall be made the bays a 4 m³ x 2 facility to ensure that there is no excess or deficiency.
- » It shall be established a truck parking space and make the floor of the garbage collection space one meter above the ground in order to facilitate garbage removal by garbage trucks.
- » A ramp shall be made to help make carrying garbage to the bays safer.
- » It shall be enclosed the entire standby rubbish bays with walls equaling the bays' height to prevent the scattering of stored garbage or garbage during collection.

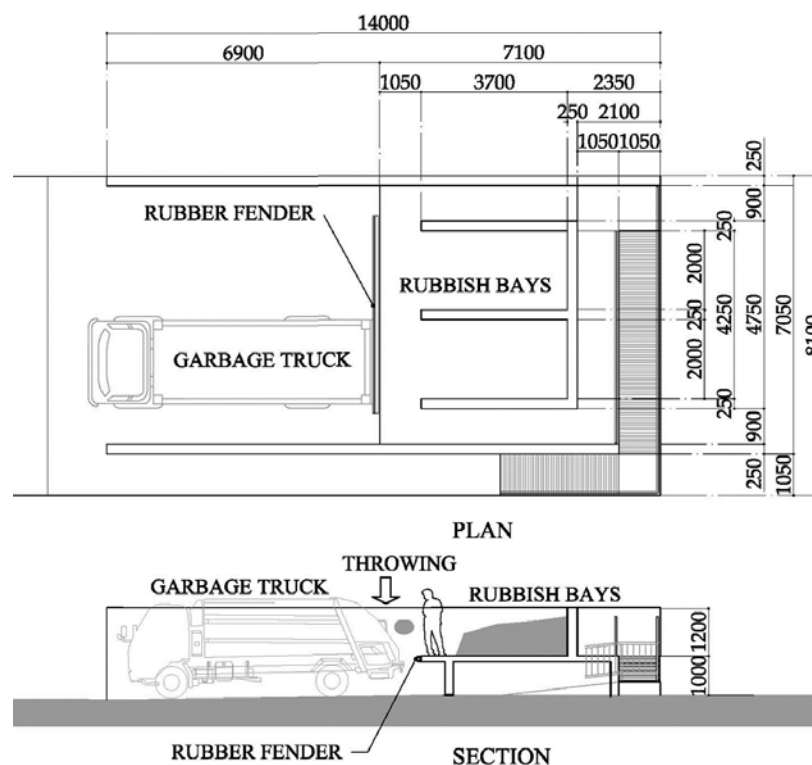


Figure 2-11: Plan and Section of Standby Rubbish Bays

e) Septic Tank and Absorption Wells

It shall be given the size of septic tank that meets or exceeds the capacity calculated using the applicable PNG Public Health Act-based formula. Sewage drainage from the septic tank shall not be released into the ocean; instead, it shall be released into the ground via absorption wells to be constructed on the grounds.

The capacity of the septic tank for this project will be set as follows.

Formula for calculating septic tank capacity: Minimum 1,350 ℓ + (30 ℓ x number of users)

$$= 1,350 \ell + (30 \ell \times 600 \sim 1,000 \text{ people}) = 19,350 \sim 31,350 \ell$$

Using the formula above, it shall be arrived at a capacity of 31.35 m³, but keeping in mind that

more than the expected number of users may use the toilets, it will be boosted that the capacity by 30% and installed a septic tank measuring 40 m³.

Taking into consideration that the penetration capacity of the absorption wells will decline over time, four-chambered absorption wells with a capacity of 80 m³, or 200% the capacity of the septic tank shall be built.

f) Rainwater Drainage Trenches

To build drainage trenches that is capable of smoothly draining rainwater that have calculated to fall with a rainfall intensity of 100 mm/hour. As was stated previously, the drainage trenches shall be divided into three systems that will discharge into the adjacent Waduwadu creek.

(2) Cross-Section Plan

- 1) To set the finished height of the exterior (pavement, ground) and height of the floors of the various facilities to match the current ground surface, using the natural slope existing in the project site. It will be necessary to raise the facility floor levels above the finished height of the surrounding ground and pavement in order to keep rainwater out of the facilities when it rains. Each facility's floor the height will be as shown in Table 2-13, which is based on the facility's location vis-à-vis the finished height of the pavement/ ground. It should be noted that the height values represent height (meters) from Alotau's tidal datum (C.D.L.).

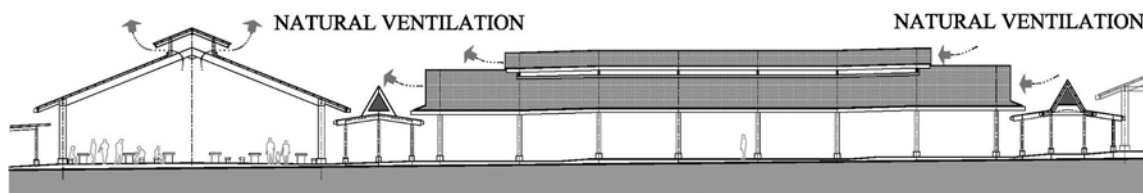


Figure 2-12: Overall Cross-Section Schematic Diagram

Table 2-13: Floor Height of Each Facility

Facility	External finished height around facility	Floor height
Market Space	+ 5.250 to + 5.650m	+ 6.000m
Market Shed-I	+ 4.820 to + 5.220m	+ 5.200 to + 5.500m
Market Shed-II	+ 4.820 to + 5.220m	+ 5.200 to + 5.500m
Market Shed-III	+ 4.650 to + 4.770m	+ 5.100m
Market Building-IV	+ 4.100 to + 4.200m	+ 4.300m
Market Shed-V	+ 4.150 to + 4.200m	+ 4.500m
Market Shed-VI	+ 3.550 to + 3.900m	+ 4.200m
Fisheries Center	+ 3.200 to + 3.500m	+ 3.600m
Administration Building	+ 4.350 to + 4.700m	+ 4.850m
Market Toilet	+ 4.200 to + 4.500m	+ 4.650m

- 2) To make the entire facility “barrier-free” by installing wheelchair ramps as appropriate whenever there are differences in floor height between facilities or within a facility. It shall be set that the ramp gradient at no more than 1/12 in anticipation that the ramps will be used by wheelchairs, and will ensure that ramp widths are at least 1,950 mm, the same width as connecting corridors.
- 3) For open market sheds that have no walls, the central roof section shall be raised in order to avoid coming down the radiant heat from the roof, and installed ventilation openings with roof monitors so that air warmed by radiant heat will be expelled with natural ventilation.
- 4) Regarding the above item, the fact that openings will be created in the roof means that rain may be blown in during strong winds. However, this is considered to be permissible, as it is given higher importance to the ventilation openings’ benefits.
- 5) To promote a draft effect to provide ventilation and employ a structure that suppresses increases in sensory temperature by ensuring natural ventilation through the use of jalousie windows, which are commonly used locally.
- 6) It will be lowered power consumption by installing insulation in the ceilings of rooms requiring air conditioning and reducing the entry of heat into rooms by raising heat-insulating efficiency.
- 7) To set the ceiling height of offices in the administration at 2,700 mm in accordance with PNG’s Building Act, and set the ceiling height of the storeroom and vendors’ storerooms at 2,700 mm to match the offices. However, the ceiling height of the corridor and kitchenette shall be at 2,400 mm to allow the passage of ventilation ducts above the ceiling.
- 8) Given that the rooms of the Fisheries Center will likely handle fresh fish, to set its ceiling height at 3,200 mm in accordance with the “PNG Standards for Fish & Fishery Products 2009”, which were established by NFA. It will be also match the ceiling height of the fisheries office to this height.
- 9) For the market toilet, to employ a structure that encourages natural ventilation by using concrete ventilation blocks in parts of the exterior walls.

(3) Structure Plan

1) Design Bearing Capacity of Soil

The design bearing capacity of the soil is shown in Table 2-14.

Table 2-14: Design Bearing Capacity of Soil

Site ground	Design long-term bearing capacity	Data source
	50kPa (5t/m ²)	Based on results of geological survey

2) Foundation Type

The project site is distinguished by comparatively high-grade soil, and since the facilities envisioned in this project consist entirely of single-story structures, it is planned to use a pad footing foundation embedded 1m in the soil as the foundation bottom level.

3) Structure Types

Based on the design bearing capacity level of the soil, it is not appropriate to employ reinforced concrete for the upper structural framework or otherwise utilize structures that lead to an increase in own weight. Taking into account the fact that the market sheds (the principal facility) employs a structure consisting solely of pillars and roofs and that the project is located in a coastal area, it shall be planned to utilize steel-frame structures treated to withstand salt corrosion for the upper structural framework of the market sheds, the gate houses, and the corridors. For other facilities such as Market Building-IV, the Administration Building, the Market Toilet, and the Fisheries Center, it is planned to utilize structures that are commonly used locally. Table 2-15 shows the types of structures to be used for the various facilities.

Table 2-15: Structure Types for Various Facilities

Facility	Foundation	Footing beams	Flooring	Pillars	Beams	Roof substrate
Market Space, Market buildings-I-III, V, VI, Gate houses, Corridors	RC independent	RC	RC	Steel frame	Steel frame	Steel-frame purlins
Market Building-IV, Administration building, Market toilet, Fisheries center	RC independent	RC	RC	RCB wall-type + RC lintel beam		Steel-frame truss beams + purlins
Standby rubbish bays	RC continuous		RC	RCB wall-type		-

Note: RC refers to reinforced concrete and RCB to reinforced concrete block construction.

4) Design Loads

- a) The dead load shall be calculated from the finishing and construction materials used in the project.
- b) The imposed load shall be determined based on an evaluation of the actual conditions for the project.
- c) Seismic load

The seismic load shall be based on PNG design standards. As shown in Figure 2-13, the PNG Building Act differentiates four zones (Zones 1–4) across the nation, and specifies horizontal seismic coefficients, etc., for each zone.

As shown in the following Figure 2-13, Milne Bay Province, which encompasses the project site, runs across Zone 3 and Zone 4 areas, while Alotau falls in a Zone 4 area. Zone 4 areas are distinguished by a comparatively low incidence of earthquakes and correspond to regions with the lowest design horizontal seismic coefficient. In the case of medium to low-rise buildings, the horizontal seismic coefficient specified by local regulations is 0.1 for rigid-frame structures and 0.15 for masonry structures.

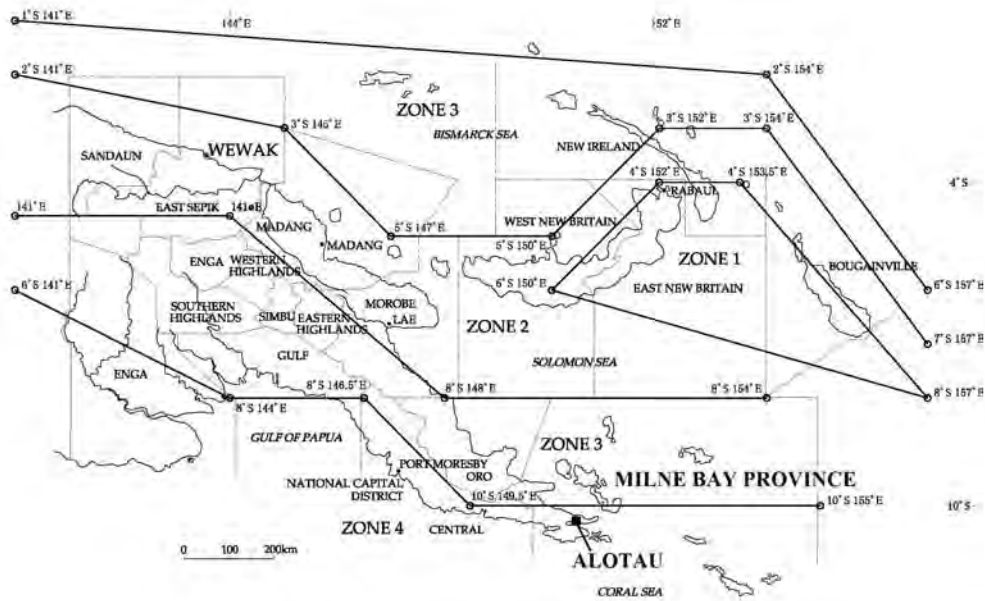


Figure 2-13: Earthquake Hazard Zone Classification Map Based on PNG Building Act

d) Wind load

The wind load shall be also based on PNG design standards. Figure 2-14 shows a wind speed classification map based on PNG design standards. The latter specify that cyclone impact must be considered for the limited area denoted by the shaded part on the map (east from 149 degrees of east longitude and south from 8 degrees of south latitude), and set a value of 40m/s as the required speed to be taken into account. Milne Bay Province, where the project site is located, falls exactly within the bounds of the shaded area, so it shall be applied the 40m/s speed.

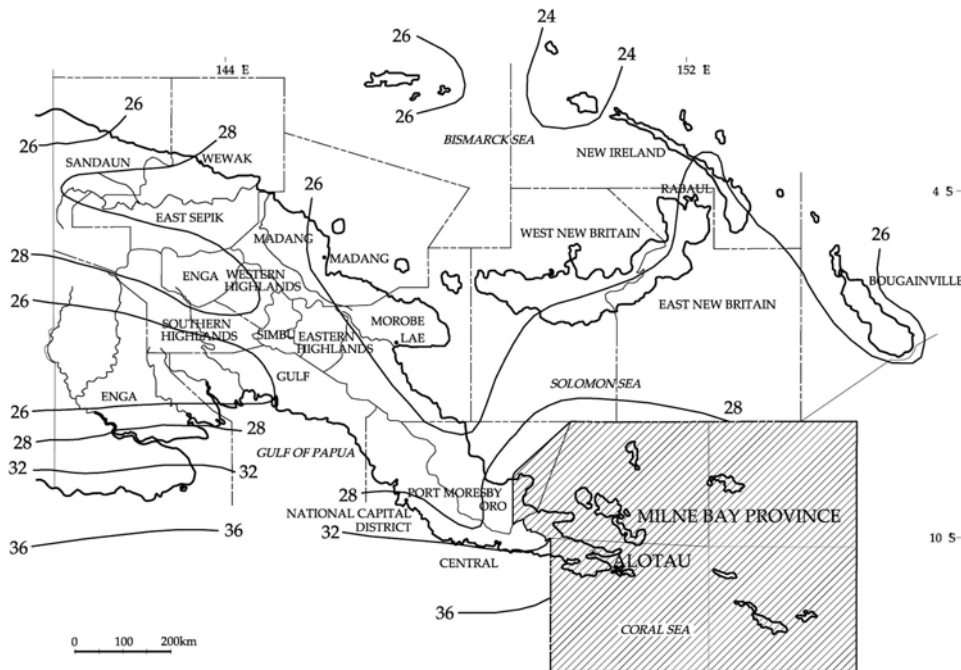


Figure 2-14: Wind Speed Classification Map Based on PNG Building Act

5) Materials to be Used

- a) Taking into account the earthquake resistance and durability of the facilities, it shall be planned to use concrete with a design standard strength of 21 (N/mm²) for the main structural parts.
- b) For reinforcing bars and steel frames, it is to envision materials compliant with Japanese Industrial Standards (JIS), but other equivalent standards are also an option, including Australian standards (AS), Standards New Zealand (NZS), the American Society for Testing and Materials International (ASTM International) and the British Standards (BS).
- c) Concrete blocks shall be based on the PNG standard “PNGS 1004 – Code of Practice for Reinforced Masonry Structures.”

(4) Mechanical and Electrical Plan

1) Electrical Equipment

a) Receiving & Distribution of the Power

Electricity will be sourced from the public main power line that runs overhead from the Charles Abel Street, arterial road north of the project site, to the Festival Site, and connected to the meter box at the utility pole installed at the project site. A main power line will be extended from the meter box to the main distribution board in the Administration Building, and power will be supplied to the various facilities that require it. The power supply will be low-voltage, and the specification shall be single-phase 240V, three-phase 415V and 50Hz.

b) Lighting Equipment

In terms of determining the standard illumination level for the purpose of selecting lighting equipment, the PNG Building Act specifies structural requirements such as incorporating openings, etc., to allow in natural light, but there are no provisions on illumination values. The only lighting available on the existing market consists of sparsely distributed 40W fluorescent lamps attached to the eaves of houses as outdoor lights, which also function as a crime prevention measure. It shall not expect project facilities to be utilized overnight, with the exception of the Administration Building, the toilet for staff, and the Fisheries Center. Accordingly, since the electricity consumption for lighting will directly affect running costs, it shall be planned to set the illumination level as low as possible to the extent this does not cause any practical hindrance, and keep lighting equipment to a minimum. In addition, energy-saving lighting fixtures will be used for both lighting inside the facilities and outdoor lighting.

c) Power Outlet Equipment

One or two power outlets shall be installed in each room of the Administration Building and Fisheries Center, and a minimum number of power outlets in the market sheds, etc., for the purpose of management and maintenance.

d) PA system

To be installed trumpet speakers in the Alotau Town Market to facilitate the public information for the market users and install a microphone and an amplification circuit in the staff room in the Administration building.

e) Other

Construction work for cables and communication equipment necessary for communication lines shall be undertaken by the PNG side as deemed necessary.

Because all buildings will consist of low-rise, single-story structures, the risk of lightning strikes is low, and since a hypothetical lightning strike would not result in substantial damage to the equipment and instruments, it does not plan to install lightning protection systems.

2) Mechanical Plan

a) Water Supply Equipment

As with the electricity, the main public water supply pipe extends southward from the Charles Abel Street, arterial road north of the project site, to Festival Site. A water pipe will be constructed by the PNG side from the main pipe to the on-site meter, and water-supply equipment will be installed by the Japanese side in the site area from the meter onward. Moreover, the water pressure from the primary source is sufficient, so it shall be employed the direct supply method without installing elevated water tanks.

b) Sanitary Fittings

Taking into account the ease of management and maintenance, basically such fittings will be procured locally.

c) Drainage Facilities

The toilet soil water will be discharged into a septic tank constructed on the site, and the post-treatment drainage water will be discharged into the ground through absorption wells. Miscellaneous drainage water other than soil water will also be discharged into the ground through absorption wells. The miscellaneous drainage water from melted ice at Market Building-V (fresh seafood sales floor) will travel through the floor ditch, a grease trap and an underground drainage pipe before being discharged into the ground through absorption wells.

Rainwater accumulated on rooftops will flow down through gutters and be discharged in down spout and catch basins, and subsequently directly discharged into the small river, Waduwadu Creek, that runs along the western part of the site. The basin preceding the discharge point will be fitted with a trap grill to prevent waste and debris from entering the river stream.

d) Other

In accordance with local fire protection legislation, two fire hydrants (hose reel type) shall be installed across the entire site. In addition to the hydrants, there is also a requirement to provide fire extinguishers, but considering the ease of management and maintenance, the PNG side shall handle such installation work.

3) Air Conditioning and Ventilation Equipment

The air conditioning equipment will consist of separate-type room air conditioners, which will be installed in the following rooms.

- a) Fisheries Center: Fisheries Office, Coastal Artisanal Fisheries Resource Center
- b) Administration Building: Market Supervisor's Office, Accountant's Office, Staff Room, First-Aid

Mechanical ventilation equipment will be installed in the following rooms.

- a) Market Building-VI, Market Shed-V: Ceiling blower fan (propeller type)
- b) Fisheries Center: Ice Station (wall ventilation fan)
- c) Administration Building: Kitchenette (ceiling ventilation fan)
- d) Market Toilet: Men's and ladies' toilet, accessible toilet, staff toilet (wall ventilation fan)

(5) Construction Materials Plan

With regard to the selection of construction materials, to avoid problems with future management and maintenance by employing materials for which fixtures and spare parts can be procured in PNG, materials that utilize common construction methods to the extent possible, and materials that are durable and easy to manage and maintain. The main construction materials and important considerations are outlined below.

1) Exterior Finishing Materials

a) Roofs

As the scheduled construction site is located in a coastal area, it shall be employed asphalt shingle roofs that are resilient against salt corrosion and blend in with the natural landscape.

For simple-structure roofs covering some pathways and corridors, etc., it shall be employed corrugated aluminum-zinc alloy plating (galvalume) steel sheets.

b) Market Shed Pillars and Beams

For the pillars and beams of market sheds that lack exterior walls, the steel frames will be exposed. Hot-dipped galvanization shall be applied for the surface of the steel frames as a measure to counter salt corrosion.

c) Exterior Walls

To ensure ease of management and maintenance in the future, the paint applied on the cement mortar plaster that is commonly used locally for the exterior walls shall be used.

d) Doors and Windows

For exterior fittings that are directly exposed to open air, to be taken into consideration weather resistance and employ aluminum sashes and galvanized steel doors.

Insect screens will be installed where necessary.

e) External Facilities

For the pavement on the premises, interlocking blocks shall be used that are commonly used locally.

For roads and parking space on the premises, concrete pavement shall be employed.

Table 2-16: Table of Exterior Finishing Materials

Element	Finishing Materials	Reasons, etc.
Roofs	Asphalt shingle roofs	Highly resilient against salt corrosion, superior aesthetic appearance, ease of construction, durable.
	Corrugated aluminum-zinc alloy plating steel sheets	Relatively high resistance against salt corrosion, ease of construction, relatively low costs.
Exterior Walls	Concrete blocks + cement mortar plaster+ paint	Commonly used locally, relatively easy to manage and maintain.
Doors and Windows	Aluminum doors and windows	Weather-resistant, relatively easy to manage and maintain.
	Steel doors	Strong
External Facilities	Interlocking block pavement	Commonly used locally, relatively easy to manage and maintain.
	Concrete pavement	Excels in robustness and durability.

2) Interior Finishing Materials

a) Flooring

For the flooring in the various rooms at the Market sheds & building, Corridors, Gate houses, Administration building warehouse, and Fisheries center, it shall be employed exposed concrete with permeable water repellent coating.

For the flooring in the market supervisor’s office, accounting Office, staff room, first-aid room, corridor, kitchenette of the Administration building, as well as the fisheries office and the coastal artisanal fisheries resource center of the Fisheries center, it shall be employed tiling that facilitates cleaning and is resistant against scratching and other damage.

For the flooring in the various rooms of the Market toilet, it shall be employed tiling that facilitates cleaning with water and sanitary maintenance.

b) Interior Walls

For the general parts in the various rooms of Market building-IV, the Administration building and the Fisheries center, it shall be used paint finishing to a cement mortar plaster.

For the interior walls in the various rooms of the Market toilet, it shall be employed tiling (similar to the flooring materials) that facilitates cleaning with water.

c) Ceilings

No ceilings will be constructed for the Market sheds, building and Corridors, where the back of the roof will be left exposed.

For the ceilings in the various rooms of the Gate houses, the Administration building, the various

rooms in the Market toilet, and in the fisheries office and the coastal artisanal fisheries resource center of the Fisheries center, it shall be employed inorganic cement fiberboard (cement board) with a paint finish that facilitates cleaning with water and sanitary maintenance.

d) Doors

- For the doors for general building interiors, it shall be used wooden doors.

Table 2-17: Table of Interior Finishing Materials

Element	Finishing Materials	Reasons, etc.
Flooring	Exposed concrete with permeable water repellent coating	Dust-resistance properties, enhanced durability.
	Ceramic tiles	Durable and easy to clean (with water).
Interior walls	Paint	Commonly used locally, low-cost solution, relatively easy to manage and maintain.
	Ceramic tiles	Durable and easy to clean (with water).
Ceilings	Cement boards + paint	Stain-resistant, relatively easy to manage and maintain, water-resistant.
Fittings	Wooden doors	Commonly used locally, easy to manage and maintain.

3) Mechanical and Electrical Equipment

One characteristic is that the bulk of the mechanical and electrical equipment has a service life of roughly 10 years, which is short compared with the construction materials. Accordingly, it shall to the extent possible employ from third-country or Japan that has being commonly used locally and securing the necessary quality with the aim of ensuring ease of management and maintenance, including equipment renewal by the PNG side in the future.

2-2-2-3 Civil Engineering Plan

(1) Small Mooring Wharf

The small mooring wharf will have space to moor 15 dinghies, and the wharf length will be determined on the assumption of mooring the dinghies perpendicular to the wharf.

- 1) To avoid obstructing the flow of the Waduwadu Creek that runs along the western part of the facilities, it shall be used a plane configuration that expands the Waduwadu Creek estuary angle, and the cross-sectional configuration, etc., will be based on recommended values from the “Manual on Fishing Port and Fishing Grounds Facility Design”.
- 2) Wharfs can be structurally divided into three major categories: gravity type, sheet pile type and jetty type. For this project, it shall be employed a gravity-type wharf, which is most suitable for a small scale wharf and provides an economical solution in the case of shallow waters.
- 3) The wharf surface will be perpendicular to the seawater surface. The wharf embankment body under the water surface will consist of precast concrete blocks, and the parts above the water surface will be in-situ concrete. A concrete strength of 21N/mm^2 will be applied in both cases.
- 4) The designed water depth will be determined by adding 0.5m to the draft of the dinghies.

Designed depth: C.D.L. – 0.75

Low water level (L.W.L. = C.D.L. + 0.17m) – draft (0.42m) – 0.5m = –0.75m

- 5) It shall be planned to establish a staircase-shaped part at the wharf to allow for unloading from the dinghies and boarding/ exiting as Unloading Space.
- 6) To envision the shore-side apron of the wharf as being accessible by vehicle and will therefore use concrete pavement with a thickness of 0.2m.
- 7) Fifteen (15) sets of mooring rings and rubber fenders shall be installed on the mooring wharf to moor properly for 15 dinghies, and four (4) additional mooring rings shall be install at unloading place.

In addition, the shore in front of the project site faces Milne Bay, which is connected to the open sea. In the event of strong winds and waves or a hurricane making landfall, waves can conceivably reach heights that exceed 1m. Whether in the case of a pile-type pier or a small mooring wharf, both of these may be struck by incoming waves if no breakwater is provided. However, waves are estimated to reach the wharf surface up to only a few times per month, so it will be no major need to aim for a scale that would require a breakwater. At the same time, using the facility under such weather conditions is dangerous, so to envision safety considerations imposed on facility users by the Market administration (or Fisheries and Marine Resources Division of the Provincial administration) and believe it is important that usage is prohibited when waves exceed a certain height, and that such a ban be thoroughly managed and maintained.

Comprehensive drawings for the small mooring wharf are shown in Figure 2-15, -16 and Figure 2-17.

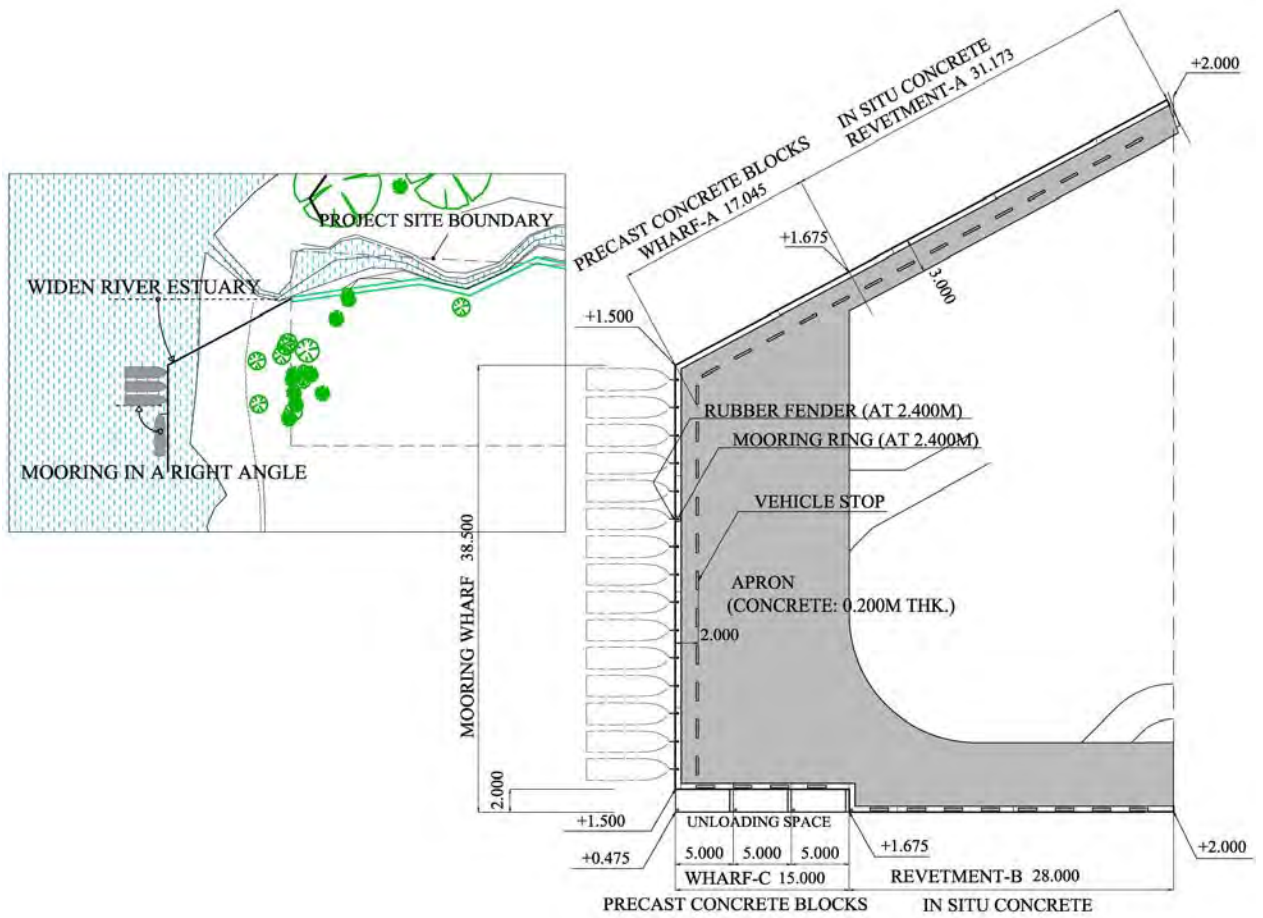


Figure 2-15: Small Mooring Wharf Plan

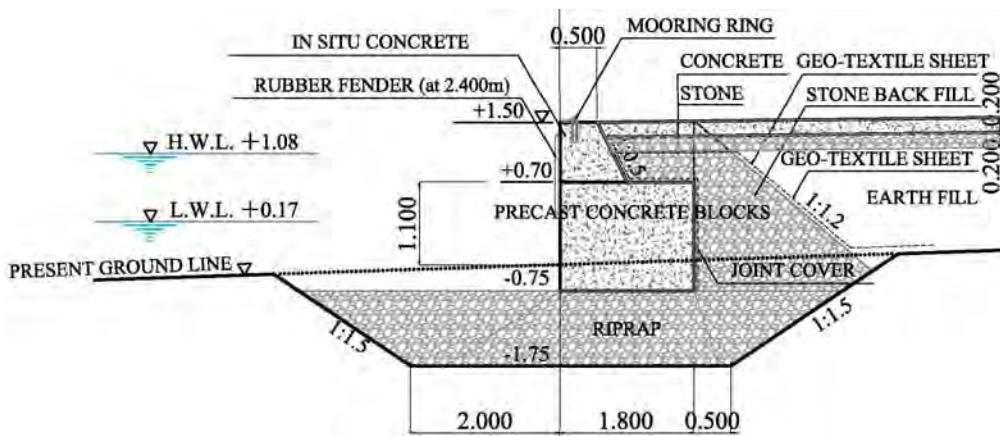


Figure 2-16: Small Mooring Wharf Section

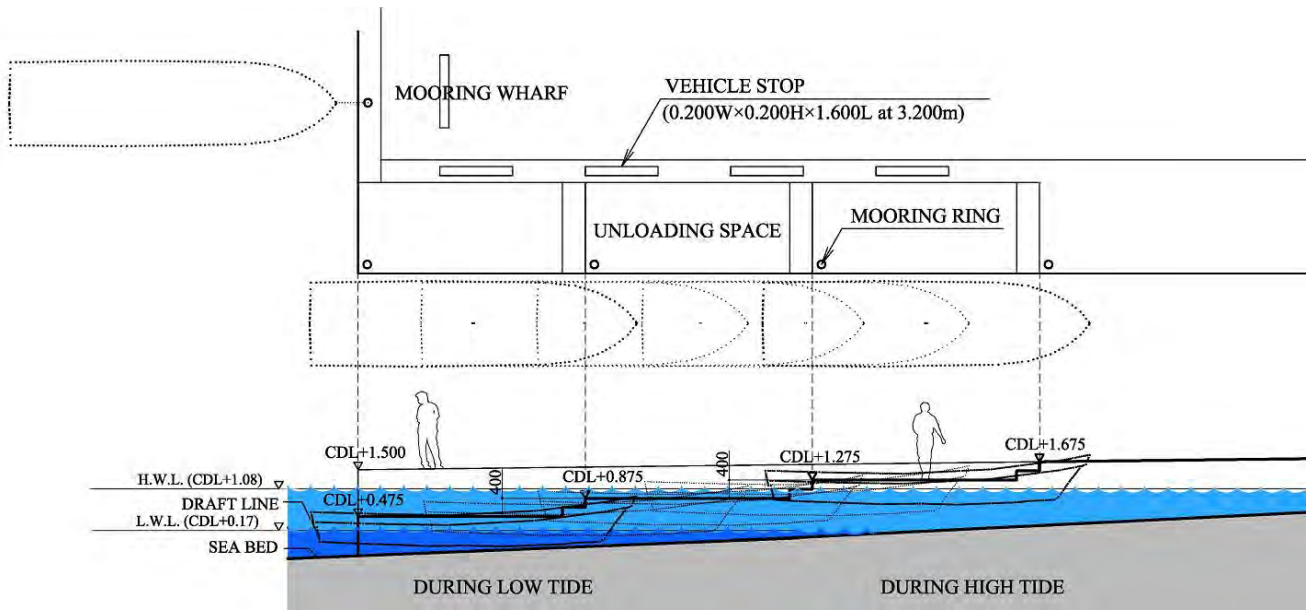


Figure 2-17: Unloading Space Plan

(2) Riverbank Protection for Waduwadu Creek

In terms of riverbank protection for the adjacent small river, Waduwadu creek, a retaining wall against the natural riverbank shall be constructed to protect the riverbank against erosion. Table 2-18 shows a comparison of different construction methods for retaining walls.

Table 2-18: Comparison Table to Support Selection of Retaining Wall Construction Method

	Concrete block retaining wall construction	Gravity-type retaining wall construction	L-shaped precast retaining wall construction	Geo-cell retaining wall construction
Image				
Cross-section				

Summary of construction method	<ul style="list-style-type: none"> » Retaining wall created by stacking concrete blocks held together by inserted concrete. Retains a slope with a sharp incline through its weight. » Applicable when the backfill soil pressure is small (e.g., cut soil section with solid backfill soil, embankment section that has been sufficiently solidified with relatively high-quality backfilling materials). » Structurally inferior in terms of earthquake resistance. 	<ul style="list-style-type: none"> » Resists pressure through its weight, and prevents tensile stress from being applied to the cross-section of the structural framework. » Because it uses a plain construction (i.e., no reinforcements), it offers advantages in terms of constructability, but if the retaining wall has a considerable height, the cross-section of the materials also expands, makes it an uneconomical solution. 	<ul style="list-style-type: none"> » A reinforced-concrete retaining wall consisting of an upright wall and base plate. » Used when it is not possible to install a toe plate (e.g., when adjoining the site or building boundary). » The reinforced-concrete structure and the backfill soil on the heel plate contribute to stability of the retaining wall by virtue of their weight. As a result, this method requires less concrete than the gravity-type approach. 	<ul style="list-style-type: none"> » Retaining wall consisting of a honeycomb-like structure made out of high-density polyethylene cell shapes filled with crushed stones and soil generated at the site. The weight of the structure functions as a retaining wall for steep slopes. » Filling the front part of the wall surface with soil generated at the site encourages plant growth, resulting in a vegetation-covered retaining wall that blends in with the scenery. » The absence of concrete makes it a flexible structure that excels in terms of earthquake resistance. » Uses a simple construction method of simply stacking cells. In addition, the work can be performed by regular workers and does not require specially trained personnel. » No need for large-scale, heavy machinery such as cranes, etc. » Materials can be transported in a folded, compact format, contributing to reduced temporary storage space.
Important considerations	<ul style="list-style-type: none"> » Not suitable for soils with consolidation settlement. » Construction requires a crane. 	<ul style="list-style-type: none"> » Used in locations with excellent foundation soil. » Often used for small-scale retaining walls. » Not suitable in the case of pile foundations. » Prolonged construction work due to concrete curing, etc. 	<ul style="list-style-type: none"> » Substantial excavation of back surface. » Construction requires a big crane. » Not suitable for locations requiring large changes in wall height. 	<ul style="list-style-type: none"> » Because the structure is adjusted to the local environment, there will be some materials that cannot be fully utilized in edge/curve sections of the structure (resulting in some waste). » Requires extensive rolling compaction work.
Construction feasibility	Possible △	Good ○	△	Excellent ◎
Economic feasibility	Good ○	△	Possible △	Excellent ◎
Overall evaluation	○	○	△	◎

As shown in the comparison in Table 2-18, the geo-cell retaining wall offers comparative advantages in terms of construction and economic feasibility, etc., so it shall be employed a geo-cell retaining wall for this project. As shown in Table 2-18, the front part of the wall surface in a geo-cell retaining wall construction is filled with soil generated at the site. This means that when local plant seeds are dispersed by the wind, they may take root in the front-facing cells, thus contributing to plant growth and giving rise to a vegetation-covered retaining wall that blends in with the scenery.

Figure 2-18 shows a typical cross-section of a geo-cell retaining wall construction.

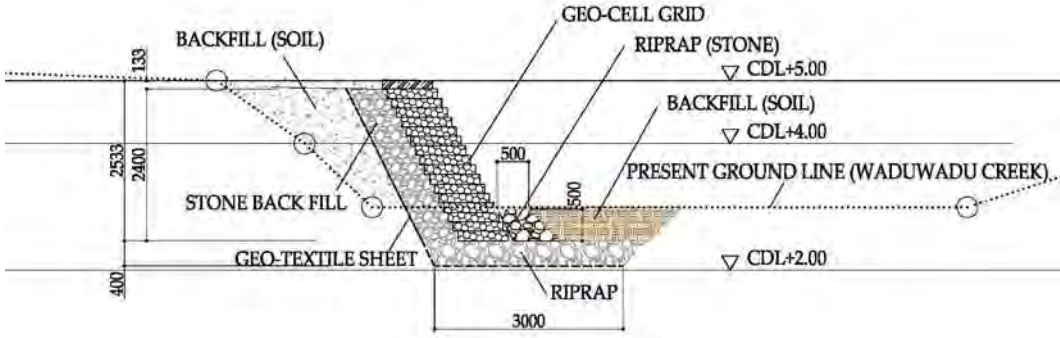


Figure 2-18: Typical Section of a Geo-cell Retaining Wall Construction

2-2-2-4 Equipment Plan

A large number and variety of food products are distributed at the Alotau Town Market, so improvement in sanitary conditions is a key issue. The project will take into account the items listed below, and deploy one garbage truck (garbage carrier) as procurement of the equipment.

- 1) At present, the large volume of garbage that is generated in the Alotau Town Market is accumulated on the market premises and disposed of roughly one time per week, but it shall be intended to improve unsanitary conditions by clearing the garbage on a daily basis.
- 2) At present, the weekly disposal of garbage is outsourced to a private contractor who is paid roughly PGK65,000 (JPY2.25 million) on an annual basis, which is expected to put pressure on the balance of operating income/ expenses for rehabilitated Alotau Town Market.
- 3) Alotau Urban LLG operates two garbage trucks, but this has proved insufficient to dispose of garbage across the Alotau Town, and the reality is that the current operation is unable to handle the disposal of garbage in Alotau Town Market.
- 4) The Huhu LLG does not own any garbage trucks. Moreover, there is no guarantee in place to keep outsourcing the disposal work to the current private contractor in the future (incidentally, many of the local residents of the Huhu LLG burn combustible waste at their home, and bury noncombustible waste as a means of disposal).
- 5) At present, Alotau Town Market generates roughly 3-4m³ of garbage per day. This matches the

standard minimum capacity (roughly 4m³) of a garbage truck, so roughly one disposal per day would suffice.

The operation of the garbage truck is scheduled to be entrusted to Alotau Urban LLG, which is supervised by Milne Bay Provincial Administration. As noted above, the Huhu LLG does not own any garbage trucks, but Alotau Urban LLG has an actual experience in operating garbage trucks, has know-how with related work, and for that reason is expected to facilitate more reliable management and maintenance. Moreover, Alotau Town features a privately operated car dealership with a repair workshop that could help resolve any technical problems encountered with the garbage truck.

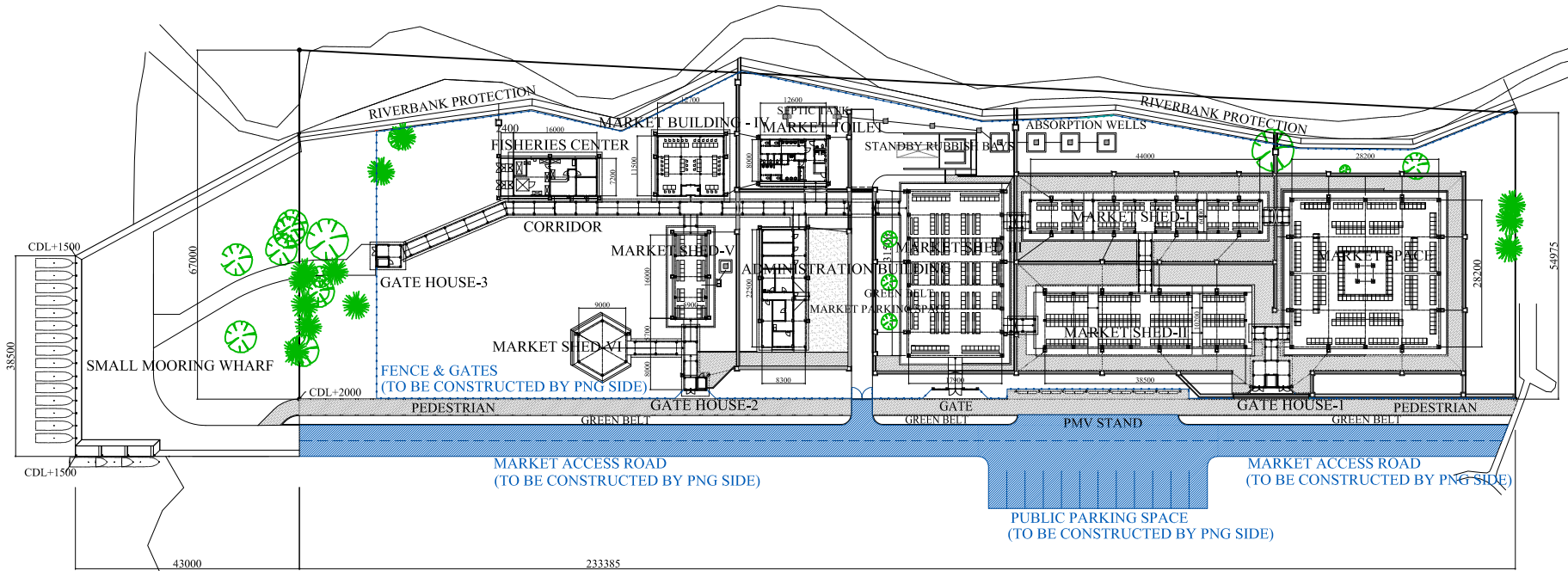
In addition, it is planned that the Market Board (which is attended by representatives of Milne Bay Provincial Administration, Alotau Urban LLG, Huhu LLG and other parties) shall formulate the detailed rules regarding operation, management and maintenance of the garbage truck, and be operated the vehicle accordingly by Alotau Urban LLG. In terms of vehicle operation, priority shall be given to the Alotau Town Market, but this will not prevent the garbage truck from being utilized for garbage disposal work in other parts of Alotau Town, which are not fully covered at present. The equipment to be procured is shown in Table 2-19.

Table 2-19: Equipment to Be Procured

Equipment	Main specifications	Quantity	Usage purpose
Garbage truck	Mechanical-type, maximum load capacity of roughly 4 m ³ , 1.2t, Carroserie: 2t class	1	Transportation and disposal of the garbage generated at Alotau Town Market.

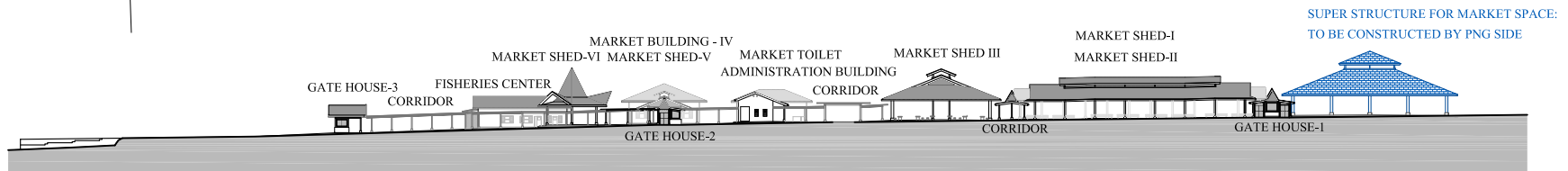
Two garbage trucks which the Alotau Urban LLG owns now are made in Japan. Therefore, the garbage truck for the project shall be also procured from Japan in view of the easiness of the maintenance in which future when trouble occurs.

2-2-3 Outline Design Drawing

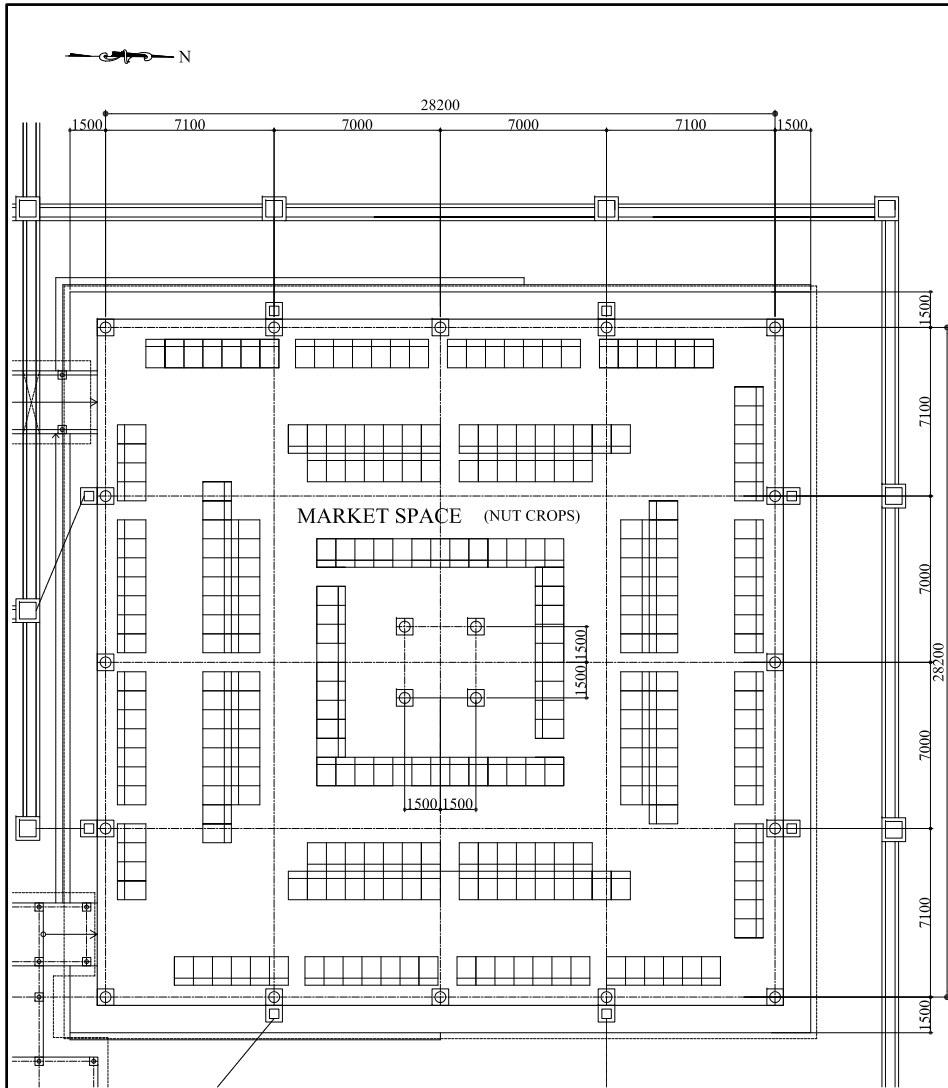


NATIONAL CANOE & KUNDU FESTIVAL SITE

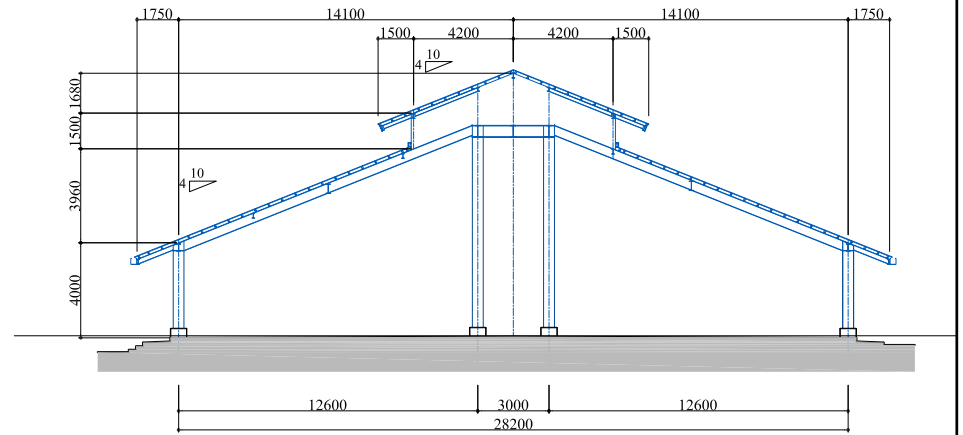
PROJECT SITE LAYOUT PLAN S=1/800



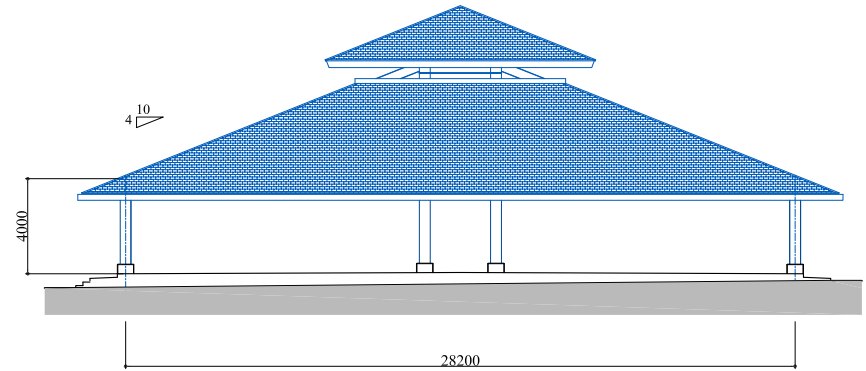
ELEVATION ON THE FESTIVAL SITE S=1/800



FLOOR PLAN S=1/200

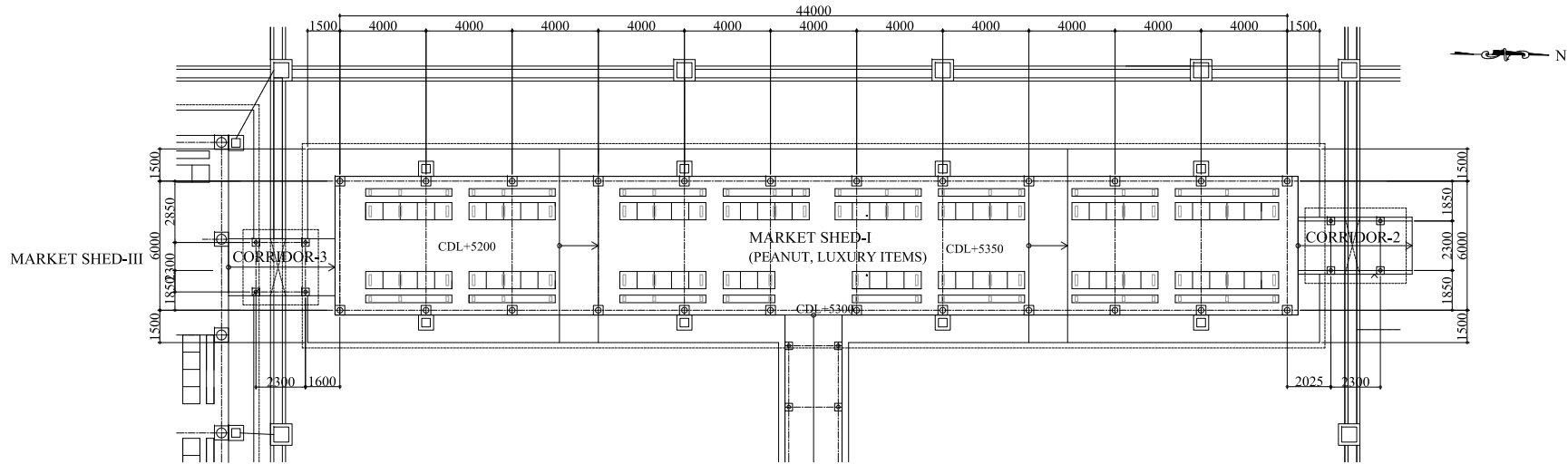


SECTION S=1/200



EAST ELEVATION S=1/200

MARKET SPACE
SUPER STRUCTURE FOR MARKET SPACE: TO BE CONSTRUCTED BY PNG SIDE



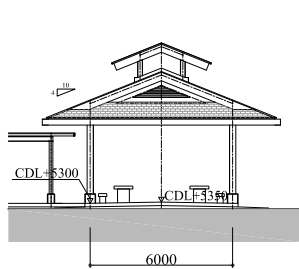
PLAN S=1/200



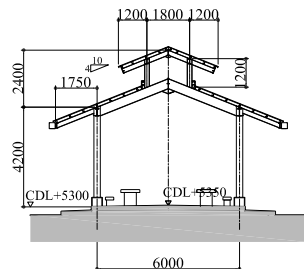
CORRIDOR-3

EAST ELEVATION S=1/200

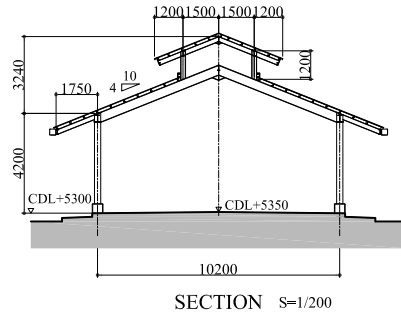
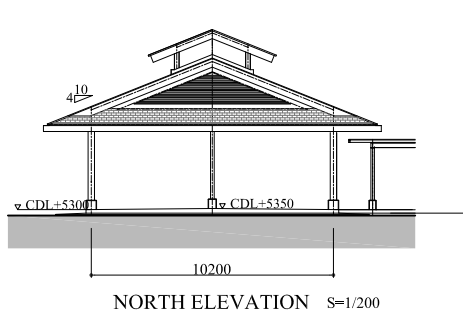
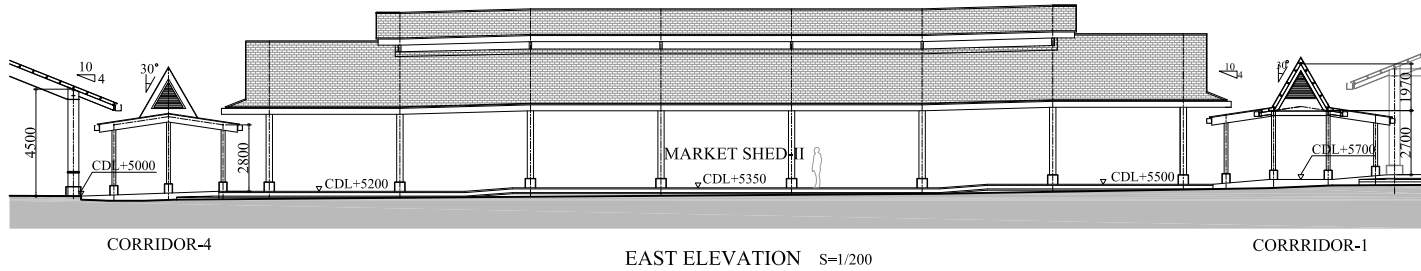
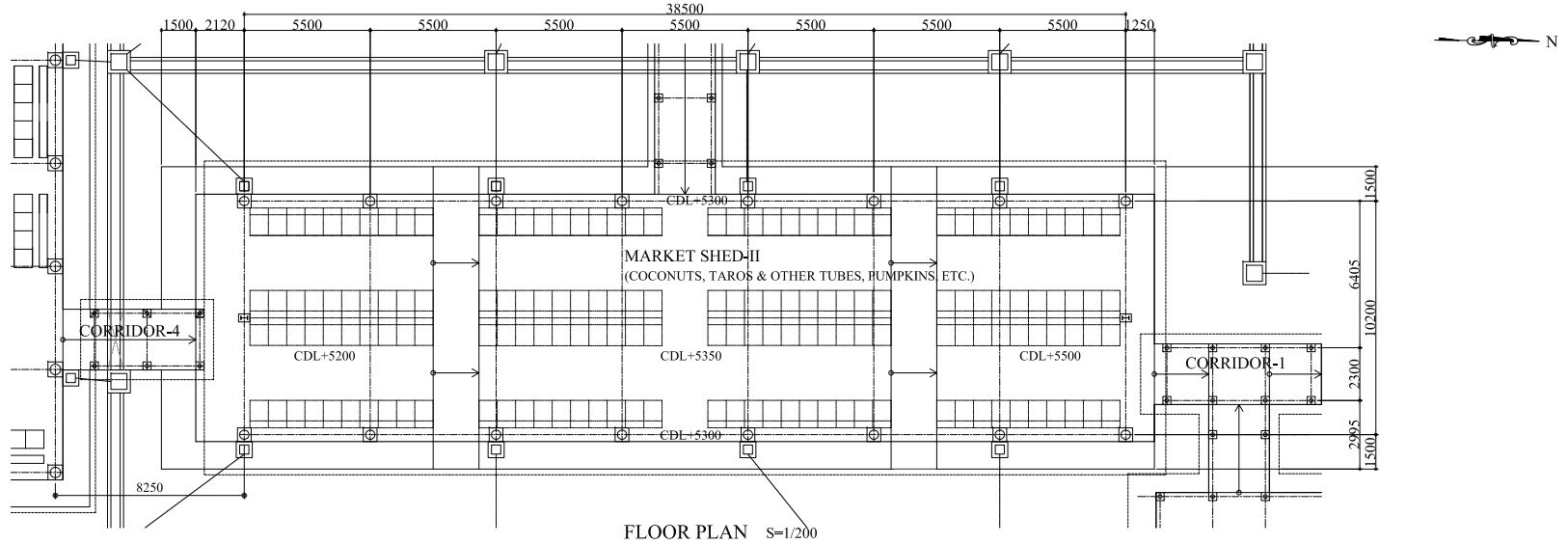
CORRIDOR-2

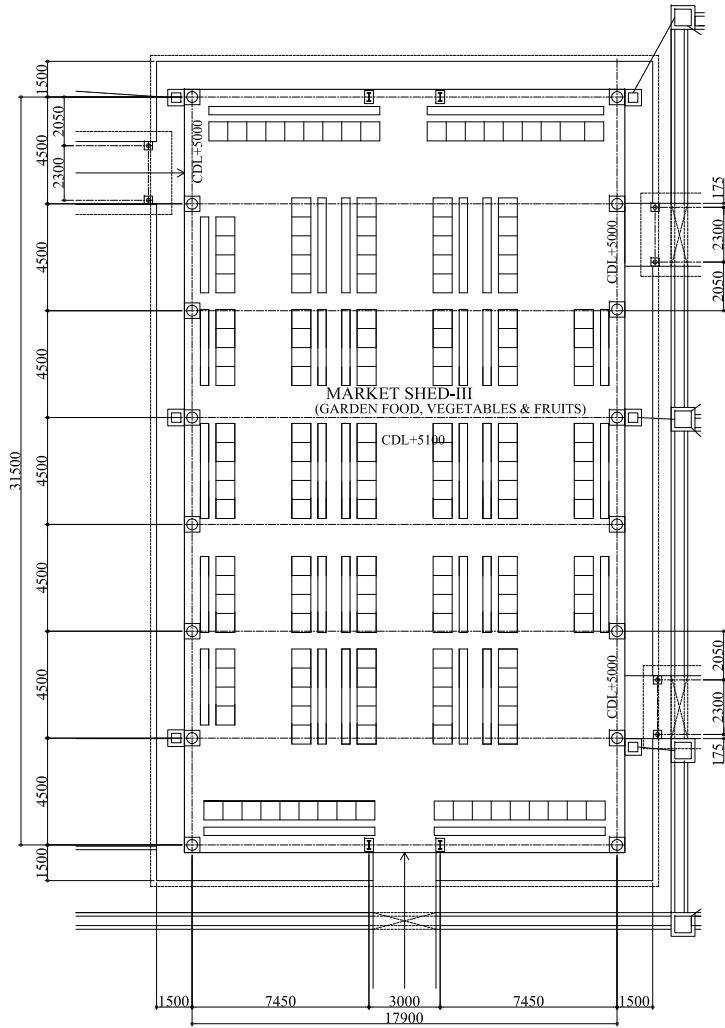


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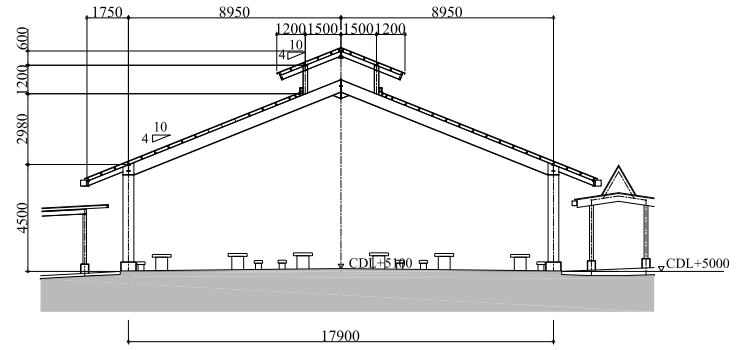


SECTION S=1/200

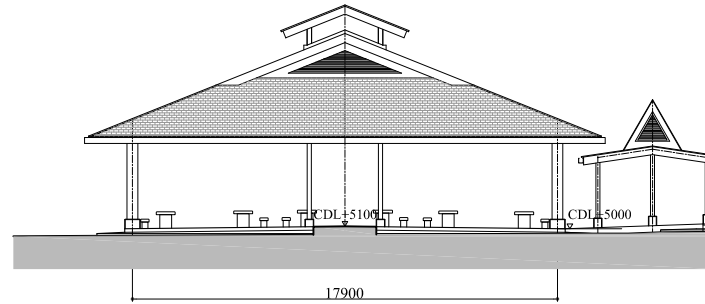




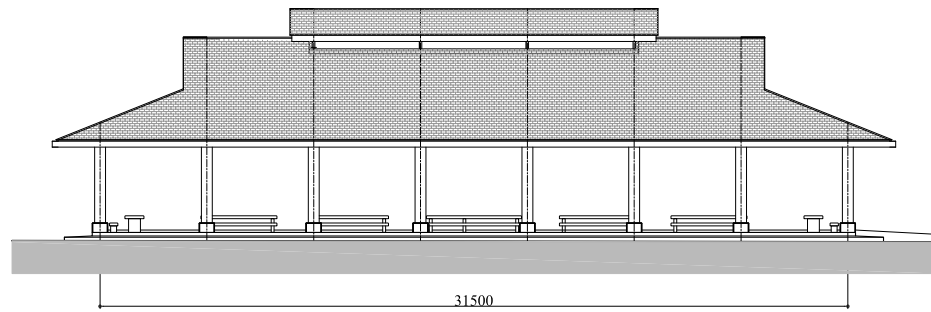
FLOOR PLAN S=1/200



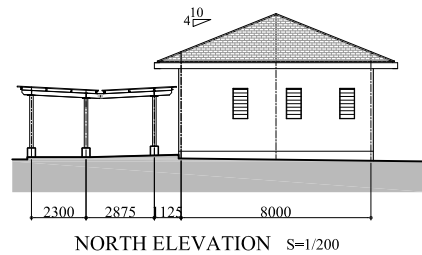
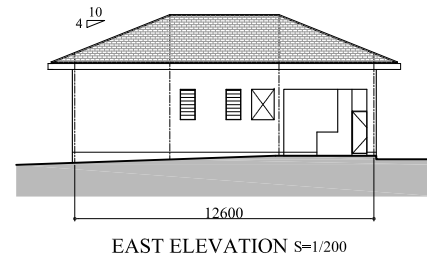
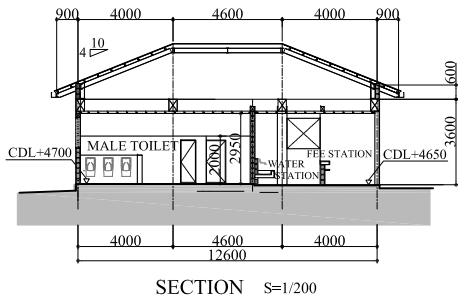
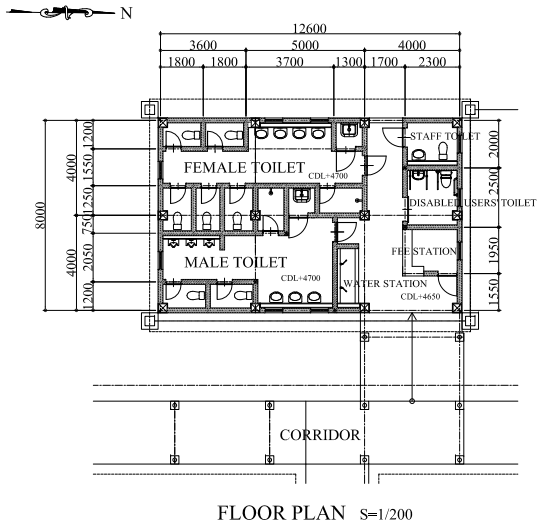
SECTION S=1/200



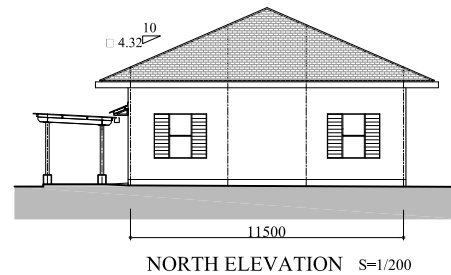
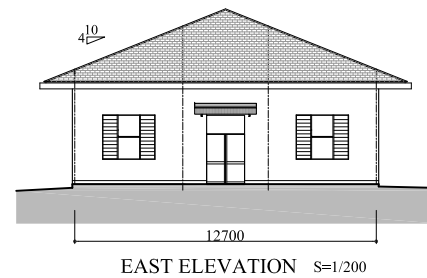
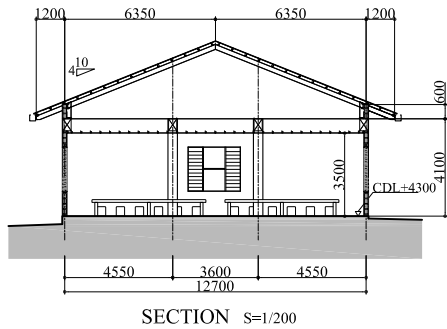
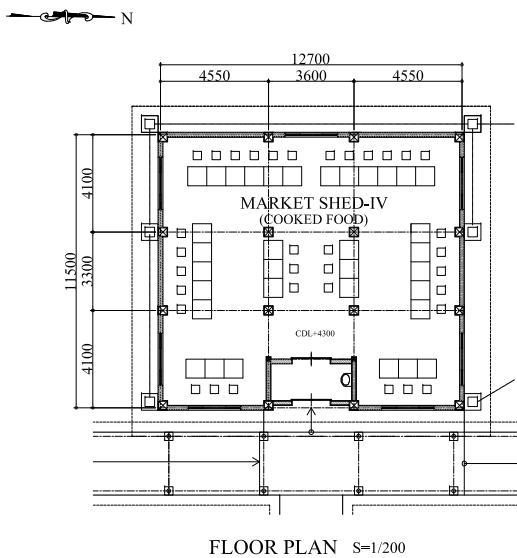
EAST ELEVATION S=1/200



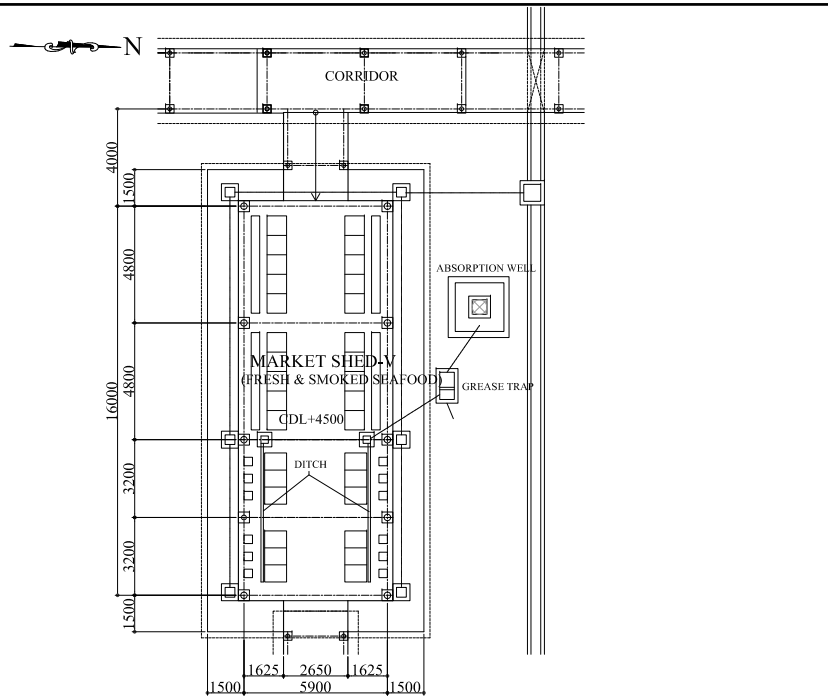
SOUTH ELEVATION S=1/200



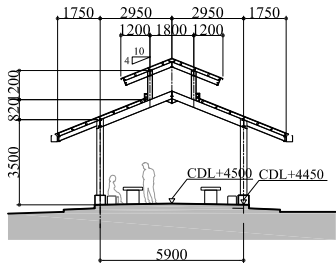
MARKET TOILET



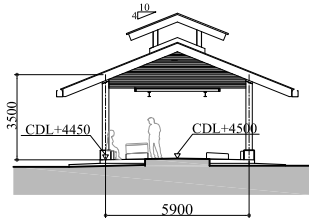
MARKET SHED-IV



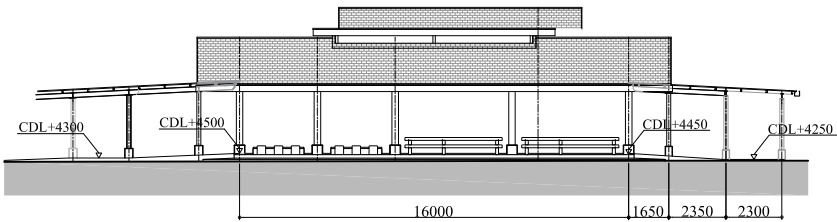
FLOOR PLAN S=1/200



SECTION S=1/200

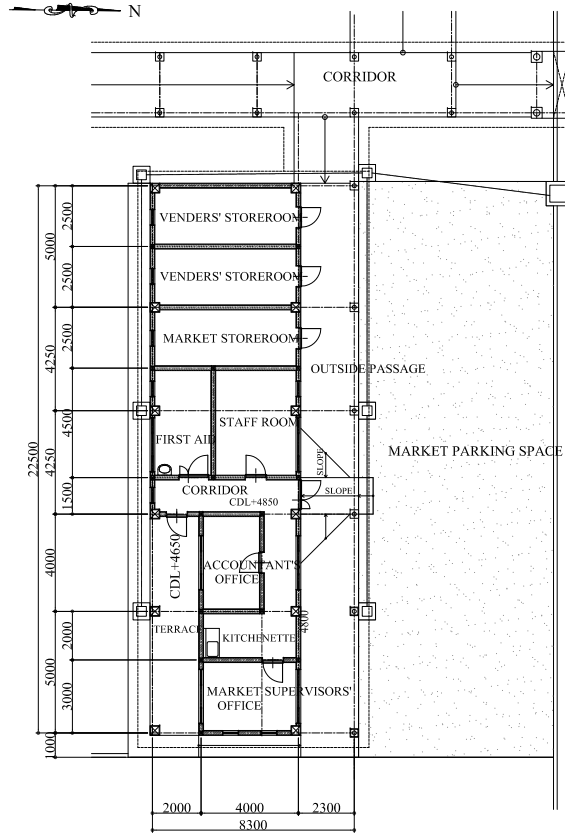


EAST ELEVATION S=1/200

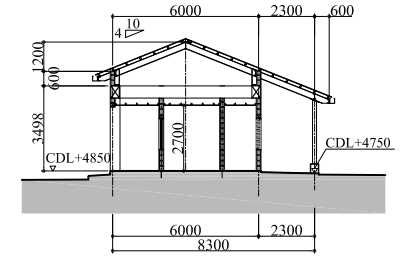


NORTH ELEVATION S=1/200

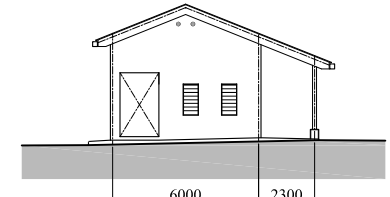
MARKET SHED-V



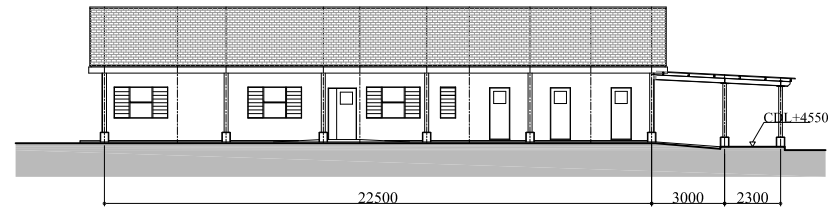
FLOOR PLAN S=1/200



SECTION S=1/200

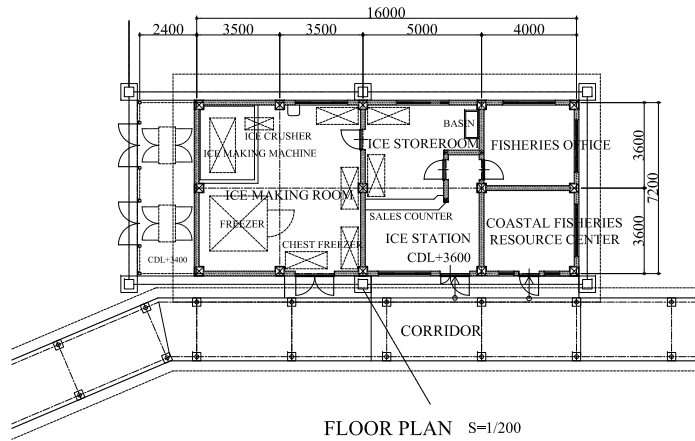


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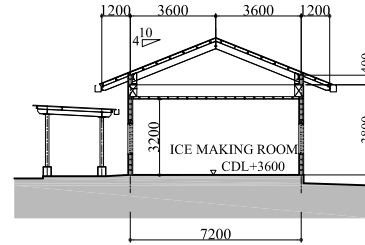


NORTH ELEVATION S=1/200

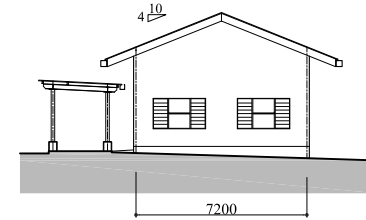
ADMINISTRATION BUILDING



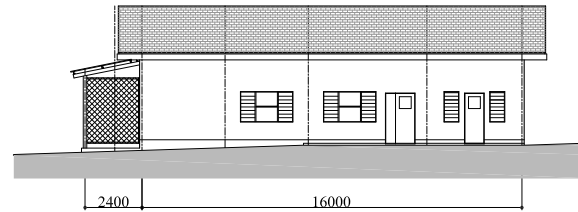
FLOOR PLAN S=1/200



SECTION S=1/200

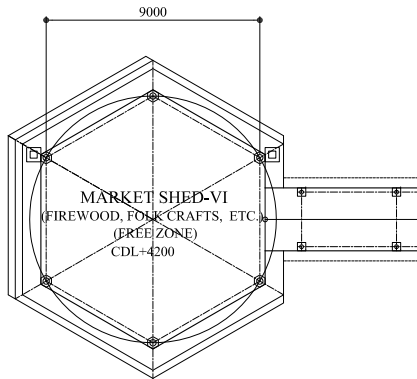


NORTH ELEVATION S=1/200

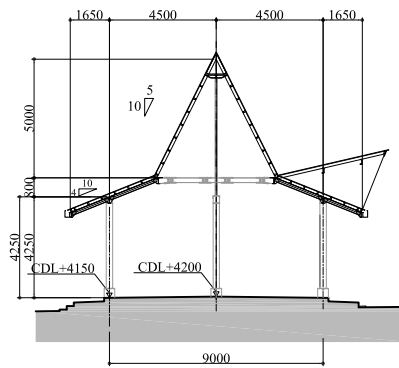


EAST ELEVATION S=1/200

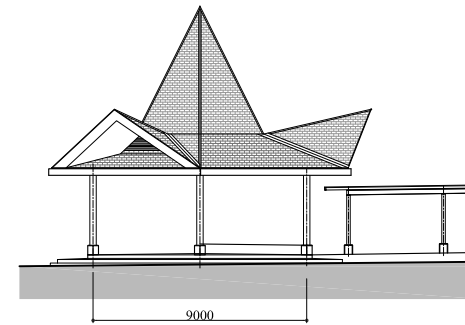
FISHERIES CENTER



FLOOR PLAN S=1/200

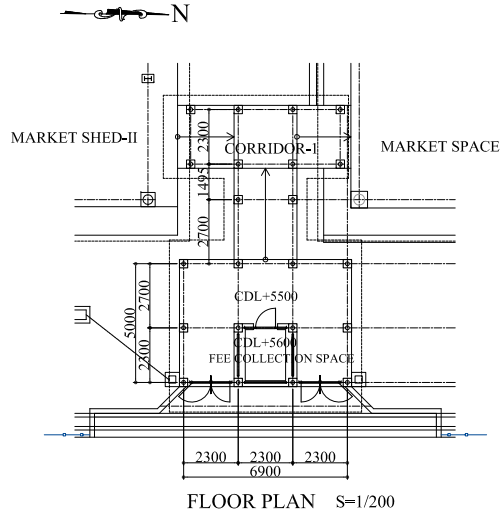


SECTION S=1/200

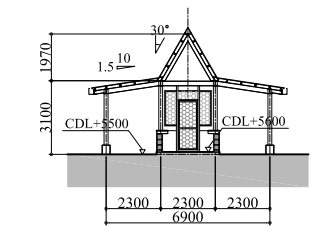


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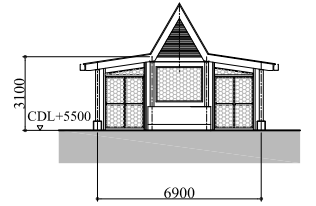
MARKET SHED-VI



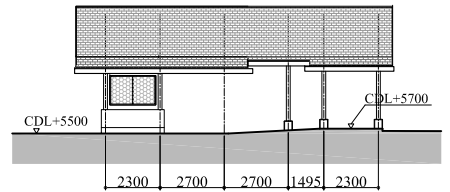
FLOOR PLAN S=1/200



SECTION S=1/200

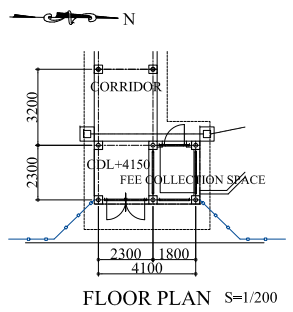


EAST ELEVATION S=1/200

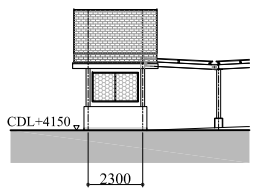


NORTH ELEVATION S=1/200

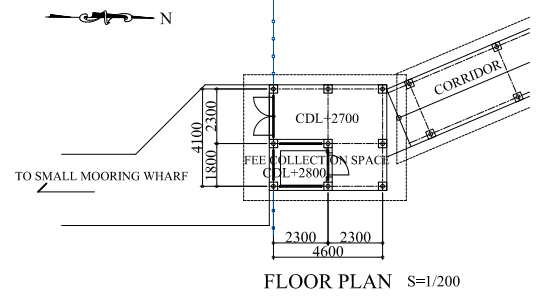
GATE HOUSE-1



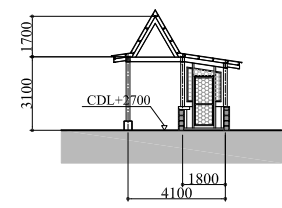
FLOOR PLAN S=1/200



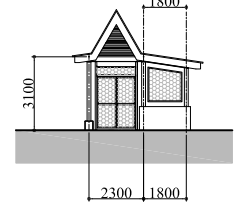
NORTH ELEVATION S=1/200



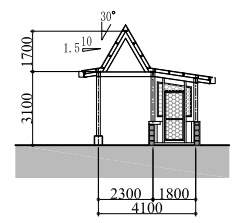
FLOOR PLAN S=1/200



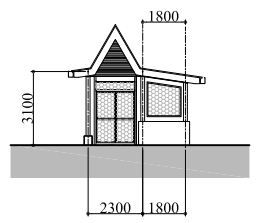
SECTION S=1/200



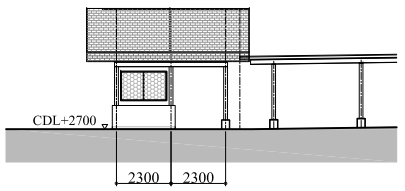
SOUTH ELEVATION S=1/200



SECTION S=1/200



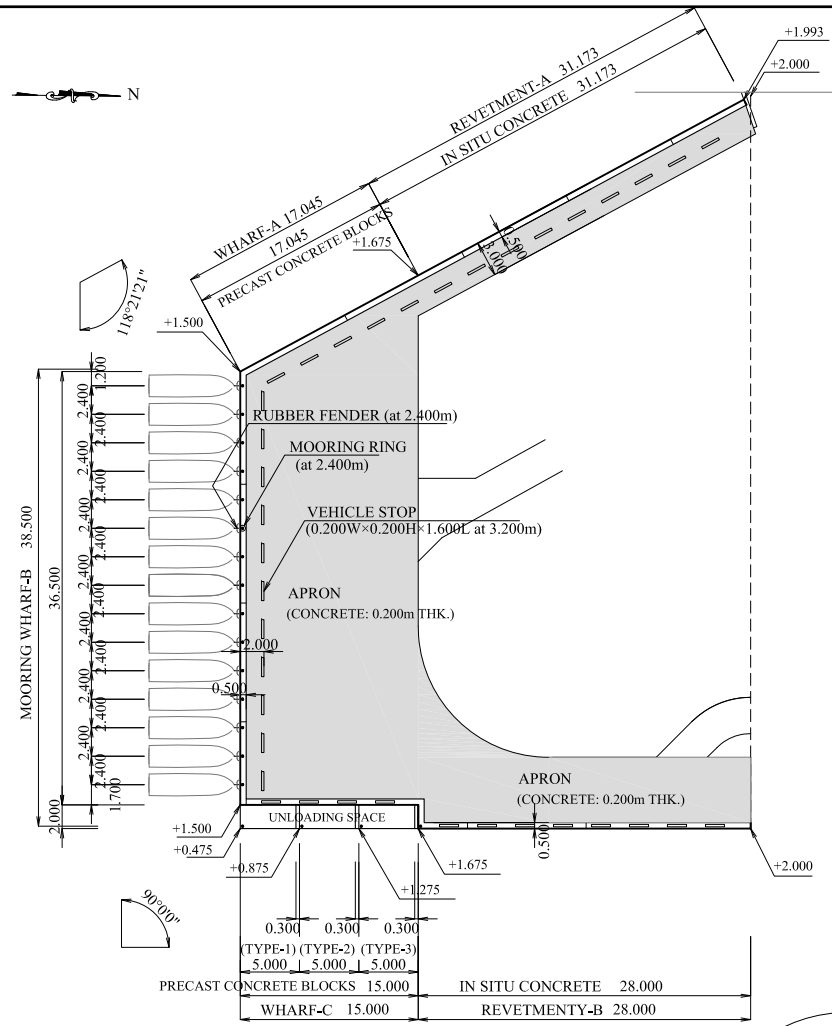
EAST ELEVATION S=1/200



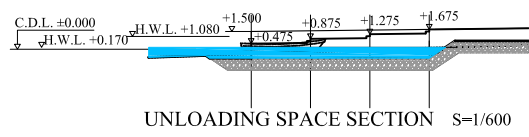
EAST ELEVATION S=1/200

GATE HOUSE-2

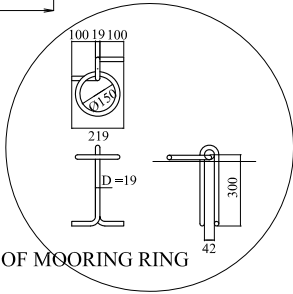
GATE HOUSE-3



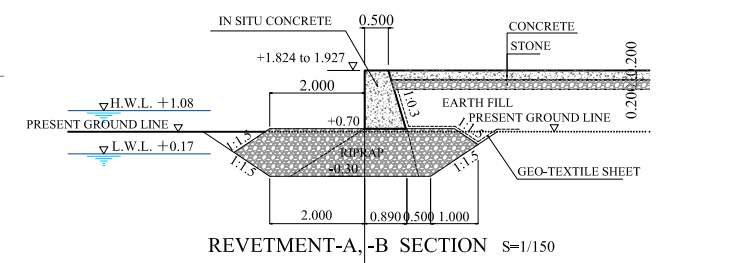
WHARF PLAN S=1/600



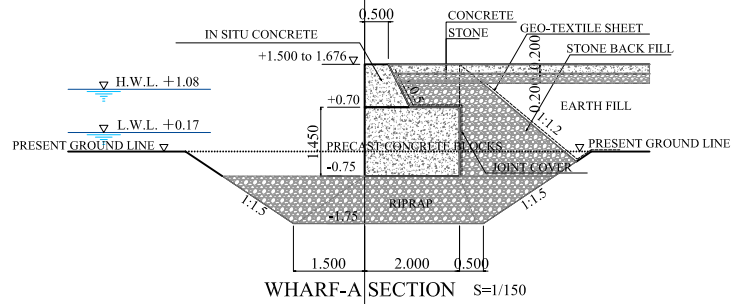
UNLOADING SPACE SECTION S=1/600



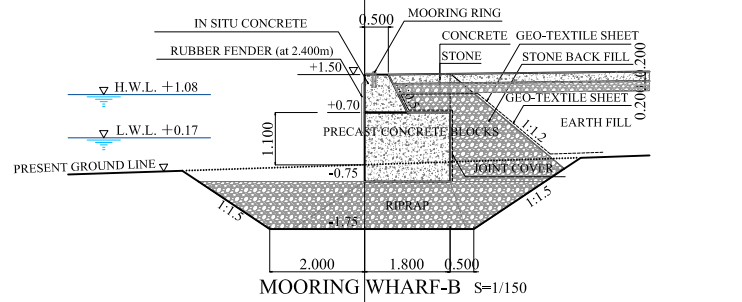
DETAIL OF MOORING RING



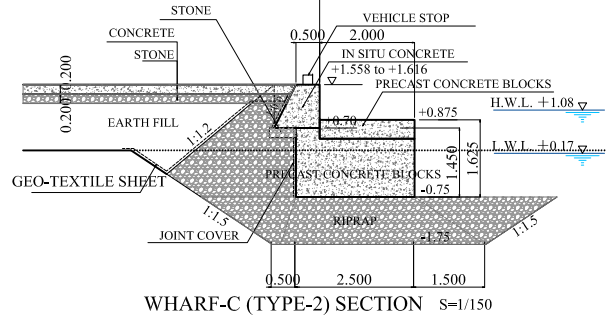
REVETMENT-A, -B SECTION S=1/150



WHARF-A SECTION S=1/150



MOORING WHARF-B SECTION S=1/150



WHARF-C (TYPE-2) SECTION S=1/150

2-2-4 Implementation Plan

2-2-4-1 Implementation Policy

Construction for this project will follow the basic policy outlined below.

- 1) Keeping in mind that grant aid projects should be completed within the prescribed construction period, it shall be formulated an appropriate construction plan, materials, machinery and equipment procurement plan, work schedule plan, and quality control plan, and construction work shall be undertaken with proper supervision.
- 2) It shall be endeavored to maintain close contact with PNG side officials and ensure sufficient communication at every stage of the construction work and procurement of the equipment, and it shall be exercised caution to avoid procedural discrepancies.
- 3) It shall be made accommodations to preserve existing nearby facilities and protect the natural environment.
- 4) It shall be sufficiently enacted measures to ensure the safety of persons involved in this project.
- 5) To undertake construction and labor management in a manner that accommodates the customs, traditions, and cultures of the PNG.
- 6) Since local construction companies have a certain level of technical capacity and available labor, local companies shall be engaged for construction work to the maximum extent possible.

2-2-4-2 Implementation Conditions

- 1) To coordinate sufficiently the schedule of implementation by the grant aid with the schedule for the construction work to be carried out by PNG side and give due consideration to the efficient progress of the construction and equipment procurement schedule for the entire project.
- 2) Since most of the construction materials will be procured via marine transport, procurement errors could have a significant impact on the construction schedule. Therefore, it shall be formulated the detailed materials and machinery procurement plan that provides ample time for procurement.
- 3) Since the project site is located in the city, the volume of people and traffic passing by will be relatively high. For this reason, it shall be ensured that unauthorized personnel cannot enter the site while its under construction, and enacted safety measures, including the stationing of security guards round the clock.
- 4) In addition to the project site, it shall be also considered security measures for the Japanese employees' lodgings and for their commute between their lodgings and the project site.
- 5) To take measures to control dirt and dust on the project site (e.g., spraying water) and to reduce noise.
- 6) With regard to environmental protection, it shall be enacted pollution control measures for the surrounding seawaters when offshore construction is in progress.
- 7) Since construction will take place in a tropical environment, it shall be formulated a plan that takes worker hygiene and health maintenance into account.

2-2-4-3 Scope of Works

If this project is implemented based on grant aid from the Government of Japan, the scope of construction and procurement tasks to be handled by PNG and Japan will be as shown in Table 2-20, with each country bearing the expenses for said tasks.

Table 2-20: Scope of Works

Japan	PNG
	Acquire the project site
	Secure construction permits
	Build the temporary market and informal market facilities; relocate the markets
	Remove existing facilities; level the ground
Detailed design; assistance with bidding procedure; supervision of the construction and procurement; consulting on the soft component	
Provide all of the necessary construction materials and labor for the construction to be handled by the Japanese side » Building construction work (Market Sheds & Building; Administration Building; Fisheries Center; Market Toilet; Gate Houses; Standby Rubbish Bays; exterior construction) » Electrical work (Power receiving equipment; lighting and electrical outlets) Primary lead-in utility poles; underground piping; hand holes) » Mechanical work (Water supply system; drains; sanitary ware; air conditioning; ventilation equipment) Water pipes from the water meters into the facility » Civil engineering construction (Small Mooring Wharf; Riverbank Protection)	Provide all of the necessary construction materials and labor for the construction to be handled by the PNG side » Construction of superstructure of the Market Space » Construction of Market Access Road and Public Parking Space » Construction of fences and gates; planting of shrubs » Primary supply of electricity Install main electric lines until the management building power receiving panel and power meters » Primary supply of water Install water pipes from the water main to the predetermined location within project site and water meters
Procurement of Equipment » Garbage truck (Q'ty=1)	Procure all necessary furnishings and fixtures for facilities covered by this project

2-2-4-4 Consultant Supervision

- 1) The Japanese grant aid project shall form the basis of the construction supervision plan and procurement supervision plan, and the Consultant will strive to ensure a smooth handover after all construction and procurement work has been completed to the stipulated level of quality and within the prescribed time frame.
- 2) In accordance with the project design, the Consultant will carefully review the details of construction,

the construction and procurement schedule, and the quality control plan and ensure an appropriate framework for construction and procurement supervision.

- 3) During the construction and procurement, the relevant agencies on the PNG side with work to ensure effective communication among the Japanese Embassy in PNG, the JICA PNG Office, the Consultant, and the construction companies.
- 4) The procurement of equipment and materials, vehicles, and office space required for construction and procurement supervision will be appropriately planned along with the procedures, time frames, and management methods for quality control.
- 5) In formulating the personnel plan, the required skill levels, assignments, number of workers, and worker configurations shall be carefully deliberated to ensure appropriate construction and procurement supervision.
- 6) To carry out construction and procurement supervision duties, the Consultant will assign one full-time on-site supervisor, and engineers for the various fields will be dispatched as needed depending on the progress of construction and procurement. In this way, the necessary inspections, guidance, and coordination can be performed.

Figure 2-19 shows the framework for construction and procurement supervision.

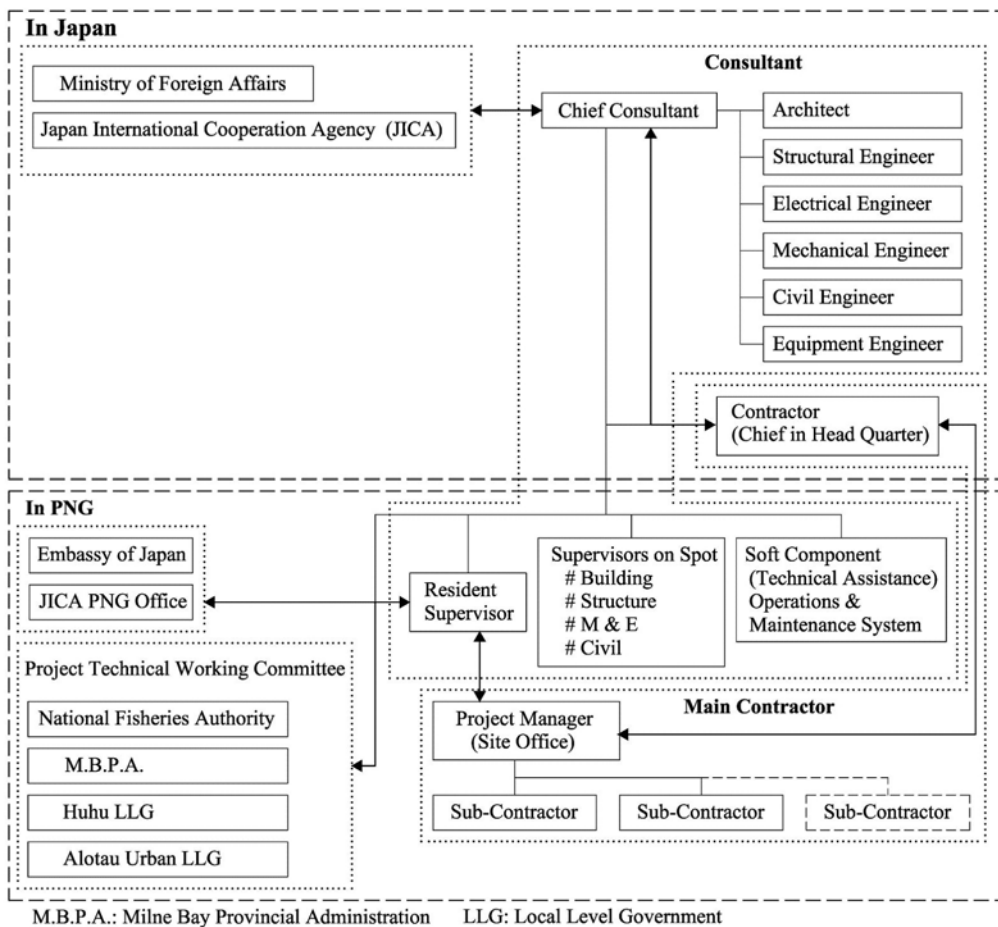


Figure 2-19: Construction Supervision Framework

2-2-4-5 Quality Control Plan

The quality control plan for this project will emphasize the durability, safety, and other aspects of basic performance, and it shall be administered according to the following items.

- 1) For each major works, the Contractor shall formulate construction and safety plans that stipulate the form of the request for materials and specifications approval, construction methods, construction schedules, quality control plans and ask the Consultant for approval. The Contractor shall commence such works after these have been approved by the Consultant.
- 2) Mill test certificates shall be used to verify the quality of structural steel and rebar.
- 3) Fabricated structural steel shall be inspected in the fabricators' mill to confirm its precision, and the quality of welds shall be tested by a third party using x-ray or ultrasonic flaw detection.
- 4) Inspection certificates issued by the manufacturers shall be used to verify the quality of cement.
- 5) It shall be verified the quality of concrete by collecting production quality data on every pour day.

2-2-4-6 Procurement Plan

(1) Construction Materials and Equipment

Excluding those materials with special specifications, the basic stance shall be to procure general construction materials from in-country where possible after confirming that they are comparatively readily available in PNG. Materials with special specifications that cannot be procured in-country, that could be procured but whose delivery dates are unclear because they must be imported, or that could be procured but whose level of quality is not suitable will be procured from Japan or a neighboring third country.

Table 2-21 shows the plan for the procurement of construction materials and machinery.

Table 2-21: Procurement of Materials and Equipment for Construction

Construction materials and equipment	Supplied from		Reason
	PNG	Japan or third country	
Stone, sand, cement	○		Materials that meet the project requirements can be adequately procured.
Concrete blocks	○		Materials that meet the project requirements can be adequately procured.
Framing materials	○		Materials that meet the project requirements can be adequately procured.
Rebar	○	○	Materials that meet the project requirements can be adequately procured. After comparing costs, these materials may be procured from Japan.
Structural steel		○	It will be difficult to locally procure materials that meet the project requirements.

Wood, timber	○		Materials that meet the project requirements can be adequately procured.
Roofing materials	○		Materials that meet the project requirements can be adequately procured.
Tiles	○		Materials that meet the project requirements can be adequately procured.
Paint	○		Materials that meet the project requirements can be adequately procured.
Aluminum window frames	○		Materials that meet the project requirements can be adequately procured.
Steel doors		○	It will be difficult to locally procure materials that meet the project requirements.
Lighting fixtures	○		Materials that meet the project requirements can be adequately procured.
Plumbing and sanitary fixtures	○		Materials that meet the project requirements can be adequately procured.
Air conditioning and ventilation equipment	○		Materials that meet the project requirements can be adequately procured.

(2) Equipment

One garbage truck is to be procured under this project, and it shall be procured from Japan as mentioned in 2-2-2-4.

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

(1) Background of the Soft Component (Technical Assistance) Plan

Alotau Town Market functions as a vital center where farmers and fishermen from throughout Milne Bay Province can come to earn cash. However, the market building is old and there are not enough tables. In many cases, products for sale are placed directly on the ground, thus causing sanitation issues. The aim of the renovations and improvements to be performed as part of the “Project for the Rehabilitation of Alotau Town Market and Fisheries Facilities” is to i) improve and invigorate the distribution of agricultural and fishery products in Milne Bay Province and ii) improve the livelihoods of the farmers and fishers who live in the province.

At present, Huhu LLG is administering Alotau Town Market relatively smoothly, but once the market is renovated as per the request from the PNG side, the plan is to make the market’s administrative framework independent of Huhu LLG and put it under the jurisdiction of a Market Board composed of representatives from the Milne Bay Provincial Government, Alotau Urban LLG, and Huhu LLG. That being said, the market’s administrative framework will not change significantly from the current one. The plan calls for an organization that will include the bare minimum number of additional members to the current framework to ensure that the improved market can provide users with the functions and services they need.

When future plans pertaining to this project are implemented, the necessary preparations will be taken after being discussed and deliberated by a Technical Working Committee on the PNG side. This Technical Working Committee was formed under the supervision of the Milne Bay Provincial Administrator, and it will play a leading role in the preparatory work relating to the administration of the renovated Alotau Town Market. Since the primary members of the Market Board will include members of the Technical Working Committee, the establishment of the Market Board should go relatively smoothly, but it will be important for the Japan side to provide support to ensure that i) the Market Board is established after the project construction is complete but before the market commences operations and ii) preparations relating to market administration go as planned. To ensure the positive impact of this project, the following issues will need to be improved, and support in the form of the soft component (i.e., technical assistance) will be effective to this end.

- i) At present, the various duties at Alotau Town Market—namely, opening and closing the market, collecting fees from the retailers, cleaning, and trash disposal—are all done according to ad hoc rules that have become customary. There is no manual codifying the operations of the Alotau Town Market. However, the renovated Alotau Town Market will have more functions than now, including a market toilet, a storage room for retailers, and a first-aid, so effective administration that takes the current situation into account is desirable.
- ii) At present, Alotau Town Market administered directly by the Huhu LLG, and the market’s revenues and expenses are incorporated into the ILLG account. Over the past five years, the Alotau Town Market has averaged annual profits of PGK 34,000, but several issues, such as the out-of-order toilet, remain.
- iii) At present, the Huhu LLG runs a business where it buys fish caught by local fishermen and resells it

to consumers, but since the fishermen are paid with checks, they are sometimes hesitant to sell their catches.

- iv) At the current Alotau Town Market, the Huhu LLG sells ice with ice plants, but there is a possibility to increase the ice sales volume. For example, they could use ice breakers and to sell ice in smaller quantities.

When the proposed regulations for market operations and maintenance to be used at the renovated Alotau Town Market are formulated, the text will reflect the current market operations. The regulations are scheduled to be drawn up by the Business Development Officer and the Fisheries Officer of Huhu LLG, and related preparations are slated to be completed three months before the completion of construction.

(2) Objective of the Soft Component (Technical Assistance)

The objective of the soft component (technical assistance) is “to ensure the effective establishment of an operations and maintenance system for the renovated Alotau Town Market.” To this end, efforts will be made to ensure the formulation of basic regulations for market operations and maintenance, methods for market fee collection and accounting, and a manual for the maintenance of market facilities, equipment, and machinery.

(3) Outcomes of the Soft Component (Technical Assistance)

The three expected outcomes of the soft component (technical assistance) have been defined as outlined below.

Outcome 1: “Formulate and put into effect regulations for the operations and maintenance of Alotau Town Market”

Outcome 2: “Establish systems for the collection and accounting of Alotau Town Market facility usage fees and for financial management”

Outcome 3: “Establish procedures for the maintenance of Alotau Town Market facilities, equipment, and machinery”

(4) Soft Component (Technical Assistance) Activities (Implementation Plans)

The following activities will be implemented to achieve Outcomes.

Activity 1-1: Deliberate and evaluate the proposed regulations for market operations and utilization.

Activity 1-2: Hold workshops involving both the organization in charge of market operations and the retailers (i.e., market users) to discuss market operations and utilization.

Activity 1-3: Revise proposed regulations for market operations and utilization.

Activity 1-4: Operate the renovated Alotau Town Market in accordance with the proposed regulations for market operations and utilization and identify any issues that arise.

Activity 1-5: Evaluate market operation based on the proposed regulations for market operations and utilization, then revise and finalize said regulations.

Activity 2-1: Assess methods for the collection and accounting of Alotau Town Market facility usage fees and for financial processing.

Activity 2-2: Revise the proposed manual for the collection and accounting of facility usage fees.

Activity 2-3: Collect and account for facility usage fees for the renovated Alotau Town Market in accordance with the proposed manual for the collection and accounting of facility usage fees and identify any issues that arise.

Activity 2-4: Assess market operations in accordance with the proposed manual for the collection and accounting of facility usage fees, make corrections to the manual if needed, and finalize the manual.

Activity 3-1: Deliberate the proposed manual for the maintenance of market facilities, equipment, and machinery.

Activity 3-2: Revise the proposed manual for the maintenance of market facilities, equipment, and machinery.

Activity 3-3: Undertake maintenance in the renovated Alotau Town Market in accordance with the proposed manual for the maintenance of market facilities, equipment, and machinery, and identify any issues that arise.

Activity 3-4: Assess maintenance work in accordance with the proposed manual for the maintenance of market facilities, equipment, and machinery, make corrections to the manual if needed, and finalize the manual.

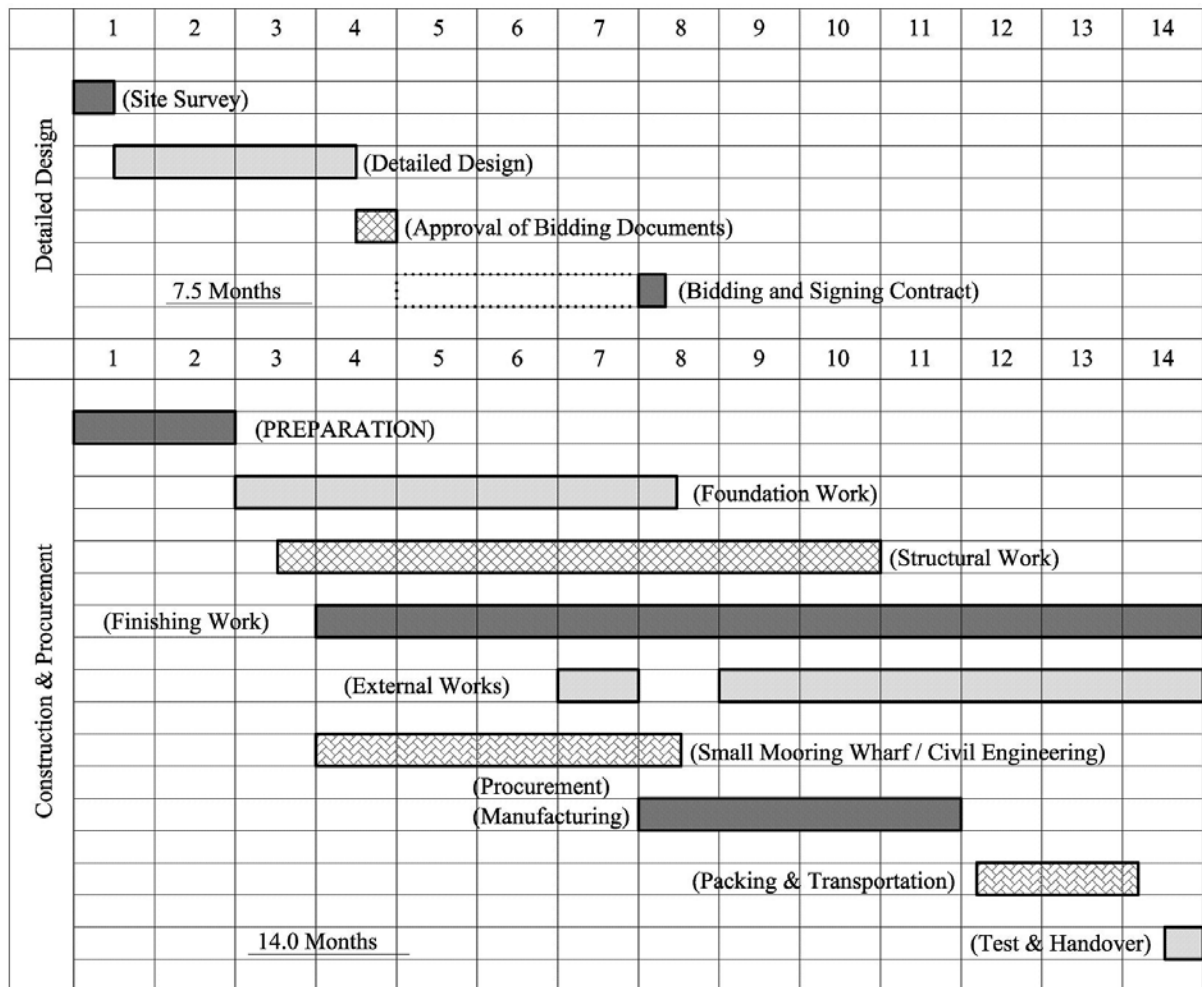
With regard to the maintenance of Alotau Town Market after the renovations slated under this project are carried out, since the new market will have more functions than now to service its users, the plan calls for the continued involvement of two Huhu LLG officials, i.e., the Business Development Officer and the Fisheries Officer, who are currently playing leading roles in the market's administration. Therefore, when activities for the soft component are undertaken, local consultants, NGOs, and other local resources will be not utilized, and these two Huhu LLG officials will be the primary PNG counterparts who will work both under the supervision of the Japanese consultant and together with the Japanese consultant on various activities. Engaging in technology transfer while improving the capacity of these two officials involved in the administration and maintenance of Alotau Town Market is not only appropriate, it will ensure effective outcomes from the implementation of the soft component.

2-2-4-8 Implementation Schedule

In implementing this project, it will take 4.0 months to detailed design and obtain approval for the bidding documents, 3.5 months to conduct bidding and sign a construction and procurement contract, and to be necessary 14.0 months period for approval of work drawings, construction work, procurement of the equipment, test, etc. from conclusion of the contract with a contractor until the completion of construction and procurement.

Table 2-22 shows the project implementation schedule.

Table 2-22: Project Implementation Schedule



2-3 Obligations of Recipient Country

- (1) Secure land for the project site.
- (2) Establish a temporary market that Alotau Town Market users can use during construction and complete the relocation of said users to the temporary market before the Japanese side begins the construction work under this project.
- (3) Establish a permanent facility for informal market users and complete the relocation of said users before the Japanese side begins the construction work under this project.
- (4) Demolish and remove existing facilities, foundations, and other structures within the project site.
- (5) Complete all necessary procedures in accordance with PNG law regarding considerations pertaining to the environmental and social impact of this project.
- (6) Obtain all permits required by PNG law for the implementation of this project, construction, and equipment procurement.
- (7) Conclude the necessary Banking Arrangement for the implementation of this project and promptly issue the Irrevocable Authorization to Pay forms.
- (8) Enact exemptions from all taxes and other levies for the Japanese people and Japanese corporations in PNG who will provide construction work, equipment procurement, and services for this project.
- (9) Ensure swift duty-free clearance of PNG customs for items required for the implementation of this project, construction work, and equipment procurement.
- (10) Secure permits for entry into and residence in PNG for the Japanese people involved in the implementation of this project and ensure their safety while residing in PNG.
- (11) Secure land for temporary storage yards and offices required for the construction under this project.
- (12) Ensure that no unauthorized personnel can enter the project site during the construction work under this project.
- (13) Build superstructure of the Market Space, construct the Market Access Road, Public Parking Space, outside fences and gates required for this project; lay the water pipes and install the power supply equipment required for this project; and install telephone lines if necessary.
- (14) Procure all necessary office equipment, furnishings, and fixtures for this project.
- (15) Cover the cost of any other work deemed necessary for this project but not covered by the Japanese government grant aid.

2-4 Project Operation Plan

At present, the Alotau Town Market is administered by the Huhu LLG. Figure 2-20 shows the current organization chart for Alotau Town Market. The market is currently more or less well operated.

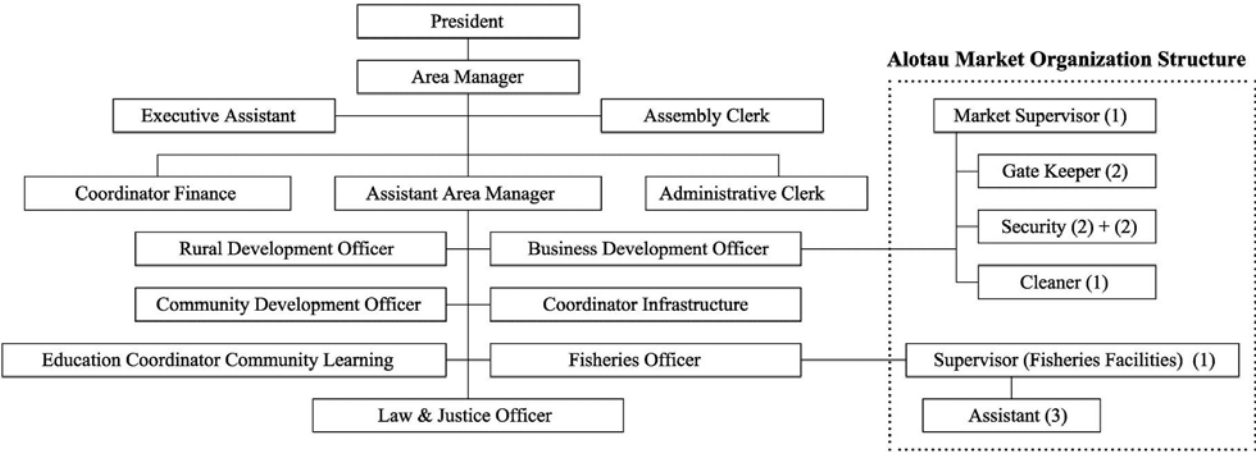


Figure 2-20: Current Organization Chart for Alotau Town Market (Source: Huhu LLG)

As Figure 2-20 shows the operation of Alotau Town Market, there are two main chains of command: one for the retail sale of agricultural products and one for the retail sale of fishery products (i.e., fresh seafood and ice). The division in charge of the retail sale of agricultural products is headed by the Business Development Officer, under whom is the Market Supervisor (x1), the Gate Keepers (x2), the Security Guards (2 daytime + 2 nighttime), and the Cleaner (x1), making for a total of eight staff. Meanwhile, the division in charge of the retail sale of fishery products is headed by the Fisheries Officer under whom are three Assistants, making for total of four staff. The entire market is operated by this 12-person team. The two top Huhu LLG officers are public servants, but the 12 personnel are contract staff employed by the Huhu LLG and paid with funds from the market budget.

Figure 2-21 shows the post-renovation organization chart for Alotau Town Market. The plan calls for the renovated Alotau Town Market to be administered by an independent organization separated from the Huhu LLG in light of the independence, sustainability, and transparent operation of the market. That being said, actual market operations will not change significantly from the current situation; basic staffing will be patterned on the existing core organization, and the Huhu LLG officials will remain involved. Furthermore, one accounting clerk will be added to handle additional duties in the new organization and two toilet staff will be added to manage the renovated toilet. In this way, personnel will be kept to the bare minimum. There are currently no toilet staffs because the existing market toilet is out of order due to a dysfunctional drain, but for the renovated market, it is to plan to assign two toilet staff, one male and one female, since anticipating full-time fee collection duties and frequent cleaning.

As noted above, duties pertaining to market operations will be patterned on the current chain of command, and the current Huhu LLG Business Development Officer and Fisheries Officer will remain involved in market operations, thereby enabling a smooth transition from the current operational framework. A Market Board composed of representatives from the Milne Bay Provincial Government, the

Alotau Urban LLG and the Huhu LLG will be established to oversee the operational framework of Alotau Town Market, thus making the market a self-supporting entity and ensuring transparency in its operations.

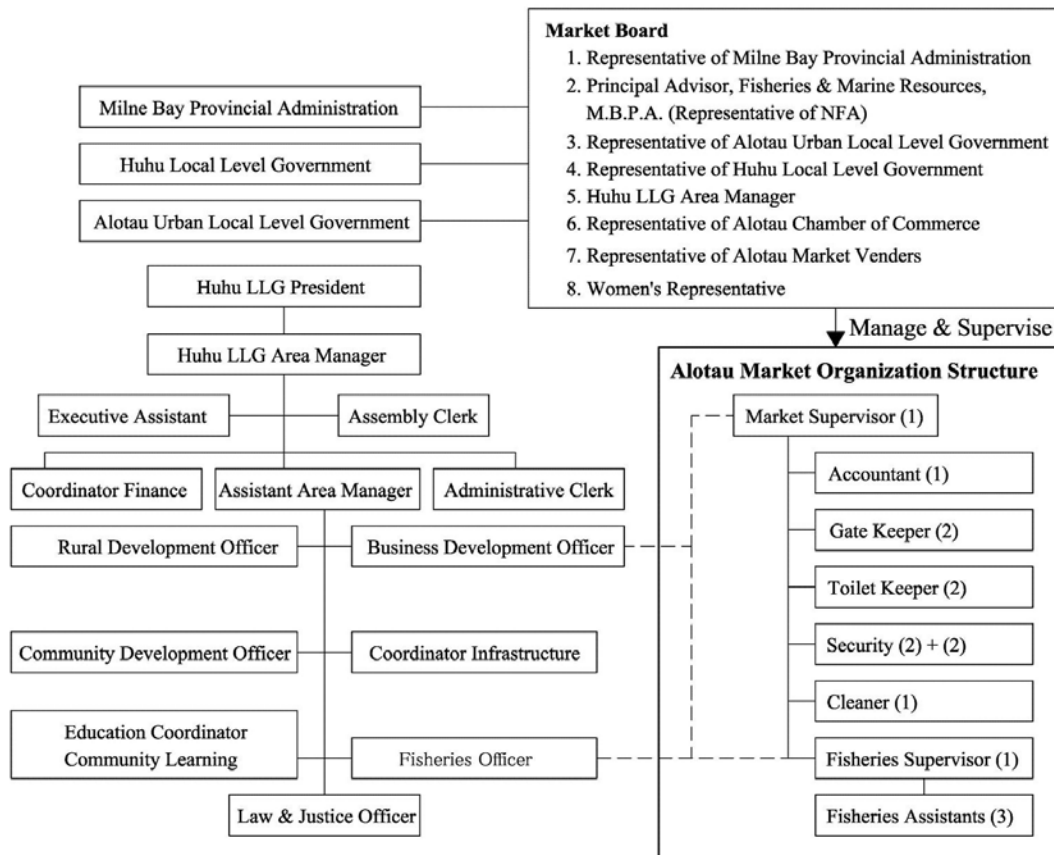


Figure 2-21: Post-Renovation Organization Chart for Alotau Town Market (Source: Huhu LLG)

Table 2-23 shows the duties of the staff of the renovated Alotau Town Market.

Table 2-23: Duties of Alotau Town Market Staff

Staff	Primary Duties	Remarks
Market Supervisor (x1)	Oversee market operations; negotiate with external organizations	Issues reports to the Market Board
Accountant (x1)	General accounting	Audited by the Market Board
Gate keepers (x2)	Collect fees; clean inside the Market	
Toilet staff (x2)	Collect toilet usage fees; clean toilets	One for each gender
Security guards (x2) +2	Guard Market and Gate houses; assist with fee collection; clean inside the market	
Cleaner (x1)	Clean inside the Market; discard trash in the Standby rubbish bays	
Fisheries supervisor (x1)	General management of fisheries facilities	
Fisheries assistants (x3)	Make, store, and sell ice; buy and sell fresh seafood in the Fisheries center	

2-5 Project Cost Estimation

2-5-1 Initial Cost Estimation

(1) Project Cost borne by Papua New Guinea side

The project cost borne by the PNG side is estimated to be PGK 7,391,400 (Approx. JPY 256.0 million) as follows.

1) Environmental and social considerations procedure	PGK 208,000	(JPY 7.2 million)
2) Temporary market construction	PGK 780,000	(JPY 27.0 million)
3) Informal market construction	PGK 1,080,000	(JPY 37.4million)
4) Removal of existing structures and obstructions within the site	PGK 564,000	(JPY19.5 million)
5) Relocations of existing ice making plant	PGK 250,000	(JPY8.7million)
6) Construction of superstructure for Market Space	PGK 2,589,000	(JPY 89.7 million)
7) Construction of Market access road and public parking space	PGK 963,000	(JPY 33.4million)
8) Fence and gates construction	PGK 287,000	(JPY 9.9 million)
9) Construction of the riverbank protection (Along Police station)	PGK 542,400	(JPY 18.8 million)
10) Installation of electricity, water, and communications lines	PGK 30,000	(JPY 1.0 million)
11) Procurement of office equipment and furniture	PGK 70,000	(JPY 2.4 million)
12) <u>Bank processing charges</u>	<u>PGK 28,000</u>	<u>(JPY 1.0 million)</u>
Total	PGK 7,391,400	(JPY 256.0 million)

(2) Condition of Estimation

- 1) Estimated at : July, 2016
- 2) Exchange rate : 1US\$ = JPN 109.04
: Local currency 1 (PGK) = JPN 34.65
- 3) Timeframe for Construction & Procurement: See Table 2-22 “Project Implementation Schedule”
- 4) Others : Cost estimation shall be conducted based on the Japan’s Grant Aid Scheme.

2-5-2 Operation and Maintenance Cost

As Table 2-24 shows, calculations pertaining to the operations of the renovated Alotau Town Market are based on an annual estimated operating revenue of about 64,900 PGK (404,500 PGK - 339,600 PGK).

Table 2-24: Balance of Payments Forecast for the Renovated Alotau Town Market (in PGK)

Item	Annual amount	Remarks
Revenues		
Market usage fees	218,400	Average daily number of vendors at time of on-site survey × 364 days × 55% × PGK 1.50
Seafood and ice sales	87,500	2015 actual
Rent from storerooms, etc.	31,000	Same as above
Toilet usage fees	67,600	Based on usage fees collected from 1,300 expected weekly users
Total Income	404,500	(i)
Expenditures		
Salaries	111,800	See Table 2-25
Overtime pay	18,000	PGK5.00 / hour × 10 hours / day × 360 days / year
Electricity	50,000	Current level of present performance
Water	58,000	Primarily water for toilets
Trash disposal	13,600	Truck fuel: PGK10,000.00 + PGK300.00 × 12 months trash disposal fees
Market Board meetings	19,200	12 members × PGK200 / meeting (4 regular meetings / year + 4 extraordinary meetings / year)
Communications	2,000	
Education and training	10,000	Educational expenses for accounting clerks, etc.
Expenses for consumables	10,000	Uniforms, cleaning tools, ledger sheets
Maintenance expenses	12,000	Routine maintenance
Operational support	35,000	Huhu LLG market operations assistance
Total Expenditures	339,600	(ii)
Expected annual revenue	64,900	(i) – (ii)

Table 2-25: Breakdown of Staff Salaries for the Renovated Alotau Town Market

Salary level (PGK per two weeks)	Applicable personnel and total	Formula	Total
400	Market supervisor (Total: 1)	$1 \times 400 \times 26 / \text{year}$	10,400
350	Fisheries supervisor (x1)	$1 \times 350 \times 26 / \text{year}$	9,100
300	Accountant (x1), Gate keepers (x2), Total staff (x2), Cleaner (x1): Total: 6	$6 \times 300 \times 26 / \text{year}$	46,800
250	Security guards (x4), Fisheries assistances (x3): Total: 7	$7 \times 250 \times 26 / \text{year}$	45,500
Total for salaries			111,800

Keeping in mind the sustained operation of Alotau Town Market into the future, the funds shown in Table 2-26 are likely necessary to cover mid to long-term operations and maintenance expenses, so this amount will need to be secured.

Table 2-26: Funds Deemed Necessary for Alotau Town Market Maintenance over the Medium Term

Years in operation	Required Funds	Breakdown
Every 5 years	PGK 67,000	Repairs to interior and exterior painted areas; repairs to pavement inside the market premises
Every 10 years	PGK 104,000	Replacement of air conditioning, ventilation, and related equipment; repairs to roofs and gutters
15 years after installation and every 10 years thereafter	PGK 30,000	Repairs to rust-proofed sections of the Market Building

Keeping this in mind, it will be able to expect that the regular expenses shown in Table 2-27 will be incurred for the maintenance of Alotau Town Market facilities and equipment. To secure the funds to cover these expenses, it would be logical to prepare for maintenance expenditures by allocating some of the aforementioned revenues to a maintenance fund. As shown in Table 2-27, if 26,000 PGK (roughly 40% of the expected revenue of 64,900 PGK) is put on reserve every year, then the necessary funds for mid to long-term maintenance shown in Table 2-26 can be secured. Furthermore, it will be also possible to prepare separate funds to cover the replacement of the garbage truck and capital investments for new equipment that may be required in the future.

Table 2-27: Mid to Long-Term Maintenance Expenses and Proposed Reserve Fund (in PGK)

Item	After 5 years	After 10 years	After 15 years	After 20 years	After 25 years	After 30 years
Repairs to interior and exteriors painted areas; repairs to pavement inside the market premises	67,000	67,000	67,000	67,000	67,000	67,000
Replacement of air conditioning, ventilation, and related equipment; repairs to roofs and gutters		104,000		104,000		104,000
Repairs to rust-proofed sections of the Market Sheds			30,000		30,000	
Estimated end-of-term total of funds on reserve	130,000	130,000	130,000	130,000	130,000	130,000
Estimated end-of-term balance remaining of funds on reserve	63,000	22,000	55,000	14,000	47,000	6,000

Chapter 3 Project Evaluation

Chapter 3 Project Evaluation

3-1 Preconditions

As preconditions for the implementation of this project, the PNG side must undertake the following items:

i) Preparation of a temporary market and relocation work

Concurrent with construction work, the PNG side shall prepare a temporary market for Alotau Town Market. It shall notify stakeholders affected by the relocation and ensure a smooth transition to the temporary market. It shall also prepare a venue for the informal market and undertake permanent relocation.

ii) Land acquisition and related tasks

The PNG side shall acquire the land for the project site, demolish and remove existing structures and obstructions within the site, relocate the existing ice plants and freezers, cut trees as needed, and take measures to ensure that unauthorized personnel cannot enter the site.

iii) Acquisition of construction and environmental permits

The PNG side shall undertake EPA procedures, obtain an environmental permit from CEPA, and obtain any and all necessary permits for construction and equipment procurement.

iv) Measures to ensure smooth project implementation

The PNG side will undertake the following measures: conclude the necessary Banking Arrangement; promptly issue the Irrevocable Authorization to Pay; secure permits for entry into and residence in PNG for the Japanese nationals involved in the implementation of this project and ensure their safety while residing in PNG; ensure duty-free clearance related to construction work and equipment procurement; and enact exemptions from all taxes and other levies imposed in PNG in theory for the Japanese nationals and Japanese corporations who will provide construction work, equipment procurement, and services for this project.

v) Construction to be performed by PNG

The PNG side perform the following work: build superstructure including roofs for the market space; construct market access roads and pave the public parking space; lay water pipes and install power supply equipment; procure all necessary office equipment, furnishings, and fixtures; and erect exterior fences and gates.

3-2 Necessary Inputs by Recipient Country

The necessary inputs of the PNG side in order to achieve and sustain the effectiveness of this project are outlined below.

i) Operations and maintenance

The PNG side shall secure the necessary personnel, secure the necessary expenses for operations and maintenance, and properly and effectively utilize and manage the facilities and equipment.

ii) Development of a cooperative framework with related agencies

With regard to the formulation of operating rules and manuals and accounting procedures appropriate for a public town market and the revision of financial processing procedures to secure the necessary expenses for operations and maintenance, the PNG side will create a cooperative framework among the implementing agencies (i.e., Milne Bay Provincial Government, Huhu LLG, and Alotau Urban LLG) and the responsible agency (i.e., NFA).

iii) Accurate monitoring of project outcomes

The PNG side shall regularly and continuously measure the effects of this project in an effort to accurately monitor outcomes in such a way that contributes to project sustainability.

3-3 Important Assumptions

The assumptions that must be made in order to achieve and sustain the effectiveness of this project are outlined below.

- i) The volume of agricultural and fishery products produced will not drastically fall due to worsening climate conditions.
- ii) The nation and the region will remain economically stable, and the price of goods will not rise excessively.
- iii) The nation and the region will remain politically stable, and there will not be an extreme influx or loss of local population.
- iv) No unexpected damage will occur from a tsunami caused by an earthquake in the South Pacific region.

3-4 Project Evaluations

3-4-1 Relevance

For the reasons below, the use of Japanese grant aid to implement the items that fall under the scope of cooperation is hereby deemed suitable.

- i) The beneficiaries of this project are local residents, including poor ultra-small-scale farmers, fishers and retailers, the number of whom is quite large.
- ii) This project will contribute to the achievement of the goals stated in PNG's *MTDP2*.
- iii) The facilities and equipment for this project can be appropriately managed and maintained using PNG's own funds, human resources, and technical capacity.
- iv) The income generated by the operation of this project should be able to be put to use for the sustainable and effective management and maintenance of the facilities and equipment.
- v) The implementation of this project will have a social impact on the market users since a temporary relocation will be necessary during construction, but appropriate measures have been taken to reduce this impact.
- vi) This project is consistent with Japan's aid policies.

3-4-2 Effectiveness

The following effects are expected through the implementation of this Project:

(1) Quantitative effects

Indicator of Effect	Basis (2016)	Target (2022)
The total number of vendors who will be able to conduct on the sales unit per one day in Alotau Town Market, either from tables or floor spaces (person)	316	737
The area of one individual sales unit space within Alotau Town Market (m ²)	0.45	0.64
The annual operating income of Alotau Town Market (PGK)	314,866	404,500
The number of usage the toilet in Alotau Town Market per one week (times)	0	1,300
The number of dinghies that can moor at the Alotau Town Market front coastal area (dinghy)	10	15

(2) Qualitative Effects

- 1) Hygienic environment in the Alotau Town Market will be improved by improving rainwater drainage, reducing mud by the interior pavement, and construction of the standby rubbish bays which will promote regular garbage collection.
- 2) Satisfaction of the users (Vendors, Customers) against improvement of usage and hygienic environment will be raised by the rehabilitation of Alotau Town Market such as management at the entrance gates, construction of corridors, reducing uneven surfaces on the floor and promoting of the soft zoning.
- 3) Convenience of the access from sea route to Alotau Town Market will be improved by the construction of small mooring wharf for dinghies, which also lead to improved working conditions for duties such as unloading fresh seafood and hauling it into the market.
- 4) Food hygiene and public health for the residents in Milne Bay Province, the primary users of Alotau Town Market, will be improved.
- 5) An uptick in transaction volume at Alotau Town Market will help to invigorate the economy of the Milne Bay region.

In consideration of the points listed above, it is deemed proper to implement the Japanese Assistance of this Project by means of Japanese grant aid cooperation.

APPENDICES

Appendices 1. Member List of the Survey Team

(1) Preparatory Survey

Name	Position	Occupation
Mr. Satoshi CHIKAMI	Leader, Preparatory Survey Team	Senior Advisor, Rural Development, Fisheries Development, Japan International Cooperation Agency (JICA)
Mr. Joshua KAILE	Cooperation Planning	Program Office, JICA Papua New Guinea Office
Mr. Toshio ISHII	Chief consultant/ Operation & maintenance planning	OAFIC Co., Ltd.
Mr. Tadaharu MIYAMOTO	Civil engineering/ Natural conditions survey	Mitsui Consultants Co., Ltd.
Mr. Tohru TACHIKI	Architectural planning	OAFIC Co., Ltd.
Mr. Hiroaki FUJII	Facility planning/ Equipment planning	OAFIC Co., Ltd.
Mr. Rikio USHIODA	Construction planning/ Procurement planning/ Project cost estimation	OAFIC Co., Ltd.
Ms. Hiroko SUZUKI	Environmental & social consideration/ Project effects evaluation	Mitsui Consultants Co., Ltd.

(2) Draft Report Explanation

Name	Position	Occupation
Mr. Satoshi CHIKAMI	Leader, Preparatory Survey Team	Senior Advisor, Rural Development, Fisheries Development, Japan International Cooperation Agency (JICA)
Ms. Tomoko TANAKA	Cooperation Planning	Deputy Director, Team 2, Agricultural and Rural Development Group 1, Rural Development, JICA
Mr. Toshio ISHII	Chief consultant/ Operation & maintenance planning	OAFIC Co., Ltd.
Mr. Tohru TACHIKI	Architectural planning	OAFIC Co., Ltd.

Appendices 2. Study Schedule

(1) Preparatory Survey

BNE: Brisbane, POM: Port Moresby, ALT: Alotau, WWK: Wewak, MDG: Madang
 NFA: National Fisheries Authority, MBPG: Milne Bay Provincial Government, EOJ: Embassy of Japan

No	Date	Day	Itinerary		
			Official Members	Consultant Member①	Consultant Member ②・③・④・⑤・⑥
1	5/17	Tue.		①・⑤ Leave Tokyo →(QF62)	
2	5/18	Wed.		①・⑤→ BNE、BNE→POM(QF349)、 Courtesy visit to JICA office, Preparation of sub-contract for natural condition surveys	
3	5/19	Thu.		①, ⑤ Courtesy visit to EOJ, Courtesy visit and Explanation of IC/R (Inception Report) to NFA, Preparation of sub-contract for natural condition surveys	
4	5/20	Fri.		① Evaluation of the proposals, ⑤ Survey for PCE (project cost estimations)	
5	5/21	Sat.		①, ⑤ Meeting with local engineering companies, Survey for PCE	
6	5/22	Sun.		①・⑤ POM→ALT (PX154), site survey (Alotau market & Sanderson bay)	
7	5/23	Mon.		①・⑤ Courtesy visit and Explanation of survey schedule, etc. to MBPG, Huhu LLG & Alotau Urban LLG	
8	5/24	Tue.		①・⑤ Courtesy visit and Explanation of survey schedule, etc. to Land & Physical Planning, Works Division, MBPG	
9	5/25	Wed.		①・⑤ Meeting at Huhu LLG (Annual budget, income operation of Market, etc.) Site survey (present situation of Market)	
10	5/26	Thu.		①・⑤ Site survey (Market & venders), Courtesy visit and Explanation of IC/R (Inception Report) to MBPG Administrator, discuss about Festival site	
11	5/27	Fri.		①・⑤ Site survey (Market & venders, Sanderson bay wharf)	
12	5/28	Sat.		①・⑤ Site survey (Market), Editing site map, etc.	
13	5/29	Sun.		①・⑤ Analyze surveyed data	
14	5/30	Mon.		①・⑤ Site survey (Market), Preparation of 1st stakeholder meeting	
15	5/31	Tue.		①・⑤ Site survey (Market, Wadu wadu creek, proposed site for temporary market, Sanderson area, infrastructure of Alotau, etc.)	
16	6/1	Wed.		①・⑤ Meeting at Huhu LLG (Details of the requested component, etc.)	
17	6/2	Thu.		①・⑤ Preparation for 1st stakeholder meeting	
18	6/3	Fri.		①・⑤ Meeting with DFMR (Division of Fisheries & Marine Resources, Additional component of the request), Meeting at Huhu LLG (Market operation structure, etc.), Meeting at MBPG (Land title, etc.)	
19	6/4	Sat.	Leave Tokyo→	①・⑤ Site survey (Market, construction circumstance, life style of the people in Huhu LLG, etc.)	
20	6/5	Sun.	BNE→POM	① Leave ALT→ POM, (PX155)	②・③・④・⑥ Leave Tokyo→(QF62) ⑤ Survey (Construction circumstance)
			Internal meeting with Official Members		
21	6/6	Mon.	Courtesy visit to JICA office & NFA	②・③・④・⑥→BNE→POM (QF349)	
22	6/7	Tue.	POM→ALT (PX154) Courtesy visit to Administrator's office, MBPG, Project site & Sanderson bay present status confirmation survey	①・②・③・④・⑥ Leave POM→ALT (PX154), Site Survey (Confirm present status of the Project site & Sanderson bay)	
23	6/8	Wed.	Consolidated meeting with MBPG Site survey (Market, proposed site for temporary market, etc.)	Consolidated meeting with MBPG Site survey (Market, proposed site for temporary market, etc.)	
24	6/9	Thu.	ALT→POM(PX155) Meeting with NFA(Contents of the M/D)	① ALT→POM(PX155) ②・③・④・⑤・⑥ Technical survey (Market, etc.)	
25	6/10	Fri.	Conclude M/D at NFA, Report to JICA office & EOJ (① accompanied)	②・③・④・⑤・⑥ Technical site survey (Market, Sanderson bay, etc.)	
26	6/11	Sat.	POM→BNE	① POM→ALT (PX154), Internal meeting, Technical site survey (Market, Sanderson bay, etc.)	

27	6/12	Sun.	BNE →Tokyo	Technical site survey (Market, Sanderson bay, infrastructure, etc.), Preparation of baseline survey	
28	6/13	Mon.		Baseline survey, Technical survey (Market, dinghy at front beach, etc.)	
29	6/14	Tue.		Baseline survey, Technical survey (Number of market vendors, etc.)	
30	6/15	Wed.		Baseline survey, Technical survey (Market vendors and sales products, etc.)	
31	6/16	Thu.		Baseline survey, Technical survey (Market vendors, physical distribution of the products, etc.)	
32	6/17	Fri.		Baseline survey, Technical survey (Market vendors, existing facilities in the market, etc.)	
33	6/18	Sat.		Baseline survey, Technical survey (Market vendors, selling & using ice, etc.) Survey EIA (procedure, etc.)	
34	6/19	Sun.		Baseline survey, Technical survey (Market vendors, physical distribution of ice, etc.), internal meeting (progress of the surveys, natural conditions, existing facilities, etc.)	
35	6/20	Mon.		Baseline survey, Technical survey (Market vendors, physical distribution of ice, etc.), Meeting with DFMR (Disasters, climate change, development plan, etc.) Ascertainment of progress of natural condition surveys, survey for physical distribution of agricultural & fisheries products in Alotau District	
36	6/21	Tue.		Technical survey (Physical distribution of agricultural & fisheries products in Alotau District, Surrounding area of the site), Baseline supplementary survey, Preparation of 1st stakeholders meeting	
37	6/22	Wed.		1st stakeholders meeting, Technical survey (Physical distribution of agricultural & fisheries products in Alotau District)	
38	6/23	Thu.		Consolidated meeting with DFMR, Huhu LLG, Alotau Urban LLG, Technical survey (Surrounding area of the site)	
39	6/24	Fri.		Technical survey (Other markets in Alotau, condition of transportation, city water & electricity and other infrastructures)	
40	6/25	Sat.		Internal meeting, Supplemental survey for Sanderson bay area, Survey for physical distribution of fisheries products & transportation between Island's Districts in MBPG	
41	6/26	Sun.		Supplemental survey for civil engineering matter around the site, Survey for transportation between Island's Districts in MBPG	
42	6/27	Mon.		Survey for operation of the Market, vendors and other market n MBPG	
43	6/28	Tue.		Commence of geotechnical survey at site. Preparation of 2nd stakeholders meeting, Hearing survey for disaster and natural conditions at Alotau	
44	6/29	Wed.		Survey for public parking, city water & electricity, Acceleration of geotechnical survey, supplementary survey for land title, temporary market, Ascertainments & evaluate of natural condition surveys, Meeting with Alotau Health Inspector	
45	6/30	Thu.		① ALT→POM→MDG (PX155+PX126), Acceleration of geotechnical survey, 2nd Stakeholders meeting, Survey for construction cost & distributions of Market	
46	7/1	Fri.		① Survey at MDG Market operation, Internal meeting, Acceleration of geotechnical survey	
47	7/2	Sat.		① MDG→POM→ALT (PX123+PX154) Analyze results of survey data, Acceleration of geotechnical survey	②・⑥ ALT→POM (PX155) Analyze baseline survey results
48	7/3	Sun.		Analyze results of survey data, Acceleration of geotechnical survey	②・⑥ POM→BNE (QF352)
49	7/4	Mon.		Physical distribution survey, Acceleration of geotechnical survey	②・⑥ BNE→Tokyo (QF61)
50	7/5	Tue.		Survey ice demands, Acceleration of geotechnical survey, Meeting with Huhu LLG (market income, operation body, etc.)	
51	7/6	Wed.		Survey temporary ice making plant, market operation and fire regulations	
52	7/7	Thu.		Survey construction circumstances, equipment procurement, Acceleration of geotechnical survey	

53	7/8	Fri.		Survey other market, equipment procurement, connection of water and electricity line, transportation of dinghy in Milne Bay Province	
54	7/9	Sat.		Internal meeting, analyze survey data	
55	7/10	Sun.		Analyze survey data, Acceleration of geotechnical survey	
56	7/11	Mon.		Supplemental survey around project site, meeting with Huhu LLG (operation body and budget of the Market)	
57	7/12	Tue.		Supplemental survey at the Market & infrastructure	
58	7/13	Wed.		Supplemental survey for construction, facilities & equipment, Consolidated meeting with MBPG	
59	7/14	Thu.		Supplemental survey for building design	
60	7/15	Fri.		Internal meeting, Supplemental survey for building design	④ ALT→POM(PX155)
61	7/16	Sat.		Analyze survey results, Supplemental survey for building design	④ Analyze survey results
62	7/17	Sun.		① ALT→POM→WWK (PX155+PX126) ⑤ Analyze survey results, supplemental survey for cost estimations	④ POM→BNE (QF350) ④ BNE→Tokyo (QF61) ③ ALT→POM (PX155)
63	7/18	Mon.		① Survey at Wewak Market, ⑤ Supplemental survey for cost estimations	③ POM→BNE (QF352)
64	7/19	Tue.		① WWK→MDG (PX123) Survey at MDG Market, ⑤ Supplemental survey for construction & cost estimations, meeting with works unit, MBPG	③ BNE→東京着(QF61)
65	7/20	Wed.		① MDG→POM (PX123)、⑤ ALT→POM (PX155)、 Report and discuss with NFA, Supplemental survey for cost estimations	
66	7/21	Thu.		①・⑤ Report to JICA office & EOJ, Consolidated meeting at NFA	
67	7/22	Fri.		①・⑤ Supplemental survey for cost estimations, POM→BNE (QF352)	
68	7/23	Sat.		①・⑤ BNE→Tokyo (QF61)	

Indicator for Consultant Member :

- ① Chief consultant/ Operation & maintenance planning, ② Civil engineering/ Natural conditions survey,
③ Architectural planning, ④ Facility planning/ Equipment planning, ⑤ Construction planning/ Procurement planning/
Project cost estimation, ⑥ Environmental & social consideration/ Project effects evaluation

(2) Draft Report Explanation

BNE: Brisbane, POM: Port Moresby, ALT: Alotau, LLG: Local Level Government
 NFA: National Fisheries Authority, MBPG: Milne Bay Provincial Government, EOJ: Embassy of Japan

No.	Date	Day	Itinerary	
			Official Members	Consultant Member
1	12/10	Sat.	① Manila→, ② Tokyo→	Tokyo→(QF62)
2	12/11	Sun.	→POM	→ BNE, BNE→POM (QF57)
3	12/12	Mon.	Courtesy visit to & meeting with JICA office, Courtesy visit to & meeting with NFA (Draft report explanation, contents of M/D) Survey at Koki Fish Market	
4	12/13	Tue.	POM→ALT (PX154), Survey Alotau market & Sanderson bay wharf	
5	12/14	Wed.	Courtesy visit to Administrator office, MBPG, Consolidated meeting with MBPG side (Draft report explanation, contents of M/D)	
6	12/15	Thu.	ALT→POM(PX155), meeting with NFA (Confirmation of the contents of M/D)	
7	12/16	Fri.	Signing M/D at NFA, Report to EOJ, Report and meeting with JICA office	
8	12/17	Sat.	POM → Tokyo	Internal meeting, supplemental survey
9	12/18	Sun.		POM(QF58)→ BNE
10	12/19	Mon.		→ Tokyo (QF61)

Official members : ①Leader, Preparatory Survey Team, ② Cooperation Planning

Consultant : Chief consultant/ Operation & maintenance planning survey, Architectural planning

Appendices 3. List of Parties Concerned in the Recipient Country

National Fisheries Authority (NFA):

Mr. John KASU	Managing Director
Mr. Philip POLON	Deputy Managing Director (Admin & Corporate Affairs)
Mr. Leka PITOI	Special Project Coordinator
Ms. Margaret AME	Policy and Project Coordinator
Mr. Siggie MUKAISI	Project Officer
Ms. Gemma MATAINAHO	Secretary of Managing Director

Department of National Planning and Monitoring:

Mr. Dan LYANDA	Aid Coordinator, Bilateral Branch, Foreign Aid Division
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Conservation and Environment Protection Authority (CEPA)

Mr. Michael KAPE	Provincial Administrator
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Milne Bay Provincial Administration:

Mr. Michael KAPE	Provincial Administrator
Mr. James DUKS	Deputy Provincial Administrator/ Technical Advisory Services
Ms. Sharon MUA	Deputy Provincial Administrator/ Corp. & District Services
Mr. Lindsey ALESANA	Principal Advisor for Alotau District
Mr. Nathan BELAPUNA	Principal Advisor for Fisheries and Marine Resources
Mr. Sikabu MAIKA	Principal Advisor for Lands and Physical Planning
Ms. Michael VIULA	Principal Advisor for Planning
Mr. Dickson BEBENKI	Provincial Treasurer/ Finance
Mr. Billy KAMILO	Manager for Transport
Mr. Hau'ofa SAILASA	Manager for Works Supervision Unit
Mr. Laudia SIMI	Provincial Lands Surveyor
Mr. Misa LIONEL	Provincial Planning Division - Economic Planner
Mr. David NEWAGET	Provincial Physical Planner
Mr. Steven TOBESSA	Provincial Coordinator for Disaster & Emergency Services
Ms. Lulu OSEMBO	Acting Provincial Environment Officer
Mr. Moda KULA	Research & Information for Tourism Bureau
Ms. Jane BAGITA	Provincial Coordinator for Coastal Fishers
Mr. Paul GAMBUD	Superintendent/ Milne Bay Fire Service
Mr. Isowa PROUT	Inspector, Community Safety/ Milne Bay Fire Service

Huhu Local Level Government (HLLG):

Mr. Majella LOPI	Area Manager
Ms. Sharon MAISEVENI	Fisheries Officer
Ms. Lelebo BETUELA	Business Development Officer
Ms. Annie GIMA	Rural Development/Agriculture and Livestock Officer

Alotau Urban Local Level Government (AULLG)

Mr. Mickey GAHINEM	Town Manager
Ms. Rhonda ANAKAPU	Assistant Town Manager
Mr. Ivan MARAKIA	Environmental Health Officer

Embassy of Japan

Mr. Morio MATSUMOTO	Ambassador Extraordinary and Plenipotentiary
Mr. Shinji MATSUMOTO	First Secretary
Mr. Osamu SAKOGOSHI	Second Secretary

Japan International Cooperation Agency (JICA) Papua New Guinea Office

Mr. Takashi TOYAMA	Chief Representative
Mr. Yoshihiko CHUJO	Senior Representative
Ms. Maki OKUSA	Assistant Representative (Project Formulation)
Mr. Joshua KAILE	Program Office

Appendices 4. Minutes of Discussions

(1) Preparatory Survey

**Minutes of Discussions
on the Preparatory Survey for the Project for
Rehabilitation of Alotau Town Market and Fisheries Facilities
in Papua New Guinea**

In response to the request from the Government of Papua New Guinea (hereinafter referred to as "PNG"), the Government of Japan decided to conduct a Preparatory Survey for the Project for Rehabilitation of Alotau Town Market and Fisheries Facilities in Papua New Guinea (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 PNG, headed by Satoshi CHIKAMI, Senior Advisor, JICA, and is scheduled to stay in the country from June 5 to 11, 2016.

The Team held a series of discussions with the officials concerned of the Government of PNG, 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.

Port Moresby, June 10, 2016



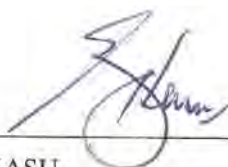
Satoshi CHIKAMI

Leader

Preparatory Survey Team

Japan International Cooperation Agency

Japan

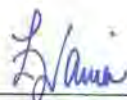


John KASU

Managing Director

National Fisheries Authority

Independent State of Papua New Guinea



Loia Joy VAIRA

First Assistant Secretary, Foreign Aid Division

Department of National Planning and Monitoring

Independent State of Papua New Guinea

ATTACHEMENT

1. Objective of the Project

The objective of the Project is to improve local food trade conditions by/through rehabilitation of Alotau Town Market and Fisheries Facilities, thereby contributing to improving value of products and increasing opportunities for income earning for farmers and traders in the Province.

2. Title of the Preparatory Survey

Both sides confirmed the title of the Preparatory Survey as “the Preparatory Survey for the Project for Rehabilitation of Alotau Town Market and Fisheries Facilities in Papua New Guinea”.

3. Project Site

Both sides confirmed that the site of the Project is in Alotau Town Market, which is shown in Annex I.

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 Fisheries & Marine Resources, which would be the agency to supervise the executing agency.
- 4-2. The executing agency is National Fisheries Authority. 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 II.

5. Items requested by the Government of PNG

- 5-1. As a result of discussions, both sides confirmed that the items requested by the Government of PNG are shown in Annex III.
- 5-2. The Team conducts necessary field study to assess the above requested items from the several perspective, such as cost effectiveness, operation and maintenance, current distribution system, enhancement of community market, and will make recommendations to JICA .
- 5-3. JICA will assess the appropriateness of the above requested items through the survey and will report findings to the Government of Japan. The final



components of the Project would be decided by the Government of Japan.

6. Japanese Grant Scheme

6-1. The PNG side understands the Japanese Grant Scheme and its procedures as described in Annex IV Annex V and Annex VI, and necessary measures to be taken by the Government of PNG.

6-2. The PNG side understands to take the necessary measures and Undertakings, as described in Annex VII, for smooth implementation of the Project, as a condition for the Japanese Grant to be implemented. The detailed contents of the Annex VII will be worked out during the survey and shall be agreed no later than by the explanation of the draft Preparatory Survey Report.

The contents of Annex VII will be used to determine the following:

- (1) The scope of the Project.
- (2) The timing of the Project implementation.
- (3) Timing and possibility of budget allocation.

Contents of Annex VII will be updated as the Preparatory Survey progresses, and will finally be the Attachment to the Grant Agreement.

7. Schedule of the Survey

7-1. The Team will proceed with further survey in PNG until July.

7-2. JICA will prepare a draft Preparatory Survey Report in English and dispatch a mission to PNG in order to explain its contents around December.

7-3. If the contents of the draft Preparatory Survey Report is accepted in principle and the Undertakings are fully agreed by the PNG side, JICA will complete the final report in English and send it to PNG around March.

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

8. Environmental and Social Considerations

8-1. The PNG 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 B 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. The PNG side confirmed to conduct the necessary

procedures concerning the environmental assessment (including stakeholder meetings, Environmental Impact Assessment (EIA) and information disclosure, etc.) and make EIA report of the Project. The EIA approval shall be received from the responsible authorities and submitted to JICA by the end of December 2016.

- 8-3. For projects that will result in involuntary suspension of business operations and/or move (including temporary move), the PNG side confirmed to prepare an Action Plan through stakeholders meetings and/or consultations, and make it available to the public. In addition, the PNG side confirmed to provide the affected people with sufficient compensation and/or support in accordance with the Action Plan in a timely manner.

9. Other Relevant Issues

9-1. Layout plan of the rehabilitated market

Both side confirmed that the PNG side shall submit possible layout(s) plan of rehabilitated Alotau Town Market to the Team by the end of June with consideration of continuity of market operation to eliminate negative effect to the stakeholders. It is agreed that the plan shall be prepared based on the development plan of the whole market area by Milne Bay Provincial Government.

9-2. Operation and maintenance for the facilities

With regard to the proper operation and management of the market, Both sides confirmed following issues,

- i). PNG side proposed to establish a new market management entity consisting of Huhu Local Level Government and Alotau Urban Local Level Government under supervision of the Milne Bay Provincial Administration for the efficient and effective market operation and management.
- ii). The PNG side affirmed that in the discussion of financial management of the market, due considerations shall be paid to ensure that a sufficient portion of the income generated from the market shall be secured for proper management and maintenance of the market.
- iii). The Team will assess the appropriateness of the new market management entity through further survey.

9-3. Land acquisition and construction permission



PNG side promised to make necessary arrangements to secure necessary land for construction, if necessary and to obtain the construction permit prior to the implementation of the Project.

9-4. Land Title

It was confirmed that the land title of the Project Site is combined with the existing market area and its extension area which includes the foreshore area. The PNG side affirmed that the Huhu Local Level Government shall preserve the existing market area and Milne Bay Provincial Government shall preserve the extension area for the purpose of the Project.

Annex I Project Site

Annex II Organization Chart

Annex III Revised List of Requested Items

Annex IV Flow Chart of Japanese Grant Procedures

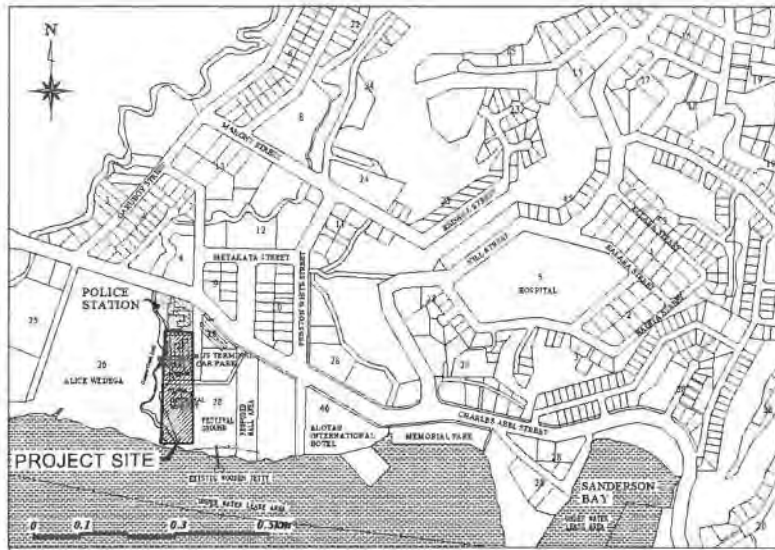
Annex V Japanese Grant

Annex VI Financial Flow of Japanese Grant

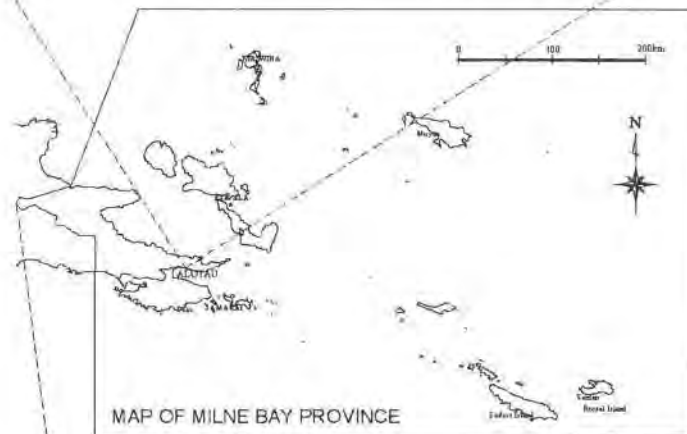
Annex VII Major Undertakings to be taken by Each Government



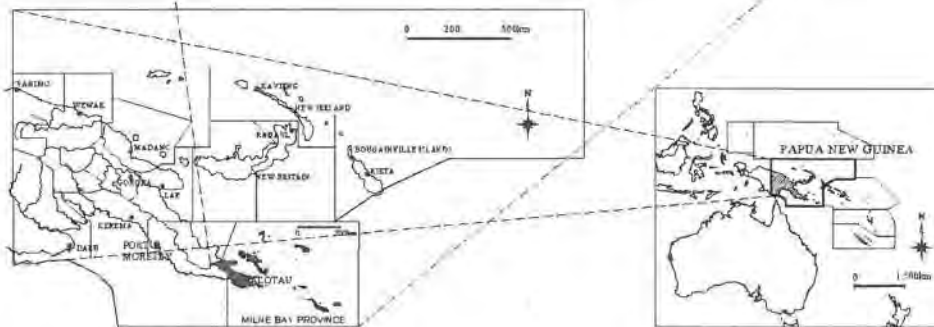
Project Site



LOCATION OF PROJECT SITE



MAP OF MILNE BAY PROVINCE



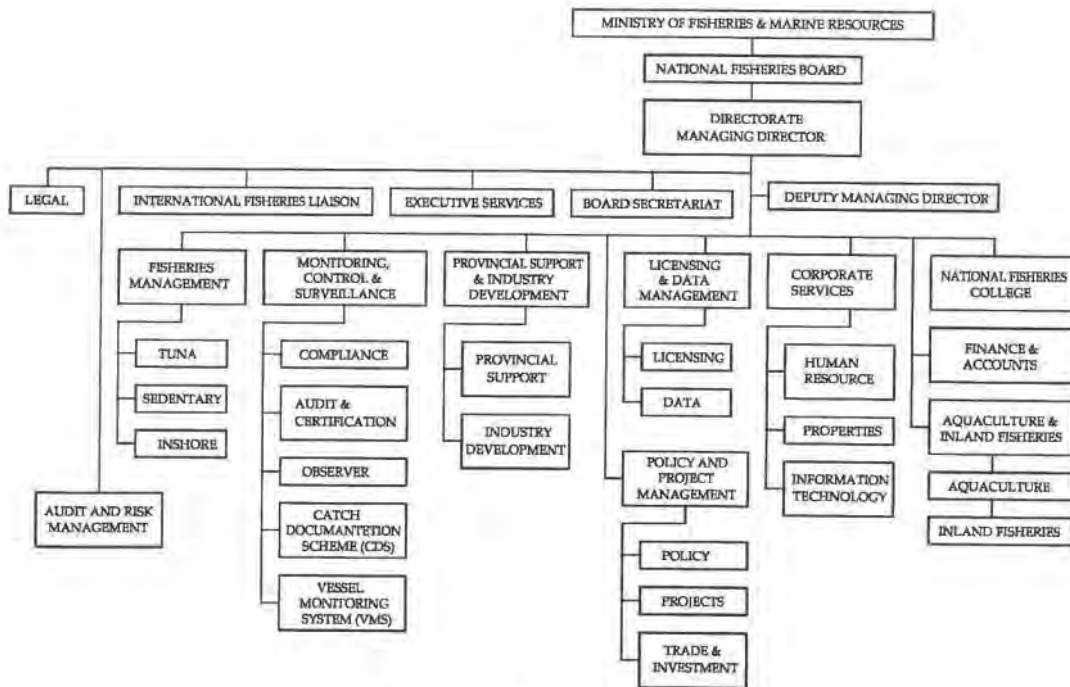
MAP OF PAPUA NEW GUINEA

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Annex-II: Organization Charts of Responsible and Implementing Agencies



Responsible Agency: National Fisheries Authority

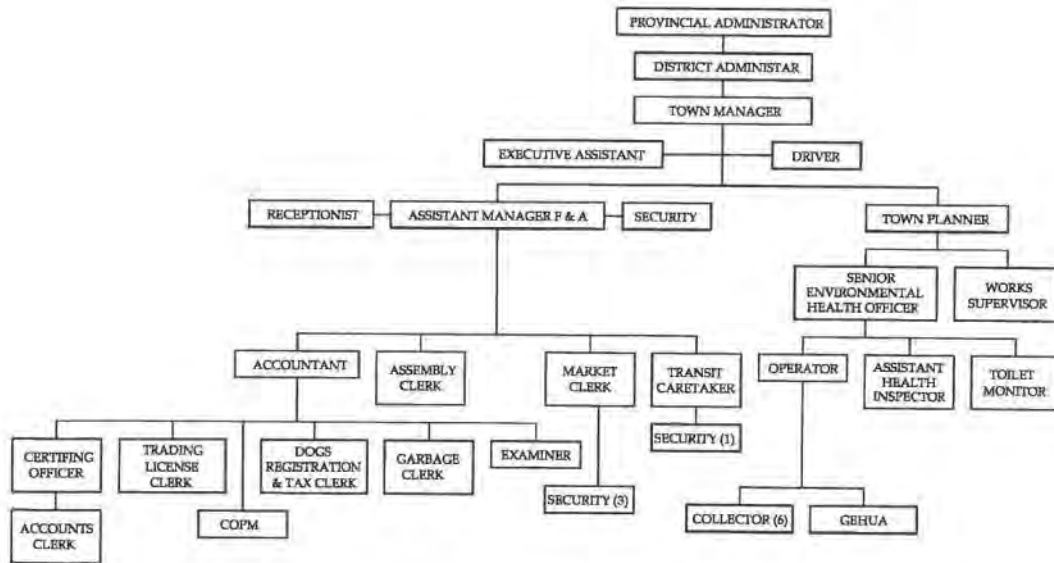


Implementing Agency: Huhu Local Level Government

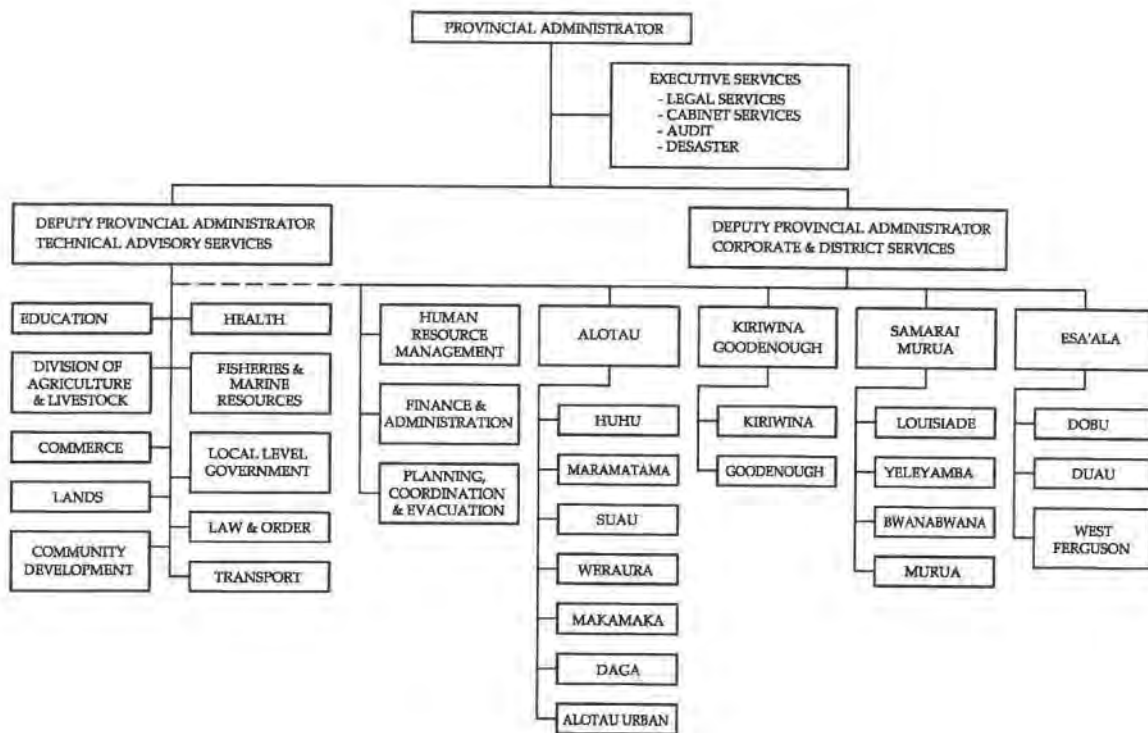
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Implementing Agency: Alotau Urban Local Level Government

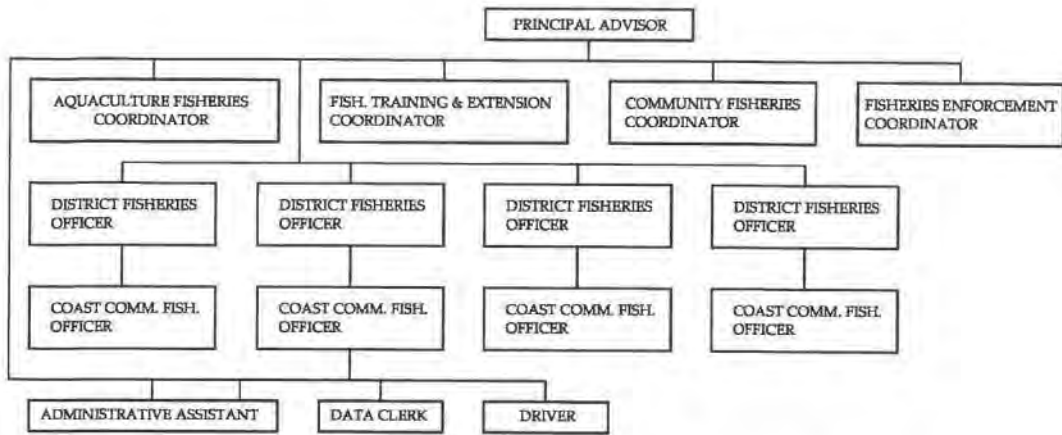


Milne Bay Provincial Administration

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Division of Fisheries and Marine Resources, Milne Bay Provincial Administration

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Revised List of Requested Items

a. Facilities

	Requested Component	Description	Priority
1-1	Common Market Shed I (food, vegetables)	One story, table sales type, steel structure 670,39m ²	A
1-2	Common Market Shed II (non food item)	One story, table sales type, steel structure, 670.39m ²	A
1-3	Cooked Food Market Building	One story, extension from current building with ice and fresh fish holders, 80m ²	A
1-4	Administration Building	TBD	A
1-5	Corridor with roofing	5m width	A
1-6	Chiller Building for storage	One story, raised concrete floor, steel structure, 6m x 10m	B
1-7	Kiosk Building	TBD	C
1-8	Interlocking Pavement	Market interior area (within fenced area)	A
1-9	Public Toilet	Market toilet (one building with partition separating male and female toilets – female: 3 toilets, male: 2 toilets, 1 urination area)	A
1-10	Market Parking Space	Gravel compacting, 900m ²	A
1-11	Market Outdoor Facilities	Refreshment space, drainage trenches, standby rubbish bays	A
1-12	Fish landing & sorting shed with ice sales section	One story, open space, concrete floor, steel structure, 6m x 15m, including enclosed partition room to serve as a coastal artisanal fisheries resource centre (<i>For dissemination of information in the form of charts, brochures, pamphlets on the conservation of coastal environment and sustainable management of coastal fisheries resources to the public, schools, fishermen etc. The centre will be manned jointly by Provincial Fisheries & AULLG. NFA will provide information.</i>)	A
1-13	T-shape Market Jetty Improvement	W:5m, L:13m), Access section (W:3.5m, L: 20m), steel piling, reinforced concrete upper section, rubber fender, etc.	C
1-14	Standby Generator	30KVA	C
1-15	Guard Houses/huts (additional)	To be allocated at the main gates for the vendors and the customers	A
1-16	Public Parking area for customers (additional)	Public parking will provided outside where	B

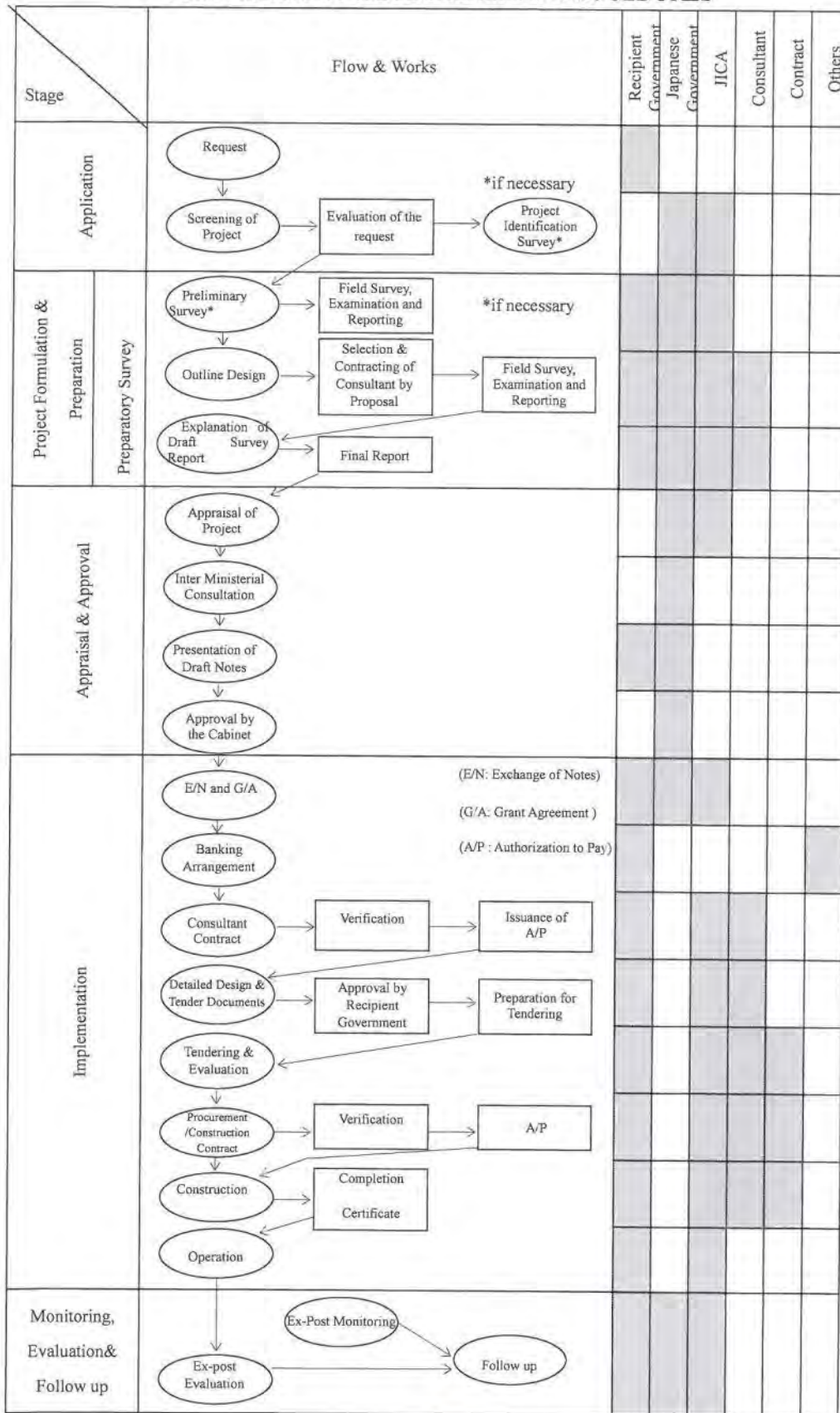
1-17	PMV terminal (additional)	Specific terminal for PMVs that vendors used to bring their produce and as transport to return homes.	B
1-18	Market drainage improvement works (additional)	Improvement works along the creek to protect erosion and damage to the market premises	B
1-19	Fish Retail Market section	Retail section for the fish market vendors to sell fish and other marine produce	A

TBD: To be discussed

b. Equipment and materials

	Requested Component	Description	Q'ty	Priority
2-1	High pressure washer	70kg/cm ²	3	C
2-2	Rubbish Pick-up truck	Garbage Truck- specifically for the up-keeping of the Market.	1	B
2-3	PA system (additional)	The PA system will be used for making announcement and awareness on daily upkeep and general usage of the Market facilities	1	A

FLOW CHART OF JAPANESE GRANT PROCEDURES



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JAPANESE GRANT

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

Based on a JICA law which was entered into effect on October 1, 2008 and the decision of the GOJ, JICA has become the executing agency of the Japanese Grant for Projects for construction of facilities, purchase of equipment, etc.

1. Grant Procedures

The Grant is supplied through following procedures :

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

2. Preparatory Survey

(1) Contents of the Survey

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

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of relevant agencies of the recipient country necessary for the implementation of the Project.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Scheme from a technical, financial, social and economic point of view.
- Confirmation of items agreed between both parties concerning the basic concept of the Project.





- Preparation of an outline design of the Project.
- Estimation of costs of the Project.

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

JICA requests the Government of the recipient country to take whatever measures necessary to achieve its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization of the recipient country which actually implements the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country based on the Minutes of Discussions.

(2) Selection of Consultants

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

(3) Result of the Survey

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

3. Japanese Grant Scheme

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

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

(2) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey will be recommended by JICA to the recipient country to continue to work on the Project's implementation after the E/N and G/A.

(3) Eligible source country



Under the Grant, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. The Grant may be used for the purchase of the products or services of a third country, if necessary, taking into account the quality, competitiveness and economic rationality of products and services necessary for achieving the objective of the Project. However, the prime contractors, namely, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals", in principle.

(4) Necessity of "Verification"

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

(5) Major undertakings to be taken by the Government of the Recipient Country

In the implementation of the Grant Project, the recipient country is required to undertake such necessary measures as Annex. The Japanese Government requests the Government of the recipient country to exempt all customs duties, internal taxes and other fiscal levies such as VAT, commercial tax, income tax, corporate tax, resident tax, fuel tax, but not limited, which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract, since the Grant fund comes from the Japanese taxpayers.

(6) "Proper Use"

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

(7) "Export and Re-export"

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

(8) Banking Arrangements (B/A)

- a) The Government of the recipient country or its designated authority should open an account under the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"), in principle. JICA will execute the Grant by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.
- b) The payments will be made when payment requests are presented by the Bank to JICA under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

(9) Authorization to Pay (A/P)



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

(10) Environmental and Social Considerations

The Government of the recipient country must carefully consider environmental and social impacts by the Project and must comply with the environmental regulations of the recipient country and JICA Guidelines for Environmental and Social Consideration (April, 2010) .

(11) Monitoring

The Government of the recipient country must 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 must regularly report to JICA about its status by using the Project Monitoring Report (PMR).

(12) Safety Measures

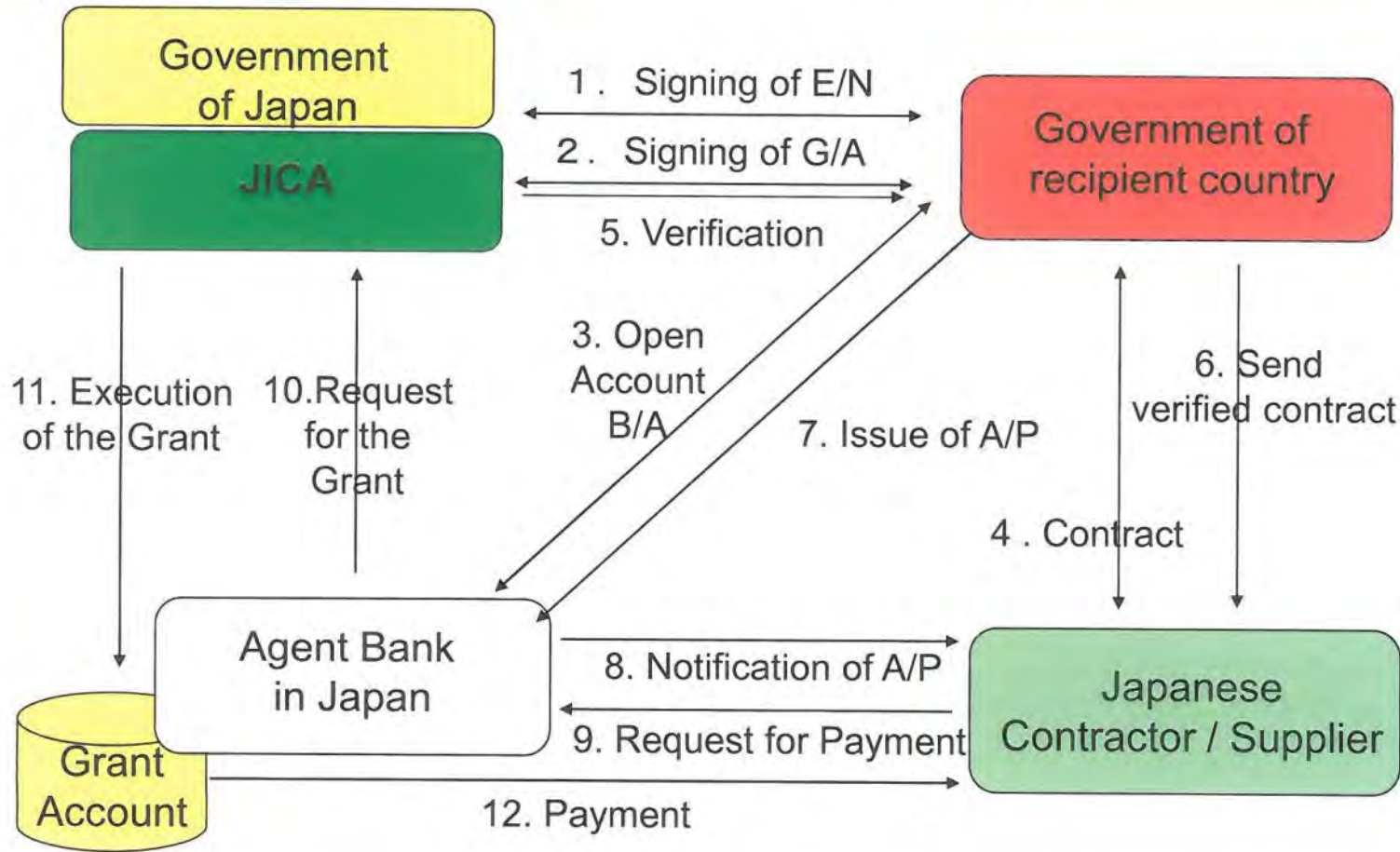
The Government of the recipient country must ensure that the safety is highly observed during the implementation of the Project.

(13) 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 Client, 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, before start of construction.
- b) Discussing the issues affecting Works such as construction progress, modification of the design, test, inspection, safety control and the Client's obligation progress, during of construction.

Financial Flow of Grant Aid (A/P Type)



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Major Undertakings to be taken by PNG

1. Before the Tender

NO	Items	Deadline	In charge	Cost	Ref.
1	To open Bank Account (Banking Arrangement (B/A))	within 1 month after G/A			
2	To approve IEE/EIA	TBD			
3	To implement EIA	TBD			
4	To secure the necessary lands	TBD			
5	To clear, level and reclaim Project Sites	TBD			
6	To obtain the planning, zoning, building permit	TBD			
7	To provide sufficient compensation and/or support for involuntary suspension of business operations and/ or move (including temporary move)	TBD			

2. During the Project Implementation

NO	Items	Deadline	In charge	Cost	Ref.
1	To bear the following commissions to a bank of 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			
	2) Payment commission for A/P	every payment			
2	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country				
	1) Tax exemption and customs clearance of the products at the port of disembarkation	during the Project			
	2) Internal transportation from the port of disembarkation to the project site	during the Project			
3	To accord Japanese nationals and/or physical persons of third countries whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work	during the Project			
4	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/]; Such customs duties, internal taxes and other fiscal levies mentioned above include VAT, commercial tax, income tax and corporate tax of Japanese nationals, resident tax, fuel tax, but not limited, which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract	during the Project			
5	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for construction of the facilities as well as for the transportation and installation of the equipment	during the Project			
6	To submit Project Monitoring Report.	every month			
7	To construct access roads				

8	To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities				
	Electricity				
	The distributing line to the site	TBD			
	1) Water Supply The city water distribution main to the site	TBD			
	2) Drainage The city drainage main (for storm, sewer and others) to the site	TBD			
	3) Furniture and Equipment General furniture	TBD			
	4) Furniture and Equipment General furniture	TBD			
9	To implement EMP and EMoP	TBD			
	To submit results of environmental monitoring to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report	during the construction			
	To implement RAP (livelihood restoration program, if needed)	for a period based on livelihood restoration program			
	To implement social monitoring, and to submit the monitoring results to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report - Period of the monitoring may be extended if affected persons' livelihoods are not sufficiently restored. Extension of the monitoring will be decided based on agreement between NFC and JICA.	TBD			

3. After the Project

NO	Items	Deadline	In charge	Cost	Ref.
1	To maintain and use properly and effectively the facilities 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 implement EMP and EMoP	for a period based on EMP and EMoP			
	To submit results of environmental monitoring to JICA, by using the monitoring form, semiannually - The period of environmental monitoring may be extended if any significant negative impacts on the environment are found. The extension of environmental monitoring will be decided based on the agreement between NFC and JICA.	for three years after the Project			

(B/A: Banking Arrangement, A/P: Authorization to pay, N/A: Not Applicable)

Major Undertakings to be Covered by the Japanese Grant

Annex VII

No	Items	Deadline	Cost Estimated (Million Japanese Yen)*	
1	To construct roads/bridges (or To procure equipment)			
	- Improvement of roads			
	1) To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country			
	a) Marine(Air) transportation of the products from Japan to the recipient country			
	b) Internal transportation from the port of disembarkation to the project site			
	2) To construct access roads			
	a) Within the site			
	3) To construct the temporary building			
	4) To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities			
	a) Electricity			
	- The drop wiring and internal wiring within the site			
	- The main circuit breaker and transformer			
	b) Water Supply			
	- The supply system within the site (receiving and/or elevated tanks)			
c) Drainage				
- The drainage system (for toilet sewer, ordinary waste, storm drainage and others) within the site				
d) Furniture and Equipment				
- Project equipment				
2	To implement detailed design, tender support and construction supervision (Consultant)			
3	Contingencies			
	Total			

*; The cost estimates are provisional. This is subject to the approval of the Government of Japan.

(2) Draft Report Explanation

**Minutes of Discussions
on the Preparatory Survey for the Project for
Rehabilitation of Alotau Town Market and Fisheries Facilities
(Explanation on Draft Preparatory Survey Report)**

With reference to the minutes of discussions signed between the National Fisheries Authority and the Japan International Cooperation Agency (hereinafter referred to as "JICA") on June 10, 2016 and in response to the request from the Government of the Independent State of Papua New Guinea (hereinafter referred to as "PNG") dated July 30, 2013, 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 Rehabilitation of Alotau Town Market and Fisheries Facilities (hereinafter referred to as "the Project"), headed by Satoshi CHIKAMI, Senior Advisor, JICA and is scheduled to stay in the country from December 11 to 17, 2016.

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

Port Moresby, December 16, 2016



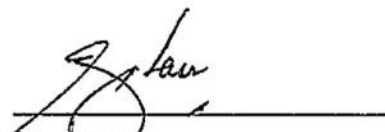
Satoshi CHIKAMI

Leader

Preparatory Survey Team

Japan International Cooperation Agency

Japan

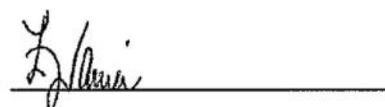


John KASU

Managing Director

National Fisheries Authority

Independent State of Papua New Guinea



Loia Joy VAIRA

First Assistant Secretary, Foreign Aid Division

Department of National Planning and Monitoring

Independent State of Papua New Guinea

ATTACHMENT

1. Objective of the Project

The objective of the Project is to improve local food trade conditions by/through rehabilitation of Alotau Town Market and Fisheries Facilities, thereby contributing to improving value of products and increasing opportunities for income earning for farmers and traders in the Milne Bay Province.

2. Responsible authority for the Project

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

2-1. The National Fisheries Authority will be the executing agency for the Project (hereinafter referred to as "the Executing Agency"). The Executing Agency shall coordinate with all the relevant authorities 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.

2-2. The line ministry of the Executing Agency is the Ministry of Fisheries & Marine Resources, which shall be responsible for supervising the Executing Agency on behalf of the Government of PNG.

3. Contents of the Draft Report

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

4. Cost estimate

Both sides confirmed that the cost estimate including the contingency showed by the Team is provisional and will be examined further by the Government of Japan for its approval. The contingency would cover the additional cost against natural disaster, unexpected natural conditions, etc.

5. Confidentiality of the cost estimate and technical specifications

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

6. Timeline for the project implementation

The Team explained to the PNG side that the expected timeline for the project



implementation is as attached in Annex 1.

7. Expected outcomes and indicators

Both sides agreed that key indicators for expected outcomes are as follows. The PNG side will be responsible for the achievement of agreed key indicators targeted in year 2022 and shall monitor the progress based on those indicators.

[Quantitative indicators]

Indicator of Effect	Basis (2016)	Target (2022)
No. of vendors who can conduct business on the sales unit per one day in the Alotau Town Market provided with both table and floor (person)	316	737
Area of one sales unit (square meter)	0.45	0.64
Annual operation income of the Alotau Town Market (PGK)	314,866	404,500
No. of weekly Market Toilet usage (time)	0	1,300
No. of dinghies who can moor at the market-front beach (dinghy)	10	15

[Qualitative indicators]

- 1) Hygienic environment in the Alotau Town Market will be improved by adequate drainage arrangements, free from muddy place by the pavement and construction of the standby rubbish bays which will promote regular garbage collection.
- 2) Satisfaction of the users (Vendors, Customers) against improvement of usage and hygienic environment will be raised by the rehabilitation of Alotau Town Market such as management at the entrance gates, construction of corridors, reducing steps on the floor and facilitation of the soft zoning.
- 3) Convenience of the access from sea route to Alotau Town Market will be improved by the construction of small mooring wharf for dinghies, which also makes it easier for vendors to unload and carry their fishery products to the market.
- 4) Food hygiene and public health for the residents will be improved in Milne Bay Province.

8. Technical assistance (“Soft Component” of the Project)

Considering the sustainable operation and maintenance of the products and services granted through the Project, following technical assistance is planned under the

Project. The PNG side confirmed to deploy necessary number of counterparts who are appropriate and competent in terms of its purpose of the technical assistance as described in the Draft Report.

9. Undertakings of the Project

Both sides confirmed the undertakings of the Project as described in Annex 2. With regard to exemption of customs duties, internal taxes and other fiscal levies as stipulated in item No.5 of 1.2 of Annex 2, both sides confirmed that such customs duties, internal taxes and other fiscal levies include VAT, commercial tax, income tax and corporate tax, which shall be clarified in the bid documents by the Executing Agency during the implementation stage of the Project.

The PNG 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 2 will be used as an attachment of G/A.

10. 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 3. The timing of submission of the PMR is described in Annex 2.

11. 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.

12. 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 PNG side is required to provide necessary support for the data collection.



13. Items and measures to be considered for the smooth implementation of the Project
Both sides confirmed the items and measures to be considered for the smooth implementation of the Project as follows:

13-1. Appropriate operation and management structure and accounting system of Alotau Town Market

- i). The PNG side proposed to establish a new market board consisting of the Milne Bay Provincial Administration, the Alotau Urban Local Level Government, the Huhu Local Level Government and etc. to supervise the management of the market and ensure there is transparency in its operations.
- ii). Based on the outline design and assessment by the Team, the PNG side will have further discussions on detailed operation and management structure, rules and regulations and accounting system of new Alotau Town Market among the related authorities. The PNG side shall submit the draft rules and regulations for new market operation and management including accounting system to the Japanese side 3 months before the completion of the construction as described in Annex 2.

13-2. Effective use and appropriate operation and maintenance for garbage truck

- i). Both side agreed that Alotau Urban Local Level Government to be the responsible authority for operation and maintenance for garbage truck.
- ii). The PNG side will have further discussions on effective use and appropriate operation and maintenance for garbage truck among the related authorities, and shall submit the agreed outline plan to the Japanese side no later than before the completion of the Detailed Design (D/D) as described in Annex 2.
- iii). Both side agreed that garbage truck shall not be funded with the Grant in case the outline plan for effective use and operation of garbage truck is not submitted by the PNG side before the deadline as stipulated in 13-2. ii).
- iv). The PNG side will submit detailed plan for effective use and appropriate operation and maintenance for garbage truck to Japanese side 3 month before the completion of the construction as described in Annex 2.

14. Schedule of the Study

JICA will finalize the Preparatory Survey Report based on the confirmed items. The report will be sent to the PNG side around early March, 2017.



15. Environmental and Social Considerations

15-1 General Issues

15-1-1 Environmental Guidelines and Environmental Category

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 B because the Project does not fall in the sectors, projects that have characteristics liable to cause adverse environmental impacts, and projects located in or near sensitive area.

15-1-2 Environmental Checklist

The environmental and social considerations including major impacts and mitigation measures for the Project are summarized in the Environmental Checklist attached as Annex 4. Both sides confirmed that in case of major modification of the content of the Environmental Checklist, the PNG side shall submit the modified version to JICA in a timely manner.

15-2 Environmental Issues

15-2-1 Environmental Impact Assessment (EIA)

Both sides confirmed the PNG side will proceed necessary arrangement for Environmental Permit Application based on the Outline Design prepared by the Team.

15-2-2 Environmental Management Plan and Environmental Monitoring Plan

Both sides confirmed Environmental Management Plan (EMP) and Environmental Monitoring Plan (EMoP) of the Project is as Annex 5, respectively. Both side agreed that environmental mitigation measures and monitoring shall be conducted based on the EMP and EMoP, which may be updated during the detailed design stage.

15-3 Social Issues

15-3-1 Specific social issue which need to be confirmed/agreed between the parties

Both sides confirmed that for projects that will result in involuntary suspension of business operations and/ or move (including temporary move), the PNG side confirmed to prepare an Action Plan through stakeholders meetings and/or consultations, and make it available to the public. In addition, the PNG side confirmed to provide the affected



people with sufficient compensation and/or support in accordance with the Action Plan in a timely manner.

15-4 Environmental and Social Monitoring

15-4-1 Environmental Monitoring

Both sides agreed that the PNG side will submit results of environmental monitoring to JICA with PMR by using the monitoring form attached as Annex 6. The timing of submission of the monitoring form is described in Annex 2.

15-4-2 Social Monitoring

The PNG side and the Team agreed that the PNG side will submit results of social monitoring to JICA with PMR by using the monitoring form attached as Annex 6.

15-4-3 Information Disclosure of Monitoring Results

Both sides confirmed that the PNG side will disclose results of environmental and social monitoring to local stakeholders through local broadcasting program and public notice board.

The PNG side agreed JICA will disclose results of environmental and social monitoring submitted by the PNG side as the monitoring forms attached as Annex 6 on its website.

16. Other Relevant Issues

16-1. 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.

Annex 1 Project Implementation Schedule

Annex 2 Major Undertakings to be taken by the Government of PNG

Annex 3 Project Monitoring Report (template)

Annex 4 Environmental Check List

Annex 5 Environmental Management Plan/Environmental Monitoring Plan

Annex 6 Environmental and Social Monitoring Form



Annex 2

Major Undertakings to be taken by PNG

1. Specific obligations of the Government of PNG 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	NFA		
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 contract	NFA	PGK 4,000	
3	To approve IEE/EIA and secure the necessary budget for implementation (if necessary)	within 1 month after the signing of the G/A	NFA	PGK 208,000	
4	To implement EIA (if necessary)	within 1 month after the signing of the G/A	NFA		
5	To obtain the physical planning permit	within 1 month after the signing of the G/A	MBPA		
6	To secure and clear the following lands 1) project sites (14,233m ²) for Alotau Town Market 2) temporary construction yard and stock yard near the Project area 3) borrow pit and disposal site near the Project area	before notice of the bidding document	MBPA HLLG		
7	To obtain the construction permit	within 1 month after the signing of the Contract	MBPA		
8	To submit outline plan for effective use of garbage truck agreed by among Milne Bay Provincial Administration, Huhu Local Level Government and Alotau Urban Local Level Government	before the completion of Detailed Design	HLLG, AULLG, MBPA and NFA		
9	To provide necessary space and/or facilities and sufficient compensation and/or support for involuntary suspension of business operations and/ or move (including temporary move) based on the Action Plan prepared by PNG 1) temporary move for Alotau Town Market 2) move for Informal Market	before the announcement of Prequalification before the announcement of Prequalification	HLLG & NFA AULLG, MBPA and NFA	PGK 780,000 PGK 1,080,000	
10	To clear, level and reclaim the Project Sites 1) remove existing facilities and relocation of existing ice making plant 2) remove utilities 3) levelling and reclaiming the sites	before addenda of the tender	HLLG & NFA	PGK 689,000	
11	To submit Project Monitoring Report (with the result of Detail Design)	before preparation of bidding documents	NFA		
12	To submit results of social monitoring to JICA, by using the monitoring form.	every month	NFA		

(B/A: Banking Arrangement, A/P: Authorization to pay, N/A: Not Applicable)

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)	NFA	PGK 24,000	
2	To bear the following commissions to a bank of Japan for the banking services based upon the B/A		NFA		
	1) Advising commission of A/P	within 1 month after the signing of the contract(s)	NFA		
	2) Payment commission for A/P	every payment	NFA		
3	To ensure prompt unloading and customs clearance at the ports of disembarkation in recipient country and to assist the supplier(s) with internal transportation therein	during the Project	NFA		
4	To accord Japanese nationals 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	NFA		
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	NFA		
6	To bear all the expenses, other than those to be covered by the Grant, necessary for the implementation of the Project	during the Project	NFA & MBPA		
7	Project Monitoring Report.				
	1) To submit Project Monitoring Report	every 3 month	NFA		
	2) To submit Project Monitoring Report (final)	within one month after signing of Certificate of Completion for the works under the contract(s)	NFA		
8	To submit a report concerning completion of the Project	within six months after completion of the Project	NFA		
9	To construct following facilities	before completion of the construction	NFA	PGK 4,506,400	
	1) Superstructure for Market Space				
	2) Market access road and public parking space				
	3) Relocation of existing ice making plant				
	4) Fence and gate				
	5) Riverbank protection from the police station to the Charles Abel Street				
10	To submit following documents	3 months before completion of the construction/ delivery	HLLG, MBPA & NFA		
	Detailed rules and regulations for new market operation and management including accounting system (Draft)				
	Agreement on detailed rules and regulations for effective use of garbage truck among Milne Bay Provincial Administration, Huhu Local Level Government and Alotau Urban Level Government				
11	1) Electricity	Upon completion of the work	HLLG & NFA	PGK 15,000	
	The distributing line to the site				
	2) Water Supply	Upon completion of the work	HLLG & NFA	PGK 15,000	
	The city water distribution main to the site				
	3) Furniture and Equipment	Upon completion of the work	HLLG & NFA	PGK 70,000	
	General furniture	TBD			

12	To take necessary measure for safety construction - traffic control - rope off	during the construction	HLLG MBPA & NFA		
13	To implement EMP and EMoP	during the construction	NFA		
14	To submit results of environmental and social monitoring to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report	during the construction	NFA		
15	To implement RAP (livelihood restoration program, if needed)	for a period based on livelihood restoration program	NFA & MBPA		
16	To implement social monitoring, and to submit the monitoring results to JICA, by using the monitoring form, on a quarterly basis as a part of Project Monitoring Report - Period of the monitoring may be extended if affected persons' livelihoods are not sufficiently restored. Extension of the monitoring will be decided based on agreement between NFA and JICA.	- until the end of livelihood restoration program (In case that livelihood restoration program is provided)	NFA		

3. After the Project

NO	Items	Deadline	In charge	Estimated Cost	Ref.
1	To move from temporary market site and to start new market operations	within one month after completion of the construction	HLLG, MBPA & NFA		
2	To implement EMP and EMoP	for a period based on EMP and EMoP	HLLG, MBPA & NFA		
3	To submit results of environmental and social monitoring to JICA, by using the monitoring form, semiannually - The period of environmental and social monitoring may be extended if any significant negative impacts on the environment and/or social are found. The extension of environmental and social monitoring will be decided based on the agreement between NFA and JICA.	for three years after the Project	HLLG, MBPA & NFA		
4	To maintain and use properly and effectively the facilities 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	HLLG, MBPA & NFA		

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

No	Items	Deadline	Amount (Million Japanese Yen)
1	To construct roads/bridges (or To procure equipment)		/
	- Improvement of roads		
	1) To conduct the following transportation		
	a) Marine(Air) transportation of the products from Japan to the recipient country		
	b) Internal transportation from the port of disembarkation to the project site		
2	2) To construct access roads		/
	a) Within the site		
	3) To construct the temporary building		
	4) To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities		
	a) Electricity		
	- The drop wiring and internal wiring within the site		
	- The main circuit breaker and transformer		
	b) Water Supply		
	- The supply system within the site (receiving and/or elevated tanks)		
	c) Drainage		
	- The drainage system (for toilet sewer, ordinary waste, storm drainage and others) within the site		
	d) Furniture and Equipment		
	- Project equipment		
2	To implement detailed design, tender support , construction supervision (Consulting Service)		
	Total		

* The Amount is provisional. This is subject to the approval of the Government of Japan.

Project Monitoring Report
on
Project Name
Grant Agreement No. XXXXXXXX
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	
E/N	Signed date: _____ Duration: _____
G/A	Signed date: _____ Duration: _____
Source of Finance	Government of Japan: Not exceeding JPY _____ mil. Government of (_____): _____

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1: Project Description	
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1-1 Project Objective

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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

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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



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)

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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.

<p>Original (at the time of outline design)</p> <p>name: _____</p> <p>role: _____</p> <p>financial situation: _____</p> <p>institutional and organizational arrangement (organogram): _____</p> <p>human resources (number and ability of staff): _____</p>
<p>Actual (PMR)</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 (at the time of outline design)</p>
<p>Actual (PMR)</p>

3-2 Budgetary Arrangement

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

Original (at the time of outline design)

4

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:

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	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.

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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.

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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.

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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)



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Monitoring sheet on price of specified materials

1. Initial Conditions (Confirmed)

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	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
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)

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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 Cost	(A/D%)	(B/D%)	(C/D%)	
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%)	

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The Project for Rehabilitation of Alotau Town Market and Fisheries Facilities

Environmental Checklist (Draft)

Category	Environmental Item	Main Check Items	Yes No	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
1 Permits and Explanation	(1) EIA and Environmental Permits	(a) Have EIA reports been already prepared in official process? (b) Have EIA reports been approved by authorities of the host country's government? (c) Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? (d) In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	(a) No (b) N/A (c) N/A (d) No	(a) EIA report is not required for this project but Environmental Permit Application is most likely required (according to the result of preliminary interviews with CEPA officers). NFA will start application by submitting a notification to CEPA after the project plan is defined. (b)(c) N/A (d) No other approvals are required in relation to environmental and social matters.
	(2) Explanation to the Local Stakeholders	(a) Have contents of the project and the potential impacts been adequately explained to the Local stakeholders based on appropriate procedures, including information disclosure? Is understanding obtained from the Local stakeholders? (b) Have the comment from the stakeholders (such as local residents) been reflected to the project design?	(a) Yes (b) Yes	(a) Information about the proposed project were disclosed to the governmental, private and public stakeholders including market users. It was explained to the stakeholders about the proposed project and understanding was obtained from the participants. (b) The comments, inputs and concerns from these sessions by stakeholders were reflected to the project design.
	(3) Examination of Alternatives	(a) Have alternative plans of the project been examined with social and environmental considerations?	(a) Yes	(a) Alternative plans of marine infrastructures and alternative sites of temporary market were examined with social and environmental considerations.
2 Pollution Control	(1) Water Quality	(a) Are considerations given to water pollution of the surrounding the water areas by effluents, such as fish pond effluents? Are adequate standards for the use of feeds and agents/antibiotics established? Is a framework established to increase awareness of these standards? (b) Do effluents from various sources, such as fish ponds, processing facilities, and fishing boats, and water quality of the surrounding water bodies comply with the country's effluent standards and the country's ambient water quality standards?	(a) N/A (b) Yes	(a) There is no fish pond, use of feeds and antibiotics in this project. (b) Waste water generated from the construction site and from market operation will be treated appropriately to comply with the national standards.

Category	Environmental Item	Main Check Items	Yes No	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(2) Wastes	(a) Are wastes properly treated and disposed of in accordance with the country's regulations (especially fish processing facilities)?	(a) Yes	(a) There is no fish processing facility in this project. Solid wastes generated from market activities (including sludge from toilet facilities) will be regularly and appropriately treated and disposed.
	(3) Noise and Vibration	(a) Do noise and vibrations comply with the country's standards (especially fish processing facilities)?	(a) Yes	(a) Market activities will not generate significant noise and vibration. Also, there is no sensitive receptors such as residential facilities surrounding the market area. (No fish processing facility is planned in this project.)
	(4) Odor	(a) Are there any odor sources? Are adequate odor control measures taken (especially fish processing facilities)?	(a) Yes	(a) Waste water and solid waste as a source of unpleasant odor will be regularly and appropriately treated.
3 Natural Environment	(1) Protected Areas	(a) Is the project site or discharge area located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?	(a) No	(a) There is no protected natural environment in the vicinity of the project site.
3 Natural Environment	(2) Ecosystem	(a) Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)? (b) Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions? (c) Is there a possibility that changes in localized micro-meteorological conditions, such as solar radiation, temperature, and humidity due to a large-scale timber harvesting will affect the surrounding vegetation? (d) Is there a possibility that the project will adversely affect aquatic organisms? If significant impacts are anticipated, are adequate protection measures taken to reduce the impacts on aquatic organisms?	(a) No (b) No (c) No (d) No	(a)(b) There is no ecologically valuable habitats nor habitats for endangered species in and around the project site. There is no possibility of causing adverse impacts. (c)(d)(e)(f)(g)(h) There is no possibility of causing adverse impacts.

Category	Environmental Item	Main Check Items	Yes No	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
		<p>(e) Is there a possibility that the project will adversely affect vegetation and wildlife? If significant impacts are anticipated, are adequate measures taken to reduce the impacts on vegetation and wildlife?</p> <p>(f) Is there a possibility that aquatic organisms and fish will be overexploited? Are fishery practices that reduce impacts on ecosystems employed? Is there a possibility that lost or discarded fishing nets, traps and other fishing gear will adversely affect ecosystems?</p> <p>(g) Is there a possibility that the feeding associated with aquaculture activities will cause eutrophication of water bodies and result in red tide blooms? Are adequate measures for eutrophication considered?</p> <p>(h) Is there a possibility that introduction of exotic species (non-native invasive species) and migration of disease-carrying pests will disturb ecosystems? Are adequate pest control measures considered?</p>	<p>(e) No</p> <p>(f) No</p> <p>(g) No</p> <p>(h) No</p>	
	(3) Hydrology	(a) Is there a possibility that hydrologic changes due to installation of facilities, such as fish ponds in inland and coastal areas will adversely affect surface water and groundwater flows?	(a) No	(a) There is a possibility of changes in water flow of the Waduwadu Creek, however, it is a small creek and also concerned area is small. Therefore, the overall impacts are considered not significant.
	(4) Topography and Geology	(a) Is there a possibility that development in coastal zones will cause a large-scale of alteration of topographic features and geologic structures, subsidence and elimination of natural beaches?	(a) No	(a) There is no development plan causing a large-scale topographic alteration, subsidence and loss of natural beaches. (There is a possibility of minor alteration in deposition of sand at the mouth of Waduwadu Creek but its possibility and impact scale is small.)

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Category	Environmental Item	Main Check Items	Yes No	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
4 Social Environment	(1) Resettlement	<p>(a) Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement?</p> <p>(b) Is adequate explanation on compensation and resettlement assistance given to affected people prior to resettlement?</p> <p>(c) Is the resettlement plan, including compensation with full replacement costs, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement?</p> <p>(d) Is the compensations going to be paid prior to the resettlement?</p> <p>(e) Is the compensation policies prepared in document?</p> <p>(f) Does the resettlement plan pay particular attention to vulnerable groups or people, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples?</p> <p>(g) Are agreements with the affected people obtained prior to resettlement?</p> <p>(h) Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan?</p> <p>(i) Are any plans developed to monitor the impacts of resettlement?</p> <p>(j) Is the grievance redress mechanism established?</p>	<p>(a)(b)(c) (d)(e)(f) (g)(h)(i) (j) No</p>	<p>(a)(b)(c)(d)(e)(f)(g)(h)(i)(j) This project will not cause involuntary resettlement.</p>

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Category	Environmental Item	Main Check Items	Yes No	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(2) Living and Livelihood	(a) Is there a possibility that the project will adversely affect the living conditions of inhabitants? Are adequate measures considered to reduce the impacts, if necessary? Is particular attention paid to the inhabitants whose livelihoods are based on primary industries, such as farming, raising livestock, or hunting and gathering in the forests? (b) Are proper allotments for rights to water area use (e.g. fishing rights) made? (c) Is there a possibility that water-borne or water-related diseases (e.g., schistosomiasis, malaria, filariasis) will be introduced? Is adequate consideration given to public health education, if necessary?	(a) (b)(c) No	(a) This project will not cause significant adverse impacts. (The project will contribute to the improvement of living and livelihood of market users.) (b)(c) This project will not cause significant adverse impacts.
	(3) Heritage	(a) Is there a possibility that the project will damage the local archeological, historical, cultural, and religious heritage? Are adequate measures considered to protect these sites in accordance with the country's laws?	(a) No	(a) There is no such heritage in and around the project site.
	(4) Landscape	(a) Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?	(a) No	(a) The project will not cause significant adverse impacts on landscape. (Removal of vegetation will be minimized to preserve the existing landscape. Also, design of the market will be carefully considered to harmonize with landscape. The new market could be a "land mark" of the town.)
	(5) Ethnic Minorities and Indigenous Peoples	(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples? (b) Are all of the rights of ethnic minorities and indigenous peoples in relation to land and resources respected?	(a)(b) No	(a)(b) There is no such ethnic and indigenous issue that should be noted or will be adversely impacted by the project.

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Category	Environmental Item	Main Check Items	Yes No	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
4 Social Environment	(6) Working Conditions	<p>(a) Is the project proponent not violating any laws and ordinances associated with the working conditions of the country which the project proponent should observe in the project?</p> <p>(b) Are tangible safety considerations in place for individuals involved in the project, such as the installation of safety equipment which prevents industrial accidents, and management of hazardous materials?</p> <p>(c) Are intangible measures being planned and implemented for individuals involved in the project, such as the establishment of a safety and health program, and safety training (including traffic safety and public health) for workers etc.?</p> <p>(d) Are appropriate measures taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?</p>	<p>(a) Yes</p> <p>(b) Yes</p> <p>(c) Yes</p> <p>(d) Yes</p>	<p>(a) The working conditions of the market operation staff will be ensured to comply with the associated laws and ordinances.</p> <p>(b) Occupational safety and health (such as installation of safety equipment which prevents industrial accidents, and management of hazardous materials) will be planned in the detail plan in accordance with the associated laws and ordinances.</p> <p>(c) Establishment of safety and health training program (including market traffic safety and market user's health) is recommended.</p> <p>(d) Security guards and market supervisors will be allocated at the market to ensure the safety of the market users.</p>
5 Others	(1) Impacts during Construction	<p>(a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)?</p> <p>(b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts?</p> <p>(c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?</p>	<p>(a) Yes</p> <p>(b) Yes</p> <p>(c) Yes</p>	<p>(a) During detail design phase, contractor's environmental management plan will be established to comply with the laws and ordinances associated with environmental impacts.</p> <p>(b) Construction works will temporary disturb riparian and marine environment and, aquatic organisms. However, the overall impacts are considered not significant in terms of area and scale of impact. As a mitigation measure, removal of vegetation will be minimized and river-bank protection will apply the materials that can re-create the natural environment with coverage of vegetation. Aquatic organisms and fish will come back after completion of construction works.</p> <p>(c) Changes in concept and function of temporary market could adversely affect market users. As measures, the same concept and function will be ensured at the temporary market and consultation for the market users is recommended to explain the plan of the temporary market in advance.</p> <p>Also, to avoid traffic accidents during construction period, the space and traffic flow will be separated between the vehicles for construction activities and the public vehicles/pedestrians around the construction site (especially around the bus/PMV terminal). Put up signs and/or reduce driving speed where</p>

Category	Environmental Item	Main Check Items	Yes No	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
				necessary.
	(2) Monitoring	<p>(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts?</p> <p>(b) What are the items, methods and frequencies of the monitoring program?</p> <p>(c) Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)?</p> <p>(d) Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?</p>	<p>(a) Yes</p> <p>(b)</p> <p>(c) Yes</p> <p>(d) Yes</p>	<p>(a) Monitoring program is proposed in this study but it will be finalized after approval of environmental permit and requirement made by CEPA.</p> <p>(b) During construction period, air, water, waste, noise and vibration, living and livelihood of market users, working conditions and traffic accidents will be monitored by visual observation, interview to users and recording the public grievances.</p> <p>(c) Detail monitoring plan will be established during detail design. Implementing agency of the monitoring will allocate necessary finance and personnel.</p> <p>(d) Report to CEPA, requirements of monitoring program and its contents will be determined by CEPA.</p> <p>Report to donor, monitoring report will be submitted to the donor quarterly (every three months) throughout the construction phase and biannually for the first two years of operation period (expect for the emergency).</p>
6 Note	Reference to Checklist of Other Sectors	<p>(a) For processing and storage facilities, where necessary, pertinent items described in the Mining and Industry checklist should also be checked.</p> <p>(b) Where necessary, pertinent items described in the Ports and Harbors checklist should also be checked (e.g., projects including construction of ports and harbor facilities).</p>	(a)(b) N/A	(a)(b) N/A
	Note on Using Environmental Checklist	(a) If necessary, the impacts to transboundary or global issues should be confirmed (e.g., the project includes factors that may cause problems, such as transboundary waste treatment, acid rain, destruction of the ozone layer, or global warming).	(a) N/A	(a) N/A

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Appendices-55

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Category	Environmental Item	Main Check Items	Yes No	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
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1) Regarding the term "Country's Standards" mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are required to be made.

In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan's experience).

2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which the project is located.

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The Project for Rehabilitation of Alotau Town Market and Fisheries Facilities

Environmental Monitoring Plan (Draft)

Construction Stage					
Environmental Item	Monitoring Items	Location	Frequency and Period	Responsible Agency	Implementing Agency
Air Quality	• Occurrence of dust	• At construction site	Monitor/record every day and report every 3 months	NFA and MBPG	Contractor
Water Quality	• Occurrence of erosion, sedimentation and turbidity.	• Waduwadu Creek and construction site of marine unloading facility	Monitor/record every day and report every 3 months	NFA and MBPG	Contractor
Waste	• Volume, items and management condition	• At construction site	Monitor/record every day and report every 3 months	NFA and MBPG	Contractor
Noise and Vibration	• Public grievance on noise and vibration from the public	• N/A	Record all cases and report every 3 months	NFA and MBPG	Contractor and/or Huhu LLG
Living and Livelihood	• Concerns and grievance from users	• N/A	Record all cases and report every 3 months	NFA and MBPG	Contractor and/or Huhu LLG
Working Conditions	• Occurrence industrial accidents and health problems	• At and around construction site	Record all cases and report every 3 months	NFA and MBPG	Contractor
Impact during Construction	• Occurrence of traffic conjunction and accident • Public grievance	• At and around construction site	Record all cases and report every 3 months	NFA and MBPG	Contractor (Huhu LLG for public grievance)
Implementation Stage					
Environmental Item	Monitoring Items	Location	Frequency and Period	Responsible Agency	Implementing Agency
Water Quality	• Status of septic tank • Status of drainage system	• Septic tank • Water drainage channel and rain gutter	Monitor/record monthly and report every 6 months for two years after completion	NFA and MBPG	Huhu LLG
Waste	• Volume, items and management condition	• At dumping site	Monitor/record every time disposed and report every 6 months for two years after completion	NFA and MBPG	Huhu LLG
Topography	• Topographic changes around the site	• Shoreline both side of Marine Structure • Around the mouth of Waduwadu Creek	Monitor/record every six months for two years after completion	NFA and MBPG	Huhu LLG
Living and Livelihood	• Impact on market users (interview)	• At market	Conduct interviews to customers and vendors and report every six months for two years after completion	NFA and MBPG	Huhu LLG
Working Condition (For Vendors)	• Working condition of the new market for vendors	• At market	Conduct interviews to vendors and report every six months for two years after completion	NFA and MBPG	Huhu LLG

*Note: Monitoring Report shall be informed to JICA through NFA once a year during construction and two years after completion of work.

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**The Project for Rehabilitation of Alotau Town Market and Fisheries Facilities
Environmental and Social Monitoring Form (Draft)**

Before the Tender

The latest results of the below monitoring items shall be submitted to the donor every month before the Tender.

1. Actions for Involuntary suspension of business operations and/or move including temporary move in accordance with the Action Plan

No.	Items	Method	Date	Monitoring Result	Actions taken to Reduce Impacts

Construction Phase

The latest results of the below monitoring items shall be submitted to the donor as a part of quarterly progress report (every three months) throughout the construction phase.

1. Actions for Involuntary suspension of business operations and/or move including temporary move in accordance with the Action Plan

No.	Items	Method	Date	Monitoring Result	Actions taken to Reduce Impacts

2. Response/Actions to Comments and Guidance made by CEPA

*Record all actions taken during construction period.

No.	Date	Contents of formal comments and guidance made by CEPA	Date and Contents of Response and Action Taken during Reporting Period

3. Pollution Control

(1) Air Quality

*Monitor monthly and report every six months for the first two years of operation.

No.	Items	Method	Date	Monitoring Result (Location of occurrence and its status)	Actions taken to Reduce Impacts (e.g. Spray Water)
	Dust	Visual Observation			

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(2) Water Quality

*Monitor every day and report every three months during construction period.

No.	Items	Method	Date	Monitoring Result (Location of occurrence and its status)	Actions taken to Reduce Impacts
	Erosion	Visual Observation			
	Sedimentation	Visual Observation			
	Turbidity	Visual Observation			

(3) Waste Disposal

*Monitor every time disposed and report every three months during construction period.

No.	Date	Major Items	Dumping Location or Contractors Accepted/Treated	Volume (if scaled)	Remarks

(4) Noise and Vibration

* Record every grievance reported from the public during construction period.

No.	Date	Record of Grievance on Noise and Vibration from the Public	Countermeasures to prevent further Accidents and Problems during Reporting Period

4. Living and Livelihood (Response/Actions to Comments and Grievance made by the Public/Market Users)

*Record all cases and report every three months during construction period.

No.	Date	Contents of formal comments and guidance made by the public/Market Users	Date and Contents of Response/Actions made during Reporting Period

5. Working Condition

*Monitor and report every three months during construction period.

No.	Date	Record of Industrial Accidents and Health Problems Occurred	Countermeasures to prevent further Accidents and Problems during Reporting Period

6. Impact during Construction

*Record every case during construction period.

No.	Date	Record of Traffic Accidents around Construction Site and Grievance from the Public	Countermeasures to prevent further Accidents and Problems during Reporting Period

Over

Implementation Stage

The latest results of the below monitoring items shall be submitted to the donors on biannual basis for the first two years of operation

1. Response/Actions to Comments and Guidance made by CEPA

*Record all actions taken.

No.	Date	Contents of formal comments and guidance made by CEPA	Date and Contents of Response and Action Taken during Reporting Period

2. Pollution Control**(1) Water Quality**

*Monitor monthly and report every six months for the first two years of operation.

Date	Item	Monitoring Result (Status e.g. Working or Not Working)	Possible Reason(s) if Not Working	Measures Taken if Not Working
	Status of Septic tank	Status:		
	Status of Drainage channel and rain gutter	Status:		

(2) Waste Disposal

*Monitor every time disposed and report every six months for the first two years of operation.

Date	Dumping Location	Major Items	Volume (if scaled)	Remarks

3. Environmental Impact**(1) Topology**

*Monitor every and report every six months for the first two years of operation.

Date	Item	Monitoring Result (Observed Status e.g. No Significant Change, Some Changes, or Significant Changes)	Photo of the Site
	Topographic Status of Shoreline both side of Marine Structure		
	Topographic Status around the mouth of Waduwadu Creek		

4. Social Impact**(1) Living and Livelihood (Interviews to Customers and Venders)**

*Conduct interviews and report every six months for the first two years of operation.

No.	Date of Interview	Comments/Feedback on their living and livelihood

(2) Working Condition (Interview to Venders)
 *Conduct interviews and report every six months for the first two years of operation.

No.	Date of Interview	Comments/Feedback on working condition at new market

Over

SL

4

SL

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Appendices 5. Soft Component (Technical Assistance) Plan

Soft Component (Technical Assistance) Plan

(1) Background of the Soft Component (Technical Assistance) Plan

Alotau Market functions as a vital center where farmers and fishermen from throughout Milne Bay Province can come to earn cash. However, the market building is old and there are not enough tables. In many cases, products for sale are placed directly on the ground, thus causing sanitation issues. The aim of the renovations and improvements to be performed as part of the “Project for the Rehabilitation of Alotau Town Market and Fisheries” is to i) improve and invigorate the distribution of agricultural and fishery products in Milne Bay Province and ii) improve the livelihoods of the farmers and fishers who live in the province.

At present, Huhu LLG is administering Alotau Market relatively smoothly, but once the market is renovated as per the request from the PNG side, the plan is to make the market’s administrative framework independent of Huhu LLG and put it under the jurisdiction of a Market Board composed of representatives from the Milne Bay Provincial Government, Alotau Urban LLG, and Huhu LLG. That being said, the market’s administrative framework will not change significantly from the current one. The plan calls for an organization that will include the bare minimum number of additional members to the current framework to ensure that the improved market can provide users with the functions and services they need.

When future plans pertaining to this project are implemented, the necessary preparations will be taken after being discussed and deliberated by a Technical Working Committee on the PNG side. This Technical Working Committee was formed under the supervision of the Milne Bay Provincial Administrator, and it will play a leading role in the preparatory work relating to the administration of the renovated Alotau Market. Since the primary members of the Market Board will include members of the Technical Working Committee, the establishment of the Market Board should go relatively smoothly, but it will be important for the Japan side to provide support to ensure that i) the Market Board is established after the project construction is complete but before the market commences operations and ii) preparations relating to market administration go as planned. To ensure the positive impact of this project, the following issues will need to be improved, and support in the form of the soft component (i.e., technical assistance) will be effective to this end.

- i) At present, the various duties at Alotau Market—namely, opening and closing the market, collecting fees from the retailers, cleaning, and trash disposal—are all done according to ad hoc rules that have become customary. There is no manual codifying the operations of the Alotau Market. However, the renovated Alotau Market will have more functions than now, including a market toilet, a storage room for retailers, and a first-aid station, so effective administration that takes the current situation into account is desirable.
- ii) At present, Alotau Market administered directly by the Huhu LLG, and the market’s revenues and expenses are incorporated into the local level government account. Over the past five years, the Alotau Market has averaged annual profits of PGK 34,000, but several issues, such as the

out-of-order toilet, remain.

- iii) At present, the Huhu LLG runs a business where it buys fish caught by local fishermen and resells it to consumers, but since the fishermen are paid with checks, they are sometimes hesitant to sell their catches.
- iv) At the current Alotau Market, the Huhu LLG sells ice with ice plants, but there is a possibility to increase the ice sales volume. For example, they could use ice breakers and to sell ice in smaller quantities.

When the proposed regulations for market operations and maintenance to be used at the renovated Alotau Market are formulated, the text will reflect the current market operations. The regulations are scheduled to be drawn up by the Huhu LLG Market Supervisor, and related preparations are slated to be completed three months before the completion of construction.

(2) Objective of the Soft Component (Technical Assistance)

The objective of the soft component (technical assistance) is “to ensure the effective establishment of an operations and maintenance system for the renovated Alotau Market.” To this end, efforts will be made to ensure the formulation of basic regulations for market operations and maintenance, methods for market fee collection and accounting, and a manual for the maintenance of market facilities, equipment, and machinery.

(3) Outcomes of the Soft Component (Technical Assistance)

The three expected outcomes of the soft component (technical assistance) have been defined as outlined below.

(i) Outcome 1: “Formulate and put into effect regulations for the operation and maintenance of Alotau Market”

Since the renovated Alotau Market will have many new functions and provide users with additional services, an operations manual codifying current practices will be formulated and the staff will perform their duties in accordance with this manual. Doing this is expected to ensure even more effective and efficient market operations and maintenance.

(ii) Outcome 2: “Establish systems for the collection and accounting of Alotau Market facility usage fees and for financial management”

In order to achieve sound and sustainable operations and maintenance, it will be essential to formulate simple, transparent accounting rules and establish systems for both the collection and accounting of facility usage fees and for financial management. By setting appropriate fees for users and formulating rules for the collection and accounting of those fees, a sound administrative framework rooted in self-sufficiency can be developed. Doing this is expected to ensure the appropriate collection and management of facility usage fees as well as the sustainable operation and management of facilities.

(iii) Outcome 3: “Establish procedures for the maintenance of Alotau Market facilities, equipment, and machinery”

In the renovated Alotau Market, a maintenance framework will be created that enables an accurate response in the event that the garbage truck and equipment in the market facilities malfunctions. Also, a systematic manual for the maintenance of market facilities, equipment, and machinery will be formulated. Together, these are expected to ensure proper operations.

(4) Method for Verifying the Achievement of Outcomes

The following indicators will be defined to assess the status of outcomes achievement. Data pertaining to these indicators will be collected in cooperation with the responsible officials in the implementing agencies in order to ascertain the effects of duties performed.

(i) Outcome 1: “Formulate and put into effect regulations for the operation and maintenance of Alotau Market”

Indicators and methods for their verification have been defined as follows.

Indicator 1: Appropriate regulations for market operations and maintenance have been formulated and put into use at the renovated Alotau Market.

Method of indicator verification: Confirmation that regulations for market operations and maintenance have been completed

Regarding Indicator 1, both sides will confirm that regulations for market operations and maintenance have actually been formulated.

(ii) Outcome 2: “Establish systems for the collection and accounting of Alotau Market facility usage fees and for financial management”

Indicators and methods for their verification have been defined as follows.

Indicator 2: An appropriate manual for the collection and accounting of facility usage fees has been formulated and put into use at the renovated Alotau Market.

Method of indicator verification: Confirmation that a manual for the collection and accounting of facility usage fees has been completed

Regarding Indicator 2, both sides will confirm that a manual for the collection and accounting of facility usage fees has actually been formulated.

(iii) Outcome 3: “Establish procedures for the maintenance of Alotau Market facilities, equipment, and machinery”

Indicators and methods for their verification have been defined as follows.

Indicator 3: An appropriate manual for the maintenance market facilities and related equipment, including the garbage truck and ice plant, has been formulated and put into use at the renovated Alotau Market.

Method of indicator verification: Confirmation that a manual for the maintenance of market facilities, equipment, and machinery has been completed

Regarding Indicator 3, both sides will confirm that a manual for the maintenance of market facilities, equipment, and machinery has actually been formulated.

(5) Soft Component (Technical Assistance) Activities (Implementation Plans)

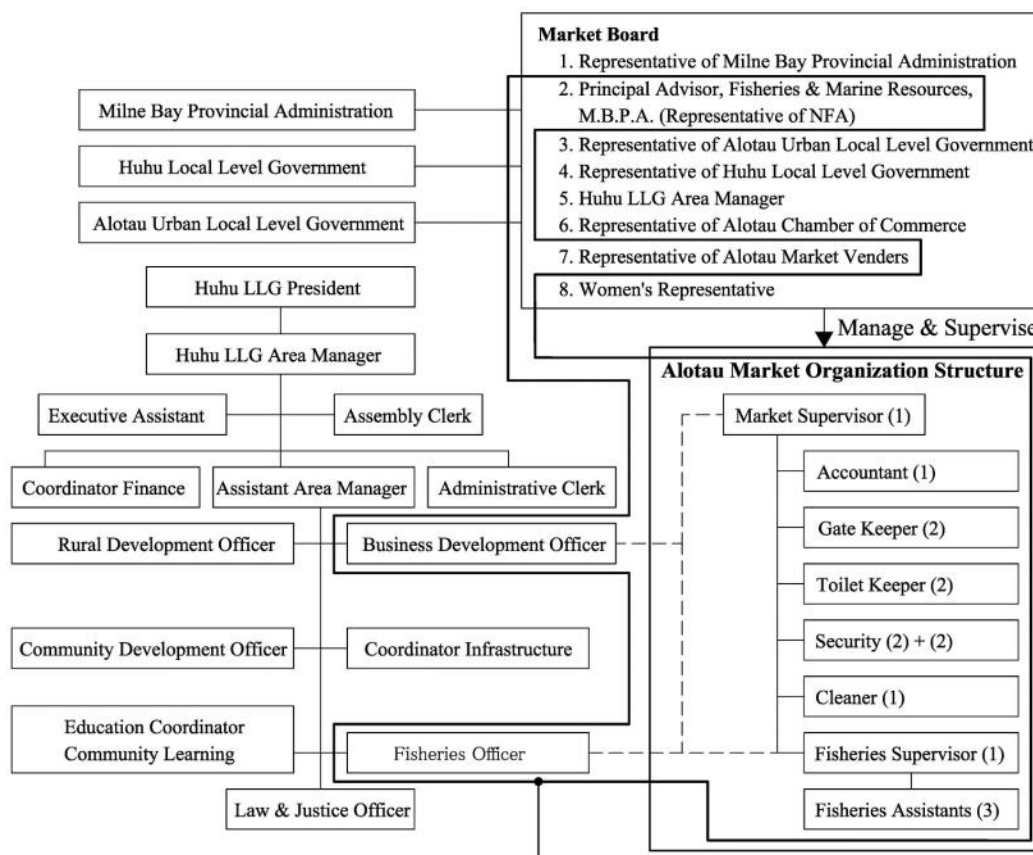
1) Activity Plan Details

The following actions will be taken to ensure the achievement of these outcomes. To enhance the effect of the project, it is important that actions pertaining to on-site work be undertaken once the PNG side actually begins the operation of the facilities completed under the scope of this project. Since the proposed accounting ledgers and manuals must be completed before operations commence, on-site work will be undertaken in two phases as outlined below.

First phase : At the time of completion of facilities within the scope of this project

Second phase : At the time when the facilities within the scope of this project commence operation

The figure below is the organization chart for Alotau Market. The section inside the solid lines refers to the entities scheduled to be involved in the soft component. Representative from the NFA, which is the responsible agency for this project, are also scheduled to be involved in those on-site activities deemed as most important.



(i) Outcome 1: “Formulate and put into effect regulations for the operation and maintenance of Alotau Market”

The following activities will be implemented to achieve Outcome 1.

Activity 1-1: Deliberate and evaluate the proposed regulations for market operations and utilization.

Before the first phase of on-site activities is undertaken, the structure and content of the proposed regulations for market operations and maintenance drawn up by the Business Development and Fisheries Officers of Huhu LLG on the PNG side will be verified to see if they are suitable (e.g., Do they contain the necessary rules? Is the scope appropriate? Is a process for revision stipulated?). If necessary, these will be revised. Once the on-site work begins, discussions will be held with the Participants shown in the table below on the content of the proposed regulations and items for revision.

Activity	Participants
Formulation of proposed regulations for market operations and maintenance	<ul style="list-style-type: none"> • Huhu LLG Business Development Officer • Huhu LLG Fisheries Officer
Deliberation of the content of the proposed regulations for market operations and maintenance	<ul style="list-style-type: none"> • Provincial Advisor for Fisheries & Marine Resources, MBPA • Huhu LLG Business Development Officer • Huhu LLG Fisheries Officer • Market Supervisor, Accountant

Activity 1-2: Hold workshops involving both the organization in charge of market operations and the retailers (i.e., market users) to discuss market operations and utilization.

Workshops and discussions on market operations will be held to identify problems with the proposed regulations for market operations and maintenance from the standpoint of the users and to propose countermeasures therefor. The Provincial Advisor for Fisheries and Marine Resources will moderate these workshops, and the Japanese consultant will attend as observers.

Activity	Participants
Workshops will be held to identify problems with the proposed regulations for market operations and maintenance and propose countermeasures therefor.	<ul style="list-style-type: none"> • Provincial Advisor for Fisheries & Marine Resources, MBPA • Huhu LLG Business Development Officer • Huhu LLG Fisheries Officer • Members of the Market staffs Market Supervisor, Accountant, Gate Keepers, Toilet Keepers, Securities, Cleaners, Fisheries Supervisor, Fisheries Assistants • Representative of the Alotau Market Retailers • Representative of NFA

Activity 1-3: Revise proposed regulations for market operations and utilization.

Based on the problems identified in the aforementioned activity and the results of a discussion of the proposed solutions, the content of the proposed regulations for market operations and maintenance will be revised as needed.

Activity	Participants
Revision of the proposed regulations for market operations and maintenance	<ul style="list-style-type: none"> • Huhu LLG Business Development Officer • Huhu LLG Fisheries Officer

Activity 1-4: Operate the renovated Alotau Market in accordance with the proposed regulations for market operations and maintenance and identify any issues that arise.

The content of the proposed regulations for market operations and maintenance that have been revised before the second phase of on-site work begins will be confirmed. The market operation staffs will operate the renovated Alotau Market in accordance with the proposed regulations for market operations and maintenance that have been revised as part of Activity 1.3. The Japanese consultant will observe the operations and monitor both user needs and improvements in the response of the organization in charge of market operations and maintenance.

Activity	Participants
Operation of the renovated Alotau Market in accordance with the proposed regulations for market operations and maintenance; identification of any issues that arise.	<ul style="list-style-type: none"> • Huhu LLG Business Development Officer • Huhu LLG Fisheries Officer • Members of the Market staffs Market Supervisor, Accountant, Gate Keepers, Toilet Keepers, Securities, Cleaners, Fisheries Supervisor, Fisheries Assistants

Activity 1-5: Evaluate market operation based on the proposed regulations for market operations and maintenance, then revise and finalize said regulations.

In accordance with the proposed regulations for market operations and maintenance formulated as part of Activity 1.4, a comprehensive discussion will be held on market operations, and an evaluation will be performed based on the results of the monitoring. Based on the results of this discussion, methods for operations and utilization that are deemed more effective than the actual practice will be devised, and if necessary, the proposed regulations for market operations and maintenance will be revised again before they are finalized.

Activity	Participants
Comprehensive discussion of market management (Market Operations and Maintenance)	<ul style="list-style-type: none"> • Provincial Advisor for Fisheries & Marine Resources, MBPA • Huhu LLG Business Development Officer • Huhu LLG Fisheries Officer • Members of the Market staffs Market Supervisor, Accountant, Gate Keepers, Toilet Keepers, Securities, Cleaners, Fisheries Supervisor, Fisheries Assistants • Representative of the Alotau Market Venders • Representative of NFA
Finalization of the regulations for market operations and maintenance	<ul style="list-style-type: none"> • Huhu LLG Business Development Officer • Huhu LLG Fisheries Officer • Provincial Advisor for Fisheries & Marine Resources, MBPA

(ii) Outcome 2: “Establish systems for the collection and accounting of Alotau Market facility usage fees and for financial management”

The following activities have been deemed necessary to achieve Outcome 2.

Activity 2-1: Assess methods for the collection and accounting of Alotau Market facility usage fees and for financial processing.

Before the first phase of on-site activities is undertaken, the content of the manual for the collection and accounting of facility usage fees drawn up by the Business Development and Fisheries Officers of Huhu LLG will be verified to see if the methods for the collection and accounting of fees and the methods for financial processing are suitable. The verification process will focus on whether i) realistic measures are being taken to prevent the miscollection of facility usage fees, ii) money loss and fraud can be prevented in the collection process, and iii) transparency has been maintained. Once the on-site work begins, discussions will be held with the the Participants shown in the table below to verify the content of the proposed manual.

Activity	Participants
Formulation of proposed manual for the collection and accounting of facility usage fees	<ul style="list-style-type: none"> • Huhu LLG Business Development Officer • Huhu LLG Fisheries Officer
Deliberation of the content of the proposed manual for the collection and accounting of facility usage fees	<ul style="list-style-type: none"> • Provincial Advisor for Fisheries & Marine Resources, MBPA • Huhu LLG Business Development Officer • Huhu LLG Fisheries Officer • Members of the Market staffs Market Supervisor, Accountant, Gate Keepers, Fisheries Supervisor

Activity 2-2: Revise the proposed manual for the collection and accounting of facility usage fees.

The results of the verification and discussion will reflect the following items and, if necessary, the proposed manual for the collection and accounting of facility usage fees will be revised, after which the Market operation organization will prepare the forms required for the actual operation of the market: content of accounting ledgers and accounting method for effective facility management; filing of vouchers; methods for bank account management; efficient sales of ice; purchasing fresh fish from fishermen for resale; and regular accounting audits involving Market Board members. If possible, cooperation by the Japanese consultant will also be provided for the preparations required to open bank accounts.

Activity	Participants
Revision of the proposed manual for the collection and accounting of facility usage fees	<ul style="list-style-type: none"> • Huhu LLG Business Development Officer • Huhu LLG Fisheries Officer
Preparation of forms (vouchers)	<ul style="list-style-type: none"> • Huhu LLG Business Development Officer • Huhu LLG Fisheries Officer • Provincial Advisor for Fisheries & Marine Resources, MBPA

Activity 2-3: Collect and account for facility usage fees for the renovated Alotau Market in accordance with the proposed manual for the collection and accounting of facility usage fees and identify any

issues that arise.

The market operation staffs will collect and account for market usage fees in the renovated Alotau Market in accordance with the proposed manual for the collection and accounting of facility usage fees formulated as part of Activity 2-2 during second phase of on-site work. The Japanese consultant will observe this work and monitor improvements in the following: methods for recording collected fees in the accounting ledger, filing of vouchers, and other related duties.

Activity	Participants
Actual operation of Alotau Market in accordance with the proposed manual for the collection and accounting of facility usage fees.	<ul style="list-style-type: none"> • Huhu LLG Business Development Officer • Huhu LLG Fisheries Officer • Members of the Market staffs Market Supervisor, Accountant, Gate Keepers, Toilet Keepers, Fisheries Supervisor, Fisheries Assistants

Activity 2-4: Assess market operations in accordance with the proposed manual for the collection and accounting of facility usage fees, make corrections to the manual if needed, and finalize the manual.

The duties performed in accordance with the proposed manual for the collection and accounting of facility usage fees created as part of Activity 2-3 will be evaluated based on the results of the monitoring conducted at the time of the comprehensive discussion mentioned in Activity 1-5. Based on the results of this discussion, methods for collection, accounting, and the provision of services that are deemed more effective than the actual practice will be devised, and if necessary, the proposed manual for the collection and accounting of facility usage fees will be revised again before it is finalized.

Activity	Participants
Comprehensive discussion of market management (Procedures for the collection and accounting of facility usage fees)	<ul style="list-style-type: none"> • Provincial Advisor for Fisheries & Marine Resources, MBPA • Huhu LLG Business Development Officer • Huhu LLG Fisheries Officer • Members of the Market staffs Market Supervisor, Accountant, Gate Keepers, Toilet Keepers, Securities, Cleaners, Fisheries Supervisor, Fisheries Assistants • Representative of the Alotau Market Retailers • Representative of NFA
Finalization of the manual for the collection and accounting of facility usage fees	<ul style="list-style-type: none"> • Huhu LLG Business Development Officer • Huhu LLG Fisheries Officer • Provincial Advisor for Fisheries & Marine Resources, MBPA

(iii) Outcome 3: “Establish procedures for the maintenance of Alotau Market facilities, equipment, and machinery”

The following activities have been deemed necessary to achieve Outcome 3.

Activity 3-1: Deliberate the proposed manual for the maintenance of market facilities, equipment, and machinery.

Before the first phase of on-site activities is undertaken, the structure and content of the proposed manual for the maintenance of market facilities, equipment, and machinery drawn up by the Business Development and Fisheries Officers of Huhu LLG on the PNG side will be evaluated and discussed. Once the on-site work begins, discussions will be held with the Participants in the table shown below to verify the content of the proposed manual.

Activity	Participants
Formulation of the proposed maintenance manual	<ul style="list-style-type: none"> • Huhu LLG Business Development Officer • Huhu LLG Fisheries Officer
Deliberation of the content of the proposed maintenance manual	<ul style="list-style-type: none"> • Provincial Advisor for Fisheries & Marine Resources, MBPA • Huhu LLG Business Development Officer • Huhu LLG Fisheries Officer • Members of the Market staffs Market Supervisor, Cleaners, Fisheries Supervisor

Activity 3-2: Revise the proposed manual for the maintenance of market facilities, equipment, and machinery.

Reflecting the results of the discussion undertaken as part of Activity 3-1, the proposed maintenance manual will be revised as needed by the Business Development and Fisheries Officers of Huhu LLG.

Activity	Participants
Revision of the proposed maintenance manual	<ul style="list-style-type: none"> • Huhu LLG Business Development Officer • Huhu LLG Fisheries Officer

Activity 3-3: Undertake maintenance in the renovated Alotau Market in accordance with the proposed manual for the maintenance of market facilities, equipment, and machinery, and identify any issues that arise.

During the second phase of on-site work, maintenance will be performed at the renovated Alotau Market in accordance with the proposed maintenance manual. The Japanese consultant will observe this work and monitor for improvements in maintenance that take into consideration the effective usage of facilities. The consultant will also provide technical assistance.

Activity	Participants
Actual operation of Alotau Market in accordance with the proposed manual for the collection and accounting of facility usage fees.	<ul style="list-style-type: none"> • Huhu LLG Business Development Officer • Huhu LLG Fisheries Officer • Members of the Market staffs Market Supervisor, Toilet Keepers, Cleaners, Securities, Fisheries Supervisor, Fisheries Assistants

Activity 3-4: Assess maintenance work in accordance with the proposed manual for the maintenance of market facilities, equipment, and machinery, make corrections to the manual if needed, and finalize the manual.

The duties performed in accordance with the proposed maintenance manual created as part of Activity 3-3 will be evaluated based on the results of the monitoring conducted at the time of the comprehensive discussion mentioned in Activity 1-5. Based on the results of this discussion, methods maintenance that are deemed more effective than the actual practice will be devised, and if necessary, the proposed maintenance manual will be revised again before it is finalized.

Activity	Participants
Comprehensive discussion of market management (Maintenance Manual)	<ul style="list-style-type: none"> • Provincial Advisor for Fisheries & Marine Resources, MBPA • Huhu LLG Business Development Officer • Huhu LLG Fisheries Officer • Members of the Market staffs Market Supervisor, Accountant, Gate Keepers, Toilet Keepers, Securities, Cleaners, Fisheries Supervisor, Fisheries Assistants • Representative of the Alotau Market Retailers • Representative of NFA
Finalization of the maintenance manual	<ul style="list-style-type: none"> • Huhu LLG Business Development Officer • Huhu LLG Fisheries Officer • Provincial Advisor for Fisheries & Marine Resources, MBPA

2) Implementation Plan Details

(i) Japan-side implementation plan

Efforts will be made to ensure that the details of the planned soft component are implemented in such a way to ensure effective operations and maintenance after the completion of the Alotau Market facilities, and these are outlined below.

Operations and Maintenance

Outcome 1: “Formulate and put into effect regulations for the operation and maintenance of Alotau Market”

Outcome 2: “Establish systems for the collection and accounting of Alotau Market facility usage fees and for financial management”

Outcome 3: “Establish procedures for the maintenance of Alotau Market facilities, equipment, and machinery”

The plan calls for one Japanese consultant to be dispatched to facilitate the transfer of technologies pertaining to operations and maintenance. As mentioned in the preceding section, the on-site work will be undertaken in two phases,

and the implementation plan for these activities is as follows.

a) One Japanese consultant for operations and maintenance:

1.60MM (Work in Japan: 0.60MM, Work in PNG: 1.00MM)

First phase: At the time of completion of facilities within the scope of this project: Work in Japan: 0.35MM, Work in PNG: 0.47MM

Second phase: At the time when the facilities within the scope of this project commence operation: Work in Japan: 0.25MM, Work in PNG: 0.53MM

b) Vehicle rental expenses, 24 days (First phase: 11 days; Second phase: 13 days)

(ii) PNG-side implementation plan

The in-country counterparts for this project are the officials from Huhu LLG, Alotau Urban LLG, the Principal Advisor for Fisheries and Marine Resources, Milne Bay Provincial Government, and the representative of NFA (i.e, the responsible agency). They will work with the Japanese consultant on the various activities. The workshop to be held in the first phase of on-site work and the comprehensive discussion to be held in the second phase will be moderated by the Principal Advisor for Fisheries and Marine Resources. The implementation plan for these activities is as follows.

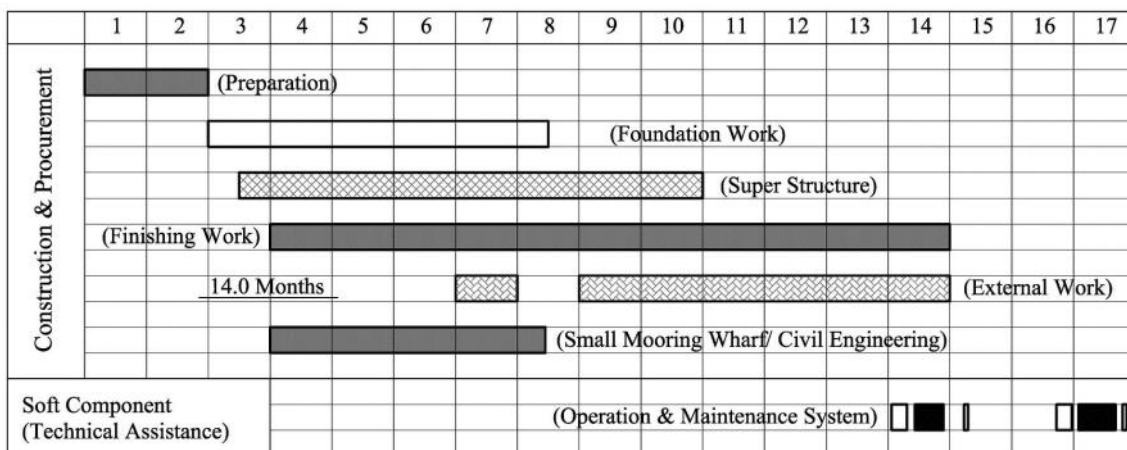
- a) Officials from Huhu LLG, Alotau Urban LLG, the Principal Advisor for Fisheries and Marine Resources the Milne Bay Provincial Government, and the representative of NFA
- b) Primary members of the Alotau Market operation staffs
- c) Representative attending the workshop on behalf of the market users (e.g., retailers)
- d) Other necessary stationery, supplies, and materials

(6) Procurement of Resources for the Soft Component (Technical Assistance)

With regard to the maintenance of Alotau Market after the renovations slated under this project are carried out, since the new market will have more functions than now to service its users, the plan calls for the continued involvement of two Huhu LLG officials, i.e., the Business Development Officer and the Fisheries Officer, who are currently playing leading roles in the market's administration. Therefore, when activities for the soft component are undertaken, local consultants, NGOs, and other local resources will be not utilized, and these two Huhu LLG officials will be the primary PNG counterparts who will work both under the supervision of the Japanese consultant and together with the Japanese consultant on various activities. Engaging in technology transfer while improving the capacity of these two officials involved in the administration and maintenance of Alotau Market is not only appropriate, it will ensure effective outcomes from the implementation of the soft component.

(7) Soft Component (Technical Assistance) Schedule

The commencement of the soft component will coincide with the completion of project facilities, and tasks will be implemented in two phases according to the schedule shown below.



※ The actual timing of dispatch will be determined in light of the progress of construction and equipment procurement and the status of market relocation.

(8) Soft Component (Technical Assistance) Outputs

- i) Final Report on Soft Component (Technical Assistance)
- ii) Regulations for market operations and maintenance
- iii) Manual for the collection and accounting of facility usage fees
- iv) Manual for the maintenance of market facilities, equipment, and machinery

(9) Cost Estimate for the Soft Component (Technical Assistance)

The cost estimate for the soft component (Technical Assistance) is JPY 5,609,000, a breakdown of which is as follows:

Direct personnel expenditures:	JPY 1,392,000
Direct expenses:	JPY 1,322,000
<u>Indirect expenses:</u>	<u>JPY 2,895, 000</u>
Total:	JPY 5,609,000

(10) Obligations of the Recipient Country

To achieve the goals of the soft component, it will be essential to gain the understanding of the NFA, which will be significantly involved in the project as the responsible agency, and the implementing agencies, i.e., Huhu LLG, Alotau Urban LLG, the Milne Bay Provincial Government. If any factors hindering the operation of facilities should come to light, the NFA and the Milne Bay Provincial Government are scheduled to take necessary measures. As such, the Japan side will deepen the understanding of these organizations by issuing them reports both before on-site work begins and after it is completed. The counterpart officials for this soft component will need to possess both experience in maintenance and the ability to coordinate with market users. Before the soft component commences, these officials are scheduled to prepare first drafts of the regulations for market operations and maintenance, the manual for the collection and accounting of facility usage fees, and the maintenance manual based on how

the market currently operates. For this reason, it will be important early on to make sure the implementing agencies—and in particular the two staff members serving as the primary counterparts—understand and agree with the details of work to be performed under the soft component and the positioning thereof.

(11) Work Day Schedule

i) Work in Japan before the first phase of on-site work (5 days, 0.25 MM):

Review and evaluation of the proposed regulations for market operations and maintenance, the proposed manual for the collection and accounting of facility usage fees, and the proposed maintenance manual

ii) First phase of on-site work: (14 days, 0.47MM)

BNE: Brisbane, POM: Port Moresby, EOJ: Embassy of Japan, ALT: Alotau

No.	Day	Itinerary	Location
1		Leave Tokyo →	
2		→Arrive BNE, Leave BNE→ Arrive POM, Courtesy visit and report to NFA, Courtesy visit to JICA office, Courtesy visit to EOJ	POM
3		Leave POM→ Arrive ALT, Courtesy visit and Explanation of schedule, etc. to MBPG, Alotau urban LLG& Huhu LLG	ALT
4		Meeting with Technical working committee, preparation of workshop	ALT
5		Meeting with counterparts (Operation & accounting manuals, etc.)	ALT
6		Workshop (Counterparts, Alotau Market staff, vendors, etc.)	ALT
7		Review on the progress	ALT
8		Site survey, preparation of the technical meeting with counterparts	ALT
9		Technical meeting with counterparts (contents and its revision for operation & accounting manuals)	ALT
10		Technical meeting with counterparts (contents and its revision for operation and maintenance notes, accounting vouchers)	ALT
11		Technical meeting with counterparts, (operation of garbage truck, purchase and sales of ice and fresh fish) Meeting with Technical working committee	ALT
12		Leave ALT→ Arrive POM, report on the progress to NFA	POM
13		Report on the progress to JICA office, Leave POM→ Arrive BNE	BNE
14		Leave BNE→ Arrive Tokyo	

iii) Work in Japan after the first phase of on-site work (2 days, 0.10 MM):

Formulation of interim report and report to JICA

iv) Work in Japan before the second phase of on-site work (3 days, 0.15 MM):

Confirmation of the revised proposed regulations for market operations and maintenance, the proposed manual for the collection and accounting of facility usage fees, and the proposed maintenance manual

v) Second phase of on-site work: (16 days, 0.53MM)

BNE: Brisbane, POM: Port Moresby, EOJ: Embassy of Japan, ALT: Alotau

No	Day	Itinerary	Location
1		Leave Tokyo →	機中
2		→Arrive BNE, Leave BNE→ Arrive POM, meeting with NFA, Report to JICA office	POM
3		Leave POM→ Arrive ALT, Meeting with Technical working committee, Alotau urban LLG& Huhu LLG	ALT
4		Meeting with counterparts (Revised operation & accounting manuals, etc.) and preparation	ALT
5		Inauguration ceremony	ALT
6		Preparation for opening & actual operation of the Alotau Market	ALT
7		Confirmation of the preparation for opening & actual operation of the Alotau Market	ALT
8		Actual operation of the Alotau Market (Monitoring for operation, collection of market fee, etc.)	ALT
9		Actual operation of the Alotau Market (Monitoring for operation, collection of toilet fee, etc.)	ALT
10		Actual operation of the Alotau Market (Monitoring for operation of fishery center, ice sales, etc.)	ALT
11		Meeting with counterparts (Finalize the operation & accounting manuals, etc.)	ALT
12		Consolidated meeting with concerned parties of MBPG & DFMR (Report on the results of activities and recommendation)	ALT
13		Formulation of the final report	ALT
14		Leave ALT→POM	POM
15		Reporting including recommendation to NFA, reporting to JICA Office and EOJ, Leave POM→BNE	BNE
16		Leave BNE→Tokyo	

vi) Work in Japan after the first phase of on-site work (2 days, 0.10 MM):

Formulation of final report and report to JICA

Appendices 6. Environmental and Social Monitoring Form

Environmental and Social Monitoring Form

Before the Bidding

The latest results of the below monitoring items shall be submitted to the donor every month before the Tender.

1. Actions for Involuntary suspension of business operations and/or move including temporary move in accordance with the Action Plan

No.	Items	Method	Date	Monitoring Result	Actions taken to Reduce Impacts

Construction Phase

The latest results of the below monitoring items shall be submitted to the donor as a part of quarterly progress report (every three months) throughout the construction phase.

1. Response/Actions to Comments and Guidance made by CEPA

*Record all actions taken during construction period.

No.	Date	Contents of formal comments and guidance made by CEPA	Date and Contents of Response and Action Taken during Reporting Period

2. Pollution Control

(1) Air Quality

*Monitor monthly and report every six months for the first two years of operation.

No.	Items	Method	Date	Monitoring Result (Location of occurrence and its status)	Actions taken to Reduce Impacts (e.g. Spray Water)
	Dust	Visual Observation			

(2) Water Quality

*Monitor every day and report every three months during construction period.

No.	Items	Method	Date	Monitoring Result (Location of occurrence and its status)	Actions taken to Reduce Impacts
	Erosion	Visual Observation			
	Sedimentation	Visual Observation			
	Turbidity	Visual Observation			

(3) Waste Disposal

*Monitor every time disposed and report every three months during construction period.

No.	Date	Major Items	Dumping Location or Contractors Accepted/Treated	Volume (if scaled)	Remarks

(4) Noise and Vibration

* Record every grievance reported from the public during construction period.

No.	Date	Record of Grievance on Noise and Vibration from the Public	Countermeasures to prevent further Accidents and Problems during Reporting Period

3. Living and Livelihood (Response/Actions to Comments and Grievance made by the Public/Market Users)

*Record all cases and report every three months during construction period.

No.	Date	Contents of formal comments and guidance made by the public/Market Users	Date and Contents of Response/Actions made during Reporting Period

4. Working Condition

*Monitor and report every three months during construction period.

No.	Date	Record of Industrial Accidents and Health Problems Occurred	Countermeasures to prevent further Accidents and Problems during Reporting Period

5. Impact during Construction

*Record every case during construction period.

No.	Date	Record of Traffic Accidents around Construction Site and Grievance from the Public	Countermeasures to prevent further Accidents and Problems during Reporting Period

Over**Implementation Stage**

The latest results of the below monitoring items shall be submitted to the donors on biannual basis for the first two years of operation

1. Response/Actions to Comments and Guidance made by CEPA

*Record all actions taken.

No.	Date	Contents of formal comments and guidance made by CEPA	Date and Contents of Response and Action Taken during Reporting Period

2. Pollution Control

(1) Water Quality

*Monitor monthly and report every six months for the first two years of operation.

Date	Item	Monitoring Result (Status e.g. Working or Not Working)	Possible Reason(s) if Not Working	Measures Taken if Not Working
	Status of Septic tank	Status:		
	Status of Drainage channel and rain gutter	Status:		

(2) Waste Disposal

*Monitor every time disposed and report every six months for the first two years of operation.

Date	Dumping Location	Major Items	Volume (if scaled)	Remarks

3. Environmental Impact

(1) Topology

*Monitor every and report every six months for the first two years of operation.

Date	Item	Monitoring Result (Observed Status e.g. No Significant Change, Some Changes, or Significant Changes)	Photo of the Site
	Topographic Status of Shoreline both side of Marine Structure		
	Topographic Status around the mouth of Waduwadu Creek		

4. Social Impact

(1) Living and Livelihood (Interviews to Customers and Venders)

*Conduct interviews and report every six months for the first two years of operation.

No.	Date of Interview	Comments/Feedback on their living and livelihood

(2) Working Condition (Interview to Venders)

*Conduct interviews and report every six months for the first two years of operation.

No.	Date of Interview	Comments/Feedback on working condition at new market

Over

Appendices 7. Environmental Check List

Environmental Checklist

Category	Environmental Item	Main Check Items	Yes No	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
1. Permits and Explanation	(1) EIA and Environmental Permits	(a) Have EIA reports been already prepared in official process? (b) Have EIA reports been approved by authorities of the host country's government? (c) Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? (d) In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	(a) No (b) N/A (c) N/A (d) No	(a) EIA report is not required for this project but Environmental Permit Application is most likely required (according to the result of preliminary interviews with CEPA officers). NFA will start application by submitting a notification to CEPA after the project plan is defined. (b)(c) N/A (d) No other approvals are required in relation to environmental and social matters.
	(2) Explanation to the Local Stakeholders	(a) Have contents of the project and the potential impacts been adequately explained to the Local stakeholders based on appropriate procedures, including information disclosure? Is understanding obtained from the Local stakeholders? (b) Have the comment from the stakeholders (such as local residents) been reflected to the project design?	(a) Yes (b) Yes	(a) Information about the proposed project were disclosed to the governmental, private and public stakeholders including market users. It was explained to the stakeholders about the proposed project and understanding was obtained from the participants. (b) The comments, inputs and concerns from these sessions by stakeholders were reflected to the project design.
	(3) Examination of Alternatives	(a) Have alternative plans of the project been examined with social and environmental considerations?	(a) Yes	(a) Alternative plans of marine infrastructures and alternative sites of temporary market were examined with social and environmental considerations.
2. Pollution Control	(1) Water Quality	(a) Are considerations given to water pollution of the surrounding the water areas by effluents, such as fish pond effluents? Are adequate standards for the use of feeds and agents/antibiotics established? Is a framework established to increase awareness of these standards? (b) Do effluents from various sources, such as fish ponds, processing facilities, and fishing boats, and water quality of the surrounding water bodies comply with the country's effluent standards and the country's ambient water quality standards?	(a) N/A (b) Yes	(a) There is no fish pond, use of feeds and antibiotics in this project. (b) Waste water generated from the construction site and from market operation will be treated appropriately to comply with the national standards.
	(2) Wastes	(a) Are wastes properly treated and disposed of in accordance with the country's regulations (especially fish processing facilities)?	(a) Yes	(a) There is no fish processing facility in this project. Solid wastes generated from market activities (including sludge from toilet facilities) will be regularly and appropriately treated and disposed.
	(3) Noise and Vibration	(a) Do noise and vibrations comply with the country's standards (especially fish processing facilities)?	(a) Yes	(a) Market activities will not generate significant noise and vibration. Also, there is no sensitive receptors such as residential

Category	Environmental Item	Main Check Items	Yes No	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
				facilities surrounding the market area. (No fish processing facility is planned in this project.)
	(4) Odor	(a) Are there any odor sources? Are adequate odor control measures taken (especially fish processing facilities)?	(a) Yes	(a) Waste water and solid waste as a source of unpleasant odor will be regularly and appropriately treated.
3. Natural Environment	(1) Protected Areas	(a) Is the project site or discharge area located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?	(a) No	(a) There is no protected natural environment in the vicinity of the project site.
3. Natural Environment	(2) Ecosystem	<p>(a) Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)?</p> <p>(b) Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions?</p> <p>(c) Is there a possibility that changes in localized micro-meteorological conditions, such as solar radiation, temperature, and humidity due to a large-scale timber harvesting will affect the surrounding vegetation?</p> <p>(d) Is there a possibility that the project will adversely affect aquatic organisms? If significant impacts are anticipated, are adequate protection measures taken to reduce the impacts on aquatic organisms?</p> <p>(e) Is there a possibility that the project will adversely affect vegetation and wildlife? If significant impacts are anticipated, are adequate measures taken to reduce the impacts on vegetation and wildlife?</p> <p>(f) Is there a possibility that aquatic organisms and fish will be overexploited? Are fishery practices that reduce impacts on ecosystems employed? Is there a possibility that lost or discarded fishing nets, traps and other fishing gear will adversely affect ecosystems?</p> <p>(g) Is there a possibility that the feeding associated with aquaculture activities will cause eutrophication of water bodies and result in red tide blooms? Are adequate measures for eutrophication considered?</p> <p>(h) Is there a possibility that introduction of exotic species (non-native invasive species) and migration of disease-carrying pests will disturb ecosystems? Are adequate pest control measures considered?</p>	<p>(a) No</p> <p>(b) No</p> <p>(c) No</p> <p>(d) No</p> <p>(e) No</p> <p>(f) No</p> <p>(g) No</p> <p>(h) No</p>	<p>(a)(b) There is no ecologically valuable habitats nor habitats for endangered species in and around the project site. There is no possibility of causing adverse impacts.</p> <p>(c)(d)(e)(f)(g)(h) There is no possibility of causing adverse impacts.</p>
	(3) Hydrology	(a) Is there a possibility that hydrologic changes due to installation of facilities, such as fish ponds in inland and coastal areas will adversely affect surface water and groundwater flows?	(a) No	(a) There is a possibility of changes in water flow of the Waduwadu Creek, however, it is a small creek and also concerned area is small. Therefore, the overall impacts are considered not significant.

Category	Environmental Item	Main Check Items	Yes No	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(4) Topography and Geology	(a) Is there a possibility that development in coastal zones will cause a large-scale of alteration of topographic features and geologic structures, subsidence and elimination of natural beaches?	(a) No	(a) There is no development plan causing a large-scale topographic alternation, subsidence and loss of natural beaches. (There is a possibility of minor alternation in deposition of sand at the mouth of Waduwadu Creek but its possibility and impact scale is small.)
4. Social Environment	(1) Resettlement	<p>(a) Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement?</p> <p>(b) Is adequate explanation on compensation and resettlement assistance given to affected people prior to resettlement?</p> <p>(c) Is the resettlement plan, including compensation with full replacement costs, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement?</p> <p>(d) Is the compensations going to be paid prior to the resettlement?</p> <p>(e) Is the compensation policies prepared in document?</p> <p>(f) Does the resettlement plan pay particular attention to vulnerable groups or people, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous peoples?</p> <p>(g) Are agreements with the affected people obtained prior to resettlement?</p> <p>(h) Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan?</p> <p>(i) Are any plans developed to monitor the impacts of resettlement?</p> <p>(j) Is the grievance redress mechanism established?</p>	(a)(b)(c) (d)(e)(f)(g)(h)(i)(j)) No	(a)(b)(c)(d)(e)(f)(g)(h)(i)(j) This project will not cause involuntary resettlement.
	(2) Living and Livelihood	<p>(a) Is there a possibility that the project will adversely affect the living conditions of inhabitants? Are adequate measures considered to reduce the impacts, if necessary? Is particular attention paid to the inhabitants whose livelihoods are based on primary industries, such as farming, raising livestock, or hunting and gathering in the forests?</p> <p>(b) Are proper allotments for rights to water area use (e.g. fishing rights) made?</p> <p>(c) Is there a possibility that water-borne or water-related diseases (e.g., schistosomiasis, malaria, filariasis) will be introduced? Is adequate consideration given to public health education, if necessary?</p>	(a) (b)(c) No	<p>(a) This project will not cause significant adverse impacts. (The project will contribute to the improvement of living and livelihood of market users.)</p> <p>(b)(c) This project will not cause significant adverse impacts.</p>

Category	Environmental Item	Main Check Items	Yes No	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	(3) Heritage	(a) Is there a possibility that the project will damage the local archeological, historical, cultural, and religious heritage? Are adequate measures considered to protect these sites in accordance with the country's laws?	(a) No	(a) There is no such heritage in and around the project site.
	(4) Landscape	(a) Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?	(a) No	(a) The project will not cause significant adverse impacts on landscape. (Removal of vegetation will be minimized to preserve the existing landscape. Also, design of the market will be carefully considered to harmonize with landscape. The new market could be a "land mark" of the town.)
	(5) Ethnic Minorities and Indigenous Peoples	(a) Are considerations given to reduce impacts on the culture and lifestyle of ethnic minorities and indigenous peoples? (b) Are all of the rights of ethnic minorities and indigenous peoples in relation to land and resources respected?	(a)(b) No	(a)(b) There is no such ethnic and indigenous issue that should be noted or will be adversely impacted by the project.
4. Social Environment	(6) Working Conditions	(a) Is the project proponent not violating any laws and ordinances associated with the working conditions of the country which the project proponent should observe in the project? (b) Are tangible safety considerations in place for individuals involved in the project, such as the installation of safety equipment which prevents industrial accidents, and management of hazardous materials? (c) Are intangible measures being planned and implemented for individuals involved in the project, such as the establishment of a safety and health program, and safety training (including traffic safety and public health) for workers etc.? (d) Are appropriate measures taken to ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?	(a) Yes (b) Yes (c) Yes (d) Yes	(a) The working conditions of the market operation staff will be ensured to comply with the associated laws and ordinances. (b) Occupational safety and health (such as installation of safety equipment which prevents industrial accidents, and management of hazardous materials) will be planned in the detail plan in accordance with the associated laws and ordinances. (c) Establishment of safety and health training program (including market traffic safety and market user's health) is recommended. (d) Security guards and market supervisors will be allocated at the market to ensure the safety of the market users.
5. Others	(1) Impacts during Construction	(a) Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)? (b) If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts?	(a) Yes (b) Yes	(a) During detail design phase, contractor's environmental management plan will be established to comply with the laws and ordinances associated with environmental impacts. (b) Construction works will temporarily disturb riparian and marine environment and, aquatic organisms. However, the overall impacts are considered not significant in terms of area and scale of impact. As a mitigation measure, removal of vegetation will be minimized and river-bank protection will apply the materials that can re-create the natural environment with coverage of

Category	Environmental Item	Main Check Items	Yes No	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
		(c) If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?	(c) Yes	<p>vegetation. Aquatic organisms and fish will come back after completion of construction works.</p> <p>(c) Changes in concept and function of temporary market could adversely affect market users. As measures, the same concept and function will be ensured at the temporary market and consultation for the market users is recommended to explain the plan of the temporary market in advance.</p> <p>Also, to avoid traffic accidents during construction period, the space and traffic flow will be separated between the vehicles for construction activities and the public vehicles/pedestrians around the construction site (especially around the bus/PMV terminal). Put up signs and/or reduce driving speed where necessary.</p>
	(2) Monitoring	<p>(a) Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts?</p> <p>(b) What are the items, methods and frequencies of the monitoring program?</p> <p>(c) Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)?</p> <p>(d) Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?</p>	<p>(a) Yes</p> <p>(b)</p> <p>(c) Yes</p> <p>(d) Yes</p>	<p>(a) Monitoring program is proposed in this study but it will be finalized after approval of environmental permit and requirement made by CEPA.</p> <p>(b) During construction period, air, water, waste, noise and vibration, living and livelihood of market users, working conditions and traffic accidents will be monitored by visual observation, interview to users and recording the public grievances.</p> <p>(c) Detail monitoring plan will be established during detail design. Implementing agency of the monitoring will allocate necessary finance and personnel.</p> <p>(d) Report to CEPA, requirements of monitoring program and its contents will be determined by CEPA.</p> <p>Report to donor, monitoring report will be submitted to the donor quarterly (every three months) throughout the construction phase and biannually for the first two years of operation period (except for the emergency).</p>
6. Note	Reference to Checklist of Other Sectors	<p>(a) For processing and storage facilities, where necessary, pertinent items described in the Mining and Industry checklist should also be checked.</p> <p>(b) Where necessary, pertinent items described in the Ports and Harbors checklist should also be checked (e.g., projects including construction of ports and harbor facilities).</p>	(a)(b) N/A	(a)(b) N/A

Category	Environmental Item	Main Check Items	Yes No	Confirmation of Environmental Considerations (Reasons, Mitigation Measures)
	Note on Using Environmental Checklist	(a) If necessary, the impacts to transboundary or global issues should be confirmed (e.g., the project includes factors that may cause problems, such as transboundary waste treatment, acid rain, destruction of the ozone layer, or global warming).	(a) N/A	(a) N/A

1) Regarding the term “Country's Standards” mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are required to be made.

In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan's experience).

2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which the project is located.

Appendices 8. Record of the Stakeholders Meeting

Record of the First Stakeholders Meeting

Project for Rehabilitation of Alotau Town Market and Fisheries Facilities 1st Stakeholder Meeting – Market Vendors and Public

Date: 22/06/2016

Time: 2:00- 3:00pm

Venue: Alotau Market Vicinity

Conducted by: Majella. Lopi (Area Manager-Huhu RLLG), Siggie. Mukaisi (NFA)
& Joseph. Silo (translator)

Attended by: Market vendors & general public

Language used: English and local dialect (Tawala)

Recorded by: Lelebo. Betuela

The stakeholder meeting was started with the introduction. The information about the proposed project were briefly explained to the market vendors and general public and then the participants were invited to express their comments or concerns.

Information Provided:

- Current preparatory studies and surveys conducted by the Japanese team (consultants)
- New market project concept
- Project schedule and procedures/processes to undergo prior to securing the project funding
- Temporary market relocation
- Collected feedbacks from vendors and public with regard to the new market concept and temporary market

Comments from vendors & public:

1. **Roy. Daniel-** Former Waema Ward Councillor, Huhu RLLG

Comments:

- Raised concern that government after government have not looked into the market rehabilitation and expressed gratitude and appreciation to the Japanese Government and NFA for the initiative taken to help rehabilitate the Alotau Market.
- Further emphasised that it is a must for the new market project to be built to health standards,
- And that the current market needs to be demolished as it's not of health standard and stressed the need for a better improvised fish market and that the current one is not good enough.

2. **West Fergusson Representative-** male vendor

Comments:

- Most tobacco vendors come from the outer islands especially West Fergusson and contribute towards the internal revenue being collected by the Huhu RLLG market,
- Positive and happy about the new market project and that it was a good initiative taken to have the current market improved

3. **Nellie-** female vendor, Divinai Ward-Huhu RLLG

Comments:

- Expressed words of appreciation to the officials from the Observing team and NFA for the new Alotau Market initiative and that the market project must eventuate as it is a great need for the vendors and the general public that access this market.

Questions:

- 1) Where will the temporary market be when the current market is demolished?
- 2) What is the duration of the new market project?

Response from NFA:

- 1) Two proposed sites for the temporary market; the area next to the oval down towards the seafront and at KB.
- 2) Duration of the market project- confirmed that currently surveys are being conducted or in progress

4. **Willie-** Dobu Representative, Esa'ala District**Comments:**

- On behalf of the Dobu Islanders expressed words of appreciation and was positive about the new market project,
- That the new market is something our people really need and will very much appreciate
- Thanked the officials from the Observing team, Japanese Government and NFA for the initiative to assist the people of Milne Bay as this market caters for people and vendors coming from throughout the province

5. **Smith-** Lamhaga Ward, Huhu RLLG**Comments:**

- Raised great concern that for years vendors continue to sell their produce on the ground, exposed to the sun and rain during the rainy weather and that finally the market will be improved and vendors will no longer face such ordeals
- Further acknowledged the initiative of parties involved with the market project and that this project must continue

6. **Female,** Agaun Representative**Comments:**

- Very positive about the project and acknowledged the Japanese Government and NFA and
- expressed that the market although managed by Huhu RLLG alone it caters for the whole province and Huhu has faced challenges of maintaining the market
- Hence the project must take place and provide better service and facilities for vendors from throughout the province to access and generate some form of income

7. **Reginal-** Samarai Murua District**Comments:**

- Expressed gratitude to the official team present and that the market rehabilitation is greatly needed and should continue

Questions:

- 1) When will the new market be built?
- 2) Where will fresh fish be sold/what are the plans for the fish market facility?

Response from NFA

- 1) Currently preliminary surveys conducted with regard to the new market project and
- 2) Until approved by cabinet the new market project will then eventuate

8. **Banabas. Borowai,** Rabaraba Representative**Comments:**

- Appreciative of the market project and that it's an impact project and must be built and managed

in a way that it sustains itself in the future unlike the current situation

- Added that the market project must create the employment opportunities for the local people as well

✚ Photos taken during the stakeholder meeting:



Over

Record of the Second Stakeholders Meeting

Project for Rehabilitation of Alotau Town Market and Fisheries Facilities

2nd Stakeholder Meeting – Focus Group

Date: 30/06/2016

Time: 10:25 - 12:30pm

Venue: Conference Room at Media Centre

Conducted by: Provincial Division of Fisheries and Marine Resources (PFMR) and Huhu Rural Local Level Government (RLLG)

Language used: English

Recorded by: Michaelyn TORIE (Assistant to JICA Survey Team)

Attended by: following representatives from groups of stakeholders

- | | |
|---------------------|---|
| 1. Nathan BELAPUNA | Provincial Fisheries Advisor |
| 2. Sharon MAISEVENI | Fisheries Officer for Huhu TLLG |
| 3. Annie GIMA | Agriculture & Livestock Officer for Huhu RLLG |
| 4. Judith JONATHAN | ANJ Fish Supplies |
| 5. Euphrasia | Assistant to ANJ Fish Supplies |

6.	Eminon PETUEL	Works Unit Sore Man / Ware Village Fisher Man
7.	Bernard BUKI	Ware Village Fisher Man
8.	Adlaid E	Division of Fisheries – Coastal Fisheries Project
9.	Michael LOGE	Fisher Man
10.	Jane BAGITA	Provincial Coordinator for Coastal Fisheries
11.	Michael KENNETH	Fisher Man / Manager of Ahiliba Marine Resources
12.	Gilbert LAKATANI	Division of Agriculture & Livestock Advisor
13.	Julia DEILALA	Chicken Farmer from Huhu RLLG
14.	Jerome ESILONI	Interim Chairman for Milne Bay Boat Association
15.	Bola R	Informal Market Salesman
16.	Jerry SAMBA	Informal Market Salesman
17.	Moda KULA	Research & Information for Tourism Bureau
18.	Tohru TACHIKI	JICA Survey Team (JST)
19.	Rikio USHIODA	JICA Survey Team (JST)
20.	Hiroaki FUJII	JICA Survey Team (JST)
21.	Hiroko SUZUKI	JICA Survey Team (JST)
22.	Miyamoto TADAHARU	JICA Survey Team (JST)
23.	Michaelyn TORIE	Assistant to JST

The stakeholder meeting was started with the welcome note and introduction by Provincial Division of Fisheries and Marine Resources (PFMR). The outline of the proposed project were briefly explained to the attendees by PFMR with support of JST.

1. Information explained:

- Project concept: reconstruction and expansion of the current Alotau Town Market.
- Concept of market relocation for temporary site at the beach front of Alice Wedega Park
- Relocation of the informal market
- List of priorities of new market components requested by NFA and Huhu LLG
- Current status of this feasibility study and purpose of the meeting

The attendees were invited to raise their questions, comments or concerns.

2. Market Overall Design

- **Judith JONATHAN questioned:** if the new market will be paved and enclosed and;
- **Also Commented:** that improving the whole market will be healthier for the population and is happy about the project.
- **JST responded:** the current market will be of open-design with separation, departmentalizing by goods and paved floor.
- **Michael KENNETH Requested:** availability of a drawing plan.
- **JST responded:** there is no drawing yet.
- **Moda KULA commented:** expect the market building will be attractive design tourism purpose.

3. Temporary Market

- **PRFM explained:** the location again for the beach front of Alice WEDEGA park and KB as sites for temporary market.
- **All present:** agreed to the proposed relocation sites.
- **Huhu LLG commented:** The local vendors will be happy about the idea that temporary market be built first before reconstruction.

4. Market Layout and Zoning

- **All stakeholders expressed:** agree to the idea of having food departments.

- **Attendees raised following ideas:**
 - Building with concrete to ensure longevity,
 - Wider walk ways to enable free flow of customers,
 - Wider tables,
 - Fish tables with drainage,
 - Enclosed room for cooked food section,
 - Storage facility for fish,
 - Rubbish bay for trucks to pick up and,
 - Availability of the PA System.
- **Huhu LLG questioned:** if there will be a space for new products such as live chicken and meats.
- **JST responded:** the project concept is to design for what is being sold at the moment. What can be sold is up to the LLG to regulate.

5. Fish Department

- **Gilbert LAKATANI suggested:** that the fish should have an enclosed room to be sold in as well as the cooked food.
- **Michael KENNETH suggested:** 1) high pressure hose for wash down, 2) drainage on the fish tables to main drainage system and, 3) the fish market should be closer to the beach area.
- **Huhu LLG also commented:** that the fish market be closer to the beach.

6. Management of Fish Sales and Quality

- **Judith JONATHAN suggested:** there should be ice provided in containers for local fisherman as currently the quality of fish depreciates quickly without availability of ice.
- **PRFM responded:** the concept for new Alotau Town market could be similar to the ones for Food Departments and Fish Market at Madang and Wewak; the low benches to place “esky” on for selling.
- **All attendees expressed:** agree to have fish tables lower and esky can be set on top.
- **Eminon PETUEL commented:** that he fishes and goes to sell at the market 3-4 times a week. To keep fish fresh is very expensive for purchasing a slab of ice from Huhu RLLG for K16, it is not economical for business. There should be a cooling avenue for fish to keep.
- **Huhu LLG explained:** that the matter of enforcement of fish selling in the esky will fall in the market administration.
- **Jane BAGITA, Provincial Coordinator for Coastal Fisheries mentioned:** NFA has ice/fish policy states that fish cannot be sold without ice. This policy can be referred for the purpose of regulation.

7. Market Jetty

- **Jerome ESILONI commented:** need a new jetty that is low enough for the dinghies to use and should be longer to enable small boats to have closer access to the market.
- **JST explained:** alternatives for unloading facility such as sea slope for dinghies to smooth landing.
- **Eminon PETUEL agreed:** to the idea of sea slope - it will be good for dinghy.
- **Michael KENNETH suggested:** trolleys being available for transportation of eskies from landing

site to market area.

- **Michael KENNETH commented:** needs for shelter and lighting available then more fishing vessels will access and use the market jetty. At moment, most fishing vessels tend to stay at Sanderson Bay because of lack of security for the market jetty.

8. Storage

- **Jerome ESILONI expressed:** strong needs for some storage facility.

9. Resting Area Concept

- **Attendees agreed:** to the idea of having a place to rest.
- **Annie GIMA suggested:** to have a place for crafts and arts in the resting area
- **Moda KULA commented:** Tourism Bureau is taking into account of consultants about crafts shop in town.

10. Car Park and Market Gate

- **Gilbert LAKATANI suggested:** 1) the customers' car park space must be separated from the market PMV parking and, 2) the Customer's gates must also be separated from the vendors' gates.
- **Huhu LLG commented:** 1) the car parking areas should be sealed to prevent dust for going into the market and, 2) the guard house should only be located at the vendors' gates.

11. First Aid Room

- **Gilbert LAKATANI commented:** 1) it is a good idea, 2) it must be strictly for market vendors only and 3) it would be good to conduct health awareness program,.

Photos taken during the stakeholder meeting;



Over

Appendices 9. Result of the Questionnaire for Baseline Survey (Extract)

9-1 Result of the VENDER'S questionnaire for baseline survey (Extract)

Survey period	June 14, 2016 to June 21, 2016
Valid respondents	181 people

Residence	No.	%
Alotau District	124	68.5%
Alotau Uarban	41	22.7%
Daga	4	2.2%
Huhu	43	23.8%
Makamaka	4	2.2%
Maramatana	24	13.3%
Suau	3	1.7%
Weraura	5	2.8%
Esaála District	34	18.8%
Dobu	10	5.5%
Duau	13	7.2%
West Ferguson	10	5.5%
Kiriwinina-Goodenough District	4	2.2%
Goodenough Island	2	1.1%
Kiriwinina	2	1.1%
Samarai-Murua District	16	8.8%
Bwnabwana	14	7.7%
Louisade	2	1.1%
Murua	0	0%
Yaleyamba	0	0%
Others	3	1.7%
	Unanswered	4 2.2%
	Total	181 100%

Farming and Fishing		No.	%
Is farming your (family's) main line of business or a sideline?	Main line	83	45.9%
	Sideline	86	47.5%
	Neither of them	11	6.1%
	Unanswered	1	0.6%
	Total	181	100%
Is fishing your (family's) main line of business or a sideline?	Main line	53	29.3%
	Sideline	80	44.2%
	Neither of them	47	26.0%
	Unanswered	1	0.6%
	Total	181	100%
Number of venders answered to main line or sideline by farming and fishing		128	71.1%
Which purpose comes first for your family doing some fishing or farming?	To sell the harvest (To consume the rest)	50	27.6%
	To consume the harvest in your family (To sell the rest)	120	66.3%
	Neither of the above	7	3.9%
	Unanswered	4	2.2%
	Total	181	100%
How many members of your family have cash income?		2.2	Persons /family

Frequency of selling in the Market		No.	%
How many days in a week do you sell your products (articles) in this market?	Less than 1 day	10	5.5%
	One day per a week	35	19.3%
	Two days per a week	53	29.3%
	Tree days per a week	30	16.6%
	Four days per a week	16	8.8%
	Five days per a week	7	3.9%
	Six days per a week	13	7.2%
	Sevendays per a week	17	9.4%
Total		181	100%
What days of the week do you come to sell your products (articles) in this market?	Monday	90	49.5%
	Tuesday	67	36.8%
	Wednesday	81	44.5%
	Thursday	77	42.3%
	Friday	97	53.3%
	Saturday	72	39.6%
	Sunday	25	13.7%
	Holiday	3	1.6%
	Total		512

Start and Finish time to sell in the Market							
What time do you start working?	Time Zone	No.	%	What time do you finish working?	時間帶	No.	%
	0500 to 0600	0	0%		0500 to 0600	0	0%
	0600 to 0700	4	2.2%		0600 to 0700	0	0%
	0700 to 0800	52	28.7%		0700 to 0800	0	0%
	0800 to 0900	73	40.3%		0800 to 0900	0	0%
	0900 to 1000	25	13.8%		0900 to 1000	0	0%
	1000 to 1100	16	8.8%		1000 to 1100	0	0%
	1100 to 1200	4	2.2%		1100 to 1200	1	0.5%
	1200 to 1300	5	2.8%		1200 to 1300	1	0.5%
	1300 to 1400	2	1.1%		1300 to 1400	1	0.5%
	1400 to 1500	0	0%		1400 to 1500	4	2.2%
	1500 to 1600	0	0%		1500 to 1600	44	24.2%
	1600 to 1700	0	0%		1600 to 1700	76	41.8%
	1700 to 1800	0	0%		1700 to 1800	33	18.1%
	1800 to 1900	0	0%		1800 to 1900	20	11.0%
	1900 to 2000	0	0%		1900 to 2000	2	1.1%
Total		181	100%	Total		181	100%

Means of Transportation							
How do you come to this market?	Means of Transportation	No.	%	How do you go back from this market?	Means of Transportation	No.	%
	Walk	17	8.3%		Walk	17	8.3%
	Boat	52	25.5%		Boat	51	24.9%
	Bus	26	12.7%		Bus	29	14.1%
	PMV	73	35.8%		PMV	73	35.6%
	Own car	2	1.0%		Own car	2	1.0%
	Motor byc	0	0.0%		Motor byc	0	0.0%
	Bycicle	0	0.0%		Bycicle	0	0.0%
	Dinghy	32	15.7%		Dinghy	31	15.1%
	Other	2	1.0%		Other	2	1.0%
	Total		204		100%	Total	

Access from the sea		No.	%
Have you ever come to this market via Sanderson Bay?	Yes	56	30.9%
	No	121	66.9%
	Unanswered	4	2.2%
	Total	181	100%
Do you know there is an old wooden pier beside this market?	Yes	131	72.4%
	いいえ	44	24.3%
	Unanswered	6	3.3%
	Total	181	100%
Do you want a closer access to this market than Sanderson Bay?	Yes	62	34.3%
	Not necessarily	86	47.5%
	No	31	17.1%
	Unanswered	2	1.1%
	Total	181	100%

Conditions of the market (Number) (%)	1 Excellent	2 Good	3 Average	4 Bad	5 Worse	Unanswered	Total
Food departments arrangements	20 11.0%	8 4.4%	34 18.8%	3 19.9%	83 45.9%	0 0%	181 100%
Floor and shops arrangements	8 4.4%	4 2.2%	13 7.2%	36 19.9%	120 66.3%	0 0%	181 100%
Circulation of customers	16 8.8%	20 11.0%	35 19.2%	44 24.2%	67 36.8%	0 0%	181 100%
Exhibition of products	40 22.1%	18 9.9%	31 17.1%	48 26.5%	44 24.3%	0 0%	181 100%
Exhibition of prices	43 23.8%	12 6.6%	31 17.1%	40 22.1%	55 30.4%	0 0%	181 100%
Tidiness of the market	17 9.4%	15 8.3%	34 18.8%	35 19.3%	79 43.6%	1 0.6%	181 100%
Cleanliness of the market	26 14.4%	17 9.4%	35 19.3%	40 22.1%	63 34.8%	0 0%	181 100%
Shelter arrangements from the rain	12 6.7%	1 0.6%	13 7.3%	16 8.9%	137 76.5%	2 1.1%	181 100%
Shelter arrangements from the sunlight	9 5.0%	2 1.1%	18 9.9%	20 11.0%	132 72.9%	0 0%	181 100%
Ventilation	47 26.0%	16 8.8%	18 9.9%	45 24.9%	55 30.4%	0 0%	181 100%
Smell	17 9.4%	9 5.0%	17 9.4%	40 22.2%	97 53.9%	0 0%	181 100%
Protection against flying insects or street animals?	8 4.4%	2 1.1%	6 3.3%	27 15.0%	137 76.1%	1 0.6%	181 100%
Floor pavement in the market	8 4.4%	5 2.8%	14 7.8%	37 20.6%	116 64.4%	1 0.6%	181 100%
Garbage and waste treatment	19 10.5%	11 6.1%	19 10.5%	26 14.4%	106 58.6%	0 0%	181 100%
Traffic safety around the market	11 6.1%	2 1.1%	5 2.8%	17 9.4%	145 80.6%	1 0.6%	181 100%
Total	304	143	324	512	1,474	5	

9-2 Result of the **CUSTOMER'S** questionnaire for baseline survey (Extract)

Survey period	June 14, 2016 to June 20, 2016
Valid respondents	203 people

Residence	No.	%
Alotau District	176	86.7%
Alotau	148	72.9%
Daga	4	2.0%
Huhu	15	7.4%
Makamaka	0	0.0%
Maramatana	7	3.4%
Suau	1	0.5%
Weraura	1	0.5%
Esaála District	14	6.9%
Dobu	5	2.5%
Duau	0	0.0%
West Ferguson	9	4.4%
Kiriwinina-Goodenough District	4	2.0%
Goodenough Island	1	0.5%
Kiriwinina	3	1.5%
Samarai-Murua District	6	3.0%
Bwnabwana	3	1.5%
Louisade	0	0.0%
Murua	1	0.5%
Yaleyamba	2	1.0%
	0	0.0%
Unanswered	3	1.5%
Total	203	100%

Farming and Fishing		No.	%
Is farming your (family's) main line of business or a sideline?	Main line	51	25.1%
	Sideline	94	46.3%
	Neither of them	56	27.6%
	Unanswered	2	1.0%
	Total	203	100%
Is fishing your (family's) main line of business or a sideline?	Main line	43	21.2%
	Sideline	99	48.8%
	Neither of them	56	27.6%
	Unanswered	5	2.5%
	Total	203	100%
Source of income other than farming and fishing	Informal Market	16	69.6%
	Self-owned business	3	13.0%
	Guest House	1	4.3%
	Carpenter	1	4.3%
	Trading (Export)	1	4.3%
	Related to Coconut	1	4.3%
Which purpose comes first for your family doing some fishing or farming?	To sell the harvest (To consume the rest)	46	22.7%
	To consume the harvest in your family (To sell the rest)	111	54.7%
	Neither of the above	41	20.2%
	Unanswered	5	2.5%
	Total	203	100%
How many members of your family have cash income?		2.5	Persons /family

Frequency of selling in the Market		No.	%
How many days in a week do you sell your products (articles) in this market?	Less than 1 day	1	0.5%
	One day per a week	78	38.4%
	Two days per a week	43	21.2%
	Tree days per a week	33	16.3%
	Four days per a week	13	6.4%
	Five days per a week	10	4.9%
	Six days per a week	9	4.4%
	Sevendays per a week	16	7.9%
Total		203	100%
What days of the week do you come to sell your products (articles) in this market?	Monday	95	17.6%
	Tuesday	63	11.7%
	Wednesday	98	18.1%
	Thursday	74	13.7%
	Friday	82	15.2%
	Saturday	78	14.4%
	Sunday	41	7.6%
	Holiday	9	1.7%
Total		540	100%

Selling Time Zone							
What time do you start working?	Time Zone	No.	%	What time do you finish working?	Time Zone	No.	%
	0500 to 0600	0	0.0%		0500 to 0600	1	0.5%
	0600 to 0700	0	0.0%		0600 to 0700	0	0.0%
	0700 to 0800	13	6.4%		0700 to 0800	1	0.5%
	0800 to 0900	47	23.2%		0800 to 0900	9	4.4%
	0900 to 1000	43	21.2%		0900 to 1000	21	10.3%
	1000 to 1100	41	20.2%		1000 to 1100	35	17.2%
	1100 to 1200	9	4.4%		1100 to 1200	28	13.8%
	1200 to 1300	8	3.9%		1200 to 1300	22	10.8%
	1300 to 1400	2	1.0%		1300 to 1400	9	4.4%
	1400 to 1500	5	2.5%		1400 to 1500	6	3.0%
	1500 to 1600	15	7.4%		1500 to 1600	17	8.4%
	1600 to 1700	18	8.9%		1600 to 1700	27	13.3%
	1700 to 1800	0	0.0%		1700 to 1800	21	10.3%
1800 to 1900	0	0.0%	1800 to 1900	2	1.0%		
1900 to 2000	0	0.0%	1900 to 2000	0	0.0%		
Total	2	1.0%	Total	4	2.0%		
	203	100%		203	100%		

Means of Transportation							
How do you come to this market?	Means of Transportation	No.	%	How do you go back from this market?	Means of Transportation	No.	%
	Walk	68	26.8%		Walk	53	21.8%
	Dinghy	28	11.0%		Dinghy	29	11.9%
	Bus	114	44.9%		Bus	117	48.1%
	PMV	13	5.1%		PMV	13	5.3%
	Own car	15	5.9%		Own car	14	5.8%
	Motorbike	0	0.0%		Motorbike	0	0.0%
	Bycycle	1	0.4%		Bycycle	1	0.4%
	Boat	0	0.0%		Boat	0	0.0%
	Taxi	13	5.1%		Taxi	14	5.8%
	Other	2	0.8%		Other	2	0.8%
	Total	254	100%		Total	243	100%

Access from the sea		No.	%
Have you ever come to this market via Sanderson Bay?	Yes	25	12.3%
	No	172	84.7%
	Unanswered	6	3.0%
	Total	203	100%
Do you know there is an old wooden pier beside this market?	Yes	116	57.1%
	No	85	41.9%
	Unanswered	2	1.0%
	Total	203	100%
Do you want a closer access to this market than Sanderson Bay?	Yes	23	11.3%
	Not necessarily	174	85.7%
	No	3	1.5%
	Unanswered	3	1.5%
	Total	203	100%

Conditions of the market (Number) (%)	1 Excellent	2 Good	3 Average	4 Bad	5 Worse	Unanswered	Total
Food departments arrangements	10 5.0%	16 7.9%	50 24.8%	66 32.7%	60 29.7%	1 0.5%	203 100%
Floor and shops arrangements	1 0.5%	9 4.5%	23 11.4%	62 30.7%	107 53.0%	1 0.5%	203 100%
Circulation of customers	8 4.0%	13 6.4%	42 20.8%	63 31.2%	76 37.6%	1 0.5%	203 100%
Exhibition of products	31 15.3%	22 10.9%	48 23.8%	57 28.2%	44 21.8%	1 0.5%	203 100%
Exhibition of prices	29 14.3%	23 11.3%	31 15.3%	54 26.6%	66 32.5%	0 0%	203 100%
Tidiness of the market	9 4.5%	22 10.9%	65 32.2%	42 20.8%	64 31.7%	1 0.5%	203 100%
Cleanliness of the market	19 9.4%	32 15.8%	51 25.1%	43 21.2%	58 28.6%	0 0%	203 100%
Shelter arrangements from the rain	1 0.5%	0 0.0%	11 5.4%	18 8.9%	173 85.2%	0 0%	203 100%
Shelter arrangements from the sunlight	1 0.5%	3 1.5%	13 6.4%	47 23.2%	139 68.5%	0 0%	203 100%
Ventilation	36 17.7%	21 10.3%	38 18.7%	56 27.6%	52 25.6%	0 0%	203 100%
Smell	7 3.5%	9 4.5%	39 19.4%	56 27.9%	90 44.8%	2 1.0%	203 100%
Protection against flying insects or street animals?	0 0.0%	4 2.0%	13 6.4%	41 20.3%	144 71.3%	1 0.5%	203 100%
Floor pavement in the market	0 0.0%	2 1.0%	20 10.1%	57 28.6%	120 60.3%	4 2.0%	203 100%
Garbage and waste treatment	19 9.5%	7 3.5%	22 11.1%	48 24.1%	103 51.8%	4 2.0%	203 100%
Traffic safety around the market	12 6.0%	2 1.0%	12 6.0%	15 7.5%	160 79.6%	2 1.0%	203 100%
Total	185	185	480	734	1,505	14	