APPENDIX 12

Environmental and Social Consideration

APPENDIX 12. ENVIRONEMENTL AND SOCIAL CONSIDERATION

12.1 Relevant Laws and Procedures for Environmental and Social Considerations

12.1.1 Environmental Impact Assessment (EIA)

(1) List of Relevant Laws

Laws and regulations related to EIA in Indonesia are listed in Table 12-1.

Table 12-1 Regulations for EIA

Title	Outline
(National Level)	
Law No.32/2009 concerning Environmental Protection and Management	Fundamental law on environmental protection and management. Obligation for EIA is stipulated.
Government Regulation No.27/1999 on Analysis of Environmental Impacts	Regulation on the procedure of EIA.
Decree of Head of BAPEDAL No.8/2000 on Public Involvement and Information Disclosure in EIA (AMDAL) Process	Procedure for public involvement and information disclosure in the EIA process.
Decree of the Ministry of Environment No.45/2005 on Guidelines for Standardization of Report on Implementation of Environment Management Plan (RKL) and Environment Monitoring Plan (RPL)	Guidelines for Environment Management Plan (RKL) and Environment Monitoring Plan (RPL)
Regulation by the Ministry of Environment No.8/2006 on Guidelines for EIA (AMDAL)	Details of each step of the EIA process.
Regulation by the Ministry of Environment No.11/2006 on Type of Business Plan and/or Activity Requiring EIA (AMDAL)	Criteria of the project which requires EIA.
Regulation by the Ministry of Environment No.5/2008 on Works of EIA (AMDAL) Appraisal Commission	Competence and administrative levels of the commission which approves EIA.
Regulation by the Ministry of Environment No.6/2008 on License of EIA (AMDAL) Appraisal Commission	License of the commission which approves EIA.
Regulation by the Ministry of Environment No.7/2010 on Certification for Competency of the Person Who Develop EIA Document and Conditions of the Training Institution for the Person who Develop EIA (AMDAL) Document	Certification and training for persons who work for EIA study.
Regulation by the Ministry of Environment No.13/2010 on Environment Management and Monitoring and Commitment Letter to Perform Environment Management	Guideline for implementation of UKL/UPL, environmental management and monitoring plan for the projects which do not require EIA.
Regulation by the Ministry of Environment No.14/2010 on Environmental Documents for Industry/Activity Which Already Have Industry/Activity Permit but Do Not Have Environmental Document	Guideline for DELH/DPLH, environmental evaluation and management plan for the projects which already have permission without EIA or UKL/UPL.
(DKI Jakarta)	
Decree of the Governor 2863/2001 on Type of Industry and/or Activity Requiring EIA (AMDAL) in DKI Province	Criteria of the project which requires EIA.
Decree of the Governor 189/2002 on Type of Industry and/or Activity Requiring Environment Management Plan (UKL) and Environment Monitoring Plan (UPL) in DKI Province	Criteria of the project which requires UKL/UPL.
Decree of the Governor 76/2001 Guideline for Community Involvement and Information Disclosure in the Process of EIA (AMDAL)	Procedure for public involvement in the EIA process.

(2) Procedure of EIA

EIA in Indonesia is called AMDAL (Analisis Mengenai Dampak Lingkungan). The criteria of the project which require AMDAL is stipulated by Regulation of the Ministry of Environment No.11/2006 for the national level and by Decree of the Governor of DKI Jakarta No.2863/2001 for the provincial level. The criteria related to this project are shown in Table 12-2. The proposed project requires AMDAL, since the project scale meets the criteria.

In the AMDAL process, the project proponents need to prepare following documents to be reviewed by AMDAL Commission. AMDAL Commission is formed under different administrative level in accordance with the project type and the scale stipulated by Regulation by the Ministry of Environment No.5/2008. In the case of the proposed project, AMDAL Commission will be formed under DKI Jakarta.

AMDAL documents

- KA-ANDAL (Kerangka Acuan Analisis Dampak Lingkungan): Terms of Reference for ANDAL
- ANDAL (Analisis Dampak Lingkungan): Environmental Impact Assessment Report
- RKL (Rencana Pengelolaan Lingkungan): Environmental Management Plan
- RPL (Rencana Pemantauan Linkungan): Environmental Monitoring Plan

Figure 12-1 is showing the flowchart of AMDAL procedure. The outline of the process is as follows;

AMDAL procedure

1) AMDAL procedure is initiated after the responsible agency, which is DKI Jakarta for this project, receives an application from the project proponent about the proposed project.
2) After agreement with the responsible agency, the project proponent announces to the public about the project plan, while the responsible agency also announces that the AMDAL study will be initiated.
3) The announcements of the project plan by the proponents are conducted by signboard, print media, electronic media, and brochures and so on. Anyone who is interested in the project has rights to submit questions, opinions and/or requests to the responsible agency within working 30 days.
4) The responsible agency collects, facilitates and summarizes the public opinions.
5) Considering the public opinions, the project proponent prepares KA-ANDAL, TOR for EIA study.
6) During the process of the preparation of KA-ANDAL, the proponent consults with the people who are interested in the project about the possible environmental impacts.
7) The project proponent submits the KA-ANDAL to the AMDAL Commission to be reviewed. The time duration for reviewing is within 75 working days, which corresponds to 3.5 months. Since it is not including the duration for revision works, it may be longer depending on the requirements of the revision works.

8) After decision of the KA-ANDAL, ANDAL are prepared together with RKL and RPL by the proponent and submitted to the AMDAL Commission. The duration for reviewing is as same as KA-ANDAL.

9) For all of the KA-ANDAL, ANDAL, RKL and RPL, the public has rights to submit their opinions

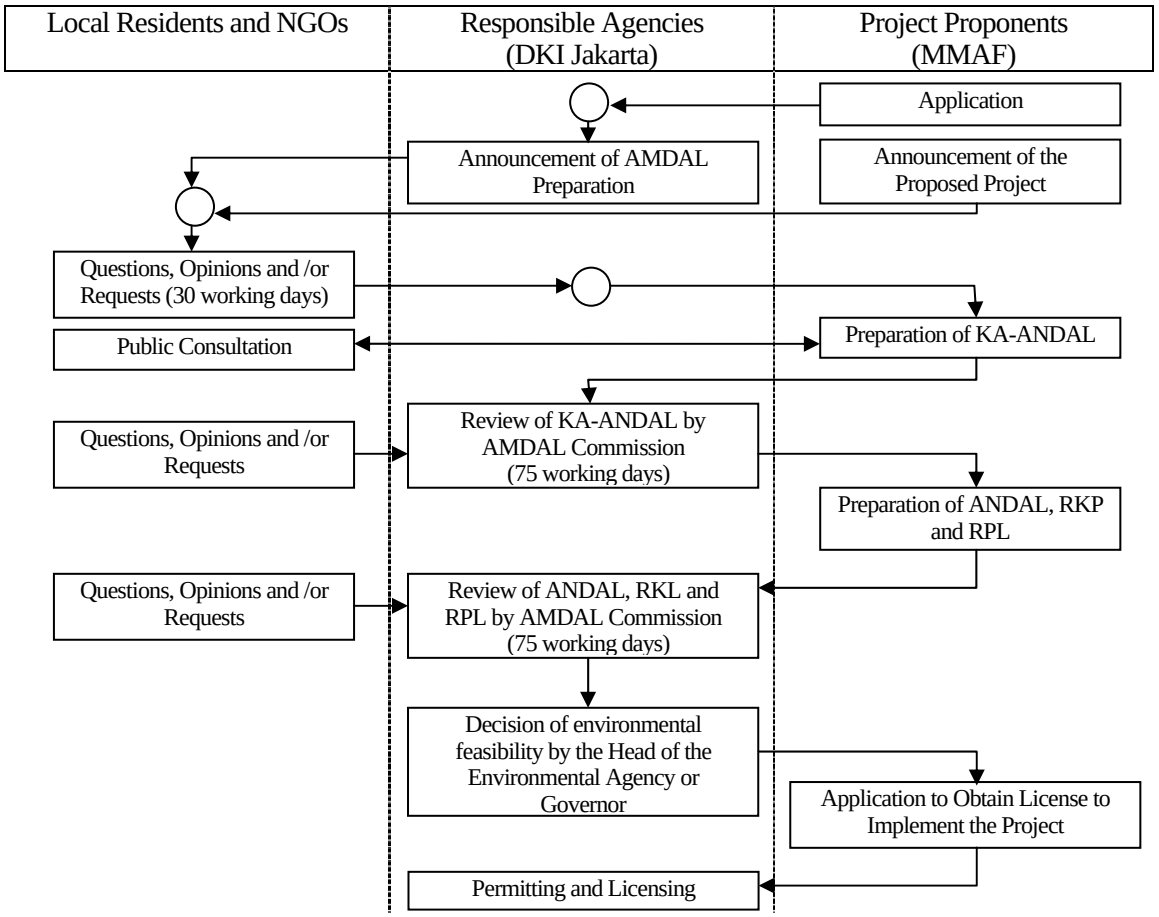
10) Based on the reviewing by the Commission, the environmental feasibility is decided by the Governor of DKI Jakarta for this project. The project proponent has to attach the decision to apply for the licence for project implementation.

For the projects which do not require AMDAL, project proponents shall prepare UKL-UPL (Upaya Pengelolaan Lingkungan- Upaya Pemantauan Lingkungan): environmental management efforts and environmental monitoring efforts.

Table 12-2 Screening Criteria for Requirements of AMDAL (EIA)

Type of Activity	Screening Criteria		Proposed Scale of This Project
	Ministry of Environment [1)]	DKI Jakarta [2)]	
Trade center, shopping center, etc. (including whole sale market)	Land area >= 5ha or Buildings >= 10,000m2	Land area >= 5ha or Buildings >= 15,000m2 or Stories >=15 or Height >=60m or Depth of basement >=10m	Land area 10.7-13.8ha
Reclamation	Area >=25 ha or Volume >=500,000m3	Area >=5ha or Volume >=1,000,000m3	Area 10.7-10.8ha
New road	Length >=5km or Land acquisition >=5ha (Big city/metropolitan)	Length >=1km or Land >=1ha (With land acquisition)	Length 1.02-2.70 km Land acquisition 0.1-0.5ha

Source: 1) Decree of the Ministry of Environment No.11/2006 on Type of Business Plan and/or Activity Requiring EIA
2) Decree of the Governor 2863/2001 on Type of Industry and/or Activity Requiring EIA (AMDAL) in DKI Province



Source: Decree of Head of BAPEDAL No.8/2000 and Government Regulation No.27/1999

Figure 12-1 Flow Chart of AMDAL

12.1.2 Land Acquisition and Resettlement

(1) List of Relevant Laws

Laws and regulations related to land acquisition in Indonesia is listed in Table 12-3. There are no laws and regulations for resettlement in both of national level and in DKI Jakarta.

Table 12-3 Regulations for Land Acquisition

Title	Outline
Law No.5/1960 concerning Basic Agrarian Law	Fundamental law on land management.
Presidential Decree No.36/2005 on Procurement of Land for Implementation of Development for the Public Interest	Procedure for the land acquisition for public interest.
President Decree No. 65/2006 on Changes of President Decree No.36/2005	Amendment of Decree No.65/2006.
Regulation of the Head of National Land Agency No.3/2007 on Guidelines for Land Acquisition for Public Facilities	Details for the acquisition process.
Decree of the Head of National Land Agency No.34/2007 on Technical Guidelines for Handling Land Issues	Guideline for handling specific issues relegated to land acquisition.
Regulation of the Governor No. 193/2010 on Guideline for Compensation to the State Land Cultivators	Compensation guideline for relocation of inhabitants without legal rights on the lands.

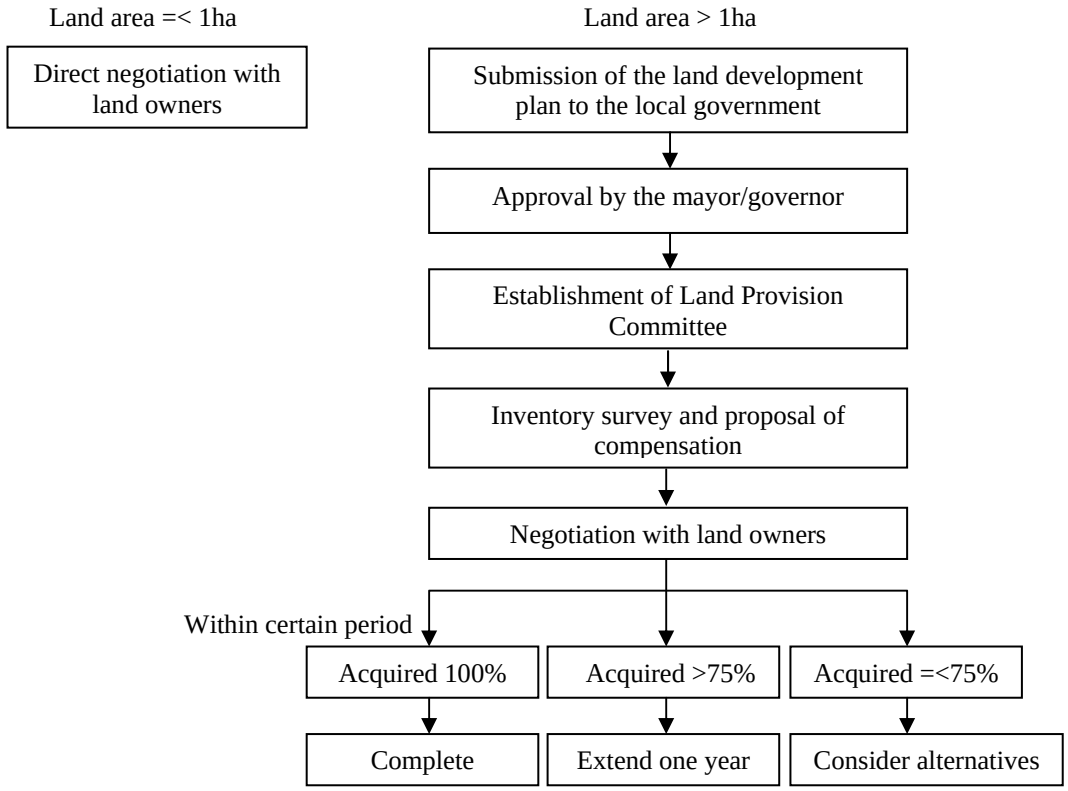
(2) Procedure of the Land Acquisition

Presidential Decree No.36/2005, No. 65/2006 and Regulation of the Head of National Land Agency No.3/2007 stipulate the procedure for acquiring land, buildings, plants and related objects with the land by central/local government for development of public interest. The decrees and the regulation are only for the case that the land and the other assets to be acquired are owned with legal rights. The outline of the procedure is described in Figure 12-2.

In the case that the area for the acquisition is not more than one hectare, the land is acquired based on the direct consensus between the project proponent and the land owner. The means of the compensation and its amount are also decided through the direct negotiation.

For the acquisition of the land with more than one hectare, the project proponent shall prepare a land development plan at least one year before starting the process. After the approval by the mayor/governor, Land Provision Committee is formed under the local/central government. In the case of the project in DKI Jakarta, the Committee is formed under the Governor. The Committee conducts inventory survey for land, buildings and plants to be acquired and propose amount of the compensation. Compensation is made by money, alternative land, resettlement, combination of these three and the others approved by the concerned parties.

The approval by the mayor/governor for the land development plan is valid for following duration depending on the area, which is; one year for land with 25 hectare or less, two years for more than 25 hectare up to 50 hectare and three years for more than 50 hectare. In the case that the acquisition is not completed but more than 75 % of the land is acquired during this period, the approval can be extended only for one year.



Source: Developed based on Presidential Decree No.36/2005, No. 65/2006 and Regulation of the Head of National Land Agency No.3/2007.

Figure 12-2 Flow Chart of Land Acquisition

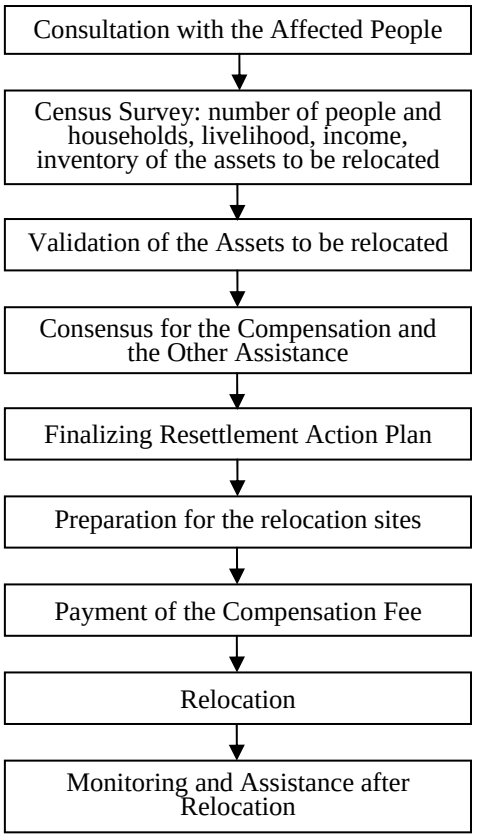
(3) Resettlement

There are no laws and regulations for resettlement activities in national level and regional level of DKI Jakarta. Therefore, only compensation for the land and the other assess is made by the government; no other assistances are not obligated on legal bases.

In the case of the resettlement of inhabitants without legal rights on land, compensation will be made for 25% of Tax Object Sales Value (NJOP) of the year in accordance with Regulation of the Governor No. 193/2010. In this case, the condition for being compensated is that the resident has paid tax at least for five years continuously. In the case without paying tax, compensation is not required by law.

Apart from the conventional procedure based on the regulations, DKI Jakarta needs to follow the World Bank's resettlement policy for relocation of the inhabitants around the Pluit pond for Jakarta Urgent Flood Mitigation Project (JUFMP)/Jakarta Emergency Dredging Initiative (JEDI) funded by the World Bank. DKI Jakarta has prepared the Resettlement Policy Framework (RPF) which described the policy of the resettlement activities in accordance with the World Bank's policy. Based on the RPF, each district will prepare Resettlement Action Plan (RAP) and will implement the resettlement under responsibility of the Mayor. The World Bank engaged financing for the project to be implemented in 2010-2011; however, the implementation has been postponed due to high cost for the resettlement. The RPF is only applied for the JUFMP/JEDI and the relevant projects; it is not applied to this project. For the other projects, conventional compensation policies are applied.

As the reference, the general flow chart and the contents of the Resettlement Action Plan based on the World Bank's policy are explained below.



Source: Based on the World Bank's Safeguard Policy OP4.12

Figure 12-3 Flow Chart of Resettlement based on the World Bank's Policy

Contents of the Resettlement Action Plan (World Bank's Safeguard Policy OP4.12)

(a) Description of the project
(b) Potential impacts
(c) Objectives of the resettlement program
(d) Results of the socioeconomic study (census survey) that includes current occupants, livelihood, standards of living, etc.
(e) Legal framework
(f) Institutional framework (responsible agencies)
(g) Eligibility (definition of displaced person and criteria)
(h) Validation of and compensation for losses
(i) Resettlement measures
(j) Alternative relocation sites
(k) Plans to provide housing, infrastructure and social services
(l) Environmental protection and management
(m) Community participation (involvement of resettlers and host communities)
(n) Measures to mitigate the impact on host communities
(o) Grievance procedure
(p) Organizational responsibilities
(q) Implementation schedule
(r) Cost and budget
(s) Monitoring and evaluation

12.2 Environmental and Social Consideration

12.2.1 Purpose of the Study

In this study, environmental and social impacts were assessed in IEE (Initial Environmental Examination) level for following purposes:

1) To contribute to selecting alternatives by providing information in terms of the environmental considerations, and

2) To propose scope of the AMDAL study

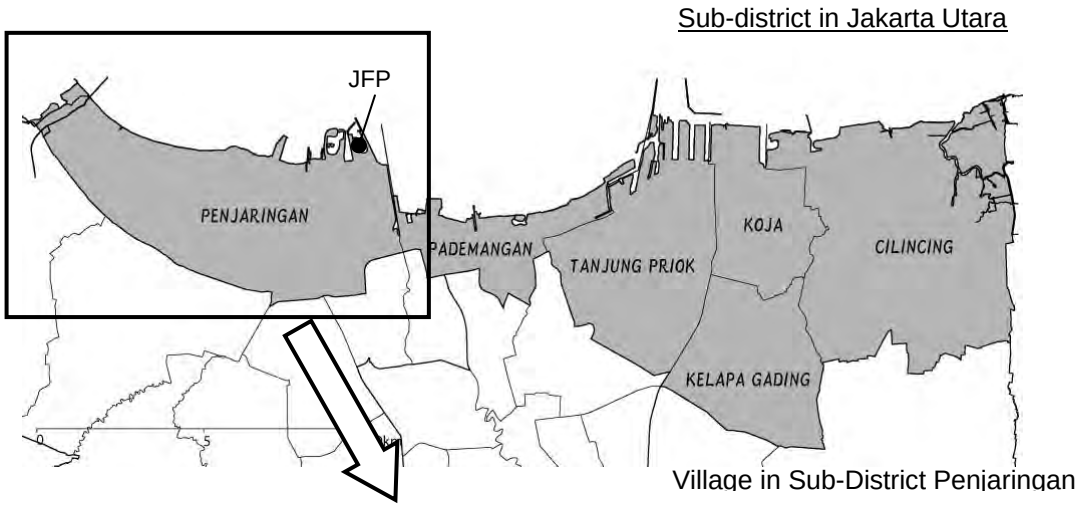
12.2.2 Environmental Condition around the Project Area

(1) Social Condition

The JFP is located at the east end of sub-district Penjaringan, Jakarta Utara (North). The land use of the sub-district Penjaringan is as shown in the Table 12-4; most of the area is used for housing.

Sub-district Penjaringan is divided into five villages: village Penjaringan where JFP is located, village Pejagalan, village Pluit, village. Kapuk Muara and village Kamal Muara. The population data of each village (Table 12-5) shows that village Penjaringan is one of the congested areas with high population density. In addition, large portion of the population are living at the waterside of the Pluit food control pond (Waduk Pluit). According to the data of village Penjaringan, 28,317 people are living at the east waterside of the Pluit pond (Table 12-6).

Because of the high population density, traffic around the JFP is congested especially at the existing access road, Jl. Muara Baru. The detail is described in Chapter 3.2.4 in the main text.



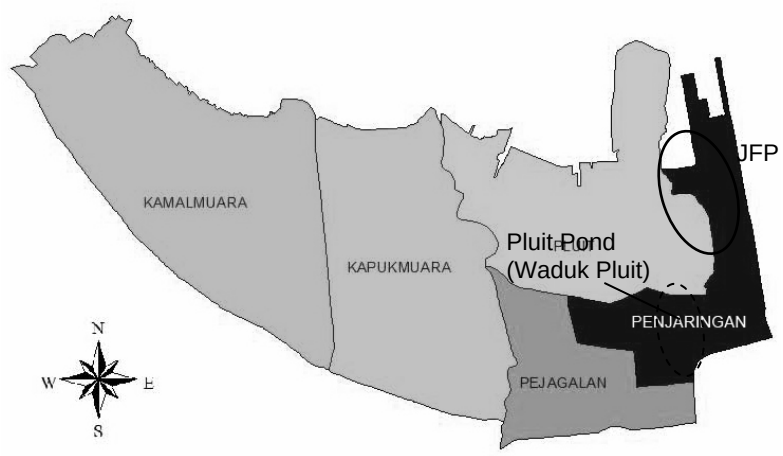


Figure 12-4 Sub-Districts and Villages around the JFP

Table 12-4 Land Use of Sub-District Penjaringan

Unit: %

Village	Housing	Industry	Office and Warehouse	Garden	Agriculture	Unused land	Others
Penjaringan	56.00	28.00	5.00	0.00	0.00	0.00	11.00
Pejagalan	74.83	17.64	3.40	0.20	0.00	0.00	3.93
Pluit	50.12	0.00	29.73	0.00	0.00	0.00	20.15
Kapuk Muara	36.18	21.65	9.23	0.00	0.00	28.14	4.80
Kamal Muara	8.00	17.40	6.90	1.00	0.00	58.70	8.00
Sub-District Penjaringan	45.02	16.94	10.85	0.24	0.00	17.37	9.58

Source: Sub-District Penjaringan, 2009

Table 12-5 Population of Sub-District Penjaringan

Village	Area (ha)	Population	Population Density (/ha)	Number of Households
Penjaringan	395	54,874	138.9	16,528
Pejagalan	323	56,003	173.4	14,729
Pluit	771	46,319	60.1	16.237
Kapuk Muara	1,005	21,949	21.8	9,451
Kamal Muara	1,053	7,440	7.1	1,945
Total	3,549	186,585	52.6	58,890

Source: Sub-District Penjaringan, 2009

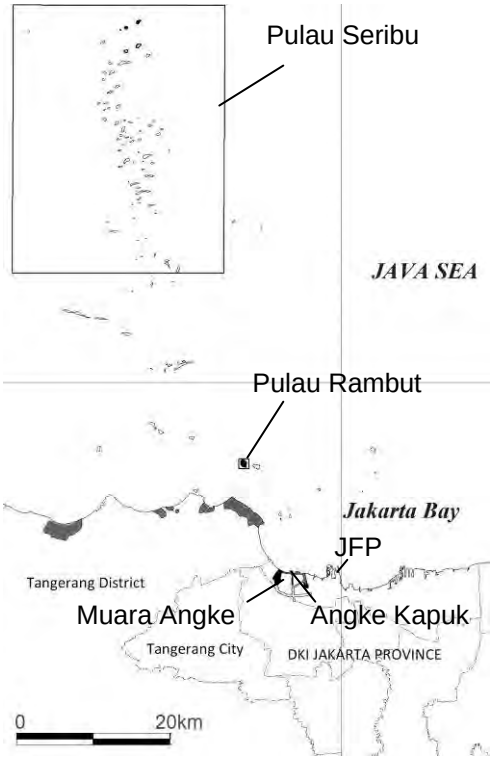
Table 12-6 Population around Pluit Pond (Waduk Pluit) in Village Penjaringan

Area	Number of Buildings	Population	Number of Households
Village Penjaringan	Permanent: 2,093 Semi permanent: 1,852 Temporary: 4,683 Total: 8,628	28,317	9,008

Source: Village Penjaringan, 2011

(2) Protected Area

The protected area near the JFP is shown in Figure 12-5 and Table 12-7. At the coastal land area 5-8 kilometers west of the JFP, there are Muara Angke Wild Life Reserve and Angke Kapuk Protected Forest with mangrove. Also, Pulau Rambut and Plau Seribu located off Jakarta are designated as Wild Life Reserve and National Park, respectively.



Source: Pusat Inventarisasi dan Perpetaan Kehutanan Badan Planologi Kehutanan Departemen Kehutanan, 2006

Figure 12-5 Protected Area around the JFP

Table 12-7 Protected Area around the JFP

Type	Name	Area (ha)	Registration
National Park	Pulau Seribu	107,489	No.8310/Kpts-II/2002
Wild Life Reserve	Pulau Rambut	90	No.275/Kpts-II/1999
	Muara Angke	25.02	No.097/Kpts-II/1998
Protected Forest	Angke Kapuk	44.76	No.667/Kpts-II/1995

Source: MMAF and DKI Jakarta

(3) Metrological and Oceanographic Condition

See Chapter 3.4 in the main text.

(4) Physicochemical Condition of the Project Area

i) Bathymetry

In this study, bathymetric survey was conducted around the proposed reclamation area and the Pluit pond. The results are attached in Appendix 8.

Most part of the proposed reclamation area is shallow water, about 1-2m depth. Towards the west from the reclamation area, it becomes deeper up to 10m. In the Pluit Pond, it is relatively deeper at the northern part than the south: the northern part is about 5-6m, while the southern part is about 2-3m.

ii) Water Current

The water current around the project area deems to be weak. Around the proposed reclamation area, water current is formed only by the tidal exchange into/out of the semi-closed water area, wind and the water flow from the pumps of the Pluit Pond. The flow volume from the pumps is designed as 34m3/sec*.

*Source: Preparatory Survey Report on the Project for Urgent Reconstruction of East Pump Station of Pluit in Jakarta, the Republic of Indonesia, June 2010, JICA and YACHIYO Engineering Co. LTD.

iii) Water Quality

Water quality around the project area was observed in this study at flood tide and ebb tide. The observed salinity around the proposed reclamation area, location (3), was relatively low at both of the flood tide and the ebb tide (2.6% and 2.9%, respectively), while location (2) shows higher salinity at flood tide. This fact is indicating that the fresh water from Pluit Pond tends to remain around the reclamation area regardless the tidal exchange. Dissolved Oxygen (DO) was low at both locations of (2) and (3) comparing with (1): this means that the oxygen is consumable in the semi-closed area where (2) and (3) are located due to stagnation. Observed range of the turbidity was between 21 and 37 mg/L in the survey area.

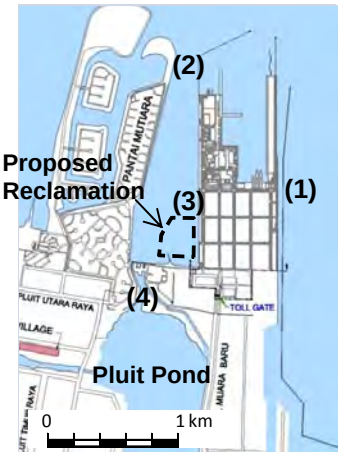


Figure 12-6 Location of Water Quality Observation

Table 12-8 Water Quality Observation Results

Tide	Location	Salinity (%)	pH	Dissolved Oxygen (DO) (mg/L)	Turbidity (mg/L)
Flood tide (Apr.11, 2011, PM4:00)	(1)	3.2	7.92	6.2	33
	(2)	3.2	7.3	3.5	-
	(3)	2.6	7.45	3.5	35
Ebb tide (Apr.12, 2011, AM 10:20)	(1)	3.3	8.1	8	23
	(2)	2.5	7.33	4.6	21
	(3)	2.9	7.2	3.7	37
	(4)	0.1	7.23	5.3	35

Source: JICA Study Team

(5) Biological Condition of the Project Area

The information of the biological condition of the project area is limited. According to the survey results* conducted in 1996, nineteen benthic species which consists of twelve mollusca, two annelida, three echinodermata, one crastacea and one insecta species had been reported around JFP. Also, it is reported that at least twenty-two kinds of commodity fish are living around JFP.

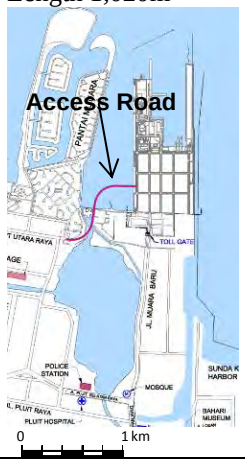
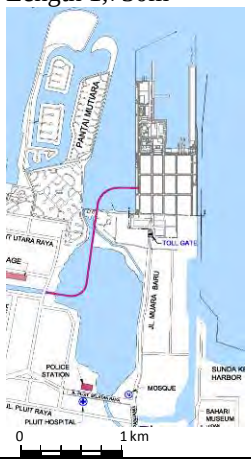
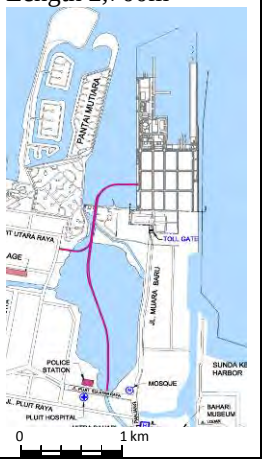
In the report mentioned above, any species to be protected in accordance with the Regulation in Indonesia (Government Regulation No.7/1999 on Conservation of Flora and Fauna) and species listed in IUCN Red List has not been reported.

* Study Analysis Dampak Lingkungan, Jakarta Fishing Port/Market Development Project Phase IV, 1997.

12.2.3 Reviewing the Alternatives

The alternatives of this project are as listed in Table 12-9.

Table 12-9 List of the Alternatives

<table>
<tr><td>Component</td><td colspan="4">Alternatives</td></tr>
<tr><td>Wholesale Market with Reclamation</td><td colspan="2">A-1: Island type. All of the existing market and the related facilities will be moved to the reclaimed island.
Reclamation area: 10.7ha
 
</td><td>A-2: Attaching type to the existing seawall. All of the existing market and the related facilities will be moved to the reclaimed land.
Reclamation area: 10.8 ha
 
</td><td>B-2: Attaching type to the existing seawall. The existing market area will be used for the related facilities for the market.
Reclamation are :10.8 ha
Existing market area: 3 ha
 
</td></tr>
<tr><td>Access Road</td><td>Alternative 2-1:
Length 1,020m
 
</td><td>Alternative 2-2:
Length 1,230m
 
</td><td>Alternative 2-3:
Length 1,730m
 
</td><td>Alternative 2-2
+ Alternative 3:
Length 2,700m
 
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</table>

12.2.4 Scoping

The possible environmental consequences that may be caused by the project are listed in the following tables.

Table 12-10 Scoping for Developing the Wholesale Market with Reclamation

No.	Impacts	Rating	Brief Description
Social Environment			
1	Involuntary resettlement	A-/D	− In the case of the reclamation along the existing seawall (Alternative A-2 and B-2), involuntary resettlement will be required. (Preparation phase)
2	Local economy such as employment and livelihood, etc.	B+	− Fish supply buffer storage will stabilize fish prices. (Operation phase) − New facilities will generate employment opportunities.(Operation phase)
3	Land use and utilization of local resources	B-	− Coordination with the existing water area use such as anchoring boats is required for the reclamation. (Preparation phase) − Land use will not be changed since the project is conducted within THE JFP area.
4	Social institutions such as social infrastructure and local decision-making institutions	D	− No impact is expected.
5	Existing social infrastructures and services	D	− No impact is expected.
6	The poor, indigenous and ethnic people	A/D	− The inhabitants to be relocated for Alternative A-2 and B-2 deem to be the poor (Preparation phase).
7	Misdistribution of benefit and damage	D	− No impact is expected.
8	Cultural heritage	D	− No cultural heritage around the project site.
9	Local conflict of interests	B-	− Conflict may be occurred between local workers and the workers from other regions for the construction works
10	Water Usage or Water Rights and Rights of Common	D	− No impact is expected.
11	Sanitation	B-/B+	− Sanitation condition may become worse due to inflow of construction labors in The JFP area. (Construction phase) − Sanitation condition of the wholesale market will be improved. (Operation phase)
12	Hazards (Risk) Infectious diseases such as HIV/AIDS	C-	− Reclamation may affect the flood control function of the reservoir.
Natural Environment			
13	Topography and Geographical features	D	− No impact is expected.
14	Soil Erosion	D	− No impact is expected.
15	Groundwater	D	− No impact is expected.
16	Hydrological Situation	C-	− Water current may be changed due to the reclamation. (Construction phase)
17	Coastal Zone (Mangroves, Coral reefs, Tidal flats, etc.)	D	− There are no mangroves, coral reefs and tidal flats in/around the project area.
18	Flora, Fauna and Biodiversity	B-/B+	− Although no valuable species have been reported, the habitat for aquatic flora and fauna in the reclamation area will be eliminated. Also, those around the area may be affected in case the habitat condition is changed. (Construction phase) − Planted mangrove around the reclaimed land will contribute to enhancing biodiversity in the project area. (Operation phase)
19	Meteorology	D	− No impact is expected.
20	Landscape	D	− There are no special landscapes to be considered around the project area.
21	Global Warming	B+	− Ozone depleting refrigerant used for the current refrigerators will be converted to the new refrigerant (R404) which does not deplete Ozone. − Mangrove which will be planted around the reclaimed area will absorb CO2 gas. − The height of the reclaimed land is designed considering sea level rising due to global warming.
Pollution			
22	Air Pollution	B-	− Emission of construction vehicles and equipments will increase air pollutants.(Construction phase)
23	Water Pollution	C-	− Reclamation work may generate turbidity .(Construction phase) − In case the reclaimed land causes water stagnation, it may deteriorate water quality. (Construction phase) − Waste water from the new market facilities will be treated in the new treatment facility. (Operation phase)
24	Soil Contamination	D	− No impact is expected.
25	Waste	B-	− Construction waste will be generated in case the existing market is demolished. (Construction phase) − Fish remnants are generated. (Operational phase) − Sludge is collected from the waste water. (Operation phase)
26	Noise and Vibration	B-	− Construction noise is generated. (Construction phase)
27	Ground Subsidence	D	− New market facilities and reclamation do not accelerate the existing ground subsidence.
28	Offensive Odor	D	− No impact is expected.
29	Bottom sediment	D	− No impact is expected.
30	Accidents	B-	− There are risks of accidents for construction works. (Construction phase)

Rating:
A: Serious impact is expected. B: Some impact is expected. C: Extent of impact is unknown
D: No impact is expected. -: Negative impact +: Positive impact

Table 12-11 Scoping for Developing the Access Road

No.	Impacts	Rating	Brief Description
Social Environment			
1	Involuntary resettlement	B-/D	− In the case of Alternative 2-1, involuntary resettlement will be required. (Preparation phase)
2	Local economy such as employment and livelihood, etc.	D	− No impact is expected.
3	Land use and utilization of local resources	B-	− Small scale land acquisition is required. (Preparation phase) − Coordination with the existing water area use is required. (Preparation phase)
4	Social institutions such as social infrastructure and local decision-making institutions	B+	− Traffic congestion at the existing access road (Jl. Muara Baru) will be alleviated.
5	Existing social infrastructures and services	D	− No impact is expected.
6	The poor, indigenous and ethnic people	B-/D	− The inhabitants to be relocated for Alternative 2-1 deem to be the poor.
7	Misdistribution of benefit and damage	D	− No impact is expected.
8	Cultural heritage	D	− No cultural heritage around the project site.
9	Local conflict of interests	B-	− Conflict may be occurred between local workers and the workers from other regions for the construction works
10	Water Usage or Water Rights and Rights of Common	D	− No impact is expected.
11	Sanitation	B-	− Sanitation condition may become worse due to inflow of construction labors around the project area. (Construction phase)
12	Hazards (Risk) Infectious diseases such as HIV/AIDS	B+	− Smooth access to the JFP will be realized without flood influences at the existing access road (JL.Muara Baru).
Natural Environment			
13	Topography and Geographical features	D	− No impact is expected.
14	Soil Erosion	D	− No impact is expected.
15	Groundwater	D	− No impact is expected.
16	Hydrological Situation	D	− The access road does not affect water flow since it is planned to be bridge style.
17	Coastal Zone (Mangroves, Coral reefs, Tidal flats, etc.)	D	− There are no mangroves, coral reefs and tidal flats in/around the project area.
18	Flora, Fauna and Biodiversity	C-	− Although no valuable species have been reported, aquatic flora and fauna around the access road may be affected by constructing piers (Construction phase)
19	Meteorology	D	− No impact is expected.
20	Landscape	D	− There are no special landscapes to be considered around the project area.
21	Global Warming	D	− No impact is expected.
Pollution			
22	Air Pollution	B-/B+	− Emission of construction vehicles will increase air pollutants (Construction phase) − Emission of vehicles using the access road will increase air pollutants around the new access road, while the air pollutant around the existing access road (Jl.Muara Baru) will be improved. (Operation phase)
23	Water Pollution	C-	− Construction of piers may generate turbidity. (Construction phase)
24	Soil Contamination	D	− No impact is expected.
25	Waste	D	− No impact is expected.
26	Noise and Vibration	B-/B+	− Construction noise is generated. (Construction phase) − Traffic noise is generated at the new access road, while the noise at the existing access road (Jl. Muara Baru) will be improved. (Operation phase)
27	Ground Subsidence	D	− The access road does not accelerate the existing ground subsidence.
28	Offensive Odor	D	− No impact is expected.
29	Bottom sediment	D	− No impact is expected.
30	Accidents	B-/B+	− There are risks of accidents for construction works. (Construction phase) − There are risks of traffic accidents on the new access road, while the accidents at the existing access road (Jl.Muara Baru) will be reduced. (Operation phase)

Rating:
A: Serious impact is expected. B: Some impact is expected. C: Extent of impact is unknown
D: No impact is expected. -: Negative impact +: Positive impact

Table 12-12 Scoping Matrix for each Project Phase of Developing the Wholesale Market with Reclamation

No	Impacts	Overall Rating	Planning Phase		Construction Phase				Operation Phase				
			Land acquisition	Arrangement of water area use	Reclamation	Demolishing the existing market facilities	Construction of new market facilities	Operation of construction equipment and vehicles	Fish unloading and marketing	Fish processing	Fish storage	Discharging waste water	Utilizing the reclaimed land
Social Environment													
1	Involuntary resettlement	**A-/D**	A-/D										
2	Local economy such as employment and livelihood, etc.	**B+**							B+	B+	B+		
3	Land use and utilization of local resources (water area use)	**B-**		B-									
4	Social institutions such as social infrastructure and local decision-making institutions	**D**											
5	Existing social infrastructures and services	**D**											
6	The poor, indigenous and ethnic people	**A-/D**	A-/D										
7	Misdistribution of benefit and damage	**D**											
8	Cultural heritage	**D**											
9	Local conflict of interests	**B-**		B-	B-	B-	B-						
10	Water Usage or Water Rights and Rights of Common	**D**											
11	Sanitation	**B-/B+**			B-	B-	B-		B+	B+	B+	B+	
12	Hazards (Risk), (flood control)	**C-**			C-								
Natural Environment													
13	Topography and Geographical features	**D**											
14	Soil Erosion	**D**											
15	Groundwater	**D**											
16	Hydrological Situation	**C-**			C-								
17	Coastal Zone (mangroves, coral reefs, tidal flats, etc.)	**D**											
18	Flora, Fauna and Biodiversity	**B-/B+**			B-								B+
19	Meteorology	**D**											
20	Landscape	**D**											
21	Global Warming	**B+**									B+		B+
Pollution													
22	Air Pollution	**B-**						B-					
23	Water Pollution	**C-**			C-							C-	
24	Soil Contamination	**D**											
25	Waste	**B-**				B-				B-		B-	
26	Noise and Vibration	**B-**						B-					
27	Ground Subsidence	**D**											
28	Offensive Odor	**D**											
29	Bottom sediment	**D**											
30	Accidents	**B-**			B-	B-	B-	B-					

Rating
A: Serious impact is expected. B: Some impact is expected. C: Extent of impact is unknown
D/no mark: No impact is expected. -: Negative impact +: Positive impact

Table 12-13 Scoping Matrix for each Project Phase of Developing the Access Road

No	Impacts	Overall Rating	Planning Phase		Construction Phase			Operation Phase
			Land acquisition	Arrangement of water area use	Construction in the water area	Construction in the land area	Operation of construction equipment and vehicles	Passing by the vehicles
Social Environment								
1	Involuntary resettlement	**B-/D**	B-/D					
2	Local economy such as employment and livelihood, etc.	**D**						
3	Land use and utilization of local resources	**B-**	B-					
4	Social institutions such as social infrastructure (Traffic congestion)	**B+**						B+
5	Existing social infrastructures and services	**D**						
6	The poor, indigenous and ethnic people	**B-/D**	B-/D					
7	Misdistribution of benefit and damage	**D**						
8	Cultural heritage	**D**						
9	Local conflict of interests	**B-**			B-	B-	B-	
10	Water Usage or Water Rights and Rights of Common	**D**						
11	Sanitation	**B-**			B-	B-	B-	
12	Hazards (Risk) (food affection)	**B+**						B+
Natural Environment								
13	Topography and Geographical features	**D**						
14	Soil Erosion	**D**						
15	Groundwater	**D**						
16	Hydrological Situation	**D**						
17	Coastal Zone (mangroves, coral reefs, tidal flats, etc.)	**D**						
18	Flora, Fauna and Biodiversity	**C-**			C-			
19	Meteorology	**D**						
20	Landscape	**D**						
21	Global Warming	**D**						
Pollution								
22	Air Pollution	**B-/ B+**					B-	B-/B+
23	Water Pollution	**C-**			C-			
24	Soil Contamination	**D**						
25	Waste	**D**						
26	Noise and Vibration	**B-/ B+**					B-	B-/B+
27	Ground Subsidence	**D**						
28	Offensive Odor	**D**						
29	Bottom sediment	**D**						
30	Accidents	**B-/ B+**			B-	B-	B-	B-/B+

Rating
A: Serious impact is expected. B: Some impact is expected. C: Extent of impact is unknown
D/no mark: No impact is expected. -: Negative impact +: Positive impact

12.2.5 Possible Impacts to be Assessed in IEE

Based on the scoping results, following possible impacts are examined in IEE level. [No.] shows the numbers in Table 12-10 – Table 12-13.

1) Wholesale Market with Reclamation

Preparation phase

- Involuntary resettlement of informal inhabitants [No.1]
- Impact on the poor who needs to be relocated. [No. 6]
- Impact on the existing water area use [No.3]

Construction phase

- Conflict on the employment and the wage for the construction works between local and other workers. [No.9]
- Deterioration of sanitary condition due to inflow of construction labors [No.11]
- Impact on the flood control function of the reservoir caused by the reclamation [No.12]
- Change of water current due to reclamation [No.16]
- Impact on aquatic flora and fauna [No.18]
- Air pollution caused by emission of construction vehicles and equipments [No.22]
- Water pollution caused by construction work and current change [No.23]
- Construction waste in case the existing market is demolished [No.25]
- Construction noise [No.26]
- Risk of construction accidents [No.30]

Operation phase

- Improvement of local economy [No.2]
- Improvement of sanitary condition brought by the new market facilities [No.11]
- Enhancement of biodiversity brought by the planed mangrove [No.18]
- Contribution to preventing and mitigating the global warming [No.21]
- Water pollution caused by waste water [No.23]
- Waste of fish remnants and sludge from waste water [No.25]

2) Access Road

Preparation phase

- Involuntary resettlement (Impact on the poor) [No.1 and 6]
- Land acquisition [No.3]

Construction phase

- Conflict on the employment and the wage for the construction works between local and other workers. [No.9]
- Deterioration of sanitary condition due to inflow of construction labors [No.11]

- Impact on aquatic flora and fauna [No.18]
- Air pollution caused by emission of construction vehicles and equipments [No.22]
- Water pollution caused by construction work [No.23]
- Construction noise [No.26]
- Risk of construction accidents [No.30]

Operation phase

- Improving the current traffic congestion [No.4]
- Smooth access to the JFP without the food affection [No.12]
- Air pollution caused by emission of construction vehicles and equipments [No.22]
- Traffic noise [No.26]
- Risk of traffic accidents [No.30]

Table 12-14 List of the Key Potential Impacts

Phase	Key Impacts	Wholesale Market with Reclamation	Access Road
Preparation phase	Involuntary resettlement [No.1]	A-/D	A-/D
	Impact on the poor [No. 6]	A-/D	A-/D
	Land acquisition [No.3]	D	B-
	Impact on the existing water area use [No.3]	B-	D
Construction phase	Conflict between construction workers [No.9]	B-	B-
	Deterioration of sanitary condition due to inflow of construction labors [No.11]	B-	B-
	Impact on the flood control function [No.12]	C-	D
	Change of water current due to reclamation [No.16]	C-	D
	Impact on aquatic flora and fauna [No.18]	B-	C-
	Air pollution [No.22]	B-	B-
	Water pollution [No.23]	C-	C-
	Construction waste [No.25]	B-	D
	Construction noise [No.26]	B-	B-
	Risk of accidents [No.30]	B-	B-
Operation phase	Impact on local economy [No.2]	B+	D
	Traffic congestion [No.4]	D	B+
	Sanitary condition [No.11]	B+	D
	Risk of flood affection [No.12]	D	B+
	Enhancement of biodiversity [No.18]	B+	D
	Global warming [No.21]	B+	D
	Air pollution [No.22]	D	B/P
	Water pollution [No.23]	C-	D
	Waste (fish remnants and sludge from waste water) [No.25]	B-	D
	Traffic noise [No.26]	D	B-/B+
	Risk of traffic accidents [No.30]	D	B-/B+

Rating
A: Serious impact is expected. B: Some impact is expected. C: Extent of impact is unknown
D: No impact is expected. -: Negative impact +: Positive impact

12.2.6 Impact Assessment

(1) Preparation Phase

i) Involuntary Resettlement and Impact on the Poor

The number of houses to be relocated is about 80 for the alternatives A-2 and B-2 of the wholesale market with reclamation as well as about 30 for the alternative 2-1 of the access road. The inhabitants are deemed to be the poor; most of them are living in the houses built on stilts over the water. Therefore, the impacts to those inhabitants could be significant if they have to be relocated for the project. However, 30 houses for the access road plan have been already included to the relocation plan for Jakarta Urgent Flood Mitigation Project (JUFMP) financed by the World Bank. Also for the 80 houses for the reclamation plan, it is expected to be relocated for the project of Fisheries Water Front City which will be conducted by MMAF.

Table 12-15 Required Resettlement for each Alternative

Projects	Alternative	Number of Houses to be Relocated*	Estimated Population**	Area to be Relocated	Rating
Wholesale Market with Reclamation	A-1	-	-	-	-
	A-2	80	400	3,200 m2	A
	B-2	80	400	3,200 m2	A
Access Road	2-1	30	100	1,100 m2	B
	2-2	-	-	-	-
	2-3	-	-	-	-
	2-2+3	-	-	-	-

Notes)*Based on the aerial photo. **Based on the interview and the observation.
Rating A: Significant impact is expected.
Rating B: Some impact is expected.

ii) Land Acquisition

Required land acquisition without buildings for each alternative is summarized in Table 12-16. While the wholesale market does not require land acquisition, all of the alternatives for the access road require small scale land acquisition.

Table 12-16 Required Land Acquisition without Building for each Alternative

Projects	Alternative	Land Area to be Acquired	Rating
Wholesale Market with Reclamation	A-1	-	-
	A-2	-	-
	B-2	-	-
Access Road	2-1	7,000 m2	B
	2-2	5,000 m2	B
	2-3	1,000 m2	B
	2-2+3	6,000 m2	B

Rating B: Some impact is expected.

iii) Impact on the Existing Water Area Use

The water area adjacent to JFP is used for anchoring boats and their navigation. The

possible impacts on the water area use are listed in Table 12-17.

Table 12-17 Possible Impacts on Water Area Use Adjacent to JFP

<table>
<tr><th rowspan="2">Projects</th><th rowspan="2">Alternative</th><th colspan="3">Type of Impacts</th><th rowspan="2">Overall Rating</th></tr>
<tr><th>Impacts on the anchored boats at the existing seawall</th><th>Impact on the fishing boats (Bagan).</th><th>Impacts on the boat navigation</th></tr>
<tr><td rowspan="3">Wholesale Market with Reclamation</td><td>A-1</td><td>Rating D
Space will be remained for anchoring boats.</td><td rowspan="3">Rating B
Bagan anchored around the project area need to be moved</td><td rowspan="3">Rating D
The reclamation does not disturb the boat navigation because enough area is remained after reclamation.</td><td>B^S</td></tr>
<tr><td>A-2</td><td rowspan="2">Rating B
The boats need to be relocated.</td><td>B^L</td></tr>
<tr><td>B-2</td><td>B^L</td></tr>
<tr><td rowspan="4">Access Road</td><td>2-1</td><td colspan="3" rowspan="4">Rating D
The access road does not prevent water area use due to the elevated structure, although some coordination and information disclosures are needed for construction works.</td><td>-</td></tr>
<tr><td>2-2</td><td>-</td></tr>
<tr><td>2-3</td><td>-</td></tr>
<tr><td>2-2+3</td><td>-</td></tr>
</table>

B: Some impact is expected (B^S: relatively small impact, $B^{L:}$ relatively large impact).
D: no impact is expected.

(2) Construction Phase

i) Conflict between Construction Workers

In Jakarta, conflicts between construction workers are likely to be occurred due to the gaps of their capacity and wages. In most cases, workers from the other region outside of the project area tend to be more experienced comparing with the local workers. Therefore, conflicts between the local workers and the others on the employment opportunities may become one of the social issue as well as the wages.

ii) Deterioration of Sanitary Condition

During the construction, a large number of construction workers will inflow to JFP. It may cause deterioration of sanitary condition especially in the case the worker stay overnight in JFP. Therefore, it is necessary to prepare enough portable toilets and ensure the proper management of waste.

iii) Impact on the Flood Control Function

The project area is adjacent to the Pluit Pond, a reservoir for flood control of the urban area. The water flow from the Pluit Pond to the project area is formed by pumps with capacity of 34m3/sec*. Although further study is required for assessing the impact, the reclamation is deemed not to disturb the water flow because enough space for the water flow will be remained after the reclamation. Additionally, the reclamation area, about 10 ha is relatively small comparing with the remaining area, about 40 ha, in the semi-closed water area up to the north end of JFP.

*Source: Preparatory Survey Report on the Project for Urgent Reconstruction of East Pump Station of Pluit in Jakarta, the Republic of Indonesia, June 2010, JICA and YACHIYO Engineering Co. LTD.

iv) Change of Water Current

The water current around the reclamation area is very weak because it is semi-closed area

surrounded by seawalls. Therefore, remarkable current change is not expected to be caused by the reclamation although further study is required for confirmation.

The access road will not change water current because it is elevated structure.

v) Impact on Aquatic Flora and Fauna

Although no valuable species has been reported in the project area, the reclamation work will eliminate a part of the habitat for aquatic organisms. In addition, construction work in water area for reclamation and constructing pairs of the access road may cause change of habitat condition for the aquatic life. Therefore, it is necessary to research the aquatic flora and fauna around the project area and monitor properly.

vi) Air Pollution

Emission from the construction vehicles and equipments will increase air pollutants. It is necessary to monitor the air quality during construction as well as to provide proper construction and heavy vehicles in order to reduce the volume of emission gas and to maintain their condition properly.

vii) Water Pollution

Although the water quality in the project area is already turbid, construction works may increase the turbidity. In addition, there is a possibility of water quality deterioration in case water current is changed due to the reclamation. Therefore, it is necessary to monitor the water quality to control during construction.

viii) Construction Waste

In order to demolish the existing wholesale market and the related facilities, construction waste will be generated. It is necessary to develop management plan to treat the waste properly.

ix) Construction Noise

It is necessary to control construction works at night as well as monitor the noise during construction.

x) Risk of Accidents

There are risks of construction accidents. In order to minimize the risk, safety control is required.

(3) Operation Phase

i) Impact on Local Economy

The new market facilities are expected to cause positive impacts to the local economy through improvement of the fish distribution. Especially, the Center for Fish Supply Buffer Storage will stabilize fish price by absorbing the storage during peak season and retaining the quality. Also, the other efficient new facilities such as fish processing unit are expected to create additional economic value to the fish. In addition, those increased operational capacity of the new facilities will generate employment opportunities; the number of the additional labors is estimated about 10,000 person-years.

ii) Traffic Congestion

The new access road is expected to alleviate the traffic congestion at the existing access

road, Jl. Muara Baru. The traffic volume projection (see Chapter 3.2.4 in the main text) showed that the traffic volume at Jl. Muara Baru will increase about 1.5 times of the current condition in 2025 (Table 12-18). On the other hand, in the case that the new access road is constructed, the traffic volume at Jl. Muara Baru will remain at the same level with the current condition. The traffic volume of the new access road will be almost half of the Jl. Muara Baru in 2025.

Table 12-18 Traffic Volume Projection

Year / Road	2011	2025	
	Current Condition	With Project	Without Project
Jl. Muara Baru	14,704	14,397	21,354
New access road	-	6,957	

Unit: PCU/day (average weekly volume)
Source: JICA Study Team.

iii) Sanitary Condition

The sanitary condition of the existing wholesale market is not very good because of the congested utilization and unsuitable water supply as well as the deterioration of the facility. The new market facilities will improve the condition by organizing the units, installing water supply systems with adequate water quality and drain water treatment systems.

iv) Risk of Flood Affection

As described in Chapter 2.2.5 of the main text, Jl Muara Baru suffers from flooding throughout the year despite of the importance as the sole access to JFP. Therefore, the new access road will provide an alternative to access JFP without risk of the flood affection.

v) Enhancement of Biodiversity

Around the reclamation area, mangrove will be planted for windbreak and ecological conservation (see Chapter 3.3.3 in the main text). It will contribute to enhancement of biodiversity.

vi) Global Warming

For the existing cold storage and the other refrigeration facilities, hydro-fluorocarbon refrigerant (R-22) which is known as ozone depleting refrigerant has been used. Concerning the global warming issue, the new refrigerant (R404) which does not deplete Ozone will be installed to the new facilities.

Planted mangrove, which absorbs CO2 gas, will be planted around the reclamation area. Also, the height of the reclaimed land is designed considering sea level rising due to global warming. Those considerations are expected to be a part of the measures for adapting and mitigating the global warming.

vii) Air Pollution

The traffic at the new access road will increase air pollutants around the new road. On the other hand, the pollutants may be concentrated to the existing access road due to traffic concentration if there is no project. Assuming that the air pollutants are distributed in accordance with the traffic volume as projected in Table 12-18, the pollutant volume at the new road will not be significant, half level of the current condition of the existing road in 2025. In addition, the increase of the pollutants at the existing road will be alleviated in the case that the new road is operated.

viii) Water Pollution

Waste water from the wholesale market may cause water pollution. The results of water quality analysis of the existing drain water from the market showed requirements of proper water treatment to meet the regulation on waste water quality (Decree of the Governor of DIK Jakarta No.582/1995). Based on this fact, enough capacity of the treatment facility has been planned in this study.

ix) Waste

Although most of them are utilized in current condition, fish remnants will be generated during the fish processing. Also, the new drain water treatment facility will generate sludge to be collected and disposed regularly. For handling those wastes properly, management plans and systems need to be developed and completed during operation phase.

x) Traffic Noise

The traffic passing through the access road will generate traffic noise; however, the impact will not be significant because the number of vehicles is not very large. In addition, the new road will reduce the traffic noise around the existing access road because the traffic volume will be split to the existing road and the new road.

xi) Risk of Traffic Accidents

There are risks of traffic accidents at the new access road. However, the width of the road is planned to be enough to minimize the risk of accidents and not to disturb traffic flow in case of accidents. Also, a central divider and traffic-control signs will be prepared. On the other hand, the existing access road (Jl.Muara Baru) has high risk of traffic accidents due to the congested condition. It is expected that the risk will be reduced after the completion of the new road because it will alleviate the traffic volume increase at the existing road.

12.2.7 Results of IEE

The results of IEE are summarized in Table 12-19 and Table 12-20 to compare between the alternatives. Suggested mitigation measures are shown in Table 12-21 and Table 12-22 together with the proposed study for the next stage including AMDAL.

Table 12-19 Results of IEE for Developing Wholesale Market with Reclamation

No	Alternatives / Impacts	A-1			A-2			B-2			Without Project (Zero-Option)
		Preparation Phase	Construction Phase	Operation Phase	Preparation Phase	Construction Phase	Operation Phase	Preparation Phase	Construction Phase	Operation Phase	
Social Impact											
1	Involuntary resettlement				A-			A-			
2	Local economy such as employment and livelihood, etc.			B+			B+			B+	
3	Land use and utilization of local resources (Water area use)	B^{-S}			B^{-L}			B^{-L}			
4	Social institutions such as social infrastructure and local decision-making institutions										
5	Existing social infrastructures and services										
6	The poor, indigenous and ethnic people				A-			A-			
7	Misdistribution of benefit and damage										
8	Cultural heritage										
9	Local conflict of interests		B-			B-			B-		
10	Water Usage or Water Rights and Rights of Common										
11	Sanitation		B-	B+		B-	B+		B-	B+	B-
12	Hazards (Risk) (Impact on the flood control function)		C-			C-			C-		
Natural Impact											
13	Topography and Geographical features										
14	Soil Erosion										
15	Groundwater										
16	Hydrological Situation		C-			C-			C-		
17	Coastal Zone (Mangroves, Coral reefs, Tidal flats, etc.)										
18	Flora, Fauna and Biodiversity		B-	B+		B-	B+		B-	B+	
19	Meteorology										
20	Landscape										
21	Global Warming (Use of ozone depleting refrigerant)			B+			B+			B+	
Pollution											
22	Air Pollution		B-			B-			B-		
23	Water Pollution		C-	C-		C-	C-		C-	C-	
24	Soil Contamination										
25	Waste		B-	B-		B-	B-		B-	B-	B-
26	Noise and Vibration		B-			B-			B-		
27	Ground Subsidence										
28	Offensive Odor										
29	Bottom sediment										
30	Accidents		B-			B-			B-		
Overall Evaluation											
Social Environment			B-			A-			A-		B-
Natural Environment			B-			B-			B-		-
Pollution			B-			B-			B-		B-

Rating:
A: Significant impact is expected. B: Some impact is expected. (B^L: Relatively large impact, B^S: Relatively small impact)
C: Extent of impact is unknown -: Negative impact +: Positive impact No Mark: No impact is expected.

Table 12-20 Results of IEE for Developing Access Road

No	Impacts	Alternatives	Alt 2-1			Alt 2-2			Alt 2-3			Alt 2-2 +Alt 3			Without Project (Zero-Option)
			Preparation Phase	Construction Phase	Operation Phase	Preparation Phase	Construction Phase	Operation Phase	Preparation Phase	Construction Phase	Operation Phase	Preparation Phase	Construction Phase	Operation Phase	
Social Impact															
1	Involuntary resettlement		B-												
2	Local economy such as employment and livelihood, etc.														
3	Land use and utilization of local resources		B-			B-			B-			B-			
4	Social institutions such as social infrastructure (Traffic congestion)				B+			B+			B+			B+	B-
5	Existing social infrastructures and services														
6	The poor, indigenous and ethnic people		B-												
7	Misdistribution of benefit and damage														
8	Cultural heritage														
9	Local conflict of interests			B-			B-			B-			B-		
10	Water Usage or Water Rights and Rights of Common														
11	Sanitation			B-			B-			B-			B-		
12	Hazards (Risk)(flood affection)				B+			B+			B+			B+	B-
Natural Impact															
13	Topography and Geographical features														
14	Soil Erosion														
15	Groundwater														
16	Hydrological Situation														
17	Coastal Zone (Mangroves, Coral reefs, Tidal flats, etc.)														
18	Flora, Fauna and Biodiversity			C-			C-			C-			C-		
19	Meteorology														
20	Landscape														
21	Global Warming														
Pollution															
22	Air Pollution			B-	B+		B-	B+		B-	B+		B-	B+	B-
23	Water Pollution			C-			C-			C-			C-		
24	Soil Contamination														
25	Waste														
26	Noise and Vibration			B-	B+		B-	B+		B-	B+		B-	B+	B-
27	Ground Subsidence														
28	Offensive Odor														
29	Bottom sediment														
30	Accidents			B-	B+		B-	B+		B-	B+		B-	B+	B-
Overall Evaluation															
Social Environment				B^{-L}			B-			B-			B-		B-
Natural Environment				C-			C-			C-			C-		-
Pollution				B-			B-			B-			B-		B-

Rating:

A: Significant impact is expected. B: Some impact is expected. (B^{L}: Relatively large impact)

C: Extent of impact is unknown -: Negative impact +: Positive impact No Mark: No impact is expected.

Table 12-21 Mitigation Measures for Wholesale Market with Reclamation

	Items	Rating	Likely Impacts	Suggested Mitigation Measures			Proposal for the Next Stage (e.g. AMDAL Study)
				A-1	A-2	B-2	
Social Environment							
1	Involuntary resettlement	A	Relocation of informal inhabitants. (About 80 houses)	(no impact)	Preparation phase: To obtain agreement of the inhabitants and give proper compensation.		To hold consultations and develop Resettlement Action Plan.
3	Land use and utilization of local resources (water area use)	B	Impact on the existing water area use.	Preparation phase: To obtain consensus with users of the water area.			To hold consultations.
6	The poor, indigenous and ethnic people	A	Impact on the poor. (Inhabitants to be relocated)	(no impact)	Preparation phase: To obtain agreement of the inhabitants and give proper compensation.		To hold consultations and develop Resettlement Action Plan.
9	Local conflict	B	Conflict between construction workers on employment.	Construction phase: A clear division of tasks for each labor, supervision of each type of work, equal payment of wages to the same type of work.			To develop communication between workers and contractors about the works.
11	Sanitation	B	Deterioration of sanitary condition due to inflow of construction labors.	Construction phase: To provide enough portable toilets and ensure the proper management of waste.			To develop management plan including sanitary control during construction.
12	Hazards (Risk)	C	Impact on the flood control function of Pluit Pond.	Preparation phase: To assess impacts on flood control.			To assess impacts on flood control in AMDAL study.
Natural Environment							
16	Hydrological Situation	C	Change of water current due to reclamation.	Preparation phase: To assess change in water current quantitatively to ensure the need of mitigation measures.			To assess changes in water current quantitatively (e.g. using numerical simulation) in AMDAL study.
18	Flora, Fauna and Biodiversity	B	Elimination of the habitat of aquatic fauna and change of the habitat condition around the reclamation area.	Preparation phase: To assess the condition of aquatic fauna and their habitat in/around the reclamation area to ensure the need of mitigation measures.			To assess the condition of aquatic fauna and their habitat in/around the reclamation area in AMDAL study.
Pollution							
22	Air Pollution	B	Emission of construction vehicles and equipments.	Preparation phase: To comprehend ambient air quality as the baseline for assessing the impact and monitoring. Construction phase: To provide proper construction and heavy vehicles in order to reduce the volume of emission gas. To maintain construction and heavy vehicles condition properly. To monitor the air quality during construction.			To measure the ambient air quality in AMDAL study and assess the impact. To develop management and monitoring plan of air quality.
23	Water Pollution	C	Turbidity during construction. Deterioration of water quality due to water current change and waste water discharge.	Preparation phase: To assess the water quality change based on the prediction of the water current change. To plan proper capacity of wastewater treatment facility complying with Decree of the Governor of DIK Jakarta No.582/1995. Construction phase: To monitor the water quality during construction.			To assess the water quality change caused by the water current change based on the quantitative prediction of the water current in AMDAL study. To develop management and monitoring plan of

					water quality.
25	Waste	B	Construction waste, fish remnants and sludge generated through drain water treatment.	Construction phase: To bring the waste to the proper disposal site. Operation phase: To bring the waste to the proper disposal site.	To develop waste management plan during construction and operation.
26	Noise and Vibration	B	Construction noise.	Preparation phase: To comprehend ambient noise as the baseline for assessing the impact and monitoring. Construction phase: To control construction works at night. To monitor the noise during construction.	To measure the ambient noise in AMDAL study and assess the impact. To develop management and monitoring plan of noise.
30	Accidents	B	Construction accidents	Construction phase: To announce the construction schedule to the relevant organizations. To secure the safety control.	To develop safety control plan.

A: Significant impact is expected. B: Some impact is expected. C: Extent of impact is unknown

Table 12-22 Mitigation Measures for Access Road

	Items	Rating	Likely Impacts	Suggested Mitigation Measures				Proposal for the Next Stage (e.g. AMDAL Study)
				Alt 2-1	Alt 2-2	Alt 2-3	Alt 2-2 +Alt 3	
Social Environment								
1	Involuntary resettlement	B	Relocation of informal inhabitants. (About 30 houses)	Preparation phase: To obtain agreement of the inhabitants and give proper compensation.	(no impact)			To hold consultations and develop Resettlement Action Plan.
3	Land use and utilization of local resources	B	Land acquisition.	Preparation phase: To obtain consensus with land owners.				To hold consultations.
6	The poor, indigenous and ethnic people	B	Relocation of the poor.	Preparation phase: To obtain agreement of the inhabitants and give proper compensation.	(no impact)			To hold consultations and develop Resettlement Action Plan.
9	Local conflict	B	Conflict between construction workers on employment.	Construction phase: A clear division of tasks for each labor, supervision of each type of work, equal payment of wages to the same type of work.				To develop communication between workers and contractors about the works.
11	Sanitation	B	Deterioration of sanitary condition due to inflow of construction labors.	Construction phase: To provide enough portable toilets and ensure the proper management of waste.				To develop management plan including sanitary control during construction.
Natural Environment								
18	Flora, Fauna and Biodiversity	C	Impact on aquatic fauna by construction works.	Preparation phase: To assess the condition of aquatic fauna and their habitat in/around the construction area to ensure the need of mitigation measures.				To assess the condition of aquatic fauna and their habitat in/around the construction area in AMDAL study.

Pollution					
22	Air Pollution	B	Emission of construction vehicles and equipments. Emission of traffic passing the access road.	Preparation phase: To comprehend ambient air quality as the baseline for assessing the impact and monitoring. Construction phase: To provide proper construction and heavy vehicles in order to reduce the volume of emission gas. To maintain construction and heavy vehicles condition properly. To monitor the air quality during construction.	To measure the ambient air quality in AMDAL study and assess the impact. To develop management and monitoring plan of air quality.
23	Water Pollution	C	Turbidity during construction.	Construction phase: To monitor the water quality during construction and assessing the impact.	To develop monitoring plan of water quality.
26	Noise and Vibration	B	Construction noise. Traffic noise.	Preparation phase: To comprehend ambient noise as the baseline for assessing impact and monitoring. Construction phase: To control construction works at night. To monitor the noise during construction.	To measure the ambient noise in AMDAL study and assess the impact. To develop management and monitoring plan of noise.
30	Accidents	B	Construction accidents and traffic accidents	Construction phase: To announce the construction schedule to the relevant organizations. To secure the safety control. Operation phase: To secure traffic-control sign.	To develop safety control plan.

A: Significant impact is expected. B: Some impact is expected. C: Extent of impact is unknown

12.2.8 Proposal for the AMDAL Study

Based on the IEE results, proposed study in AMDAL is listed in the following tables.

Table 12-23 Proposed Study for the Impact Assessment

Items	Impact to be assessed	Primary data collection	Evaluation
Air quality	Construction phase Emission of construction vehicles and equipments. Operation phase Emission of vehicles using the new access road.	Measuring ambient air quality (PM10, TSP, NO2, SO2 and CO).	Construction phase Predicting the air quality during the construction phase based on the number of the construction vehicles and equipments; then comparing with the current condition and the standards. Operation phase Predicting the air quality during the operation phase based on the number of the vehicles which will use the access road; then comparing with the current condition and the standards.
Water current	Construction phase Change of water current due to reclamation. Impact on the flood control function of the Pluit pond.	Measuring the existing water current around the reclamation area.	Construction phase Predicting the change of water current after reclamation using numerical simulation including the water flow from the Pluit pond; then comparing with the current condition.
Water quality	Construction phase Turbidity caused by the construction works. Change of water quality caused by water current change.	Measuring the current water quality around the project area (Turbidity, TSS, DO, Salinity, COD and BOD)	Construction phase Predicting the water quality during construction and after reclamation using numerical simulation; then comparing with the current condition.
Aquatic fauna	Construction phase Impact on aquatic fauna and their habitat.	Inventorying the species (benthic fauna and fish) in/around the project area.	Construction phase Confirming that there is no vulnerable species to be protected in/around the project area.
Noise	Construction phase Construction noise. Operation phase Traffic noise around the access	Measuring the ambient noise.	Construction phase Predicting the construction noise based on the number of the construction vehicles and equipments; then comparing with the

	road.		current condition and the standards. Operation phase Predicting the traffic noise during the operation phase based on the number of the vehicles which will use the access road; then comparing with the current condition and the standards.

PM10: Particulate Matter (size between 2.5 and 10 micro meter), TSP: Total Suspended Solod, NOx: Nitrogen Oxides SO2: Sulfur Dioxide, CO: Carbon Monoxide, TSS: Total Suspended Solid, DO: Dissolved Oxygen, COD: Chemical Oxygen Demand, BOD: Biological Oxygen Demand

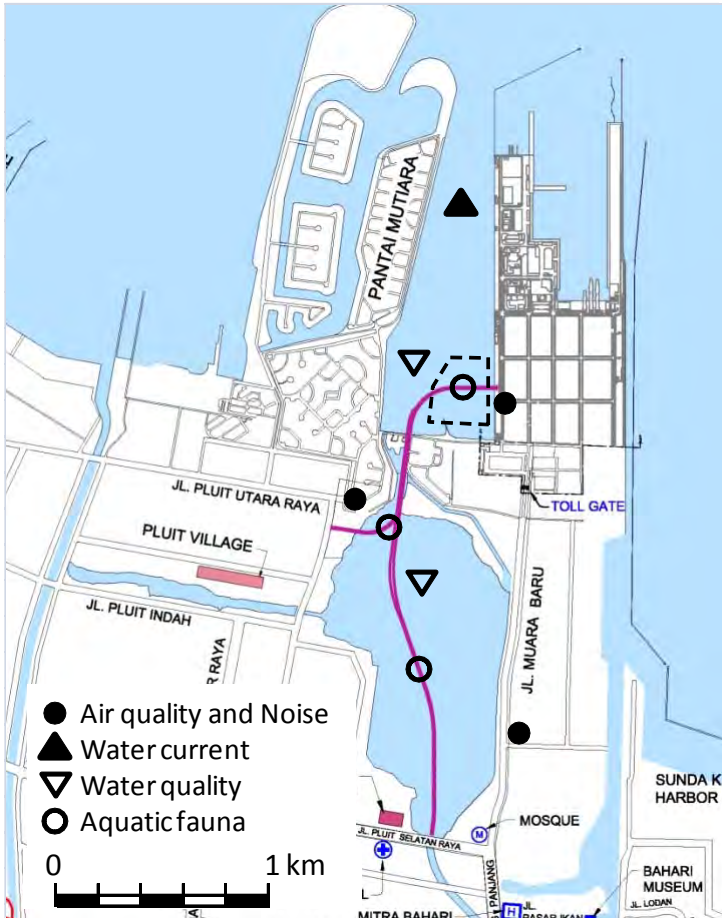

Figure 12-7 Proposed Survey Location for the Primary Data Collection in AMDAL

Table 12-24 Proposed Monitoring Survey during Construction

Items	Impact to be monitored	Period	Location	Monitoring method	Evaluation
Air quality	Emission of construction vehicles and equipments.	During construction works near residential area	In the residential area near the construction site.	Measuring PM10, TSP, NO2, SO2 and CO.	Comparison with the standards.
Water quality	Turbidity caused by the construction works	During construction works in water area	Near the construction area and reference site	Measuring turbidity.	Comparison with the reference site.
Noise	Construction noise.	During construction works near residential area	In the residential area near the construction site.	Measuring noise.	Comparison with the standards.

Table 12-25 Proposed Management Plan

Items	Impact to be managed	Period	Proposed Management
Sanitation	Deterioration of sanitary condition due to inflow of construction labors.	Construction phase	− Providing enough number of portable toilets − Ensuring garbage disposal system − Cleaning around the construction area
Waste	Construction waste.	Construction phase	− Carrying the waste to the proper site for waste disposal/reuse.
	Fish remnants and sludge from waste water.	Operation phase	
Accidents	Accidents during construction works.	Construction phase	− Announcing the construction schedule to the relevant organizations − Developing proper work schedule − Ensuring emergency contacts
	Traffic accidents.	Operation phase	− Securing traffic control sign − Speed control
Air quality	Emission of construction vehicles and equipments.	Construction phase	− Providing vehicles and equipments with proper condition/less emission. − Discontinuing the construction works in case unusual air pollution is observed
Water quality	Turbidity caused by the construction works.	Construction phase	− Monitoring the turbidity − Discontinuing the construction works in case unusual turbidity is observed
Noise	Construction noise.	Contraction phase	− Restricting the works at nigh − Discontinuing the construction works in case unusual noise is observed

APPENDIX 13

Breakdown of Project Cost

APPENDIX 13. BREAKDOWN OF PROJECT COST

The breakdowns of project cost in 11 alternatives (without alternative A-1 + 2-2 in previous Chapter 3.8) describe as follows.

Table 13.1 Preliminary Project Cost Estimation (Market A-1 and Access Road 2-1)

Description	Unit	Quantity	Cost Estimation (Unit: Rp. 1,000)				Total
			Local Portion		Foreign Portion		
			Unit Price	Amount	Unit Price	Amount	
I. Construction Expense							
1. General Expense	L.S.	1	9,790,168	**9,790,168**	7,376,572	**7,376,572**	**17,166,740**
2. Fish Trading & Market Center				**155,355,000**		**54,783,000**	**210,138,000**
1) Wholesale Market Bldg.	m^2	24,315	5,200	126,438,000	1,800	43,767,000	170,205,000
2) Kiosk/Canteen Bldg. (each 48 units)	m^2	6,885	4,200	28,917,000	1,600	11,016,000	39,933,000
3. Fish Supply Buffer Center				**36,352,600**		**77,436,550**	**113,789,150**
1) Cold Storage (29 units)	m^2	3,915	5,000	19,575,000	18,600	72,819,000	92,394,000
2) Fish Processing Unit (25 units)	m^2	2,363	4,000	9,450,000	1,100	2,598,750	12,048,750
3) Storage Bldg. (8 units)	m^2	756	4,000	3,024,000	1,100	831,600	3,855,600
4) Pedestrian Walk	m^2	1,484	2,900	4,303,600	800	1,187,200	5,490,800
4. Seafood Plaza	m^2	2,976	9,400	**27,974,400**	2,700	**8,035,200**	**36,009,600**
5. Utilities				**28,035,400**		**64,192,900**	**92,228,300**
1) Desalinated Water Production Plant	LS	1	9,833,400	9,833,400	26,181,400	26,181,400	36,014,800
2) Sterilized Seawater Production Plant	LS	1	995,500	995,500	3,590,000	3,590,000	4,585,500
3) Wastewater Treatment Plant	LS	1	8,504,100	8,504,100	28,616,100	28,616,100	37,120,200
4) Electric Power Supply Plant	LS	1	8,702,400	8,702,400	5,805,400	5,805,400	14,507,800
6. Pavement				**18,247,800**		**4,744,428**	**22,992,228**
1) Inner Road	m^2	17,687	500	8,843,250	130	2,299,245	11,142,495
2) Parking Lot and Truck Berth	m^2	18,809	500	9,404,550	130	2,445,183	11,849,733
7. Access Road				**126,811,260**		**66,785,940**	**193,597,200**
1) Access Road	m	1,260	96,525	121,621,500	51,975	65,488,500	187,110,000
2) Gate	LS	1	5,189,760	5,189,760	1,297,440	1,297,440	6,487,200
8. Reclamation and Revetment				**259,901,386**		**215,793,477**	**475,694,863**
1) Reclamation	m3	715,211	210	150,194,258	90	64,368,968	214,563,226
2) Soil Improvement	m2	107,000	574	61,434,600	861	92,151,900	153,586,500
3) Outer Revetment	m	902	53,224	48,008,048	64,922	58,559,644	106,567,692
4) Inner Revetment	m	435	608	264,480	1,639	712,965	977,445
Total Expense				**662,468,014**		**499,148,067**	**1,161,616,081**
II. Price Escalation				**210,971,809**		**-28,174,533**	**182,797,276**
III. Physical Contingency				**43,149,591**		**26,209,870**	**69,359,461**
IV. Consulting Service				**18,469,000**		**68,006,004**	**86,475,004**
V. Land Acquisition				**70,000,000**		**0**	**70,000,000**
VI. Resettlement Cost				**4,708,330**		**0**	**4,708,330**
VII. Administration Cost				**36,087,512**		**27,520,363**	**63,607,875**
VIII VAT				**64,704,190**		**55,040,726**	**119,744,916**
Total Project Cost				**1,110,558,446**		**647,750,496**	**1,758,308,942**

Table 13.2 Preliminary Project Cost Estimation (Market A-1 and Access Road 2-3)

Description	Unit	Quantity	Cost Estimation (Unit: Rp. 1,000)				Total
			Local Portion		Foreign Portion		
			Unit Price	Amount	Unit Price	Amount	
I. Construction Expense							
1. General Expense	L.S.	1	10,738,526	**10,738,526**	7,887,227	**7,887,227**	**18,625,753**
2. Fish Trading & Market Center				**155,355,000**		**54,783,000**	**210,138,000**
1) Wholesale Market Bldg.	m^2	24,315	5,200	126,438,000	1,800	43,767,000	170,205,000
2) Kiosk/Canteen Bldg. (each 48 units)	m^2	6,885	4,200	28,917,000	1,600	11,016,000	39,933,000
3. Fish Supply Buffer Center				**36,352,600**		**77,436,550**	**113,789,150**
1) Cold Storage (29 units)	m^2	3,915	5,000	19,575,000	18,600	72,819,000	92,394,000
2) Fish Processing Unit (25 units)	m^2	2,363	4,000	9,450,000	1,100	2,598,750	12,048,750
3) Storage Bldg. (8 units)	m^2	756	4,000	3,024,000	1,100	831,600	3,855,600
4) Pedestrian Walk	m^2	1,484	2,900	4,303,600	800	1,187,200	5,490,800
4. Seafood Plaza	m^2	2,976	9,400	**27,974,400**	2,700	**8,035,200**	**36,009,600**
5. Utilities				**28,035,400**		**64,192,900**	**92,228,300**
1) Desalinated Water Production Plant	LS	1	9,833,400	9,833,400	26,181,400	26,181,400	36,014,800
2) Sterilized Seawater Production Plant	LS	1	995,500	995,500	3,590,000	3,590,000	4,585,500
3) Wastewater Treatment Plant	LS	1	8,504,100	8,504,100	28,616,100	28,616,100	37,120,200
4) Electric Power Supply Plant	LS	1	8,702,400	8,702,400	5,805,400	5,805,400	14,507,800
6. Pavement				**18,247,800**		**4,744,428**	**22,992,228**
1) Inner Road	m^2	17,687	500	8,843,250	130	2,299,245	11,142,495
2) Parking Lot and Truck Berth	m^2	18,809	500	9,404,550	130	2,445,183	11,849,733
7. Access Road				**190,035,135**		**100,829,565**	**290,864,700**
1) Access Road	m	1,915	96,525	184,845,375	51,975	99,532,125	284,377,500
2) Gate	LS	1	5,189,760	5,189,760	1,297,440	1,297,440	6,487,200
8. Reclamation and Revetment				**259,901,386**		**215,793,477**	**475,694,863**
1) Reclamation	m3	715,211	210	150,194,258	90	64,368,968	214,563,226
2) Soil Improvement	m2	107,000	574	61,434,600	861	92,151,900	153,586,500
3) Outer Revetment	m	902	53,224	48,008,048	64,922	58,559,644	106,567,692
4) Inner Revetment	m	435	608	264,480	1,639	712,965	977,445
Total Expense				**726,640,247**		**533,702,347**	**1,260,342,594**
II. Price Escalation				**222,170,651**		**-29,790,457**	**192,380,195**
III. Physical Contingency				**46,930,477**		**27,908,619**	**74,839,096**
IV. Consulting Service				**18,715,640**		**69,042,633**	**87,758,273**
V. Land Acquisition				**10,000,000**		**0**	**10,000,000**
VI. Resettlement Cost						**0**	**0**
VII. Administration Cost				**34,889,870**		**29,304,050**	**64,193,920**
VIII VAT				**68,308,907**		**58,608,099**	**126,917,007**
Total Project Cost				**1,127,655,793**		**688,775,291**	**1,816,431,084**

Table 13.3 Preliminary Project Cost Estimation (Market A-1 and Access Road 2+3)

Description	Unit	Quantity	Cost Estimation (Unit: Rp. 1,000)				Total
			Local Portion		Foreign Portion		
			Unit Price	Amount	Unit Price	Amount	
I. Construction Expense							
1. General Expense	L.S.	1	12,351,120	**12,351,120**	8,733,091	**8,733,091**	**21,084,211**
2. Fish Trading & Market Center				**155,355,000**		**54,783,000**	**210,138,000**
1) Wholesale Market Bldg.	m^2	24,315	5,200	126,438,000	1,800	43,767,000	170,205,000
2) Kiosk/Canteen Bldg. (each 48 units)	m^2	6,885	4,200	28,917,000	1,600	11,016,000	39,933,000
3. Fish Supply Buffer Center				**36,352,600**		**77,436,550**	**113,789,150**
1) Cold Storage (29 units)	m^2	3,915	5,000	19,575,000	18,600	72,819,000	92,394,000
2) Fish Processing Unit (25 units)	m^2	2,363	4,000	9,450,000	1,100	2,598,750	12,048,750
3) Storage Bldg. (8 units)	m^2	756	4,000	3,024,000	1,100	831,600	3,855,600
4) Pedestrian Walk	m^2	1,484	2,900	4,303,600	800	1,187,200	5,490,800
4. Seafood Plaza	m^2	2,976	9,400	**27,974,400**	2,700	**8,035,200**	**36,009,600**
5. Utilities				**28,035,400**		**64,192,900**	**92,228,300**
1) Desalinated Water Production Plant	LS	1	9,833,400	9,833,400	26,181,400	26,181,400	36,014,800
2) Sterilized Seawater Production Plant	LS	1	995,500	995,500	3,590,000	3,590,000	4,585,500
3) Wastewater Treatment Plant	LS	1	8,504,100	8,504,100	28,616,100	28,616,100	37,120,200
4) Electric Power Supply Plant	LS	1	8,702,400	8,702,400	5,805,400	5,805,400	14,507,800
6. Pavement				**18,247,800**		**4,744,428**	**22,992,228**
1) Inner Road	m^2	17,687	500	8,843,250	130	2,299,245	11,142,495
2) Parking Lot and Truck Berth	m^2	18,809	500	9,404,550	130	2,445,183	11,849,733
7. Access Road				**297,541,395**		**157,220,505**	**454,761,900**
1) Access Road	m	2,975	96,525	287,161,875	51,975	154,625,625	441,787,500
2) Gate	LS	2	5,189,760	10,379,520	1,297,440	2,594,880	12,974,400
8. Reclamation and Revetment				**259,901,386**		**215,793,477**	**475,694,863**
1) Reclamation	m3	715,211	210	150,194,258	90	64,368,968	214,563,226
2) Soil Improvement	m2	107,000	574	61,434,600	861	92,151,900	153,586,500
3) Outer Revetment	m	902	53,224	48,008,048	64,922	58,559,644	106,567,692
4) Inner Revetment	m	435	608	264,480	1,639	712,965	977,445
Total Expense				**835,759,101**		**590,939,151**	**1,426,698,252**
II. Price Escalation				**258,152,351**		**-32,482,268**	**225,670,083**
III. Physical Contingency				**54,208,837**		**30,707,207**	**84,916,044**
IV. Consulting Service				**19,182,280**		**70,469,411**	**89,651,691**
V. Land Acquisition				**60,000,000**		**0**	**60,000,000**
VI. Resettlement Cost						**0**	**0**
VII. Administration Cost				**41,536,451**		**32,242,568**	**73,779,019**
VIII VAT				**76,602,070**		**64,485,135**	**141,087,205**
Total Project Cost				**1,345,441,090**		**756,361,205**	**2,101,802,295**

Table 13.4 Preliminary Project Cost Estimation (Market A-2 and Access Road 2-1)

Description	Unit	Quantity	Cost Estimation (Unit: Rp. 1,000)				Total
			Local Portion		Foreign Portion		
			Unit Price	Amount	Unit Price	Amount	
I. Construction Expense							
1. General Expense	L.S.	1	8,911,089	**8,911,089**	6,773,037	**6,773,037**	**15,684,126**
2. Fish Trading & Market Center				**155,355,000**		**54,783,000**	**210,138,000**
1) Wholesale Market Bldg.	m^2	24,315	5,200	126,438,000	1,800	43,767,000	170,205,000
2) Kiosk/Canteen Bldg. (each 48 units)	m^2	6,885	4,200	28,917,000	1,600	11,016,000	39,933,000
3. Fish Supply Buffer Center				**36,352,600**		**77,436,550**	**113,789,150**
1) Cold Storage (29 units)	m^2	3,915	5,000	19,575,000	18,600	72,819,000	92,394,000
2) Fish Processing Unit (25 units)	m^2	2,363	4,000	9,450,000	1,100	2,598,750	12,048,750
3) Storage Bldg. (8 units)	m^2	756	4,000	3,024,000	1,100	831,600	3,855,600
4) Pedestrian Walk	m^2	1,484	2,900	4,303,600	800	1,187,200	5,490,800
4. Seafood Plaza	m^2	2,976	9,400	**27,974,400**	2,700	**8,035,200**	**36,009,600**
5. Utilities				**28,035,400**		**64,192,900**	**92,228,300**
1) Desalinated Water Production Plant	LS	1	9,833,400	9,833,400	26,181,400	26,181,400	36,014,800
2) Sterilized Seawater Production Plant	LS	1	995,500	995,500	3,590,000	3,590,000	4,585,500
3) Wastewater Treatment Plant	LS	1	8,504,100	8,504,100	28,616,100	28,616,100	37,120,200
4) Electric Power Supply Plant	LS	1	8,702,400	8,702,400	5,805,400	5,805,400	14,507,800
6. Pavement				**18,257,800**		**4,747,028**	**23,004,828**
1) Inner Road	m^2	17,687	500	8,843,250	130	2,299,245	11,142,495
2) Parking Lot and Truck Berth	m^2	18,829	500	9,414,550	130	2,447,783	11,862,333
7. Access Road				**125,363,385**		**66,006,315**	**191,369,700**
1) Access Road	m	1,245	96,525	120,173,625	51,975	64,708,875	184,882,500
2) Gate	LS	1	5,189,760	5,189,760	1,297,440	1,297,440	6,487,200
8. Reclamation and Revetment				**202,734,046**		**176,334,778**	**379,068,824**
1) Reclamation	m3	525,394	210	110,332,664	90	47,285,428	157,618,092
2) Soil Improvement	m2	107,000	574	61,434,600	861	92,151,900	153,586,500
3) Outer Revetment	m	632	48,331	30,545,192	56,595	35,768,040	66,313,232
4) Inner Revetment	m	705	598	421,590	1,602	1,129,410	1,551,000
Total Expense				**602,983,720**		**458,308,808**	**1,061,292,528**
II. Price Escalation				**196,115,949**		**-26,422,611**	**169,693,338**
III. Physical Contingency				**39,414,583**		**24,203,671**	**63,618,255**
IV. Consulting Service				**18,109,000**		**66,969,375**	**85,078,375**
V. Land Acquisition				**70,000,000**		**0**	**70,000,000**
VI. Resettlement Cost				**15,190,970**		**0**	**15,190,970**
VII. Administration Cost				**33,131,253**		**25,413,855**	**58,545,107**
VIII VAT				**58,791,672**		**50,827,710**	**109,619,382**
Total Project Cost				**1,033,737,148**		**599,300,807**	**1,633,037,955**

Table 13.5 Preliminary Project Cost Estimation (Market A-2 and Access Road 2-2)

Description	Unit	Quantity	Cost Estimation (Unit: Rp. 1,000)				Total
			Local Portion		Foreign Portion		
			Unit Price	Amount	Unit Price	Amount	
I. Construction Expense							
1. General Expense	L.S.	1	9,157,228	**9,157,228**	6,905,573	**6,905,573**	**16,062,801**
2. Fish Trading & Market Center				**155,355,000**		**54,783,000**	**210,138,000**
1) Wholesale Market Bldg.	m^2	24,315	5,200	126,438,000	1,800	43,767,000	170,205,000
2) Kiosk/Canteen Bldg. (each 48 units)	m^2	6,885	4,200	28,917,000	1,600	11,016,000	39,933,000
3. Fish Supply Buffer Center				**36,352,600**		**77,436,550**	**113,789,150**
1) Cold Storage (29 units)	m^2	3,915	5,000	19,575,000	18,600	72,819,000	92,394,000
2) Fish Processing Unit (25 units)	m^2	2,363	4,000	9,450,000	1,100	2,598,750	12,048,750
3) Storage Bldg. (8 units)	m^2	756	4,000	3,024,000	1,100	831,600	3,855,600
4) Pedestrian Walk	m^2	1,484	2,900	4,303,600	800	1,187,200	5,490,800
4. Seafood Plaza	m^2	2,976	9,400	**27,974,400**	2,700	**8,035,200**	**36,009,600**
5. Utilities				**28,035,400**		**64,192,900**	**92,228,300**
1) Desalinated Water Production Plant	LS	1	9,833,400	9,833,400	26,181,400	26,181,400	36,014,800
2) Sterilized Seawater Production Plant	LS	1	995,500	995,500	3,590,000	3,590,000	4,585,500
3) Wastewater Treatment Plant	LS	1	8,504,100	8,504,100	28,616,100	28,616,100	37,120,200
4) Electric Power Supply Plant	LS	1	8,702,400	8,702,400	5,805,400	5,805,400	14,507,800
6. Pavement				**18,257,800**		**4,747,028**	**23,004,828**
1) Inner Road	m^2	17,687	500	8,843,250	130	2,299,245	11,142,495
2) Parking Lot and Truck Berth	m^2	18,829	500	9,414,550	130	2,447,783	11,862,333
7. Access Road				**141,772,635**		**74,842,065**	**216,614,700**
1) Access Road	m	1,415	96,525	136,582,875	51,975	73,544,625	210,127,500
2) Gate	LS	1	5,189,760	5,189,760	1,297,440	1,297,440	6,487,200
8. Reclamation and Revetment				**202,734,046**		**176,334,778**	**379,068,824**
1) Reclamation	m3	525,394	210	110,332,664	90	47,285,428	157,618,092
2) Soil Improvement	m2	107,000	574	61,434,600	861	92,151,900	153,586,500
3) Outer Revetment	m	632	48,331	30,545,192	56,595	35,768,040	66,313,232
4) Inner Revetment	m	705	598	421,590	1,602	1,129,410	1,551,000
Total Expense				**619,639,109**		**467,277,094**	**1,086,916,203**
II. Price Escalation				**198,543,660**		**-26,878,893**	**171,664,768**
III. Physical Contingency				**40,375,070**		**24,681,103**	**65,056,173**
IV. Consulting Service				**18,235,640**		**68,006,004**	**86,241,644**
V. Land Acquisition				**50,000,000**		**0**	**50,000,000**
VI. Resettlement Cost				**10,482,640**		**0**	**10,482,640**
VII. Administration Cost				**32,579,303**		**25,915,158**	**58,494,461**
VIII VAT				**59,687,773**		**51,830,316**	**111,518,089**
Total Project Cost				**1,029,543,196**		**610,830,782**	**1,640,373,978**

Table 13.6 Preliminary Project Cost Estimation (Market A-2 and Access Road 2-3)

Description	Unit	Quantity	Cost Estimation (Unit: Rp. 1,000)				Total
			Local Portion		Foreign Portion		
			Unit Price	Amount	Unit Price	Amount	
I. Construction Expense							
1. General Expense	L.S.	1	9,859,448	**9,859,448**	7,283,691	**7,283,691**	**17,143,139**
2. Fish Trading & Market Center				**155,355,000**		**54,783,000**	**210,138,000**
1) Wholesale Market Bldg.	m^2	24,315	5,200	126,438,000	1,800	43,767,000	170,205,000
2) Kiosk/Canteen Bldg. (each 48 units)	m^2	6,885	4,200	28,917,000	1,600	11,016,000	39,933,000
3. Fish Supply Buffer Center				**36,352,600**		**77,436,550**	**113,789,150**
1) Cold Storage (29 units)	m^2	3,915	5,000	19,575,000	18,600	72,819,000	92,394,000
2) Fish Processing Unit (25 units)	m^2	2,363	4,000	9,450,000	1,100	2,598,750	12,048,750
3) Storage Bldg. (8 units)	m^2	756	4,000	3,024,000	1,100	831,600	3,855,600
4) Pedestrian Walk	m^2	1,484	2,900	4,303,600	800	1,187,200	5,490,800
4. Seafood Plaza	m^2	2,976	9,400	**27,974,400**	2,700	**8,035,200**	**36,009,600**
5. Utilities				**28,035,400**		**64,192,900**	**92,228,300**
1) Desalinated Water Production Plant	LS	1	9,833,400	9,833,400	26,181,400	26,181,400	36,014,800
2) Sterilized Seawater Production Plant	LS	1	995,500	995,500	3,590,000	3,590,000	4,585,500
3) Wastewater Treatment Plant	LS	1	8,504,100	8,504,100	28,616,100	28,616,100	37,120,200
4) Electric Power Supply Plant	LS	1	8,702,400	8,702,400	5,805,400	5,805,400	14,507,800
6. Pavement				**18,257,800**		**4,747,028**	**23,004,828**
1) Inner Road	m^2	17,687	500	8,843,250	130	2,299,245	11,142,495
2) Parking Lot and Truck Berth	m^2	18,829	500	9,414,550	130	2,447,783	11,862,333
7. Access Road				**188,587,260**		**100,049,940**	**288,637,200**
1) Access Road	m	1,900	96,525	183,397,500	51,975	98,752,500	282,150,000
2) Gate	LS	1	5,189,760	5,189,760	1,297,440	1,297,440	6,487,200
8. Reclamation and Revetment				**202,734,046**		**176,334,778**	**379,068,824**
1) Reclamation	m3	525,394	210	110,332,664	90	47,285,428	157,618,092
2) Soil Improvement	m2	107,000	574	61,434,600	861	92,151,900	153,586,500
3) Outer Revetment	m	632	48,331	30,545,192	56,595	35,768,040	66,313,232
4) Inner Revetment	m	705	598	421,590	1,602	1,129,410	1,551,000
Total Expense				**667,155,954**		**492,863,087**	**1,160,019,041**
II. Price Escalation				**207,370,691**		**-28,120,401**	**179,250,290**
III. Physical Contingency				**43,215,596**		**25,969,666**	**69,185,262**
IV. Consulting Service				**18,702,280**		**69,432,782**	**88,135,062**
V. Land Acquisition				**10,000,000**		**0**	**10,000,000**
VI. Resettlement Cost				**10,482,640**		**0**	**10,482,640**
VII. Administration Cost				**31,962,893**		**27,268,149**	**59,231,042**
VIII VAT				**62,454,952**		**54,536,299**	**116,991,251**
Total Project Cost				**1,051,345,006**		**641,949,583**	**1,693,294,589**

Table 13.7 Preliminary Project Cost Estimation (Market A-2 and Access Road 2+3)

Description	Unit	Quantity	Cost Estimation (Unit: Rp. 1,000)				Total
			Local Portion		Foreign Portion		
			Unit Price	Amount	Unit Price	Amount	
I. Construction Expense							
1. General Expense	L.S.	1	11,472,041	**11,472,041**	8,129,555	**8,129,555**	**19,601,596**
2. Fish Trading & Market Center				**155,355,000**		**54,783,000**	**210,138,000**
1) Wholesale Market Bldg.	m^2	24,315	5,200	126,438,000	1,800	43,767,000	170,205,000
2) Kiosk/Canteen Bldg. (each 48 units)	m^2	6,885	4,200	28,917,000	1,600	11,016,000	39,933,000
3. Fish Supply Buffer Center				**36,352,600**		**77,436,550**	**113,789,150**
1) Cold Storage (29 units)	m^2	3,915	5,000	19,575,000	18,600	72,819,000	92,394,000
2) Fish Processing Unit (25 units)	m^2	2,363	4,000	9,450,000	1,100	2,598,750	12,048,750
3) Storage Bldg. (8 units)	m^2	756	4,000	3,024,000	1,100	831,600	3,855,600
4) Pedestrian Walk	m^2	1,484	2,900	4,303,600	800	1,187,200	5,490,800
4. Seafood Plaza	m^2	2,976	9,400	**27,974,400**	2,700	**8,035,200**	**36,009,600**
5. Utilities				**28,035,400**		**64,192,900**	**92,228,300**
1) Desalinated Water Production Plant	LS	1	9,833,400	9,833,400	26,181,400	26,181,400	36,014,800
2) Sterilized Seawater Production Plant	LS	1	995,500	995,500	3,590,000	3,590,000	4,585,500
3) Wastewater Treatment Plant	LS	1	8,504,100	8,504,100	28,616,100	28,616,100	37,120,200
4) Electric Power Supply Plant	LS	1	8,702,400	8,702,400	5,805,400	5,805,400	14,507,800
6. Pavement				**18,257,800**		**4,747,028**	**23,004,828**
1) Inner Road	m^2	17,687	500	8,843,250	130	2,299,245	11,142,495
2) Parking Lot and Truck Berth	m^2	18,829	500	9,414,550	130	2,447,783	11,862,333
7. Access Road				**296,093,520**		**156,440,880**	**452,534,400**
1) Access Road	m	2,960	96,525	285,714,000	51,975	153,846,000	439,560,000
2) Gate	LS	2	5,189,760	10,379,520	1,297,440	2,594,880	12,974,400
8. Reclamation and Revetment				**202,734,046**		**176,334,778**	**379,068,824**
1) Reclamation	m3	525,394	210	110,332,664	90	47,285,428	157,618,092
2) Soil Improvement	m2	107,000	574	61,434,600	861	92,151,900	153,586,500
3) Outer Revetment	m	632	48,331	30,545,192	56,595	35,768,040	66,313,232
4) Inner Revetment	m	705	598	421,590	1,602	1,129,410	1,551,000
Total Expense				**776,274,807**		**550,099,891**	**1,326,374,698**
II. Price Escalation				**244,051,676**		**-31,026,279**	**213,025,397**
III. Physical Contingency				**50,663,564**		**29,051,263**	**79,714,827**
IV. Consulting Service				**21,861,800**		**76,733,792**	**98,595,592**
V. Land Acquisition				**60,000,000**		**0**	**60,000,000**
VI. Resettlement Cost				**10,482,640**		**0**	**10,482,640**
VII. Administration Cost				**38,746,821**		**30,503,826**	**69,250,647**
VIII VAT				**71,022,809**		**61,007,652**	**132,030,461**
Total Project Cost				**1,273,104,117**		**716,370,144**	**1,989,474,261**

Table 13.8 Preliminary Project Cost Estimation (Market B-2 and Access Road 2-1)

Description	Unit	Quantity	Cost Estimation (Unit: Rp. 1,000)				Total
			Local Portion		Foreign Portion		
			Unit Price	Amount	Unit Price	Amount	
I. Construction Expense							
1. General Expense	L.S.	1	8,617,116	**8,617,116**	6,075,883	**6,075,883**	**14,692,999**
2. Fish Trading & Market Center				**150,625,500**		**52,767,000**	**203,392,500**
1) Wholesale Market Bldg.	m^2	24,315	5,200	126,438,000	1,800	43,767,000	170,205,000
2) Kiosk/Canteen Bldg. (each 42 units)	m^2	5,625	4,300	24,187,500	1,600	9,000,000	33,187,500
3. Fish Supply Buffer Center				**19,444,000**		**33,251,600**	**52,695,600**
1) Cold Storage (12 units)	m^2	1,620	5,000	8,100,000	18,600	30,132,000	38,232,000
2) Fish Processing Unit (25 units)	m^2	2,363	4,000	9,452,000	1,100	2,599,300	12,051,300
3) Storage Bldg. (5 units)	m^2	473	4,000	1,892,000	1,100	520,300	2,412,300
4) Pedestrian Walk	m^2						
4. Seafood Plaza	m^2	2,976	9,400	**27,974,400**	2,700	**8,035,200**	**36,009,600**
5. Utilities				**28,035,400**		**64,192,900**	**92,228,300**
1) Desalinated Water Production Plant	LS	1	9,833,400	9,833,400	26,181,400	26,181,400	36,014,800
2) Sterilized Seawater Production Plant	LS	1	995,500	995,500	3,590,000	3,590,000	4,585,500
3) Wastewater Treatment Plant	LS	1	8,504,100	8,504,100	28,616,100	28,616,100	37,120,200
4) Electric Power Supply Plant	LS	1	8,702,400	8,702,400	5,805,400	5,805,400	14,507,800
6. Pavement				**23,193,425**		**6,030,291**	**29,223,716**
1) Inner Road	m^2	27,584	500	13,791,750	130	3,585,855	17,377,605
2) Parking Lot and Truck Berth	m^2	18,803	500	9,401,675	130	2,444,436	11,846,111
7. Access Road				**122,467,635**		**64,447,065**	**186,914,700**
1) Access Road	m	1,215	96,525	117,277,875	51,975	63,149,625	180,427,500
2) Gate	LS	1	5,189,760	5,189,760	1,297,440	1,297,440	6,487,200
8. Reclamation and Revetment				**202,734,046**		**176,334,778**	**379,068,824**
1) Reclamation	m3	525,394	210	110,332,664	90	47,285,428	157,618,092
2) Soil Improvement	m2	107,000	574	61,434,600	861	92,151,900	153,586,500
3) Outer Revetment	m	632	48,331	30,545,192	56,595	35,768,040	66,313,232
4) Inner Revetment	m	705	598	421,590	1,602	1,129,410	1,551,000
Total Expense				**583,091,522**		**411,134,717**	**994,226,239**
II. Price Escalation				**190,373,391**		**-23,615,908**	**166,757,483**
III. Physical Contingency				**38,369,321**		**22,086,102**	**60,455,422**
IV. Consulting Service				**18,109,000**		**66,969,375**	**85,078,375**
V. Land Acquisition				**70,000,000**		**0**	**70,000,000**
VI. Resettlement Cost				**15,190,970**		**0**	**15,190,970**
VII. Administration Cost				**32,136,034**		**23,190,407**	**55,326,441**
VIII VAT				**56,801,235**		**46,380,814**	**103,182,049**
Total Project Cost				**1,004,071,472**		**546,145,506**	**1,550,216,978**

Table 13.9 Preliminary Project Cost Estimation (Market B-2 and Access Road 2-2)

Description	Unit	Quantity	Cost Estimation (Unit: Rp. 1,000)				Total
			Local Portion		Foreign Portion		
			Unit Price	Amount	Unit Price	Amount	
I. Construction Expense							
1. General Expense	L.S.	1	8,948,929	**8,948,929**	6,259,094	**6,259,094**	**15,208,023**
2. Fish Trading & Market Center				**150,063,000**		**52,767,000**	**202,830,000**
1) Wholesale Market Bldg.	m^2	24,315	5,200	126,438,000	1,800	43,767,000	170,205,000
2) Kiosk/Canteen Bldg. (each 42 units)	m^2	5,625	4,200	23,625,000	1,600	9,000,000	32,625,000
3. Fish Supply Buffer Center				**19,444,000**		**33,251,600**	**52,695,600**
1) Cold Storage (12 units)	m^2	1,620	5,000	8,100,000	18,600	30,132,000	38,232,000
2) Fish Processing Unit (25 units)	m^2	2,363	4,000	9,452,000	1,100	2,599,300	12,051,300
3) Storage Bldg. (5 units)	m^2	473	4,000	1,892,000	1,100	520,300	2,412,300
4) Pedestrian Walk	m^2						
4. Seafood Plaza	m^2	2,976	9,400	**27,974,400**	2,700	**8,035,200**	**36,009,600**
5. Utilities				**28,035,400**		**64,192,900**	**92,228,300**
1) Desalinated Water Production Plant	LS	1	9,833,400	9,833,400	26,181,400	26,181,400	36,014,800
2) Sterilized Seawater Production Plant	LS	1	995,500	995,500	3,590,000	3,590,000	4,585,500
3) Wastewater Treatment Plant	LS	1	8,504,100	8,504,100	28,616,100	28,616,100	37,120,200
4) Electric Power Supply Plant	LS	1	8,702,400	8,702,400	5,805,400	5,805,400	14,507,800
6. Pavement				**23,193,425**		**6,030,291**	**29,223,716**
1) Inner Road	m^2	27,584	500	13,791,750	130	3,585,855	17,377,605
2) Parking Lot and Truck Berth	m^2	18,803	500	9,401,675	130	2,444,436	11,846,111
7. Access Road				**145,151,010**		**76,661,190**	**221,812,200**
1) Access Road	m	1,450	96,525	139,961,250	51,975	75,363,750	215,325,000
2) Gate	LS	1	5,189,760	5,189,760	1,297,440	1,297,440	6,487,200
8. Reclamation and Revetment				**202,734,046**		**176,334,778**	**379,068,824**
1) Reclamation	m3	525,394	210	110,332,664	90	47,285,428	157,618,092
2) Soil Improvement	m2	107,000	574	61,434,600	861	92,151,900	153,586,500
3) Outer Revetment	m	632	48,331	30,545,192	56,595	35,768,040	66,313,232
4) Inner Revetment	m	705	598	421,590	1,602	1,129,410	1,551,000
Total Expense				**605,544,210**		**423,532,053**	**1,029,076,263**
II. Price Escalation				**194,550,163**		**-24,227,606**	**170,322,557**
III. Physical Contingency				**39,735,251**		**22,727,215**	**62,462,466**
IV. Consulting Service				**18,235,640**		**68,006,004**	**86,241,644**
V. Land Acquisition				**50,000,000**		**0**	**50,000,000**
VI. Resettlement Cost				**10,482,640**		**0**	**10,482,640**
VII. Administration Cost				**31,795,620**		**23,863,576**	**55,659,196**
VIII VAT				**58,120,407**		**47,727,152**	**105,847,559**
Total Project Cost				**1,008,463,931**		**561,628,394**	**1,570,092,325**

Table 13.10 Preliminary Project Cost Estimation (Market B-2 and Access Road 2-3)

Description	Unit	Quantity	Cost Estimation (Unit: Rp. 1,000)				Total
			Local Portion		Foreign Portion		
			Unit Price	Amount	Unit Price	Amount	
I. Construction Expense							
1. General Expense	L.S.	1	9,726,804	**9,726,804**	6,651,936	**6,651,936**	**16,378,740**
2. Fish Trading & Market Center				**150,625,500**		**52,767,000**	**203,392,500**
1) Wholesale Market Bldg.	m^2	24,315	5,200	126,438,000	1,800	43,767,000	170,205,000
2) Kiosk/Canteen Bldg. (each 42 units)	m^2	5,625	4,300	24,187,500	1,600	9,000,000	33,187,500
3. Fish Supply Buffer Center				**24,877,600**		**34,749,550**	**59,627,150**
1) Cold Storage (12 units)	m^2	1,620	5,000	8,100,000	18,600	30,132,000	38,232,000
2) Fish Processing Unit (25 units)	m^2	2,363	4,000	9,450,000	1,100	2,598,750	12,048,750
3) Storage Bldg. (5 units)	m^2	756	4,000	3,024,000	1,100	831,600	3,855,600
4) Pedestrian Walk	m^2	1,484	2,900	4,303,600	800	1,187,200	5,490,800
4. Seafood Plaza	m^2	2,976	9,400	**27,974,400**	2,700	**8,035,200**	**36,009,600**
5. Utilities				**28,035,400**		**64,192,900**	**92,228,300**
1) Desalinated Water Production Plant	LS	1	9,833,400	9,833,400	26,181,400	26,181,400	36,014,800
2) Sterilized Seawater Production Plant	LS	1	995,500	995,500	3,590,000	3,590,000	4,585,500
3) Wastewater Treatment Plant	LS	1	8,504,100	8,504,100	28,616,100	28,616,100	37,120,200
4) Electric Power Supply Plant	LS	1	8,702,400	8,702,400	5,805,400	5,805,400	14,507,800
6. Pavement				**23,206,300**		**6,033,638**	**29,239,938**
1) Inner Road	m^2	27,584	500	13,791,750	130	3,585,855	17,377,605
2) Parking Lot and Truck Berth	m^2	18,829	500	9,414,550	130	2,447,783	11,862,333
7. Access Road				**191,000,385**		**101,349,315**	**292,349,700**
1) Access Road	m	1,925	96,525	185,810,625	51,975	100,051,875	285,862,500
2) Gate	LS	1	5,189,760	5,189,760	1,297,440	1,297,440	6,487,200
8. Reclamation and Revetment				**202,734,046**		**176,334,778**	**379,068,824**
1) Reclamation	m3	525,394	210	110,332,664	90	47,285,428	157,618,092
2) Soil Improvement	m2	107,000	574	61,434,600	861	92,151,900	153,586,500
3) Outer Revetment	m	632	48,331	30,545,192	56,595	35,768,040	66,313,232
4) Inner Revetment	m	705	598	421,590	1,602	1,129,410	1,551,000
Total Expense				**658,180,435**		**450,114,317**	**1,108,294,752**
II. Price Escalation				**205,311,192**		**-25,539,752**	**179,771,439**
III. Physical Contingency				**42,900,320**		**24,062,060**	**66,962,380**
IV. Consulting Service				**18,702,280**		**69,432,782**	**88,135,062**
V. Land Acquisition				**10,000,000**		**0**	**10,000,000**
VI. Resettlement Cost				**10,482,640**		**0**	**10,482,640**
VII. Administration Cost				**31,551,725**		**25,265,163**	**56,816,888**
VIII VAT				**61,632,617**		**50,530,326**	**112,162,943**
Total Project Cost				**1,038,761,210**		**593,864,896**	**1,632,626,106**

Table 13.11 Preliminary Project Cost Estimation (Market A-2 and Access Road 2+3)

Description	Unit	Quantity	Cost Estimation (Unit: Rp. 1,000)				Total
			Local Portion		Foreign Portion		
			Unit Price	Amount	Unit Price	Amount	
I. Construction Expense							
1. General Expense	L.S.	1	11,238,454	**11,238,454**	7,460,451	**7,460,451**	**18,698,905**
2. Fish Trading & Market Center				**150,625,500**		**52,767,000**	**203,392,500**
1) Wholesale Market Bldg.	m^2	24,315	5,200	126,438,000	1,800	43,767,000	170,205,000
2) Kiosk/Canteen Bldg. (each 48 units)	m^2	5,625	4,300	24,187,500	1,600	9,000,000	33,187,500
3. Fish Supply Buffer Center				**20,574,000**		**33,562,350**	**54,136,350**
1) Cold Storage (12 units)	m^2	1,620	5,000	8,100,000	18,600	30,132,000	38,232,000
2) Fish Processing Unit (25 units)	m^2	2,363	4,000	9,450,000	1,100	2,598,750	12,048,750
3) Storage Bldg. (5 units)	m^2	756	4,000	3,024,000	1,100	831,600	3,855,600
4) Pedestrian Walk	m^2						
4. Seafood Plaza	m^2	2,976	9,400	**27,974,400**	2,700	**8,035,200**	**36,009,600**
5. Utilities				**28,035,400**		**64,192,900**	**92,228,300**
1) Desalinated Water Production Plant	LS	1	9,833,400	9,833,400	26,181,400	26,181,400	36,014,800
2) Sterilized Seawater Production Plant	LS	1	995,500	995,500	3,590,000	3,590,000	4,585,500
3) Wastewater Treatment Plant	LS	1	8,504,100	8,504,100	28,616,100	28,616,100	37,120,200
4) Electric Power Supply Plant	LS	1	8,702,400	8,702,400	5,805,400	5,805,400	14,507,800
6. Pavement				**23,193,425**		**6,030,291**	**29,223,716**
1) Inner Road	m^2	27,584	500	13,791,750	130	3,585,855	17,377,605
2) Parking Lot and Truck Berth	m^2	18,803	500	9,401,675	130	2,444,436	11,846,111
7. Access Road				**296,093,520**		**156,440,880**	**452,534,400**
1) Access Road	m	2,960	96,525	285,714,000	51,975	153,846,000	439,560,000
2) Gate	LS	2	5,189,760	10,379,520	1,297,440	2,594,880	12,974,400
8. Reclamation and Revetment				**202,734,046**		**176,334,778**	**379,068,824**
1) Reclamation	m3	525,394	210	110,332,664	90	47,285,428	157,618,092
2) Soil Improvement	m2	107,000	574	61,434,600	861	92,151,900	153,586,500
3) Outer Revetment	m	632	48,331	30,545,192	56,595	35,768,040	66,313,232
4) Inner Revetment	m	705	598	421,590	1,602	1,129,410	1,551,000
Total Expense				**760,468,745**		**504,823,850**	**1,265,292,595**
II. Price Escalation				**239,580,693**		**-28,311,105**	**211,269,588**
III. Physical Contingency				**49,886,187**		**27,024,020**	**76,910,206**
IV. Consulting Service				**21,861,800**		**76,733,792**	**98,595,592**
V. Land Acquisition				**60,000,000**		**0**	**60,000,000**
VI. Resettlement Cost				**10,482,640**		**0**	**10,482,640**
VII. Administration Cost				**37,933,747**		**28,375,220**	**66,308,967**
VIII VAT				**69,396,661**		**56,750,441**	**126,147,102**
Total Project Cost				**1,249,610,473**		**665,396,218**	**1,915,006,690**

APPENDIX 14

Terms of Reference (TOR) for the Consulting Services

APPENDIX 14. TERMS OF REFERENCE (TOR) FOR THE CONSULTING SERVICES

14.1 Background

14.1.1 General

The Ministry of Agriculture (MOA), as well as the Ministry of Marine Affairs and Fisheries (MMAF or KKP), of the Government of Indonesia (GOI) requested the Japanese Government for technical assistance for the conduct of a development study (feasibility study) on distribution mechanism reform through the development of a wholesale market (improvement of postharvest handling and marketing facilities) in 2007.

In response to the request, the Japan International Cooperation Agency (JICA) dispatched a first preparatory survey mission to Indonesia in May 2009 to confirm the basic framework for execution of the development study. A second survey mission in November 2009 discussed with GOI the Study objectives, scope, items, and schedule and collected information necessary for the Study. The Minutes of Meeting (M/M), including Scope of Work (S/W) for the Study (Fishery), was signed between MMAF and JICA on 17 December 2010.

The proposed project is related to the “agricultural and fishery products wholesale markets” described in the Annex of the Joint Statement made at the signing of the Economic Partnership Agreement (EPA) between Japan and Indonesia in 2007. The Study (Fishery) focused on the improvement of fish wholesale and related facilities and services, including access roads to the fish wholesale market, in the Nizam Zachman Oceanic Fishing Port, commonly known as the Jakarta Fishing Port (JFP).

The Study (Fishery) was conducted by JICA Study Team from March 2011 to August 2011. Based on the results of the Study, the Government of Indonesia requested Japan's ODA Loan to construct new wholesale market and new access road in JFP.

14.1.2 Necessity of the Project

Wholesale Market : JFP was constructed on reclaimed land in the northern part of Jakarta under the auspices of a Japan's ODA loan. Since the reclamation work commenced in 1980, the structures have been constructed in several phases. The auction hall (TPI: under Japan's ODA) and fish wholesale market (PPI:GOI Budget) were constructed in 1984 and 1992, respectively, and public fish trading activities started in 1984. Fish auction was practiced at one stage, but discontinued for some reasons, while PPI has been operational, providing some 70,000 t of fish (2009) to the population not only in DKI Jakarta but also to most parts of Java. As such, the PPI/JFP has been playing an important role as a fish marketing and distribution hub/center in Java and the southern part of Sumatra. With the continuing expansion and facility renovations at the JFP by not only public but also private investment, JFP has evolved into the biggest fish landing, processing, and marketing complex in Indonesia.

Fish landed in the East Quaywall are mostly fresh tuna for export and in the West Quaywall are other common fish species, frozen tuna, and other large pelagic caught by long-line. In 2009, the total volume of fish landings in both quaywalls amounted to 44,300 t, of which 10,889 t (equivalent to 24.6%) in 2009 was marketed through PPI/ JFP, and the balance was either exported or processed in plants located mostly within the JFP industrial complex. Due to the stagnant marine fish catches especially around Java, fish landings have been decreasing from year to year, except in 2009.

On the other hand, the volume of fish transported over land to the JFP has been increasing by the year and compensating for the decrease in marine fish landings. Fish are collected from all over in Java and Lampung, Sumatra. It has also been observed that the proportion of frozen fish has increased compared to those landed fresh. This trend is expected to accelerate in the coming years as fishing effort extends to the more remote fishing grounds. A drop in the number of tuna long-line vessels has also been observed in JFP – the result of the conversion of many tuna fishing vessels to purse seiners for capture of medium-sized pelagic like skipjack, long-tail tuna, and eastern little tuna. This trend

partly explains the reduction in fish landings, especially of tuna, at the JFP.

As the JFP was constructed on reclaimed land, the area has been plagued with land subsidence problems, which have caused great inconvenience and physical damage to some structures, such as the auction hall and wholesale market. There is also a serious flooding problem, which causes heavy traffic in the area during high tide and which has made some fish traders decide to relocate and has prevented others from coming to the PPI/JFP for trading. This was expressed by some fish retailers interviewed at the Jatinegara and Bendungan Hilir fish retail markets.

In the past, substantial rehabilitation and improvement works were carried out under the financial assistance of the Japan's ODA loan to improve the situation. Auction hall (TPI) located in the Western Quaywall also re-constructed in 2011 by using the unused balance of funds from Japan's ODA Loan No. IP-519. The JICA Study Team in the field in 2011 evaluated possible options for the improvement (or replacement) of the fish wholesale market (PPI), which is facing problems of (i) extensive physical damage brought about by land subsidence and (ii) heavy congestion in the market flood due to 'cross trades."

In addition to physical infrastructure problems, the fish marketing and distribution system itself needs to be addressed in PPI/JFP, which is the largest fish market in Indonesia and as such, should be a model for other similar facilities. MMAF has acknowledged the need to streamline the fish marketing and distribution system in its *Five-Year Strategic Plan, 2010-2014* and has already launched a project to construct a model fish market and fish distribution center in Brondong, which will be completed in early 2012. At this center, an auction system will be introduced, which is envisaged to lead to the streamlining of fish marketing and distribution and protect the benefits of fishermen and consumers in the long run. The auction system of fish trading has been shown in most developed countries to attract more fish traders because it is believed to be a fair and transparent mode of fish trading.

There are also social issues involved as the Muara Baru is recognized as the area where the lowest income households are aggregated (DKI Jakarta, 2011). Hence, DKI Jakarta has focused on localized development in this area with the view towards increasing job opportunities and improving the security. In addition, MMAF has drafted to create "Fisheries Waterfront City of Indonesia" by integrating JFP and Muara Angle Fish Landing Center operated by DKI Jakarta. While the completed blueprint has not been released, it will be necessary to link the development plan for the fish wholesale market to the Waterfront Plan so that high-quality fish and fish products could be served in the fish restaurants to be installed in the new PPI/JFP premises.

Access Road ; Jl. Muara Baru is the only existing access road to JFP. The road is 8.0m wide and is a concrete (ridged) paved road. The pavement is in relatively good condition, with the area near the JFP gate having been paved recently as part of the Rehabilitation and Improvement project. The remaining sections in the improvement area should be overlaid with concrete to avoid flooding. However the elevation of the road is about 1.5 m below the sea water level. So that the areas are suffered from flooding throughout the year.

In addition the road is usually heavily congested due to (i) mixed traffic caused by public transport, motorbikes, Bajaj, trucks, and cars; (ii) illegal parking; (iii) occupancy of illegal houses, vendors, and shops; and (iv) lacking of a road shoulder or pedestrian space. So that about 9000 PCU (passenger car unit; Motor cycle-16,000, Sedan-1,400, Bus-353, Truck-2,240, bicycle-1,600) utilizing JFP are always suffered for smooth transportation.

Based on the such situations described above, MMAF has decided to implement the Project consisting of the development of wholesale market and related facilities including construction of new access road in JFP to improve post harvest handling and marketing facilities. And MMAF decided to employ consultant to carry out the engineering and supervision services under JICA Loan.

14.2 Location of the Project

The Project is located at Muara Baru and Pluit, North Jakarta, DKI Jakarta Province

14.3 Scope of the Project

The Project consists of two components, 1) Civil and Building Works and 2) Consulting Services.

14.3.1 Civil and Building Works

14.3.1.1 Lot-1 (Reclamation and Revetment)

1) Revetment: about 1,350 m

2) Reclamation: about: about 720,000 m3 (107,000 m^2)

3) Soil Improvement: about 107,000 m^2

14.3.1.2 Lot- 2 (Building, Land Civil and utilities Works)

1) Fish Trading & Market Center

- Wholesale Market Building: about 24,000 m^2
- Kiosk/Canteen Building (each 48 units): about 6,900 m^2

2) Fish Supply Buffer Center

- Cold Storage (29 units): about 3,900 m^2
- Fish Processing Unit (25 units): about 2,400 m^2
-Storage Building (8 units): about 800 m^2
-Pedestrian Walk: about 1,500 m^2

3) Seafood Center: about 3,000 m^2

4) Utilities

- Desalinated Water Production Plant: 600 ton/day
- Sterilized Seawater Production Plant: 1,000 ton/day
-Wastewater Treatment Plant: 1,900 ton/day
- Electric Power Supply Plant: Max 3,500 KVA

5) Civil Works

- Inner Road: about 18,000 m^2
- Parking Lot and Truck Berth: about 19,000 m^2
- Drainage
- Landscaping

14.3.1.3 Lot- 3 Access Bridge and Road

1) Access Bridge and Road: about 1,430 m

2) Gate

14.3.2 Consulting Services

14.3.2.1 Detailed Design

14.3.2.2 Preparation of Tender and Contract Documents

14.3.2.3 Tender Assistance

14.3.2.4 Construction Supervision

14.4 Implementing Agency

Directorate General of Capture Fisheries, Ministry of Marine Affairs and Fisheries will be the Executing Agency who will establish a Project Office Unit, headed by Project Manager that will responsible for day-to-day implementation of the Project, together with UPT in terms of operation and maintenance aspects.

14.5 Scope of Services

The scope of services shall include, but not limited to the following:

14.5.1 Survey and Preliminary Design Stage

14.5.1.1 Collection of additional data/ information for the review of the Feasibility Study.

14.5.1.2 Topographic/Hydrographic Survey covering the project site

14.5.1.3 Soil Investigations

14.5.1.4 Preliminary design of each structure

14.5.1.5 Preliminary cost estimate

14.5.1.6 Preparation of Prequalification Documents

14.5.2 Detailed Design and Preparation of Tender and Contract Documents

14.5.2.1 Detailed design of Reclamation and Revetment Works

14.5.2.2 Detailed design of Building, Land Civil and utilities Works

14.5.2.3 Detailed design of Access Bridge and Road Works

14.5.2.4 Preparation of Tender and Contract Documents (separately 3 lots) consisting of the followings:

- General Condition of Contract and Tender Requirements

- Technical Specifications

- Bills of Quantities

-Tender Drawings

14.5.2.5 Cost Estimates by using Bills of Quantities

14.5.2.6 Construction Schedule

14.5.3 Pre-qualification and Tender Evaluation

14.5.3.1 To assist DGCF to evaluate pre-qualification of the Applicants for tender

14.5.3.2 To assist DGCF for tender calling, evaluation and award a contract to the approval of the Government and with the concurrence of JICA.

14.5.4 Supervisory Services

14.5.4.1 Construction Period

a) Checking and/or recommending approval of the Manufacturer's Drawings and/or Contractor's Proposa1 for the construction of the Project.
b) Preparation of additional designs and checking of all working drawings of the Contractor for approval of MMAF for the satisfactory execution of works including those required as a result of any modification and/or alterations from the original bid documents.
c) To check the location, alignment and workmanship of all works as laid by the Contractor including the installation of procured equipment for recommendation to MMAF for acceptance or rejection;
d) Recommendation of acceptance or rejection of materials to be used or incorporated in the works, Continuous inspection of the works and where necessary to issue instructions to the contractor to make corrections for compliance with the Contract.
e) Checking of monthly Contract Payment Certificate for progress payments and certifying progress payments for approval of MMAF.
f) Assisting MMAF in negotiating and implementing any change order which may be necessary.
g) Checking, evaluating and recommending for MMAF approval the Contractor's and Supplier's Work Schedule (CPM) and Progress Schedule for the most effective and expeditious methods of carrying out the works as well as the manufacture and installation of equipment.
h) Conducting of periodic coordination meetings regularly and as may be required.
i) Maintaining permanent records of all measurements made for the works, quantities to be paid and results of all tests made on materials used for the works.
j) Evaluating and preparing recommendations for MMAF's approval of all claims, disputes and requests for time extension(s) or changes that the Contractor may request, and assist MMAF in negotiating with the Contractor on all prompt solution of such request.
k) Supervising the fabrication/installation of all equipment and facilities at site and performance of final performance test.
l) Issuing interim payment certificates, certificates of completion, final payment certificates and maintenance certificates in accordance with the Contract.
m) Preparing Environmental Monitoring Program during project construction.
n) Reviewing and submitting to MMAF, upon the issuance of the Final Certificate of Acceptance of the Project, all job records, as-built drawings and written instructions for the satisfactory operation and maintenance of the Project.
o) Management of site safety.
p) To submit the followings to DGCF
   - Monthly Progress Report
   - Monthly Certificate of Payment
   - Manual for the proper utilization of New Wholesale Market and related Facilities
   - Other necessary report, if necessary or requested by DGCF
   - Final Completion Report

14.5.4.2 Monitoring of Defects during the Defect Liability Period

a) For 12 months after project completion, the Contractor shall execute maintenance work in accordance with the Contract. The Consultant will periodically inspect the performance work of the Contractor.

b) During the period of maintenance, the Consultant shall prepare instructions to the Contractor in writing for the restoration of all defectives works discovered during the defects liability period. When all maintenance work has been completed in accordance with the Contract, Defects Liability Certificate shall be issued to the Contractor.

c) Upon issuance of the Defects Liability Certificate, the Consultant shall submit a Defects Liability Completion Report summarizing the conditions of the facilities and any or all restoration works that were taken.

14.5.4.3 Technology Transfer

The Consultant shall make transfer technology know-how to the Indonesian staff or Government counterparts during the consulting services for the following points.

a) Design of Fisheries related Facilities
b) How to keep JFP clean and hygienic
c) Land settlement
d) How to utilize new Wholesale market and related facilities properly
e) Method of environmental monitoring with dispatched expert.
f) Information System
g) Overseas training by visiting similar fish wholesale markets in Japan and neighboring countries during the construction stage in order to see and study actual operation condition regarding method to keep "clean and hygienic", maintenance method of facilities, distribution system of fish products, data collection and analysis, fish trading system.

14.6 Schedule

The Project implementation is to be carried out in the following period of time:

1) Stage 1 : Survey and Preliminary Design---------- 5 months
2) Stage 2 : Detailed Design and Tender Documents ---------- 7 months
3) Stage 3 : Tender and tender evaluation and award of contract--- 12 months
4) Stage 4 : Construction ---------- 42 months
5) Stage 5 : Maintenance Period ----------12 months

14.7 Experts Required

In this Project, the Consultant has to promote efficient as well as optimum man-month and reminding from its works. The estimate total man-months is about 470 MM.

The expertise required for consulting services are as follows;

Expatriate Engineers

E-1 Project Manager
E-2 Architectural Structure Engineer
E-3 Architect
E-4 Civil Engineer
E-5 Highway Engineer
E-6 Electrical Engineer
E-7 Mechanical Engineer
E-8 Refrigeration Engineer
E-9 Environmental Specialist
E-10 Document Specialist

Indonesian Engineers

L-1 Deputy Project Manager
L-2 Architectural Structure Engineer A
L-3 Architectural Structure Engineer B
L-4 Civil Engineer
L-5 Highway Engineer
L-6 Architect A
L-7 Architect B
L-8 Architect C
L-9 Electrical Engineer
L-10 Mechanical Engineer
L-11 Refrigeration Engineer
L-12 Document Specialist
L-13 Cost Estimator
L-14 Quantity Surveyor

14.8 Submission of Reports

The Consultant shall submit the following report in English.

1) Preliminary Report----------20 copies within 5 months after commencement of the services
2) PQ Documents ----------20 copies within 5 months after commencement of the services
3) Detailed Design Report ----------20 copies within 12 months after commencement of the services
4) Tender Documents----------10 copies within 12 months after commencement of the services
5) PQ Evaluation Documents----------10 copies within 1 month after receipt of PQ documents
6) Tender Evaluation Documents-----10 copies within 1 month after receipt of Tender Documents
7) Monthly Progress Reports----------10 copies within 7 days after reporting month of construction
8) Completion Report----------20 copies within 2 months after the completion of the works
9) Maintenance Report----------10 copies within 1 months after the completion of maintenance

14.9 Specific Terms of Reference

14.9.1 The Consultant shall solely responsible for gathering and analysis of all data required relating the Project and shall undertake such surveys and investigations for the satisfactory implementation of the Project.

14.9.2 The Consultant shall at all times utilize the most economical, effective and widely accepted engineering concepts and standards.

14.9.3 The Consultant shall keep DGCF fully informed on all matter relating to the implementation of the Project, not only through monthly progress reports but also through routine activities and other

reports as necessary.

14.9.4 The Consultant shall assist a smooth liaison between DGCF and JICA.

14.10 Services and Facilities to be provided by DGCF

14.10.1 Furnish all available and related data, maps and information required for the execution of the services.

14.10.2 Assign counterpart personnel for the purpose of liaison with other Government agencies

14.10.3 Make necessary arrangement to exempt the Consultant from the payment of custom duties, internal taxes, and levies that might be imposed on the Consultant.

14.10.4 Complete all necessary immigration procedures for the foreign experts, such as applications for entry, stay, exit and work permit.

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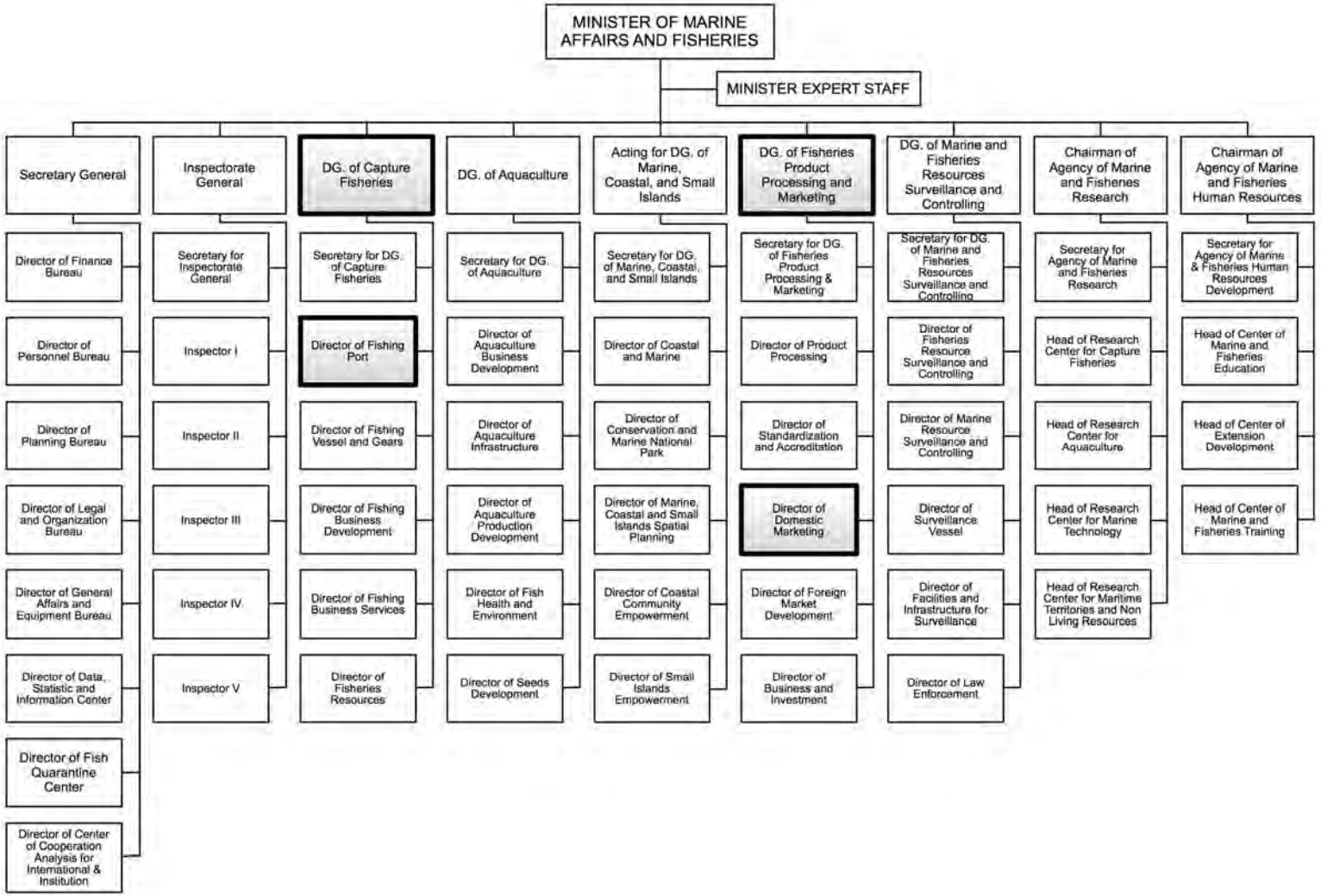
APPENDIX 15

Implementation, Operation and Management Structure

APPENDIX 15. IMPLEMENTATION, OPERATION AND MANAGEMENT STRUCTURE

15-1. ORGANIZATION CHART OF MINISTRY OF MARINE AFFAIRS AND FISHERIES (MMAF)



15-2. ESTIMATED NUMBER OF PERSONS REQUIRED FOR OPERATION AND MANAGEMENT OF PROJECT FACILITIES

Required Facilities					Items		Density		Total	Comments & Specification
A	Fish Trading & Marketing Center (PPPI)									
	1	Wholesale Market							4,122	
		a	Fish Unloading	Incomig Trucks	160	Trucks	4	/truck	640	4 persoons/truck
		b	Fish Verification & Transaction Area	Fish wholesalers and other buyers	480	Wholesalers etc.	0.75		360	Currently 992 compartments for 390 wholesalers (based on registration), But the sales compartments are acturally assumed 80~85% of total and for acctural 150 or more wholesallers; At least 25% of compartments will be used by multi-use
		c	Fish Organoleptic Laboratory				6			Now under considerations
		d	Transit Area	Wholesalers' sorting workers	480	Compartment	2	/Compartment	960	Sorting workers also engage in sales workers
				Transporters	480	Compartment	1	/Compartment	480	Transporters don't belong to brokers
		e	Market hall	Wholesalers' workers	480	Compartment	1	/Compartment	480	Total workers of each Compartmet space is estimated to 4 workers including accountant,based on the present situation
				Accountants	480	Compartment	1	/Compartment	480	
		f	Packing Area	Fish buyers' workers	320	Tons	0.25	Kg/Purchaser	1,280	It is assumed that each Purchaser collect almost 250 kg of fish, based on the survey
				Outgoing 4.5 tons Trucks	320	Tons	3	/truck	160	Each 4.5tons truck is transporting 2tons fish, The ratio of 4.5tons trucks is estimated alomost 20% of the total; 3 persoons/truck
				Outgoing Pick-up Trucks	320	Tons	2	/truck	427	Each pick-up truck is transporting 1tons fish, The ratio of pick-up trucks is estimated alomost 80% of the total; 2 persoons/truck
		g	Management Offices	UPT			14			Now under considerations
				PERUM			14			Now under considerations
				DKI			16			Now under considerations
				MMM			14			Now under considerations
				TKBMII			36			including weighing and cleaning workers resting spaces, These are estimated that weghing:10 and cleaning:20
				Sub-total			94		100	
		h	Offices & Resting stations for Wholesalers							
					24	Offices and/or restng stations	2	/Offices and/or	48	Each area will be almost 4 x 6m each; Excluding their workers
		j	Ice Supply Stations	Crashers	2	Stations	4	/Stations	8	
				Sales workers	8	Crashers	2	/Crashers	16	
				Accountants	2	Stations	1	/Stations	2	
		k	Desalinated Clean Water Supply Stations	Supplyer	2	Stations	1	/Stations	2	
				Sales workers	2	Outlets	2	/Outlets	4	
				Accountants	2	Stations	1	/Stations	2	
		m	Electric Machine Room		1	Station	3	/Stations	3	
		n	Public Toilets		4	Toilets	1	/Toilet	4	
		*	Total	Full time workers , etc					4,129	
				Temporary workers such as drivers of in-coming truck, and Guests					1,227	
				Management office employee					100	

B	Fish Supply Buffer Ceter								
	1	Cold Storage Building							
		Cold Starage unit	Workers	29	units	5	/unit	145	2.5~28.5 workers/100tons capacity, average 4.8 persong/100tons capacity, based on the current situation (8 cold storages)
			Manager	29	units	1	/unit	29	
	2	Fish Proccessing Units							
		Proccessing unit	Workers	25	units	12	/unit	300	Now under investigation
			Manager	25	units	1	/unit	25	
	3	Storage Building							
		Starage unit	Workers	8	units	3	/unit	24	
			Manager	8	units	1	/unit	8	
	*	Total	Full time workers					531	
C	Canteens and Kiosks Center								
	1	Kiosks and Canteens, Food stands							
		Kiosks		48	units	2	/unit	96	
		Canteens		48	units	3	/unit	144	
		Food stands		60	units	2	/unit	120	
	2	Public Toilets							
		Toilet units		4	units	1	/unit	4	
	*	Total	Full time workers					364	
D	Seafood Plaza								
	1	Fish Shops							
		Fish Retail Unit	including managers	12	units	4	/unit	48	
		Guests to the shops		48	Workers	40	/workers	1,920	200,000Rps profit per worker/5.000Rps profit per guest
		Exhibition hall		1	unit	4	/unit	4	
		Guests to the hall	without the guests to the shops	12	hours	30	/hour	360	
	2	Seafood Restaurants							
		Restaurants units		2	units	8	/unit	16	
		Guest to the restaurants		16	Workers	50	/workers	800	200,000Rps profit per worker/4.000Rps profit per guest
	*	Total	Full time workers					68	
			Guests					3,080	
E	Utility Stations								
	1	Clean Water Supply Station							
		a Desalinated Clean Water Production Plant		1	location	2	/location	2	
		b Water Reservior for Desalinated Clean Water		1	location		/location		
		c Sterilized Seawater Production Plant		1	location	2	/location	2	
	2	Waste Water Treatment Plant		1	location	4	/location	4	
	3	Electric Sub-Station		1	location	2	/location	2	
	*	Total	Full time workers					10	
	**	Grand Total	Full time workers					3,102	
	**		Temporary workers such as drivers of in-coming truck, and Guests					4,307	
	***		Management office employee					100	

15-3. ESTIMATED VOLUME OF WATER REQUIRED FOR OPERATION AND MANAGEMENT OF PROJECT FACILITIES

Required Facilities			Items		Density		Total Capacity	Comments & Specification
1	Clean Water Supply Station							
a	Desalinated Clean Water Production Plant							
	Water for processing units		48	tons/day	1.2	ratio	58	for washing, cutting and cleaning etc.
	Drinking water and water for cooking foods	For full time workers	5,102	persons	2	ltrs/day	10	including water for washing
		For temporary workers such as drivers of in-coming truck, and Guests	4,307	persons	0.2	ltrs/day	1	including water for washing
		for office employee	100	persons	4	ltrs/day	0	*including water for washing*
	Religious Water	for full time workers	5,102	persons	40	ltrs/day	204	2 minuites x 1 time
		For temporary workers such as drivers of in-coming truck, and Guests	4,307	persons	5	ltrs/day	22	2 minuites x 1 time, but 1/8, Because of short stay
		for office employee	100	persons	80	ltrs/day	8	2 minuites x 2 times
	Water for maintain hygienic standards	for full time workers in the PPPI	5,102	persons	10	ltrs/day	51	5ltrs per once x 2 times
	Water for public toilet	for full time workers	5,102	persons	40	ltrs/day	204	Once per person, Average volume of male & female, Because of business hours
		For temporary workers such as drivers of in-coming truck, and Guests	4,307	persons	10	ltrs/day	43	Average volume of male & female, Because of short stay
		for office employee	100	persons	60	ltrs/day	6	Average volume of male & female, but 1.5 times of worker's case becaouse of business hour
*	Sub-total						607	
b	Sterilized Sea Water Production Plant							
	Water for maintain hygienic standards	for cleaning market facilities	27,740	m2	10	ltrs/m2	277	Ground floor area (+all direction 10m) of the Wholesale market x 10ltrs/m2, including boots washing pools, Currently it is estimated almost 40 m3, it is corresponded to 4 ltrs/m2
		Water for washing fish	320	tons/day	0.8	ratio	256	Before and after trading. total1.2 times of estimated fish volume in 2025: now under considerations
			12,800	boxes	20.0	ltrs/fish box	256	washing fish per each fish box, 10ltrs x 2 times
		Water for cleaning equipments	320	tons/day	1.2	ratio	384	0.8 x estimated fish volume in 2025: now under considerations
			2,688	boxes	30.0	ltrs/box	81	The numbers of transferred insulation boxes: average 21, Unloading trucks: 128, Total numbers: 2,688
			12,800	boxes	12.0	ltrs/fish box	154	The numbers of Unloading trucks/ rotation: 40, Total Fish volume:100tons, effective fish volume of market's fish box: 25kg, Total numbers of required fish boxes: 4,000 x2, Total numbers of used fish boxes: 12,800
			480	boxes	30.0	ltrs/box	14	Total numbers of wholesaler's insulation boxes: 4/compartment x 480 compartments, Cleaning each one box of each compartment/day; Maximum fish stock volume is caluculated into 120kg x 4 x 480: 230 tons
			12,960	trays	10.0	ltrs/tray	130	Total numbers of wholesaler's fish sales tray: 6/compartment x 480 compartments, Total displayed fish volume is caluculated into 25kg x 6 x 480: 72 tons, It means that sales rotation of displaying fish would be 4.5, Then total numbers of used tray: 12,960
		389	270	carriers	40.0	ltrs/carrior	11	Effective volume of each carrier (from Handling hall to Market hall: 100kg, 15 turns per hour, Transferred fish volume per 30 minutes (roatation time of truck berth), *Required numbers of carriers : 135 x 2 including carriers for offloading*
*	Sub-total						917	
**	Total						1,524	
2	Waste Water Treatment Plant							Water guality from the market facilities are estmated averagely 800ppm of BOD value, Discharge water quarity level is 20ppm of BOD value and 100ppm of COD value, but now these are under investigations
	the water used in the wholesale market site	Desalinated Clean Water					607	
		Sterilized Brakish Water					917	
	the transferred water	with fish from the production site	320	tons/day	1.2	ratio	384	
**	Total						1,908	

15-4. ESTIMATED ELECTRIC POWER REQUIRED FOR OPERATION AND MANAGEMENT OF PROJECT FACILITIES

Required Facilities		Items		Illumination (mainly by fluorecent lights)		Outlet		Airconditioning & Ventilation		Power			Total	Comments & Specification
A Fish Trading & Marketing Center (PPPI)														
a Fish Unloading	Semi- outdoor, High Ceiling	510	m2	0.006	Kw/m2		Kw/m2		Kw/m2				3	
b Fish Verification & Transaction Area		3,315	m2	0.008	Kw/m2		Kw/m2		Kw/m2				27	
	Future Auction Hall	2,040	m2					0.050	Kw/m2				102	
c Transit Area	such as corridor	1,275	m2	0.004	Kw/m2		Kw/m2		Kw/m2				5	
d Market hall	High Ceiling	10,710	m2	0.006	Kw/m2		Kw/m2		Kw/m2				64	
e Packing Area	Semi- outdoor, High Ceiling	5,610	m2	0.006	Kw/m2		Kw/m2		Kw/m2				34	
f Management Offices	Average office space	786	m2	0.012	Kw/m2	0.050	Kw/m2	0.050	Kw/m2				88	including offices of *Fish Organoleptic* Laboratory, UPT, PERUM, DKI, MMM & TKBNI
g Offices & Resting stations for Wholesalers		1,275	m2	0.010	Kw/m2	0.050	Kw/m2	0.050	Kw/m2				140	
h Ice Supply Stations	Crushers	180	m2	0.006	Kw/m2		Kw/m2		Kw/m2				1	
j Desalinated Clean Water Supply Stations	Supplyer	198	m2	0.006	Kw/m2		Kw/m2		Kw/m2				1	
k Electric Machine Room		0	m2	0.006	Kw/m2		Kw/m2		Kw/m2				0	
m Public Toilets		266	m2	0.006	Kw/m2	0.010	Kw/m2	0.010	Kw/m2				7	
** Total													472	
B Fish Supply Buffer Ceter														
1 Cold Storage Building	Cold storages	2,284	m2	0.004	Kw/m2		Kw/m2		Kw/m2				9	
	Offices	2,284	m2	0.012	Kw/m2	0.050	Kw/m2	0.050	Kw/m2				27	
* Sub sub-total													37	
2 Fish Proccessing Units	Processing area	1,181	m2	0.015	Kw/m2	0.050	Kw/m2	0.075	Kw/m2				18	
	Offices	1,181	m2	0.012	Kw/m2	0.050	Kw/m2	0.050	Kw/m2				14	
* Sub sub-total													32	
3 Storage Building	Storages	378	m2	0.004	Kw/m2	0.020	Kw/m2		Kw/m2				2	
	Offices	378	m2	0.012	Kw/m2	0.050	Kw/m2	0.050	Kw/m2				5	
* Sub sub-total													6	
** Total													74	
C Canteens and Kiosks Bldg.														
1 Kiosks and Canteens, Food stands														
Kiosks		1,350	m2	0.010	Kw/m2	0.050	Kw/m2	0.020	Kw/m2				14	
Canteens		1,350	m2	0.010	Kw/m2	0.050	Kw/m2	0.020	Kw/m2				14	
Food stands		141	m2	0.010	Kw/m2	0.050	Kw/m2		Kw/m2				1	
* Sub sub-total													28	
2 Public Toilets		270	m2	0.006	Kw/m2	0.010	Kw/m2	0.010	Kw/m2				2	
** Total													30	

D	Seafood Plaza															
	1	Fish Shops	including Offices, Storages and Exhibition hall	1,539	m2	0.010	Kw/m2	0.020	Kw/m2	0.050	Kw/m2				15	
	2	Seafood Restaurants	including Atrium	1,539	m2	0.010	Kw/m2	0.010	Kw/m2	0.050	Kw/m2				15	
	3	Public Toilet		41	m2	0.006	Kw/m2	0.010	Kw/m2	0.010	Kw/m2				0.2	
	**	Total													31	
E	Utility Stations															
	1	Clean Water Supply Station														
		a	Desalinated Clean Water Production Plant	Machine room	150	m2		Kw/m2		Kw/m2		Kw/m2				0	
				Office and starage	50	m2	0.012	Kw/m2	0.050	Kw/m2	0.050	Kw/m2				1	
		b	Sterilized Seawater Production Plant	Machine room		m2		Kw/m2		Kw/m2		Kw/m2				0	
						m2		Kw/m2		Kw/m2		Kw/m2				0	
		c	Elevated Watewr Tank Tower		0.27	Kw	1									0.27	
						m2		Kw/m2		Kw/m2		Kw/m2				0	
		*	Sub sub-total													1	
	2	Waste Water Treatment Plant				m2		Kw/m2		Kw/m2		Kw/m2				0	
				Office and starage		m2		Kw/m2		Kw/m2		Kw/m2				0	
		*	Sub sub-total													0	
	3	Electric Sub-Station				m2		Kw/m2		Kw/m2		Kw/m2					
						m2		Kw/m2		Kw/m2		Kw/m2					
		*	Sub sub-total													0	
	**	Total														1	
F	Out Door Illumination															
	0	Inner road			0.27	Kw	1,080	m	40	m						7	
	1	Truck Berth for Unloading Trucks	included in the unloading area		2,040	m2		Kw/m2								0	
	2	Parking Lot for Unloading Trucks	no parking lot		0	m2	0.0003	Kw/m2								0	
	3	Parking Lot for Offloading Trucks			0.27	Kw	12									3	
	4	Truck Berth for Fish Supply Buffer Center	including in the inner road		4,392	m2		Kw/m2								0	
	5	Parking Lot for Workers Moter-cycles	including in the inner road		1,036	m2		Kw/m2								0	
	6	Parking Lot for Management offices	including in the inner road		202	m2		Kw/m2								0	
	7	Parking Lot for Kiosks Area			0.27	Kw	2									1	
	8	###			0.15	Kw	8									1	
	9	Pedestrian deck or corridor of Kiosks and Canteens			3,633	m2	0.0003	Kw/m2								1	
	10	Pedestrian deck or corridor of Seafood Centoer			0.15	Kw	4									1	
	11	Outdoor Lights of Clean Water Supply Station			0.27	Kw	1									0	
	12	Outdoor Lights of Drainage Water Clarication Plant			0.27	Kw	2									1	
	13	Outdoor Lights of Electric Sub Station			0.15	Kw	1									0	
	**	Total														15	
	***	Sum Total														623	

15-5. ESTIMATED OPERATION AND MAINTENANCE COST FOR EQUIPMENT

(1) OPERATION COST

	Item		Year	Water	m3/year	Amount	Price	Electricity	Kwh/year	Amount	Price	Maintenance/ Operation staff	Person	Amount	Price	Total cost(Rp)	Per Year (/year)	Rp(million)	Percentage ration of O&M / installation (%)	Cost of installation (million)
A.	Fish Trading and Marketing Center																			
	Equipment	80w x 250sets	1-10	Water volume	216,000	-	-	Power load	86,400	800	69,120,000	Mechanic	0	-	-	**69,120,000**	/year	69.12	0.0691	1,000
	Operation kw rate	0.08kw x250x12/day	11-20	-Ditto-	216,000	-	-	-Ditto-	86,400	900	77,760,000	-Ditto-	0	-	-	**77,760,000**	/year	77.76	0.0778	
	Sea water volume	2,700tons/day	21-30	-Ditto-	216,000	-	-	-Ditto-	86,400	1,000	86,400,000	-Ditto-	0	-	-	**86,400,000**	/year	86.40	0.0864	
B.	Fish Supply Buffer Center																			
	Equipment and cold storage	16kw x 29 units	1-10	Water volume	29	-	-	Power load	1,710,490	800	1,368,391,680	Mechanic/Electrician	2	1,500,000	36,000,000	**1,404,391,680**	/year	1,404.39	0.0201	70,000
	Operation kw rate	(12.8kwh x29units)/day	11-20	-Ditto-	29	-	-	-Ditto-	1,710,490	900	1,539,440,640	-Ditto-	2	2,000,000	48,000,000	**1,587,440,640**	/year	1,587.44	0.0227	
	Fresh water volume	(15m3 x 29 units) day	21-30	-Ditto-	29	-	-	-Ditto-	1,710,490	1,000	1,710,489,600	-Ditto-	2	2,500,000	60,000,000	**1,770,489,600**	/year	1,770.49	0.0253	
C.	Kiosk and Canteens, Food Stands																			
	Equipment	0.75kwx152 units	1-10	Water volume	760	-	-	Power load	525,312	800	420,249,600	Mechanic	0	-	-	**420,249,600**	/year	420.25	0.0040	5,000
	Operation kw rate	(0.6kwh x 152units)/day	11-20	-Ditto-	760	-		-Ditto-	525,312	900	472,780,800	-Ditto-	0	-	-	**472,780,800**	/year	472.78	0.0046	
	Fresh water volume		21-30	-Ditto-	760	-	-	-Ditto-	525,312	1,000	525,312,000	-Ditto-	0	-	-	**525,312,000**	/year	525.31	0.1051	
D.	Seafood Plaza																			
	Equipment	10kw x 2units, 1.5kw x 12 units	1-10	Water volume	384	-	-	Power load	175,104	800	140,083,200	Mechanic	0	-	-	**140,083,200**	/year	140.08	0.0280	5,000
	Operation kw rate	486.4kwh/day	11-20	-Ditto-	384	-	-	-Ditto-	175,104	900	157,593,600	-Ditto-	0	-	-	**157,593,600**	/year	157.59	0.0315	
			21-30	-Ditto-	384	-	-	-Ditto-	175,104	1,000	175,104,000	-Ditto-	0	-	-	**175,104,000**	/year	175.10	0.0350	
E.	Utility Stations																			
	Equipment																			
1	Desalination plant	100kw x 2units	1-10	Sea water volume	648,000	-	-	Power load	1,382,400	800	1,105,920,000	Mechanic/Electrician	4	1,500,000	72,000,000	**1,177,920,000**	/year	1,177.92	0.0471	25,000
	Operation kw rate	(80khw x 2unitsx24)/day	11-20	-Ditto-	648,000	-	-	-Ditto-	1,382,400	900	1,244,160,000	-Ditto-	4	2,000,000	96,000,000	**1,340,160,000**	/year	1,340.16	0.0536	
	Sea water volume	1,800tons/day	21-30	-Ditto-	648,000	-	-	-Ditto-	1,382,400	1,000	1,382,400,000	-Ditto-	4	2,500,000	120,000,000	**1,502,400,000**	/year	1,502.40	0.0601	
	Producted fresh water	600tons																		
2	Sea water sterilization plant	10khw x 2units	1-10	Sea water volume	365,000	-	-	Power load	138,240	800	110,592,000	Mechanic/Electrician	4	1,500,000	72,000,000	**182,592,000**	/year	182.59	0.0609	3,000
	Operation kw rate	(8kIw x 2unitsx24)/day	11-20	-Ditto-	365,000	-	-	-Ditto-	138,240	900	124,416,000	-Ditto-	4	2,000,000	96,000,000	**220,416,000**	/year	220.42	0.0735	
	Sea water volume	1,000tons/day	21-30	-Ditto-	365,000	-	-	-Ditto-	138,240	1,000	138,240,000	-Ditto-	4	2,500,000	120,000,000	**258,240,000**	/year	258.24	0.0861	
																-				
3	Waste water treatment plant	125kw x 1units	1-10	Water volume	0	-	-	Power load	648,000	800	518,400,000	Mechanic/Electrician	4	1,500,000	72,000,000	**590,400,000**	/year	590.40	0.0197	30,000
	Operation kw rate	(75kw x 24h)/day	11-20	-Ditto-	0	-	-	-Ditto-	648,000	900	583,200,000	-Ditto-	4	2,000,000	96,000,000	**679,200,000**	/year	679.20	0.0226	
	Drainage water volume	1,800tons/day	21-30	-Ditto-	0	-	-	-Ditto-	648,000	1,000	648,000,000	-Ditto-	4	2,500,000	120,000,000	**768,000,000**	/year	768.00	0.0256	
4	Electric power station & distribution	3.500KVA / plant	1-10	Water volume	0	-	-	Power load	4,320	800	3,456,000	Electrician	4	1,500,000	72,000,000	**75,456,000**	/year	75.46	0.0050	15,000
	Operation kw for station	(1kwx12h)/day	11-20	-Ditto-	0	-	-	-Ditto-	4,320	900	3,888,000	-Ditto-	4	2,000,000	96,000,000	**99,888,000**	/year	99.89	0.0067	
			21-30	-Ditto-	0	-	-	-Ditto-	4,320	1,000	4,320,000	-Ditto-	4	2,500,000	120,000,000	**124,320,000**	/year	124.32	0.0083	
F.	Traffic Facilities																			
	Equipment	300w x 60 pcs	1-10	Water volume	0	-		Power load	77,760	800	62,208,000	Electrician	0	-		**62,208,000**	/year	62.21	0.0124	5,000
	Operation kw Rate	0.3kw x 60pcs x 12hrs/day	11-20	-Ditto-	0	-	-	-Ditto-	77,760	900	69,984,000	-Ditto-	0	-		**69,984,000**	/year	69.98	0.0140	
			21-30	-Ditto-	0	-	-	-Ditto-	77,760	1,000	77,760,000	-Ditto-	0	-		**77,760,000**	/year	77.76	0.0156	

(2) MAINTENANCE COST

	Item	Maintenance Cost	Year	Parts of Equipment	Q'ty	Amount	Price	Electricity	Q'ty	Amount	Price	Maintenance/ Operation staff	Person	Price	Total cost (Rp)	Per Year (/year)	Rp(million)	Percentage ration of O&M / installation (%)
A.	**Fish Trading and Marketing Center**											## Staff salary was included in Operation cost						
	Equipment		**1-10**	Water supply equipment	1	300,000	3,600,000	Electric apparatus	1	100,000	1,200,000	Mechanic	0	-	**4,800,000**	/year	4.80	0.0048
			11-20	-Ditto-	1	600,000	7,200,000	-Ditto-	1	200,000	2,400,000	-Ditto-	0	-	**9,600,000**	/year	9.60	0.0096
			21-30	-Ditto-	1	900,000	10,800,000	-Ditto-	1	200,000	2,400,000	-Ditto-	0	-	**13,200,000**	/year	13.20	0.0132
B.	**Fish Supply Buffer Center**																	
	Equipment and cold storage	**Industrial Ref.**	**1-10**	Refrigeration equipment	29	500,000	174,000,000	Electric apparatus	29	100,000	34,800,000	Mechanic/Electrician	2		**208,800,000**	/year	208.80	0.0030
			11-20	-Ditto-	29	1,000,000	348,000,000	-Ditto-	29	300,000	104,400,000	-Ditto-	2		**452,400,000**	/year	452.40	0.0065
			21-30	-Ditto-	29	1,000,000	348,000,000	-Ditto-	29	300,000	104,400,000	-Ditto-	2		**452,400,000**	/year	452.40	0.0065
C.	**Kiosk and Canteens, Food Stands**																	
	Equipment	**Domestic Ref.**	**1-10**	Water supply equipment	152	50,000	91,200,000	Electric apparatus	152	-	-	Mechanic	0	-	**91,200,000**	/year	91.20	0.0182
			11-20	-Ditto-	152	100,000	182,400,000	-Ditto-	152	50,000	91,200,000	-Ditto-	0	-	**273,600,000**	/year	273.60	0.0547
			21-30	-Ditto-	152	100,000	182,400,000	-Ditto-	152	50,000	91,200,000	-Ditto-	0	-	**273,600,000**	/year	273.60	0.0547
D.	**Seafood Plaza**																	
	Equipment	**Domestic Ref.**	**1-10**	Water supply equipment	14	50,000	8,400,000	Electric apparatus	14	50,000	8,400,000	Mechanic	0	-	**16,800,000**	/year	16.80	0.0034
			11-20	-Ditto-	14	100,000	16,800,000	-Ditto-	14	100,000	16,800,000	-Ditto-	0	-	**33,600,000**	/year	33.60	0.0067
			21-30	-Ditto-	14	150,000	25,200,000	-Ditto-	14	100,000	16,800,000	-Ditto-	0	-	**42,000,000**	/year	42.00	0.0084
E.	**Utility Stations**																	
	Equipment																	
	1 **Desalination plant**	**Maintenance**	**1-10**	Desalination unit & Related equipment	2	3,000,000	72,000,000	Electric apparatus	2	500,000	12,000,000	Mechanic/Electrician	4	-	**84,000,000**	/year	84.00	0.0034
			11-20	-Ditto-	2	5,000,000	120,000,000	-Ditto-	2	500,000	12,000,000	-Ditto-	4	-	**132,000,000**	/year	132.00	0.0053
			21-30	-Ditto-	2	5,000,000	120,000,000	-Ditto-	2	500,000	12,000,000	-Ditto-	4	-	**132,000,000**	/year	132.00	0.0053
	2 **Sea water sterilization plant**	**Maintenance**	**1-10**	Sterilization unit & Related equipment	1	10,000	120,000	Electric apparatus	1	10,000	120,000	Mechanic/Electrician	4	-	**240,000**	/year	0.24	0.0001
			11-20	-Ditto-	1	100,000	1,200,000	-Ditto-	1	100,000	1,200,000	-Ditto-	4	-	**2,400,000**	/year	2.40	0.0008
			21-30	-Ditto-	1	100,000	1,200,000	-Ditto-	1	100,000	1,200,000	-Ditto-	4	-	**2,400,000**	/year	2.40	0.0008
	3 **Waste water treatment plant**	**Maintenance**	**1-10**	Sewage treatment system & Related equipment	2	500,000	12,000,000	Electric apparatus	2	250,000	6,000,000	Mechanic/Electrician	4	-	**18,000,000**	/year	18.00	0.0006
			11-20	-Ditto-	2	1,000,000	24,000,000	-Ditto-	2	250,000	6,000,000	-Ditto-	4	-	**30,000,000**	/year	30.00	0.0010
			21-30	-Ditto-	2	1,000,000	24,000,000	-Ditto-	2	250,000	6,000,000	-Ditto-	4	-	**30,000,000**	/year	30.00	0.0010
	4 **Electric power station & distribution**	**Maintenance**	**1-10**	Water supply equipment	0		-	Electric apparatus	1	500,000	6,000,000	Electrician	4	-	**6,000,000**	/year	6.00	0.0004
			11-20	-Ditto-	0		-	-Ditto-	1	1,000,000	12,000,000	-Ditto-	4	-	**12,000,000**	/year	12.00	0.0008
			21-30	-Ditto-	0		-	-Ditto-	1	1,000,000	12,000,000	-Ditto-	4	-	**12,000,000**	/year	12.00	0.0008
F.	**Traffic Facilities**																	
	Equipment	**Maintenance**	**1-10**	Water supply equipment	0		-	Electric apparatus	1	100,000	1,200,000	Electrician	0	-	**1,200,000**	/year	1.20	0.0002
			11-20	-Ditto-	0		-	-Ditto-	1	100,000	1,200,000	-Ditto-	0	-	**1,200,000**	/year	1.20	0.0002
			21-30	-Ditto-	0		-	-Ditto-	1	100,000	1,200,000	-Ditto-	0	-	**1,200,000**	/year	1.20	0.0002

15-6. FACILITIES CHARGE ESTIMATED BASED ON O&M COST

	Year	Investment Cost (million Rp) Building	Equipment	Total	Depreciation (million Rp/year) Building	Equipment	Total	Operation Cost (million Rp/year) Equipment	Maintenance cost (million Rp/year) Building	Equipment	Total	Total Dep./Ope./Mai. Cost (million Rp/year)	Area (m2)	Theorotical Lease Fee (Rp/m2/year)	(Rp/m2/month)	(Rp/unit/month)	Remarks
Wholesale Market	1-10	203,164	22,574	225,738	5,079	1,505	6,584	69	1,016	5	1,021	7,674	24,315	315,598	26,300		
	11-20				5,079	1,505	6,584	78	2,032	10	2,041	8,703	24,315	357,928	29,827		
	21-30				5,079	1,505	6,584	86	3,047	13	3,061	9,731	24,315	400,209	33,351		
Seawater supply (Not for lease)	1-10	459	4,127	4,586	11	275	287	183	2	0	3	472	24,315	19,400	1,617		Seawater will be mostly used in wholesale market so that the O&M costs for 100% of sterilized seawater supply system and 2/3 of waste water treatment plant are to be shouldered by users of wholesale market.
	11-20				11	275	287	220	5	2	7	514	24,315	21,139	1,762		
	21-30				11	275	287	258	7	2	9	554	24,315	22,789	1,899		
Waste water treatment (Not for lease, 2/3 of total cost)	1-10	2,476	22,286	24,762	62	1,486	1,548	394	12	18	30	1,972	24,315	81,087	6,757		
	11-20				62	1,486	1,548	453	25	30	55	2,055	24,315	84,525	7,044		
	21-30				62	1,486	1,548	512	37	30	67	2,127	24,315	87,469	7,289		
Total	1-10	206,099	48,987	255,086	5,152	3,266	8,418	645	1,030	23	1,054	10,117	24,315	416,086	34,674		
	11-20				5,152	3,266	8,418	751	2,061	42	2,103	11,272	24,315	463,592	38,633		
	21-30				5,152	3,266	8,418	857	3,091	46	3,137	12,412	24,315	510,467	42,539		
										Market Hall (Stalls)		3,034	5,880	516,000	43,000	526,750	Lease to wholesalers
										Market Hall (Passages)		0	4,830	0	0		Not leased due to common space
										Fish unloading deck		0	2,040	0	0		Not leased as service space for fish suppliers and wholesalers/traders.
										Fish handling area		0	1,786	0	0		
										Fish trading hall		0	2,040	0	0		
										Transit hall		0	1,275	0	0		
										Office		313	608	516,000	43,000	522,450	Lease to fish auctioneers, etc.
										Ice station		93	180	516,000	43,000		Lease to ice seller
										Packing area		0	5,610	0	0		Not leased as service space for all fish buyers
											Total	3,440	24,248				
													Fish Value				
												(million Rp)	(million Rp)	Charge Rate			
										Fish Handling Charge		26,308	1,315,425	2%			2019
												27,048	1,352,402	2%			2020
												41,681	1,389,379	3%			2021
												42,791	1,426,396	3%			2022
												58,533	1,463,333	4%			2023
												60,012	1,500,310	4%			2024
												76,864	1,537,287	5%			2025 and subsequent years
Cold storage	1-10	14,153	80,199	94,352	354	5,347	5,700	0	71	209	280	5,980	2,284	2,618,486	218,207	17,183,813	
	11-20				354	5,347	5,700	0	142	452	594	6,294	2,284	2,756,138	229,678	18,087,156	
	21-30				354	5,347	5,700	0	212	452	665	6,365	2,284	2,787,124	232,260	18,290,500	
											Tariff		2,284	2,880,000	240,000	18,900,000	
Fish processing units	1-10	11,907	1,323	13,230	298	88	386	0	60	7	66	452	1,181	382,667	31,889	1,506,750	*Electricity and water cost will be*
	11-20				298	88	386	0	119	13	132	518	1,181	438,667	36,556	1,727,250	charged separetly depending on
	21-30				298	88	386	0	179	20	199	584	1,181	494,667	41,222	1,947,750	the actual volume of consumption.
											Tariff		1,181	504,000	42,000	1,307,500	
Storage	1-10	3,810	423	4,234	95	28	123	0	19	2	21	145	378	382,667	31,889	1,506,750	Electricity and water cost will be
	11-20				95	28	123	0	38	4	42	166	378	438,667	36,556	1,727,250	charged separetly depending on
	21-30				95	28	123	0	57	6	64	187	378	494,667	41,222	1,947,750	the actual volume of consumption.
											Tariff		378	504,000	42,000	3,307,500	

Kiosk/Canteen Bldg.	1-10	39,038	4,338	43,376	976	289	1,265	0	195	91	286	1,552	2,965	523,345	43,612	(See below)	Electricity and water cost will be charged separetly depending on the actual volume of consumption.
	11-20				976	289	1,265	0	390	274	664	1,929	2,965	650,711	54,226		
	21-30				976	289	1,265	0	586	274	859	2,124	2,965	716,551	59,713		
															60,000		
														Kiosk/Canteen	/unit/month	1,688,000	
														Food stand	/unit/month	265,000	
Fish shop / Restaurant	1-10	33,748	3,750	37,498	844	250	1,094	0	169	17	186	1,279	1,620	789,641	65,803	(See below)	Electricity and water cost will be charged separetly depending on the actual volume of consumption.
	11-20				844	250	1,094	0	337	34	371	1,465	1,620	904,172	75,348		
	21-30				844	250	1,094	0	506	42	548	1,642	1,620	1,013,517	84,460		
															85,000		
															Fish shops	1-10	2,665,040
															/unit/month	11-20	3,051,580
																21-30	3,420,620
																Tariff	3,442,500
															Restaurants	1-10	37,310,560
															/unit/month	11-20	42,722,120
																21-30	47,888,680
																Tariff	48,195,000
Desalination plant	1-10	3,635	32,718	36,354	91	2,181	2,272	1,178	18	84	102	3,552					
(Not for lease)	11-20				91	2,181	2,272	1,340	36	132	168	3,781					
	21-30				91	2,181	2,272	1,502	55	132	187	3,961					
Electricity supply	1-10	1,459	13,128	14,587	36	875	912	75	7	6	13	1,000					
(Not for lease)	11-20				36	875	912	100	15	12	27	1,038					
	21-30				36	875	912	124	22	12	34	1,070					
Parking lot / inner road	1-10	2,299	20,693	22,992	57	1,380	1,437	62	11	0	11	1,511	36,496	41,394	3,450		
	11-20				57	1,380	1,437	70	23	0	23	1,530	36,496	41,922	3,494		
	21-30				57	1,380	1,437	78	34	0	34	1,549	36,496	42,450	3,538		

Estimated Cost of Buildings

Facility	Total Cost Estimate (Rp million)	% Assumed as Buildings	Estimated Cost (Rp million)
Fish Trading and Market Center	170,205.000	90%	153,184.50
Fish Supply Buffer Center	113,789.150	15%	17,068.37
Canteens and Kiosks	39,933.000	90%	35,939.70
Seafood Center	36,009.600	90%	32,408.64
Utility Satations	92,228.300	10%	9,222.83
Pavement/Traffic Facilities	22,992.228		
Pavement		80%	18,393.78
Buildings		10%	2,299.22

Depreciation period:

Civil structure	100	years
Buiding	40	years
Equipment	15	years

Maintenance cost:

Civil structure	5.0%	/year
Building	0.5%	/year (1-10 years)
	1.0%	/year (11-20 years)
	1.5%	/year (21-30 years)
Equipment	As estimated in "the Maitenance cost of Equipment"	

APPENDIX 16

Proposed Soft-Components

APPENDIX 16. PROPOSED SOFT-COMPONENTS

16.1 Market Operation & Management / Marketing Promotion Advisor

Purpose:

The JFP wholesale market is effectively utilized as a center of fish trading and marketing in DKI Jakarta, with sustainable and appropriate system for operation and management of the market.

Outcome:

1. Operation and management system is established.
   - Stakeholders are easy to be identified with caps and badges.
   - The operating hours of the market are extended to be attractive for more suppliers and buyers.
   - Rules and regulations for O&M are formulated.

2. Wholesale market is appropriately and effectively utilized.
   - Appropriate fish weighing and verification system are established.
   - More open and fair transaction system (e.g., auction system) are introduced and established.
   - Insulated fish containers are standardized and extended at the levels of transportation and wholesale marketing.

Activities:

1-1. Roles and responsibilities of O&M related organizations are made clear and operation plans for each relevant organization is prepared.
   - Analysis of roles and responsibilities of each organization.
   - Discussion with stakeholders on organizational and operational issues of the market.
   - Preparation of operational plan of each organization.

1-2. Rules and regulations for O&M of the market are formulated.
   - Consultation with MMAF's counterparts and stakeholders on tariff for use and the methods of maintenance of facilities and equipment.
   - Formulation of new rules and regulations governing the operation of the JFP Wholesale market.

2-1. Workshops and training for stakeholders (fish suppliers, wholesalers, fish buyers, etc.) are organized and executed on fish handling, sanitary control, effective use of market, business planning and market study method.

2-2. Necessary guidance and assistance are provided to each organization related to fish market operation through OJT so as to appropriately utilize the wholesale market.

2-3. Relevant private and public organizations are invited, evaluated, selected and guided through OJT as auctioneers (consignees).

2-4. Some incentives for standardization of fish containers are elaborated in discussion with stakeholders, and sold for promotion (sales revenue to be accumulated as a revolving fund).

Period:

For nine (9) months commencing activities at 3 months before opening of the JFP wholesale market.
For six (6) months commencing after passing the 1-year operation.

Others:

Workshops and training to stakeholders had better be executed by local consultant.

16.2 Fish Hygienic and Sanitary Control Specialist

Purpose:

The appropriate fish hygienic and sanitary control measures are taken in the JFP wholesale market.

Outcome:

1. Manual for fish hygienic and sanitary control in the JFP wholesale market is elaborated.

2. Fish hygienic condition is improved (No deteriorated fish is handled in the market).

3. Sanitary condition is improved (All stakeholders use boots and pass through the sterilizing basin).
In collaboration with

Activities:

1. Operational manual for daily fish hygienic and sanitary control is prepared for fish inspectors in the wholesale market and also for stakeholders (fish suppliers, wholesalers, and buyers), in collaboration with the inspectors of UPT – KKP and CDCFP – DKI Jakarta.
   - Methods of daily fish organoleptic inspection in the wholesale market.
   - Measures to be taken if the fish not properly handled and/or deteriorated (including cautions and penalties).
   - Appropriate fish handling methods for fresh fish, frozen fish and live fish.
2. Based on the operational manual, the OJT on fish hygienic control is provided to fish inspectors to be stationed at wholesale market on full time basis, in collaboration with the inspectors of UPT – KKP and CDCFP - DKI Jakarta.
3. Necessary sanitary control measures to be taken in the market are identified and disseminated to relevant stakeholders, through workshops and on-site guidance, including promotional sales of boots.

Period:

For three (3) months commencing activities at the opening of the JFP wholesale market.

Others:

The expert should be acquainted with fish organoleptic inspection (for both fresh and frozen) including scoring of sensory test, parasite, and filthy.

APPENDIX 17

Financial and Economic Evaluation

APPENDIX 17. FINANCIAL AND ECONOMIC EVALUATION

1. Financial Evaluation

To ensure the sustained financial viability of the operations of the Jakarta Fishing Port Wholesale Market (JFPWM), some necessary reforms need to be carried out to improve current operational practices and increase tariff rates. This strategy is deemed important and necessary for ensuring that services are effectively and efficiently delivered and that operation and maintenance (O&M) costs are sufficiently covered. The reforms or changes with respect to improving services in the fish wholesale market have been discussed in the technical aspects of the Project in this draft final report. This section provides the basis for justifying proposed changes in the income-generating aspects of the Project in order to make it financially and economically viable.

1.1 Conditions for Sustained Financial Viability of JFPWM

There are two important conditions that need to be considered for future implementation in order to ensure the financial viability of JFPWM. These are (i) adjustment in tariff rates and (ii) implementation of a 5% charge on the value of landed fish.

Adjustment in Tariff Rates. The current tariff rates charged for specific services offered by JFPWM need to be reassessed to determine if these can generate revenues to sufficiently cover the O&M of facilities, especially those utilized for revenue-generating services. As the facilities to be constructed under the project are new, future tariff rates must be based on estimates of annual depreciation and O&M costs of these facilities. Specifically, tariff rates per square meter must be more than the sum of annual depreciation and O&M costs per square meter of the new facility. This is applied in the financial evaluation.

Implementation of a 5% Charge on the Value of Landed Fish. A percentage charge on the value of fish landed at the JFPWM must be implemented starting in 2019, the first year of its operations after completion of construction. Starting in 2019, a 2% charge should be applied, gradually increased to 5% by 2025, and maintained at that level thereafter. Although a fish handling charge has not been charged in any wholesale market in Indonesia, it is considered possible to collect a fee of 5% of fish value at the JFPWM with the introduction of a fish trading system supported by an efficient auction system. Also, since a 5% charge is currently being collected at fish auction places (TPI) in Muara Angke and used to be collected at the JFP in compliance with an ordinance of DKI Jakarta, these precedents justify the collection of such a fee.

1.2 Major Assumptions Applied in the Financial Evaluation

The financial evaluation was based mainly on incremental revenues and expenses that are expected to result from the construction of a new JFPWM complex. The financial evaluation was, therefore, conducted by viewing the Project as the establishment of an entirely new JFPWM. Thus, all costs incurred and revenues generated by the Project were treated as incremental. For this purpose, financial statements of incremental revenues and expenses pertaining to each alternative investment scenario were developed as basis for assessing each scenario's income-earning capacity. The profit and loss statement of a specific investment scenario was projected over a period of 30 years which, in turn, served as basis for creating its corresponding projected cash flow statement for determining the financial internal rate of return (FIRR). Based on an interest rate on soft loans from multilateral lending agencies of about 1.4-1.5% per year on a loan comprising about 85% of total investment and government counterpart of about 15% and with an estimated interest yield of about 6.75% per year,[1] a weighted average cost of capital (WACC) of about 2.2% was applied as the cutoff rate for evaluating the financial viability of each investment scenario. In other words, its calculated FIRR value must be at least equal to or greater than 2.2%.

A financial evaluation was carried out for each of the proposed site plan design options. As the existing wholesale market area is only 3 ha, the reclamation of the bay between JFP and Pantai Mutiara has been recommended as an expansion area for the development of the new wholesale market and its facilities. It

[1] "*Interest Rates Must Rise Soon: Analysts.*" Business, *Jakarta Globe*, Wednesday, 13 April 2011, page B-1.

was estimated that the wholesale market will require an area of about 11 ha, including auxiliary facilities such as cold storages, kiosks, parking spaces, water supply facility, sewage treatment plant, amenities area, and future expansion, etc.

The Project is proposing the reclamation of the bay between JFP and Pantai Mutiara, with the construction of the new facilities at the reclaimed area. **Three options for the site plan design were evaluated for the financial analysis.** The first option **(Option A-1)** will involve the reclamation of the bay, with the reclaimed area designed as an island separated from the existing seawall. All new facilities required for the operation of the JFPWM will be constructed in this newly reclaimed area. The second option **(Option A-2)** will involve the reclamation of the bay, with the reclaimed area attached to the existing seawall. All new facilities required for the operation of the JFPWM will likewise be constructed in this newly reclaimed area. The third option **(Option B-2)** is similar to Option A-2 except for the proposed fish buffer supply center that will be established in the existing site of the fish wholesale market. It should be noted that, unlike in Option A-1, **both Options A-2 and B-2 will require the resettlement of about 80 houses.**

1.3 Estimation of Incremental Financial Costs

Investment Costs. For each of the options evaluated, the total investment cost estimates were estimated based on the (i) requirements for the services of design and construction consultants and (ii) cost of construction and installation of various types of facilities that have been identified during Project design as necessary for improving JFPWM operations and conditions. Examples of these facilities include those that are required for the fish trading and marketing center, fish supply buffer center, canteens and kiosk area, seafood center, utility stations, and truck berthing and parking lot. All investment costs pertaining to access roads and reclamation/revetment were excluded in the financial evaluation (i.e., FIRR calculation).

The investment costs used in the financial evaluation were in early 2011 values and generated from the investment cost estimates presented in Section 3.8, Project Cost. The base cost estimates were applied plus physical contingency. Price escalation rates for foreign and local costs, as well as all taxes (i.e., duties, value-added tax, and withholding tax), were excluded from the analysis. The investment costs were projected according to the proposed schedule of fielding consultants and carrying out civil works and equipment installation. The disbursement of loan proceeds likewise follows the project implementation schedule.

In the financial evaluation, the fielding of design and construction consultants and conduct of civil works and equipment installation were all assumed to be carried out during the period 2013-2018 or from Years 1-6. All construction works were assumed to commence in 2015 and to be completed by 2018 (Year 6), with port operations commencing by 2019 (Year 7). Three reclamation design alternatives, each with four access road options, were considered, and their corresponding investment costs estimated. These are presented in Table A17.1.

Table A17.1: Total Investment Cost of Each Scenario

Access Road Option	Reclamation Design		
	A - 1	A - 2	B - 2
	(Rp million)	(Rp million)	(Rp million)
Option 2 -1	1,758.308	1,633.038	1,550.217
Option 2 -2	1,764.284	1,640.374	1,570.092
Option 2 -3	1,816.431	1,693.295	1,632.626
Option 2 +3	2,101.802	1,989.474	1,915.007

Among the scenarios, Reclamation Design Option A-2 and 2-1 and B-2 and 2-1 will require the resettlement of persons residing in the area where the proposed access road will be constructed, as earlier mentioned. This will require the resettlement of about 80 houses and substantial compensation of affected families by the Government. **With priority given to expediting the implementation of the Project at lower cost, investment scenario A-1 and 2-2 was selected as the best option, since it requires a relatively low investment cost, compared with the other scenarios, and it does not require resettlement.**

However, discussions with officials of MMAF and DKI Jakarta revealed that there is currently a government effort to resettle the illegal inhabitants along the coast as part of the implementation of the Jakarta Fisheries Waterfront Plan. In the event that this Plan is actually implemented, other investment scenarios with investment costs lower than Option A-1 and 2-2, such as Options A-2 and 2-2 and B-2 and 2-2, may instead be selected for implementation under this Project. **That being the case, the following six scenarios were analyzed and compared:**

Condition of Resettlement	Scenarios Analyzed
Recommended investment plan for implementation	A-1 and 2-2
If the resettlement related to reclamation design A-2 and B-2 is achieved	A-2 and 2-2; B-2 and 2-2
If the resettlement related to access road option 2-3 is achieved	A-1 and 2-3
If resettlement related to both reclamation design and access road are achieved	A-2 and 2-3; B-2 and 2-3

For the financial evaluation, six alternative investment scenarios were chosen for analysis by selecting the investment alternative with the lowest investment cost under each reclamation design and corresponding access road option. **Following this selection criterion, financial evaluation was carried out for each of the proposed site plan design scenarios:**

(i) **Scenario 1 (Option A-1 and 2-2)** pertains to the site plan involving the (a) construction of new facilities in the newly reclaimed area, with the reclaimed area designed as an island separated from the existing wall; and (b) construction of an access road of about 1.23 km;

(ii) **Scenario 2 (Option A-1 and 2-3)** pertains to the site plan involving the (a) construction of new facilities in the newly reclaimed area, with the reclaimed area designed as an island separated from the existing wall; and (b) construction of an access road of about 1.73 km;

(iii) **Scenario 3 (Option A-2 and 2-2)** pertains to the site plan involving the (a) reclamation of the bay, with the reclaimed area attached to the existing seawall; and (b) construction of a new access road of about 1.23 km;

(iv) **Scenario 4 (Option A-2 and 2-3)** pertains to the site plan involving the (a) reclamation of the bay, with the reclaimed area attached to the existing seawall; and (b) construction of a new access road of about 1.73 km;

(v) **Scenario 5 (Option B-2 and 2-2)** pertains to the site plan involving the (a) reclamation of the bay, with the reclaimed area attached to the existing seawall; (b) construction of a new access road of 1.23 km; and (c) construction of new facilities in the reclaimed area except for the proposed fish buffer supply center which will be established in the existing site of the fish wholesale market; and

(vi) **Scenario 6 (Option B-2 and 2-3)** pertains to the site plan involving the (a) reclamation of the bay, with the reclaimed area attached to the existing seawall; (b) construction of a new access road of 1.73 km; (c) construction of new facilities constructed in the reclaimed area except for the proposed fish buffer supply center, which will be established in the existing site of the fish wholesale market.

Depreciation. Each investment item was depreciated over the assumed number of years that it may be in useful operation. Depreciation cost was based mainly on a straight-line estimate (i.e., total value of investment divided by the total number of useful years of the investment). The depreciation cost for buildings and revetment was based on an economic life of about 40 years, while for equipment, an economic life of 15 years was applied.

Incremental O&M Costs. The assumed O&M cost of all new investments in JFP facilities was based on a percentage of the total value of each type of investment. For buildings, the annual O&M cost was estimated at about 0.5% of the total investment cost of buildings, while the annual O&M cost of the revetment was estimated at about 1% of its investment cost. Projected estimates of annual O&M cost of

equipment/mechanical works were derived from the engineering design specifications. The estimated incremental O&M costs include additional expenditures on electricity and water as well as on personnel and miscellaneous costs required in the O&M of the new facilities. All O&M costs pertaining to access roads and reclamation/revetment were included in the financial evaluation, i.e., FIRR calculation, as well as the portion of the general expenses, physical contingencies, and administrative expenses that accrue to the fish trading and market facilities, fish supply buffer center, canteens/kiosks, fish shops and restaurants, pavement/parking facilities, and utilities.

1.4 Tariff Rates for Estimation of Incremental Revenue

Projected revenues were derived from the specific services/facilities that are envisioned to be provided by the newly constructed JFPWM facilities, at their corresponding current and proposed tariff rates.[2] These are presented in Table A17.2 below.

Table A17.2: Current and Proposed Tariff Rates

Item	Rp/unit	Current Tariff	Proposed Tariff			
			2019 - 2025	2026 - 2028	2029 - 2038	2039 - 2048
A. Fish Trading and Marketing Center						
1. Fish Unloading Charge	% of value of landed fish		2% - 5%	5%	5%	5%
2. Market Hall	Rp/sqm/month	15,500	43,000	43,000	43,000	43,000
3. Offices and Resting Places for Wholesalers	Rp/sqm/month	10,000	43,000	43,000	43,000	43,000
4. Ice Supply Stations	Rp/sqm/month	25,000	43,000	43,000	43,000	43,000
B. Fish Supply Buffer Center						
1. Cold Storage Building	Rp/sqm/month	15,000	240,000	240,000	240,000	240,000
2. Fish processing Units	Rp/sqm/month	15,000	42,000	42,000	42,000	42,000
3. Storage Building	Rp/sqm/month	15,000	42,000	42,000	42,000	42,000
C. Kiosks, Canteens, and Food Stands						
1. Kiosks and Canteens	Rp/unit/month	15,000	60,018	60,018	60,018	60,018
2. Food Stands	Rp/unit/month	10,000	60,091	60,091	60,091	60,091
D. Seafood Center						
1. Fish Shops	Rp/sqm/month	10,000	85,000	85,000	85,000	85,000
2. Seafood Restaurants	Rp/sqm/month	10,000	85,000	85,000	85,000	85,000
E. Utilities - Water and Electricity						
1. Water Surcharge						
(i) For washing and cleaning	Rp/cum	18,000	18,000	18,000	18,000	18,000
2. Electricity Surcharge	surcharge on kwh used	20%	20%	20%	20%	20%
F. Parking						
1. Truck	Rp/Truck	3,000	3,000	3,000	3,000	3,000
2. Pick-up	Rp/Pick-up	2,000	2,000	2,000	2,000	2,000
G. Entrance						
1. PCU	Rp/PCU		2,000	2,000	2,000	2,000

1.5 Projections of Profit and Loss and Cash Flow Statements

All incremental revenues and costs were projected over a 30-year period to serve as basis for creating incremental profit and loss and cash flow statements. The projected profit and loss statements provided the basis for the projected cash flow statement, from which the financial internal rate of return (FIRR) and benefit:cost ratio (BCR) for the Project were derived. The projected profit and loss statements for each site

[2] The tariff rates for specific services currently being charged (as of 7 May 2010) are presented in Appendix __.

plan design option (viz., Options A-1, A-2, and B-2) are presented in Annex A, Tables A.1-A.6, while the corresponding cash flow statements are presented in Annex B, Tables B.1-B.6.

1.6 Results of the Financial Evaluation

FIRR and BCR Calculation. The financial viability of the JFPWM was assessed based on the estimated incremental revenues and expenses. These incremental revenues and expenses served as bases for estimating the Project FIRR and BCR over a period of 30 years, the assumed life of the Project.

The results of the financial evaluation indicated that the proposed Project is financially viable as its calculated FIRR exhibited a value greater than 2.2%, the weighted average cost of capital (WACC) assumed in the analysis. A summary of the FIRR values and benefit-cost ratios calculated for each alternative scenario is presented in Table A17.3.

Table A17.3: Summary of FIRR and BCR Values for the Different Investment Scenarios

Financial Indicator	Reclamation Design					
	A-1 & 2-2	**A-1 & 2-3**	**A-2 & 2-2**	**A-2 & 2-3**	**B-2 & 2-2**	**B-2 & 2-3**
FIRR	6.01%	6.17%	5.54%	6.53%	5.61%	6.55%
BCR	1.94	1.95	1.91	2.02	1.91	2.01

Important Financial Indicators for Monitoring Financial Performance. In order to ensure that the JFP wholesale market remains financially viable, management should strictly monitor some important financial indicators at the end of each year. These indicators pertain to the following:

- **Operating ratio,** which measures the coverage of operating expenses by operating revenues;
- **Breakeven point (in Rupiah [Rp]),** which indicates the level of operating revenues that must be realized to be able to recover all fixed and variable expenses;
- **Benefit:cost ratio (BCR),** which determines whether total revenues will be able to cover total operating costs; this ratio should at least be equal to or greater than 1;
- **Return on sales,** which measures how large an operating margin the Project will have on its total sales (or revenues); the lower the return on sales (or revenues), the lower the operating margin, which implies that larger sales (or revenues) must be made to make an adequate return on investment (ROI);
- **Return on equity (ROE),** which measures the rate of ROI of the Project; the ROE should be at least equal to or greater than the market interest rate that the investment would have earned in a bank or it may be compared to the rate of ROE of a similar business investment;
- **Debt service ratio,** which provides a measure of how the Project's annual revenues are able to cover the annual debt (i.e., loan amortization plus loan interest payment); its value should be at least equal to or greater than 1.

The financial indicators presented in Table A17.4 provide indicative levels that need to be maintained by the JFPWM throughout its operational life in order to be able to sustain financial viability. Anytime the values of these indicators are observed to be below the values presented in the table, JFP management must immediately critically review its operational performance and carry out remedial measures in order to improve operational efficiency and financial performance to the level required.

Table A17.4: Financial Indicators for Monitoring Financial Performance of JFPWM

Financial Indicator	A-1 & 2-2		A-1 & 2-3	
	2020	2025	2020	2025
Efficiency Ratio:				
1) Operating ratio[b]	0.35	0.34	0.36	0.34
2) Break-even point in Rp million[c]	16,279.42	15,525.32	17,088.15	15,464.39
Benefit:Cost Ratio:	2.84	2.90	2.78	2.91
Income Ratios:				
1) Return on sales[d]	0.58	0.59	0.58	0.59
2) Return on equity[e]	0.80	0.81	0.81	0.83
Debt Service Ratios:				
1) Debt Service Coverage Ratio[f]	1.21	1.30	1.26	1.32
Financial Indicator	**A-2 & 2-2**		**A-2 & 2-3**	
	2020	**2025**	**2020**	**2025**
Efficiency Ratio:				
1) Operating ratio[b]	0.34	0.34	0.35	0.33
2) Break-even point in Rp million[c]	15,548.75	14,732.68	16,064.13	14,455.58
Benefit:Cost Ratio:	2.91	2.98	2.87	3.00
Income Ratios:				
1) Return on sales[d]	0.59	0.60	0.59	0.60
2) Return on equity[e]	0.78	0.79	0.84	0.85
Debt Service Ratios:				
1) Debt Service Coverage Ratio[f]	1.12	1.20	1.24	1.29
Financial Indicator	**B-2 & 2-2**		**B-2 & 2-3**	
	2020	**2025**	**2020**	**2025**
Efficiency Ratio:				
1) Operating ratio[b]	0.33	0.32	0.34	0.32
2) Break-even point in Rp million[c]	15,040.64	14,344.93	15,553.87	14,066.25
Benefit:Cost Ratio:	3.03	3.10	2.98	3.12
Income Ratios:				
1) Return on sales[d]	0.60	0.61	0.60	0.61
2) Return on equity[e]	0.80	0.81	0.87	0.89
Debt Service Ratios:				
1) Debt Service Coverage Ratio[f]	1.06	1.15	1.18	1.23

[a] Income tax assumed at 10% percent of net profit after cost of operation.

[b] Operating ratio = Cost of operation ÷ Total revenue

[c] Breakeven point (PhP) = (Total fixed costs ÷ (Total variable expesnes ÷ Total revenue)

[d] Return on sales = Net profit after tax and debt service ÷ Total revenue

[e] Return on equity = Net profit after tax and debt service ÷ Investment

[f] Debt Service Ratio = Net profit ÷ Annual debt service (Note: Net revenue equals revenues less expenses; excluding non-cash and interest charges)

FIRR Sensitivity and Switching Value Analysis. FIRR sensitivity analysis covers the six alternative investment scenarios and focuses on the potential risks that are perceived to possibly confront the Project during implementation and over its economic life. These include: (a) the possible occurrence of an increase in Project investment costs by 10%; (b) a possible decrease in Project benefits or revenues by 10%; (c) simultaneous increase in Project investment costs and decrease in benefits or revenues; (d) an increase in Project O&M costs by 10%; (e) a simultaneous increase in Project O&M costs and a decrease in expected benefits/revenues by 10%; and (f) a simultaneous increase in Project investment costs, O&M costs, and a decrease in benefits/revenues by 10%.

The sensitivity analysis of the FIRR values under each of the six alternative investment scenarios indicate that these are very sensitive to: (i) a decrease in the project's expected benefits or revenues by 10%; (ii) a simultaneous increase in project investment costs and a decrease in benefits or revenues by 10%; (iii) a simultaneous increase in the project's O&M costs and a decrease in benefits or revenues by 10%; and (iv) a simultaneous increase in project investment costs, O&M costs, and a decrease in benefits/revenues by 10%. These are implied by the calculated sensitivity indicators for the change

variables, which exhibit values significantly greater than 1. These results are confirmed by the **switching value analysis, which indicates that small percentage changes in these change variables will result in a significant drop in the FIRR values, down to the acceptable level of 2.2%.** Table A17.5 presents the results of the FIRR sensitivity and switching value analysis for the Project.

Table A17.5: Results of the FIRR Sensitivity and Switching Value Analysis

	Scenario A-1 & 2-2			Scenario A-1 & 2-3		
	Financial			Financial		
Base Value IRR =	6.01%			6.17%		
Benefit:Cost Ratio =	1.94			1.95		
	Sensitivity Analysis			Sensitivity Analysis		
Change Variable	Recalculated FIRR	Sensitivity Indicator	Switching Value	Recalculated FIRR	Sensitivity Indicator	Switching Value
(i) Investment costs increase by 10%	4.8%	2.07	34%	4.9%	2.02	36.0%
(ii) Benefits decrease by 10%	4.3%	2.88	21%	4.4%	2.82	21.0%
(iii) Increase in investment cost and decrease in benefits by 10%	3.0%	4.93	13%	3.2%	4.83	12.7%
(iv) Operation and maintenance (O&M) costs increase by 10%	5.8%	0.31	>100%	6.0%	0.31	>100%
(v) Benefits decrease and O&M costs increase by 10%	4.1%	3.23	18%	4.2%	3.18	18.5%
(vi) Investment costs and O&M costs increase; benefits decrease by 10%	2.8%	5.29	12%	3.0%	5.18	12.0%
	Scenario A-2 & 2-2			**Scenario A-2 & 2-3**		
	Financial			Financial		
Base Value IRR =	5.54%			6.53%		
Benefit:Cost Ratio =	1.91			2.02		
	Sensitivity Analysis			Sensitivity Analysis		
Change Variable	Recalculated FIRR	Sensitivity Indicator	Switching Value	Recalculated FIRR	Sensitivity Indicator	Switching Value
(i) Investment costs increase by 10%	4.3%	2.21	30%	5.3%	1.92	39.0%
(ii) Benefits decrease by 10%	3.9%	3.04	19%	4.8%	2.64	23.0%
(iii) Increase in investment cost and decrease in benefits by 10%	2.6%	5.25	12%	3.6%	4.54	14.5%
(iv) Operation and maintenance (O&M) costs increase by 10%	5.4%	0.30	>100%	6.4%	0.27	>100%
(v) Benefits decrease and O&M costs increase by 10%	3.7%	3.39	17%	4.6%	2.94	20.5%
(vi) Investment costs and O&M costs increase; benefits decrease by 10%	2.4%	5.60	11%	3.4%	4.84	13.5%
	Scenario B-2 & 2-2			**Scenario B-2 & 2-3**		
	Financial			Financial		
Base Value IRR =	5.61%			6.55%		
Benefit:Cost Ratio =	1.91			2.01		
	Sensitivity Analysis			Sensitivity Analysis		
Change Variable	Recalculated FIRR	Sensitivity Indicator	Switching Value	Recalculated FIRR	Sensitivity Indicator	Switching Value
(i) Investment costs increase by 10%	4.4%	2.16	31%	5.3%	1.88	40.0%
(ii) Benefits decrease by 10%	4.0%	2.95	19%	4.9%	2.57	23.0%
(iii) Increase in investment cost and decrease in benefits by 10%	2.7%	5.10	12%	3.6%	4.43	14.0%
(iv) Operation and maintenance (O&M) costs increase by 10%	5.4%	0.31	>100%	6.4%	0.28	>100%
(v) Benefits decrease and O&M costs increase by 10%	3.8%	3.30	18%	4.7%	2.88	21.0%
(vi) Investment costs and O&M costs increase; benefits decrease by 10%	2.5%	5.46	11%	3.4%	4.75	14.0%

2. Economic Evaluation

Economic evaluation was conducted to quantify the incremental economic benefits and costs generated in the course of Project implementation, which will, in turn, serve as basis for assessing the economic viability of the Project and for justifying the Project from a national economic viewpoint. Incremental economic benefits and costs were mainly derived by calculating the incremental economic benefits and costs accruing to the Project. For this purpose, all benefits and costs, which are in financial values, were converted to economic values by adjusting these by the relevant standard conversion factor (SCF). The major assumptions applied in the economic evaluation are presented below.

(i) General Assumptions Used in the Economic Evaluation

The following assumptions were applied in the conduct of the economic evaluation:

- Economic values are based on April 2011 prices.
- Project life is 30 years, including preparatory works and construction of six years (2013- 2018).
- Discount rate is at 10%.

- Inflation is not taken into account; it is not considered in benefits or in costs estimated during the evaluation period.
- The foreign exchange rate is fixed at the following rates (as of April 2011): 1 US$ = Rp 8,575; ¥1 = Rp103.175; and a shadow exchange rate is not considered.
- Financial costs were converted to economic costs using the conversion factors shown in Table A17.6.

Table A17.6: Standard Conversion Factors for Converting Financial to Economic Prices

Cost Item	Cost Component	Conversion Factor
Civil works	LC	0.843
	FC	0.795
Engineering services	LC	0.843
	FC	1.00
Equipment Cost	LC	0.843
	FC	0.795
Project overhead	LC	0.872
O&M	LC & FC	0.860
Physical contingency	LC	0.843
	FC	0.795

Source: JICA Survey Team
Note: LC = local cost; FC = foreign cost

(ii) Economic Costs

Economic costs of the project are estimated based on the financial investment costs i.e., all construction works costs (including reclamation/revetment costs and cost of construction of access road), costs for consulting services, physical contingencies, general expenses, administrative expenses, and O&M cost of the project, as described in the earlier discussion. These are estimated in constant April 2011 prices, identified by each category of foreign/local costs for economic evaluation and then converted into economic prices for economic evaluation under the assumptions described above.

(iii) Economic Benefits

A variety of direct and indirect benefits (quantitative and qualitative) will be derived from the proposed Project. For the economic evaluation analysis, only directly quantifiable economic benefits were considered. These are:

- **Increase in value and volume of fish handled.** This economic benefit basically represents the increase in quantity of fish marketed and transacted within the JFPWM due to improved market facilities and more efficient operations in fish handling and trading. The quantification of incremental economic benefits essentially applied the "with project" versus "without project" approach. The information used in the quantification of this economic benefit for each fish port is shown in Annex C, Table C.1.

- **Reduced economic losses due to supply fluctuations.** This economic benefit is expected to be derived from the provision of more efficient and larger capacity of fish cold storage facilities in the JFPWM in order to accommodate the storage of larger volumes of surplus fish supply during peak seasons and later released into the market during the low supply seasons. This is envisioned to significantly reduce economic losses, but is also expected to stabilize fish prices throughout the year (see Annex C, Table C.2).

- **Increase in the number of customers patronizing seafood restaurants and kiosks in the JFPWM.** Improved restaurant facilities offering fresh and better quality fish will encourage larger numbers of customers to patronize the new restaurant facilities to be established within the JFPWM compound (see Annex C, Table C.3).

- **Reduction in business revenue losses in the JFPWM due to flooding along the existing access road.** The existing access road is currently severely congested with illegal structures and business activities. This condition is expected to become more and more difficult to manage and control in the coming years as larger numbers of people attempt to illegally settle near the JFP. Moreover, the present volume of traffic on the road is very heavy, as it is the only entrance to the JFPWM. The access road frequently experiences flooding during low tide and heavy rains. Losses in business revenues in the JFPWM due to flood averages about Rp34,300 million a year, based on actual experiences during the past three years.

- **Benefits from savings in vehicle operating cost (VOC).** Unit vehicle operating costs are estimated by the representative vehicles and operating speed in 2011 prices, as shown below.

Table A17.7: Estimated Vehicle Operating Cost

Speed (km/hour)	Private Passenger Car (Rp/Vehicle-km)	Mini Bus (Rp/Vehicle-km)	Large Bus (Rp/Vehicle-km)	Truck (Rp/Vehicle-km)	Motorcycle (Rp/Vehicle-km)
0-10	8,313	4,184	13,326	10,297	950
10-20	3,955	2,014	7,746	3,754	559
20-30	2,863	1,536	6,526	2,784	445
30-40	2,313	1,333	6,042	2,356	385
40-50	2,109	0	0	2,138	351
50-60	1,815	0	0	2,037	330
60-70	1,741	0	0	2,017	355
70-80	1,754	0	0	2,059	327
80-90	1,843	0	0	2,155	340

Note: Economic costs in April 2011 prices.
Source: JICA Survey Team

Based on the above assumptions on estimated VOC by type of vehicles, the calculated economic benefits from VOC savings were derived by comparing the "without project" vs. "with project" situations for each access road investment option. The results are presented in Table A17.8, while the details of the calculation are presented in Annex D, Tables D.1 – D.4.

Table A17.8: Calculated Economic Benefits from Savings from Vehicle Operating Cost

Option	Vehicle Operation Cost						Reduced Vehicle Operation Cost
	Without Project			With Project			
	Road Length km	Average Speed km/hr	Vehicle Operation Cost Rp million/year	Road Length km	Average Speed km/hr	Vehicle Operation Cost Rp million/year	Rp million/year
Option 2-1	1.7	7	47,313.316	1.02	40	9,867.080	37,446.236
Option 2-2	1.7	7	47,313.316	1.23	40	11,898.538	35,414.778
Option 2-3	1.7	7	47,313.316	1.73	40	16,735.342	30,577.974
Option 2+3	1.7	7	47,313.316	2.70	40	26,118.742	21,194.574

- **Benefits from reduced passenger travel time costs (TTC).** The economic benefits from reduced passenger TTC were calculated based on the estimated (a) time value per vehicle passenger, (b) passenger occupancy rate and time value of each type of vehicle unit, and (c) passenger occupancy rate and time value of trucks, as derived from the JICA Survey estimates presented in Tables A17.9, A17.10, and A17.11, respectively.

Table A17.9: Estimate of Time Value per Vehicle Passenger

Item	Unit	Average
Household income	Rp/month	2,976,480
Household size	Persons	3.79
Per capita income	Rp/month	785,351
Hourly income	Rp/hour	4,090
Time Value of Passenger	Rp/hour	4,500

Note: (i) Working hour per week is at 48 hours or about 192 hours/month.
(ii) Indirect cost of about 10% is added to the time value estimate.
(iii) Estimates are in April 2011 prices.
Source: JICA Survey team estimate.

The time value of one vehicle passenger was estimated at Rp4,500/hr, including an indirect cost of 10%. For the economic analysis, the time value of one vehicle passenger was measured by using the average time value per person for all trips, regardless of their trip purposes. The passenger occupancy rate of each type of vehicle used in the economic evaluation is shown in Table A17.10, which was derived from the results of a traffic survey conducted by the JICA Study Team. Estimates of time value of each passenger were derived by multiplying the abovementioned time value per passenger (i.e., Rp4,500/hour) by the average passenger occupancy rate of each vehicle.

Table A17.10: Passenger Occupancy Rate and Time Value of Each Type of Vehicle Unit

Item	Number of Passengers per Vehicle	Time Value of Each Vehicle Unit (Rp/hour)
Passenger car	1.8	8,101
Motorcycle	1.4	6,301
Small bus	4.9	22,052
Medium bus	15.0	67,506
Large bus	23.8	107,110

Source: JICA Survey team estimate.

The time value of trucks was estimated based on the average wage rate of its crew, as shown in Table A17.11. The average hourly wage rate per person is Rp18,149/hr (April 2011 prices). For the economic analysis, the time value for trucks was estimated based on the assumption that a small truck has only one passenger (i.e., the driver), and a large truck has a driver and one conductor.

Table A17.11: Passenger Occupancy Rate and Time Value of Trucks

Item	Small Truck	Large Truck
Number of passengers	1	2
Average monthly income/passenger (Rp/month)	2,976,480	2,976,480
Average hourly rate/passenger (Rp/hour)	18,149	18,149
Average hourly rate/truck (Rp/hour)	18,149	36,299

Note: (i) Working hour per week is at 41 hours or about 164 hours/month.
(ii) Estimates are in April 2011 prices.
Source: JICA Survey team estimate.

Based on the above assumptions on estimated TTC by type of vehicle, the calculated economic benefits from savings from TTC were derived by comparing the "without project" vs. "with project" situations for each access road investment option. The results are presented in Table A17.12, while the details of the calculation are presented in Annex E, Tables E.1 – E.4.

Table A17.12: Calculated Savings from Passenger Travel Time Cost

Option	Travel Time Cost						Reduced Travel Time Cost
	Without Project			With Project			
	Road Length (km)	Average Speed (km/hr)	Travel Time Cost (Rp million/year)	Road Length (km)	Average Speed (km/hr)	Travel Time Cost (Rp million/year)	(Rp million/year)
Option 2-1	1.7	7	31,642.549	1.02	40	1,710.699	29,931.850
Option 2-2	1.7	7	31,642.549	1.23	40	2,062.902	29,579.647
Option 2-3	1.7	7	31,642.549	1.73	40	2,901.480	28,741.069
Option 2+3	1.7	7	31,642.549	2.70	40	4,528.322	27,114.228

(iv) Results of the Economic Evaluation

EIRR and BCR Calculation. The economic viability of the Project was likewise evaluated for six alternative investment scenarios. Each scenario was assessed by estimating its economic internal rate of return (EIRR) and BCR over a projected period of 30 years. **The results of the economic analysis indicated that the Project, under each scenario, is economically viable, as the calculated EIRR exhibited a value greater than 10%,** the economic opportunity cost of capital (EOCC) assumed in the analysis. A summary of the EIRR values and BCRs calculated for each scenario is presented in Table A17.13, while the details of the EIRR calculations are presented in Annex F, Tables F.1 – F.4.

Table A17.13: Summary of EIRR and BCR Values for Different Investment Scenarios

Economic Indicator	Reclamation Design					
	A-1 & 2-2	A-1 & 2-3	A-2 & 2-2	A-2 & 2-3	B-2 & 2-2	B-2 & 2-3
EIRR	26.8%	27.0%	27.7%	28.8%	26.9%	27.9%
BCR	3.47	3.43	3.65	3.73	3.49	3.58

EIRR Sensitivity and Switching Value Analysis. The EIRR sensitivity analysis focused on the potential risks perceived to likely confront the Project during implementation and over its economic life. These include: (i) the possible occurrence of an increase in Project investment costs by 10%; (ii) a possible decrease in economic benefits by 10%; (iii) simultaneous increase in investment costs and a decrease in economic benefits; (iv) an increase in project O&M costs by 10%; (v) a simultaneous increase in Project O&M costs and a decrease in economic benefits by 10%; and (vi) a simultaneous increase in Project investment costs, O&M costs, and a decrease in economic benefits by 10%. Table A17.14 presents the results of the EIRR sensitivity and switching value analysis for each alternative investment scenario.

Table A17.14: Results of the EIRR Sensitivity and Switching Value Analysis

	Scenario A-1 & 2-2			Scenario A-1 & 2-3		
	Economic			Economic		
Base Value IRR =	26.8%			27.0%		
Benefit:Cost Ratio =	3.47			3.43		
	Sensitivity Analysis			Sensitivity Analysis		
Change Variable	Recalculated EIRR	Sensitivity Indicator	Switching Value	Recalculated EIRR	Sensitivity Indicator	Switching Value
(i) Investment costs increase by 10%	25.2%	0.59	>100%	25.4%	0.61	>100%
(ii) Benefits decrease by 10%	25.0%	0.67	71%	25.2%	0.68	71.0%
(iii) Increase in investment cost and decrease in benefits by 10%	23.5%	1.23	56%	23.6%	1.26	55.0%
(iv) Operation and maintenance (O&M) costs increase by 10%	26.8%	0.01	>100%	27.0%	0.01	>100%
(v) Benefits decrease and O&M costs increase by 10%	25.0%	0.68	70%	25.1%	0.69	70.0%
(vi) Investment costs and O&M costs increase; benefits decrease by 10%	23.5%	1.24	55%	23.6%	1.27	55.0%
	Scenario A-2 & 2-2			**Scenario A-2 & 2-3**		
	Economic			**Economic**		
Base Value IRR =	27.7%			28.8%		
Benefit:Cost Ratio =	3.65			3.73		
	Sensitivity Analysis			**Sensitivity Analysis**		
Change Variable	Recalculated EIRR	Sensitivity Indicator	Switching Value	Recalculated EIRR	Sensitivity Indicator	Switching Value
(i) Investment costs increase by 10%	26.1%	0.59	>100%	27.0%	0.60	>100%
(ii) Benefits decrease by 10%	25.9%	0.66	73%	26.8%	0.67	72.5%
(iii) Increase in investment cost and decrease in benefits by 10%	24.3%	1.22	58%	25.2%	1.25	57.6%
(iv) Operation and maintenance (O&M) costs increase by 10%	27.7%	0.01	>100%	28.7%	0.01	>100%
(v) Benefits decrease and O&M costs increase by 10%	25.9%	0.67	72%	26.8%	0.68	71.7%
(vi) Investment costs and O&M costs increase; benefits decrease by 10%	24.3%	1.23	57%	25.1%	1.26	56.6%
	Scenario B-2 & 2-2			**Scenario B-2 & 2-3**		
	Economic			**Economic**		
Base Value IRR =	26.9%			27.9%		
Benefit:Cost Ratio =	3.49			3.58		
	Sensitivity Analysis			**Sensitivity Analysis**		
Change Variable	Recalculated EIRR	Sensitivity Indicator	Switching Value	Recalculated EIRR	Sensitivity Indicator	Switching Value
(i) Investment costs increase by 10%	25.3%	0.60	>100%	26.2%	0.61	>100%
(ii) Benefits decrease by 10%	25.1%	0.67	71%	26.0%	0.68	72.0%
(iii) Increase in investment cost and decrease in benefits by 10%	23.6%	1.24	56%	24.4%	1.26	57.0%
(iv) Operation and maintenance (O&M) costs increase by 10%	26.9%	0.01	>100%	27.9%	0.01	>100%
(v) Benefits decrease and O&M costs increase by 10%	25.1%	0.68	70%	26.0%	0.69	71.0%
(vi) Investment costs and O&M costs increase; benefits decrease by 10%	23.6%	1.24	55%	24.4%	1.27	56.0%

The sensitivity analysis for each investment scenario indicated that the EIRR is relatively sensitive to: (i) a simultaneous increase in Project investment costs and a decrease in expected economic benefits; and (ii) a simultaneous increase in Project investment costs, O&M costs, and a decrease in economic benefits by 10%. The sensitivity indicators calculated for these scenarios exhibited a value greater than 1. **These results were confirmed by the switching value analysis, which indicated that a relatively small percentage change in**

these change variables will result in a significant drop in the EIRR value, down to the acceptable level of 10%. However, it should be noted that the EIRR value is not very sensitive as the switching value analysis indicated that the percentage changes require at least 50%, in all cases, to have an effect on the EIRR values.

3. Conclusion and Recommendations

The results of the financial and economic analysis showed that all the six scenarios evaluated may be assessed as financially and economically viable. Moreover, the contribution of each investment scenario, in terms of economic benefits, are substantial in terms of: (i) increase in value and volume of fish handled; (ii) reduced economic losses due to fish supply fluctuations; (iii) increase in the number of customers patronizing seafood restaurants and kiosks in the JFP wholesale market; (iv) reduced losses in business within the JFP wholesale market due to flooding of the existing access road; (v) benefits from savings in vehicle operating cost; and (vi) benefits from reduced passenger travel time costs.

However, based on the analysis, **it is recommended that investment scenario A-1 and 2-2 be adopted in view of its high EIRR and FIRR values compared to the other scenarios.** Moreover, as this investment scenario does not require resettlement, it is a less costly option for the Government.

For the Project to sustain its financial and economic viability, it is critical that the following conditions are met:

- Management of the JFP wholesale market should seriously consider charging a 5% charge on the value of fish unloaded at the market. This charge should be gradually increased from 2% in 2019, the first year of operation after construction, to 5% in 2025, and maintained at that level thereafter. Imposing a percentage charge on the value of fish unloadings is justifiable in view of the substantial improvements in the market facilities and their operation that will be introduced under the Project.

- It is recommended that these rates should be mutually acceptable to both market management and fish suppliers /buyers and agreed upon on a formal basis.

- DKI must seriously rethink the adequacy of the current tariff rates charged for services rendered at the JFP wholesale market. As the Project will be constructing new facilities, future tariff rates must be based on estimates of annual depreciation and O&M costs of these facilities. Specifically, tariff rates per square meter must be more than the sum of annual depreciation and O&M costs per square meter of the new facility.

- As the investments on the value-adding facilities to be established under the Project (i.e., Fish Trading and Marketing Center and Fish Supply Buffer Center) are considerably high, and since these facilities are expected to generate substantial revenues for the JFP wholesale market, Management should make sure that O&M (and repair, whenever necessary) is carried out on a regular basis. Serious breakdowns due to inadequate O&M budget and action will be costly since the loss in revenues as a consequence of the non-operation of these facilities will adversely affect the market's financial performance.

Table A.1: Projected Profit and Loss Statement, Scenario A-1 and 2-2

	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Item	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
A. Incremental Revenue																								
Total Fish Trading and Marketing Center (PPPI)	29,284.464	30,102.290	44,816.310	46,008.790	61,837.157	63,404.598	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628
Total Fish Supply Buffer Center	6,627.880	6,744.605	6,863.630	6,985.001	7,108.764	7,234.966	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656
Total Canteens and Kiosks Area	2,122.596	2,124.720	2,126.847	2,128.976	2,131.107	2,133.241	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376
Total Seafood Center	619.403	619.444	619.485	619.526	619.567	619.609	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650
Total Utility Stations	3,964.122	3,968.090	3,972.062	3,976.038	3,980.018	3,984.002	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990
Total Truck Berth and Parking Lot	8,617.078	8,872.463	9,135.735	9,407.138	9,686.924	9,975.352	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690
Total Other Revenue Sources (Lease of Land)	414.355	414.770	415.185	415.601	416.017	416.433	416.850	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal Incremental Revenue	51,649.897	52,846.382	67,949.254	69,541.070	85,779.554	87,768.201	105,143.840	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990
B. Incremental Expenses																								
1. Cash Operating & Miantenance Expenses																								
(i) Variable Expenses																								
Fish Trading and Marketing Center	112.884	156.711	261.179	739.061	764.257	789.452	839.843	839.843	839.843	839.843	853.283	853.283	853.283	853.283	853.283	853.283	853.283	853.283	853.283	853.283	865.523	865.523	865.523	865.523
Fish Supply Buffer Center	1,216.293	1,349.573	1,409.362	1,494.708	1,545.664	1,596.620	1,698.532	1,698.532	1,698.532	1,698.532	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,308.232	2,308.232	2,308.232	2,308.232
Canteens and Kiosks Area	397.065	446.876	486.209	608.211	628.945	649.680	691.149	691.149	691.149	691.149	926.079	926.079	926.079	926.079	926.079	926.079	926.079	926.079	926.079	926.079	978.609	978.609	978.609	978.609
Seafood Center	129.813	150.385	176.724	280.652	290.220	299.788	318.923	318.923	318.923	318.923	353.233	353.233	353.233	353.233	353.233	353.233	353.233	353.233	353.233	353.233	379.143	379.143	379.143	379.143
Utility Stations	1,626.736	1,802.168	1,873.256	1,945.226	2,011.541	2,077.855	2,210.484	2,210.484	2,210.484	2,210.484	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,909.074	2,909.074	2,909.074	2,909.074
Truck Berth and Parking Lot Area	19.025	25.348	39.611	104.267	107.821	111.376	118.485	118.485	118.485	118.485	120.215	120.215	120.215	120.215	120.215	120.215	120.215	120.215	120.215	120.215	121.945	121.945	121.945	121.945
Reclaimed Area and Revetment	3,567.711	3,948.267	4,090.976	4,186.115	4,328.823	4,471.532	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949
Access Road	-	-	-	435.811	-	-	-	495.240	-	-	-	495.240	-	-	-	495.240	-	-	-	495.240	-	-	-	495.240
Subtotal Variable Expenses	7,069.528	7,879.328	8,337.317	9,794.051	9,677.271	9,996.302	10,634.364	11,129.604	10,634.364	10,634.364	11,730.724	12,225.964	11,730.724	11,730.724	11,730.724	12,225.964	11,730.724	11,730.724	11,730.724	12,225.964	12,319.474	12,319.474	12,319.474	12,814.714
(ii) Fixed Expenses																								
Interest	6,682.918	6,702.618	6,505.027	6,233.984	5,962.941	5,691.898	5,420.856	5,149.813	4,878.770	4,607.727	4,336.684	4,065.642	3,794.599	3,523.556	3,252.513	2,981.471	2,710.428	2,439.385	2,168.342	1,897.299	1,626.257	1,355.214	1,084.171	813.128
Subtotal Fixed Expenses	6,682.918	6,702.618	6,505.027	6,233.984	5,962.941	5,691.898	5,420.856	5,149.813	4,878.770	4,607.727	4,336.684	4,065.642	3,794.599	3,523.556	3,252.513	2,981.471	2,710.428	2,439.385	2,168.342	1,897.299	1,626.257	1,355.214	1,084.171	813.128
Subtotal Cash Operating Expenses	13,752.446	14,581.946	14,842.343	16,028.035	15,640.212	15,688.200	16,055.219	16,279.417	15,513.134	15,242.091	16,067.408	16,291.606	15,525.323	15,254.280	14,983.237	15,207.434	14,441.152	14,170.109	13,899.066	14,123.263	13,945.731	13,674.688	13,403.645	13,627.842
(iii) Non-cash Expenses																								
Depreciation (New Assets)	15,421.947	17,066.955	17,683.832	18,095.084	18,711.962	19,328.840	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596
Total Non-cash Expenses	15,421.947	17,066.955	17,683.832	18,095.084	18,711.962	19,328.840	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596
Total Incremental Expenses	29,174.392	31,648.900	32,526.176	34,123.120	34,352.174	35,017.040	36,617.815	36,842.012	36,075.730	35,804.687	36,630.004	36,854.201	36,087.919	35,816.876	35,545.833	35,770.030	35,003.747	34,732.705	34,461.662	34,685.859	34,508.326	34,237.284	33,966.241	34,190.438
Net Incremental Income (Loss) From Operations	22,475.505	21,197.482	35,423.078	35,417.951	51,427.380	52,751.160	68,526.024	67,884.977	68,651.260	68,922.303	68,096.985	67,872.788	68,639.071	68,910.114	69,181.156	68,956.959	69,723.242	69,994.285	70,265.328	70,041.130	70,218.663	70,489.706	70,760.749	70,536.551
Net Incremental Income Before Tax	22,475.505	21,197.482	35,423.078	35,417.951	51,427.380	52,751.160	68,526.024	67,884.977	68,651.260	68,922.303	68,096.985	67,872.788	68,639.071	68,910.114	69,181.156	68,956.959	69,723.242	69,994.285	70,265.328	70,041.130	70,218.663	70,489.706	70,760.749	70,536.551
Income Tax[a]	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Tax Expense	2,247.550	2,119.748	3,542.308	3,541.795	5,142.738	5,275.116	6,852.602	6,788.498	6,865.126	6,892.230	6,809.699	6,787.279	6,863.907	6,891.011	6,918.116	6,895.696	6,972.324	6,999.428	7,026.533	7,004.113	7,021.866	7,048.971	7,076.075	7,053.655
Net Incremental Profit After Tax	20,227.954	19,077.733	31,880.770	31,876.156	46,284.642	47,476.044	61,673.422	61,096.479	61,786.134	62,030.072	61,287.287	61,085.509	61,775.164	62,019.102	62,263.041	62,061.263	62,750.918	62,994.856	63,238.795	63,037.017	63,196.797	63,440.735	63,684.674	63,482.896
Efficiency Ratio:																								
1) Operating ratio[b]	0.56	0.60	0.48	0.49	0.40	0.40	0.35	0.35	0.34	0.34	0.35	0.35	0.34	0.34	0.34	0.34	0.33	0.33	0.33	0.33	0.33	0.33	0.32	0.33
2) Break-even point in PhP[c]	13,752	14,582	14,842	16,028	15,640	15,688	16,055	16,279	15,513	15,242	16,067	16,292	15,525	15,254	14,983	15,207	14,441	14,170	13,899	14,123	13,946	13,675	13,404	13,628
Benefit:Cost Ratio:	1.77	1.67	2.09	2.04	2.50	2.51	2.87	2.84	2.90	2.92	2.86	2.84	2.90	2.92	2.95	2.93	2.99	3.02	3.04	3.02	3.03	3.06	3.08	3.06
Income Ratios:																								
1) Return on sales[d]	39%	36%	47%	46%	54%	54%	59%	58%	59%	59%	59%	58%	59%	59%	59%	59%	60%	60%	60%	60%	60%	61%	61%	61%
2) Return on equity[e]	27%	25%	42%	42%	61%	63%	81%	80%	81%	82%	81%	80%	81%	82%	82%	82%	83%	83%	83%	83%	83%	84%	84%	84%
Debt Service Ratios:																								
1) Debt Service Coverage Ratio[f]	3.37	3.72	4.00	1.02	1.05	1.10	1.18	1.21	1.20	1.22	1.27	1.31	1.30	1.31	1.33	1.36	1.36	1.38	1.39	1.43	1.45	1.47	1.49	1.53

[a] Income tax assumed at 10 percent of net profit after cost of operation.

[b] Operating ratio = Cost of operation ÷ Total revenue

[c] Breakeven point (PhP) = (Total fixed costs ÷ (Total variable expesnes ÷ Total revenue)

[d] Return on sales = Net profit after tax and debt service ÷ Total revenue

[e] Return on equity = Net profit after tax and debt service ÷ Investment

[f] Debt Service Ratio = Net profit ÷ Annual debt service (Note: Net revenue equals revenues less expenses; excluding non-cash and interest charges)

Table A.2: Projected Profit and Loss Statement, Scenario A-1 and 2-3

Item	7 2019	8 2020	9 2021	10 2022	11 2023	12 2024	13 2025	14 2026	15 2027	16 2028	17 2029	18 2030	19 2031	20 2032	21 2033	22 2034	23 2035	24 2036	25 2037	26 2038	27 2039	28 2040	29 2041	30 2042
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
A. Incremental Revenue																								
Total Fish Trading and Marketing Center (PPPI)	29,284.464	30,102.290	44,816.310	46,008.790	61,837.157	63,404.598	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628
Total Fish Supply Buffer Center	6,627.880	6,744.605	6,863.630	6,985.001	7,108.764	7,234.966	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656
Total Canteens and Kiosks Area	2,122.596	2,124.720	2,126.847	2,128.976	2,131.107	2,133.241	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376
Total Seafood Center	619.403	619.444	619.485	619.526	619.567	619.609	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650
Total Utility Stations	3,964.122	3,968.090	3,972.062	3,976.038	3,980.018	3,984.002	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990
Total Truck Berth and Parking Lot	8,617.078	8,872.463	9,135.735	9,407.138	9,686.924	9,975.352	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690
Total Other Revenue Sources (Lease of Land)	414.355	414.770	415.185	415.601	416.017	416.433	416.850	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal Incremental Revenue	51,649.897	52,846.382	67,949.254	69,541.070	85,779.554	87,768.201	105,143.840	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990
B. Incremental Expenses																								
1. Cash Operating & Miantenance Expenses																								
(i) Variable Expenses																								
Fish Trading and Marketing Center	112.884	156.711	261.179	739.061	764.257	789.452	839.843	839.843	839.843	839.843	853.283	853.283	853.283	853.283	853.283	853.283	853.283	853.283	853.283	853.283	865.523	865.523	865.523	865.523
Fish Supply Buffer Center	1,216.293	1,349.573	1,409.362	1,494.708	1,545.664	1,596.620	1,698.532	1,698.532	1,698.532	1,698.532	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,308.232	2,308.232	2,308.232	2,308.232
Canteens and Kiosks Area	397.065	446.876	486.209	608.211	628.945	649.680	691.149	691.149	691.149	691.149	926.079	926.079	926.079	926.079	926.079	926.079	926.079	926.079	926.079	926.079	978.609	978.609	978.609	978.609
Seafood Center	129.813	150.385	176.724	280.652	290.220	299.788	318.923	318.923	318.923	318.923	353.233	353.233	353.233	353.233	353.233	353.233	353.233	353.233	353.233	353.233	379.143	379.143	379.143	379.143
Utility Stations	1,626.736	1,802.168	1,873.256	1,945.226	2,011.541	2,077.855	2,210.484	2,210.484	2,210.484	2,210.484	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,909.074	2,909.074	2,909.074	2,909.074
Truck Berth and Parking Lot Area	19.025	25.348	39.611	104.267	107.821	111.376	118.485	118.485	118.485	118.485	120.215	120.215	120.215	120.215	120.215	120.215	120.215	120.215	120.215	120.215	121.945	121.945	121.945	121.945
Reclaimed Area and Revetment	3,567.711	3,948.267	4,090.976	4,186.115	4,328.823	4,471.532	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949	4,756.949
Access Road	-	-	-	1,220.271	-	-	-	1,386.672	-	-	-	1,386.672	-	-	-	1,386.672	-	-	-	-	1,386.672	-	-	1,386.672
Subtotal Variable Expenses	7,069.528	7,879.328	8,337.317	10,578.512	9,677.271	9,996.302	10,634.364	12,021.036	10,634.364	10,634.364	11,730.724	13,117.396	11,730.724	11,730.724	11,730.724	13,117.396	11,730.724	11,730.724	11,730.724	13,117.396	12,319.474	12,319.474	12,319.474	13,706.146
(ii) Fixed Expenses																								
Interest	6,573.099	6,592.793	6,400.567	6,133.877	5,867.187	5,600.496	5,333.806	5,067.116	4,800.425	4,533.735	4,267.045	4,000.355	3,733.664	3,466.974	3,200.284	2,933.593	2,666.903	2,400.213	2,133.522	1,866.832	1,600.142	1,333.452	1,066.761	800.071
Subtotal Fixed Expenses	6,573.099	6,592.793	6,400.567	6,133.877	5,867.187	5,600.496	5,333.806	5,067.116	4,800.425	4,533.735	4,267.045	4,000.355	3,733.664	3,466.974	3,200.284	2,933.593	2,666.903	2,400.213	2,133.522	1,866.832	1,600.142	1,333.452	1,066.761	800.071
Subtotal Cash Operating Expenses	13,642.627	14,472.121	14,737.884	16,712.389	15,544.458	15,596.798	15,968.170	17,088.152	15,434.789	15,168.099	15,997.769	17,117.750	15,464.388	15,197.698	14,931.008	16,050.989	14,397.627	14,130.937	13,864.246	14,984.228	13,919.616	13,652.925	13,386.235	14,506.217
(iii) Non-cash Expenses																								
Depreciation (New Assets)	15,421.947	17,066.955	17,683.832	18,095.084	18,711.962	19,328.840	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596
Total Non-cash Expenses	15,421.947	17,066.955	17,683.832	18,095.084	18,711.962	19,328.840	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596	20,562.596
Total Incremental Expenses	29,064.574	31,539.076	32,421.716	34,807.473	34,256.420	34,925.639	36,530.766	37,650.747	35,997.385	35,730.695	36,560.365	37,680.346	36,026.984	35,760.294	35,493.603	36,613.585	34,960.223	34,693.532	34,426.842	35,546.824	34,482.212	34,215.521	33,948.831	35,068.813
Net Incremental Income (Loss) From Operations	22,585.323	21,307.306	35,527.537	34,733.597	51,523.134	52,842.562	68,613.074	67,076.242	68,729.604	68,996.295	68,166.625	67,046.643	68,700.006	68,966.696	69,233.386	68,113.404	69,766.767	70,033.457	70,300.147	69,180.166	70,244.778	70,511.468	70,778.159	69,658.177
Net Incremental Income Before Tax	22,585.323	21,307.306	35,527.537	34,733.597	51,523.134	52,842.562	68,613.074	67,076.242	68,729.604	68,996.295	68,166.625	67,046.643	68,700.006	68,966.696	69,233.386	68,113.404	69,766.767	70,033.457	70,300.147	69,180.166	70,244.778	70,511.468	70,778.159	69,658.177
Income Tax[a]	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Tax Expense	2,258.532	2,130.731	3,552.754	3,473.360	5,152.313	5,284.256	6,861.307	6,707.624	6,872.960	6,899.629	6,816.662	6,704.664	6,870.001	6,896.670	6,923.339	6,811.340	6,976.677	7,003.346	7,030.015	6,918.017	7,024.478	7,051.147	7,077.816	6,965.818
Net Incremental Profit After Tax	20,326.791	19,176.575	31,974.784	31,260.238	46,370.821	47,558.306	61,751.766	60,368.618	61,856.644	62,096.665	61,349.962	60,341.979	61,830.005	62,070.026	62,310.048	61,302.064	62,790.090	63,030.111	63,270.133	62,262.149	63,220.300	63,460.321	63,700.343	62,692.359
Efficiency Ratio:																								
1) Operating ratio[b]	0.56	0.60	0.48	0.50	0.40	0.40	0.35	0.36	0.34	0.34	0.35	0.36	0.34	0.34	0.34	0.35	0.33	0.33	0.33	0.34	0.33	0.33	0.32	0.33
2) Break-even point in PhP[c]	13,643	14,472	14,738	16,712	15,544	15,597	15,968	17,088	15,435	15,168	15,998	17,118	15,464	15,198	14,931	16,051	14,398	14,131	13,864	14,984	13,920	13,653	13,386	14,506
Benefit:Cost Ratio:	1.78	1.68	2.10	2.00	2.50	2.51	2.88	2.78	2.91	2.93	2.86	2.78	2.91	2.93	2.95	2.86	3.00	3.02	3.04	2.95	3.04	3.06	3.08	2.99
Income Ratios:																								
1) Return on sales[d]	39%	36%	47%	45%	54%	54%	59%	58%	59%	59%	59%	58%	59%	59%	59%	59%	60%	60%	60%	59%	60%	61%	61%	60%
2) Return on equity[e]	27%	26%	43%	42%	62%	64%	83%	81%	83%	83%	82%	81%	83%	83%	83%	82%	84%	84%	85%	83%	85%	85%	85%	84%
Debt Service Ratios:																								
1) Debt Service Coverage Ratio[f]	3.42	3.78	4.07	1.07	1.07	1.11	1.20	1.26	1.22	1.23	1.29	1.36	1.32	1.33	1.35	1.42	1.38	1.39	1.41	1.49	1.47	1.49	1.51	1.59

[a] Income tax assumed at 10 percent of net profit after cost of operation.

[b] Operating ratio = Cost of operation ÷ Total revenue

[c] Breakeven point (PhP) = (Total fixed costs ÷ (Total variable expesnes ÷ Total revenue)

[d] Return on sales = Net profit after tax and debt service ÷ Total revenue

[e] Return on equity = Net profit after tax and debt service ÷ Investment

[f] Debt Service Ratio = Net profit ÷ Annual debt service (Note: Net revenue equals revenues less expenses; excluding non-cash and interest charges)

Table A.3: Projected Profit and Loss Statement, Scenario A-2 and 2-2

Item	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
A. Incremental Revenue																								
Total Fish Trading and Marketing Center (PPPI)	29,284.464	30,102.290	44,816.310	46,008.790	61,837.157	63,404.598	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628
Total Fish Supply Buffer Center	6,627.880	6,744.605	6,863.630	6,985.001	7,108.764	7,234.966	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656
Total Canteens and Kiosks Area	2,122.596	2,124.720	2,126.847	2,128.976	2,131.107	2,133.241	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376
Total Seafood Center	619.403	619.444	619.485	619.526	619.567	619.609	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650
Total Utility Stations	3,964.122	3,968.090	3,972.062	3,976.038	3,980.018	3,984.002	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990
Total Truck Berth and Parking Lot	8,617.078	8,872.463	9,135.735	9,407.138	9,686.924	9,975.352	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690
Total Other Revenue Sources (Lease of Land)	414.355	414.770	415.185	415.601	416.017	416.433	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850
Subtotal Incremental Revenue	51,649.897	52,846.382	67,949.254	69,541.070	85,779.554	87,768.201	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840
B. Incremental Expenses																								
1. Cash Operating & Miantenance Expenses																								
(i) Variable Expenses																								
Fish Trading and Marketing Center	112.884	156.711	261.179	739.061	764.257	789.452	839.843	839.843	839.843	839.843	853.283	853.283	853.283	853.283	853.283	853.283	853.283	853.283	853.283	853.283	865.523	865.523	865.523	865.523
Fish Supply Buffer Center	1,216.293	1,349.573	1,409.362	1,494.708	1,545.664	1,596.620	1,698.532	1,698.532	1,698.532	1,698.532	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,308.232	2,308.232	2,308.232	2,308.232
Canteens and Kiosks Area	397.065	446.876	486.209	608.211	628.945	649.680	691.149	691.149	691.149	691.149	926.079	926.079	926.079	926.079	926.079	926.079	926.079	926.079	926.079	926.079	978.609	978.609	978.609	978.609
Seafood Center	129.813	150.385	176.724	280.652	290.220	299.788	318.923	318.923	318.923	318.923	353.233	353.233	353.233	353.233	353.233	353.233	353.233	353.233	353.233	353.233	379.143	379.143	379.143	379.143
Utility Stations	1,626.736	1,802.168	1,873.256	1,945.226	2,011.541	2,077.855	2,210.484	2,210.484	2,210.484	2,210.484	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,909.074	2,909.074	2,909.074	2,909.074
Truck Berth and Parking Lot Area	19.029	25.355	39.625	104.314	107.871	111.427	118.539	118.539	118.539	118.539	120.269	120.269	120.269	120.269	120.269	120.269	120.269	120.269	120.269	120.269	121.999	121.999	121.999	121.999
Reclaimed Area and Revetment	2,843.016	3,146.271	3,259.992	3,335.806	3,449.526	3,563.247	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688
Access Road	-	-	-	435.811	-	-	-	495.240	-	-	-	495.240	-	-	-	495.240	-	-	-	495.240	-	-	-	495.240
Subtotal Variable Expenses	6,344.837	7,077.339	7,506.347	8,943.790	8,798.023	9,088.068	9,668.157	10,163.397	9,668.157	9,668.157	10,764.517	11,259.757	10,764.517	10,764.517	10,764.517	11,259.757	10,764.517	10,764.517	10,764.517	11,259.757	11,353.267	11,353.267	11,353.267	11,848.507
(ii) Fixed Expenses																								
Interest	6,993.015	7,012.791	6,802.556	6,519.116	6,235.676	5,952.236	5,668.797	5,385.357	5,101.917	4,818.477	4,535.037	4,251.597	3,968.158	3,684.718	3,401.278	3,117.838	2,834.398	2,550.958	2,267.519	1,984.079	1,700.639	1,417.199	1,133.759	850.319
Subtotal Fixed Expenses	6,993.015	7,012.791	6,802.556	6,519.116	6,235.676	5,952.236	5,668.797	5,385.357	5,101.917	4,818.477	4,535.037	4,251.597	3,968.158	3,684.718	3,401.278	3,117.838	2,834.398	2,550.958	2,267.519	1,984.079	1,700.639	1,417.199	1,133.759	850.319
Subtotal Cash Operating Expenses	13,337.852	14,090.130	14,308.903	15,462.906	15,033.700	15,040.304	15,336.954	15,548.754	14,770.074	14,486.635	15,299.555	15,511.355	14,732.675	14,449.235	14,165.795	14,377.596	13,598.916	13,315.476	13,032.036	13,243.836	13,053.906	12,770.467	12,487.027	12,698.827
(iii) Non-cash Expenses																								
Depreciation (New Assets)	15,422.547	17,067.619	17,684.520	18,095.788	18,712.690	19,329.592	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396
Total Non-cash Expenses	15,422.547	17,067.619	17,684.520	18,095.788	18,712.690	19,329.592	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396
Total Incremental Expenses	28,760.399	31,157.748	31,993.423	33,558.694	33,746.390	34,369.897	35,900.350	36,112.150	35,333.470	35,050.030	35,862.951	36,074.751	35,296.071	35,012.631	34,729.191	34,940.991	34,162.312	33,878.872	33,595.432	33,807.232	33,617.302	33,333.862	33,050.423	33,262.223
Net Incremental Income (Loss) From Operations	22,889.498	21,688.634	35,955.831	35,982.376	52,033.165	53,398.304	69,243.490	69,031.689	69,810.369	70,093.809	69,280.889	69,069.089	69,847.769	70,131.208	70,414.648	70,202.848	70,981.528	71,264.968	71,548.408	71,336.607	71,526.537	71,809.977	72,093.417	71,881.617
Net Incremental Income Before Tax	22,889.498	21,688.634	35,955.831	35,982.376	52,033.165	53,398.304	69,243.490	69,031.689	69,810.369	70,093.809	69,280.889	69,069.089	69,847.769	70,131.208	70,414.648	70,202.848	70,981.528	71,264.968	71,548.408	71,336.607	71,526.537	71,809.977	72,093.417	71,881.617
Income Tax[a]	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Tax Expense	2,288.950	2,168.863	3,595.583	3,598.238	5,203.316	5,339.830	6,924.349	6,903.169	6,981.037	7,009.381	6,928.089	6,906.909	6,984.777	7,013.121	7,041.465	7,020.285	7,098.153	7,126.497	7,154.841	7,133.661	7,152.654	7,180.998	7,209.342	7,188.162
Net Incremental Profit After Tax	20,600.549	19,519.770	32,360.248	32,384.138	46,829.848	48,058.474	62,319.141	62,128.520	62,829.332	63,084.428	62,352.800	62,162.180	62,862.992	63,118.088	63,373.183	63,182.563	63,883.375	64,138.471	64,393.567	64,202.947	64,373.883	64,628.979	64,884.075	64,693.455
Efficiency Ratio:																								
1) Operating ratio[b]	0.56	0.59	0.47	0.48	0.39	0.39	0.34	0.34	0.34	0.33	0.34	0.34	0.34	0.33	0.33	0.33	0.32	0.32	0.32	0.32	0.32	0.32	0.31	0.32
2) Break-even point in PhP[c]	13,338	14,090	14,309	15,463	15,034	15,040	15,337	15,549	14,770	14,487	15,300	15,511	14,733	14,449	14,166	14,378	13,599	13,315	13,032	13,244	13,054	12,770	12,487	12,699
Benefit:Cost Ratio:	1.80	1.70	2.12	2.07	2.54	2.55	2.93	2.91	2.98	3.00	2.93	2.91	2.98	3.00	3.03	3.01	3.08	3.10	3.13	3.11	3.13	3.15	3.18	3.16
Income Ratios:																								
1) Return on sales[d]	40%	37%	48%	47%	55%	55%	59%	59%	60%	60%	59%	59%	60%	60%	60%	60%	61%	61%	61%	61%	61%	61%	62%	62%
2) Return on equity[e]	26%	25%	41%	41%	59%	60%	78%	78%	79%	79%	78%	78%	79%	79%	80%	80%	80%	81%	81%	81%	81%	81%	82%	81%
Debt Service Ratios:																								
1) Debt Service Coverage Ratio[f]	3.11	3.44	3.70	0.94	0.97	1.01	1.09	1.12	1.11	1.12	1.18	1.21	1.20	1.22	1.23	1.26	1.26	1.27	1.29	1.32	1.34	1.36	1.37	1.41

[a] Income tax assumed at 10% percent of net profit after cost of operation.

[b] Operating ratio = Cost of operation ÷ Total revenue

[c] Breakeven point (PhP) = (Total fixed costs ÷ (Total variable expesnes ÷ Total revenue)

[d] Return on sales = Net profit after tax and debt service ÷ Total revenue

[e] Return on equity = Net profit after tax and debt service ÷ Investment

[f] Debt Service Ratio = Net profit ÷ Annual debt service (Note: Net revenue equals revenues less expenses; excluding non-cash and interest charges)

Table A.4: Projected Profit and Loss Statement, Scenario A-2 and 2-3

Item	7 2019	8 2020	9 2021	10 2022	11 2023	12 2024	13 2025	14 2026	15 2027	16 2028	17 2029	18 2030	19 2031	20 2032	21 2033	22 2034	23 2035	24 2036	25 2037	26 2038	27 2039	28 2040	29 2041	30 2042
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
A. Incremental Revenue																								
Total Fish Trading and Marketing Center (PPPI)	29,284.464	30,102.290	44,816.310	46,008.790	61,837.157	63,404.598	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628
Total Fish Supply Buffer Center	6,627.880	6,744.605	6,863.630	6,985.001	7,108.764	7,234.966	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656	7,363.656
Total Canteens and Kiosks Area	2,122.596	2,124.720	2,126.847	2,128.976	2,131.107	2,133.241	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376	2,135.376
Total Seafood Center	619.403	619.444	619.485	619.526	619.567	619.609	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650
Total Utility Stations	3,964.122	3,968.090	3,972.062	3,976.038	3,980.018	3,984.002	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990	3,987.990
Total Truck Berth and Parking Lot	8,617.078	8,872.463	9,135.735	9,407.138	9,686.924	9,975.352	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690
Total Other Revenue Sources (Lease of Land)	414.355	414.770	415.185	415.601	416.017	416.433	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850
Subtotal Incremental Revenue	51,649.897	52,846.382	67,949.254	69,541.070	85,779.554	87,768.201	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840
B. Incremental Expenses																								
1. Cash Operating & Miantenance Expenses																								
(i) Variable Expenses																								
Fish Trading and Marketing Center	112.884	156.711	261.179	739.061	764.257	789.452	839.843	839.843	839.843	839.843	853.283	853.283	853.283	853.283	853.283	853.283	853.283	853.283	853.283	853.283	865.523	865.523	865.523	865.523
Fish Supply Buffer Center	1,216.293	1,349.573	1,409.362	1,494.708	1,545.664	1,596.620	1,698.532	1,698.532	1,698.532	1,698.532	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,125.182	2,308.232	2,308.232	2,308.232	2,308.232
Canteens and Kiosks Area	397.065	446.876	486.209	608.211	628.945	649.680	691.149	691.149	691.149	691.149	926.079	926.079	926.079	926.079	926.079	926.079	926.079	926.079	926.079	926.079	978.609	978.609	978.609	978.609
Seafood Center	129.813	150.385	176.724	280.652	290.220	299.788	318.923	318.923	318.923	318.923	353.233	353.233	353.233	353.233	353.233	353.233	353.233	353.233	353.233	353.233	379.143	379.143	379.143	379.143
Utility Stations	1,626.736	1,802.168	1,873.256	1,945.226	2,011.541	2,077.855	2,210.484	2,210.484	2,210.484	2,210.484	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,909.074	2,909.074	2,909.074	2,909.074
Truck Berth and Parking Lot Area	19.029	25.355	39.625	104.314	107.871	111.427	118.539	118.539	118.539	118.539	120.269	120.269	120.269	120.269	120.269	120.269	120.269	120.269	120.269	120.269	121.999	121.999	121.999	121.999
Reclaimed Area and Revetment	2,843.016	3,146.271	3,259.992	3,335.806	3,449.526	3,563.247	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688
Access Road	-	-	-	1,220.271	-	-	-	1,386.672	-	-	-	1,386.672	-	-	-	1,386.672	-	-	-	1,386.672	-	-	-	1,386.672
Subtotal Variable Expenses	6,344.837	7,077.339	7,506.347	9,728.250	8,798.023	9,088.068	9,668.157	11,054.829	9,668.157	9,668.157	10,764.517	12,151.189	10,764.517	10,764.517	10,764.517	12,151.189	10,764.517	10,764.517	10,764.517	12,151.189	11,353.267	11,353.267	11,353.267	12,739.939
(ii) Fixed Expenses																								
Interest	6,497.046	6,516.741	6,327.543	6,063.895	5,800.248	5,536.600	5,272.952	5,009.305	4,745.657	4,482.009	4,218.362	3,954.714	3,691.067	3,427.419	3,163.771	2,900.124	2,636.476	2,372.829	2,109.181	1,845.533	1,581.886	1,318.238	1,054.590	790.943
Subtotal Fixed Expenses	6,497.046	6,516.741	6,327.543	6,063.895	5,800.248	5,536.600	5,272.952	5,009.305	4,745.657	4,482.009	4,218.362	3,954.714	3,691.067	3,427.419	3,163.771	2,900.124	2,636.476	2,372.829	2,109.181	1,845.533	1,581.886	1,318.238	1,054.590	790.943
Subtotal Cash Operating Expenses	12,841.883	13,594.079	13,833.889	15,792.145	14,598.271	14,624.668	14,941.110	16,064.134	14,413.815	14,150.167	14,982.879	16,105.904	14,455.584	14,191.936	13,928.289	15,051.313	13,400.994	13,137.346	12,873.698	13,996.723	12,935.153	12,671.506	12,407.858	13,530.882
(iii) Non-cash Expenses																								
Depreciation (New Assets)	15,422.547	17,067.619	17,684.520	18,095.788	18,712.690	19,329.592	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396
Total Non-cash Expenses	15,422.547	17,067.619	17,684.520	18,095.788	18,712.690	19,329.592	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396	20,563.396
Total Incremental Expenses	28,264.430	30,661.698	31,518.410	33,887.933	33,310.961	33,954.260	35,504.506	36,627.530	34,977.210	34,713.563	35,546.275	36,669.300	35,018.980	34,755.332	34,491.685	35,614.709	33,964.389	33,700.742	33,437.094	34,560.119	33,498.549	33,234.901	32,971.254	34,094.278
Net Incremental Income (Loss) From Operations	23,385.467	22,184.684	36,430.844	35,653.137	52,468.593	53,813.941	69,639.334	68,516.309	70,166.629	70,430.277	69,597.564	68,474.540	70,124.860	70,388.507	70,652.155	69,529.130	71,179.450	71,443.098	71,706.745	70,583.721	71,645.291	71,908.938	72,172.586	71,049.561
Net Incremental Income Before Tax	23,385.467	22,184.684	36,430.844	35,653.137	52,468.593	53,813.941	69,639.334	68,516.309	70,166.629	70,430.277	69,597.564	68,474.540	70,124.860	70,388.507	70,652.155	69,529.130	71,179.450	71,443.098	71,706.745	70,583.721	71,645.291	71,908.938	72,172.586	71,049.561
Income Tax[a]	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Tax Expense	2,338.547	2,218.468	3,643.084	3,565.314	5,246.859	5,381.394	6,963.933	6,851.631	7,016.663	7,043.028	6,959.756	6,847.454	7,012.486	7,038.851	7,065.215	6,952.913	7,117.945	7,144.310	7,170.675	7,058.372	7,164.529	7,190.894	7,217.259	7,104.956
Net Incremental Profit After Tax	21,046.921	19,966.216	32,787.760	32,087.823	47,221.734	48,432.547	62,675.400	61,664.679	63,149.966	63,387.249	62,637.808	61,627.086	63,112.374	63,349.656	63,586.939	62,576.217	64,061.505	64,298.788	64,536.071	63,525.349	64,480.761	64,718.044	64,955.327	63,944.605
Efficiency Ratio:																								
1) Operating ratio[b]	0.55	0.58	0.46	0.49	0.39	0.39	0.34	0.35	0.33	0.33	0.34	0.35	0.33	0.33	0.33	0.34	0.32	0.32	0.32	0.33	0.32	0.32	0.31	0.32
2) Break-even point in PhP[c]	12,842	13,594	13,834	15,792	14,598	14,625	14,941	16,064	14,414	14,150	14,983	16,106	14,456	14,192	13,928	15,051	13,401	13,137	12,874	13,997	12,935	12,672	12,408	13,531
Benefit:Cost Ratio:	1.83	1.72	2.16	2.05	2.58	2.58	2.96	2.87	3.01	3.03	2.96	2.87	3.00	3.03	3.05	2.95	3.10	3.12	3.14	3.04	3.14	3.16	3.19	3.08
Income Ratios:																								
1) Return on sales[d]	41%	38%	48%	46%	55%	55%	60%	59%	60%	60%	60%	59%	60%	60%	60%	60%	61%	61%	61%	60%	61%	62%	62%	61%
2) Return on equity[e]	29%	27%	44%	43%	64%	66%	85%	84%	86%	86%	85%	83%	85%	86%	86%	85%	87%	87%	87%	86%	87%	88%	88%	87%
Debt Service Ratios:																								
1) Debt Service Coverage Ratio[f]	3.35	3.71	3.98	1.05	1.04	1.09	1.17	1.24	1.20	1.21	1.26	1.34	1.29	1.31	1.32	1.40	1.35	1.37	1.38	1.46	1.44	1.46	1.48	1.56

[a] Income tax assumed at 10% percent of net profit after cost of operation.

[b] Operating ratio = Cost of operation ÷ Total revenue

[c] Breakeven point (PhP) = (Total fixed costs ÷ (Total variable expesnes ÷ Total revenue)

[d] Return on sales = Net profit after tax and debt service ÷ Total revenue

[e] Return on equity = Net profit after tax and debt service ÷ Investment

[f] Debt Service Ratio = Net profit ÷ Annual debt service (Note: Net revenue equals revenues less expenses; excluding non-cash and interest charges)

Table A.5: Projected Profit and Loss Statement, Scenario B-2 and 2-2

	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Item	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
A. Incremental Revenue																								
Total Fish Trading and Marketing Center (PPPI)	29,232.536	30,058.332	44,780.550	45,981.542	61,818.683	63,395.212	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628
Total Fish Supply Buffer Center	3,011.061	3,077.866	3,146.221	3,216.164	3,287.735	3,360.973	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919
Total Canteens and Kiosks Area	1,568.113	1,618.004	1,669.482	1,722.599	1,777.405	1,833.955	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304
Total Seafood Center	612.573	613.662	614.786	615.945	617.142	618.376	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650
Total Utility Stations	3,304.764	3,409.908	3,518.398	3,630.339	3,745.842	3,865.020	3,987.990	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Vehicle Entrance and Parking	8,617.078	8,872.463	9,135.735	9,407.138	9,686.924	9,975.352	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690
Total Other Revenue Sources (Lease of Land)	414.355	414.770	415.185	415.601	416.017	416.433	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850
Subtotal Incremental Revenue	46,760.480	48,065.004	63,280.356	64,989.328	81,349.748	83,465.322	100,973.031	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041
B. Incremental Expenses																								
1. Cash Operating & Miantenance Expenses																								
(i) Variable Expenses																								
Fish Trading and Marketing Center	112.884	156.711	261.179	739.061	764.257	789.452	839.843	839.843	839.843	839.843	853.283	853.283	853.283	853.283	853.283	853.283	853.283	853.283	853.283	853.283	865.523	865.523	865.523	865.523
Fish Supply Buffer Center	1,212.857	1,343.868	1,397.540	1,454.386	1,503.968	1,553.549	1,652.712	1,652.712	1,652.712	1,652.712	2,079.362	2,079.362	2,079.362	2,079.362	2,079.362	2,079.362	2,079.362	2,079.362	2,079.362	2,079.362	2,262.412	2,262.412	2,262.412	2,262.412
Canteens and Kiosks Area	394.598	442.782	477.725	579.271	599.019	618.767	658.263	658.263	658.263	658.263	893.193	893.193	893.193	893.193	893.193	893.193	893.193	893.193	893.193	893.193	945.723	945.723	945.723	945.723
Seafood Center	129.813	150.385	176.724	280.652	290.220	299.788	318.923	318.923	318.923	318.923	353.233	353.233	353.233	353.233	353.233	353.233	353.233	353.233	353.233	353.233	379.143	379.143	379.143	379.143
Utility Stations	1,626.736	1,802.168	1,873.256	1,945.226	2,011.541	2,077.855	2,210.484	2,210.484	2,210.484	2,210.484	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,909.074	2,909.074	2,909.074	2,909.074
Truck Berth and Parking Lot Area	21.128	28.839	46.846	128.944	133.339	137.735	146.527	146.527	146.527	146.527	148.257	148.257	148.257	148.257	148.257	148.257	148.257	148.257	148.257	148.257	149.987	149.987	149.987	149.987
Reclaimed Area and Revetment	2,843.016	3,146.271	3,259.992	3,335.806	3,449.526	3,563.247	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688
Access Road	-	-	-	435.811	-	-	-	495.240	-	-	-	495.240	-	-	-	495.240	-	-	-	495.240	-	-	-	495.240
Subtotal Variable Expenses	6,341.033	7,071.024	7,493.261	8,899.158	8,751.870	9,040.393	9,617.439	10,112.679	9,617.439	9,617.439	10,713.799	11,209.039	10,713.799	10,713.799	10,713.799	11,209.039	10,713.799	10,713.799	10,713.799	11,209.039	11,302.549	11,302.549	11,302.549	11,797.789
(ii) Fixed Expenses																								
Interest	6,393.790	6,413.156	6,224.795	5,965.429	5,706.062	5,446.696	5,187.329	4,927.963	4,668.596	4,409.230	4,149.863	3,890.497	3,631.130	3,371.764	3,112.398	2,853.031	2,593.665	2,334.298	2,074.932	1,815.565	1,556.199	1,296.832	1,037.466	778.099
Subtotal Fixed Expenses	6,393.790	6,413.156	6,224.795	5,965.429	5,706.062	5,446.696	5,187.329	4,927.963	4,668.596	4,409.230	4,149.863	3,890.497	3,631.130	3,371.764	3,112.398	2,853.031	2,593.665	2,334.298	2,074.932	1,815.565	1,556.199	1,296.832	1,037.466	778.099
Subtotal Cash Operating Expenses	12,734.823	13,484.180	13,718.056	14,864.586	14,457.932	14,487.088	14,804.768	15,040.642	14,286.035	14,026.669	14,863.662	15,099.536	14,344.929	14,085.563	13,826.197	14,062.070	13,307.464	13,048.097	12,788.731	13,024.604	12,858.748	12,599.381	12,340.015	12,575.888
(iii) Non-cash Expenses																								
Depreciation (New Assets)	12,732.736	14,090.895	14,600.204	14,939.744	15,449.053	15,958.363	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982
Total Non-cash Expenses	12,732.736	14,090.895	14,600.204	14,939.744	15,449.053	15,958.363	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982
Total Incremental Expenses	25,467.559	27,575.075	28,318.260	29,804.330	29,906.985	30,445.451	31,781.750	32,017.623	31,263.017	31,003.650	31,840.644	32,076.518	31,321.911	31,062.545	30,803.178	31,039.052	30,284.445	30,025.079	29,765.712	30,001.586	29,835.729	29,576.363	29,316.996	29,552.870
Net Incremental Income (Loss) From Operations	21,292.920	20,489.929	34,962.096	35,184.998	51,442.763	53,019.871	69,191.281	64,967.417	65,722.024	65,981.390	65,144.397	64,908.523	65,663.130	65,922.496	66,181.863	65,945.989	66,700.595	66,959.962	67,219.328	66,983.455	67,149.311	67,408.678	67,668.044	67,432.171
Net Incremental Income Before Tax	21,292.920	20,489.929	34,962.096	35,184.998	51,442.763	53,019.871	69,191.281	64,967.417	65,722.024	65,981.390	65,144.397	64,908.523	65,663.130	65,922.496	66,181.863	65,945.989	66,700.595	66,959.962	67,219.328	66,983.455	67,149.311	67,408.678	67,668.044	67,432.171
Income Tax[a]	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Tax Expense	2,129.292	2,048.993	3,496.210	3,518.500	5,144.276	5,301.987	6,919.128	6,496.742	6,572.202	6,598.139	6,514.440	6,490.852	6,566.313	6,592.250	6,618.186	6,594.599	6,670.060	6,695.996	6,721.933	6,698.345	6,714.931	6,740.868	6,766.804	6,743.217
Net Incremental Profit After Tax	19,163.628	18,440.936	31,465.886	31,666.498	46,298.487	47,717.884	62,272.153	58,470.676	59,149.821	59,383.251	58,629.957	58,417.671	59,096.817	59,330.246	59,563.676	59,351.390	60,030.536	60,263.966	60,497.396	60,285.109	60,434.380	60,667.810	60,901.240	60,688.954
Efficiency Ratio:																								
1) Operating ratio[b]	0.54	0.57	0.45	0.46	0.37	0.36	0.31	0.33	0.32	0.32	0.33	0.33	0.32	0.32	0.32	0.32	0.31	0.31	0.31	0.31	0.31	0.30	0.30	0.30
2) Break-even point in PhP[c]	12,734.823	13,484.180	13,718.056	14,864.586	14,457.932	14,487.088	14,804.768	15,040.642	14,286.035	14,026.669	14,863.662	15,099.536	14,344.929	14,085.563	13,826.197	14,062.070	13,307.464	13,048.097	12,788.731	13,024.604	12,858.748	12,599.381	12,340.015	12,575.888
Benefit:Cost Ratio:	1.84	1.74	2.23	2.18	2.72	2.74	3.18	3.03	3.10	3.13	3.05	3.02	3.10	3.12	3.15	3.12	3.20	3.23	3.26	3.23	3.25	3.28	3.31	3.28
Income Ratios:																								
1) Return on sales[d]	41%	38%	50%	49%	57%	57%	62%	60%	61%	61%	60%	60%	61%	61%	61%	61%	62%	62%	62%	62%	62%	63%	63%	63%
2) Return on equity[e]	26%	25%	43%	44%	64%	66%	86%	80%	81%	82%	81%	80%	81%	82%	82%	82%	83%	83%	83%	83%	83%	84%	84%	84%
Debt Service Ratios:																								
1) Debt Service Coverage Ratio[f]	2.98	3.30	3.55	0.90	0.92	0.96	1.03	1.06	1.06	1.07	1.12	1.16	1.15	1.16	1.17	1.21	1.20	1.21	1.23	1.26	1.28	1.30	1.31	1.35

[a] Income tax assumed at 10% percent of net profit after cost of operation.

[b] Operating ratio = Cost of operation ÷ Total revenue

[c] Breakeven point (PhP) = (Total fixed costs ÷ (Total variable expesnes ÷ Total revenue)

[d] Return on sales = Net profit after tax and debt service ÷ Total revenue

[e] Return on equity = Net profit after tax and debt service ÷ Investment

[f] Debt Service Ratio = Net profit ÷ Annual debt service (Note: Net revenue equals revenues less expenses; excluding non-cash and interest charges)

Table A.6: Projected Profit and Loss Statement, Scenario B-2 and 2-3

	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Item	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
A. Incremental Revenue																								
Total Fish Trading and Marketing Center (PPPI)	29,232.536	30,058.332	44,780.550	45,981.542	61,818.683	63,395.212	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628	80,347.628
Total Fish Supply Buffer Center	3,011.061	3,077.866	3,146.221	3,216.164	3,287.735	3,360.973	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919	3,435.919
Total Canteens and Kiosks Area	1,568.113	1,618.004	1,669.482	1,722.599	1,777.405	1,833.955	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304	1,892.304
Total Seafood Center	612.573	613.662	614.786	615.945	617.142	618.376	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650	619.650
Total Utility Stations	3,304.764	3,409.908	3,518.398	3,630.339	3,745.842	3,865.020	3,987.990	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Vehicle Entrance and Parking	8,617.078	8,872.463	9,135.735	9,407.138	9,686.924	9,975.352	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690	10,272.690
Total Other Revenue Sources (Lease of Land)	414.355	414.770	415.185	415.601	416.017	416.433	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850	416.850
Subtotal Incremental Revenue	46,760.480	48,065.004	63,280.356	64,989.328	81,349.748	83,465.322	100,973.031	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041
B. Incremental Expenses																								
1. Cash Operating & Miantenance Expenses																								
(i) Variable Expenses																								
Fish Trading and Marketing Center	112.884	156.711	261.179	739.061	764.257	789.452	839.843	839.843	839.843	839.843	853.283	853.283	853.283	853.283	853.283	853.283	853.283	853.283	853.283	853.283	865.523	865.523	865.523	865.523
Fish Supply Buffer Center	1,212.857	1,343.868	1,397.540	1,454.386	1,503.968	1,553.549	1,652.712	1,652.712	1,652.712	1,652.712	2,079.362	2,079.362	2,079.362	2,079.362	2,079.362	2,079.362	2,079.362	2,079.362	2,079.362	2,079.362	2,262.412	2,262.412	2,262.412	2,262.412
Canteens and Kiosks Area	394.598	442.782	477.725	579.271	599.019	618.767	658.263	658.263	658.263	658.263	893.193	893.193	893.193	893.193	893.193	893.193	893.193	893.193	893.193	893.193	945.723	945.723	945.723	945.723
Seafood Center	129.813	150.385	176.724	280.652	290.220	299.788	318.923	318.923	318.923	318.923	353.233	353.233	353.233	353.233	353.233	353.233	353.233	353.233	353.233	353.233	379.143	379.143	379.143	379.143
Utility Stations	1,626.736	1,802.168	1,873.256	1,945.226	2,011.541	2,077.855	2,210.484	2,210.484	2,210.484	2,210.484	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,595.784	2,909.074	2,909.074	2,909.074	2,909.074
Truck Berth and Parking Lot Area	21.128	28.839	46.846	128.944	133.339	137.735	146.527	146.527	146.527	146.527	148.257	148.257	148.257	148.257	148.257	148.257	148.257	148.257	148.257	148.257	149.987	149.987	149.987	149.987
Reclaimed Area and Revetment	2,843.016	3,146.271	3,259.992	3,335.806	3,449.526	3,563.247	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688	3,790.688
Access Road	-	-	-	1,220.271	-	-	-	1,386.672	-	-	-	1,386.672	-	-	-	1,386.672	-	-	-	1,386.672	-	-	-	1,386.672
Subtotal Variable Expenses	6,341.033	7,071.024	7,493.261	9,683.618	8,751.870	9,040.393	9,617.439	11,004.111	9,617.439	9,617.439	10,713.799	12,100.471	10,713.799	10,713.799	10,713.799	12,100.471	10,713.799	10,713.799	10,713.799	12,100.471	11,302.549	11,302.549	11,302.549	12,689.221
(ii) Fixed Expenses																								
Interest	5,895.433	5,914.618	5,747.066	5,507.605	5,268.144	5,028.683	4,789.222	4,549.761	4,310.300	4,070.838	3,831.377	3,591.916	3,352.455	3,112.994	2,873.533	2,634.072	2,394.611	2,155.150	1,915.689	1,676.228	1,436.767	1,197.305	957.844	718.383
Subtotal Fixed Expenses	5,895.433	5,914.618	5,747.066	5,507.605	5,268.144	5,028.683	4,789.222	4,549.761	4,310.300	4,070.838	3,831.377	3,591.916	3,352.455	3,112.994	2,873.533	2,634.072	2,394.611	2,155.150	1,915.689	1,676.228	1,436.767	1,197.305	957.844	718.383
Subtotal Cash Operating Expenses	12,236.466	12,985.642	13,240.327	15,191.223	14,020.013	14,069.075	14,406.661	15,553.872	13,927.739	13,688.277	14,545.176	15,692.387	14,066.254	13,826.793	13,587.332	14,734.543	13,108.410	12,868.949	12,629.488	13,776.699	12,739.316	12,499.854	12,260.393	13,407.604
(iii) Non-cash Expenses																								
Depreciation (New Assets)	12,732.736	14,090.895	14,600.204	14,939.744	15,449.053	15,958.363	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982
Total Non-cash Expenses	12,732.736	14,090.895	14,600.204	14,939.744	15,449.053	15,958.363	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982	16,976.982
Total Incremental Expenses	24,969.202	27,076.537	27,840.532	30,130.967	29,469.067	30,027.438	31,383.642	32,530.853	30,904.720	30,665.259	31,522.158	32,669.369	31,043.236	30,803.775	30,564.314	31,711.525	30,085.392	29,845.930	29,606.469	30,753.680	29,716.297	29,476.836	29,237.375	30,384.586
Net Incremental Income (Loss) From Operations	21,791.277	20,988.467	35,439.825	34,858.362	51,880.682	53,437.884	69,589.388	64,454.187	66,080.321	66,319.782	65,462.883	64,315.672	65,941.805	66,181.266	66,420.727	65,273.516	66,899.649	67,139.110	67,378.571	66,231.360	67,268.744	67,508.205	67,747.666	66,600.455
Net Incremental Income Before Tax	21,791.277	20,988.467	35,439.825	34,858.362	51,880.682	53,437.884	69,589.388	64,454.187	66,080.321	66,319.782	65,462.883	64,315.672	65,941.805	66,181.266	66,420.727	65,273.516	66,899.649	67,139.110	67,378.571	66,231.360	67,268.744	67,508.205	67,747.666	66,600.455
Income Tax[a]	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Tax Expense	2,179.128	2,098.847	3,543.982	3,485.836	5,188.068	5,343.788	6,958.939	6,445.419	6,608.032	6,631.978	6,546.288	6,431.567	6,594.180	6,618.127	6,642.073	6,527.352	6,689.965	6,713.911	6,737.857	6,623.136	6,726.874	6,750.820	6,774.767	6,660.045
Net Incremental Profit After Tax	19,612.149	18,889.621	31,895.842	31,372.526	46,692.614	48,094.095	62,630.449	58,008.769	59,472.288	59,687.803	58,916.594	57,884.105	59,347.624	59,563.139	59,778.654	58,746.164	60,209.684	60,425.199	60,640.714	59,608.224	60,541.869	60,757.384	60,972.899	59,940.409
Efficiency Ratio:																								
1) Operating ratio[b]	0.53	0.56	0.44	0.46	0.36	0.36	0.31	0.34	0.32	0.32	0.33	0.34	0.32	0.32	0.32	0.33	0.31	0.31	0.31	0.32	0.31	0.30	0.30	0.31
2) Break-even point in PhP[c]	12,236.466	12,985.642	13,240.327	15,191.223	14,020.013	14,069.075	14,406.661	15,553.872	13,927.739	13,688.277	14,545.176	15,692.387	14,066.254	13,826.793	13,587.332	14,734.543	13,108.410	12,868.949	12,629.488	13,776.699	12,739.316	12,499.854	12,260.393	13,407.604
Benefit:Cost Ratio:	1.87	1.78	2.27	2.16	2.76	2.78	3.22	2.98	3.14	3.16	3.08	2.97	3.12	3.15	3.17	3.06	3.22	3.25	3.28	3.15	3.26	3.29	3.32	3.19
Income Ratios:																								
1) Return on sales[d]	42%	39%	50%	48%	57%	58%	62%	60%	61%	62%	61%	60%	61%	61%	62%	61%	62%	62%	63%	61%	62%	63%	63%	62%
2) Return on equity[e]	29%	28%	48%	47%	70%	72%	93%	87%	89%	89%	88%	86%	89%	89%	89%	88%	90%	90%	91%	89%	90%	91%	91%	89%
Debt Service Ratios:																								
1) Debt Service Coverage Ratio[f]	3.24	3.58	3.84	1.00	0.99	1.03	1.11	1.18	1.13	1.15	1.21	1.28	1.23	1.24	1.26	1.34	1.29	1.30	1.32	1.40	1.38	1.39	1.41	1.49

[a] Income tax assumed at 10% percent of net profit after cost of operation.

[b] Operating ratio = Cost of operation ÷ Total revenue

[c] Breakeven point (PhP) = (Total fixed costs ÷ (Total variable expesnes ÷ Total revenue)

[d] Return on sales = Net profit after tax and debt service ÷ Total revenue

[e] Return on equity = Net profit after tax and debt service ÷ Investment

[f] Debt Service Ratio = Net profit ÷ Annual debt service (Note: Net revenue equals revenues less expenses; excluding non-cash and interest charges)

Annex B

Table B.1: Projected Cash Flow Statement, Scenario A-1 and 2-2

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
1. Inflow															
Revenue							51,649.897	52,846.382	67,949.254	69,541.070	85,779.554	87,768.201	105,143.840	104,726.990	104,726.990
Replacement cost								-	-	-	-	-	-	-	-
Total Inflow	-	-	-	-	-	-	51,649.897	52,846.382	67,949.254	69,541.070	85,779.554	87,768.201	105,143.840	104,726.990	104,726.990
2. Outflow															
Cash operating expenses							7,069.528	7,879.328	8,337.317	9,794.051	9,677.271	9,996.302	10,634.364	11,129.604	10,634.364
Loan proceeds	17,187.403	1,466.006	29,204.715	49,668.354	193,046.600	228,548.371	1,407.142								
Government equity contribution	471.632	20.976	4,066.829	7,510.734	32,744.533	39,317.419	248.319								
Total capital investments	17,659.036	1,486.982	33,271.544	57,179.087	225,791.133	267,865.791	1,655.461								
Total Outflow	17,659.036	1,486.982	33,271.544	57,179.087	225,791.133	267,865.791	8,724.989	7,879.328	8,337.317	9,794.051	9,677.271	9,996.302	10,634.364	11,129.604	10,634.364
3. Net Flow Before Debt Service	(17,659.036)	(1,486.982)	(33,271.544)	(57,179.087)	(225,791.133)	(267,865.791)	42,924.908	44,967.054	59,611.937	59,747.019	76,102.283	77,771.899	94,509.476	93,597.386	94,092.626
4. Debt Service															
Payment on interest	1,068.512	1,107.380	1,109.179	1,127.247	1,396.594	3,785.959	6,682.918	6,702.618	6,505.027	6,233.984	5,962.941	5,691.898	5,420.856	5,149.813	4,878.770
Repayment of principal				-	-	-	-	-	-	21,043.002	21,043.002	21,043.002	21,043.002	21,043.002	21,043.002
Subtotal Debt Service	1,068.512	1,107.380	1,109.179	1,127.247	1,396.594	3,785.959	6,682.918	6,702.618	6,505.027	27,276.986	27,005.943	26,734.900	26,463.858	26,192.815	25,921.772
5. Net Debt Service	1,068.512	1,107.380	1,109.179	1,127.247	1,396.594	3,785.959	6,682.918	6,702.618	6,505.027	27,276.986	27,005.943	26,734.900	26,463.858	26,192.815	25,921.772
6. Net Flow After Debt Service	(18,727.548)	(2,594.362)	(34,380.723)	(58,306.334)	(227,187.726)	(271,651.750)	36,241.990	38,264.436	53,106.910	32,470.033	49,096.340	51,036.998	68,045.618	67,404.571	68,170.854
7. Less: Income Tax Paid							2,247.550	2,119.748	3,542.308	3,541.795	5,142.738	5,275.116	6,852.602	6,788.498	6,865.126
8. Net Flow After Debt Service and Tax	(18,727.548)	(2,594.362)	(34,380.723)	(58,306.334)	(227,187.726)	(271,651.750)	33,994.440	36,144.688	49,564.603	28,928.238	43,953.602	45,761.882	61,193.016	60,616.073	61,305.728
9. Accumulated Cash							33,994.440	70,139.128	119,703.730	148,631.968	192,585.570	238,347.453	299,540.468	360,156.542	421,462.269

Item	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
1. Inflow															
Revenue	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990
Replacement cost	-	-	-	-	-	(208,407.933)	-	-	-	-	-	-	-	-	-
Total Inflow	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	(103,680.944)	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990
2. Outflow															
Cash operating expenses	10,634.364	11,730.724	12,225.964	11,730.724	11,730.724	11,730.724	12,225.964	11,730.724	11,730.724	11,730.724	12,225.964	12,319.474	12,319.474	12,319.474	12,814.714
Loan proceeds															
Government equity contribution															
Total capital investments															
Total Outflow	10,634.364	11,730.724	12,225.964	11,730.724	11,730.724	11,730.724	12,225.964	11,730.724	11,730.724	11,730.724	12,225.964	12,319.474	12,319.474	12,319.474	12,814.714
3. Net Flow Before Debt Service	94,092.626	92,996.266	92,501.026	92,996.266	92,996.266	(115,411.667)	92,501.026	92,996.266	92,996.266	92,996.266	92,501.026	92,407.516	92,407.516	92,407.516	91,912.276
4. Debt Service															
Payment on interest	4,607.727	4,336.684	4,065.642	3,794.599	3,523.556	3,252.513	2,981.471	2,710.428	2,439.385	2,168.342	1,897.299	1,626.257	1,355.214	1,084.171	813.128
Repayment of principal	21,043.002	21,043.002	21,043.002	21,043.002	21,043.002	21,043.002	21,043.002	21,043.002	21,043.002	21,043.002	21,043.002	21,043.002	21,043.002	21,043.002	21,043.002
Subtotal Debt Service	25,650.729	25,379.686	25,108.644	24,837.601	24,566.558	24,295.515	24,024.473	23,753.430	23,482.387	23,211.344	22,940.301	22,669.259	22,398.216	22,127.173	21,856.130
5. Net Debt Service	25,650.729	25,379.686	25,108.644	24,837.601	24,566.558	24,295.515	24,024.473	23,753.430	23,482.387	23,211.344	22,940.301	22,669.259	22,398.216	22,127.173	21,856.130
6. Net Flow After Debt Service	68,441.896	67,616.579	67,392.382	68,158.665	68,429.708	(139,707.183)	68,476.553	69,242.836	69,513.879	69,784.921	69,560.724	69,738.257	70,009.300	70,280.343	70,056.145
7. Less: Income Tax Paid	6,892.230	6,809.699	6,787.279	6,863.907	6,891.011	6,918.116	6,895.696	6,972.324	6,999.428	7,026.533	7,004.113	7,021.866	7,048.971	7,076.075	7,053.655
8. Net Flow After Debt Service and Tax	61,549.666	60,806.881	60,605.103	61,294.758	61,538.696	(146,625.298)	61,580.857	62,270.512	62,514.450	62,758.389	62,556.611	62,716.391	62,960.329	63,204.268	63,002.490
9. Accumulated Cash	483,011.935	543,818.816	604,423.919	665,718.677	727,257.373	580,632.075	642,212.932	704,483.444	766,997.894	829,756.282	892,312.894	955,029.284	1,017,989.613	1,081,193.881	1,144,196.371

Table B.2: Projected Cash Flow Statement, Scenario A-1 and 2-3

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
1. Inflow															
Revenue							51,649.897	52,846.382	67,949.254	69,541.070	85,779.554	87,768.201	105,143.840	104,726.990	104,726.990
Replacement cost								-	-	-	-	-	-	-	-
Total Inflow	-	-	-	-	-	-	51,649.897	52,846.382	67,949.254	69,541.070	85,779.554	87,768.201	105,143.840	104,726.990	104,726.990
2. Outflow															
Cash operating expenses							7,069.528	7,879.328	8,337.317	10,578.512	9,677.271	9,996.302	10,634.364	12,021.036	10,634.364
Loan proceeds	16,237.360	1,466.006	26,635.458	46,868.318	192,065.988	228,700.772	1,406.726								
Government equity contribution	293.027	20.976	3,613.430	6,916.595	32,571.484	39,344.314	248.246								
Total capital investments	16,530.388	1,486.982	30,248.888	53,784.914	224,637.472	268,045.086	1,654.971								
Total Outflow	16,530.388	1,486.982	30,248.888	53,784.914	224,637.472	268,045.086	8,724.499	7,879.328	8,337.317	10,578.512	9,677.271	9,996.302	10,634.364	12,021.036	10,634.364
3. Net Flow Before Debt Service	(16,530.388)	(1,486.982)	(30,248.888)	(53,784.914)	(224,637.472)	(268,045.086)	42,925.398	44,967.054	59,611.937	58,962.559	76,102.283	77,771.899	94,509.476	92,705.954	94,092.626
4. Debt Service															
Payment on interest	1,121.955	1,146.659	1,148.458	1,108.638	1,303.664	3,674.160	6,573.099	6,592.793	6,400.567	6,133.877	5,867.187	5,600.496	5,333.806	5,067.116	4,800.425
Repayment of principal				-	-	-	-	-	-	20,757.083	20,757.083	20,757.083	20,757.083	20,757.083	20,757.083
Subtotal Debt Service	1,121.955	1,146.659	1,148.458	1,108.638	1,303.664	3,674.160	6,573.099	6,592.793	6,400.567	26,890.961	26,624.270	26,357.580	26,090.890	25,824.199	25,557.509
5. Net Debt Service	1,121.955	1,146.659	1,148.458	1,108.638	1,303.664	3,674.160	6,573.099	6,592.793	6,400.567	26,890.961	26,624.270	26,357.580	26,090.890	25,824.199	25,557.509
6. Net Flow After Debt Service	(17,652.342)	(2,633.642)	(31,397.346)	(54,893.552)	(225,941.136)	(271,719.246)	36,352.299	38,374.260	53,211.370	32,071.598	49,478.013	51,414.319	68,418.586	66,881.754	68,535.117
7. Less: Income Tax Paid							2,258.532	2,130.731	3,552.754	3,473.360	5,152.313	5,284.256	6,861.307	6,707.624	6,872.960
8. Net Flow After Debt Service and Tax	(17,652.342)	(2,633.642)	(31,397.346)	(54,893.552)	(225,941.136)	(271,719.246)	34,093.766	36,243.530	49,658.616	28,598.238	44,325.700	46,130.063	61,557.279	60,174.130	61,662.156
9. Accumulated Cash							34,093.766	70,337.296	119,995.912	148,594.151	192,919.850	239,049.913	300,607.192	360,781.322	422,443.478

Item	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
1. Inflow															
Revenue	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990
Replacement cost	-	-	-	-	-	(208,407.933)	-	-	-	-	-	-	-	-	-
Total Inflow	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	(103,680.944)	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990	104,726.990
2. Outflow															
Cash operating expenses	10,634.364	11,730.724	13,117.396	11,730.724	11,730.724	11,730.724	13,117.396	11,730.724	11,730.724	11,730.724	13,117.396	12,319.474	12,319.474	12,319.474	13,706.146
Loan proceeds															
Government equity contribution															
Total capital investments															
Total Outflow	10,634.364	11,730.724	13,117.396	11,730.724	11,730.724	11,730.724	13,117.396	11,730.724	11,730.724	11,730.724	13,117.396	12,319.474	12,319.474	12,319.474	13,706.146
3. Net Flow Before Debt Service	94,092.626	92,996.266	91,609.594	92,996.266	92,996.266	(115,411.667)	91,609.594	92,996.266	92,996.266	92,996.266	91,609.594	92,407.516	92,407.516	92,407.516	91,020.844
4. Debt Service															
Payment on interest	4,533.735	4,267.045	4,000.355	3,733.664	3,466.974	3,200.284	2,933.593	2,666.903	2,400.213	2,133.522	1,866.832	1,600.142	1,333.452	1,066.761	800.071
Repayment of principal	20,757.083	20,757.083	20,757.083	20,757.083	20,757.083	20,757.083	20,757.083	20,757.083	20,757.083	20,757.083	20,757.083	20,757.083	20,757.083	20,757.083	20,757.083
Subtotal Debt Service	25,290.819	25,024.128	24,757.438	24,490.748	24,224.057	23,957.367	23,690.677	23,423.987	23,157.296	22,890.606	22,623.916	22,357.225	22,090.535	21,823.845	21,557.154
5. Net Debt Service	25,290.819	25,024.128	24,757.438	24,490.748	24,224.057	23,957.367	23,690.677	23,423.987	23,157.296	22,890.606	22,623.916	22,357.225	22,090.535	21,823.845	21,557.154
6. Net Flow After Debt Service	68,801.807	67,972.137	66,852.156	68,505.518	68,772.208	(139,369.035)	67,918.917	69,572.279	69,838.969	70,105.660	68,985.678	70,050.290	70,316.981	70,583.671	69,463.689
7. Less: Income Tax Paid	6,899.629	6,816.662	6,704.664	6,870.001	6,896.670	6,923.339	6,811.340	6,976.677	7,003.346	7,030.015	6,918.017	7,024.478	7,051.147	7,077.816	6,965.818
8. Net Flow After Debt Service and Tax	61,902.177	61,155.475	60,147.491	61,635.517	61,875.539	(146,292.373)	61,107.576	62,595.602	62,835.624	63,075.645	62,067.661	63,025.813	63,265.834	63,505.855	62,497.872
9. Accumulated Cash	484,345.655	545,501.130	605,648.621	667,284.139	729,159.677	582,867.304	643,974.881	706,570.483	769,406.107	832,481.752	894,549.413	957,575.226	1,020,841.059	1,084,346.915	1,146,844.786

Table B.3: Projected Cash Flow Statement, Scenario A-2 and 2-2

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
1. Inflow															
Revenue							51,649.897	52,846.382	67,949.254	69,541.070	85,779.554	87,768.201	105,143.840	105,143.840	105,143.840
Replacement cost								-	-	-	-	-	-	-	-
Total Inflow	-	-	-	-	-	-	51,649.897	52,846.382	67,949.254	69,541.070	85,779.554	87,768.201	105,143.840	105,143.840	105,143.840
2. Outflow															
Cash operating expenses							6,344.837	7,077.339	7,506.347	8,943.790	8,798.023	9,088.068	9,668.157	10,163.397	9,668.157
Loan proceeds	19,178.174	1,615.599	36,971.270	63,779.398	195,424.706	228,437.110	1,412.559								
Government equity contribution	549.506	23.116	5,326.484	9,640.103	32,979.167	39,511.465	249.275								
Total capital investments	19,727.680	1,638.715	42,297.754	73,419.501	228,403.873	267,948.575	1,661.834								
Total Outflow	19,727.680	1,638.715	42,297.754	73,419.501	228,403.873	267,948.575	8,006.671	7,077.339	7,506.347	8,943.790	8,798.023	9,088.068	9,668.157	10,163.397	9,668.157
3. Net Flow Before Debt Service	(19,727.680)	(1,638.715)	(42,297.754)	(73,419.501)	(228,403.873)	(267,948.575)	43,643.227	45,769.043	60,442.907	60,597.280	76,981.531	78,680.133	95,475.682	94,980.442	95,475.682
4. Debt Service															
Payment on interest	1,006.579	1,051.780	1,053.762	1,229.683	1,674.939	4,081.883	6,993.015	7,012.791	6,802.556	6,519.116	6,235.676	5,952.236	5,668.797	5,385.357	5,101.917
Repayment of principal				-	-	-	-	-	-	22,095.216	22,095.216	22,095.216	22,095.216	22,095.216	22,095.216
Subtotal Debt Service	1,006.579	1,051.780	1,053.762	1,229.683	1,674.939	4,081.883	6,993.015	7,012.791	6,802.556	28,614.332	28,330.892	28,047.452	27,764.013	27,480.573	27,197.133
5. Net Debt Service	1,006.579	1,051.780	1,053.762	1,229.683	1,674.939	4,081.883	6,993.015	7,012.791	6,802.556	28,614.332	28,330.892	28,047.452	27,764.013	27,480.573	27,197.133
6. Net Flow After Debt Service	(20,734.259)	(2,690.495)	(43,351.516)	(74,649.184)	(230,078.812)	(272,030.458)	36,650.211	38,756.252	53,640.351	31,982.948	48,650.639	50,632.680	67,711.669	67,499.869	68,278.549
7. Less: Income Tax Paid							2,288.950	2,168.863	3,595.583	3,598.238	5,203.316	5,339.830	6,924.349	6,903.169	6,981.037
8. Net Flow After Debt Service and Tax	(20,734.259)	(2,690.495)	(43,351.516)	(74,649.184)	(230,078.812)	(272,030.458)	34,361.261	36,587.389	50,044.768	28,384.711	43,447.323	45,292.850	60,787.321	60,596.700	61,297.512
9. Accumulated Cash							34,361.261	70,948.650	120,993.418	149,378.129	192,825.452	238,118.301	298,905.622	359,502.322	420,799.835

Item	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
1. Inflow															
Revenue	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840
Replacement cost	-	-	-	-	-	(208,419.933)	-	-	-	-	-	-	-	-	-
Total Inflow	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	(103,276.094)	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840
2. Outflow															
Cash operating expenses	9,668.157	10,764.517	11,259.757	10,764.517	10,764.517	10,764.517	11,259.757	10,764.517	10,764.517	10,764.517	11,259.757	11,353.267	11,353.267	11,353.267	11,848.507
Loan proceeds															
Government equity contribution															
Total capital investments															
Total Outflow	9,668.157	10,764.517	11,259.757	10,764.517	10,764.517	10,764.517	11,259.757	10,764.517	10,764.517	10,764.517	11,259.757	11,353.267	11,353.267	11,353.267	11,848.507
3. Net Flow Before Debt Service	95,475.682	94,379.322	93,884.082	94,379.322	94,379.322	(114,040.611)	93,884.082	94,379.322	94,379.322	94,379.322	93,884.082	93,790.572	93,790.572	93,790.572	93,295.332
4. Debt Service															
Payment on interest	4,818.477	4,535.037	4,251.597	3,968.158	3,684.718	3,401.278	3,117.838	2,834.398	2,550.958	2,267.519	1,984.079	1,700.639	1,417.199	1,133.759	850.319
Repayment of principal	22,095.216	22,095.216	22,095.216	22,095.216	22,095.216	22,095.216	22,095.216	22,095.216	22,095.216	22,095.216	22,095.216	22,095.216	22,095.216	22,095.216	22,095.216
Subtotal Debt Service	26,913.693	26,630.253	26,346.813	26,063.374	25,779.934	25,496.494	25,213.054	24,929.614	24,646.174	24,362.735	24,079.295	23,795.855	23,512.415	23,228.975	22,945.535
5. Net Debt Service	26,913.693	26,630.253	26,346.813	26,063.374	25,779.934	25,496.494	25,213.054	24,929.614	24,646.174	24,362.735	24,079.295	23,795.855	23,512.415	23,228.975	22,945.535
6. Net Flow After Debt Service	68,561.989	67,749.069	67,537.269	68,315.948	68,599.388	(139,537.105)	68,671.028	69,449.708	69,733.148	70,016.587	69,804.787	69,994.717	70,278.157	70,561.597	70,349.797
7. Less: Income Tax Paid	7,009.381	6,928.089	6,906.909	6,984.777	7,013.121	7,041.465	7,020.285	7,098.153	7,126.497	7,154.841	7,133.661	7,152.654	7,180.998	7,209.342	7,188.162
8. Net Flow After Debt Service and Tax	61,552.608	60,820.980	60,630.360	61,331.172	61,586.267	(146,578.570)	61,650.743	62,351.555	62,606.651	62,861.747	62,671.127	62,842.063	63,097.159	63,352.255	63,161.635
9. Accumulated Cash	482,352.443	543,173.423	603,803.782	665,134.954	726,721.221	580,142.652	641,793.395	704,144.950	766,751.601	829,613.347	892,284.474	955,126.537	1,018,223.697	1,081,575.952	1,144,737.587

Table B.4: Projected Cash Flow Statement, Scenario A-2 and 2-3

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
1. Inflow															
Revenue							51,649.897	52,846.382	67,949.254	69,541.070	85,779.554	87,768.201	105,143.840	105,143.840	105,143.840
Replacement cost								-	-	-	-	-	-	-	-
Total Inflow	-	-	-	-	-	-	51,649.897	52,846.382	67,949.254	69,541.070	85,779.554	87,768.201	105,143.840	105,143.840	105,143.840
2. Outflow															
Cash operating expenses							6,344.837	7,077.339	7,506.347	9,728.250	8,798.023	9,088.068	9,668.157	11,054.829	9,668.157
Loan proceeds	16,402.124	1,466.006	22,788.159	46,305.694	193,047.422	226,714.434	1,406.726								
Government equity contribution	295.588	20.976	2,934.495	6,706.053	32,562.025	39,281.627	248.246								
Total capital investments	16,697.711	1,486.982	25,722.654	53,011.747	225,609.446	265,996.061	1,654.971								
Total Outflow	16,697.711	1,486.982	25,722.654	53,011.747	225,609.446	265,996.061	7,999.808	7,077.339	7,506.347	9,728.250	8,798.023	9,088.068	9,668.157	11,054.829	9,668.157
3. Net Flow Before Debt Service	(16,697.711)	(1,486.982)	(25,722.654)	(53,011.747)	(225,609.446)	(265,996.061)	43,650.089	45,769.043	60,442.907	59,812.820	76,981.531	78,680.133	95,475.682	94,089.010	95,475.682
4. Debt Service															
Payment on interest	1,032.495	1,057.417	1,059.216	1,034.376	1,232.796	3,602.888	6,497.046	6,516.741	6,327.543	6,063.895	5,800.248	5,536.600	5,272.952	5,009.305	4,745.657
Repayment of principal				-	-	-	-	-	-	20,547.081	20,547.081	20,547.081	20,547.081	20,547.081	20,547.081
Subtotal Debt Service	1,032.495	1,057.417	1,059.216	1,034.376	1,232.796	3,602.888	6,497.046	6,516.741	6,327.543	26,610.976	26,347.328	26,083.681	25,820.033	25,556.386	25,292.738
5. Net Debt Service	1,032.495	1,057.417	1,059.216	1,034.376	1,232.796	3,602.888	6,497.046	6,516.741	6,327.543	26,610.976	26,347.328	26,083.681	25,820.033	25,556.386	25,292.738
6. Net Flow After Debt Service	(17,730.206)	(2,544.400)	(26,781.870)	(54,046.123)	(226,842.242)	(269,598.949)	37,153.043	39,252.303	54,115.364	33,201.844	50,634.203	52,596.452	69,655.649	68,532.624	70,182.944
7. Less: Income Tax Paid							2,338.547	2,218.468	3,643.084	3,565.314	5,246.859	5,381.394	6,963.933	6,851.631	7,016.663
8. Net Flow After Debt Service and Tax	(17,730.206)	(2,544.400)	(26,781.870)	(54,046.123)	(226,842.242)	(269,598.949)	34,814.496	37,033.834	50,472.280	29,636.531	45,387.343	47,215.058	62,691.715	61,680.993	63,166.281
9. Accumulated Cash							34,814.496	71,848.330	122,320.610	151,957.141	197,344.484	244,559.542	307,251.257	368,932.251	432,098.532

Item	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
1. Inflow															
Revenue	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840
Replacement cost	-	-	-	-	-	(208,419.933)	-	-	-	-	-	-	-	-	-
Total Inflow	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	(103,276.094)	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840	105,143.840
2. Outflow															
Cash operating expenses	9,668.157	10,764.517	12,151.189	10,764.517	10,764.517	10,764.517	12,151.189	10,764.517	10,764.517	10,764.517	12,151.189	11,353.267	11,353.267	11,353.267	12,739.939
Loan proceeds															
Government equity contribution															
Total capital investments															
Total Outflow	9,668.157	10,764.517	12,151.189	10,764.517	10,764.517	10,764.517	12,151.189	10,764.517	10,764.517	10,764.517	12,151.189	11,353.267	11,353.267	11,353.267	12,739.939
3. Net Flow Before Debt Service	95,475.682	94,379.322	92,992.650	94,379.322	94,379.322	(114,040.611)	92,992.650	94,379.322	94,379.322	94,379.322	92,992.650	93,790.572	93,790.572	93,790.572	92,403.900
4. Debt Service															
Payment on interest	4,482.009	4,218.362	3,954.714	3,691.067	3,427.419	3,163.771	2,900.124	2,636.476	2,372.829	2,109.181	1,845.533	1,581.886	1,318.238	1,054.590	790.943
Repayment of principal	20,547.081	20,547.081	20,547.081	20,547.081	20,547.081	20,547.081	20,547.081	20,547.081	20,547.081	20,547.081	20,547.081	20,547.081	20,547.081	20,547.081	20,547.081
Subtotal Debt Service	25,029.090	24,765.443	24,501.795	24,238.147	23,974.500	23,710.852	23,447.205	23,183.557	22,919.909	22,656.262	22,392.614	22,128.967	21,865.319	21,601.671	21,338.024
5. Net Debt Service	25,029.090	24,765.443	24,501.795	24,238.147	23,974.500	23,710.852	23,447.205	23,183.557	22,919.909	22,656.262	22,392.614	22,128.967	21,865.319	21,601.671	21,338.024
6. Net Flow After Debt Service	70,446.592	69,613.879	68,490.855	70,141.175	70,404.822	(137,751.463)	69,545.445	71,195.765	71,459.413	71,723.060	70,600.036	71,661.605	71,925.253	72,188.901	71,065.876
7. Less: Income Tax Paid	7,043.028	6,959.756	6,847.454	7,012.486	7,038.851	7,065.215	6,952.913	7,117.945	7,144.310	7,170.675	7,058.372	7,164.529	7,190.894	7,217.259	7,104.956
8. Net Flow After Debt Service and Tax	63,403.564	62,654.123	61,643.401	63,128.689	63,365.971	(144,816.679)	62,592.532	64,077.820	64,315.103	64,552.386	63,541.664	64,497.076	64,734.359	64,971.642	63,960.920
9. Accumulated Cash	495,502.096	558,156.219	619,799.620	682,928.308	746,294.280	601,477.601	664,070.133	728,147.953	792,463.056	857,015.442	920,557.106	985,054.182	1,049,788.541	1,114,760.183	1,178,721.103

Table B.5: Projected Cash Flow Statement, Scenario B-2 and 2-2

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
1. Inflow															
Revenue							46,760.480	48,065.004	63,280.356	64,989.328	81,349.748	83,465.322	100,973.031	96,985.041	96,985.041
Replacement cost								-	-	-	-	-	-	-	-
Total Inflow	-	-	-	-	-	-	46,760.480	48,065.004	63,280.356	64,989.328	81,349.748	83,465.322	100,973.031	96,985.041	96,985.041
2. Outflow															
Cash operating expenses							6,341.033	7,071.024	7,493.261	8,899.158	8,751.870	9,040.393	9,617.439	10,112.679	9,617.439
Loan proceeds	20,598.780	1,735.273	39,808.644	66,973.370	176,556.247	200,342.108	1,383.261								
Government equity contribution	590.210	24.829	5,738.467	10,084.109	29,537.769	34,494.193	244.105								
Total capital investments	21,188.990	1,760.102	45,547.111	77,057.480	206,094.017	234,836.301	1,627.366								
Total Outflow	21,188.990	1,760.102	45,547.111	77,057.480	206,094.017	234,836.301	7,968.399	7,071.024	7,493.261	8,899.158	8,751.870	9,040.393	9,617.439	10,112.679	9,617.439
3. Net Flow Before Debt Service	(21,188.990)	(1,760.102)	(45,547.111)	(77,057.480)	(206,094.017)	(234,836.301)	38,792.080	40,993.980	55,787.095	56,090.171	72,597.879	74,424.929	91,355.592	86,872.362	87,367.602
4. Debt Service															
Payment on interest	968.126	1,016.675	1,018.804	1,223.358	1,699.181	3,852.231	6,393.790	6,413.156	6,224.795	5,965.429	5,706.062	5,446.696	5,187.329	4,927.963	4,668.596
Repayment of principal				-	-	-	-	-	-	20,512.690	20,512.690	20,512.690	20,512.690	20,512.690	20,512.690
Subtotal Debt Service	968.126	1,016.675	1,018.804	1,223.358	1,699.181	3,852.231	6,393.790	6,413.156	6,224.795	26,478.119	26,218.753	25,959.386	25,700.020	25,440.653	25,181.287
5. Net Debt Service	968.126	1,016.675	1,018.804	1,223.358	1,699.181	3,852.231	6,393.790	6,413.156	6,224.795	26,478.119	26,218.753	25,959.386	25,700.020	25,440.653	25,181.287
6. Net Flow After Debt Service	(22,157.116)	(2,776.777)	(46,565.915)	(78,280.837)	(207,793.197)	(238,688.531)	32,398.290	34,580.824	49,562.300	29,612.052	46,379.126	48,465.543	65,655.572	61,431.709	62,186.315
7. Less: Income Tax Paid							2,129.292	2,048.993	3,496.210	3,518.500	5,144.276	5,301.987	6,919.128	6,496.742	6,572.202
8. Net Flow After Debt Service and Tax	(22,157.116)	(2,776.777)	(46,565.915)	(78,280.837)	(207,793.197)	(238,688.531)	30,268.998	32,531.831	46,066.091	26,093.552	41,234.850	43,163.556	58,736.444	54,934.967	55,614.113
9. Accumulated Cash							30,268.998	62,800.829	108,866.919	134,960.471	176,195.321	219,358.877	278,095.321	333,030.288	388,644.401

Item	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
1. Inflow															
Revenue	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041
Replacement cost	-	-	-	-	-	(159,655.228)	-	-	-	-	-	-	-	-	-
Total Inflow	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	(62,670.187)	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041
2. Outflow															
Cash operating expenses	9,617.439	10,713.799	11,209.039	10,713.799	10,713.799	10,713.799	11,209.039	10,713.799	10,713.799	10,713.799	11,209.039	11,302.549	11,302.549	11,302.549	11,797.789
Loan proceeds															
Government equity contribution															
Total capital investments															
Total Outflow	9,617.439	10,713.799	11,209.039	10,713.799	10,713.799	10,713.799	11,209.039	10,713.799	10,713.799	10,713.799	11,209.039	11,302.549	11,302.549	11,302.549	11,797.789
3. Net Flow Before Debt Service	87,367.602	86,271.242	85,776.002	86,271.242	86,271.242	(73,383.986)	85,776.002	86,271.242	86,271.242	86,271.242	85,776.002	85,682.492	85,682.492	85,682.492	85,187.252
4. Debt Service															
Payment on interest	4,409.230	4,149.863	3,890.497	3,631.130	3,371.764	3,112.398	2,853.031	2,593.665	2,334.298	2,074.932	1,815.565	1,556.199	1,296.832	1,037.466	778.099
Repayment of principal	20,512.690	20,512.690	20,512.690	20,512.690	20,512.690	20,512.690	20,512.690	20,512.690	20,512.690	20,512.690	20,512.690	20,512.690	20,512.690	20,512.690	20,512.690
Subtotal Debt Service	24,921.920	24,662.554	24,403.187	24,143.821	23,884.454	23,625.088	23,365.721	23,106.355	22,846.989	22,587.622	22,328.256	22,068.889	21,809.523	21,550.156	21,290.790
5. Net Debt Service	24,921.920	24,662.554	24,403.187	24,143.821	23,884.454	23,625.088	23,365.721	23,106.355	22,846.989	22,587.622	22,328.256	22,068.889	21,809.523	21,550.156	21,290.790
6. Net Flow After Debt Service	62,445.681	61,608.688	61,372.814	62,127.421	62,386.787	(97,009.074)	62,410.280	63,164.887	63,424.253	63,683.620	63,447.746	63,613.603	63,872.969	64,132.335	63,896.462
7. Less: Income Tax Paid	6,598.139	6,514.440	6,490.852	6,566.313	6,592.250	6,618.186	6,594.599	6,670.060	6,695.996	6,721.933	6,698.345	6,714.931	6,740.868	6,766.804	6,743.217
8. Net Flow After Debt Service and Tax	55,847.542	55,094.248	54,881.962	55,561.108	55,794.538	(103,627.260)	55,815.681	56,494.827	56,728.257	56,961.687	56,749.401	56,898.671	57,132.101	57,365.531	57,153.245
9. Accumulated Cash	444,491.943	499,586.192	554,468.154	610,029.262	665,823.799	562,196.539	618,012.220	674,507.047	731,235.304	788,196.991	844,946.392	901,845.063	958,977.164	1,016,342.695	1,073,495.940

Table B.6: Projected Cash Flow Statement, Scenario B-2 and 2-3

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
1. Inflow															
Revenue							46,760.480	48,065.004	63,280.356	64,989.328	81,349.748	83,465.322	100,973.031	96,985.041	96,985.041
Replacement cost								-	-	-	-	-	-	-	-
Total Inflow	-	-	-	-	-	-	46,760.480	48,065.004	63,280.356	64,989.328	81,349.748	83,465.322	100,973.031	96,985.041	96,985.041
2. Outflow															
Cash operating expenses							6,341.033	7,071.024	7,493.261	9,683.618	8,751.870	9,040.393	9,617.439	11,004.111	9,617.439
Loan proceeds	19,298.759	1,735.273	26,934.180	50,935.845	174,389.108	198,197.715	1,370.291								
Government equity contribution	349.879	24.829	3,466.503	7,253.958	28,992.922	34,115.770	241.816								
Total capital investments	19,648.638	1,760.102	30,400.683	58,189.802	203,382.030	232,313.485	1,612.107								
Total Outflow	19,648.638	1,760.102	30,400.683	58,189.802	203,382.030	232,313.485	7,953.140	7,071.024	7,493.261	9,683.618	8,751.870	9,040.393	9,617.439	11,004.111	9,617.439
3. Net Flow Before Debt Service	(19,648.638)	(1,760.102)	(30,400.683)	(58,189.802)	(203,382.030)	(232,313.485)	38,807.340	40,993.980	55,787.095	55,305.711	72,597.879	74,424.929	91,355.592	85,980.930	87,367.602
4. Debt Service															
Payment on interest	992.565	1,022.053	1,024.182	1,037.385	1,274.742	3,381.751	5,895.433	5,914.618	5,747.066	5,507.605	5,268.144	5,028.683	4,789.222	4,549.761	4,310.300
Repayment of principal				-	-	-	-	-	-	19,129.885	19,129.885	19,129.885	19,129.885	19,129.885	19,129.885
Subtotal Debt Service	992.565	1,022.053	1,024.182	1,037.385	1,274.742	3,381.751	5,895.433	5,914.618	5,747.066	24,637.490	24,398.029	24,158.567	23,919.106	23,679.645	23,440.184
5. Net Debt Service	992.565	1,022.053	1,024.182	1,037.385	1,274.742	3,381.751	5,895.433	5,914.618	5,747.066	24,637.490	24,398.029	24,158.567	23,919.106	23,679.645	23,440.184
6. Net Flow After Debt Service	(20,641.203)	(2,782.155)	(31,424.865)	(59,227.188)	(204,656.771)	(235,695.236)	32,911.906	35,079.362	50,040.029	30,668.221	48,199.850	50,266.362	67,436.485	62,301.284	63,927.417
7. Less: Income Tax Paid							2,179.128	2,098.847	3,543.982	3,485.836	5,188.068	5,343.788	6,958.939	6,445.419	6,608.032
8. Net Flow After Debt Service and Tax	(20,641.203)	(2,782.155)	(31,424.865)	(59,227.188)	(204,656.771)	(235,695.236)	30,732.778	32,980.515	46,496.047	27,182.385	43,011.782	44,922.574	60,477.546	55,855.866	57,319.385
9. Accumulated Cash							30,732.778	63,713.294	110,209.340	137,391.725	180,403.507	225,326.081	285,803.627	341,659.493	398,978.878

Item	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
1. Inflow															
Revenue	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041
Replacement cost	-	-	-	-	-	(159,655.228)	-	-	-	-	-	-	-	-	-
Total Inflow	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	(62,670.187)	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041	96,985.041
2. Outflow															
Cash operating expenses	9,617.439	10,713.799	12,100.471	10,713.799	10,713.799	10,713.799	12,100.471	10,713.799	10,713.799	10,713.799	12,100.471	11,302.549	11,302.549	11,302.549	12,689.221
Loan proceeds															
Government equity contribution															
Total capital investments															
Total Outflow	9,617.439	10,713.799	12,100.471	10,713.799	10,713.799	10,713.799	12,100.471	10,713.799	10,713.799	10,713.799	12,100.471	11,302.549	11,302.549	11,302.549	12,689.221
3. Net Flow Before Debt Service	87,367.602	86,271.242	84,884.570	86,271.242	86,271.242	(73,383.986)	84,884.570	86,271.242	86,271.242	86,271.242	84,884.570	85,682.492	85,682.492	85,682.492	84,295.820
4. Debt Service															
Payment on interest	4,070.838	3,831.377	3,591.916	3,352.455	3,112.994	2,873.533	2,634.072	2,394.611	2,155.150	1,915.689	1,676.228	1,436.767	1,197.305	957.844	718.383
Repayment of principal	19,129.885	19,129.885	19,129.885	19,129.885	19,129.885	19,129.885	19,129.885	19,129.885	19,129.885	19,129.885	19,129.885	19,129.885	19,129.885	19,129.885	19,129.885
Subtotal Debt Service	23,200.723	22,961.262	22,721.801	22,482.340	22,242.879	22,003.418	21,763.957	21,524.496	21,285.034	21,045.573	20,806.112	20,566.651	20,327.190	20,087.729	19,848.268
5. Net Debt Service	23,200.723	22,961.262	22,721.801	22,482.340	22,242.879	22,003.418	21,763.957	21,524.496	21,285.034	21,045.573	20,806.112	20,566.651	20,327.190	20,087.729	19,848.268
6. Net Flow After Debt Service	64,166.879	63,309.980	62,162.769	63,788.902	64,028.363	(95,387.404)	63,120.613	64,746.746	64,986.207	65,225.668	64,078.457	65,115.840	65,355.302	65,594.763	64,447.552
7. Less: Income Tax Paid	6,631.978	6,546.288	6,431.567	6,594.180	6,618.127	6,642.073	6,527.352	6,689.965	6,713.911	6,737.857	6,623.136	6,726.874	6,750.820	6,774.767	6,660.045
8. Net Flow After Debt Service and Tax	57,534.900	56,763.691	55,731.202	57,194.721	57,410.236	(102,029.477)	56,593.261	58,056.781	58,272.296	58,487.811	57,455.321	58,388.966	58,604.481	58,819.996	57,787.506
9. Accumulated Cash	456,513.778	513,277.470	569,008.671	626,203.393	683,613.629	581,584.152	638,177.414	696,234.195	754,506.491	812,994.302	870,449.624	928,838.590	987,443.071	1,046,263.067	1,104,050.573

Annex C

Table C.1: Calculation of Benefits from Increased Volume and Value Fish Handled

Year	Volume of Fish	Total Fish Value[a]	Incremental Fish Value	With Project Incremental Fish Value
	mt	Rp million	Rp million	Rp million
2019	98,822	1,315,420	369,780	369,780
2020	101,600	1,352,398	406,758	406,758
2021	104,378	1,389,376	443,735	443,735
2022	107,156	1,426,354	480,713	480,713
2023	109,934	1,463,331	517,691	517,691
2024	112,712	1,500,309	554,669	554,669
2025 and after	115,490	1,537,287	591,647	591,647

[a] Average price of fish is at Rp13,311/kg.

Table C.2: Calculation of Benefits from Reduced Fish Losses due to Seasonality in Fish Supply

Year	Accumulated Fish Volume Exceeding Average Monthly Volume	Economic Loss Due to Seasonal Fluctuations in Fish Supply	With Project Reduced Fish Loss
	mt	Rp million	Rp million
2019	17,818	85,841	85,841
2020	18,319	88,254	88,254
2021	18,820	90,667	90,667
2022	19,321	93,080	93,080
2023	19,822	95,493	95,493
2024	20,323	97,906	97,906
2025 and after	20,824	100,319	100,319

Table C.3: Economic Benefits from Increased Number of Restaurant Customers

Year	Seafood Restaurants[a]		Fish Shops[b]		Total Annual Revenue
	Number of Restaurants	Annual Revenue	Number of Fish Shops	Annual Revenue	
		Rp million		Rp million	Rp million
2019	2	3,300	10	9,000	12,300
2020	2	3,300	10	9,000	12,300
2021	2	3,300	10	9,000	12,300
2022	2	3,300	10	9,000	12,300
2023	2	3,300	10	9,000	12,300
2024	2	3,300	10	9,000	12,300
2025 and after	2	3,300	10	9,000	12,300

[a] Notes:

(i) Two restaurants will be established under the project. Each will be operating for 300 days a year.

(ii) About 20 day-time customers are assumed per restaurant and each customer spending about Rp50,000.

(iii) About 30 night-time customers are assumed per restaurant and each customer spending about Rp150,000.

[b] Notes:

(i) Ten fish shops will be established under the project. Each will be operating for 300 days a year.

(ii) About 30 customers are assumed per fish shop and each customer spending about Rp100,000.

Annex D

Table D.1: Without vs. With Project Vehicle Operation Cost, Access Road Option 2-1

Item	Motorcycle	Sedan/Utility Vehicles/Taxi/ Wagon	Van/Mini Bus	Pickup	Medium Bus	Large Bus	Medium Truck	Large Truck	Trailer	Semi-trailer Truck	Total (Rp million/yr)
Without Project Situation (Rp million/yr)											
Total no. of vehicles traveling/day	6,051	2,158	360	167	75	2,270	1,510	178	62	106	
Distance of travel (km)	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	
Current value operating cost (Rp/vehicle-km)	950	8,313	4,184	8,313	4,184	13,326	10,297	10,297	10,297	10,297	
Total value of operating cost/day	9,767,930	30,490,961	2,557,557	2,362,788	534,362	51,418,385	26,436,221	3,123,568	1,081,568	1,852,185	
Time value of vehicle unit/year (Rp million/yr)	3,565.294	11,129.201	933.508	862.417	195.042	18,767.710	9,649.221	1,140.102	394.772	676.047	**47,313.316**
With Project Situation (Rp million/yr)											
Total no. of vehicles traveling/day	3,113	1,111	191	90	39	1,165	785	93	32	54	
Distance of travel (km)	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	
(i) Value of Operating Cost at 0-10km/hr											
Current value operating cost (Rp/vehicle-km)	950	8,313	4,184	8,313	4,184	13,326	10,297	10,297	10,297	10,297	
Percent time vehicles traveling at 0-10 km/hr	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	
Total value of operating cost/day	1,507,334	4,710,900	408,077	381,417	82,515	7,920,876	4,122,086	488,355	168,567	284,840	
(ii) Value of Operating Cost at 30-40km/hr											
Current value operating cost (Rp/vehicle-km)	385	2,356	1,333	2,313	1,333	6,042	2,356	2,356	2,356	2,356	
Percent time vehicles traveling at 30-40 km/hr	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	
Total value of operating cost/day	610,497	1,335,226	130,014	106,129	26,289	3,591,265	943,216	111,745	38,571	65,177	
Time value of vehicle unit/year (Rp million/yr)	773.009	2,206.836	196.403	177.954	39.713	4,201.931	1,848.835	219.037	75.605	127.756	**9,867.080**
Total time value savings/year (Rp million/yr)	**2,792.286**	**8,922.365**	**737.105**	**684.463**	**155.329**	**14,565.779**	**7,800.386**	**921.066**	**319.167**	**548.291**	**37,446.236**

Table D.2: Without vs. With Project Vehicle Operation Cost, Access Road Option 2-2

Item	Motorcycle	Sedan/Utility Vehicles/Taxi/Wagon	Van/Mini Bus	Pickup	Medium Bus	Large Bus	Medium Truck	Large Truck	Trailer	Semi-trailer Truck	Total (Rp million/yr)
Without Project Situation (Rp million/yr)											
Total no. of vehicles traveling/day	6,051	2,158	360	167	75	2,270	1,510	178	62	106	
Distance of travel (km)	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	
Current value operating cost (Rp/vehicle-km)	950	8,313	4,184	8,313	4,184	13,326	10,297	10,297	10,297	10,297	
Total value of operating cost/day	9,767,930	30,490,961	2,557,557	2,362,788	534,362	51,418,385	26,436,221	3,123,568	1,081,568	1,852,185	
Time value of vehicle unit/year (Rp million/yr)	3,565.294	11,129.201	933.508	862.417	195.042	18,767.710	9,649.221	1,140.102	394.772	676.047	**47,313.316**
With Project Situation (Rp million/yr)											
Total no. of vehicles traveling/day	3,113	1,111	191	90	39	1,165	785	93	32	54	
Distance of travel (km)	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	
(i) Value of Operating Cost at 0-10km/hr											
Current value operating cost (Rp/vehicle-km)	950	8,313	4,184	8,313	4,184	13,326	10,297	10,297	10,297	10,297	
Percent time vehicles traveling at 0-10 km/hr	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	
Total value of operating cost/day	1,817,668	5,680,791	492,093	459,945	99,503	9,551,645	4,970,750	588,899	203,272	343,483	
(ii) Value of Operating Cost at 30-40km/hr											
Current value operating cost (Rp/vehicle-km)	385	2,356	1,333	2,313	1,333	6,042	2,356	2,356	2,356	2,356	
Percent time vehicles traveling at 30-40 km/hr	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	
Total value of operating cost/day	736,188	1,610,126	156,781	127,979	31,702	4,330,643	1,137,408	134,752	46,513	78,596	
Time value of vehicle unit/year (Rp million/yr)	932.157	2,661.185	236.839	214.592	47.890	5,067.035	2,229.478	264.133	91.171	154.059	**11,898.538**
Total time value savings/year (Rp million/yr)	**2,633.137**	**8,468.016**	**696.669**	**647.826**	**147.153**	**13,700.675**	**7,419.743**	**875.970**	**303.601**	**521.989**	**35,414.778**

Table D.3: Without vs. With Project Vehicle Operation Cost, Access Road Option 2-3

Item	Motorcycle	Sedan/Utility Vehicles/Taxi/Wagon	Van/Mini Bus	Pickup	Medium Bus	Large Bus	Medium Truck	Large Truck	Trailer	Semi-trailer Truck	Total (Rp million/yr)
Without Project Situation (Rp million/yr)											
Total no. of vehicles traveling/day	6,051	2,158	360	167	75	2,270	1,510	178	62	106	
Distance of travel (km)	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	
Current value operating cost (Rp/vehicle-km)	950	8,313	4,184	8,313	4,184	13,326	10,297	10,297	10,297	10,297	
Total value of operating cost/day	9,767,930	30,490,961	2,557,557	2,362,788	534,362	51,418,385	26,436,221	3,123,568	1,081,568	1,852,185	
Time value of vehicle unit/year (Rp million/yr)	3,565.294	11,129.201	933.508	862.417	195.042	18,767.710	9,649.221	1,140.102	394.772	676.047	**47,313.316**
With Project Situation (Rp million/yr)											
Total no. of vehicles traveling/day	3,113	1,111	191	90	39	1,165	785	93	32	54	
Distance of travel (km)	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	
(i) Value of Operating Cost at 0-10km/hr											
Current value operating cost (Rp/vehicle-km)	950	8,313	4,184	8,313	4,184	13,326	10,297	10,297	10,297	10,297	
Percent time vehicles traveling at 0-10 km/hr	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	
Total value of operating cost/day	2,556,557	7,990,056	692,131	646,914	139,951	13,434,427	6,991,381	828,289	285,902	483,110	
(ii) Value of Operating Cost at 30-40km/hr											
Current value operating cost (Rp/vehicle-km)	385	2,356	1,333	2,313	1,333	6,042	2,356	2,356	2,356	2,356	
Percent time vehicles traveling at 30-40 km/hr	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	
Total value of operating cost/day	1,035,451	2,264,649	220,514	180,002	44,589	6,091,067	1,599,768	189,529	65,420	110,545	
Time value of vehicle unit/year (Rp million/yr)	1,311.083	3,742.967	333.115	301.824	67.357	7,126.805	3,135.769	371.503	128.233	216.684	**16,735.342**
Total time value savings/year (Rp million/yr)	**2,254.211**	**7,386.234**	**600.393**	**560.593**	**127.685**	**11,640.905**	**6,513.451**	**768.599**	**266.540**	**459.363**	**30,577.974**

Table D.4: Without vs. With Project Vehicle Operation Cost, Access Road Option 2+3

Item	Motorcycle	Sedan/Utility Vehicles/Taxi/Wagon	Van/Mini Bus	Pickup	Medium Bus	Large Bus	Medium Truck	Large Truck	Trailer	Semi-trailer Truck	Total (Rp million/yr)
Without Project Situation (Rp million/yr)											
Total no. of vehicles traveling/day	6,051	2,158	360	167	75	2,270	1,510	178	62	106	
Distance of travel (km)	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	
Current value operating cost (Rp/vehicle-km)	950	8,313	4,184	8,313	4,184	13,326	10,297	10,297	10,297	10,297	
Total value of operating cost/day	9,767,930	30,490,961	2,557,557	2,362,788	534,362	51,418,385	26,436,221	3,123,568	1,081,568	1,852,185	
Time value of vehicle unit/year (Rp million/yr)	3,565.294	11,129.201	933.508	862.417	195.042	18,767.710	9,649.221	1,140.102	394.772	676.047	**47,313.316**
With Project Situation (Rp million/yr)											
Total no. of vehicles traveling/day	3,113	1,111	191	90	39	1,165	785	93	32	54	
Distance of travel (km)	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	
(i) Value of Operating Cost at 0-10km/hr											
Current value operating cost (Rp/vehicle-km)	950	8,313	4,184	8,313	4,184	13,326	10,297	10,297	10,297	10,297	
Percent time vehicles traveling at 0-10 km/hr	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	
Total value of operating cost/day	3,990,002	12,470,029	1,080,204	1,009,634	218,421	20,967,025	10,911,403	1,292,705	446,206	753,987	
(ii) Value of Operating Cost at 30-40km/hr											
Current value operating cost (Rp/vehicle-km)	385	2,356	1,333	2,313	1,333	6,042	2,356	2,356	2,356	2,356	
Percent time vehicles traveling at 30-40 km/hr	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	
Total value of operating cost/day	1,616,022	3,534,423	344,154	280,929	69,589	9,506,289	2,496,748	295,797	102,101	172,527	
Time value of vehicle unit/year (Rp million/yr)	2,046.199	5,841.625	519.891	471.055	105.124	11,122.760	4,893.975	579.803	200.132	338.178	**26,118.742**
Total time value savings/year (Rp million/yr)	**1,519.095**	**5,287.576**	**413.617**	**391.362**	**89.919**	**7,644.951**	**4,755.245**	**560.299**	**194.640**	**337.870**	**21,194.574**

Annex E

Table E.1: Without vs. With Project Vehicle Travel Time Cost, Access Road Option 2-1

Item	Motorcycle	Sedan/Utility Vehicles/Taxi/ Wagon	Van/Mini Bus	Pickup	Medium Bus	Large Bus	Medium Truck	Large Truck	Trailer	Semi-trailer Truck	Non-motorized	Total by 2025
Without Project Situation (Rp million/yr)												
Total no. of vehicles traveling	6,051	2,158	360	167	75	2,270	1,510	178	62	106	623	
Existing average vehicle speed (km/hr)	7	7	7	7	7	7	7	7	7	7	7	
Distance of travel (km)	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	
Access time (hr)	0.243	0.243	0.243	0.243	0.243	0.243	0.243	0.243	0.243	0.243	0.243	
Access time (day)	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	
Time value of vehicle unit (Rp/hr)	6,301	8,101	22,052	8,101	67,506	107,110	18,149	36,299	36,299	36,299	6,301	
Time value of vehicle unit (Rp/day)	50,405	64,806	176,416	64,806	540,049	856,877	145,194	290,388	290,388	290,388	50,405	
Time value of vehicle unit/day	9,259,509	4,244,642	1,925,810	328,923	1,231,740	59,040,672	6,656,521	1,573,001	544,668	932,744	953,687	
Time value of vehicle unit/year (Rp million/yr)	3,379.721	1,549.294	702.921	120.057	449.585	21,549.845	2,429.630	574.145	198.804	340.451	348.096	**31,642.549**
With Project Situation (Rp million/yr)												
Total no. of vehicles traveling	3,113	1,111	191	90	39	1,165	785	93	32	54	323	
Projected average vehicle speed (km/hr)	40	40	40	40	40	40	40	40	40	40	40	
Distance of travel (km)	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	
Access time (hr)	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	
Access time (day)	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	
Time value of vehicle unit (Rp/hr)	6,301	8,101	22,052	8,101	67,506	107,110	18,149	36,299	36,299	36,299	6,301	
Time value of vehicle unit (Rp/day)	50,405	64,806	176,416	64,806	540,049	856,877	145,194	290,388	290,388	290,388	50,405	
Time value of vehicle unit/day	500,107	229,531	107,547	18,584	66,570	3,183,275	363,273	86,076	29,711	50,205	51,968	
Time value of vehicle unit/year (Rp million/yr)	182.539	83.779	39.255	6.783	24.298	1,161.895	132.595	31.418	10.845	18.325	18.968	**1,710.699**
Travel Time Cost Savings (Rp million/yr)	**3,197.182**	**1,465.515**	**663.666**	**113.274**	**425.287**	**20,387.950**	**2,297.036**	**542.727**	**187.959**	**322.127**	**329.127**	**29,931.850**

Table E.2: Without vs. With Project Vehicle Travel Time Cost, Access Road Option 2-2

Item	Motorcycle	Sedan/Utility Vehicles/Taxi/ Wagon	Van/Mini Bus	Pickup	Medium Bus	Large Bus	Medium Truck	Large Truck	Trailer	Semi-trailer Truck	Non-motorized	Total by 2025
Without Project Situation (Rp million/yr)												
Total no. of vehicles traveling	6,051	2,158	360	167	75	2,270	1,510	178	62	106	623	
Existing average vehicle speed (km/hr)	7	7	7	7	7	7	7	7	7	7	7	
Distance of travel (km)	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	
Access time (hr)	0.243	0.243	0.243	0.243	0.243	0.243	0.243	0.243	0.243	0.243	0.243	
Access time (day)	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	
Time value of vehicle unit (Rp/hr)	6,301	8,101	22,052	8,101	67,506	107,110	18,149	36,299	36,299	36,299	6,301	
Time value of vehicle unit (Rp/day)	50,405	64,806	176,416	64,806	540,049	856,877	145,194	290,388	290,388	290,388	50,405	
Time value of vehicle unit/day	9,259,509	4,244,642	1,925,810	328,923	1,231,740	59,040,672	6,656,521	1,573,001	544,668	932,744	953,687	
Time value of vehicle unit/year (Rp million/yr)	3,379.721	1,549.294	702.921	120.057	449.585	21,549.845	2,429.630	574.145	198.804	340.451	348.096	**31,642.549**
With Project Situation (Rp million/yr)												
Total no. of vehicles traveling	3,113	1,111	191	90	39	1,165	785	93	32	54	323	
Projected average vehicle speed (km/hr)	40	40	40	40	40	40	40	40	40	40	40	
Distance of travel (km)	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	
Access time (hr)	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	
Access time (day)	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	
Time value of vehicle unit (Rp/hr)	6,301	8,101	22,052	8,101	67,506	107,110	18,149	36,299	36,299	36,299	6,301	
Time value of vehicle unit (Rp/day)	50,405	64,806	176,416	64,806	540,049	856,877	145,194	290,388	290,388	290,388	50,405	
Time value of vehicle unit/day	603,070	276,788	129,689	22,410	80,276	3,838,655	438,064	103,797	35,828	60,541	62,667	
Time value of vehicle unit/year (Rp million/yr)	220.121	101.028	47.337	8.180	29.301	1,401.109	159.893	37.886	13.077	22.098	22.874	**2,062.902**
Travel Time Cost Savings (Rp million/yr)	**3,159.600**	**1,448.267**	**655.584**	**111.877**	**420.284**	**20,148.736**	**2,269.737**	**536.259**	**185.727**	**318.354**	**325.222**	**29,579.647**

Table E.3: Without vs. With Project Vehicle Travel Time Cost, Access Road Option 2-3

Item	Motorcycle	Sedan/Utility Vehicles/Taxi/ Wagon	Van/Mini Bus	Pickup	Medium Bus	Large Bus	Medium Truck	Large Truck	Trailer	Semi-trailer Truck	Non-motorized	Total by 2025
Without Project Situation (Rp million/yr)												
Total no. of vehicles traveling	6,051	2,158	360	167	75	2,270	1,510	178	62	106	623	
Existing average vehicle speed (km/hr)	7	7	7	7	7	7	7	7	7	7	7	
Distance of travel (km)	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	
Access time (hr)	0.243	0.243	0.243	0.243	0.243	0.243	0.243	0.243	0.243	0.243	0.243	
Access time (day)	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	
Time value of vehicle unit (Rp/hr)	6,301	8,101	22,052	8,101	67,506	107,110	18,149	36,299	36,299	36,299	6,301	
Time value of vehicle unit (Rp/day)	50,405	64,806	176,416	64,806	540,049	856,877	145,194	290,388	290,388	290,388	50,405	
Time value of vehicle unit/day	9,259,509	4,244,642	1,925,810	328,923	1,231,740	59,040,672	6,656,521	1,573,001	544,668	932,744	953,687	
Time value of vehicle unit/year (Rp million/yr)	3,379.721	1,549.294	702.921	120.057	449.585	21,549.845	2,429.630	574.145	198.804	340.451	348.096	**31,642.549**
With Project Situation (Rp million/yr)												
Total no. of vehicles traveling	3,113	1,111	191	90	39	1,165	785	93	32	54	323	
Projected average vehicle speed (km/hr)	40	40	40	40	40	40	40	40	40	40	40	
Distance of travel (km)	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	
Access time (hr)	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	
Access time (day)	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	
Time value of vehicle unit (Rp/hr)	6,301	8,101	22,052	8,101	67,506	107,110	18,149	36,299	36,299	36,299	6,301	
Time value of vehicle unit (Rp/day)	50,405	64,806	176,416	64,806	540,049	856,877	145,194	290,388	290,388	290,388	50,405	
Time value of vehicle unit/day	848,221	389,303	182,408	31,520	112,909	5,399,084	616,139	145,992	50,392	85,152	88,142	
Time value of vehicle unit/year (Rp million/yr)	309.601	142.096	66.579	11.505	41.212	1,970.666	224.891	53.287	18.393	31.080	32.172	**2,901.480**
Travel Time Cost Savings (Rp million/yr)	**3,070.120**	**1,407.199**	**636.342**	**108.552**	**408.373**	**19,579.180**	**2,204.739**	**520.858**	**180.411**	**309.371**	**315.924**	**28,741.069**

Table E.4: Without vs. With Project Vehicle Travel Time Cost, Access Road Option 2+3

Item	Motorcycle	Sedan/Utility Vehicles/Taxi/ Wagon	Van/Mini Bus	Pickup	Medium Bus	Large Bus	Medium Truck	Large Truck	Trailer	Semi-trailer Truck	Non-motorized	Total by 2025
Without Project Situation (Rp million/yr)												
Total no. of vehicles traveling	6,051	2,158	360	167	75	2,270	1,510	178	62	106	623	
Existing average vehicle speed (km/hr)	7	7	7	7	7	7	7	7	7	7	7	
Distance of travel (km)	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	
Access time (hr)	0.243	0.243	0.243	0.243	0.243	0.243	0.243	0.243	0.243	0.243	0.243	
Access time (day)	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	0.030	
Time value of vehicle unit (Rp/hr)	6,301	8,101	22,052	8,101	67,506	107,110	18,149	36,299	36,299	36,299	6,301	
Time value of vehicle unit (Rp/day)	50,405	64,806	176,416	64,806	540,049	856,877	145,194	290,388	290,388	290,388	50,405	
Time value of vehicle unit/day	9,259,509	4,244,642	1,925,810	328,923	1,231,740	59,040,672	6,656,521	1,573,001	544,668	932,744	953,687	
Time value of vehicle unit/year (Rp million/yr)	3,379.721	1,549.294	702.921	120.057	449.585	21,549.845	2,429.630	574.145	198.804	340.451	348.096	**31,642.549**
With Project Situation (Rp million/yr)												
Total no. of vehicles traveling	3,113	1,111	191	90	39	1,165	785	93	32	54	323	
Projected average vehicle speed (km/hr)	40	40	40	40	40	40	40	40	40	40	40	
Distance of travel (km)	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	
Access time (hr)	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	
Access time (day)	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	
Time value of vehicle unit (Rp/hr)	6,301	8,101	22,052	8,101	67,506	107,110	18,149	36,299	36,299	36,299	6,301	
Time value of vehicle unit (Rp/day)	50,405	64,806	176,416	64,806	540,049	856,877	145,194	290,388	290,388	290,388	50,405	
Time value of vehicle unit/day	1,323,813	607,583	284,683	49,193	176,216	8,426,316	961,605	227,848	78,647	132,895	137,562	
Time value of vehicle unit/year (Rp million/yr)	483.192	221.768	103.909	17.955	64.319	3,075.605	350.986	83.165	28.706	48.507	50.210	**4,528.322**
Travel Time Cost Savings (Rp million/yr)	**2,896.529**	**1,327.527**	**599.011**	**102.102**	**385.266**	**18,474.240**	**2,078.644**	**490.981**	**170.098**	**291.945**	**297.886**	**27,114.228**

Annex F

Table F.1: EIRR and BCR Calculation, Scenario A-1 and 2-2

	Economic Costs			Economic Benefits							Net Benefits
	Total Investment Cost	Operation and Maintenance Cost	Total Economic Costs	Increase in the Value of Fish Handled	Reduction in Economic Losses due to Supply Fluctuations	Increase in Consumers' Visits to Restaurants/ Fishshops	Reduced Losses in Revenue at the JPWM due Flooding of Existing Road	Savings in Value of Travel Time	Reduction in Vehicle Operation Cost	Total Benefits	
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
Evaluation	71,387.774		71,387.774	-	-	-	-	-	-	-	(71,387.774)
Years	1,421.385		1,421.385	-	-	-	-	-	-	-	(1,421.385)
1	305,189.113		305,189.113	-	-	-	-	-	-	-	(305,189.113)
2	327,709.216		327,709.216	-	-	-	-	-	-	-	(327,709.216)
3	212,291.650		212,291.650	-	-	-	-	-	-	-	(212,291.650)
4	224,016.704		224,016.704	-	-	-	-	-	-	-	(224,016.704)
5	1,379.662	6,079.794	7,459.456	273,488.977	63,487.892	9,097.080	29,498.000	25,438.497	30,456.709	431,467.155	424,007.700
6	5,438.139	6,776.222	12,214.361	300,837.875	65,272.610	9,097.080	29,498.000	25,438.497	30,456.709	460,600.771	448,386.410
7	-	7,170.092	7,170.092	328,186.773	67,057.327	9,097.080	29,498.000	25,438.497	30,456.709	489,734.386	482,564.294
8	-	8,848.791	8,848.791	355,535.671	68,842.045	9,097.080	29,498.000	25,438.497	30,456.709	518,868.002	510,019.211
9	-	8,322.453	8,322.453	382,884.568	70,626.763	9,097.080	29,498.000	25,438.497	30,456.709	548,001.617	539,679.164
10	-	8,596.820	8,596.820	410,233.466	72,411.480	9,097.080	29,498.000	25,438.497	30,456.709	577,135.232	568,538.412
11	-	9,145.553	9,145.553	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,123.295
12	-	9,997.366	9,997.366	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,271.482
13	-	9,145.553	9,145.553	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,123.295
14	-	9,145.553	9,145.553	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,123.295
15	-	10,088.423	10,088.423	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,180.425
16	-	10,940.235	10,940.235	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	595,328.612
17	-	10,088.423	10,088.423	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,180.425
18	-	10,088.423	10,088.423	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,180.425
19	-	10,088.423	10,088.423	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,180.425
20	-	10,940.235	10,940.235	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	595,328.612
21	-	10,088.423	10,088.423	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,180.425
22	-	10,088.423	10,088.423	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,180.425
23	-	10,088.423	10,088.423	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,180.425
24	-	10,940.235	10,940.235	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	595,328.612
25	-	10,594.748	10,594.748	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	595,674.100
26	-	10,594.748	10,594.748	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	595,674.100
27	-	10,594.748	10,594.748	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	595,674.100
28	-	11,446.560	11,446.560	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	594,822.287
29	-	10,594.748	10,594.748	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	595,674.100
30	-	10,594.748	10,594.748	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	595,674.100
										EIRR [a] =	26.80%
										ENPV (Rp million) [a] =	2,038,306
										Benefit:Cost Ratio=	3.47

[a] Discount rate is at 10%.

Table F.2: EIRR and BCR Calculation, Scenario A-1 and 2-3

	Economic Costs			Economic Benefits							Net Benefits
	Total Investment Cost	Operation and Maintenance Cost	Total Economic Costs	Increase in the Value of Fish Handled	Reduction in Economic Losses due to Supply Fluctuations	Increase in Consumers' Visits to Restaurants/ Fishshops	Reduced Losses in Revenue at the JPWM due Flooding of Existing Road	Savings in Value of Travel Time	Reduction in Vehicle Operation Cost	Total Benefits	
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
Evaluation	30,455.548		30,455.548	-	-	-	-	-	-	-	(30,455.548)
Years	1,421.385		1,421.385	-	-	-	-	-	-	-	(1,421.385)
1	326,679.452		326,679.452	-	-	-	-	-	-	-	(326,679.452)
2	354,968.913		354,968.913	-	-	-	-	-	-	-	(354,968.913)
3	217,332.546		217,332.546	-	-	-	-	-	-	-	(217,332.546)
4	224,166.129		224,166.129	-	-	-	-	-	-	-	(224,166.129)
5	1,379.253	6,079.794	7,459.047	273,488.977	63,487.892	9,097.080	29,498.000	24,717.319	26,297.058	426,586.327	419,127.280
6	5,438.139	6,776.222	12,214.361	300,837.875	65,272.610	9,097.080	29,498.000	24,717.319	26,297.058	455,719.942	443,505.581
7	-	7,170.092	7,170.092	328,186.773	67,057.327	9,097.080	29,498.000	24,717.319	26,297.058	484,853.558	477,683.465
8	-	10,290.058	10,290.058	355,535.671	68,842.045	9,097.080	29,498.000	24,717.319	26,297.058	513,987.173	503,697.115
9	-	8,322.453	8,322.453	382,884.568	70,626.763	9,097.080	29,498.000	24,717.319	26,297.058	543,120.788	534,798.335
10	-	8,596.820	8,596.820	410,233.466	72,411.480	9,097.080	29,498.000	24,717.319	26,297.058	572,254.404	563,657.584
11	-	9,145.553	9,145.553	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	592,242.466
12	-	11,530.629	11,530.629	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	589,857.390
13	-	9,145.553	9,145.553	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	592,242.466
14	-	9,145.553	9,145.553	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	592,242.466
15	-	10,088.423	10,088.423	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	591,299.596
16	-	12,473.498	12,473.498	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	588,914.521
17	-	10,088.423	10,088.423	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	591,299.596
18	-	10,088.423	10,088.423	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	591,299.596
19	-	10,088.423	10,088.423	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	591,299.596
20	-	12,473.498	12,473.498	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	588,914.521
21	-	10,088.423	10,088.423	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	591,299.596
22	-	10,088.423	10,088.423	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	591,299.596
23	-	10,088.423	10,088.423	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	591,299.596
24	-	12,473.498	12,473.498	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	588,914.521
25	-	10,594.748	10,594.748	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	590,793.271
26	-	10,594.748	10,594.748	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	590,793.271
27	-	10,594.748	10,594.748	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	590,793.271
28	-	12,979.823	12,979.823	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	588,408.196
29	-	10,594.748	10,594.748	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	590,793.271
30	-	10,594.748	10,594.748	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	590,793.271
										EIRR [a] =	26.99%
										ENPV (Rp million) [a] =	2,010,659
										Benefit:Cost Ratio=	3.43

[a] Discount rate is at 10%.

Table F.3: EIRR and BCR Calculation, Scenario A-2 and 2-2

	Economic Costs			Economic Benefits							Net Benefits
	Total Investment Cost	Operation and Maintenance Cost	Total Economic Costs	Increase in the Value of Fish Handled	Reduction in Economic Losses due to Supply Fluctuations	Increase in Consumers' Visits to Restaurants/ Fishshops	Reduced Losses in Revenue at the JPWM due Flooding of Existing Road	Savings in Value of Travel Time	Reduction in Vehicle Operation Cost	Total Benefits	
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
Evaluation	79,095.583		79,095.583	-	-	-	-	-	-	-	(79,095.583)
Years	1,566.424		1,566.424	-	-	-	-	-	-	-	(1,566.424)
1	249,070.259		249,070.259	-	-	-	-	-	-	-	(249,070.259)
2	323,047.781		323,047.781	-	-	-	-	-	-	-	(323,047.781)
3	214,425.228		214,425.228	-	-	-	-	-	-	-	(214,425.228)
4	223,921.989		223,921.989	-	-	-	-	-	-	-	(223,921.989)
5	1,384.973	5,456.559	6,841.532	273,488.977	63,487.892	9,097.080	29,498.000	25,438.497	30,456.709	431,467.155	424,625.623
6	5,452.968	6,086.511	11,539.479	300,837.875	65,272.610	9,097.080	29,498.000	25,438.497	30,456.709	460,600.771	449,061.292
7	-	6,455.458	6,455.458	328,186.773	67,057.327	9,097.080	29,498.000	25,438.497	30,456.709	489,734.386	483,278.928
8	-	8,117.566	8,117.566	355,535.671	68,842.045	9,097.080	29,498.000	25,438.497	30,456.709	518,868.002	510,750.436
9	-	7,566.300	7,566.300	382,884.568	70,626.763	9,097.080	29,498.000	25,438.497	30,456.709	548,001.617	540,435.317
10	-	7,815.739	7,815.739	410,233.466	72,411.480	9,097.080	29,498.000	25,438.497	30,456.709	577,135.232	569,319.494
11	-	8,314.615	8,314.615	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,954.232
12	-	9,166.428	9,166.428	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,102.419
13	-	8,314.615	8,314.615	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,954.232
14	-	8,314.615	8,314.615	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,954.232
15	-	9,257.485	9,257.485	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,011.363
16	-	10,109.298	10,109.298	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,159.550
17	-	9,257.485	9,257.485	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,011.363
18	-	9,257.485	9,257.485	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,011.363
19	-	9,257.485	9,257.485	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,011.363
20	-	10,109.298	10,109.298	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,159.550
21	-	9,257.485	9,257.485	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,011.363
22	-	9,257.485	9,257.485	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,011.363
23	-	9,257.485	9,257.485	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,011.363
24	-	10,109.298	10,109.298	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,159.550
25	-	9,763.810	9,763.810	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,505.038
26	-	9,763.810	9,763.810	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,505.038
27	-	9,763.810	9,763.810	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,505.038
28	-	10,615.623	10,615.623	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	595,653.225
29	-	9,763.810	9,763.810	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,505.038
30	-	9,763.810	9,763.810	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,505.038
										EIRR [a] =	27.70%
										ENPV (Rp million) [a] =	2,079,239
										Benefit:Cost Ratio=	3.65

[a] Discount rate is at 10%.

Table F.4: EIRR and BCR Calculation, Scenario A-2 and 2-3

	Economic Costs			Economic Benefits							Net Benefits
	Total Investment Cost	Operation and Maintenance Cost	Total Economic Costs	Increase in the Value of Fish Handled	Reduction in Economic Losses due to Supply Fluctuations	Increase in Consumers' Visits to Restaurants/ Fishshops	Reduced Losses in Revenue at the JPWM due Flooding of Existing Road	Savings in Value of Travel Time	Reduction in Vehicle Operation Cost	Total Benefits	
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
Evaluation	30,615.310		30,615.310	-	-	-	-	-	-	-	(30,615.310)
Years	1,421.385		1,421.385	-	-	-	-	-	-	-	(1,421.385)
1	259,181.017		259,181.017	-	-	-	-	-	-	-	(259,181.017)
2	335,937.163		335,937.163	-	-	-	-	-	-	-	(335,937.163)
3	218,096.885		218,096.885	-	-	-	-	-	-	-	(218,096.885)
4	222,237.945		222,237.945	-	-	-	-	-	-	-	(222,237.945)
5	1,379.253	5,456.559	6,835.813	273,488.977	63,487.892	9,097.080	29,498.000	24,717.319	26,297.058	426,586.327	419,750.514
6	5,438.139	6,086.511	11,524.650	300,837.875	65,272.610	9,097.080	29,498.000	24,717.319	26,297.058	455,719.942	444,195.292
7	-	6,455.458	6,455.458	328,186.773	67,057.327	9,097.080	29,498.000	24,717.319	26,297.058	484,853.558	478,398.099
8	-	9,558.833	9,558.833	355,535.671	68,842.045	9,097.080	29,498.000	24,717.319	26,297.058	513,987.173	504,428.340
9	-	7,566.300	7,566.300	382,884.568	70,626.763	9,097.080	29,498.000	24,717.319	26,297.058	543,120.788	535,554.488
10	-	7,815.739	7,815.739	410,233.466	72,411.480	9,097.080	29,498.000	24,717.319	26,297.058	572,254.404	564,438.665
11	-	8,314.615	8,314.615	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	593,073.404
12	-	10,699.691	10,699.691	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	590,688.328
13	-	8,314.615	8,314.615	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	593,073.404
14	-	8,314.615	8,314.615	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	593,073.404
15	-	9,257.485	9,257.485	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	592,130.534
16	-	11,642.561	11,642.561	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	589,745.458
17	-	9,257.485	9,257.485	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	592,130.534
18	-	9,257.485	9,257.485	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	592,130.534
19	-	9,257.485	9,257.485	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	592,130.534
20	-	11,642.561	11,642.561	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	589,745.458
21	-	9,257.485	9,257.485	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	592,130.534
22	-	9,257.485	9,257.485	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	592,130.534
23	-	9,257.485	9,257.485	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	592,130.534
24	-	11,642.561	11,642.561	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	589,745.458
25	-	9,763.810	9,763.810	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	591,624.209
26	-	9,763.810	9,763.810	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	591,624.209
27	-	9,763.810	9,763.810	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	591,624.209
28	-	12,148.886	12,148.886	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	589,239.133
29	-	9,763.810	9,763.810	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	591,624.209
30	-	9,763.810	9,763.810	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	591,624.209
										EIRR [a] =	28.76%
										ENPV (Rp million) [a] =	2,078,833
										Benefit:Cost Ratio=	3.73

[a] Discount rate is at 10%.

Table F.5: EIRR and BCR Calculation, Scenario B-2 and 2-2

	Economic Costs			Economic Benefits							Net Benefits
	Total Investment Cost	Operation and Maintenance Cost	Total Economic Costs	Increase in the Value of Fish Handled	Reduction in Economic Losses due to Supply Fluctuations	Increase in Consumers' Visits to Restaurants/ Fishshops	Reduced Losses in Revenue at the JPWM due Flooding of Existing Road	Savings in Value of Travel Time	Reduction in Vehicle Operation Cost	Total Benefits	
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
Evaluation	80,474.320		80,474.320	-	-	-	-	-	-	-	(80,474.320)
Years	1,682.456		1,682.456	-	-	-	-	-	-	-	(1,682.456)
1	259,955.476		259,955.476	-	-	-	-	-	-	-	(259,955.476)
2	339,542.590		339,542.590	-	-	-	-	-	-	-	(339,542.590)
3	229,173.276		229,173.276	-	-	-	-	-	-	-	(229,173.276)
4	234,701.622		234,701.622	-	-	-	-	-	-	-	(234,701.622)
5	1,356.247	5,453.288	6,809.535	273,488.977	63,487.892	9,097.080	29,498.000	25,438.497	30,456.709	431,467.155	424,657.620
6	5,313.734	6,081.081	11,394.815	300,837.875	65,272.610	9,097.080	29,498.000	25,438.497	30,456.709	460,600.771	449,205.955
7	-	6,444.205	6,444.205	328,186.773	67,057.327	9,097.080	29,498.000	25,438.497	30,456.709	489,734.386	483,290.181
8	-	8,079.182	8,079.182	355,535.671	68,842.045	9,097.080	29,498.000	25,438.497	30,456.709	518,868.002	510,788.820
9	-	7,526.608	7,526.608	382,884.568	70,626.763	9,097.080	29,498.000	25,438.497	30,456.709	548,001.617	540,475.009
10	-	7,774.738	7,774.738	410,233.466	72,411.480	9,097.080	29,498.000	25,438.497	30,456.709	577,135.232	569,360.495
11	-	8,270.998	8,270.998	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,997.850
12	-	9,122.810	9,122.810	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,146.037
13	-	8,270.998	8,270.998	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,997.850
14	-	8,270.998	8,270.998	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,997.850
15	-	9,213.867	9,213.867	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,054.980
16	-	10,065.680	10,065.680	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,203.168
17	-	9,213.867	9,213.867	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,054.980
18	-	9,213.867	9,213.867	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,054.980
19	-	9,213.867	9,213.867	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,054.980
20	-	10,065.680	10,065.680	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,203.168
21	-	9,213.867	9,213.867	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,054.980
22	-	9,213.867	9,213.867	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,054.980
23	-	9,213.867	9,213.867	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	597,054.980
24	-	10,065.680	10,065.680	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,203.168
25	-	9,720.192	9,720.192	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,548.655
26	-	9,720.192	9,720.192	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,548.655
27	-	9,720.192	9,720.192	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,548.655
28	-	10,572.005	10,572.005	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	595,696.843
29	-	9,720.192	9,720.192	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,548.655
30	-	9,720.192	9,720.192	437,582.364	74,196.198	9,097.080	29,498.000	25,438.497	30,456.709	606,268.848	596,548.655
										EIRR [a] =	26.92%
										ENPV (Rp million) [a] =	2,043,452
										Benefit:Cost Ratio=	3.49

[a] Discount rate is at 10%.

Table F.6: EIRR and BCR Calculation, Scenario B-2 and 2-3

	Economic Costs			Economic Benefits							Net Benefits
	Total Investment Cost	Operation and Maintenance Cost	Total Economic Costs	Increase in the Value of Fish Handled	Reduction in Economic Losses due to Supply Fluctuations	Increase in Consumers' Visits to Restaurants/ Fishshops	Reduced Losses in Revenue at the JPWM due Flooding of Existing Road	Savings in Value of Travel Time	Reduction in Vehicle Operation Cost	Total Benefits	
	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million	Rp million
Evaluation	33,424.643		33,424.643	-	-	-	-	-	-	-	(33,424.643)
Years	1,682.456		1,682.456	-	-	-	-	-	-	-	(1,682.456)
1	268,322.217		268,322.217	-	-	-	-	-	-	-	(268,322.217)
2	350,066.380		350,066.380	-	-	-	-	-	-	-	(350,066.380)
3	232,310.696		232,310.696	-	-	-	-	-	-	-	(232,310.696)
4	232,178.605		232,178.605	-	-	-	-	-	-	-	(232,178.605)
5	1,343.530	5,453.288	6,796.818	273,488.977	63,487.892	9,097.080	29,498.000	24,717.319	26,297.058	426,586.327	419,789.509
6	5,280.763	6,081.081	11,361.844	300,837.875	65,272.610	9,097.080	29,498.000	24,717.319	26,297.058	455,719.942	444,358.099
7	-	6,444.205	6,444.205	328,186.773	67,057.327	9,097.080	29,498.000	24,717.319	26,297.058	484,853.558	478,409.353
8	-	9,520.449	9,520.449	355,535.671	68,842.045	9,097.080	29,498.000	24,717.319	26,297.058	513,987.173	504,466.724
9	-	7,526.608	7,526.608	382,884.568	70,626.763	9,097.080	29,498.000	24,717.319	26,297.058	543,120.788	535,594.180
10	-	7,774.738	7,774.738	410,233.466	72,411.480	9,097.080	29,498.000	24,717.319	26,297.058	572,254.404	564,479.666
11	-	8,270.998	8,270.998	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	593,117.021
12	-	10,656.073	10,656.073	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	590,731.946
13	-	8,270.998	8,270.998	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	593,117.021
14	-	8,270.998	8,270.998	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	593,117.021
15	-	9,213.867	9,213.867	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	592,174.152
16	-	11,598.943	11,598.943	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	589,789.076
17	-	9,213.867	9,213.867	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	592,174.152
18	-	9,213.867	9,213.867	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	592,174.152
19	-	9,213.867	9,213.867	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	592,174.152
20	-	11,598.943	11,598.943	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	589,789.076
21	-	9,213.867	9,213.867	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	592,174.152
22	-	9,213.867	9,213.867	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	592,174.152
23	-	9,213.867	9,213.867	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	592,174.152
24	-	11,598.943	11,598.943	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	589,789.076
25	-	9,720.192	9,720.192	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	591,667.827
26	-	9,720.192	9,720.192	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	591,667.827
27	-	9,720.192	9,720.192	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	591,667.827
28	-	12,105.268	12,105.268	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	589,282.751
29	-	9,720.192	9,720.192	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	591,667.827
30	-	9,720.192	9,720.192	437,582.364	74,196.198	9,097.080	29,498.000	24,717.319	26,297.058	601,388.019	591,667.827
										EIRR [a] =	27.92%
										ENPV (Rp million) [a] =	2,045,369
										Benefit:Cost Ratio=	3.58

[a] Discount rate is at 10%.

APPENDIX 18

List of Major Persons Met by the Team

APPENDIX 18. LIST OF MAJOR PERSONS MET BY THE TEAM

1. Ministry of Marine Affairs and Fisheries (MMAF)

Directorate General of Fisheries Product Processing & Marketing

Dr. Ir. Victor P.H. Nikijuluw, M.SC	Director General
Ir. Saut P. Hutagalung, M.Sc	Director of International Marketing
Ir. Sadarma Saragih	Head of Sub Directorate of Export Development
Drs. Yulianto, M.Si	Head of Sub.Directorate of Analysis and Information
Ir. Sadullah Muhdi, MBA	Director of Domestic Marketing
Ir. Rita Dyah Wismaningsih	Head of Marketing Network and Distribution
Prayudi Budi Utomo	Head of Distribution Network Section
Erwin Dwiyana	Chief of DGFPPM

Directorate General of Capture Fisheries

Dr. Ir. Dedy Heryadi Sutisna, M.Sc.	Director General
Heriyanto Marwoto	Director of Fishing Port
Ir. H.M. Firdaus Sahwan, M.M.	Head of Sub.Dir. of F/P Operational Management
Drs. Jonet Srialdoko, M.M	Head of Sub.Dir. of F/P Preparation and Identification
Ir. Abdur Rouf Sam	Head of Jakarta Fishing Port (UPT-PPSJ)
Rahmat Irawan API, M.M	Head of Development Division, JFP (UPT-PPSJ)

Directorate General of Aquaculture

Ir. Maskur, M.Sc.	Director of Fish Health and Environment

Secretariat General

Ir. Nilanto Perbowo	Head of Planning Bureau
Ir. Y. Waluyo Susanto, M. Si	Head of Public Planning Division, Planning Bureau
F.P. Budiasih S	Head of Foreign Budget Sub-Divsion, Planning Bureau
Benny P. Tambunan	Head of Cross-Sector and Overseas Planning Sub-Division, Planning Bureau

UPT Under DG of Fisheries Product Processing & Marketing

Sutim Autaro	Director of Institute for Development and Control for Fisheries Products, B2P2HP
Rini Andriyani	Head of Monitoring Division, B2P2HP
Elyna Kurnia	Head of Programming Division, B2P2HP
Herman	Staff of Chemistry Lab., B2P2HP

UPT Under Agency for Marine and Fisheries Research

Veni	Chief of Technical Service, Marine Fisheries Research Institute, BRPL
Awaludin	Junior Scientist, BRPL
Taufik	Biologist, BRPL
Duranta	Biologist, BRPL

Dr. Purwito Martosubrato	Chairman of the National Commission for Fisheries Resources Management, NCFRM
Motobumi MANABE	JICA Expert on Fisheries Planning

2. DKI Jakarta

Name	Position
Sutanto Soehodho	Deputy Governor (In charge of transportation)
Idih Ruyanti	Head of Provincial Marine Affairs and Fisheries Service
Darjamuni	Head of Fisheries Division, Provincial Marine Affairs & Fisheries Service
Rita Nirmala	Head of Fishery Product Quality, Processing & Business, Fisheries Division
Sriwahyuni	Fisheries Service, North Jakarta Regency (KJU)
Eny Suparyani	Marine Fisheries Division, North Jakarta Regency (KJU)
Manad	Head, Division of Port and Auction, Muara Angke
Istiyanto	National Land Agency, DKI North Jakarta
Februry Yandini	Head of Administration Sub-Section, Center for Development and Control of Fishery Products (CDCFP)
Helma Dahlia	Supervisor of Laboratory, CDCFP
Yudi	Staff of Administration Sub-Section, CDCFP
Ir. Wiriyamoko, MT	Head of Spatial Planning Division
Retno Mustikaweni	Spatial Planning Division
Rebacca Carolina	ditto
Nana Suharna	ditto, North Jakarta Regency (KJU)
Tarjuki	Head of Water Resources, Provincial Public Work Service
Heru Panatas, MM	Infrastructure and Facilities Bureau
Arif	AMDAL Section, Environmental Department (BPLHD)
Adhitya	ditto
Heri Purwanto, MSi	Topography / Mapping Division
Firmansyah	Traffic, Water Supply and Parks Division
Siti Harfiah K.	ditto
Ibransah	ditto

3. PERUM-PPS (Public Corporation for Ocean Fisheries Infrastructure)

Name	Position
Dr. Ir. Ali Supardan	President Director
Dra. Widyarini Sumadi	Financial Director
Hotler Sianturi	Operation & Marketing Director
Sonni Adji P. Wityaksono	Head of Marketing & Business Development Div., Jakarta Fishing Port Branch

4. National Development Planning Agency (BAPPENAS)

Name	Position
Sri Yanti JS	Director of Marine Affairs and Fisheries
M. Heri S.	Marine Affairs and Fisheries Division

5. Ministry of Public Works (KPU)

Name	Position
Ir. Sarwono Sukardi, Dipl. HE	Project for Capacity Development of Jakarta Comprehensive Flood Management
Tanaka Takuya	JICA, Expert
Dr. Heri Andreas	Geodesy Resarch Division, ITB, Jakarta Coastal Defense Strategy (JCDS)
Irwan Gumilar	ditto

6. Ministry of Environment

Name	Position
Ms. Laksmi Widyajayanti	Head of Application of Environmental Impact Study Division

7. Stakeholders

Name	Position
H.J. Jasarita Abdul Rodim	Koperasi Mina Muara Makmur, TPI Muara Baru
Ibrahim	Staff of Koperasi Mina Jaya, TPI Muara Angke
Emansulaiman	Staff of Koperasi Mina Jaya, TPI Muara Angke
Eddy Yuwano, SH	Director, Indonesia Tuna Association
Irawany Kenanga	PT. Gabungan Era Mandiri
Wiwik	PT. Lucky Samudra Pratama
Agus Wijaya	Operational Manager, PT. AGB Tuna
Suhendro	Deputy Manager of Cooperation and Investment, PT. ASPARINDO
Tjandra Janto	President Director, PT INDOMAGURO TUNAS UNGGUL
Kwee Cece Limanto	Procurement Manager, PT INDOMAGURO TUNAS UNGGUL

8. Embassy of Japan

Name	Position
Yusuke HIBINO	Secretary for Forestry, Fishery and Nature Conservation

9. JICA

Name	Position
Motofumi KOHARA	Chief Representative, JICA Jakarta Office
Jitsuya ISHIGURO	Senior Representative, JICA Jakarta Office
Mari MIURA	Representative, JICA Jakarta Office

10. Related Project Office

Keigo HAMADA	Project Leader for Integrated Urban Traffic Policy Development Project in JABODETABEK
Hirohisa KAWAGUCHI	JICA Expert, ditto
Tomokazu WACHI	Jakarta Urban Traffic Development Study

11. Sub-Contractors

Name	**Position**
Nobuwaka YAMAKAWA	President Director, PT. Mitrapacific Consulindo International (for Fish O/D Distribution Survey & Traffic Survey)
Kazuhiko YAMAKAWA	General Manager, PT. Mitrapacific Consulindo International
Ir. Sumartono B.Sc.	President Director, PT. Ajisaka Destar Utama (for Topographic and Hydrographic Survey)
Yan Pieter Chandra	Manager, PT. Pondasi Kisocon Raya (for Soil Investigation)

APPENDIX 19

Members of the Study Team

APPENDIX 19. MEMBERS OF THE STUDY TEAM

19-1. International Consultants

Specialist	Firm	Responsibilities
Hiroshi FUKAO	OAFIC	Team Leadership / Fish Marketing Development Plan / O&M Plan
Wataru IWASAKI	OAFIC	Fish Market Facilities Plan
Junichiro MORI	OAFIC	Fish Market Equipment Plan
Seiichi ETOH	OAFIC	Fish Handling, Distribution, and Marketing
Yuichi BABA	OC	Traffic Survey/Demand Projections
Tatsuhiko KONO	OC	Traffic Facilities Plan
Isao HINO	OC	Natural Conditions Survey
Jerome F. SISON	OAFIC	Economic and Financial Analysis
Shingo SHIRATORI	OC	Construction and Procurement Plan/Cost Estimation
Kyoko MISHIMA	OC	Environmental and Social Considerations
Sadao ORISHIMO	OC	Coordinator/Fish Distribution Survey

19-2. Local Consultants

Specialist	Responsibilities
Irwan Wahidin	Civil Engineering
L. Richard HP Napitupulu	Road Engineering
James Wijaya	Structural Engineering
Syahruroji	Architectural Engineering
Fadil Y.	Mechanical Engineering
Atina Sutisna	Electrical Engineering
Darning	CAD Operation I
Mukhiyin	CAD Operation II
Andi A Basri	Environment
Rizzy Mia	Interpretation / Secretary Service