Indonesia

Jakarta Fishing Port / Market Development Project (IV)

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Ministry of Marine Affairs and Fisheries

Site Survey: September 2004

1. Project Profile and Japan's ODA Loan

Project site

Full view of the port

1.1 Background

In Indonesia, fisheries sector has played a significant role in economic development. The nation's economic waters[2] are 5.8 million km^2 with the estimated 6.3 million tons of sustainable marine resources potential of wide variety. In 1991, total fish catches amounted to 3.4 million tons, which was the world's ninth largest. However, due to the underdevelopment of fisheries infrastructures and other factors, utilization of marine resources has not been optimal.

Figure 1: JFP right after the opening of the port (1984)

Source: Project consultant

The development of Jakarta Fishing Port (JFP) started in late 1970s. Phases I and II of the JFP project funded by ODA loan developed basic port infrastructures and some fisheries-related facilities such as an auction hall for fish supply to Jakarta City and backland for fish processing industry, all on the reclaimed ground in northern Jakarta. The Phase II project completed in 1984, and the port started operation in the same year. An engineering services loan (Phase III) followed in 1985 and developed a master plan to enable JFP to fulfill the functions of (i) a fishing port, (ii) a market center, (iii) a site for the establishment and

[1] "Jakarta Fishing Port / Market Development Project (IV)" is jointly evaluated by Ms. Takako Haraguchi, the consultant appointed by Japan Bank for International Cooperation (JBIC) and the Ministry of Marine Affairs and Fisheries (MMAF), the executing agency of the project with facilitation by JBIC and the Directorate of Monitoring and Fund Evaluation, National Development Planning Agency (BAPPENAS).

[2] Territorial water and economic exclusive water.

development of fisheries-related industry, and (iv) a waterfront recreation zone for people of Jakarta and the surrounding. Subsequently, the government of Indonesia developed several port facilities such as a new jetty and wholesale market.

Meanwhile, the demand for tuna in international market increased rapidly in late 1980s, and the role of JFP, which was located near the international airport and equipped with facilities for handling fresh and frozen tuna, became more important than before.

1.2 Objectives

Upgrading sanitary facilities and port infrastructure of the Jakarta Fishing Port (JFP) in northern Jakarta in order to improve the quality of fishery products landed and/or processed in the port premises, to cope with the increasing handling of fish, especially of export tuna, and to enhance the convenience for port users, thereby promoting fishery industry at the port and contributing to the development of fisheries in Indonesia.

1.3. Borrower/Executing Agency

The Republic of Indonesia / Directorate General of Capture Fisheries (DGCF), Ministry of Marine Affairs and Fisheries (MMAF) (former Directorate General of Fisheries, Ministry of Agriculture)

1.4 Outline of Loan Agreement

Loan Amount Disbursed Amount	4,009 million yen 3,960 million yen
Exchange of Notes / Loan Agreement	October 1993 / November 1993
Terms and Conditions - Interest Rate - Repayment Period (Grace Period) - Procurement	 2.6% p.a. 30 years (10 years) General untied (Consultant service is procured as partially untied)
Final Disbursement Date	December 2002
Principal Contractors (Goods and Services)	PT. WASKITA KARYA・DAITO KOGYO.
Principal Contractors (Consulting Services)	Pacific Consultants International.
Project Identification and Preparation Study (such as Feasibility Study (F/S)	1974 JICA F/S 1977 Engineering Service (E/S) 1979 Phase I Loan Agreement (L/A) 1980 Phase II L/A 1985 Phase III (E/S) L/A 2004 Rehabilitation and Improvement L/A

2. Evaluation Results

2.1 Relevance

2.1.1 Relevance of the project plan at the time of appraisal

The Fifth Five-year National Development Plan (REPELITA V: 1989-1993) aimed to increase fishery production, improve quality of fishery products and promotion of fish export. Development of fishery infrastructure was set out as a means to achieve these objectives.

The project was to develop/ upgrade port facilities and utilities of JFP and thus of high priority among the above-mentioned development policy.

2.1.2 Relevance of the project plan at the time of ex-post evaluation

Improvement of yield and quality of fishery products remains one of the objectives in the current National Development Plan (PROPENAS: 2000-2004).

Following the growing importance of fisheries development, the Ministry of Marine Affaires and Fisheries (MMAF) was established out of the Ministry of Agriculture in 2001. MMAF set out the Fishery Sector Development Policies and Programs (2003), which aims at rehabilitation/ development of fishing and marketing infrastructure as one of its objectives. Also, the Master Plan for Development of Capture Fisheries (2003) developed by the Directorate General of Capture Fisheries (DGCF) of MMAF, the current executing agency of the project, sets forward the development/ rehabilitation of national fishing ports.

Table 1: Indonesia's fishing ports in operation as of 2003

Type		No
Type A (Ocean fishing port)		**5**
Type B (Archipelago fishing port)		**11**
Type C (Beach fishing port)		**13**
	National	3
	Provincial	10
Type D (Fish landing place)		**687**
	National	190
	Provincial	497
Total		716

Note: Shaded area shows national fishing ports/ landing places.
Source: MMAF

As JFP is categorized as one of the five Type A (Ocean) national fishing ports (Table 1)[3], its development constitutes part of the above-mentioned Master Plan. Therefore, the project, which was to further develop/ rehabilitate the facilities of JFP developed in earlier phases, is still of significance.

2.2 Efficiency

2.2.1 Outputs

Outputs planned at the time of appraisal were as follows.

[3] The other Type A national fishing ports are in Kendari (Southeast Sulawesi), Belawan (North Sumatra), Bungus (West Sumatera) and Cilacap (Central Java).

(1) Port facilities. Construction of -7.5m quaywall, dredging of waterway and port basin, rehabilitation of revetment, rehabilitation/ construction of slipways, etc.
(2) Buildings and utilities. Construction of sewage treatment plant (STP), foul sea water cleaning system, sea water intake & supply, waste/ refuse disposal incinerator, auction hall etc. and upgrading/ expansion of drainage, water supply system, public toilets, roads and parking and electric and lighting works, etc.)
(3) Other related facilities. Rehabilitation of existing buildings, dormitory, fishing gear/ outfitting repair yard, etc.
(4) Consulting engineering and supervisory services.

All expenses in foreign currencies and part of expenses in local currencies were to be financed by JBIC.

Most of the major outputs were completed as planned. In addition, some facilities were constructed/ rehabilitated. These include the replacement/ rehabilitation of bitts and fenders, extension of the Wholesale Market, construction of Tuna Landing Center[4] and multi-purpose building (Muara Baru Center[5]). Also, as an additional activity of the consulting services, the first Indonesia's Fisheries White Paper was made for the newly-established MMAF. Construction of some facilities such as dormitory for port staff and waste/ refuse disposal incinerator were cancelled (reasons for changes are described in Table 2).

These changes were to address the needs identified through detailed design and the establishment of MMAF.

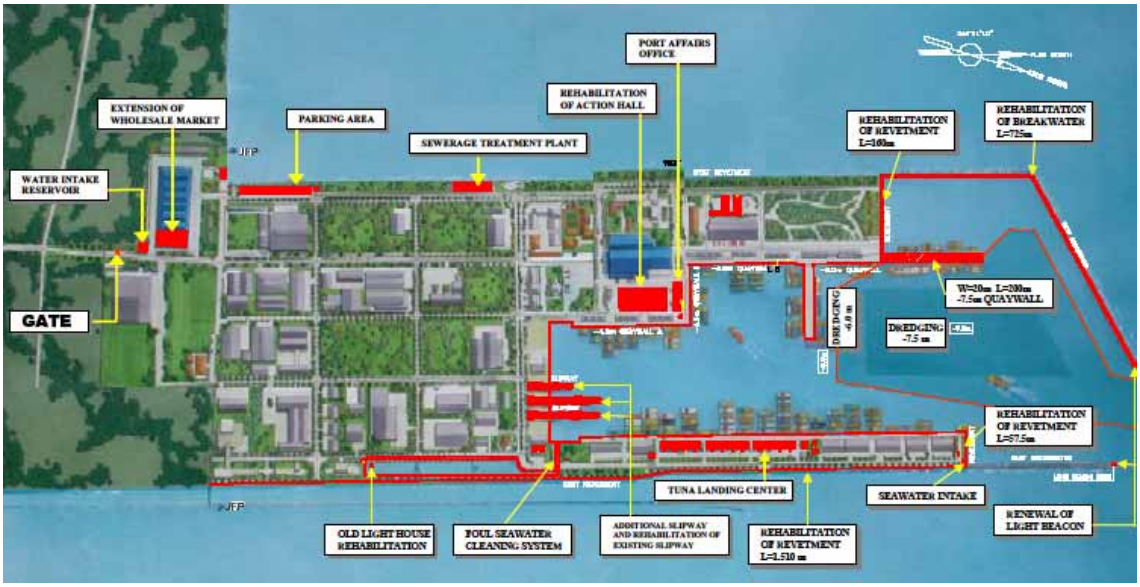
Table 2: Reasons for major changes in Phase IV project outputs

Changes	Reasons
Replacement/ rehabilitation of existing bitts and fenders	They were damaged or lost, inhibiting safe and efficient berthing
Expansion of the wholesale market	The space was insufficient to accommodate traders
Construction of Tuna Landing Center	To cope with the increasing demand for fresh tuna
Construction of multi-purpose center	The existing shop area suffered from land settlement
Procurement of operation and maintenance equipment (e.g. towing tractors)	To improve port operations
Development of the Fisheries White Paper (Addition to Consulting Services)	(Addition to Consulting Service) To strengthen newly-established MMAF
Cancellation of construction of dormitory	The existing lodging facility was underutilized.
Cancellation of waste/ refuse disposal incinerator	The policy was changed so as to dispose wastes outside the port.

Source: MMAF

[4] Tuna Landing Center is a set of 29 units built near the east-side quay for landing and packing fresh tuna for export.
[5] Mara Baru Center consists of two buildings to accommodate shops for fishing gear or other necessary commodities for people visiting/ working at JFP.

Figure 2: Layout map of JFP



Source: MMAF

2.2.2 Project Period

The total duration of the project implementation was 108 months from November 1993 to October 2002. The duration for the implementation of the originally-planned outputs was 92 months until June 2001, which was 155% of the planned duration.

The major reasons for the delay include a delay in selection of the consultant (i.e. delay in approval of direct appointment) and a delay in the tender for civil works due to a fluctuation of bidding prices following the Asian economic crisis that started in 1997. Nevertheless, the construction stage was successfully accelerated to avoid further delays.

2.2.3 Project Cost

The total project cost was 4,108 million yen as against the originally-planned 4,717 million yen, mainly due to the depreciation of local currency exceeding inflation. For the same reason, however, the project cost in terms of local currency increased more than threefold.

Figure 3: Unloading activities of local fishing vessels

2.3 Effectiveness

The expected project purposes were defined as (i) the improved quality of fishery products due to the improved sanitary and hygienic conditions of the port premises, (ii) the increased handling of fish, especially of export tuna, by increasing the capacity

of port facilities for the said type of fish[6], and (iii) the enhanced convenience for port users. From the following findings, it can be said that these purposes were generally attained and thus the project was effective.

2.3.1 Improvement of the quality of fishery products due to better sanitary and hygienic conditions of the port premises

It was observed in the site survey that the sanitary and hygienic conditions of the port premises were improved compared to before the project. The followings are some of the major points observed.

(1) Control of sodden ground with foul water. Before the project, waste water from fish processing companies or other entities operating in the port was discharged directly to open ditch, which frequently flooded due to poor drainage and the inflow of sea water from the subsided east-side revetment.

At present, the sewage treatment plant (STP) constructed by the project treats 650 m^3 of waste water everyday. Also, there has been no flood on the east side of the port premises since the revetment was rehabilitated and the drainage was upgraded by the project. As a result, the sodden ground including the industrial area with foul water decreased.

However, the capacity utilization rate of STP is still 65% as some companies are not yet connected to sewer despite port regulations. Also, it was observed that some people from the informal sector (e.g. food stall, etc.) were dumping garbage into ditch.

Figure 4: Ground of the port in 1996 (left) and 2003 (right)

(2) Cleaning capability of port facilities directly handling landed fish. The auction hall and landing/packing facilities, which used to be cleaned using foul water taken from the port basin, are now frequently cleaned with sea water filtered by the sea water intake

[6] Although the development activities for JFP as a whole aims to cope with the increase in the total fish handling volume including fish brought by land and non-tuna fish catches, it is considered that the expansion of the port capacity by the Phase IV project was mainly directed to fresh or frozen tuna longline fishing vessels and frozen tuna carrier vessels. On the other hand, the Phase IV activities to increase sanitary conditions and convenience are directed to all types of fishing vessels as well as fisheries related industry.

and supply facility constructed by the project.

Fresh tuna unloaded from around 30GT long-line fishing boats are immediately washed/ packed at the sheds that were built close to the eastern quay[7], and directly transported to the Jakarta International Airport for export. Ideally, fresh fish for export should be cleaned using fresh water, but that is not possible under the current condition where water supply from the Jakarta City is insufficient[8].

(3) Removal of garbage and oil from the port basin. The foul sea water cleaning system developed by the project is a simple devise to collect oil and garbage in the port basin using daily tidal differences and to skim them manually. During the site survey, it was observed that the system is operated everyday and certain amount of garbage and oil were removed, but garbage were still floating on the water. Fishing boats parked near the intake of the system block the inflow of some garbage.

(4) Sanitation of the wholesale market and the auction hall. As a result of the elevation of the floor and upgrading of the drainage facilities, water on the floor of the wholesale market and the auction hall became better drained.

Figure 5: Facilities to improve sanitary and hygienic conditions of the port

Sewage treatment Plant (STP)

Auction hall cleaned using filtered sea water

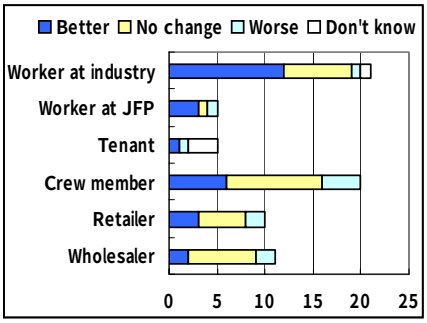
Intake of foul sea water cleaning system

As for the quality of fish unloaded/ processed in JFP, information was only available from the beneficiary survey for 82 people working at JFP or living nearby[9]. In the survey, majority of the respondents said that cleanliness and hygiene of all major facilities except sea water in the port have improved. Out of 72 respondents working at JFP, 30 persons answered that fish quality has improved. There was a trend that the improved quality was pointed out more by workers at fish processing companies (12 out of 21) than other types

[7] Part of the sheds was constructed by the Phase IV project as the Tuna Landing Center.
[8] According to the project consultant, the demand of JFP for fresh water is about 2,500 ton/day, but the actual supply from the Jakarta City Administration is limited to around 1,500 ton/day. The shortage is covered by purchasing water from outside water sellers at a price almost three times higher than the public rate.
[9] The respondents consist of 11 fish wholesalers and 10 retailers at the Wholesale Market, 20 crew members of fishing boats, 5 tenants, 5 port workers, 21 workers of fish processing companies and 10 nearby households.

of respondents. Also, all three processing companies interviewed mentioned a rise in fish price along with the improved quality.

Figure 6: Opinions on fish quality as compared to before the project



Source: Beneficiary survey

2.3.2 Increased capacity of port facilities mainly for export tuna

The construction of -7.5m quaywall increased berthing capacity for two kinds of large vessels: (i) 300GT class frozen tuna long-line fishing vessels and (ii) over 1,800GT refrigerated carriers mainly for frozen tuna to be transshipped from the said type of long-line vessels and exported by sea. Also, the Tuna Landing Center enabled more fresh tuna to be shipped by air. As a result, port use by frozen tuna long-line vessels increased, and so did the handling volume of export tuna.

(1) Visit of large fishing vessels and refrigerated carriers. The -7.5m quaywall was designed so as to accommodate 8 frozen tuna long-line fishing vessels of 300GT class simultaneously or a total of 120 vessels annually. According to the statistics of the port authority[10], entrance of vessels of over 200GT to JFP, mainly consisting of frozen tuna long-line, increased from 97 in 1996 to 131 in 2003, while the total number of vessels of all kind remains around 4,800. On the day of the site visit, 9 frozen tuna long-line vessels were berthed to the -7.5m quaywall.

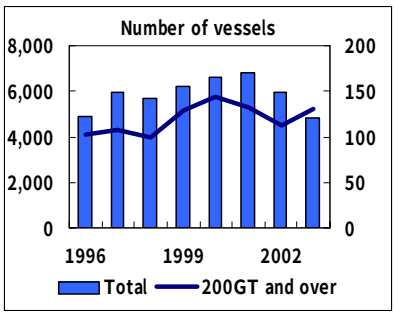
As for over 1,800GT refrigerated carriers, several vessels of this kind used to visit JFP every year even before the project, but the transshipment was carried out offshore because no quaywall had enough depth for them. After the project, the -7.5m quaywall can accommodate one vessel of this kind, and 13 vessels visited JFP in 2003. However, they are not berthed to the quaywall and transshipment is still carried out outside the port as before. A reason for it could be the existence of permanently-berthed non-fishing boats such as a research boat and a fuel boat, suggesting that the berth utilization is not optimal[11].

[10] The port authority in this report refers to UPT-PPSJ, an operation and maintenance agency under DGCF (see "2.5.1 Executing Agencies and O&M Agencies").

[11] From the MMAF's document, the average length of stay of vessels of all types could be calculated at 9 days. On the other hand, based on the control record of JFP as of June 2003, it is estimated that the simple average is 16.3 days and the median is 9.5 days.

Figure 7: -7.5m quaywall being used by frozen tuna long-line fishing vessels

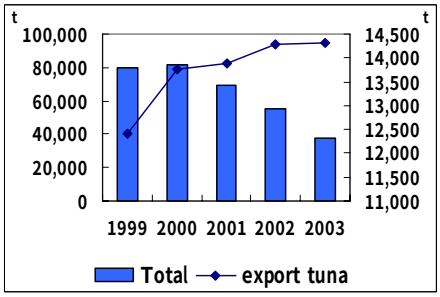
Figure 8: Number of vessels entering to JFP



Source: MMAF

(2) Handling of export tuna and other types of fish. Handling of export tuna increased from 12,000 tons in 1999 to 14,311 ton in 2003, which is equivalent to 60% of tuna landed at Misaki Port in Kanagawa Prefecture, the second biggest tuna port in Japan. On the other hand, total handling volume of fish including shrimps and various local fish at JFP has decreased since 2000: it was 78,100 tons (52,000 tons from sea[12] and 26,100 tons from land) in 1996 and 37,600 tons (32,000 tons from sea[13] and 5,600 tons from land) in 2003. Also, in response to the beneficiary survey question about the change in fish handling volume compared to before the project, 37 out of 72 respondents working in the port premises answered "decreased", and 18 respondents answered "no change"[14]. According to several concerned parties, this downward trend could be explained by natural conditions, deconcentration of fishing vessels to other fishing ports that are under development as well[15], subsidence of quaywall (see "2.5.2 O&M status"), and the poor condition of the access road to JFP (i.e., traffic jam and floods)[16].

Figure 9: Fish handling volume at JFP



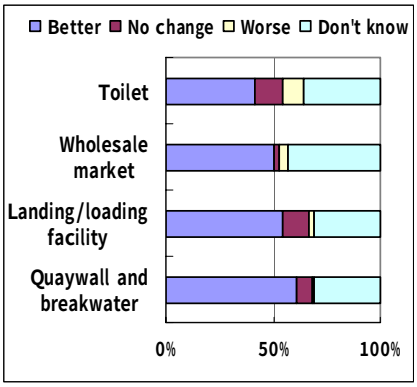
Source: MMAF

[12] Equivalent to the 13th biggest fish catches at Japanese fishing ports in 2002.
[13] Equivalent to the 21st biggest fish catches at Japanese fishing ports in 2002.
[14] Meanwhile, the project consultant estimates that the above-mentioned figures from the port authority might represent a third of the actual handling volume. Indeed, the wholesale market, where fish landed at JFP or brought from all over Indonesia are traded, is still fully occupied with more than 900 wholesalers, and nearly 10,000 people visit the market every night, which is equivalent to nearly one third of daily visitors to the fish market of Tokyo Metropolitan Central Wholesale Market (Tsukiji Central Wholesale Market) in Japan. The evaluator visited the wholesale market during the peak hours at around 22:00. The 6,400m^2 marketplace was very busy and it was difficult to walk in the congested corridor.
[15] As per stipulated in the Master Plan for Development of Capture Fisheries mentioned in "2.1 Relevance". Also, fish handling at other ports in Jakarta City (operated by the City Administration) shows increase since 2001.
[16] Another factor that might affect future tuna catches is that Indonesia has recently joined international committees for preservation of marine resources, namely the Commission for the Conservation of Southern

2.3.3 Enhancement of the convenience for port users

As a result of the rehabilitation, upgrading and construction of port infrastructures and utilities, the convenience of JFP for its users enhanced (Box 1). According to the beneficiary survey, majority of the 72 respondents working in the port premises acknowledged the enhancement of the convenience of major port facilities compared to before the project (Figure 10). Also, all of the three interviewed fish processing companies mentioned the improvement of security by the betterment of the entrance gate, road and lighting.

Figure 10: Opinions on convenience of port facilities as compared to before the project



Source: Beneficiary survey

Box 1: Illustration of the enhanced convenience of JFP by use of the Phase IV facilities

- ✓ **Parking for the wholesale market.** At night, the parking was full of trailer trucks that brought fish from provinces.
- ✓ **Auction hall.** Rehabilitation of the floor and construction of an approaching slope made carrying of fish catches from the quaywall to the auction hall smoother. 6 out of 20 crew member respondents to the beneficiary survey said they use the auction hall.
- ✓ **Slipways.** The number of vessels repaired at JFP increased from 132 in 2001 (when the rehabilitation/ construction of slipways were completed) to 221 in 2003.

2.3.4 Recalculation of internal rates of return

(1) Financial internal rate of return (FIRR). The FIRR value calculated at the time of the appraisal was 9.0%. In the ex-post evaluation, the recalculated FIRR turned out negative when including costs and benefits associated with the Phase IV project, and 6.5% when including costs and benefits associated with the whole Phase I – IV projects[17]. This result is understandable considering that most of the outputs of Phase IV were public facilities/ utilities that are not revenue-making[18].

Bluefin Tuna (CCSBT) in 2001 and the Indian Ocean Tuna Commission (IOTC) in 2002, both as a Cooperative Non-member State. Accordingly, monitoring of tuna landing at JFP started.

[17] On the cost side, project investment cost and operation and maintenance (O&M) cost were included. On the benefits side, revenue from port operation was included. In the former case of FIRR recalculation, share of revenue from Phase IV was estimated in proportion to the ratio of the project cost for this Phase to the total cost for Phase I-IV.

[18] The possible reasons for the lower FIRR recalculation than at the appraisal are as follows: (i) in the calculation made at the appraisal, revenue from the whole JFP facilities including those developed in earlier

(2) Economic internal rate of return (EIRR). The EIRR value calculated at the time of the appraisal was 17.2%, and the recalculated value at the time of the ex-post evaluation was 18.7%. While the assumptions made at the appraisal were not clear in the existing documents, the recalculation counted incremental sales of export tuna due to the increase in volume and price in the benefit.

Box 2: Outcomes and impacts of the development of Jakarta Fishing Port

1. Outcomes

(1) About 80-hectare area of land was created in the location that used to be the sea, and a world-class fishing port complex was built there.
(2) The improved port facilities enabled to increase the size of fishing vessels, which led to the expansion of fishing grounds they could explore, thereby serving to exploit the 200-mile economic zone to the maximum extent.
(3) JFP provides fishing vessels with safe mooring berths and areas for repairing vessels, bunkering, and repairing fishing gear.
(4) As ice-making machines and refrigerators have come to be widely used, marine products can stay fresh and this has made possible more effective utilization of marine resources.
(5) The distribution system of marine products has improved, enabling fishermen, brokers and retailers to participate in fisheries distribution on an equal footing.
(6) The appearance of a fisheries industry site with infrastructure, including water and sewage treatment facilities, electricity, port and public freezing facilities, in place has provided an environment conducive to private capital investment.
(7) More than 40 thousand people are working at the JFP. If their family members are included, the JFP is supporting the lives of more than 150 thousand people.
(8) As much of the marine product processing industry requires manual work, the JFP provides stable work, particularly, for many women.
(9) Value added products by processing marine resources have contributed to increasing exports. Thus they help generate foreign currency earnings.
(10) The annual consumption of marine products per person increased from about 12 kilograms at the time the project was being planned to more than 20 kilograms today. The project has thus contributed to an increased intake of animal protein and a stable supply of food.
(11) The coastal promenade and fishing points at the revetment provide recreation spots for citizens.
(12) Mangrove and abundant green have created a good landscape.
(13) The modern sewage treatment facilities have served as a model for other ports. Local

phases and those planned in the Master Plan of 1988 but not realized in the Phase IV project were counted in, while the cost only included the O&M cost for those facilities; and (ii) actual port operation revenue might have been lower than estimated at the appraisal due to the above-mentioned decrease in total fish handling volume.

Japanese school students visited them in a field trip for social study.

(14) The unique water purification system and other facilities are used as teaching materials for college students studying civil engineering.

2. Sustainability

(1) In 1980 when work began, there was virtually no modern fishing port in Indonesia. The client had been well aware that human resources are an important factor for operating this modern port effectively, even if there was no quality problem in the construction work, as it was implemented by Japanese consultants and a Japanese construction company. The client hired people right out of college as the staff of the consulting team as well as the construction company for 4 years. These people subsequently remained as key members for operating the JFP, which seems to be the reason for its prosperity today. As they know every detail of the facilities, had pride in building them by themselves and love the JFP, their operations started with success.

(2) When the JFP was opened, fishermen landed their catches at scattered locations. Fishermen were relatively conservative, and they did not easily move to a new fishing port. The person in charge of this matter in the client provided a structure along the quay at affordable prices for shrimp processing operators who had been making their meager living in the back of the JFP. With almost no initial investment, they could start processing shrimp promptly and in a clean condition only by putting up simple partitions. After a few years, they built their own plants in the back of the JFP, effectively serving as a pioneer for the processing complex.

(3) In 1986, the Jakarta central fish market was set up inside the JFP compounds. This has helped to concentrate all marine products traded in the city in the JFP, elevating it to the center of trading marine products.

(4) Although catches had been traded from person-to-person since 1991, full-fledged auction was instituted, which started trading on an equal footing. Until then, gangster groups had been actively involved in trading.

(5) It was expected from the very beginning that subsidence will become a problem, given that reclamation took place on soft soil. Consultants designed countermeasures and succeeded in assisting the client to draw additional financing from the OECF. The request application had been submitted for 4 straight years running. Finally, at the 5th time, it was approved by the Japanese government, and the phase IV project was implemented. If there was no phase IV project, the JFP would have become a flooded with water and turned into a dirty fishing port.

(6) The consultants who had been involved since 1978 continued to work, paid attention to problems arisen at the JFP, and took measures to address them. This has led to the success of the project today.

(7) The client set up a state-run public fishery corporation for facilities that may be operated on a commercial basis, and let it manage the JFP and other 8 ports. Public facilities that do not

generate revenues have been operated and maintained directly by the government.

(8) As the phase IV project was completed, JBIC-funded consulting services are currently under consideration to improve O&M.

(9) Pumping groundwater from the surrounding areas resulted in subsidence at the depth deeper than the bearing strata of foundation piles. Thus the quaywalls supported by these piles sank by more than 50 centimeters in 20 years. In 2003, JBIC decided on a loan to take measures that deal with this problem.

Source: Report submitted to the award for development projects in commemoration of the 40th anniversary of the Engineering Consulting Firms Association, Japan (ECFA) (The project was commended by the award.)

2.4 Impacts

2.4.1 Increase in operation of fishery industry at JFP (Achievement of the overall goal mainly by the Phase IV project)

Although the current total fish handling volume shows a downward trend, the upgraded infrastructure of the port and industrial area of JFP attracted fishery industry. The number of private companies operating at JFP, including fishing and fish processing companies, ship-repair services, ice-makers, various shops and canteens, increased from over 10 in 1994 to over 100 with more than 10,000 employees in 2002. Accumulated private investment to JFP exceeds 20 billion yen[19] as of the same year, which is more than the total costs for Phase I-IV JFP development projects.

2.4.2 Contribution to national fisheries development (Achievement of the overall goal by the whole JFP development projects including earlier phases)

At the time of the appraisal, Indonesia's national fisheries development targets included the followings: (i) to increase export of fishery products (both food and non-food such as ornamental fish and pearl) to US$2.4 billion in 2002; (ii) to raise the GDP share of the fisheries sector from 1.8% in 1993 to 2.8% in 2002; and (iii) to increase annual per capita fish consumption from 6.2kg in 1994 to 19.2kg in 1998.

Actual performance of the fisheries sector by the time of the ex-post evaluation was as follows: (i) export of food and non-food fishery products is fluctuating at around US$ 1.6 billion, making Indonesia the twelfth largest fish exporter as of 2002; (ii) GDP share of the fisheries sector reached to 3.1% in 2001[20]; and (iii) annual per-capita fish consumption increased to 23.6kg in 2002.

[19] Estimated by the project consultant.
[20] At 1993 constant price.

Fish handling at JFP constitutes part of the above-mentioned statistics: fish handling volume at JFP accounts for 1% of the national fish catches of 5.6 million tons (the sixth largest of the world) in 2002, and the fish export value from JFP accounts for 5% of the national food fish export of US$ 1.5 billion in 1999. In looking at these statistics, however, it should be noted that a simple comparison of fish catches or values is difficult as they are generally unstable being affected by various factors such as natural conditions and international market.

2.4.3 Impacts on natural environment

There are no negative impacts of the dredging and the disposal of dredged soil on the surrounding area reported. Also, treatment of waste water from fish processing companies could have mitigated sea pollution, though data on the quality of sea water was not available.

In addition, mangrove trees planted on the west side revetment improved the landscape and promoted conservation of natural environment, while saving the cost for civil works.

Figure 12: Woman at wholesale market

Figure 11: West-side and east-side revetment

West-side revetment covered with mangrove trees

East-side revetment

2.4.4 Impacts on social aspects

(1) Creation of a place of recreation. One of the intended functions of JFP is to serve as a recreation area for people of Jakarta. The project improved the landscape of the east side revetment by constructing a wide footway, planting trees and flowers along the coastal road and around the impounding reservoir (where cleaned water in the port basin is discharged), as well as restoring the Indonesia's oldest lighthouse built in 1630. People were seen fishing, taking a rest under a tree and strolling along the coast.

(2) Contribution to poverty alleviation. JFP has increased employment opportunities: total population working at JFP, including management personnel, fisherpersons, employees for fish processing companies, wholesalers and retailers, shopkeepers, etc., exceeded 40,000 in 2002. In the beneficiary survey, 41% of the respondents working at JFP answered that their living conditions improved before and after the project, while 34% said there was no change. Given that the serious economic crisis hit the people during the project period, these answers could be interpreted that having a job at JFP enabled them at least to maintain their living conditions as before the crisis and thus contributed to the curb of the spread of poverty.

(3) Contribution to increased job opportunity for women. Many women are working at JFP, mostly either as employees of fish processing companies or tenants at shops or the wholesale market.

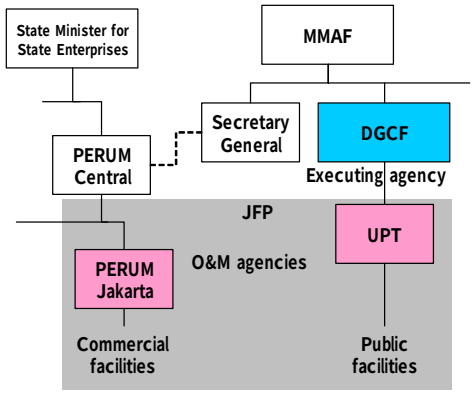
2.5 Sustainability

A certain extent of sustainability of outcomes and impacts of the JFP development projects including earlier phases was observed.

2.5.1 Executing agency and operation and maintenance (O&M) agencies

JFP is under the control of MMAF (executing agency), and operated/ maintained by UPT-PPSJ (UPT), MMAF's branch office, and PERUM-PPS Cabang Jakarta (PERUM), state-run public fishery corporation. From the following information, it is likely that these organizations have capabilities to operate and maintain the project facilities.

Figure 13: O&M organization chart



Source: MMAF

2.5.1.1 Technical capacity

Problems are not seen in the technical capability of UPT and PERUM for O&M of the project facilities, as most of them are basic infrastructures and utilities.

2.5.1.2 O&M system

O&M responsibility for JFP has been divided between the above-mentioned two management bodies since 1992: UPT responsible for public facilities and utilities and PERUM for commercial facilities. The current division of roles between the two organizations is defined in the Decree of Ministry of Agriculture No. 1082/Kpts/OT.210/10/99 about Working Relation between UPT and Other Institutions

Concerning Fishing Port Management (1999). The demarcation at present still follows this Decree, and is the same as the one proposed at the appraisal[21].

Information regarding operation of JFP is collected and reported to MMAF monthly. However, it was found in the survey that some information such as prices of tuna, volume of transaction at the wholesale market and investment and performance of private sector operating in the port premises is not complete.

2.5.1.3 Financial status

(1) UPT. As UPT is a government organization, its budget comes from the national budget. According to MMAF, the necessary annual O&M cost for the port facilities under the responsibility of UPT is estimated at approximately 1.6 billion Rp. The budgeted O&M expenses from UPT is 0.4 billion Rp for 2004, which accounts for 10% of its total annual budget or 25% of the above-mentioned necessary O&M cost. In addition to this budget, UPT can appropriate its port entrance fee income, which is once transferred to the national budget and then withdrawn on quarterly basis, to cover a deficit in O&M expenses[22]. In 2004, the estimated entrance fee income amounts to 5 billion Rp.

(2) PERUM. PERUM is run on a stand-alone basis. All port income excluding entrance fee belongs to it[23]. The O&M cost to be borne by PERUM is fully recovered by its port income, and annual operating profit remains in surplus of 2.9-4.9 billion Rp over these three years.

2.5.2 O&M status

According to UPT, the conditions of the project facilities are mostly good or fair except the following: (i) land settlement causing cracks in some buildings and floods on some of the old quays[24]; and (ii) some amount of reduction of water supply volume (leakage) between the relay pump station constructed by the Phase IV project and the reservoir constructed by an the government of Indonesia and rehabilitated by the Phase IV project. The former problem was confirmed in the site survey, but it will be dealt with by the JFP Rehabilitation and Improvement Project (Phase V) approved in 2004. As for the latter, investigation has not yet done.

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[21] However, some issues are reported such as lack of comprehensive O&M guidelines defining individual O&M works, ambiguity over responsibility for control of quaywalls and sanitation issues, etc. Therefore, JBIC has addressed MMAF several times to further clarify the division of O&M responsibilities between the two organizations.

[22] In 1999, collection of port entrance fee was transferred from PERUM to UPT.

[23] Port income includes rents, usage of facilities such as quaywall, cold storage, workshop and slipways and sales of necessities such as ice, fuel, water and oil.

[24] According to MMAF and the project consultant, the reason for the land settlement is over pumping of ground water in Jakarta City.

3. Feedback

3.1 Lessons Learned

3.1.1 The mangrove plantation on the west-side revetment of JFP was effective for realizing an environment-friendly and cost-saving port infrastructure. This was possible because the west-side revetment was located at the river mouth, where fresh-water and salt-water mix[25]. In this way, bank protection works could consider revetment covered with vegetation using species suitable for the environment of the site.

3.2 Recommendations for the Executing agency and O&M Agencies

3.2.1 MMAF and UPT might need to enforce regulation on port use more thoroughly for improved cleanliness and hygiene of the port and more efficient berthing of fishing vessels.

3.2.2 UPT and PERUM could consider taking measures to ensure fresh water for improving hygiene of the port and thus the quality of fishery products. Possible measure might include an investigation and control of the above-mentioned water loss and invitation of wastewater reuse plants or seawater desalination plants.

3.2.3 MMAF might need to take initiative in strengthening the system of information sharing and utilization among UPT, PERUM and private sector operating in JFP by fulfilling the current reporting system to MMAF. This would enable these entities to grasp the overall state of JFP more easily, and the utilization of such information would contribute to a better operation of the port as well as attract more investment.

[25] Mangrove trees grow in swamps that are covered with seawater at high tide.

Comparison of Original and Actual Scope

Item	Plan	Actual
1. Outputs		
1.1 Port facilities	Construction of -7.5m quay-wall, rehabilitation of revetment and breakwater, etc.	Mostly as planned Additional: replacement/ rehabilitation of bitts and fenders and breakwater
1.2 Buildings and utilities	Construction of sewage treatment plant, foul sea water cleaning system, sea water intake & supply, waste/ refuse disposal incinerator, etc. and upgrading/ expansion of drainage, water supply system, etc.	Mostly as planned Cancelled: incinerator Additional: Expansion of wholesale market, construction of multi purpose center buildings and canteens
1.3 Other related facilities	Rehabilitation of existing buildings, dormitory, fishing gear/ our fitting repair yard, etc.	Cancelled: dormitory and repair yard Additional: operation and maintenance equipment
1.4 Consulting services	Professional A: 122MM Professional B: 285MM	Professional A: 155.9MM Professional B: 477.8MM Additional: Development of Fisheries White Paper
2. Project Period		
1.1 L/A conclusion	Nov. 1993	As Planned
1.2 Selection of consultant	Dec. 1993 – Dec. 1994	Sept. 1994 – May 1996
1.3 Engineering	July 1994 – Oct. 1995	June 1996 – Apr. 1997 (Additional: Jul. 2001- Oct. 2001)
1.4 Tender/ contract	Oct. 1995 – Sept. 1996	Nov. 1996 – Mar. 1998
1.5 Construction	Oct. 1996 – Sept. 1998	Apr. 1997 – June 2001 (Additional: Nov. 2001 – Oct. 2002)
3. Project Cost		
Foreign Currency	2,467 million yen	2,508 million yen
Local Currency	2,250 million yen (38,138 million Rp)	1,611 million yen (102,822 million Rp)
Total	4,717 million yen	4,108 million yen
ODA Loan Portion	4,009 million yen	3,960 million yen
Exchange Rate	1 Rp = 0.059 yen (as of 1993)	1 Rp = 0.016 yen (average rate from 1995 to 2002)