

**MID-TERM REVIEW REPORT OF ON-GOING  
JAPANESE ODA LOAN PROJECTS 2008  
(INDONESIA)**

**JANUARY 2010**

**JAPAN INTERNATIONAL COOPERATION AGENCY**

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**SANSHU ENGINEERING CONSULTANT**

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## Preface

Ex-post evaluation of ODA projects has been in place since 1975 and since then the coverage of evaluation has expanded. Japan's ODA charter revised in 2003 shows Japan's commitment to ODA evaluation, clearly stating under the section "Enhancement of Evaluation" that in order to measure, analyze and objectively evaluate the outcome of ODA, external evaluations conducted by experts shall be enhanced.

This volume shows the results of the mid-term review for 4 on-going Japanese ODA loan projects, the loan agreements of which were signed mainly 5 years ago. The mid-term review was entrusted to external evaluators to review the projects' relevance, implementation progress, attainability of project objectives, and to examine internal and external factors affecting them.

The findings drawn from these review will be shared with JICA's stakeholders in order to improve project implementation and effectiveness.

Lastly, deep appreciation is given to those who have cooperated and supported the creation of this volume of evaluations.

January 2010

Atsuo KURODA

Vice President

Japan International Cooperation Agency (JICA)

## Disclaimer

This volume of evaluations shows the result of objective ex-post evaluations made by external evaluators. The views and recommendations herein do not necessarily reflect the official views and opinions of JICA.

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Japanese ODA Loan Mid-Term Review Report  
Project Type Sector Loan for Water Resources Development (II)

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Field Studies: May 2009 - July 2009

1. Project Profile



Location of Project Site



Batang Angkola Irrigation Aqueduct Bridge

1.1 Objective

The objective of the project is to enhance food production, for the self-sufficiency of rice through construction/development of medium-size irrigation facilities in western and central Indonesia, thereby contributing to poverty alleviation and strengthening production infrastructure in rural agricultural lands. The project location is shown in Figure 1.

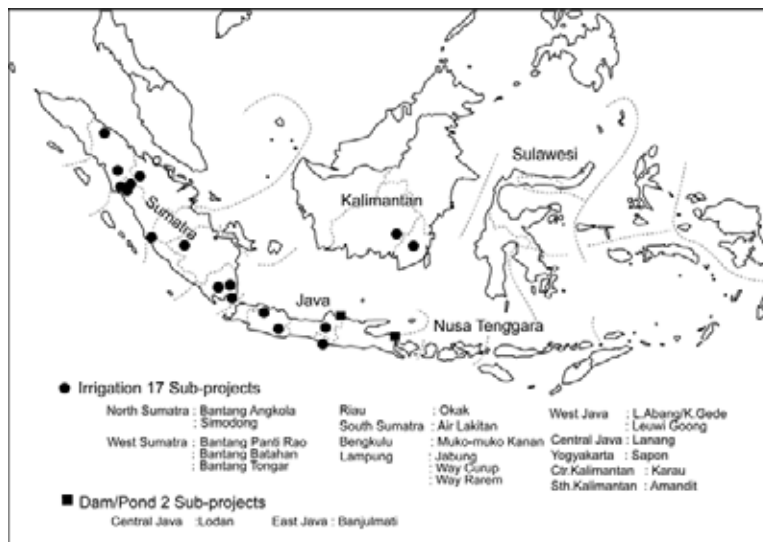


Figure 1 Location of the Project Sites

## 1.2 Outline of Loan Agreement

Loan Amount/Disbursed Amount (as of July end 2009)	18.676 billion yen / 14.054 billion yen (as of July 2009)
Loan Signing/Closing Date	July 2001 /December 2011
Terms and Conditions - Interest rate - Repayment period (grace period) - Procurement	1.8%, 30 years (10 years), General untied and Consultant: 0.75%, 40 years (10 years), bilateral tied
Borrower	Government of Indonesia
Executing Agency	Directorate General of Water Resources (DGWR)
Consultant Services	Nippon Koei Co.
Feasibility Study	JICA Technical Study 「Water Use Association Promotion Study」, February 2000 – December 2001

## 1.3 Background

Under the project, numerous small size subprojects have been implemented. Due to cost increase and farmer's disagreement to the conversion to paddies, the scope of subprojects has been reduced. Thus, it is essential to analyze these impacts which may exert on efficiency and effectiveness of the project and recommend the actions to be taken. Taking this project as a target for mid-term review, the project was reviewed in terms of evaluation criteria based on the results of field surveys and conclusions were derived.

## 2. Mid-Term Review Results

### 2.1 Relevance

#### 2.1.1 Consistency with national/government policies

Under the 5-year National Development Plan (Propenas 2000-2005), which was valid at the time of project appraisal, aiming at "poverty alleviation and fulfillment of basic national demands", the agricultural development was classified as a priority agenda. Particularly, increase of agricultural production, diversification of agricultural products, which meet the agroindustry's demand, and increase of farmer's income were major policy agendas, and thus increase of rice production and diversification of horticultural crops has become more important.

On the other hands, under the currently valid Medium-Term Development Plan (Rencana Pembangunan Jangka Menengah: RPJM 2004-2009), revitalization of agriculture is classified as an important agenda in order to support development of national economy and realize self-sufficiency in food. As an action to be taken for revitalization of agriculture, a program addressing development and maintenance of irrigation networks, wetlands and irrigation channels has been established, and aims at: i) enlightment farmers; ii) strengthening of organizations, which are responsible for operation and maintenance of

irrigation facilities; iii) optimization of irrigated areas and wetlands, which have been already developed, and iv) promotion of citizen's participation. The Indonesian government has a priority target under RPJM, which aims to increase the growth rate of the agriculture sector to 3.5% per annum by 2009, increase farmer's income and enhance national welfare. The objective of the project is still consistent with the national policies and plans.

### 2.1.2 Consistency with development needs

At appraisal, rice deficit caused by increase of rice consumption due to increase of population and income, and reduction of farm lands in Java was an unsolved main issue for a long time in Indonesia. Food, particularly self-sufficiency of rice was one of pillars of national policies, and thus development of irrigation facilities to achieve the self-sufficiency was a high-priority agenda. The self-sufficiency rate as of 2003 was 97.9 % (FAO STAT Food Balance Sheet). President Yudhoyono (reelected in July 2009) announced the plan, in which by 2008 the rice import would be reduced and the self-sufficiency rate would be heightened by increasing the domestic production, and declared that the rice production of 55 million tons in 2004 would be increased to 61 million tons per year by 2008.

This project intends to increase the farmer's income through enhancing the agricultural productivity and alleviating poverty. Even though about 677 ha farmlands are irrigated in Indonesia, the irrigation rate in farmlands greatly varies by region. Moreover, in the 25% (about 167 ha) of farmlands, the irrigation facilities are not properly functioning, and in Java and Sumatra about 30% of irrigation facilities have been deteriorated. In addition, about 35,000 ha irrigated farmlands have been converted to non-agricultural lands every year in Java. Taking into account the current condition, this project is consistent with the development needs.

The project objective was/is consistent with the national development policies and strategies and development needs both at appraisal and at post evaluation, and thus the relevance of the project is high.

## 2.2 Efficiency

### 2.1.1 Outputs

The project is consisted of the following two components.

- (a) Civil Works: Construction of irrigation drainage and dams
- (b) Consulting Services: Studies/designs, consulting services on the project implementation (quality control and funding management, review of civil work designs, assistance/guidance/advice on P/Q and tendering activities, preparation of an operation and maintenance manual, implementation of baseline surveys on socio-economic status, environmental protection related work),



Way Curup Secondary Channel



Lemah Abang Tertiary Channel

### (1) Progress of Civil Works

Since the project commencement, it was foreseen that the estimated project cost would exceed the originally estimated cost, three subprojects have been suspended from the project. The total number of subprojects is now 16. Regarding the progress of civil works under 16 subprojects as of October 2009, 10 subprojects have been completed and 2 projects have achieved more than 80 % progress. Among remaining 4 subprojects, the progress of 3 subprojects is between 60% and 80% and one project will be soon commenced after the tendering process to be completed by end 2009 since the extension of the loan closing date was concurred. The implementation of the project has been delayed and thus continuing supervision for acceleration is essential.

Among 16 subprojects, the scope of work has been reduced in 10 subprojects. It was noted that there are 6 subprojects, in which the irrigated area upon completion would be reduced by more than 30% of the original plan, Main reasons for substantial reduction are disagreement to the conversion to paddies due to increase of price of palm oil and lubber, increase of construction costs, and design changes based on design review. Even though the project objective has not changed due to reduction of irrigated area, review of monitoring indicators established at appraisal to assess the achievement of the objective would be needed.

### (2) Consulting services

The implementation progress of consulting services as of October 2009 is as follows:

- Construction supervision: Among 6 subprojects, works under 8 packages are being supervised.
- Design review: Designs for all the subprojects (19 sites) were completed in December 2005.
- Assistance/guidance/advice on P/Q and tendering activities: Regarding 15

subprojects, it was implemented during August 2003 – September 2006. With the extension of the loan closing date, that for the Lanang subproject, which was decided to be included in the project was implemented during May – September 2009.

- An operation and maintenance manual: under preparation. Almost completed by October 2009.
- Baseline surveys on socio-economic condition: implemented in 2003.
- Environmental protection related services (four items): completed by December 2005.

Additional assignments:

- Designs and construction supervision of reconstruction works due to the Yogyakarta Earthquake: completed in December 2006.
- Formulation and design review for the newly proposed Participatory Irrigation Rehabilitation Improvement Management Project (PIRIMP): completed in December 2006.
- Bridging consulting services for PIRIMP: almost completed by end October 2009.

## 2.2.2 Project period

The original implementation schedule and the revised schedule at the mid-term review (after the loan closing date was extended) by item are shown below.

Item	Originally planned	Proposed revised schedule at Mid-term
Selection of consultant	May 2001 - October 2001	September 2001 - February 2002
Consulting services	November 2001 - December 2006	March 2002 - July 2011
Detailed designs (SID)	February 2002 - November 2002	December 2003 - December 2005
Civil works including procurement	November 2002 - November 2006	February 2004 - June 2011
Retention	November 2006 - October 2007	July 2011 - December 2011

Main reasons for delay of implementation are as follows:

- a) Selection of consultants: commencement of procurement process for consulting services was delayed.
- b) Consulting services: The review was originally planned only on the critical /important sections of subprojects. However, since the quality of the original implementation plans, surveys, and designs was not sufficient, the review needed to cover more sections/subprojects and caused delay in the implementation schedule.



Additional survey works due to design changes and the extension of civil work implementation schedule are other reasons for delay.

- c) Detail designs: Due to substantial design changes, it took more time to define the scope of work by the executing agency.
- d) Civil works: External factors for the delay include occurrence of natural disasters (earthquake and flooding), and funding problem of contractors due to price increase of fuel and materials in 2008. Internal factors for the delay include delay of design review work, continuous design changes, delay of payment to contractors because of disagreement on amendment of price increase due to inflation and land acquisition.

## 2.3 Effectiveness

### 2.3.1 Quantitative impact

#### (1) Operational indicators

The operational effectiveness indicator established at appraisal was irrigated areas (ha), and effectiveness indicators were production quantities of rice and corn. At the time of mid-term review, these indicators were reviewed and new operational indicators, which reflect more properly the current condition, were established. Actual figures confirmed and the proposed indicators were established based on the consequence of confirmation with executing agencies and supervision consultants, review results of the detailed designs, suspension of three subprojects from the project, and review results of the reduced project scope. As monitoring indicators, in addition to production quantity, measurable indicators such as unit yield, rice cropping intensity, average annual income per household, agricultural gross income per household, and WUA covering ratio<sup>1</sup>, were additionally proposed. With respect to production quantity, at appraisal, corn was also included as an indicator. However, since there are numerous subprojects without any cultivation of corn, it is also suggested to exclude this item from indicators.

Indicators	Baseline at appraisal (2000)	Original Targets (at project completion: 2007)	Actual at Mid-Term Review (July 2009)	Proposed Targets at Mid-Term Review (December 2013, 2 years after project completion)
Irrigated area (ha)	32,358 <sup>1</sup>	92,249 (78790) <sup>2</sup>	22,506	61,816
Rice production (ton)	250,565	471,552	286,175	434,161
Unit yield: average. (ton/ha/season)	3.6	4.5	3.3	4.6
Rice cropping intensity: average (%/year)	109	172	125	187
Average annual			9.87	15.17

<sup>1</sup> Referring to answers from DGWR to the questionnaire made from the mid-term review team

income per household (Rp.mil)				
Agricultural gross income per household (Rp.mil)			5.12	10.32
WUA covering ratio (%)		100	38.7	100

Note 1: From attachments to appraisal documents

Note 2: Exclude 3 subprojects (B.Batahan, Jabung and Leuwi Goon), which have been suspended from the project.

Note 3: Other figures are from responses from DGWR

Note 4: Regarding average annual income per household and agricultural gross income per household (baseline established at mid-term review), interview surveys with 200-250 farmers of each subproject were made on their income and the average income was calculated.

Note 5: Targets established at mid-term review were estimated by dividing the estimated total household income and household agricultural gross income upon project completion by the number of farmers surveyed in the field.

The project implementation status is shown by status of progress (completed and under implementation) and operation and effect indicators in varied implementation stages were analyzed: Baseline at appraisal (2000); Original targets at appraisal (at project completion: 2007); Actual at Mid-Term review and Proposed targets at Mid-Term review (Project completion: December 2013).

- 1) Subprojects which have been completed as of October 2009 (Simodong, Batang Tonger, Panti Rao, Way Curup, Way Rarem, Lemah Abng, Lodan, Sapon, Bajulamti, Amandit)

Even though the target (2007) for the irrigated area for 10 subprojects established at appraisal was 50,963 ha, an actual figure of the irrigated area at this moment is 22,206 ha. Since these subprojects have been recently completed, the actual figure of the irrigated area is about half of the targets made at appraisal. However, the rice production is reduced by only 9%, and this confirms that the productivity was improved. Main reasons for less irrigated area are conversion of irrigated area to other purposes, and change of project scope at the project sites.

Indicators	Baseline at appraisal (2000)	Original Targets (at project completion: 2007)	Actual at Mid-Term Review (July 2009)	Proposed Targets at Mid-Term Review (December 2013, 2 years after project completion)
Irrigated area (ha)	27,624	50,963	22,206	45,886
Rice production (ton)	153,961	270,063	236,930	307,785
Unit yield (ton/ha/season)	3.5	4.7	3.8	4.6
Rice cropping intensity (%/year)	105	167	139	186
Average annual income per household (Rp.mil)			10.93	15.50
Agricultural gross			6.46	11.04

income per household (Rp.mil)				
WUA covering ratio (%)		100	55	100

2) Subprojects under implementation as of October 2009 (Batang Angkola, Air Lakitan, Muko-muko Kanan, Lanang, Karau)

Even though the target (2007) for the irrigated area of 6 subprojects established at appraisal was 27,827 ha, an actual figure of the irrigated area at this moment is 2,300 ha. Main reasons for reduction of the irrigated area are: disagreement to conversion to paddies due to price increase of palm oil and rubber, increase of construction costs, and design changes based on design review. Reduction of the irrigated area will not much affect the project objectives. Subprojects are still under implementation and the rice production at this moment is about 25% of the targets.

Indicators	Baseline at appraisal (2000)	Original Targets (at project completion: 2007)	Actual at Mid-Term Review (July 2009)	Proposed Targets at Mid-Term Review (December 2013, 2 years after project completion)
Irrigated area (ha)	4,734	27,827	2,300	15,930
Rice production (ton)	96,604	201,489	49,245	126,376
Unit yield (ton/ha/season)	3.3	4.1	3.2	4.6
Rice cropping intensity (%/year)	111	183	101	188
Average annual income per household (Rp.mil)			8.11	14.62
Agricultural gross income per household (Rp.mil)			2.87	9.14
WUA covering ratio (%)		100	12	100

### (3) Internal rate of return

EIRR at appraisal was 19.3%. EIRRs of 16 subprojects, which have been completed or under implementation, are 3.6% at minimum (Air Lakitan) and 53.1% at maximum (Lemah Abang) with the average EIRR of 17.6%.

#### 2.3.2 Qualitative impact

In the meetings with farmers at the project site, it was learned that the household income has increased with the growth of rice production upon project completion. However, since the data to verify the change of poor households by subproject was not available, contribution of the project to poverty alleviation has not been assessed at the mid-term review.

## 2.4 Others (Items which affect project outcome, operation and maintenance)

### 2.4.1 Coordination with NGO, local universities.

There has been no coordination with NGO and local universities under this project.

### 2.4.2 Coordination with the grant aid and technical assistance

No coordination was confirmed with the following two projects: i) “Study on Transfer of Control to Water Use Associations (WUAs)” conducted by JICA during February 2000-December 2001, under which a plan was developed to establish and strengthen WUAs and to develop plans for improvement of water control and facilities maintenance, aiming at transfer of control to WUAs for irrigation facilities; and ii) “A Plan for strengthening WUAs in Indonesia”, conducted during April 2004-March 2006. There would be no impacts on project effectiveness and maintenance.

### 2.4.3 Coordination with other donors

There has been no coordination with other donors.

### 2.4.4 Environmental impact

Regarding the environmental issues during the project implementation, awarded contractors are obliged to take necessary measures, and it is stated in the contract that an environmental management plan is to be submitted by the contractors before commencement. With respect to environmental protection in the field, a project manager of the employer and consultants monitor under the supervision work, and provide guidance. Environmental impact studies on eight subprojects under the scope of work for consultants were undertaken during 2002-2005. The land acquisition and resettlement activities under the project have been completed and alternative lands have been provided or compensation has been paid to the people resettled. Thus, the original life quality before the project commenced has been restored and no particular issues on resettlement have been reported.

### 2.4.5 System, technical capacity, and financial status for operation and maintenance

#### (1) Operation and Maintenance

In 2004, the Indonesian government amended the law on water resources, and it was decided that among the operation and maintenance functions of irrigation facilities, the central and local government would be in charge of main and secondary channels and the water use associations (WUAs) in charge of tertiary channels. The policy under which the irrigation service fee (ISF) was to be collected was abolished. Regarding budget allocation/funding, the central and local government would be responsible for primary irrigation facilities including dams and gates, and main and secondary channels, and WUAs (farmers) responsible for maintenance of tertiary irrigation facilities (including third channels) with the financial assistance from the central and local government. Water use

associations have been established under the subprojects (7 subprojects) which were already in six months to one year upon completion, and almost 100% of farmers have become an association member. WUAs are managed by the united WUA in each region, and the Federal WUAs (upper unit integrating several WUAs) and WUAs (bottom unit) responsible for routine maintenance work, removal of deposited materials and simple repair works. In addition, they are partly in charge of secondary channels by providing labors.

## (2) Technical capacity in operation and maintenance

For a while until the new system works well, several relevant regional organizations in the irrigation sector are jointly responsible for coaching and strengthening operation of WUAs. In the established objectives of WUAs, training to members on cropping/planting and other agricultural works is included, and training programs are regularly implemented. (This fact was confirmed through interviews with WUA members)

## (3) Financial status on operation and maintenance

ISF has not been collected (at least since 2007) and the central and local government provides budget for operation and maintenance of main and secondary channels. In case of the Balai Besar Wilayah Sungai Mesuji-Sekampung in Lampung, which is in charge of Way Curup and Way Rarem subprojects, the operation and maintenance budget is provided by the central government since the benefited area is more than 3,000 ha. The budget is directly allocated to the state budget. The budget is distributed to each subproject through the state maintenance office (Balai Kecil), which is located in each region, and about Rp. 150,000/ha was paid in 2009 fiscal year.

In Way Rarem, 120,000 Rp./ha was distributed in 2008. Its 60% was used for routine operation and maintenance work, 27.5% for periodic maintenance works, 10% for procurement of materials and 2.5% for general administration expenses. According to the field maintenance office, 250,000 Rp./ha is needed for proper operation and maintenance.

Regarding maintenance of terminal irrigation facilities (including third channels), 100kg unhulled rice/ha/crop<sup>2</sup> (valued at about 250,000 Rp.) is collected from association members and collected money is used for maintenance. In case of Way Rarem, no change in productivity per hectare is observed. However, the cropped area was increased by 2,000 ha and the total production was increased. The amount to be provided by a member varies by WUAs. In case of Way Curup, 40kg unhulled rice/ha/crop is collected and thus, rice valued at about 200,000 Rp. is collected since cropping twice a year is feasible. In Way Curup, production was increased from 4 tons/ha (one crop per year) to 6 tons/ha (two crops per year). The current rice price to be purchased by the government is about 2,500 Rp./kg. However, the government sells rice taking into consideration the swing of market price. In Sapon, an association fee is collected from members in cash (70,000 Rp./crop with 2-3 crops/year).

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<sup>2</sup> 100 kg unhulled rice per ha is collected per crop.

The WUAs in these three subprojects are currently functioning well and thus, no maintenance issues have arisen. However, since in the long term basis, major rehabilitation works are expected, monitoring of the maintenance condition needs to be continued.

Among the subprojects visited, it was confirmed that in Lemah Abang, the concept/system of WUAs has not been working well. In 2005, when the work was almost complete, 25 kg unhulled rice/ha was collected. However, since irrigated water was not later supplied during the construction period of main channels under other projects in the project area, the WUA system did not function. Then, instead of collecting unhulled rice, the WUA changed the system in which farmers provide labors to maintain the secondary channels. Currently, WUA members are engaged in routine maintenance work at least 7 days per every quarter. The work, which needs construction material is undertaken with some financial assistance from the local government.

### 3. Conclusion, Lessons Learned, and Recommendations

#### 3.1 Conclusion

The stable supply of food based on the increase of rice production is a critical political agenda in Indonesia, and thus, the relevancy of the project with national policies and development needs is high, therefore the project needs to be further supported. On the other hand, since procurement of consultants and implementation of civil works have been substantially delayed, further acceleration of the project implementation is needed. Regarding operation and effect indicators, current indicators need to be reviewed and revised with reduction of the project scope. Since WUAs would play an important role in order to establish a sound operation and maintenance system, their functions need to be further strengthened.

#### 3.2 Recommendations

##### 3.2.1 Recommendations to executing agencies

(1) One of reasons for delay of the project implementation is that the cash flow of contractors was affected due to delay of payment by the employer. The delay of payment was caused by that counterpart funds were not allocated corresponding to the planned implementation schedule. Since at the appraisal stage, the implementation schedule and disbursement plans corresponding to the implementation schedule are established. The implementation schedule and the budget disbursement plan need to be strictly practiced. However, when compliance with plans/schedule is not feasible, both implementation and disbursement schedules need to be reviewed and revised as needed. During the project implementation, review needs to be continued and the implementation needs to be monitored so that payment to contractors can be proceeded corresponding to progress of work

##### 3.2.2 Recommendations to JICA

(1) Due to reasons stated in 2.2.2 Project Period, the project implementation has been substantially delayed. The project is implemented under the sector loan instrument, and the project sites are spread over in 3 islands and 19 sites, where each subproject has huge benefited area. Since the project subject area is huge, the information to be obtained from progress reports should be fully utilized, and the progress and issues could be timely recognized so that issues can be promptly handled. In addition, in order to enforce the project monitoring, it is suggested that local individual consultants be hired to monitor the progress of all subprojects in the field once or twice a year (twice a year at the early stage of implementation) so that issues can be timely recognized and actions to be taken can be proposed.

(2) Regarding the effectiveness and sustainability of the project, how the water use associations (WUAs) to be established upon completion of the project will function is a key point. As part of the consulting services under this project, the baseline surveys on socio-economic status were conducted in 2003. Since more WUAs have been established as more subprojects are completed, studies on actual status of WUAs established need to be undertaken in one year after completion, and the further assistance (particularly, the training program for association members) needed to be planned to strengthen the WUA setup. Items to be studied shall include: ①organizational setup of WUAs; ②number of members; ③ number of farmers and households in the subject region; ④operations/activities of the WUA; ⑤budget, income and expenditures, financial status; ⑥relations with upper FWUAs and regional government institutes; ⑦items of maintenance works for irrigation channels; ⑧ amount of rice production; ⑨area of owned paddies; ⑩problems the WUA faces. Since each subproject involves several hundreds of farmers, the sampling rate could be about 10% of farmers in all subprojects (at least 1,000 farmers). If other aid agencies (World Bank and ADB) are implementing projects involving components for strengthening WUAs in the same region, the scope of assistance (particularly contents of training programs) needs to be clarified, and the relations with this project needs to be analyzed. Results of analysis should be incorporated in preparation of further assistance program.

(3) As stated in the above 2.3.1, adequacy of operational indicators was reviewed taking into account the current implementation status. The background for its review is: that the land acquisition did not progress as planned; and that the land use has changed from proposed rice paddies to other purposes. These situation and changes could not be predicted at the appraisal stage. It is suggested that monitoring indicators to be adopted at the ex-post evaluation stage should be discussed and agreed between JICA and executing agencies based on the results of the mid-term review.

Republic of Indonesia

Japanese ODA Loan Mid-term Review Report

Water Resources Existing Facilities Rehabilitation and Capacity Improvement Project

Evaluator : Hiroshi AOKI

Sanshuu Engineering Consultant

Field Studies : May 2009 – July 2009

## 1 . Project Profile



Location of Project Site

Upper Solo River Protection • Revetment

### 1.1 Objectives

The objectives of the project are to restore the functions of existing facilities of completed Japanese ODA loan projects (hereinafter called as "the Project") in the water resource sector and to improve and strengthen operation and maintenance (O/M) organizations through rehabilitation of urgent and necessary facilities and assistance for enhancing abilities of O/M organizations, thereby contributing to assuring sustainability of the completed projects. The project location is shown in the Figure 1 and 2.

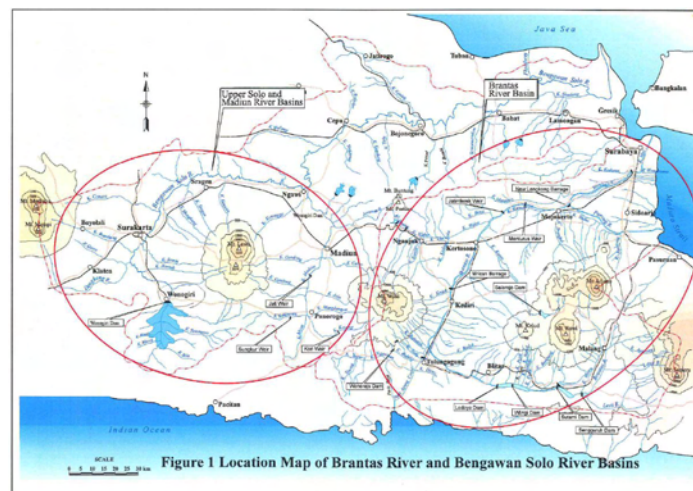




Figure. 1 Location of Solo River & Brantas River Basin



Figure. 2 Location of Ular Irrigation

1.2 Outline of Loan Agreement

Loan Amount	14,696million yen
Loan Signing/Closing Date	October 2002/February 2011
Terms and Conditions -Interest rate -Repayment period (grace period) -Procurement	Construction works: 1.8 %, 30years (10 years), General untied Consulting Service: 0.75%, 40 years(10 years), bilateral tied
Borrower	Government of Indonesia
Executing Agency	Ministry of Public Works, Directorate General of Water Resources (DGWR)
Construction Work Contractor	PT. BRANTAS ABIPRAYA (Indonesia) • PT. HUTAMA KARYA (Indonesia) • PT.NINDYA KARYA (Indonesia) • PT.PEMBAN GUNAN PERUMAHAN (Indonesia) ,PT.ADHI KARYA (Indonesia) • PT. WASKITA KARYA (Indonesia) • PT. WIJAYA KARYA (Indonesia) • PT.ISTAKA KARYA (Indonesia)
Consulting Services	Nippon Koei, Co. Ltd. (Japan) • YACHIYO ENG. CO. (Japan) • NIKKEN CONSULTANTS, INC. (Japan) • PT. TATA GUNA PATRIA (Indonesia) • PT.TRI

	TUNGGAL KONSULTAN (Indonesia)
Feasibility Study	SAPS “Assistance Effectiveness Promotion Study on Rehabilitation Projects of Karangates Dam Construction Project and others”

### 1.3 Background

The project faced cost increase and extension of construction period due to flood damage of the Solo River basin during construction. Thus, it is essential to analyze these impacts, which may exert on efficiency and effectiveness of the project and recommend the actions to be taken. Taking this project as a target for mid-term review, the project was reviewed in terms of evaluation criteria based on the results of field surveys and conclusions were derived.

## 2. Mid-term Review Results

### 2.1 Relevance

#### 2.1.1 Consistency with national/government policies

The Five Year National Development Plan (Propenas;2000 – 2004), which was valid at the time of appraisal, stipulated the following five items as important agendas: 1) security assurance, political renovation, and democracy, 2) legal renovation and improvement of public sector management, 3) economic recovery and sustainable economic growth, 4) improvement of social services, and 5) de-centralization and poverty reduction. In the economic recovery program, it was planned to maintain the function, by rehabilitation and improvement, of existing infrastructure in “Program to Maintain Service Level of Public Facilities and Infrastructure” . “Development and Management Program for Water Resources” targeted increase of food production and promotion of agri-business by expansion of water resources and improvement of water system management. The program also emphasized that the water system organizations of local farmers in cooperation with provinces, prefectures and city governments, and managed water systems, thus creating fair water supply systems and appropriate water management organizations and agencies.

Under this policy, the Government of Indonesia had been making efforts to renovate the water resource sector. More specifically, they focused on the following areas: 1) improvement of legal structures related to the National Policy on water resource development and management, 2) improvement of laws and ordinances of organizational and financial system on comprehensive river basin, 3) establishment of effective regulations and implementation systems for water quality improvement and river basin water quality management, and 4) improvement of legal systems

pertaining to irrigation system management policy.

As for the operation and maintenance (O/M) of the irrigation sector, the Indonesian Government amended the irrigation management and irrigation service fee (ISF) policy in 1998. Water Users Associations (WUA) were entitled to collect and manage irrigation fees, which would be used for O/M of irrigation facilities. It was also planned to expand scope of WUA's O/M by organizing WUA federations (WUAF) and introducing joint O/M with regional governments and WUA for trunk irrigation facilities.

Furthermore, RPJM 2004-2009, which is the valid National Plan at mid-term review (March 2009), has three important objectives: 1) Forming a society based on fairness and justice, 2) Realization of a safe and peaceful country, and 3) Realization of a both economically and socially affluent society. Especially, in terms of the third objective, they emphasized promotion of investment and export, job creation, poverty reduction and economic growth. One of the ways to achieve economic growth was revitalization of agriculture, forestry and fishery industries, and development of infrastructure, roads, and irrigation system in rural areas are considered vital. In the light of this situation, the objective of the project is still consistent with the national policies and plans. The Strategic Plan of water resource management is stipulated by the Minister of Public Works Decree No. 51/PRT 2005 dated March 7, 2005. In relation to flood control, the decree mentions the following activities; 1) to protect the residential and production center (agriculture and industry) areas from 10 years return period flood (the target area is about 10,000 ha and the budget requirement is about Rp. 876,000 billion); and 2) to improve and maintain 1,500 km of river course (the budget requirement is Rp. 56.0 billion).

The activities in water system management area to support a safe and peaceful society are classified as the following: 1) Rehabilitation of irrigation area, 2) Increase of water supply, 3) Construction of wells to use ground water in remote areas, 4) Program to support formulation of WUA, and 5) Program for strengthening of WUA. In addition to it, the programs for improving welfare of people include the following activities and have their planned budget: 1) Irrigation system improvement, lake irrigation system improvement; and 2) Construction of irrigation ponds and rehabilitation and maintenance of man-made and natural lakes and ponds. Thus, the objectives of the project are consistent with current Indonesian national policy and plans.

#### 2.1.2 Consistency with development needs

The development needs of the water resource sector at the time of appraisal were the followings:

##### **【River Management】**

The legal and organizational structures have been discussed to establish State and Provincial level

institution for river basin management including water allocation, fees for water supply, and water quality monitoring. Public corporations for the sustainable management of water resources have been introduced for major and important river basin. The Brantas River Management Corporation for the Brantas River basin (Perm Jasa Tirta: PJT1) was established and has operated comprehensive and independent O/M of the river basin since 1990. The Indonesian Government was considering the introduction of river basin management by public corporation for major six rivers. It was pointed out as an issue that the legal structures to establish river basin management organizations consistent with decentralization policy implemented since 2001 as well as to reinforce stable management bases of such public corporations are keys to success.

#### **【Irrigation】**

At the time of appraisal, rice deficit caused by increased rice consumption due to population and income growth and reduction of farm lands in Java was exposed as a structural crisis. Food security, especially self-sufficiency of rice, was one of the pillars of national policy, and thus development of irrigation facilities to solve this problem was high-priority. The law on management of the irrigation sector was prepared based on decentralization and the above irrigation management policy. The challenges were clarification of the role of central and regional governments and strengthening capacity of WUA and the water users' association federation (WUAF) after transferring irrigation management to WUA and WUAF.

On the other hand, the needs for water resource sector at the time of mid-term review (July 2009) are identified as follows:

#### **【River Management】**

As for assistance needs for O/M capacity development, though the transfer of authority for water resources management and operation including clarification of the role and responsibility of the central, province, prefecture and city government was promoted based on the decentralization policy, necessary budget allocation and transfer of maintenance technology were not sufficient. In fact, Brantas River Management Public Corporation (PJT1) and Solo branch, which are responsible bodies for the O/M of the project, activities are limited to daily and periodical maintenance due to lack of budget. Large scale repair and improvement depend on other financial sources such as loans. The training of staff for O/M has not been sufficiently practiced, again due to the lack of a sufficient budget.

#### **【Irrigation】**

President Yudhoyono (reelected in July 2009) announced the plan to reduce the rice import by 2008 and to increase the self-sufficiency rate by expanding domestic production, and declared to

increase the current rice production of 55 million tons per year to 61 million tons per year by 2008. Development of irrigation facility is necessary to achieve this commitment, however, the irrigation rate in farmlands greatly varies by region while about 6.77 million ha farmlands are irrigated in Indonesia. Moreover, in the 25% (about 1.67 million ha) of farmlands, the irrigation facilities are not properly functioning, and in Java and Sumatra about 30% of irrigation facilities have deteriorated due to insufficient O/M activities. As for O/M capacity, farmers (WUA) who are responsible for tertiary irrigation facilities have growing needs for assistance of O/M capacity development while transfer of irrigation management authority and assets to prefecture and regional government and WUA based on decentralization policy since 1999.

In conclusion, the Project is consistent with the national development plan and development needs both at the time of appraisal and mid-term review and thus, the relevance of the project is high.

## 2.2 Efficiency

### 2.2.1 Output

The output of the project is composed of two elements: 1) Civil works and 2) Consulting services.

#### (a) Civil Works

The civil works of the project are 1) Solo River basin located in the Central and East Java Province, 2) Brantas River basin in East Java Province, and 3) Irrigation project in North Sumatra. The contents of civil works are shown in the Table-1.

Table-1 Civil Works and Progress (as of July 2009)

River basin	Work Items (Appraisal)	Work Items (Mid-term Review)	Progress (July 2009)
1) Central/East Java: Solo River Basin	① Solo river basin improvement *Upper Solo river protection/repair *Madiun river protection rehabilitation *Rubber gate repair	① Solo river basin improvement * Upper Solo river protection/repair *Madiun river protection rehabilitation/ Rubber gate repair	Ongoing Ongoing
2) East Java: Brantas River Basin	② Karangates multipurpose dam (reservoir sedimentation problem) *Procurement of a dredging machine *Construction of Sabo dam *Improvement of revetment at spillway plunge	② Karangates multipurpose dam (reservoir sedimentation problem) * Procurement of a dredging machine (cancelled, note 1) * Construction of Sabo dam * Improvement of revetment at spillway plunge	Completed Completed
	③ Wlingi multipurpose dam (reservoir sedimentation problem) * Procurement of a dredging machine * Construction of Sabo dam *Construction of bypass channel	③ Wlingi multipurpose dam (reservoir sedimentation problem) * Procurement of a dredging machine * Construction of Sabo dam * Construction of bypass channel	Completed Completed Ongoing
	④ Brantas Middle Reaches river improvement	④ Brantas Middle Reaches river improvement	

	* River protection/repair *Repair of intake weir for irrigation	* River protection/repair * Repair of intake weir for irrigation	Ongoing Completed
	⑤ Porong improvement * River protection/repair	⑤ Porong improvement * River protection/repair	Ongoing
	⑥ Mt. Kelud Sabo dam repair *Construction/rehabilitation of sabo dam	⑥ Mt. Kelud Sabo dam repair * Construction/rehabilitation of sabo dam	Completed
3) North Sumatra : Ular Irrigation	⑦ Ular irrigation rehabilitation *Intake weir for Ular irrigation *Link canals construction	⑦ Ular irrigation rehabilitation * Intake weir for Ular irrigation * Link canals construction	Ongoing On going

Note: 1 The procurement was cancelled because the dredging equipment purchased for Ulingi dam reservoir sedimentation was utilized for the Karangates multi-purpose dam reservoir sedimentation problem.

Major changes from the time of appraisal were the cancellation of dredging equipment and addition of the bypass channel for sediment removal of the sediment control dam as written in Note 1 to the above table.



Groundsill down stream of a bridge in the Brantas River

(b) Consulting Services

Progress of consulting services as of July 2009 is shown in the table-2.

Table-2 Consulting Services and Progress (as of July 2009)

Item		Progress
1) Overall Project Management		Ongoing
2) Monitoring of operation and maintenance of each subprojects and assistance in preparing monitoring meetings held by executing agency		Ongoing
3) Detail design, assistance in P/Q evaluation and bidding activities for civil works of each subprojects and construction supervision	Detail design, Assistance for PQ, bidding activities	Completed
	Construction supervision (Brantas, Solo, Kelud)	Ongoing
	Construction supervision (Ular irrigation)	On going
	Construction supervision (Rubber dam)	Completed

4) Assistance in strengthening of the operation and maintenance system for Perum Jasa Tirta-1 covering the Brantas River and the Bengawan Solo River basins	Completed
5) Preparation of comprehensive basin-wide sediment management plans for the Brantas River and the Bengawan Solo River basins	Completed
6) Monitoring and evaluation of activities for establishment and strengthening of WUA along the Ular irrigation	Not started
7) Environmental management	Ongoing

Two items out of seven components of consulting services, 4) and 5), were completed. Two sub-items, detail design, assistance for PQ and bidding activities and construction supervision of the rubber dam, of 3) were completed. 1) and 2) as well as the rest of 3) construction supervision of the Brantas and Solo River basins, Mt. Kelud and Ular irrigation will be completed by the amended term, September 2010. 6) monitoring and evaluation of activities for establishment and strengthening of WUA has been temporarily suspended based on the following reason after discussions with the executing agency and not started yet.

At the time when the consulting service of the project started in October 2003, the transfer of management of tertiary irrigation facilities to WUA was being implemented under the PKPI (Pembaharuan Kebijakan Pengelolaan Irigasi) program financed by the World Bank based on the decentralization policy. The purpose of the PKPI program was to transfer irrigation management authority and assets previously under central government control to regional governments and WUA. According to the Water Resources Law (PP77/2001), the irrigation responsibility of trunk systems (Intake weir, primary and secondary irrigation system) belonged to prefectures and tertiary systems to WUA. The PKPI program attempted gradual and total transfer from central to prefectures and regional offices including budget allocation and technology guidance.

The Water Resource Law, (U.U.No.7/2004) was passed by the congress in February 2004, because efficient management of irrigation facilities based on the Water Resource Law, PP77/2001 slowed down and became difficult due to budget constraints. However, the transfer still did not proceed.

In 2006 a Government Regulation on Irrigation (PP20/2006) as an implementation regulation, which is stipulated in article 41 of the law No.7/2004, became effective. According to this regulation, the central and regional governments take responsibility for O/M of primary systems (Intake weir, primary and secondary channel) and WUA takes responsibility for tertiary irrigation system. The central government also takes responsibility for irrigation areas of more than 3,000 ha and cross-border of prefectures. Since Ular irrigation, which has an area of 18,500ha, belongs to this category, the central government is in charge of management of the intake weir and primary and secondary water channels.

The consulting services for monitoring and evaluation of PKPI activities for strengthening of

WUA in Ular irrigation area, 6) in Table-2) was decided to be suspended on January 26, 2006 because the responsibility of WUA was not clear at the time of January 2006, when the new law for irrigation had not been determined. The TOR was to be reviewed after the new law was determined. Even after the new law became determined, the basic concept of transfer of irrigation management to WUA was abolished. Thus, implementation of the PKPI program was suspended and the consulting services for monitoring and evaluation of activities for establishment and strengthening of WUA along the Ular irrigation was also suspended. Since then the related consulting services have been stopped.

On the other hand, the Water Irrigation Sector Management Project (WISMP) for strengthening of WUA financed by the World Bank began in 2006. The Ular irrigation area was included in a part of the WISMP target area. The consulting services for monitoring and evaluation of establishment and strengthening of WUA along the Ular irrigation were not to strengthen WUA but to monitor and evaluate the program. Thus, it would be appropriate to propose WUA strengthening activities by collecting information of activities of the Bank financed project.

7) in Table-2) of the consulting services, environmental management consisting of seven items were almost completed except for assistance in guidance on environmental consideration and monitoring impacts on water quality during project implementation. All items will be completed by the completion of works and supervision of construction in September 2010.

### 2.2.2 Project Period

Although there are some delays, river protection (revetment and ground sill) of Solo, Brantas, and Porong River Basin will be completed by the loan closing date. Bypass channel construction of Kelud sabo will be completed by the loan closing date while warranty period will be several months later due to delay of procurement. The construction of Ular irrigation work will finish before the loan closing date including the maintenance period, though a construction delay is recognized. The project schedule at the time of appraisal, start of consulting services and proposed revision of schedule are shown in the Table-3.

Table-3 Planned and Revised Schedule by Item

Item	Schedule at Appraisal	Schedule at start of consulting services	proposed Revision of Schedule
Selection of Consultant	October 2002 ~ December 2002	March 2003 ~ October 2003	May 2003 ~ December 2003
Consulting services	January 2003 ~ December 2007	October 2003 ~ May 2008	October 2003 ~ September 2010
Civil Works (Brantas river middle reach protection/repair)	— note)	December 2003 ~ May 2004	January 2004 ~ May 2004



Civil Works (Brantas river middle reach protection/repair, Mt. Kelud sediment control dam repair/bypass channel, others )	December 2003 ~ October 2005	December 2003 ~ October 2005	August 2005 ~ November 2006
Civil Works (Mt. Kelud bypass channel construction)			January 2008 ~ November 2008
Civil Works (Brantas river middle reach protection/repair )	note)	June 2004 ~ December 2005	June 2004 ~ October 2006
Civil works (Brantas river middle reach protection/repair, Kelud emergency sediment control dam bypass channel, others)	May 2005 ~ September 2007	May 2005 ~ September 2007	June 2006 ~ August 2010
Procurement of Equipment	January 2005 ~ December 2005	January 2005 ~ December 2005	June 2005 ~ June 2007

Note): Additional work of replacement of rubber gate of the Jatimelek weir (Package 3A) was necessary and added after appraisal.

The main delay was attributed to consultant selection. The delay during the construction stage is as follows.

1) Central/East Java Province: Solo River basin

- Flood damage (Solo River)

2) East Java Province: Brantas River basin

- Delay of P/Q procedure (sediment control bypass channel)
  - Design change (Increased quantity-Brantas River)
  - Additional works (Replacement of rubber gate)

3) North Sumatra Province: Ular irrigation

- Additional design (Change of intake weir and weir type)
- Design change and delay in construction due to unexpected soil conditions and worsened weather conditions

It seems crucial to monitor and promote the smooth progress of works in Ular irrigation because there may be unforeseen factors such as adverse weather conditions.



Link Canals under Construction in Ular

## 2.3 Effectiveness

### 2.3.1 Quantitative impact

#### (1) Operation and effect indicators

Target values of operation and effect indicators and EIRR at appraisal were reviewed at the time of mid-term review and new operation and effect indicators reflecting current conditions are proposed. The target year is proposed as two years after completion based on the current ex-post evaluation scheme, although the initial target year agreed at appraisal was five years after completion of the project. It was also confirmed that there was no need to modify the target value by this target year change.

#### 1) Solo River Basin Rehabilitation Project

##### 【Operation and Effect Indicator】

Examination has been conducted if review of indicators and their target values is necessary or not in consideration of flood damage conditions in 2007 of Upper Solo, Madiun, and Lower Solo River Basins. The flood in 2007 was roughly a fifty year return period and far serious from the flood of ten year return period, which was assumed at appraisal to establish the operation and effect indicators of the rehabilitation project. Table-4 shows flood damages and operation and effect indicators.

Table-4 Operation and Effectiveness Indicators and Flood Damage of 2007 of Solo River Basin

Indicator (unit)	Upper Solo River			Madiun River			Lower Solo River
	Baseline at appraisal (2001)	Flooding in 2007	Target at appraisal (2 years after project)	Baseline at appraisal (2001)	Flooding in 2007	Target at appraisal (2 years after project)	Flooding in 2007

			completion)			completion)	
Damaged river protection (m)	965		0				
Flood area (ha)	12,500	6,920	9,500	6,700	4,248	4,550	47,190
Flooded houses (no)	2,500	16,307	1,900	1,340	1,101	909	121,527

Note 1: The damage data of Solo River flood in 2007 was provided by the Solo River Basin Management Office which collected data from surrounding towns and villages. Flood areas were estimated based on information in the region.

Note 2: Operation and effect indicators for Solo River Basin are for the Upper Solo River Basin according to the Solo River Basin Development Office.

Note 3: The blank in the table are due to difficulty in data collection.

The numbers of flooded houses of the Upper Solo River flood in 2007 were far extensive in comparison with area because the flood water, for a short time period, reached not only low land and paddy fields (with few houses) but also high land which was densely populated residential area. This damage is not expected with a flood of 10 year return period. Since operation and effect indicators of the Project assume a flood of only 10 year return period, it is appropriate to keep the same operation and effect indicators established at appraisal as for the target values of the project as shown in the Table -4.

#### 【EIRR】

The EIRR at appraisal was 10.7%. The new EIRR at mid-term review (2009) calculated based on the review of the assumption at appraisal is 11.2% for the Solo and Madiun River.

#### 2) Brantas River Basin Rehabilitation Project

##### 【Operation and Effect Indicators】

The target value for the Brantas River at the time of mid-term review is still valid since there is no flood damage after the start of the Project.

Table-5 Operation and Effect Indicators of Brantas River Basin

Indicator (unit)	Baseline at appraisal (2001)	Target at appraisal (2013) (2 years after project completion)
Damaged river protection (m) (m)	1,550	0
Dredging volume of Wlingi Dam (m <sup>3</sup> /year)	200,000	500,000
Flood area (ha)	198	0
Flooded houses (no)	12,040	0

#### 【EIRR】

The EIRR at appraisal was 21.4%. The new EIRR at mid-term review (2009) calculated based on the review of the assumption at appraisal for sediment control dam, dredging and bypass channel is 21.4 %, and that for Brantas River protection, rubber weir, and Poron River rehabilitation is 14.1 % due to increased cost of additional work of replacement of the rubber gate of the Jatimelek weir (Package 3A) .

### 3) North Sumatra Province Ular Irrigation

#### 【Operation and Effect Indicators】

The target value will be altered because a higher unit crop rate will be attained for the target irrigation area based on performance in recent years (from 5.2ton/ha to 5.5ton/ha).

Table-6 Operation and Effect Indicators of North Sumatra Ular Irrigation

Indicator (unit)	2001	Target at appraisal	Revised Target at Mid-term review (2013)
Rice harvest (ton/year)			
(rainy season)	75,400	96,200	101,750
(dry season)	50,456	98,050	101,750
Income per household of farmers (Rp. 1,000/year)	6,066	9,166	9,749
Participation rate in WUA (%)	90	100	100

#### 【EIRR】

The EIRR at appraisal was 22.2 %. The new EIRR at mid-term review (2009) calculated based on the review of the assumption at appraisal is 19.9 % for the intake weir and irrigation channel. The reason for lower EIRR value is the increased construction cost.

#### 2.3.2 Qualitative impact

The qualitative impacts vary depending on the kind of project components, because the Project is composed of different kinds of works including dredging of a multipurpose dam, river protection and rehabilitation of irrigation facilities. Stable and safe life conditions will be possible by reducing flood damage to the downstream area through better river management. The quality of life will be raised as a result of stable and increased electric power supply (peak electric supply of 54,000kw and increased generation of 136 MWH) with restored water reservoirs. Overall, farmers' lives will be improved by increased rice harvests brought by the rehabilitation of irrigation facilities. These qualitative impacts should be confirmed by beneficiary surveys during the ex-post evaluation stage.

#### 2.3.3 Impact

Regarding water resources management, the safe and stable life of people will be secured through

sustainable flood damage mitigation, effective use of water resources, and better O/M of rivers. It is foreseen that the project contributes to higher productivity, strengthening of social and production infrastructures of farmers and thus poverty reduction through efficient use of water resources by WUA/farmers.

#### 2.4 Others (Items influencing project effect and maintenance)

##### 2.4.1 Cooperation with NGO/Local Universities

The environmental study (fish, flora and ecology) entrusted to the Brawi Jay University. Except for that, there is no further cooperation with local institutions which influence project effect and maintenance.

##### 2.4.2 Grant Assistance/Technical Cooperation

River bed change analysis was conducted for the formulation of sediment management plans for the Brantas River and the Upper Solo River basins, respectively. Among those, the expected amount of sediment supply data were given by the “JICA Study on Countermeasures for Sedimentation in Wonogili Multipurpose Dam Reservoir”. There is no further cooperation with grant projects which influence project effects and maintenance.

##### 2.4.3 Coordination with Other Donors

There was no cooperation with other donors with regard to river management and irrigation development. However, the World Bank financed project, Water Resources and Irrigation Sector Management Project (WISMP), started from 2006. It is possible to promote monitoring and evaluation of the WISMP activities as explained in 2.2.1 (b). Cooperation with World Bank will be necessary because the Ular irrigation area is one of the target irrigation areas of WISMP.



Meeting with WUA

##### 2.4.4 Environmental and social impact

For environmental and social protection, the construction of civil works was based on the Environmental Impact Analysis (EIA), Environmental Management Plan (RKL), and Environmental Monitoring Plan (RPL) regarding environmental and social impact. The environmental and social study for the Brantas River basin, which was within the scope of the consulting services of the project, was written in the Report on Environmental Study (January 2005). Environmental factors including soil and water quality, farm land and irrigation area influences, and land acquisition were studied. The Executing Agency reviewed the contents of the EIA before starting the project for Ular irrigation. The results were written in the various reports<sup>1</sup>. Items including water pollution, waste disposal, soil contamination, ground water, and ecology were studied. The impacts on animals and natural conditions were minimized. Also, the possibility of adverse effects on the water and air quality is low. Adverse effects on the environment by the construction work were not identified.

There were four relocations of houses for Kelud sediment control dam construction. Land acquisition was for the purpose of an access road and water covered area of the dam. There was no relocation of houses in the Ular irrigation area. Even though land acquisition was delayed, it is not foreseen that this will influence the progress of the project.

#### 2.4.5 System, technical capacity, and financial status for operation and maintenance

##### (1) Operation and maintenance

The O/M of the rehabilitated facilities by the Project have been implemented based on each river basin. The Solo River Basin Development Office has been developing water resources and managing the Solo River since 1969. However, the preparation of establishing the Brantas River Management Corporation (PJT1) Solo branch started based on the Presidential Order of September 14, 2000, and O/M of the Solo River was transferred gradually to PJT1. The present bodies responsible for O/M for each river basin are shown below. O/M organization of irrigation facilities is based on the amended Water Resources Law in 2004. The primary and secondary irrigation facilities are operated and maintained by the central and regional governments, and the tertiary facilities by WUA or WUAF.

##### 1) Solo and Madiun River Basin O/M

Item/facilities	Responsible Body
River structures	Brantas River Management Corporation (PJT1) Solo branch Solo River Basin Management Office (Balai Besar Wilaya Sungai

<sup>1</sup> 1) Environmental Management Efforts and Environmental Monitoring Efforts, Irrigation Rehabilitation Region II, Deli Serdang District, May 2004, 2) Environmental Management Program and Environmental Monitoring Program, Irrigation Rehabilitation and Dike Construction of Ular River, April 2006, 3) Design Report of Modification Design Work for Rehabilitation for Ular River Flood Control and Improvement of Irrigation Project (Volume-XI) Environmental Investigation

	Bengawan Solo)
Irrigation facilities	Provincial River Basin Management Office (Balai PSDA)
Small rivers	Provincial River Basin Management Office and regional government

## 2) Brantas River Basin O/M

Item/facilities	Responsible Body
River structures, flood warning system, dam	PJT1, Brantas River Basin Management Office (Balai Besar Wilaya Sungai Brantas)
Kelud/Semeru volcano area	Kelud/Semeru sediment control Office

## 3) North Sumatra Ular Irrigation

Irrigation Area	Responsible Body
Intake Weir and Trunk Water Channel	
more than 3,000ha	Balai Wilaya Sungai Sumatera II (central)
1,000ha - 3,000ha	North Sumatra Province Water Resource Bureau, River Management Office (Balai PSDA) (province)
less than 1,000ha	Prefecture
Tertiary Channel	WUA

### (2) Technical capacity in operation and maintenance

The central and regional governments take responsibility for O/M of the river protection facilities. The number of engineers who have sufficient technology and commitment are few due to budget constraints for various works. However, there will be no serious problems of O/M of rehabilitated river facilities, which do not require advanced technology in daily O/M. The inventory data for asset management should be prepared and maintained for future O/M activities.

Strengthening of O/M organization for irrigation facilities including intake weir and link canals, which are being constructed in the ongoing works, is to be done based on the new regulation. Water Resource Law No. 7/2004 and Government Regulation on Irrigation No. 20/2006. Involvement of the central and provincial governments is crucial both financially

and technically for large scale repair of small irrigation facilities and tertiary facilities, which was transferred to WUA.

(3) Financial status on operation and maintenance

O/M of river basins is twofold. There are two corporations for water resource management of the Brantas and Solo River Basin: The Brantas River Management Corporation (PJT1) Solo branch and related River Basin Management Office. The scale of budget for each corporation differs: the expense of PJT1 Solo Branch is less due to limited income of the Solo River because water supply to farmers, which comprises a large proportion, is free of charge; whereas the PJT1 in Brantas River has ten times as much budget as the Solo Branch because of more water supply to be sold. The budget of the other O/M organizations, which are the Brantas River Basin Management Office and Solo River Basin Management Office, have opposite trends against those of PJT1. The budget amount of the Solo River is three times as much as that of the Brantas River in 2007. Based on this fact, it is reasonable to say that PJT1 maintains the river according to the income amount and especially the maintenance of the Solo River might not be satisfactory. In general, the budget amount for O/M and improvement is unstable and depends on the budget allocated to a specific project. A large proportion of an ordinary budget is used for a salary of staff, office operation costs, and inspection and minor maintenance.

The primary and secondary irrigation water channels are managed by the central and local governments because of the large irrigation area of 18,500 ha in Ular. The provincial budget for North Sumatra Ular Irrigation from 2006 to 2009 is shown in the Table-7. The amount of Rp. 200,000/ha is necessary but securing the budget is difficult according to the Irrigation Department of the Province.

Table-7 Budget for North Sumatra Ular Irrigation

2006	2007	2008	2009
Rp. 88,887/ha	Rp. 128,827/ha	Rp. 120,000/ha	Rp. 88.887/ha

Source: Balai Wilaya Sungai Sumatra, Dinas PU Sumatra

The O/M budget of tertiary irrigation systems is covered by Rp. 250,000/ha/year equivalent to Rp. 125,000/ha/harvest/year (twice the harvest collected from WUA farmers in Ular). Major daily maintenance activities are removing of waste materials in the channel and cleaning of pipe culverts.

### 3. Conclusions, Lessons Learned, and Recommendations

#### 3.1 Conclusions

This project coincides with the National Development Policy/Plan and development needs and is a



higher priority project at the mid-term review stage. Therefore, it is necessary to support project implementation continuously.

## 3.2 Recommendations

### 3.2.1 Recommendations to the Executing Agency

The Monitoring and evaluation of activities for establishment and strengthening of WUA along the Ular irrigation in the PKPI program, which is a part of the consulting services of the rehabilitation project, has been suspended since 2006 as stated in 2.2.1. On the other hand, the strengthening of WUA program financed by the World Bank under the Water Irrigation Sector Management Project (WISMP) including Ular irrigation area, started in 2006. Although it seems difficult to finish every item of monitoring/evaluation as previously planned within one year before the Project completion, some recommendations for strengthening of WUA can be provided from consultations from local government officials, WUA management officials and farmers with reference to the results and contents of activities of WISMP. It is desired that the consultant examines the possible contents of activities within a limited time and promote implementation as soon as possible.

As pointed out in 2.2.2, the main delay was attributed to delay in consultant selection before the physical construction of the project. There was a delay in P/Q process of additional work of bypass channel construction. It is necessary for the executing agency to minimize delays by prompt decision making and selection process.

The O/M of river basins was not satisfactory due to budget constraints. Water resource operation and maintenance efforts should be continued by PJT1. Water Resource management is to be conducted with a collaboration of the Balai Besar, Provincial Government and PJT 1. On the other hand, enough budgets should be allocated to maintain the effects brought by the rehabilitation project.

### 3.2.2 Recommendations to JICA

(1) It is necessary to give proper guidance during meetings between the executing agency and the consultant in order to promote implementation of the monitoring and evaluation activities for establishment and strengthening of WUA along the Ular irrigation.

(2) The target values of the operation and effect indicators of the Ular irrigation have been reviewed and the new values were proposed at mid-term review as explained in 2.3.1. It is necessary for the executing agency and JICA to confirm, examine and reach consensus of indicators to be adopted at the ex-post evaluation stage.

Indonesia

Japanese ODA Loan Mid-term Review Report  
Rehabilitation and Improvement Project of Jakarta Fishing Port

External Evaluator : Hiroshi Aoki  
(Sanshuu Engineering Consultant)  
Field Survey : May 2009 - July 2009

1 . Project Profile



Map of Project Site



Pile foundation construction site

1.1 Project objectives

The objective of this project is to enhance efficiently utilize of the existing infrastructures through maintaining the function of the existing Jakarta Fishing Port (JFP) facilities by rehabilitation of the main structures of east and west quay wall of 1,349 m constructed as a Jakarta Fishing Port Construction Project (Phase I) ,which have been suffering from area-wide Jakarta City land subsidence, thereby contributing to effective and sustainable use of marine and coastal resources.

1.2 Outline of the Loan Agreement

Approved amount / Disbursed amount (as of March 2009)	3,437million yen / 412 million yen
Loan Agreement Signing Date / Closing Date	March 2004 / Sept. 2012
Executing Agency	Ministry of Marine Affairs and Fisheries (MMAF), Directorate General of Capture Fisheries (DGCF)
Main Contractor	Toa • Pembangunan Perumahan, PT. Utama Karya (Persero), PT Menara Agung Sentosa, CV Lestari Prima
Consulting Services	Oriental Consultants, Inc. • PT. Perentjana Djaja

1.3 Background

Five years have passed since L/A signing of the Jakarta Fishing Port Rehabilitation Project. The construction contract has been signed recently at the end of 2008. The civil works have just started since the beginning of this fiscal year except for the additional package of the emergency countermeasures against flooding signed at the end of 2007.

The north part of Jakarta where JFP is located has a significant amount of ground subsidence due to excessive ground water extraction in the city area. In addition, a global warming effect might have brought about frequent high tide, which can not be explained by estimated ground subsidence alone. As a result flooding by sea water in JFP became serious in these years, which may spoil the effectiveness of the JFP project itself. It is necessary to examine if the present project scope is proper or not and what kind of measures are required to maintain the effectiveness of the project. Thus, this project was selected as a mid-term review and the conclusion has been drawn from the field survey based on the review according to evaluation items.

## 2. Mid-term Review Results

### 2.1 Relevance

#### 2.1.1 Relevance to the National/Government Policies

The national plan and policy at appraisal was the National Development Program (PROPENAS : 2000—2004). The effective plan and policy at mid-term review (Sept. 2009) is the National Development Plan (RPJM 2005-2009). The Plan focuses on job creation and poverty reduction by higher economic growth rate. It has identified priority areas to achieve its goals:

- 1) Poverty reduction and economic growth;
- 2) Rectifying regional disparities; and
- 3) Promotion of human resource development through education, sanitary and medical activities, and social welfare.

One of the measures of the economic growth is to revitalize agriculture, forestry and fishery industries. More specifically, infrastructure, road network, and irrigation development are given a higher priority. Therefore, this project coincides with the Indonesian National Plan.

Based on the Strategic Plan of the Marine and Fisheries Development (2005-2009), which is valid at mid-term review, the objectives of the marine and fisheries development in the medium term development framework are:

- 1) To improve fishermen's living;
- 2) To improve the role of marine and fisheries sector in the national economy;
- 3) To maintain quality of environment conditions and to manage marine and fisheries resources for the sustainable development;
- 4) To increase consumption of marine products; and
- 5) To improve the marine role as the nation integrator and empowerment national marine culture.

The DGCF formulated a fishery development master plan in response to the MMAF's formulation

of the master plan for developing the fishery industry and the market in 2003. JFP is categorized as an Oceanic Fishing Port in the Plan determined by the Government. The rehabilitation project of JFP coincides with the objectives of 1), 2), 3) mentioned above in the Strategic Plan (2005-2009).

### 2.1.2 Relevance to the Development Needs

At appraisal, as JFP facilities settled due to the subsidence of Jakarta city area, which has been caused by excessive ground water extraction. In order to maintain the function of JFP and effective use of surrounding facilities, it had been pointed out that countermeasures should be taken against subsidence of JFP facilities including the east and west quay walls constructed as the JFP Construction Project (Phase I) completed in 1982,

The Government of Indonesia has recognized the subsidence since 1980 and investigated the fact. The ground subsidence has been measured at the fixed points using leveling measurements, ground water measurements and recently GPS methods. The results show that the degree of ground subsidence in Jakarta varies depending on the location and soil conditions but is influenced by the volume of ground water extraction. According to the GPS survey conducted by the Department of Geodetic Engineering at the Institute of Technology Bandung between Dec.1997 and June 1999, the land subsidence was observed with the rate of -2 to -12 cm/year.<sup>1</sup> The most significant subsidence was observed around the north-central and northeastern parts of Jakarta.

The height of the quay wall was designed at the elevation of +2.5 m so that the quay wall can be kept above sea level for 40 years based on the 1981 estimate of the wall subsidence, which is the same as the forecasted high tide level at +1.4 m of JFP standard water level in 2009.

At mid-term review, the quay wall has been constructed at the elevation of +2.8 m, 30 cm higher than the original design, because the frequent abnormal high tides (+1.7 m) were observed in these years possibly by global warming effect. So, this rehabilitation project is a well balanced project and meets both requirements of the ground subsidence and high tide.



Flooding in JFP (May 2009)

## 2.2 Efficiency

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<sup>1</sup> Land Subsidence of Jakarta (Indonesia) and its Geodetic Monitoring System, Natural Hazards 23:365-387, 2001

### 2.2.1 Project Outputs

The present port facilities before rehabilitation was constructed as the JFP Construction Project (Phase I) completed in 1982. It was anticipated with regret that the port facilities would not be effectively used due to the flooding of the wall during high tide caused by the settlement due to the Jakarta area land subsidence. This project aims to relief this situation and once completed, the present problems will be solved. The project is expected to be completed by 2011 including two years of the quay wall construction as planned and the maintenance period according to the present schedule.

The construction methods of the quay walls - install new piles reaching to the deeper bearing layer, reinforced concrete slabs on the existing quay walls together with the break water construction, and upgrading roads in the port- are appropriate as a rehabilitation work as well as restoring the already degraded function of JFP. The main parts of the civil work remain unchanged whereas the improvement length of access road and roads in JFP is significantly increased compared to the initial quantity due to unexpected ground subsidence of the port. The revetment wall construction/reconstruction to completely stop sea water intrusion and the new pump station construction to drain rain water were added.



Completed east revetment water walls (July 2009)

### 2.2.2 Project Period

Apart from the additional package of emergency countermeasures against flooding signed at the end of 2007, the start of the civil work was December 2008 when the contract was signed and the actual construction started in January 2009. We can not usually expect a significant progress for the first 3 months from the start. But the construction was going on and showed a significant progress during the mid-term review stage (May – July 2009). The construction will be completed by the end of 2010 since there are no land acquisition and compensation that sometimes hinder the progress.

There was a delay of one year for the consultant selection in comparison with the initially

expected time period at appraisal. The construction started in December 2008 that is about two year delay compared with the initial construction period (Jan. 2007 to Dec. 2008) expected at appraisal. It was delayed due to the contract process including pre-qualification and tender. Nevertheless, the project will be completed by the loan closing date (September 2012) because the construction is expected to be finished in Dec. 2010.

## 2.3 Effectiveness (Impact)

### 2.3.1 Quantitative effect

Operation and effect indicators

Table-1 Operation and Effectiveness Indicators of JFP

Indicators (unit)	2001	2008	Target value (2 years after completion : 2012)
Fish catches (ton/year)	35,760	17,433	35,760
Fish handling amount (Rp./year)	1,673,000 million	265,916 million	1,673,000 million
Income from quay wall use (Rp./year)	2,350 million	4,120 million	2,350 million
Control tower usage (day/year)	0 (2003)	365	365

Source : Hearing from UPT

The purpose of the JFP rehabilitation project is to bring back JFP function to the former situation from the present degraded conditions. Thus, the same target values as at appraisal are adopted for the mid-term review.

Though original target year at appraisal was seven years after the completion of the project, it is proposed to apply two years after the completion that is usual time frame of the ex-post evaluation so that we can expect early realization of the rehabilitation effect.

### 2.3.2 Qualitative effect

It is expected to promote a private investment to JFP, which is a most important fishing port in Indonesia, of not only the frozen fish but also the export of fish products of JFP, once currently deteriorated functions of the fishing port such as the fish handling and production, and manufacturing and handling of fish processing is upgraded and maintained and furthermore the environment as a fresh food production center is secured by this rehabilitation project.

### 2.3.3 Impact

Currently it is impossible for fish landing during the high tide period The fish handling will become always possible during a day together with the improved environment by the rehabilitation project. Accordingly already depressed fish landing and handling will be restored. In addition, the sustainable use of marine and coastal resources will be possible through the activated fish processing.

## 2.4 Others (factors that affect project effectiveness and impact)

#### 2.4.1 Cooperation with NGO/Local Universities

There was no cooperation directly related to JFP with NPO and local universities.

#### 2.4.2 Grant assistance/technical cooperation

Although the assistance from JICA expert of MMAF was expected at appraisal on the land subsidence due to excessive ground water extraction, there was no cooperation directly related to JFP with grant and technical cooperation.

#### 2.4.3 Cooperation with other donors

No such cooperation was recognized.

#### 2.4.4 Environmental/social impact

The environmental impact analysis (EIA), environmental management plan (RKL) and environmental monitoring plan (RPL) prepared at the Jakarta Fishing Port/Market Development Project phase IV are applied for the environmental impact. There was no adverse impact on natural habitat and environment, water contamination or air pollution. There was no land acquisition or relocation of houses for this project.

Insufficient operation and management of JFP is a rather problem to be solved. In reality, the port environment has been degraded due to standing dirty water (May 2009) and flooding on roads in the port and neighboring section. Indonesian government will start the improvement project by its own fund within 2009.

#### 2.4.5 Operation/Maintenance/Technology/Finance

The facilities in JFP are operated and maintained by two organizations. One is the Fishing Port Management Agency (UPT) that is responsible for O/M of public facilities and another is the Fishery Corporation (PERUM) under the Ministry of National Enterprises responsible for commercial facilities. UPT is taking charges of O/M of the facilities of the rehabilitation project. In reality, there are obscure responsibilities in O/M and reconstruction between UPT and PERUM such as O/M of dirty water from the private facilities into the public sewage system.

There will be a problem of handling and transportation of fish because of the height differences between the quay wall level and the neighboring existing buildings. This is brought by the upgrading of quay walls by the rehabilitation project. It will be necessary not only to renovate partial problems but also to review the overall management schemes in the future when the subsidence develops more than forecasted and abnormal high tide appears frequently due to possible global warming. The O/M responsible bodies are demarcated according to either public or private facilities. The detail procedures are written in the guideline (Standard Operation Procedures 2008). The guideline for each O/M activity determines the maintenance of quay walls, measures against sanitary problems and the related organizations in detail according to the work items for either public or private facilities. But this guideline only remains as a textbook for maintenance activities and work flow, which does not connected directly to the actual maintenance practices.

The financial situation of UPT in charge of the public facilities 2004 to 2007 is shown in the table below.

Table-2 Financial situation of UPT

(unit x1000 Rupiah)

year	Income	Expenses	
		Budget	Actual
2004	1,386,379	1,100,403	1,668,885
2005	758,503	6,372,575	1,135,832
2006	913,038	11,042,969	10,172,061
2007	1,204,507	10,731,168	9,956,019

Source : Data from UPT

The breakdown of the income-expenses in 2007 is shown in the table below.

Table-3 Breakdown of income/expenditure of UPT (2007)

(unit : x1,000Rupiah)

year	item	income	expenditure	
			budget	actual
2007	Enter fee ticket	754,685		
	Canteen	166,188		
	Tug boat	1,500		
	Building facility	174,656		
	Equipment storage	81,816		
	Sanitary	10,400		
	Others	15,261		
	Official expenses		2,360,180	3,020,330
	Goods/material		5,665,094	4,304,847
	Financial capital		2,705,894	2,630,843
	Total	1,204,507	10,731,168	9,956,019

As seen in Table-2, the expenditures exceed the income in the last four years resulting in deficit spending. Currently JFP is not financially independent because incomes from port activities are taken into the national revenue and then the necessary expenses are allocated by the government. Although the expenses from the year 2006 increased by ten times as much as the previous year, the present budget is not enough for O/M of public facilities in JFP according to UPT officials.

The biggest income item is the entrance fee of Rp.750 million. Other major items are the building facility of about Rp.170 million, and the canteen income of about Rp.170 million. Expenses are for O/M goods and materials of about Rp.4,304 million, for the official expenses of Rp.3,020 million, and for the financial capital of Rp.2,630 million. According to the amount of expenses budget, it could be said that O/M is minimum (goods and materials for maintenance) that barely maintain the port management without involving major reconstruction and repairs. Besides, the O/M budget of the pump station will be required for the drainage of rain water as countermeasures against sea water intrusion implemented by the rehabilitation project. Further budget allocation will be necessary to keep the rehabilitation project effective and sustainable.

### 3. Conclusions, Lessons Learnt, and Recommendations



### 3.1 Conclusions

The ground subsidence of JFP and surroundings are extensive and rapid, which is far more than expected at appraisal of the rehabilitation project. In spite of the treatment facility located in JFP, dirty water stays in the port bringing about the worsened environment. Indonesian government will start the improvement project in the port by its own fund within 2009 in parallel with the rehabilitation project. It is expected to realize the better environment by the improvement project.

While the current rehabilitation project will restore the original function of the quay wall, there is a possibility that the gap between the heightened quay wall and the existing facilities might cause some difficulties to unload and transport goods. Although the improvement of private facilities are to be dealt by private sectors, if the subsidence and high tide developed more than expected in the future, spot or partial improvement might not be sufficient to solve the problem. If such case arises, it might be necessary to review and revise the entire operation plan of JFP.

### 3.2 Recommendations

#### 3.2.1 Recommendations to Executing Agencies

The establishment of the appropriate O/M organization and the budget allocation are crucial and a key to the smooth start of O/M after completion of the project. It is also necessary to clearly demarcate the responsibility of UPT and PERUM again for maintenance and operation of facilities because presently it is not clear on some points. The well manned, equipped with better technology organization, and sufficient income sources and budget will be required for a satisfactory O/M of the port.

It is necessary to study comprehensive measures for the future subsidence problems in JFP as a whole. For this purpose, the formulation of an organization for investigating restoration of the function of JFP is necessary with the efforts of both private and public O/M organizations.

#### 3.2.2 Recommendations to JICA

It is appropriate to keep using the same operation and effect indicators set at appraisal for JFP as the indicators because the objectives of the rehabilitation project is to restore the previous function and DGCF has the same idea as well.

### 3.3 Lessons Learnt

None

Indonesia

Japanese ODA Loan Mid-Term Review Report  
“The Urgent Rehabilitation Project of Tanjung Priok Port”

External Evaluators: Yasuhiro Kawabata and Hiroshi Aoki  
(Sanshu Engineering Consultant)

Field Survey: May-June 2009 and July 2009

1. Project Profile



Map of Project Site

Tanjung Priok Port Container Terminal

1.1 Project Objective

The objective of this project is to increase the port capacity and promote efficiency of shipping by widening and deepening the existing shipping lanes, thereby contributing to enhancement of Tanjung Priok Port’s functions as an international hub port.

The project location is shown in Figure 1.



Figure 1 Location of the Project Site

## 1.2 Outline of the Loan Agreement

Approved Amount/Disbursed Amount (as of end July 2009)	12,052 million yen / 0 yen
Loan Agreement Signing Date/Closing Date	March 2004 / December 2013
Executing Agency	Directorate General of Sea Transportation (DGST)
Consulting Services	Under selection process (as of end July 2009)

## 1.3 Background

The project implementation has been delayed since the procurement of a supervision consultant has not been completed. In addition, the scope of works has been modified from the original plan. The improvement of Port Inner Roads (part of components with high priority and urgency) has been commenced with own funds of the Indonesian government. Hence, it was considered essential to assess the impact on relevance, effectiveness and efficiency of the project scope by a Mid-Term review and make recommendations for improvement based on the review results and findings.

## 2. Mid-Term Review Results

### 2.1 Relevance

#### 2.1.1 Consistency with national/government policies

The National Development Plan or Program Pembangunan Nasional 2000-2004 (PROPENAS 2000-2004) emphasizes the importance of the development of transport infrastructure, which would be a basis for economic development. It is also considered a major factor to promote sustainable economic activities and enhance social life activities including poverty alleviation. Although there is no specific description on the shipping sector development, according to DGST the policy agendas within the shipping sector development strategy program (drafting in 2003) are described as follows;

- enhancement of domestic shipping capacity and competitiveness
- improvement of safety and quality of the shipping services
- establishment of legislation and legal system and clarification of roles of municipal government
- management of technology, energy, and coastal water
- management of human resources and shipping/maritime industries
- assistance/stimulation of local economy and small and medium enterprises in shipping sector

The current Mid-Term Development Program is Rencana Pembangunan Jangka Menengah 2004-2009 (RPJM 2004-2009) and is comprised of three development agendas:

- i) establishment of society based on justice and equality,
- ii) achievement of a safe and peaceful country, and

iii) achievement of economically and socially wealthy community.

In Indonesia, which is consisted of thousands islands, the maritime facilities (including port facilities) which carry cargoes and passengers serve a major role for the country's social and economic development. Thus, the project is consistent with the current national policy (RPJM 2004-2009). In addition, the project is consistent with the shipping development program, or Rencana Strategis (RENSTRA 2000-2004) which was prepared in response to RPJM. RENSTRA 2000-2004 emphasizes strengthening domestic shipping capacity and competitiveness. Moreover, the project is in line with Ministry of Transportation's RENSTRA 2005-2009 which aims to secure safety for marine navigation of vessels.

### 2.1.2 Consistency with development needs

At the time of appraisal, the water depth of Tanjung Priok Port's main access channel was 10-14 meters with one-way navigation. In terms of handling volume and productivity, the port was inferior to international ports in neighboring countries. Also, the container handling volume at Tanjung Priok Port was estimated to reach its maximum capacity of 3 million twenty-foot equivalent units (TEU)<sup>1</sup> in 2006. Thus, it was essential to widen and deepen an access channel and expand turning basin in order to promote efficiency for vessel traffic as well as to meet the increasing demand.

Tanjung Priok Port is the largest port in Indonesia equipped with the complete and latest Information and Communication Technology (ICT) facility. Along with Indonesia's economic growth, the container handling volume has been increasing year by year, and exceeded its maximum capacity of 3 million TEU, recording 3.98 million TEU in 2008 by enhancing the container handling capacity. Early commencement of the delayed project is highly anticipated. The improvement of port inner roads (7,180 m<sup>3</sup>), excluding the Pasoso Flyover section has been initiated with the Government of Indonesia's own finance. Early commencement of the port improvement works including widening and deepening an access channel is anticipated to meet the increasing demand.

This project has been highly relevant with the Indonesian national policies and development needs at the times of both appraisal and Mid-Term review, therefore its relevance is high.

## 2.2 Efficiency

### 2.2.1 Project Outputs

The project scope at the time of appraisal contains widening and deepening an access channel, expanding turning basin, and improvement of port inner road of Tanjung Priok Port. The detailed scope of work is shown below.

#### 1) Civil works

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<sup>1</sup> Source: JICA appraisal documents

- relocation of breakwater (1,695m)
- widening an access channel (existing one-way 125m to double-way 300m)
- dredging (average 4m, 8.255 million m<sup>3</sup>)
- improvement of port inner roads (7,180 m<sup>2</sup>)

As a part of consultant's terms of references, review of detailed designs is required, and thus work items and bill of quantities would be revised.



Improvement of port inner roads



Existing breakwater

## 2) Consulting services

The current Terms of Reference (TOR) for consulting services includes detailed designs, tendering assistance, construction supervision, and assistance in monitoring and management. The man-month (M/M) required for the above mentioned services is estimated at 208M/M for international consultants, and 322M/M for local consultants. However, the detailed design services in the original TOR have been already completed under the JICA's technical cooperation, and as for the inner road improvement portion, the construction supervision needs to cover only the Pasoso Flyover section. It is expected that the planned M/M would be decreased by approximately 10% of the originally planned.

### 2.2.2 Project Period

The planned project period at appraisal was from March 2004 (L/A signing date) to June 2010 (construction completion) with a total period of six years and four months. However, a consultant has not been selected as of end July 2009.

The implementation progress of the project was slow by 2005. After detailed designs were completed by JICA in March 2006, the process for selection of a consultant proceeded and a proposal from consultants was submitted in 7 months. Since only a consultant submitted a proposal, the Indonesian government evaluated that the selection process was invalid because of incompliance with the procurement guidelines (Presidential decree). It resulted in no progress in selection by March 2007. Even though the reselection process was

commenced later, the process was delayed by the deadline for submission of proposals (August 2008) due to the internal process within the government authorities. In addition, the process was further delayed due to the lengthy internal process for preparation of an evaluation report for JICA's concurrence during August 2008 - June 2009.

For reference, during four and a half years, from January 2005 to July 2009, two Ministers of Transportation, three Director Generals of Sea Transportation, and three Directors of Port and Dredging were assigned.

Assuming that the consultant selection process goes smoothly, the expected implementation schedule at this moment is as follows:

- bidding for civil works: September 2009- March 2011
- construction work: September 2011- March 2014
- consulting services: September 2009-April 2014

However, the bidding process for civil works realistically requires at least one and half years following the normal procurement procedures. The planned three-year construction period seemed to be difficult taking into account the project scope and bill of quantities. Moreover, if one year retention period is included, the expected final disburse would be March 2015, and thus the loan closing date needs to be extended by at least one and half years even though remaining activities progress smoothly.

## 2.3 Effectiveness

### 2.3.1 Quantitative impact

Operation and Effect indicators proposed at the appraisal stage are as follows.

#### ① Operation and Effect indicators

Indicator (Unit)	Status at appraisal (2000)	Benchmark (2 years after project completion: 2016)
Domestic passengers (000)	1,672	2,282
International passengers (000)	0	200
Bag cargo ('000 ton)	47,963	80,829
General cargo ('000 ton)	43,437	80,829
Ro/Ro cargo ('000 ton)	-	4,801
Ro/Ro (vehicles)	-	1,391

Note: 2016 is 2 years after the planned project completion

Based on the results of search for the information and data on the indicators at the mid-term review stage, it is suggested that the relevant indicators (e.g. ship call, general cargo, cargo total, container handling volume (TEUs)), available from the official documents such as the annual report of Tanjung Priok Port should be referred at the post evaluation stage in order

to supplement indicators included in the above table.

At the mid-term review stage, domestic passengers are decreasing year by year due to boost in air transportation and no international ship call (international passengers) is expected. However, since foreign passenger vessels might call the port upon completion of the project, it is considered appropriate to monitor these indicators (domestic and international passengers) as operation and effect indicators.

## ② Internal rate of return

The economic internal rate of return (EIRR) at appraisal was estimated at 19.1%. Since no construction has commenced at the time of mid-term review, EIRR was not recalculated.

### 2.3.2 Qualitative impact

Qualitative impacts expected at the appraisal stage were the following and they are still valid at the mid-term stage.

- improve efficiency of ship traffic and secure safety by upgrading a port
- improve access by upgrading port inner roads

## 2.4 Others (factors that affect project effectiveness and impact)

### 2.4.1 Coordination with NGO, local universities, etc.

There is no coordination with NGO or local Universities.

### 2.4.2 Coordination with grant aid and technical assistance

During 2002-2003, “The Study for Development of The Greater Jakarta Metropolitan Ports of Indonesia” was conducted. Also, during 2005 - 2006, JICA conducted the “Detailed Design study of the Urgent Rehabilitation Project of the Tanjung Priok Port in the Republic of Indonesia”, as a technical cooperation (coordinated detailed designs), under which detailed designs and bidding documents were prepared. At the detailed design stage, some of the master plan design concepts were slightly modified taking the future project plan into consideration.

### 2.4.3 Coordination with other donors

There is no coordination with other donors.

### 2.4.4 Environmental impact

The Environment Impact Assessment (EIA) was approved by Ministry of Environment on March 24, 2004. However, since the project has not started yet even in 5 years after the originally planned project commencement date, it is essential for the Indonesian government to consider the necessity of review of the EIA, including the review of an originally proposed dumping site of dredged soils. Additional land acquisition will remain minimal since the

majority of port inner road improvement works take place within the port area.

#### 2.4.5 System, technical capacity, and financial status for operation and maintenance

##### (1) Operation and maintenance system

After the project completion, Indonesia Port Corporation II or PT Pelabuhan Indonesia II (PELINDO II) will be in charge of the port's operation and maintenance. The port inner roads will be subleased to PELINDO II upon completion. PELINDO II's Tanjung Priok Port Branch is in charge of the port with 9 divisions under a general manager, having approximately 860 full time employees and 400 temporary staff. Fifty-one (51) % of total shares of Jakarta International Container Terminal (JICT) of Tanjung Priok Port, administrated by PELINDO II have been sold to Grosbeak, a subsidiary of Hong Kong's Hutchison Group under concession base in 1999.

##### (2) Technical capacity in operation and maintenance

Staff who are hired to PERINDO II take two-week lecture training on basic port operation/management followed by one month training on the job, and then is assigned to each division. After hired, all the staff are required to take general training at their port training center at least two days per year, and in addition 60% of staff take specific training courses every year. Approximately 30 courses are offered at the training center, including modules on container terminal management, storage management, storage fee collection, and hazardous cargo handling and all the staff are making efforts to improve skill level.

##### (3) Financial status on operation and maintenance

The profit and loss statement of PELINDO II Tanjung Priok Port Branch for the past five years is shown in Table 1.

Table 1 Profit and Loss statement of Tanjung Priok Port Branch

Unit: 0.1 billion RP

Year	Revenue	Operating expenses	Extraordinary profit/loss	Net Profit
2004	6,197.1	2,679.9	-4.9	3,514.2
2005	7,485.0	2,942.8	0	4,542.2
2006	7,879.2	3,367.0	0	4,512.1
2007	8,619.7	3,310.0	2.1	5,311.8
2008	9,961.5	3,651.5	0	6,310.0

Source: Tanjung Priok Port Annual Reports

For the past five years, the revenue and net profit has been substantially increasing.

The breakdown of operating costs of PELINDO II Tanjung Priok Port Branch is shown in Table 2.



Table 2 Breakdown of Operating Costs (FY 2008)

Unit: 0.1 billion RP

Item	Amount	Percentage (%)
Labor cost (salary)	1,041.0	29
Material purchase	848.3	23
Operation and maintenance costs	314.0	9
Depreciation	523.7	14
Insurance	16.2	0
Rental fee(ships, software)	245.5	7
Administration cost	38.0	1
General overhead	343.3	9
Other expenses	281.5	8
Total	3,651.5	100

The annual operation budget is allocated to each port by PELINDO II headquarters. According to the opinion of Tanjung Priok Port's Finance division, the allocated budget is first to be used for absolutely necessary items such as labor costs and expenses needed for operation, and thus budget to be allocated for maintenance (routine works and construction) is not necessarily sufficient.

### 3. Conclusion, Lessons Learned, Recommendations

#### 3.1 Conclusion

Since this project is highly relevant with the Indonesian national policies and development needs with high priority at the moment, the project implementation needs to be accelerated.

#### 3.2 Recommendations

##### 3.2.1 Recommendation to executing agencies

- 1) The original scope of work needs to be partly modified (the majority of port inner road improvement works have been commenced with the Government's own funds; detailed designs have been already completed under JICA's technical assistance; the necessity of design changes was pointed out at the detailed design stage).
- 2) Since five years have passed from the originally planned commencement date, reestimation of the project costs is needed taking into account the price escalation and changes in foreign exchange rates.
- 3) Since the project implementation has been substantially delayed, a new project implementation schedule needs to be established. In order to accelerate implementation of the project here after, a procurement implementation plan for selection of contractors needs to be promptly prepared and the progress should be strictly monitored and supervised so that the works would progress as planned. . The plan should include the information on the timing of

the following activities: advertisement, Prequalification (P/Q) preparation period, submission date of P/Q evaluation reports, consent period by JICA, distribution date of bidding documents, bidding opening date, submission date of bid evaluation reports, consent period by JICA, negotiation period with the lowest bidder, commencement date by the selected contractors. After the project commenced, the progress needs to be monitored against the agreed construction implementation plan. In case any delay of progress is foreseen, executing agencies together with supervising consultants and JICA needs to discuss countermeasures and actions to be taken, and supervise so that proposed countermeasures and actions would be implemented within agreed due date

4) Regarding monitoring indicators for cargo, since it is desirable to refer to the relevant indicators (e.g. ship call, general cargo, cargo total, container handling volume (TEUs)) available from the official documents such as the annual report of Tanjung Priok Port at the post evaluation stage, it is essential to continuously collect the information and data related to the proposed indicators. At the mid-term review stage, domestic passengers are decreasing year by year due to boost in air transportation and no international ship call (international passengers) is expected. However, since foreign passenger vessels might call the port upon completion of the project, it is considered appropriate to keep these indicators (domestic and international passengers) as monitoring indicators.

5) The EIA was approved by Ministry of Environment on March 24, 2004. However, since the project has not started yet in 5 years after the originally planned project commencement date, it is essential for the Indonesian government to check the necessity of review of the EIA, including the review of an originally proposed dumping site of dredged soils.

### 3.2.2 Recommendations to JICA

1) Since review on extension of the loan closing date may be needed depending on the progress of the remaining implementation schedule with about four and half years delay at this moment, the information needs to be shared with executing agencies and a consultant to be recruited, and actions/countermeasures to accelerate the implementation needs to be discussed.