Republic of Indonesia

Japanese ODA Loan Mid-Term Review Report

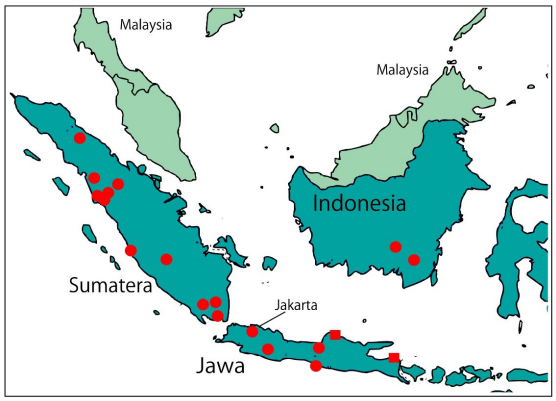
Project Type Sector Loan for Water Resources Development (II)

Evaluators: Yasuhiro Kawabata

Sanshu Engineering Consultant

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.

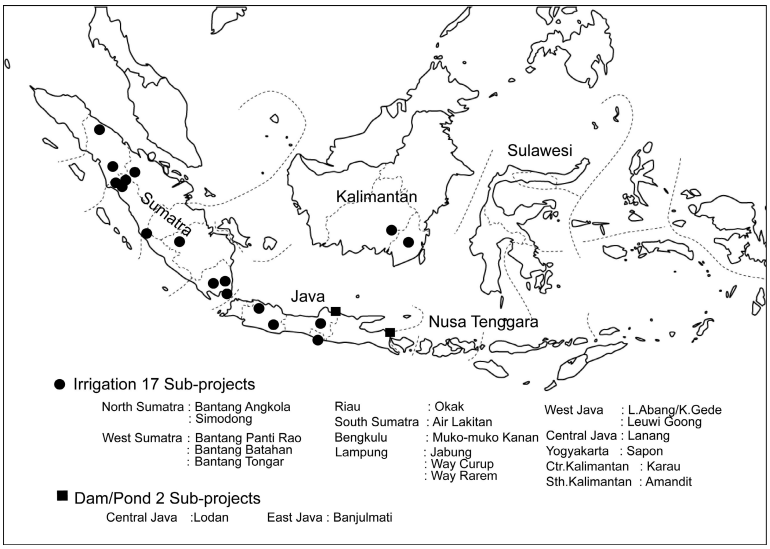


Figure 1 Location of the Project Sites

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 Pembanguan Janka 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) enlivenment 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[1], 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[1]	92,249 (78790)[2]	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

[1] 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 lubber, 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 mainenance

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[2] (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 hector 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).

[2] 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.