

**ODA Loan Project Mid-Term Review 2007**

Evaluator: Hajime Onishi (Mitsubishi UFJ Research & Consulting)  
Field survey: April 2008

Project title: The Republic of Indonesia “Decentralized Irrigation System Improvement Project” (L/A No. IP-509)

**[Loan Outline]**

Loan amount/Contract approved amount/Disbursed amount : 27,035 million yen/23,346 million yen/16,726 million yen (as of the end of March 2008)

Loan agreement : October 2002 (5 years after L/A)

Original completion date : June 2009

Revised completion date : December 2009

Loan expiry date : February 2012

Executing agency : Directorate General of Water Resources (DGWR), Ministry of Public Works

Operation and maintenance agency : River Basin Water Resource Management Unit (Barai) for primary and secondary canals of over 3,000ha, Provincial Irrigation Office for primary and secondary canals of 1,000ha~3,000ha, Kabupaten (District) Irrigation Office for primary and secondary canals of less than 1,000ha and Water Users Association (WUA) for tertiary canals

Selection criteria for mid-term review : Coordination (among activities facilitated by NGOs, regular activities of DGWR, Ministry of Public Works and local governments and activities or funding by other donors for capacity building for and dissemination of water management under the project. Collaboration with NGOs etc.)

This mid-term review focuses on evaluation of Ponre-Ponre irrigation (South Sulawesi), Malaka irrigation (East Nusa Tenggara) and Paguyaman irrigation (Gorontalo).

**[Project Objective]**

To increase rice production by constructing and rehabilitating irrigation facilities and providing assistance for better irrigation water management at 8 provinces in Eastern Indonesia, thereby contributing to poverty alleviation in the region.

Consultant: Nippon Koei (Japan)/ PT. DDC CONSULTANTS, PT. BINA KARYA, PT. GEO ACE, PT. KWARSA HEXAGON, PT. METTANA ENGINEER, PT. PUSAT PENGEMBANG, PT. TATA GUNA PATRIA, PT. TRITUNGGAL P. KO, WIRATMAN & ASSOCIATE (Indonesia)

Contractor: Hazama Corporation (Japan), PT. ADHI KARYA, PT. BRANTAS ABIPRAYA, PT. PEMBANGUNAN (Indonesia)

**[Mid-Term Review Result]**

Item	Appraisal (September. 2002)	Result of mid-term review and ex-post evaluation results as estimated at time of mid-term review
<b>[Relevance]</b>	(1) National policy level Agriculture, food and irrigation sectors are designated as important areas for economic recovery and sustainable economic growth under the National Development Program (Propenas2000-2004). Specifically, the program for improving	(1) National policy level In the Mid-Term National Development Plan (RPJM2004 – 2009), revitalization of agriculture is placed as a strategic target for ① support of domestic economic growth and ② realizing self-sufficiency of food. As a measure to revitalize agriculture, ① capacity building of farmers and strengthen support organization, ② secure self-sufficiency of food,

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	<p>food security and the program for developing and managing water resources were established as agricultural policy. The program for improving food security aims at improving rice production and stockpiling by expanding cropland and encouraging effective use of idle field or land of low productivity. The program for developing and managing water resources aims at increasing food output and promoting agri-business by expanding water resources, efficient irrigation system management and improving productivity. As for irrigation system management, water management organizations led by farmers have to work with provincial and district governments to establish the right to water for fair distribution and establish appropriate water administrative body.</p> <p>Disparities among different regions of the country are pointed out as a problem of irrigation sector in Development Policy, Strategy and Program being formulated now. It specifically targets development of water resource and irrigation facility in Eastern Indonesia.</p> <p>(2) Planning level</p> <p>Eastern Indonesia is the least developed part of the country whose per capita GDP is 70% of national average and people living under poverty line is 29.8% (2000) compared to national average of 24.1% (2000). Development is needed in the area to bridge disparity in the country. Since 60% of population in the area are engaged in agriculture, development of agriculture is expected to mitigate the problem.</p> <p>Even though precipitation of the area is lower than the national average, development of irrigation facilities is delayed. Proportion of irrigated farmland to total farmland is just 6%~8% at eastern region of Indonesia, namely, North</p>	<p>③ improve agricultural productivity and ④ improve competitiveness and value added are advocated.</p> <p>As one specific measure to achieve the above, a program for development and management of irrigation network, wet area and canals is being implemented. The program aims at ① activation of farmers, ② strengthening management and operation organization of irrigation facilities and ③ promoting participation of farmers.</p> <p>President Yudhoyono announced a plan to improve self-sufficiency of rice by reducing import of rice and increasing domestic production, from output of 33 million tons (polished rice basis) in 2006 to 37 million tons in 2008.</p> <p>Agriculture sector in Indonesia accounts for 13.4% of the total GDP (2005) and work force engaged in agriculture amounts for 44% of the total workforce in the country (2005). Agriculture remains the core industry of the country and positioned as the most important sector to secure sustainable economic growth.</p> <p>In light of the above, this project remains extremely relevant at national policy level since ex-ante evaluation till today.</p> <p>(2) Planning level</p> <p>Eastern Indonesia remains the least developed part of the country with population under poverty line at 18.8%(2004), exceeding national average of 16.6%(2004).</p> <p>As for self-sufficiency of rice, 100% was once achieved in 1984 but partially dependent on imports thereafter until 2003, when 100% was recovered and sustained for 3 years. Then in 2006, self-sufficiency ratio was reduced to 94% and approximately 1.9 million tons<sup>1</sup> of rice was imported.</p> <p>Production volume of rice reached 35 million tons (polished rice basis) in 2003 due to good weather, but on decline trend thereafter down to 33 million tons (polished rice basis) in 2006. On the other hand, since population of the country kept increasing for the past 10 years by 1.2% or more, demand of rice is expected to increase continuously in the future.</p>

<sup>1</sup> The volume is equivalent to more than one forth of India's annual rice exports (6.7million tonnes in 2004 according to FAO data) , the world's second largest exporter of rice. Rice import by Indonesia is by no means marginal to the global rice export market. Further, due to world-wide surge of rice price since 2<sup>nd</sup> half of 2007, India and Vietnam, the 2<sup>nd</sup> and 3<sup>rd</sup> largest exporters of rice announced restriction of rice export in 2008, adding to the destabilization of international rice market (prevailing view on the food crisis including rice is that it is not limited to short-term problem but possibly lasts long due to active demand in emerging countries like China and India). Given the circumstances, increasing self-sufficiency rate of rice in Indonesia is of urgent need and relevance of the project is extremely high.

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	<p>Sulawesi, Central Sulawesi, Southeast Sulawesi and East Nusa Tenggara. This is extremely low compared to 47% in Java Island, where 42% of the country's rice paddy is concentrated. Development of irrigation facility is extremely important for economic development and poverty reduction in eastern region of Indonesia.</p> <p>As 20,000ha of farmland area disappearing every year from main crop production area of Java Island due to urbanization and industrialization, irrigation development in eastern part of the country for rice production increase is important.</p>	<p>In light of the above, this project is extremely relevant at planning level, since it can greatly contribute to economic development and poverty reduction in eastern Indonesia and lead to improve self-sufficiency of food in the country.</p>																																																																																																																			
[Effectiveness]	<p>(1) Operation and Effect Indicators ① Quantitative effects</p> <table border="1" data-bbox="385 730 1057 1396"> <thead> <tr> <th>Indicators</th> <th>Ex-ante evaluation (actual value in 2001)</th> <th>Target (target in 2014)</th> </tr> </thead> <tbody> <tr> <td colspan="3"><b>Ponre-Ponre irrigation (new)</b></td> </tr> <tr> <td colspan="3">Cultivated area by crops (ha)</td> </tr> <tr> <td>Rice (rainy season)</td> <td>3,339</td> <td>4,313</td> </tr> <tr> <td>Rice (dry season)</td> <td>N/A</td> <td>2,157</td> </tr> <tr> <td>Corn</td> <td>N/A</td> <td>2,157</td> </tr> <tr> <td>Mung bean</td> <td>266</td> <td>1,294</td> </tr> <tr> <td>Peanut</td> <td>381</td> <td>2,157</td> </tr> <tr> <td>Rate of water users associations formulated (%)</td> <td>41.67</td> <td>100</td> </tr> <tr> <td colspan="3">Yield of major crops per unit area (ton/ha)</td> </tr> <tr> <td>Rice (rainy season)</td> <td>2.00</td> <td>3.50</td> </tr> <tr> <td>Rice (dry season)</td> <td>3.20</td> <td>3.50</td> </tr> <tr> <td>Corn</td> <td>N/A</td> <td>2.00</td> </tr> <tr> <td>Mung bean</td> <td>0.25</td> <td>1.20</td> </tr> <tr> <td>Peanut</td> <td>0.35</td> <td>1.40</td> </tr> <tr> <td>Net annual average farm income (1,000Rp/year)</td> <td>871</td> <td>5,193</td> </tr> </tbody> </table>	Indicators	Ex-ante evaluation (actual value in 2001)	Target (target in 2014)	<b>Ponre-Ponre irrigation (new)</b>			Cultivated area by crops (ha)			Rice (rainy season)	3,339	4,313	Rice (dry season)	N/A	2,157	Corn	N/A	2,157	Mung bean	266	1,294	Peanut	381	2,157	Rate of water users associations formulated (%)	41.67	100	Yield of major crops per unit area (ton/ha)			Rice (rainy season)	2.00	3.50	Rice (dry season)	3.20	3.50	Corn	N/A	2.00	Mung bean	0.25	1.20	Peanut	0.35	1.40	Net annual average farm income (1,000Rp/year)	871	5,193	<p>(1) Operation and Effect Indicators ① Quantitative effects Present value (2008) of respective operation and effect indicators and target (2014) are as follows.</p> <table border="1" data-bbox="1196 730 2051 1396"> <thead> <tr> <th>Indicators</th> <th>Ex-ante evaluation (actual value in 2001)</th> <th>Mid-term review (as of 2008)</th> <th>Target (2014)</th> </tr> </thead> <tbody> <tr> <td colspan="4"><b>Ponre-Ponre irrigation (new)</b></td> </tr> <tr> <td colspan="4">Cultivated area by crops (ha)</td> </tr> <tr> <td>Rice (rainy season)</td> <td>2,400</td> <td>3,000</td> <td>3,749</td> </tr> <tr> <td>Rice (dry season)</td> <td>N/A</td> <td>N/A</td> <td>2,157</td> </tr> <tr> <td>Corn</td> <td>N/A</td> <td>500</td> <td>2,157</td> </tr> <tr> <td>Mung bean</td> <td>266</td> <td>N/A</td> <td>1,294</td> </tr> <tr> <td>Peanut</td> <td>381</td> <td>1,000</td> <td>2,157</td> </tr> <tr> <td>Rate of water users associations formulated (%)</td> <td>N/A</td> <td>15.6 (7/45)</td> <td>100</td> </tr> <tr> <td colspan="4">Yield of major crops per unit area (ton/ha)</td> </tr> <tr> <td>Rice (rainy season)</td> <td>2.00</td> <td>3.00</td> <td>3.50</td> </tr> <tr> <td>Rice (dry season)</td> <td>3.20</td> <td>N/A</td> <td>3.50</td> </tr> <tr> <td>Corn</td> <td>N/A</td> <td>1.00</td> <td>2.00</td> </tr> <tr> <td>Mung bean</td> <td>0.25</td> <td>N/A</td> <td>1.20</td> </tr> <tr> <td>Peanut</td> <td>0.35</td> <td>1.00</td> <td>1.40</td> </tr> <tr> <td>Net annual average farm income (1,000Rp/year)</td> <td>871</td> <td>3,326</td> <td>5,193</td> </tr> </tbody> </table>				Indicators	Ex-ante evaluation (actual value in 2001)	Mid-term review (as of 2008)	Target (2014)	<b>Ponre-Ponre irrigation (new)</b>				Cultivated area by crops (ha)				Rice (rainy season)	2,400	3,000	3,749	Rice (dry season)	N/A	N/A	2,157	Corn	N/A	500	2,157	Mung bean	266	N/A	1,294	Peanut	381	1,000	2,157	Rate of water users associations formulated (%)	N/A	15.6 (7/45)	100	Yield of major crops per unit area (ton/ha)				Rice (rainy season)	2.00	3.00	3.50	Rice (dry season)	3.20	N/A	3.50	Corn	N/A	1.00	2.00	Mung bean	0.25	N/A	1.20	Peanut	0.35	1.00	1.40	Net annual average farm income (1,000Rp/year)	871	3,326	5,193
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	<b>Malaka irrigation (extension)</b>			<b>Malaka irrigation (extension)</b>			
	Cultivated area by crops (ha)			Cultivated area by crops (ha)			
	Rice (rainy season)	2,146	10,000	Rice (rainy season)	2,146	2,300	6,000
	Rice (dry season)	406	2,667	Rice (dry season)	406	1,430	2,667
	Corn	N/A	2,333	Corn	N/A	2,170 (rainy season) 1,180 (dry season)	2,333
	Mung bean	N/A	2,000	Mung bean	N/A	768	2,000
	Peanut	N/A	2,500	Peanut	N/A	N/A	2,500
	Rate of water users associations formulated (%)	33.33	100	Rate of water users associations formulated (%)	33.33	83.9 (52/62)	100
	Yield of major crops per unit area (ton/ha)			Yield of major crops per unit area (ton/ha)			
	Rice (rainy season)	2.30	2.50	Rice (rainy season)	2.30	3.00 <sup>1)</sup>	2.50
	Rice (dry season)	2.30	2.60	Rice (dry season)	2.30	3.00 <sup>1)</sup>	2.60
	Corn	N/A	2.20	Corn	N/A	1.60 (rainy season) 1.20 (dry season)	2.20
	Mung bean	N/A	0.84	Mung bean	N/A	0.87 <sup>1)</sup>	0.84
	Peanut	N/A	1.30	Peanut	N/A	N/A	1.30
	Net annual average farm income (1,000Rp/year)	822	7,377	Net annual average farm income (1,000Rp/year)	822	N/A	7,377
	<b>Paguyaman irrigation (new)</b>			<b>Paguyaman irrigation (new)</b>			
	Cultivated area by crops (ha)			Cultivated area by crops (ha)			
	Rice (rainy season)	2,160	2,713	Rice (rainy season)	2,090	3,529	6,880
	Rice (dry season)	N/A	2,713	Rice (dry season)	N/A	512	6,880
	Corn	188	N/A	Corn	188	1,942	N/A
	Mung bean	N/A	N/A	Mung bean	N/A	N/A	N/A
	Peanut	N/A	N/A	Peanut	N/A	N/A	N/A
	Rate of water users associations formulated (%)	75	100	Rate of water users associations formulated (%)	N/A	0.0 (0/190)	100
	Yield of major crops per unit area (ton/ha)			Yield of major crops per unit area (ton/ha)			
	Rice (rainy season)	3.00	4.40	Rice (rainy season)	3.00	3.50-4.00	4.40
	Rice (dry season)	N/A	4.60	Rice (dry season)	N/A	N/A	4.60
	Corn	1.00	N/A	Corn	1.00	3.00	N/A
	Mung bean	N/A	N/A	Mung bean	N/A	N/A	N/A
	Peanut	N/A	N/A	Peanut	N/A	N/A	N/A
	Net annual average farm	1,024	3,044				

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		<p data-bbox="1182 389 1984 411">Source: Answers to questionnaires from DGWR, Ministry of Public Works and the consultant</p> <p data-bbox="1182 418 2150 520">Note 1): These values already exceed original targets, and agricultural office of Belu responsible for planting guidance for Malaka irrigation project already revised target. However the target was not agreed by DGWR, Ministry of Public Works, execution agency of this project as of yet. Because of this, original target was shown in this report.</p> <p data-bbox="1102 555 1361 577"><u>Ponre-Ponre irrigation</u></p> <ul data-bbox="1111 587 2150 1129" style="list-style-type: none"> <li>(Present values of indicators and feasibility of quantitative effects) Although the project progress is a little behind the schedule (see “efficiency” for the reason and details of the delay), so far, present values of indicators show a stable growth. Slow rate of water users associations (WUA) formulated is a bit worrisome, but once financing by Indonesian government for capacity building and formulation of WUA is secured (detailed in “(3) Factors influencing sustainability”), hurdle for target achievement could be lowered. Since Ponre-Ponre irrigation is a newly developing project and rain-fed rice paddy area before the project implementation was 2,400ha, baseline value of rice cultivated area at ex-ante evaluation should be corrected to 2,400ha. Although there were some voluntary organizations of farmers existed before the project, they were not official WUA (approved by governor and court). Because of this, the rate of WUA formulated (41.67%) at ex-ante evaluation is considered an error and therefore, not valid as baseline value.</li> <li>(Change of target values) Target irrigated area was reduced to 3,749ha as a result of detailed assessment on potential irrigation areas via special survey equivalent to F/S and socialization activity (see “(3) Factors influencing sustainability” for details of the activity). With this, target area for rice cultivation (rainy season) was also reduced.</li> </ul> <p data-bbox="1102 1168 1308 1190"><u>Malaka irrigation</u></p> <ul data-bbox="1111 1200 2150 1417" style="list-style-type: none"> <li>(Present values of indicators and feasibility of quantitative effects) Civil works were completed in March 2008 almost in line with the schedule and the current values of indicators show quite a steady growth.</li> <li>(Change of target value) Realistic targets were set as a result of socialization activity etc. conducted until 2005 on the production capacity of local farmers and actual unit yield. Actual unit yield of rice and Mung bean already surpassed the target at the time of mid-term review. According to Kabupaten (District) agricultural office (Dinas Pertanian</li> </ul>																								

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	<p>② Qualitative effects            (Development of irrigation facilities and improvement in land use are expected to increase rice production and income of farm households. As a result of this,) the project is expected to alleviate poverty in villages of provinces and districts with a high poverty rate.</p>	<p>Kabupaten), thanks to the dissemination of SRI(System of Rice Intensification: to be detailed hereinafter), unit yield of rice and Mung bean are expected to increase to 5.0t/ha(both rainy and dry seasons) and 1.2t/ha, respectively by 2014.</p> <p><u>Paguyaman irrigation</u></p> <ul style="list-style-type: none"> <li>• (Present values of indicators and feasibility of quantitative effects) Due to major delay in project implementation (see “efficiency” for reasons and details of the delay), the current values of indicators are quite low against the target. Just like Ponre-Ponre irrigation, Paguyaman irrigation is a newly developing project and rain-fed rice paddy area before the project was 2,090ha, thus baseline value of rice cultivated area at ex-ante evaluation should be corrected to 2,090ha. Similar to Ponre-Ponre irrigation, although there were some voluntary organizations of farmers before the project, there was no official WUA (approved by governor and court). Because of this, the rate of WUA formulated (75%) at ex-ante evaluation is considered an error and therefore, not valid as a baseline value.</li> <li>• (Change of target value) Originally, the project target area was limited to the left side of a river but after review of the development area via socialization activity, the right side of the river was newly incorporated and the targeted rice cultivated area dramatically increased.</li> </ul> <p>② Qualitative effects</p> <p>With the project, irrigation facilities are developed in 8 provinces of eastern region of Indonesia that realizes stable water supply system and intensive land use, which is expected to dramatically increase agricultural production including rice.</p> <p>In addition, if food price remains stable or increases, income of beneficiary farm households will increase as their agricultural production increases. If an increase in agricultural income brings excessive capital to farm households, additional investment in agricultural business or creation of new business will be enabled as a secondary economic ripple effect. At the same time, income levels of the whole target area are expected to rise, which naturally brings about mitigation or reduction of poverty.</p> <p>Dissemination of SRI (System of Rice Intensification), promoted under the project can drive the above effect. SRI is “low input high yield rice farming technology” started to be introduced since 2002 under Small Scale Irrigation Management Project (3) (SSIMP-III), that proceeds this project. SRI realized 1.85 times the unit yield and 7.2 tons/ha on average in Indonesia, while reducing consumption of irrigated water by 40% and production expenses by 25%.</p>

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	<p>(2) Factors that may influence the effectiveness and impact</p> <p>① Collaboration with NGOs, local universities etc.</p> <p>In addition to providing trainings to farmers constituting WUA and local government employees that supervise them, support socialization activities with NGOs etc. to enhance awareness of farmers on the need to establish WUA.</p> <p>② Coordination with grant-in-aid project/ technical cooperation</p> <p>As part of development survey by JICA, “irrigation association promotion survey” was conducted (FY1999～2001) aiming at transferring control of irrigation facilities to WUA. Also, Indonesian government requested technical cooperation in the form of project for training/instruction of</p>	<p>(2) Factors that may influence the effectiveness and impact</p> <p>① Collaboration with NGOs, local universities etc.</p> <p>There have been collaborations with NGOs to help establish WUA. Under sub-project of Ponre-Ponre irrigation, the project employed local NGO called LEPPSEM(Lembaga Pengembangan dan Pembinaan Sosial Ekonomi Masyarakat) to implement socialization activities including assistance to establish WUA (① publicize the benefit of WUA activities, ② design tertiary canals, ③ convince local farmers to join WUA and issue agreement form, ④ assist the foundation of WUA and its official registration to local government in charge and ⑤ capacity building of leaders etc. of WUA). Various activities (holding PCM workshops etc. to members of WUA) seem to have taken place as socialization activities in partnership with district irrigation office (Dinas Pengairan Kabupaten) and district agricultural office (Dinas Pertanian Kabupaten).</p> <p>Government of Indonesia has a system to hire former employees of district irrigation office as agricultural extension worker called Tenaga Pendamping Masyarakat(TPM), instead of NGOs for the purpose of capacity building of WUA. Although employment of TPM was not confirmed in case of the government (river basin water resource management unit and district public work office) responsible for the 3 subprojects, it is considered effective in solving lack of personnel at related government institutions as explained below. Thus the effective use of TPM should be considered in the future (In addition, need to consider how to allocate fund for hiring TPM out of district government budget).</p> <p>Also, it is necessary to transfer all sorts of activities for capacity building of WUA currently conducted as part of consulting service, to local government (district irrigation office and agricultural office) so that they can engage in such activities as part of regular duties. Utilization of abovementioned TPM is effective in promoting the process.</p> <p>According to an agreement (M/D) exchanged between JBIC and Indonesian government when signing the loan agreement, there was a mention about possibility of partnership with local universities, but no collaboration was confirmed based on hearing from DGWR, Ministry of Public Works and the consultant.</p> <p>② Coordination with grant-in-aid project/ technical cooperation</p> <p>Although technical cooperation (JICA “the Empowerment of Water Users Association Project”) was conducted in the Bili-Bili Irrigation Project (IP-479) area until March 2007, there seems to have been no specific collaboration among them.</p> <p>No coordination with grant-in-aid project was confirmed.</p>

Item	Appraisal (September, 2002)	Result of mid-term review and ex-post evaluation results as estimated at time of mid-term review
	<p>WUA. Thus it is necessary to closely coordinate with these trends for capacity building of WUA.</p> <p>③ Collaboration with other donors Sadang of South Sulawesi is the area the World Bank designated to provide capacity building assistance. Strengthening operation and maintenance of irrigation facilities in the area will be conducted as part of capacity building project of the World Bank. Close contact with the World Bank to confirm progress status of their project and preparedness of operation and maintenance system is necessary.</p> <p>④ Impact on the environment Under the project, the executing agency will review environmental assessment and conduct additional assessment as necessary with support of the consultant to take measures to minimize negative impact on the environment.</p> <p>⑤ Land acquisition/relocation of residents Out of 9 subprojects requiring land acquisition, only Ponre-Ponre irrigation requires relocation of residents. Interviews to the representatives of 33 relocated households were conducted during appraisal and confirmed that the residents generally agreed to relocation. After the appraisal, executing agency received agreement from the representative on relocation in March 2002.</p>	<p>③ Collaboration with other donors There has been no collaboration with the World Bank in Sadang district. There is no collaboration or duplication of project scope with “Water Resources &amp; Irrigation Sector Management Program” or “Third Kecamatan Development Project –KDP- (Phase 2)” currently implemented by the World Bank. On the other hand, “Participatory Irrigation Sector Project (Loan No. 2064(SF)-INO/2065-INO, to be continued until 2011)” implemented by ADB aims at building capacity of government employees working at irrigation sector. While there is no duplication of scope between the project and DISIMP, integrated collaboration and partnership is desirable. Indonesian government used to implement project called PTGA(Proyek Tata Guna Air) aimed at strengthening irrigation water management skills of government employees and farmers (detailed hereinafter). The project was funded by Indonesian government and there is no fact that training expenses were funded by any donors (World Bank, ADB etc.).</p> <p>④ Impact on the environment Environmental Impact Assessment(EIA) was properly implemented and consultant is closely monitoring EIA procedures (e.g. EIA review of Ponre-Ponre irrigation was completed in 2004). There was no negative impact unanticipated during ex-ante evaluation and no additional environmental assessment was conducted. Accordingly, there is no negative influence to the effectiveness or impact of the project.</p> <p>⑤ Land acquisition/relocation of residents Relocation of residents in Ponre-Ponre irrigation was smoothly completed in 2004 as scheduled. Ultimately 30 households were relocated. Resident relocation was not required for the rest of the subprojects. Only small areas of land acquisition were required for the construction of primary and secondary canals in general, not expected to affect realization of effects or impact.</p>



Item	Appraisal (September. 2002)	Result of mid-term review and ex-post evaluation results as estimated at time of mid-term review																																																																										
	<p>(3) Factors influencing sustainability</p> <p>① Operation and maintenance system</p> <p>Based on the presidential decree no.3 in 1999, the responsibility for operation and maintenance of irrigation facilities including main and end canals is to be transferred to WUA. In the future, operation and maintenance of primary canals will be placed under the joint control of WUA federation and district government, secondary canals under WUA federation and tertiary canals under WUA.</p>	<p>(3) Factors influencing sustainability</p> <p>① Operation and maintenance system</p> <p>Operation and maintenance system for irrigation facilities established by Government Regulation No.20 Year 2006 etc. is shown in the table below.</p> <p style="text-align: center;"><b>Table Operation &amp; maintenance system of irrigation facilities based on Government Regulation No.20</b></p> <table border="1" data-bbox="1137 475 2114 1347"> <thead> <tr> <th rowspan="2">Area of irrigation</th> <th rowspan="2">Type of O&amp;M</th> <th colspan="2">Primary Canals</th> <th colspan="2">Secondary Canals</th> <th colspan="2">Tertiary Canals</th> </tr> <tr> <th>Funded by</th> <th>Undertaking Authority</th> <th>Funded by</th> <th>Undertaking Authority</th> <th>Funded by</th> <th>Undertaking Authority</th> </tr> </thead> <tbody> <tr> <td rowspan="3">3,000ha or more</td> <td>O</td> <td>Central government</td> <td>Balai<sup>1)</sup></td> <td>Central government</td> <td>Balai<sup>1)</sup></td> <td rowspan="3">Determined by WUA<sup>4)</sup></td> <td>WUA</td> </tr> <tr> <td>R</td> <td>Central government</td> <td>Balai<sup>1)</sup></td> <td>Central government</td> <td>Balai<sup>1)</sup></td> <td>WUA</td> </tr> <tr> <td>H</td> <td>Central government</td> <td>Balai<sup>1)</sup></td> <td>Central government</td> <td>Balai<sup>1)</sup></td> <td>WUA</td> </tr> <tr> <td rowspan="3">1,000~3,000ha</td> <td>O</td> <td>Province<sup>2)</sup></td> <td>Provincial irrigation office</td> <td>Province<sup>2)</sup></td> <td>Provincial irrigation office</td> <td rowspan="3">Determined by WUA<sup>4)</sup></td> <td>WUA</td> </tr> <tr> <td>R</td> <td>Province<sup>2)</sup></td> <td>Provincial irrigation office</td> <td>Province<sup>2)</sup></td> <td>Provincial irrigation office</td> <td>WUA</td> </tr> <tr> <td>H</td> <td>Province<sup>2)</sup></td> <td>Provincial irrigation office</td> <td>Province<sup>2)</sup></td> <td>Provincial irrigation office</td> <td>WUA</td> </tr> <tr> <td rowspan="3">1,000ha or less</td> <td>O</td> <td>District<sup>3)</sup></td> <td>District irrigation office</td> <td>District<sup>3)</sup></td> <td>District irrigation office</td> <td rowspan="3">Determined by WUA<sup>4)</sup></td> <td>WUA</td> </tr> <tr> <td>R</td> <td>District<sup>3)</sup></td> <td>District irrigation office</td> <td>District<sup>3)</sup></td> <td>District irrigation office</td> <td>WUA</td> </tr> <tr> <td>H</td> <td>District<sup>3)</sup></td> <td>District irrigation office</td> <td>District<sup>3)</sup></td> <td>District irrigation office</td> <td>WUA</td> </tr> </tbody> </table> <p>Source: Government Regulation of Republic of Indonesia Number 20 Year 2006 About Irrigation etc.  O: Operation of facilities and equipment, R: Regular maintenance of facilities and equipment (including simple repair), H:</p>	Area of irrigation	Type of O&M	Primary Canals		Secondary Canals		Tertiary Canals		Funded by	Undertaking Authority	Funded by	Undertaking Authority	Funded by	Undertaking Authority	3,000ha or more	O	Central government	Balai <sup>1)</sup>	Central government	Balai <sup>1)</sup>	Determined by WUA <sup>4)</sup>	WUA	R	Central government	Balai <sup>1)</sup>	Central government	Balai <sup>1)</sup>	WUA	H	Central government	Balai <sup>1)</sup>	Central government	Balai <sup>1)</sup>	WUA	1,000~3,000ha	O	Province <sup>2)</sup>	Provincial irrigation office	Province <sup>2)</sup>	Provincial irrigation office	Determined by WUA <sup>4)</sup>	WUA	R	Province <sup>2)</sup>	Provincial irrigation office	Province <sup>2)</sup>	Provincial irrigation office	WUA	H	Province <sup>2)</sup>	Provincial irrigation office	Province <sup>2)</sup>	Provincial irrigation office	WUA	1,000ha or less	O	District <sup>3)</sup>	District irrigation office	District <sup>3)</sup>	District irrigation office	Determined by WUA <sup>4)</sup>	WUA	R	District <sup>3)</sup>	District irrigation office	District <sup>3)</sup>	District irrigation office	WUA	H	District <sup>3)</sup>	District irrigation office	District <sup>3)</sup>	District irrigation office	WUA
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		<p>Heavy repair etc. of facilities and equipment</p> <p>Note 1): River Basin Water Resource Management Unit. Established in January 2007.</p> <p>Note 2): Include both subsidiary from central government and provincial budget.</p> <p>Note 3): Include both subsidiary from central government and district budget.</p> <p>Note 4): Funding for operation and maintenance of tertiary canals is left to the discretion of respective WUA (in addition to collecting water users fee, volunteer labor services for cleaning irrigation facilities is allowed as an option). Financial assistance can be requested to Balai, provincial irrigation office and district irrigation office for heavy irrigation repair. (Source: hearing from DGWR of Ministry of Public Works)</p> <p>Operation and maintenance system is basically set in the Government Regulation No.20 Year 2006 according to the area of irrigation as shown in the table above. However, it allows exceptions such as “lower organizations are entitled to be supported by the upper authorities if a task is beyond their financial and/or management capability” that enables flexible operation despite the possibility to complicate share of responsibility among relevant organizations (e.g. if a task is beyond WUA’s management capacity, its district government can assume responsibility for the task. If the task is beyond the district government’s capacity, its provincial government can assume responsibility for the task).</p> <p>Table below shows the future operation and maintenance system for subprojects in Ponre-Ponre, Malaka and Paguyaman (the irrigated areas of these subprojects are over 3,000ha) (based on hearing from related organizations. Civil work is now underway in Ponre-Ponre and Paguyaman as explained hereunder. Civil work was completed in March 2008 in Malaka).</p> <p>Operation and maintenance systems of Ponre-Ponre and Paguyaman are assumed to be almost in line with the system set in the Government Regulation No.20 Year 2006, while in Malaka, in the context of the geographic condition of the project site and financial difficulty and the lack of personnel and material resources of WUA, its district government is in charge of operation and maintenance for all canals including tertiary canals, under the supervision of Balai Kupang.</p>

Item	Appraisal (September, 2002)	Result of mid-term review and ex-post evaluation results as estimated at time of mid-term review							
		<b>Table Operation &amp; maintenance system of irrigation facilities in subproject areas</b>							
		Subproject	Type of O&M	Primary Canals		Secondary Canals		Tertiary Canals	
				Funded by	Undertaking Authority	Funded by	Undertaking Authority	Funded by	Undertaking Authority
		Ponre-Ponre irrigation (3,749ha)	O R H	Central Government	Balai Makassar <sup>1)</sup>	Central Government	Balai Makassar <sup>1)</sup>	Determined by WUA	WUA WUA/Balai Makassar
		Malaka irrigation (6,000ha)	O R H	Central Government	Public Work Office in Belu <sup>2)</sup>	Central Government	Public Work Office in Belu <sup>2)</sup>	Central Government	Public Work Office in Belu <sup>2)</sup>
		Paguyaman irrigation (6,880ha)	O R H	Central Government	Balai Gorontalo	Central Government	Balai Gorontalo	Determined by WUA	WUA WUA WUA/Balai Gorontalo
		Source: Hearing from Balai Gorontalo, Balai Makassar, Balai Kupang and other relevant institutions							
		O: Operation of facilities and equipment, R: Regular maintenance of facilities and equipment (include simple repair), H: Heavy repair etc. of facilities and equipment							
		Note 1): South Sulawesi Province is planned to be in charge of operation and maintenance of primary and secondary canals in the future (source:hearing from Balai Makassar).							
		Note 2): The Public Work Office (Dinas PU Kabupaten Belu) in Belu in charge of Malaka project is responsible for operation and maintenance of main-tertiary canals under the supervision of Balai Kupang (source: hearing from Balai Kupang )							
<p>Current system shown in the above table is “flexible for proper operation and maintenance of irrigation facilities depending on the capacity of responsible local government and WUA and any other constraints”. However, WUA should be responsible for light duties such as daily operation and regular maintenance (cleaning of canals etc.) of tertiary canals as set in the Government Regulation, in order to promote a sense of ownership within WUA. As for Malaka, it is desirable for district government to transfer responsibility of operation and maintenance to WUA in a long run, depending on the progress status of capacity building.</p> <p>Both Ponre-Ponre and Paguyaman are in the process of formulating WUAs (see “effectiveness” in this report for the ratio of formulation). Depending on the progress of capacity building of WUAs in the future, higher organization like district government might need to intervene in operation and maintenance of tertiary canals just like the case in Malaka. It is necessary to closely monitor operation and maintenance system in the future.</p> <p>Human resources are insufficient in both Paguyaman and Malaka subprojects (e.g. there are 20 personnel at Balai Gorontalo. According to the Balai, one personnel can adequately take care of 100ha or so). How to secure human resources under budget constraints, detailed</p>									

Item	Appraisal (September, 2002)	Result of mid-term review and ex-post evaluation results as estimated at time of mid-term review
	<p>② Technical capacity in operation and maintenance Assist establishment and strengthen functions of WUAs to be mainly responsible for operation and maintenance.</p>	<p>hereinafter is an issue to be tackled in the future (hiring TPM is considerable).</p> <p>② Technical capacity in operation and maintenance <u>Primary and secondary canals</u> As stated earlier in this report, Balai, Provincial Irrigation Office and District Irrigation Office are basically in charge of operation and maintenance. Balai (Ponre-Ponre and Paguyaman) and District Public Work Office (Malaka) are responsible for operation and maintenance of the 3 subprojects targeted in the survey. The operation and maintenance work is gate control, sediment removal, and weeding, etc which do not generally require high knowledge or skills. Strengthening capacity of government employees to manage the project or maintain the facility seems to have been promoted by PTGA (Proyek Tata Guna Air) project in the past, but continuous effort for the capacity building is desired.</p> <p>Note: PTGA project Ministry of Public Works has implemented a project called PTGA (Proyek Tata Guna Air) since 2005 to strengthen capacity of local government employees for project implementation and farmers for water management via cascade system training<sup>2</sup>, but due to Government Regulation No.38 which became effective in 2007, all sorts of capacity building activities like these were put under control of Ministry of Agriculture. PTGA project is terminated by now (source: hearing from DGWR of Ministry of Public Works and Balai Makassar).</p> <p><u>Tertiary canals</u> As already explained, WUAs are basically in charge of operation and maintenance, except for Malaka, where District Public Work Office in Belu is in charge due to various restrictions. Implementation system of the Indonesian Government and involvement of the project (the 3 subprojects) to strengthen the capacity of WUAs until today are shown in the table below. According to Government Regulation No.38 (established in 2007), capacity building of WUAs is the responsibility of Ministry of Agriculture as already explained. However, since it is in the middle of transition, Agricultural Office and Irrigation Office of local governments as well as Balai are jointly providing training etc. for water management. This project is engaged in the capacity building of WUAs in the form of ① assistance to formation and the capacity building of WUAs via NGOs/ICOs, ② instruction on farming and water management training via SRI introduction and ③ training for operation and maintenance of completed irrigation facilities. Overlap of aforementioned government</p>

Item	Appraisal (September. 2002)	Result of mid-term review and ex-post evaluation results as estimated at time of mid-term review																		
		<p>activities and the project is ② instruction on farming and water management training via SRI introduction (in Malaka, in the process of SRI introduction Agricultural Office and Irrigation Office of Belu and Balai Kupang jointly worked to provide instruction on farming and water management training etc. that contributed to improvement of skills of WUA members).</p> <p style="text-align: center;"><b>Table Implementation system of Indonesian Government to strengthen the capacity of WUAs and involvement of the project until today</b></p> <table border="1" data-bbox="1106 507 2141 1104"> <thead> <tr> <th data-bbox="1106 507 1236 671" rowspan="2">Subproject (new / extension)</th> <th colspan="2" data-bbox="1236 507 1738 563">Implementation system of Indonesian Government to strengthen the capacity of WUAs</th> <th data-bbox="1738 507 2141 671" rowspan="2">Involvement of the project to strengthen the capacity of WUAs and activities conducted so far</th> </tr> <tr> <th data-bbox="1236 563 1451 671">Legal basis (Government Regulation No.38, established in 2007)</th> <th data-bbox="1451 563 1738 671">Actual system (as of April 2008)</th> </tr> </thead> <tbody> <tr> <td data-bbox="1106 671 1236 751">Ponre-Ponre irrigation (new)</td> <td data-bbox="1236 671 1451 751">Main rules: Stipulate “responsibility of Ministry of Agriculture”</td> <td data-bbox="1451 671 1738 751">①Local Agricultural Office (Province or District), ② Local Irrigation Office (Province or District) and ③ Balai jointly provide water management training etc.</td> <td data-bbox="1738 671 2141 751"> <ul style="list-style-type: none"> <li>Implement socialization activities<sup>2)</sup> for targeted farmers of the area via NGO employed for the project</li> </ul> </td> </tr> <tr> <td data-bbox="1106 751 1236 995">Malaka irrigation (extension)</td> <td data-bbox="1236 751 1451 995">Detailed rules: Stipulate “Activities are conducted jointly by Agricultural Office (Dinas Pertanian) and Irrigation Office (Dinas 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project</li> </ul> </td> </tr> </tbody> </table> <p>Source: Hearing from Balai Gorontalo, Balai Makassar, Balai Kupang and other relevant institutions and the consultant  Note 1): Hearing from Agricultural Office in Belu, East Nusa Tenggara and Agricultural Office in South Sulawesi  Note 2): Specific activities include ① PR of effectiveness of WUA activities , ② design of tertiary canals, ③ persuade farmers of the area to be members of WUAs and issue agreement format, ④formation of WUAs and assistance to their official registration to the local government and ⑤capacity building of leaders etc. of WUAs (source: progress report etc.)  Note 3): Assign local experts to hire as many ICOs (Irrigation Community Organizer) as possible to implement various activities</p> <p>On the other hand, as for subprojects in South Sulawesi (4 subprojects in total including Ponre-Ponre), even though formation of WUAs, operation and maintenance training etc.</p>	Subproject (new / extension)	Implementation system of Indonesian Government to strengthen the capacity of WUAs		Involvement of the project to strengthen the capacity of WUAs and activities conducted so far	Legal basis (Government Regulation No.38, established in 2007)	Actual system (as of April 2008)	Ponre-Ponre irrigation (new)	Main rules: Stipulate “responsibility of Ministry of Agriculture”	①Local Agricultural Office (Province or District), ② Local Irrigation Office (Province or District) and ③ Balai jointly provide water management training etc.	<ul style="list-style-type: none"> <li>Implement socialization activities<sup>2)</sup> for targeted farmers of the area via NGO employed for the project</li> </ul>	Malaka irrigation (extension)	Detailed rules: Stipulate “Activities are conducted jointly by Agricultural Office (Dinas Pertanian) and Irrigation Office (Dinas Pengairan) of local government”	(Actually, Local Agricultural Office seems to be coordinating for skilled employees of Balai or Local Irrigation Office to provide trainings of water management <sup>1)</sup> )	<ul style="list-style-type: none"> <li>Implement socialization activities<sup>2)</sup> for targeted farmers of the area via local experts<sup>3)</sup> employed for the project</li> <li>Implement farming and water management training via SRI introduction (jointly by District Agricultural Office, District Irrigation Office and Balai)</li> </ul>	Paguyaman irrigation (new)			<ul style="list-style-type: none"> <li>Implement socialization activities<sup>2)</sup> for targeted farmers of the area via local experts<sup>3)</sup> employed for the project</li> </ul>
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Paguyaman irrigation (new)			<ul style="list-style-type: none"> <li>Implement socialization activities<sup>2)</sup> for targeted farmers of the area via local experts<sup>3)</sup> employed for the project</li> </ul>																	

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	<p>③ Financial status in operation and maintenance</p>	<p>were continued via NGO/LEPPSEM association mentioned above until 2007, their involvement to the project in FY 2008 and thereafter has become quite unclear since Indonesian Government cut budget for their activities (Government claims to conduct capacity building on its own and budget allocation for future capacity building of the subprojects via NGO/LEPPSEM association is not allowed). Since Malaka is also in the same situation, it is necessary to closely monitor the central government and Balai regarding capacity building of WUA members.</p> <p>Paguyaman does not have the problem. Instruction on farming and water management training are expected to take place in full scale via SRI introduction as civil work progresses in the future (considering hiring NGOs, according to the consultant).</p> <p>③ Financial status in operation and maintenance</p> <p><u>Primary and secondary canals</u></p> <p>Since Ponre-Ponre and Paguyaman are in the process of irrigation construction and operation and maintenance budget of responsible organizations (Balai) is yet to be allocated. Balai Makassar in charge of Ponre-Ponre claims that it fully understands the importance of Ponre-Ponre irrigation and sufficient personnel and maintenance budget will be allocated after completion of the construction.</p> <p>Central government has allocated 1 billion Rp (approximately 12 million yen) to the operation and maintenance of Malaka in FY 2008 (source: Balai Kupang). Since 300,000 Rp (approximately 3,600 yen) per 1 ha is considered necessary as operation and maintenance cost (source: Balai Kupang), the budget is sufficient for planned farm development area of 2,870ha(accumulated total) at the end of FY2008. Further budget allocation is expected toward the end of FY2014 when build-up period (7 years) ends, so that the budget can accommodate to the target irrigation area of 6,000ha.</p> <p><u>Tertiary canals</u></p> <p>Procurement of funds for operation and maintenance of tertiary canals is left to the discretion of respective WUAs. In addition to collecting irrigation fees from WUA members, direct contribution such as “provision of labour for cleaning” is allowed. It is also possible to request Balai, Provincial Irrigation Office and District Irrigation Office to provide financial assistance for heavy repairs.</p> <p>For example, irrigation fees charged by some WUA in Ponre-Ponre is 17,000 Rp for each harvest. According to interviews to members and leaders of WUAs, “the fee is set after negotiation among WUA members and the amount is therefore appropriate”.</p>

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<p><b>[Efficiency]</b> (1) Output</p>	<p>(1) Output (a)Civil work • Construction of irrigation canals • Dam construction</p> <p>(b)Consulting service <u>Consulting service M/M</u></p> <table border="1" data-bbox="436 571 1003 762"> <thead> <tr> <th>Category of consultant</th> <th>Original contract (June 2003, M/M)</th> </tr> </thead> <tbody> <tr> <td>Professional A Experts</td> <td>500</td> </tr> <tr> <td>Professional B Experts</td> <td>5,209</td> </tr> <tr> <td>Senior Assistant Engineers</td> <td>7,806</td> </tr> <tr> <td>Assistant Engineers</td> <td>2,228</td> </tr> <tr> <td><i>Total (reference)</i></td> <td><i>15,743</i></td> </tr> </tbody> </table> <p>Source: Materials from the consultant</p> <p><u>Details of consulting service</u></p> <ul style="list-style-type: none"> <li>• Support to the overall project from the central government level</li> <li>• Support to respective subprojects from the local government level</li> <li>• Survey, design, P/Q and assistance to bidding, construction management regarding civil work of each subproject</li> <li>• Quality control of civil work by respective contractors</li> <li>• Instruction to strengthen formation of WUAs in partnership with NGOs/local universities etc.</li> <li>• Hold workshops for WUAs on operation and maintenance system via NGOs/local universities</li> <li>• Develop skills of employees of provincial and district irrigation office to implement and maintain subprojects</li> <li>• Assistance to implement sufficient consultations to stakeholders of respective subprojects</li> <li>• Confirmation and guidance on environmental</li> </ul>	Category of consultant	Original contract (June 2003, M/M)	Professional A Experts	500	Professional B Experts	5,209	Senior Assistant Engineers	7,806	Assistant Engineers	2,228	<i>Total (reference)</i>	<i>15,743</i>	<p>(1) Output <b>Overall project</b> ①Increase in irrigation area: 99,250 ha →124,978 ha ②Increase in the number of subprojects (scheme): 27 → 53 ③Increase in the number of contract package: 28 → 64 (The above contract package includes 4 packages carried over from Small Scale Irrigation Management Project(3)(SSIMP-III)) ④Increase in consulting service M/M:500 M/M → 567 M/M(value after the second amendment of contract, Professional A Expert only)</p> <table border="1" data-bbox="1258 603 1989 826"> <thead> <tr> <th>Category of consultant</th> <th>First change to contract (August 2006, M/M)</th> <th>Second change to contract (April 2007, M/M)</th> </tr> </thead> <tbody> <tr> <td>Professional A Experts</td> <td>558</td> <td>567</td> </tr> <tr> <td>Professional B Experts</td> <td>5,444</td> <td>5,688</td> </tr> <tr> <td>Senior Assistant Engineers</td> <td>8,938</td> <td>10,518</td> </tr> <tr> <td>Assistant Engineers</td> <td>2,858</td> <td>3,045</td> </tr> <tr> <td><i>Total (reference)</i></td> <td><i>17,798</i></td> <td><i>19,818</i></td> </tr> </tbody> </table> <p>Source: Materials from the consultant</p> <p>⑤ Consulting service details: no change</p> <p><b>3 subprojects</b> ①Paguyaman irrigation • Irrigation area: 2,713ha(at LA)→6,880ha(estimation as of April 2008) ②Malaka irrigation • Irrigation area: 10,000ha(at ex-ante evaluation)→6,000ha(at LA)→6,000ha(estimation as of April 2008) ③Ponre-Ponre irrigation • Irrigation area: 4,313ha(at LA)→3,749ha(estimation as of April 2008)</p>	Category of consultant	First change to contract (August 2006, M/M)	Second change to contract (April 2007, M/M)	Professional A Experts	558	567	Professional B Experts	5,444	5,688	Senior Assistant Engineers	8,938	10,518	Assistant Engineers	2,858	3,045	<i>Total (reference)</i>	<i>17,798</i>	<i>19,818</i>
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(2) Period	<p>considerations in construction phase of each subproject</p> <ul style="list-style-type: none"> <li>• Assistance to review EIA report</li> <li>• Assistance to implement additional environment protection survey</li> <li>• Assistance to screening based on environmental guideline of JBIC</li> <li>• Assistance to proper water management in consideration of irrigation status at downstream areas</li> </ul> <p>(2) Period: October 2002 – June 2009 (78 months)</p>	<p>(2) Period</p> <ul style="list-style-type: none"> <li>▪ Project period is expected to last until December 2009, with 6 months delay at the moment.</li> <li>▪ Paguyaman irrigation is expected to last the longest until 4<sup>th</sup> December 2009.</li> <li>▪ Status and reason for the delay in the 3 subprojects are as follows. <ul style="list-style-type: none"> <li><u>Ponre-Ponre</u>: Major delay in critical path, the construction of temporary drainage canal has led to the delay in project as a whole</li> <li><u>Malaka</u>: As scheduled</li> <li><u>Paguyaman</u>: Construction schedule delay due to poor performance due to financial difficulty of two contractors, steep price hike of construction materials, insufficient cement supply and bad weather</li> </ul> </li> </ul>
<b>[Lessons leaned and Recommendations]</b>	<p><b>【Lessons Learned】</b></p> <ul style="list-style-type: none"> <li>▪ SRI (System of Rice Intensification) introduction promoted under the project contributed not just reducing the amount of water for irrigation and production cost and increasing unit yield, these effects gave incentives for farmers to better manage waters and farm works (farmers started to visit rice paddy to observe water amount and plant quite frequently etc.). As a result, ①direct effect of SRI introduction and ②proper water management and engagement to farm works spiralled expansion of positive impact, leading to achieve “overall improvement to rice growing system including change of mind-set among farmers”.</li> </ul> <p>(Many experts question scientific ground of the effectiveness of SRI technique. The technique is still in the process of gaining acknowledgement by international society right now, given negative response from IRRI (The International Rice Research Institute), an authority of rice cropping research. However, there are active movements to prove scientific effectiveness of SRI led by Tokyo University, Cornell University and others)</p> <ul style="list-style-type: none"> <li>▪ Other factors for success include careful assistance to strengthen WUAs via experts, NGOs/ICOs and so on depending on the needs of each subproject.</li> <li>▪ To ensure long-term success of this project, it is crucial to promptly transfer all sorts of activities to strengthen WUAs currently conducted via consulting service to be implemented by the ownership of local government (district irrigation office and agricultural office).</li> </ul> <p><b>【Recommendations】</b></p> <ul style="list-style-type: none"> <li>▪ As aforementioned, even though the Government Regulation Year 2006 stipulates sharing of responsibility among related organizations for operation and maintenance of irrigation canals, there is a flexibility to allow involvement of higher governmental organization in some cases (Malaka irrigation</li> </ul>	



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	<p>subproject). However, from the perspective of fostering the sense of ownership, it is desirable to transfer operation and maintenance of tertiary canals to WUAs from higher governmental organizations in a long run.</p> <ul style="list-style-type: none"> <li>▪ Even though capacity building of WUAs smoothly progressed so far via NGOs/ICOs hired under the project, involvement of the project has become quite unclear after FY2008 because Indonesian government stopped budgeting for some subprojects. Continued negotiation with the Indonesian government is necessary because capacity building of WUAs affects greatly to the manifestation of impact and securing sustainability of the project.</li> <li>▪ Current operation and effect indicators are deemed necessary to be applied continuously but collection scheme of the actual values of these indicators needs to be monitored by the time of ex-post evaluation.</li> <li>▪ This project is a huge project with 53 subprojects (schemes) crossing over multiple islands (Sulawesi, Bali, Lombok, Sumbawa, Timor, Flores and so on) with different economical and cultural backgrounds. In addition, even though it is called irrigation project, the scope is quite extensive encompassing underground water development, dam construction (around 50m height), head works construction, irrigation facility construction and capacity building of stakeholder organization, large enough to constitute a project respectively. Given the complexity, the project objective of “to increase rice production and thereby contributing to poverty alleviation in the region” might be insufficient to understand the important project effect particular to each subproject.</li> <li>▪ In light of the above, it is desirable to reset “project objective of each subproject” in consideration of different backgrounds for the project implementation in times of ex-post evaluation and ex-post monitoring and evaluate the progress status. Based on this, the whole project is to be evaluated by DAC 5 criteria (e.g. in Gorontalo where Paguyaman irrigation is located, promoting export of agricultural products is upheld as one major policy and the subproject is expected to contribute to that. On the other hand, Timor Island, where Malaka irrigation subproject is located, has chronic shortage of rice supply in its history and the subproject is expected to increase rice supply).</li> <li>▪ Since it is unrealistic to evaluate all the 53 subprojects respectively as aforementioned, it is desirable to discuss between JBIC and the executing agency on which subprojects to be targeted for evaluation, how and under what kind of system (including joint evaluation system with Indonesian government) to implement the ex-post evaluation.</li> </ul>	
<p><b>[Indicators set for use at time of ex-post evaluation]</b></p>	<p>Indicators set at the time of ex-ante evaluation</p> <ol style="list-style-type: none"> <li>(1) Cultivated area by crops</li> <li>(2) Rate of water users associations formulated</li> <li>(3) Yield of major crops per unit area</li> <li>(4) Net annual average farm income</li> <li>(5) Internal rate of return</li> </ol>	<p>At field survey for mid-term review (April 2008), the executing agency/DGWR of Ministry of Public Works measured all the left indicators except for internal rate of return for the target 3 subprojects<sup>3</sup>.</p> <p>On the other hand, i) collection of the left indicators for the rest of 50 subprojects (schemes) apart from the 3 subprojects is necessary for ex-post evaluation and ii) although it seems that consultant supported collecting actual values of these indicators for the 3 subprojects, the consultant contract is expired when the ex-post evaluation is conducted. It is necessary to pay attention to the capacity of the executing agency to collect actual values of these indicators by the time of ex-post evaluation<sup>4</sup>.</p>



