Internal Ex-Post Evaluation for Grant Aid Project

conducted by Vietnam Office: March 2016

Country Name	Project for Rehabilitation of Small-scale Reservoirs in Quang Ngai Province
Socialist Republic of Viet Nam	

I. Project Outline

Background	Irrigation of Quang Ngai Province in the central Viet Nam depends upon rainfall and small-scale reservoirs. There are more than 100 small-scale reservoirs, but they were unable to supply the stable agricultural water to fields due to their capacity shortage and underdevelopment of the water intake facilities and irrigation channels. Most of the reservoirs which had been constructed before 1989 were degrading after many years of utilization due to unsystematic investment, low technique and lack of maintenance budget. There were no regulations on the safety management, and the users' capacity of maintenance was not sufficient. Besides, as appropriate water intake and distribution were not conducted, decrease of the agricultural productivity was an issue. Another issue was the risk of collapse of the reservoirs attributed to the leakages through the dam body and inappropriate reservoir design, which would cause great damage to the people and social infrastructure. In such circumstances, the government of Vietnam requested the government of Japan for a grant aid project for rehabilitation of the reservoirs.				
Objectives of the Project	To ensure stable supply of irrigation water and mitigate the risks of collapse of the reservoirs in flooding, by rehabilitating seven reservoirs and related facilities in Quang Ngai Province, in order to improve the agricultural productivity.				
Outputs of the Project	1. Project Site: Quang Ngai Province 2. Major Project: Rehabilitation of 7 irrigation facilities (reservoir-dam, spillway, intake, main canals and access roads), construction of operation and maintenance (O&M) houses for reservoirs, provision of the equipment for carrying out water management and safety management of reservoirs. Technical training for the Irrigation Management Committee (IMC), Water User's Groups (WUG) and Agricultural Cooperatives (AC) on water management, organizational management and safety management. 3. Vietnamese Side: Compensation of beneficiaries, project management fee, office expenditure, commission for the Blanket Disbursement Authorization (BDA), etc.				
Ex-Ante Evaluation	2010	E/N Date	August 11, 2010	Completion Date	December 11, 2012
Project Cost	E/N Grant Amount: 698 million yen, Actual Grant Amount: 698 million yen				
Implementing Agency	Quang Ngai Province People's Committee (PPC), Department of Agriculture and Rural Development (DARD)				
Contracted Agencies	Consultant: Sanyu Consultants Inc. Contractors: Agricultural and Irrigation Electric Mechanical JSC No. II, JV Quang Nam Hydraulic Hydroelectric Construction JSC and Tien Bo Construction, JV Phuoc Thinh Company LTD and General Construction Corporation of Agriculture and Rural Development Thanh Hoa, Tin Nghia Construction Trading LTD, Construction JSC No.25, JV Hoang Ming Construction Company LTD and Mien Tay Company LTD, and JV Quang Ngai General Construction Development JSC and Hiep Hung LTD. Supplier's agent: Japan International Cooperation System				

II. Result of the Evaluation

<Special perspective considered in the ex-post evaluation>

Data obtained related to the project effectiveness: Regarding the Indicator 2, the obtained data for 2012-2015 was on the "area where double rice cropping was implemented," although the target indicator was an "area where irrigation is possible for double rice cropping." This difference was considered when verifying the project achievement.

1 Relevance

<Consistency with the Development Policy of Vietnam at the time of ex-ante and ex-post evaluation>

The project has been consistent with Vietnamese development policies, as infrastructure development for agricultural development and disaster management has been prioritized in the "5-year Socio-Economic Development Plans (2006-2010) (2011-2015)," "National Strategy for Disaster Management (2007-2020)," and "Viet Nam Sustainable Development Strategy for 2011-2020."

<Consistency with the Development Needs of Viet Nam at the time of ex-ante and ex-post evaluation>

The project has met the needs for reservoir development for ensuring irrigation water and risk mitigation of flooding, especially strengthening reservoir operation and management.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

The project was relevant with the "Country Assistance Program for Vietnam (2009)," in which one of the priority areas is improvement in living and social conditions and correction of disparities. Related to this, the following assistance is considered: the livelihood improvement of the rural farming communities, infrastructure development including water supply and irrigation, strengthening of the disaster prevention response capacity, etc.

<Evaluation Result>

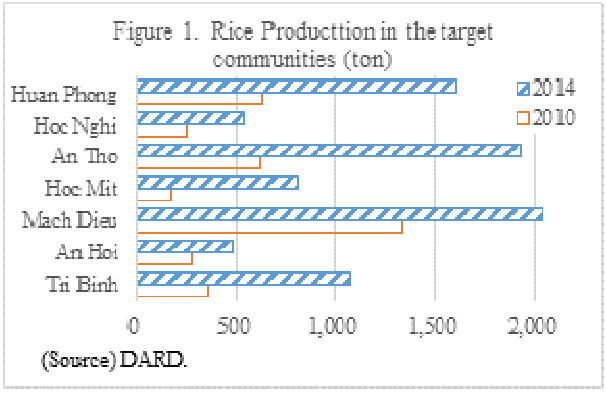
In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Effectiveness>

The project objective of "stable supply of irrigation water in the target communities" has been achieved, as the active capacity in total of the seven reservoirs has increased as planned (Indicator 1). Regarding the Indicator 2, the obtained data was the "area where double rice cropping was implemented." Considering this data can be estimated to be the same as or less than the "area where irrigation was possible for double rice cropping," it can be said that the project objective has been achieved. The reason for the less cropping in 2012 is that the reservoir facilities were being constructed and there was single rice cropping. From 2013 to 2015, the areas of double rice cropping in the two communities, i.e. Mach Dieu and Huan Phong, among the seven target communities, were below the target values because there was not sufficient area for expanding of rice cropping. Although it was not confirmed, it is possible that the farmers may have changed the crops from rice to those which are more profitable as the government has promoted diversification of crops for the exports. As qualitative effects of the project, firstly, the risk of collapse of the reservoirs has decreased in all the seven reservoirs compared to before, according to DARD of Quang Ngai PPC. Leakage from the reservoirs has decreased, and no damage such as injury of people, destruction of reservoirs or houses has been reported. Secondly, the efficiency of water management has been improved, as the intake valves were relocated lateral to the dam body so that the valves can be opened or shut without entering the reservoir. And, the canals were concreted. Thus, the operation has become easier and safer.

At the facility construction, technical support (soft component) was given to the members of IMC of DARD, AC and WUG. They answered, as effects of the support, that they have improved management of reservoirs and related facilities, i) by delivering water through intake valves based on measured discharge of water, ii) by keeping the water demand supply balance, iii) by making impartial water distribution, and iv) by keeping regular operational record of gate valves and reservoir water level. There has been no trouble on water distribution. Regarding reservoir safety management, they told that WUG members have recognized the necessity of reservoir safety management to mitigate risks of the dam body collapse, as the residents are willing to take part in a rescue team which tackles reservoir problems. All of the interviewed members (7-10 farmers of each community) who live in the downstream area now have less fear for the dam body collapse by conducting its preventive maintenance.



<Impact>

The following positive impacts have been observed. Firstly, the flood damage on agricultural products has decreased, since cropping area has increased and overflow water from the earth dam has decreased. Secondly, rice production has increased much in all the target communities (Figure 1). The total production in 7 communities in 2014 (8,504 ton) more than doubled from that in 2010 (3,693 ton). The increased production is attributed to the intensive cultivation and improved productivity through irrigated cultivation with appropriate water distribution.

<Other Positive Impacts>

Landscapes of the target areas have been improved based on DARD's observation. Another positive change is the improved condition of the traveling on the constructed access roads in the rainy season. As constructed with concrete, the road has been less muddy and safer for the residents.

There was land acquisition of 166,807m^2 and resettlement of 668 households in the project. They have been financially compensated as planned and satisfied with increase in irrigation water and agricultural production. Related to this, no problem has raised.

<Evaluation Result>

In light of the above, the project effectiveness/impact is high.

Quantitative effects

	2010 (before the project) Actual value	2016 (target year) Target value	2012 Actual value	2013 Actual value	2014 Actual value	2015 Actual value
1. Active capacity in total of 7 reservoirs (1,000 m^3)	6,754	8,020	8,020	8,020	8,020	8,020
Tri Binh	n/a	284	284	284	284	284
An Hoi	n/a	449	449	449	449	449
Mach Dieu	n/a	2,177	2,177	2,177	2,177	2,177
Hoc Mit	n/a	580	580	580	580	580
An Tho	n/a	2,390	2,390	2,390	2,390	2,390
Hoc Nghi	n/a	311	311	311	311	311
Huan Phong	n/a	1,829	1,829	1,829	1,829	1,829
2. Area where irrigation is possible for double rice cropping (ha)*[1,2]	1,025	1,692	518	1,449	1,449	1,449
Tri Binh	104	180	74	180	180	180
An Hoi	80	80	40	80	80	80
Mach Dieu	334	540	167	335	335	335
Hoc Mit	47	140	80	140	140	140
An Tho	180	322	90	322	322	322
Hoc Nghi	80	100	40	100	100	100
Huan Phong	200	330	100	292	292	292

Source: DARD

*1 The figure is the sum of the two seasons in the year.

*2 The indicator is an "area where irrigation is possible for double rice cropping." However, the obtained data for 2012-2015 was on the "area where double rice cropping was implemented."

3 Efficiency

Outputs were produced as planned. Both the project cost and period were within the plan (ratio against the plan: 100% and 97%, respectively). Therefore, efficiency of the project is high.

4 Sustainability

<Institutional Aspect>

Quang Ngai DARD under Quang Ngai PPC is responsible for water resource development and management, and IMC under DARD is responsible for maintenance of the irrigation facilities, collection of water fees and safety management of the reservoirs. The Sub-department of Irrigation and Flood & Storm Control under DARD has 19 personnel, which is sufficient to supervise management and utilization of irrigation facilities, according to DARD. The rehabilitated reservoir is operated by WUG of each target community. With regard to disaster management, the Flood and Storm Control Committee (FSCC) of each Commune People's Committee (CPC) takes responsibilities for disaster drill, security and rescue works in the flooding time, etc. There has been no change in these responsibilities since before the project. Quang Ngai PPC has a regulation on the demarcation and organization in irrigation works management, as mentioned in Decision No. 46/2009/QD-UBND. Also at the WUG level, each IMC/AC has a regulation on WUG's operation of the hydraulic services. For all of the target reservoirs, sufficient personnel is assigned for operation and management of the facilities (representative and persons in charge of intake facilities, main canal, secondary canal and tertiary canals), mostly as planned in the outline design study.

<Technical Aspect>

IMC's staff has sufficient techniques for irrigation facility management, as they were educated in universities or professional vocational schools. IMC annually conducts training for its staff-in-charge on reservoir operation and management, related rules and safety management. It also organizes training for reservoir users twice a year. AC's staff has sufficient techniques, too, because they received the technical support (soft component) on water management, organizational management and safety management from the project. The manuals on water management and on reservoir operation and maintenance have been utilized by WUG members, according to DARD.

<Financial Aspect>

The budget of Quang Ngai PPC for water resource management is shown in Table 1. The budget for water resource management including irrigation facility management in 2015 is 987 million VND for the winter-spring harvest season. If that for the summer-autumn season is added, it will be more than the previous year. This budget, which is a subsidy for irrigation facilities user's fee, is allocated to IMC through PPC and to CPC/AC through the District People's Committee (DPC). In 2015, 67 to 293 million VND is budgeted for the seven target IMC/AC. DARD considers that these amounts are sufficient for reservoir utilization but not for periodical maintenance, while IMC/AC answered that they are sufficient to pay the wages for the person in charge of management of reservoir facilities and repairing minor broken parts. WUGs receive budget from IMC/AC and basically do not collect users fees from the members except in case of budget shortfalls.

Table 1. Budget/expenditure Quang Ngai PPC for water resource management (million VND)

	2012	2013	2014	2015*
Budget	530	1,118	1,089	987
Expenditure	571	904	958	798

(Source) DARD.

* The budget/expenditure of 2015 is that for the winter-spring harvest season, excluding that for the summer-autumn season.

<Current Status of Operation and Maintenance>

Since the project completion, constructed reservoir facilities and equipment have been utilized and managed by Quang Ngai IMC and CPCs, which report to DARD and receive its periodical check and support. All the reservoir facilities (dam body, spillway valve, intake valve, main canal, access road and O&M house, etc.) have been utilized in good condition except an intake valve in Hoc Nghi reservoir, which had been overflowed. However, the problem has been fixed and now the valve house is in good condition. The reservoirs are maintained by IMC/AC. All the target IMC/AC except Hoc Nghi keep recording rainfall amount for prediction of the dam collapse. Also, they make efforts for preventing trespassing of the vehicles, residents and animals into the reservoir site, such as concrete poles built at the top of the earth dam in An Tho Reservoir. When any of equipment is broken, IMC/AC can replace it easily as they are available in the country. WUGs prepare the annual water use plan for impartial water distribution under the rotational irrigation system, and implement irrigation with the users' consensus on this plan.

Among the recommendations made by the defect inspection survey, repairing of the slope erosion near the spillway in Hoc Nghi reservoir has not been conducted due to the budget constraints. As another recommendation, the drainage canals were ditched in An Hoi, but the width is not enough as there were many rocks.

<Evaluation Result>

Slight problems have been observed in terms of the financial aspect and the current status of operation and maintenance of the implementing agency. Therefore, sustainability of the project effects is fair.

5 Summary of the Evaluation

The project objective of "stable supply of irrigation water in the target community" has been achieved, as both of the active capacity in total of the seven reservoirs and the area where irrigation is possible for double rice cropping have increased mostly as planned. As qualitative effects, the risk of collapse of the reservoirs has decreased, and the efficiency of water management has been improved. As a result of the increased area for double rice cropping, rice production has increased much in all the target communities. Regarding the sustainability, most of the constructed facilities have been utilized in good condition, although there are small issues of the budget constraints for periodical maintenance and repair for Hoc Nghi reservoir.

In light of the above, this project is evaluated to be highly satisfactory.

III. Recommendations & Lessons Learned

<Recommendations for DARD>

1. It is recommended to allocate a sufficient budget for operation and periodical maintenance of Hoc Nghi reservoir, so that WUG of Hoc Nghi could repair the slope erosion near the spillway. Also, it is necessary to instruct it to record rainfall amount for prediction of the dam collapse.

<Lessons Learned for JICA>

1. In two of the seven target communities, the irrigation area for double rice cropping from 2013 to 2015 did not reach the target, because

there was not sufficient land for rice cropping as planned. This is a factor which physically makes impossible the full achievement of the objective. A possible reason is that the farmers may have changed to the crops which are more profitable, although this may have been difficult to be expected at the preparatory survey stage. When the target for the irrigation area is calculated, the possible area of land for irrigation should be carefully examined by considering external factors such as future market trends and possible changes in cropping as much as possible.

(Upstream of the dam body of Huan Phong reservoir)

(Concrete poles for preventing trespassing of big trucks into An Tho reservoir site)