

Ex-Post Project Evaluation 2014: Package I-11 (Vietnam)

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Socialist Republic of Viet Nam

Ex-Post Evaluation of Japanese ODA Loan Project
“Small-scale Pro Poor Infrastructure Development Project (II)”

External Evaluator: Kenichi Inazawa, Octavia Japan Co, Ltd.

0. Summary

This project developed small-scale infrastructures in provinces and districts that require poverty reduction, with the aim of improving traffic accessibility, public services and increasing agricultural productivity. Since this project is in line with Vietnam’s poverty alleviation policies, such as the “Five-year Socio-Economic Development Plan” and the “Ten-Year Strategy for Socio-Economic Development Plan”, as well as the need to develop roads, water supply, irrigation and electricity distribution facilities in rural and mountainous areas and Japan’s assistance policy, its relevance is high. The project cost and project period slightly exceeded the plan (while the utilized ODA loan amount was less than the plan) because the number of sub projects was increased when the change in the exchange rates was expected to leave some of the approved ODA loan amount unused. Thus, its efficiency is fair. The initial targets of this project were generally achieved. It was confirmed that through the road project, smooth traffic was realized; through the electricity distribution project, the power supply was stabilized and the hours of power cuts were reduced; through the water supply project, the water supply and service population increased and through the irrigation project, agricultural production increased. Additionally, results from the beneficiary survey indicate that the level of satisfaction among residents and living conditions has improved; thus, the project’s effectiveness and impact is high. On the other hand, with regard to the operation and maintenance of this project, the allocated maintenance budget for the road project is not necessarily sufficient and thus, its sustainability is fair.

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

1. Project Description



Project Locations¹



Constructed Water Supply Facility
(Nghia Dan District in the Nghe An Province)

1.1 Background

In Vietnam, the economic gaps between rural and urban areas were widening. While the urban poverty rate greatly improved from 25.1% in 1993 to 5.7% in 2004, the rural poverty rate remained high, despite its decline from 66.5% to 30.5%. In addition, many of the people categorized as not poor were close to the poverty line and farmers, in particular, relied on unstable agricultural incomes. Furthermore, poor households that were residing in rural and mountainous areas faced limited traffic access and natural disasters due to their geographical situations. They also lived in difficult conditions due to the aging of existing electricity distribution networks and the unstable power supply. Their access to safe water (water supply service) was also limited. Therefore, it was an urgent task to develop infrastructures such as irrigation facilities, road networks, electricity distribution and water supply facilities.

1.2 Project Outline

The objective of this project is to improve the traffic access and public services and to increase the agricultural productivity in districts of rural provinces where poverty reduction is required, by developing small-scale infrastructures, such as roads, electricity distribution, water supply and irrigation facilities, thereby contributing to the poverty reduction of Vietnam.

¹ Orange-colored circles indicate targeted provinces, while blue-colored stars indicate provinces that were targeted for the pilot projects.

Loan Approved Amount/ Disbursed Amount	14,788 million yen / 13,668 million yen	
Exchange of Notes Date/ Loan Agreement Signing Date	March 2006 / March 2006	
Terms and Conditions	Interest Rate	1.3% (road, electricity distribution and irrigation) 0.75% (water supply) 1.3% (consultant services)
	Repayment Period (Grace Period)	Road, electricity distribution and irrigation: 30 years (10 years) Water supply: 40 years (10 years) Consulting services: 30 years (10 years)
	Conditions for Procurement	General untied
Borrower / Executing Agency	The Government of Socialist Republic of Viet Nam / Ministry of Planning and Investment (MPI)	
Final Disbursement Date	August 2012	
Main Contractor (Over one billion yen)	—	
Main Consultant (Over 100 million yen)	Nippon Koei Co., Ltd. (Japan) / OPMAC (Japan) / POYRY Infra Ltd. (Switzerland) (JV).	
Feasibility Studies, etc.	JICA Pilot Study for the Special Assistance for Project Formation (SAPROF), “Small-scale Infrastructure Development Project for Promoting Diversification of Productive Activities in Rural Areas”, JICA (February-September 2005)	
Related Projects	(Japanese ODA Loan) <ul style="list-style-type: none"> • Rehabilitation Loan I (1993) • Rehabilitation Loan II (1994) • Rural Infrastructure Development and Living Standard Improvement I (1995) • Rural Infrastructure Development and Living Standard Improvement II (1996) • Rural Infrastructure Development and Living Standard Improvement III (1998) • Small-scale Pro Poor Infrastructure Development Project I² (2002) • Small-scale Pro Poor Infrastructure Development Project III (2009) (Financed by the World Bank) <ul style="list-style-type: none"> • Community Based Rural Infrastructure (2001) 	

² Small-scale Pro Poor Infrastructure Development Project I (The first phase: Sector Program Loan IV) was implemented as a proceeding project of this project (its ex-post evaluation was implemented in 2012). With regard to the related projects listed above, “Rural Infrastructure Development and Living Standard Improvement I” is SPL I, which makes this project SPL V. At present, the third project (SPL VI) is ongoing as a subsequent project of this project.

	<ul style="list-style-type: none"> • Northern Mountains Poverty Reduction Project (2001) • Second Rural Finance Project (2002) • Forest Sector Development Project (2004) • Second Rural Energy Project (2004) (Financed by the Asian Development Bank) <ul style="list-style-type: none"> • Provincial Roads Improvement (2001) • Second Red River Basin Sector Project (2001) • Central Region Livelihood Improvement (2001) • Third Provincial Towns Water Supply and Sanitations (2001) • Support to Implementation of Poverty Reduction Program (2004) • Central Region Transport Networks Improvement Sector Project (2005) <p><i>Note: The years indicated above represent the timings of the loan agreement signings.</i></p>
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2. Outline of the Evaluation Study

2.1 External Evaluator

Kenichi Inazawa (Octavia Japan Co, Ltd.)

2.2 Duration of Evaluation Study

Duration of the Study: August 2014-December 2015

Duration of the Field Study: October 18-31, 2014 and January 18-24, 2015

2.3 Constraints During the Evaluation Study

The areas targeted by this project were spread all over Vietnam. The sub projects for road, electricity distribution, water supply and irrigation were implemented in 140 districts and 41 provinces. Due to budget and time constraints, it was impossible to conduct a field survey in all of the project areas. For the field survey, five provinces were visited (Phu Tho, Ha Tinh, Phu Yen, Nghe An and Hoa Binh) and a beneficiary survey targeted one province (Phu Tho). Data at the central, provincial and sub project levels were collected through questionnaires and interviews with the Ministry of Planning and Investment, the Departments of Planning and Investment (DPI) and People Committees in the regions that were responsible for the operation and maintenance of the sub projects.

3. Results of the Evaluation (Overall Rating: B³)

3.1 Relevance (Rating: ③⁴)

3.1.1 Relevance to the Development Plan of Vietnam

At the time of appraisal, the government of Vietnam formulated the “Ten-Year Strategy for Socio-Economic Development” (2001-2010) as principles of the nation’s development, in which reducing regional gaps and poverty were stipulated. The government also formulated the “Five-year Socio-Economic Development Plan” (2006-2010), which set more concrete target figures. These included the proportion of poor households to be reduced to 10%, job creation for 7.5 million people and safe water supply for 75% of the rural population. In addition, the government launched “Program 135”, which is an infrastructure development program for poverty alleviation and living condition improvement in mountainous and remote areas. By the time this project commenced, the first phase of the program (1998-2005) was completed and the second phase (2006-2010) was under preparation.

At the time of the ex-post evaluation, the government of Vietnam stipulated the importance of reducing economic gaps and poverty, as well as developing rural infrastructures in its “Ten-Year Strategy for Socio-Economic Development” (2011-2020) and the “Five-year Socio-Economic Development Plan” (2011-2015), subsequent to the above-mentioned plan. The government continues to implement the above-mentioned “Program 135” (the third phase: 2011-2015). This program places importance on encouraging investments in infrastructures, developing road networks, securing the power supply and water necessary for people’s living, as well as increasing agricultural productivity.

Based on the above, at the time of the project appraisal and at the current ex-post evaluation, poverty reduction in Vietnam continues to be viewed as an important policy. Therefore, the project is consistent with policies like the national and sectoral plans.

3.1.2 Relevance to the Development Needs of Vietnam

Before the project commenced, the economic gaps between rural and urban areas were widening in Vietnam. While the poverty rate in urban areas had greatly improved from 25.1% in 1993 to 5.7% in 2004, the poverty rate in rural areas, where 90% of the nation’s poor population concentrates, remained high - it only declined from 66.5% to 30.5%. In addition, many of the people categorized as not poor were right above the poverty line. Looking at regional figures,

³ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory and D: Unsatisfactory.

⁴ ③: High, ② Fair, ① Low.

the poverty rate of the northern mountainous region was 54%, the north central coast region was 41% and the central highland was 33%. These three regions had relatively high poverty rates, compared to other regions. This was because they faced constraints, such as limited traffic accessibility due to geographical factors⁵ and vulnerability to natural disasters, resulting in limited agricultural production. Additionally, there were many villages without electricity or with old existing electricity distribution networks and unstable power supply. People also had limited access to safe water (the water supply service).

At the time of the ex-post evaluation, the poverty rate of Vietnam is 9.6% (national average). In the north central and central coast regions the poverty rates vary from 12 to 15%, which is slightly higher than the national average. In the northwest mountainous region and the northeast mountainous region the rate is 28.55% and 17.39% accordingly⁶, which remains high compared to the national average. In mountainous regions, the population is scattered and road networks and water supply facilities are not fully developed. In some cases, electricity is not available and agricultural productivity is low due to underdeveloped irrigation facilities. It is presumably for these reasons that many households continue to face economic difficulty. At the current time of the ex-post evaluation, JICA continues its support for the development of road, water supply, irrigation and electricity distribution facilities through the “Small-Scale Pro Poor Infrastructure Development Project III”, which followed this project. In addition, the World Bank and the Asian Development Bank assist these regions through poverty reduction programs.

Based on the above, the need to develop roads, water supply, irrigation and electrification facilities in poor regions is high in Vietnam. Therefore, the project was considered to be in line with the development needs, both at before the project commencement and at the time of the ex-post evaluation.

3.1.3 Relevance to Japan’s ODA Policy

“The Country Assistance Program for Vietnam”, formulated before the project’s commencement in 2004, states that assistance to poor regions, water supply, rural roads, electrification/rural electricity distribution network and agricultural irrigation are among its priorities. Therefore, it can be said that this project was consistent with the assistance policy of Japan.

⁵ This refers to the mountainous or remote areas that are far from cities.

⁶ This is based on 2012 data released by the Ministry of Labour, Invalids, and Social Affairs (MOLISA). The definition of poverty is a household income of 400,000 VND (approximately 2000 JPY, based on the exchange rate at the time of the ex-post evaluation) or less monthly.

This project has been highly relevant to the development plan and development needs of Vietnam, as well as Japan's ODA policy. Therefore, its relevance is high.

3.2 Efficiency (Rating: ②)

3.2.1 Project Outputs

In this project, construction works were carried out in four sectors: roads (concrete pavement, bridge construction, etc.); electricity distribution (installation/extension/repair of medium/low transmission lines, installation of distribution transformers, etc.); water supply (intake facilities, pump facilities, treatment/filtration facilities, construction of water distribution networks, etc.) and irrigation (enforcement of irrigation canals, reservoir protection works). The sub projects covering these four sectors were selected and implemented at 168 sites in 140 districts and 41 provinces⁷. As will be discussed in “3.3.1 Quantitative Effects” under the effectiveness section below, nine districts in three provinces were selected from these as “pilot districts/provinces”. The District Development Board (hereafter referred to as “DDB”) was established with the aim of encouraging resident participation, achieving project objectives and sustaining such effects. A total of 10 projects⁸ were monitored. In addition, taking network and marketing into consideration, “pilot project sites” (three road projects and one water supply project) were selected in order to develop the local industries and improve traffic access to the neighboring areas. Table 1 shows the planned and actual outputs of this project.

⁷ In principle, the selection criteria for all of the sectors were: (1) Its implementation was approved by the provincial people's committees and requested to the Ministry of Planning and Investment (MPI), (2) documents on socio-economic aspects necessary for the selection are readily available and (3) it does not require non-voluntary resettlement (of 50 or more households). Regarding the road sector, the extension work - either for provincial or district road - should not exceed 20km per project and the cost should be two billion VND or less per 1km. With respect to the electricity sector, it has to have an installation or extension/repair of a medium/low voltage distribution line or installation or rehabilitation of distribution transformers, the network has to be owned by the Electricity of Vietnam (hereafter referred to as “EVN”) and the project cost should not exceed 25 billion VND per project. As for the water supply sector, the project has to have beneficiaries of more than 4,000 people, the designed water quantity should be 1,000 tons or more and the project cost should not exceed 25 billion VND. Concerning the irrigation sector, the project cost should not exceed 25 billion VND and the irrigated area should be 50ha or more.

⁸ The initial plan was to select 22 districts in five provinces; however, it was changed to nine districts in three provinces. The reasons for this will be explained in “3.1.1 Quantitative Effects” under the effectiveness section.

Sector	Plan (Before Project Commencement)			Actual (At Ex-post Evaluation)		
	No. of Sub Projects	Targeted Province	Targeted Districts	No. of Sub Projects	Targeted Province	Targeted Districts
Road	40	40	40	70	40	68
Electricity Distribution	29	29	29	29	28	35
Water Supply	28	28	28	31	28	31
Irrigation	37	37	37	38	34	39
Total	134	41*	128*	168	41*	140*
Pilot Project Sites	Three road projects and one water supply project (Phu Tho, Phu Yen and Ha Tinh provinces)			As planned		
Consulting Services	(TOR) • Assistance in the detailed design and bid tendering/contracting of the sub projects. • Construction supervision (including environmental monitoring) and evaluations. • Institutional enforcement for the project's implementation. • Institutional enforcement for maintenance. • Operation and management of the NGO components (NGO partnership fund). ⁹ (Planned M/M) 262.5M/M (out of which, 125M/M were international and 137.5M/M were local).			(TOR) The assignments on the left-hand column were executed as planned. (Actual M/M) 267.5M/M (out of which, 145M/M were international and 122.5M/M were local).		

*Note: The number of targeted districts/provinces represents a total number for each of the sectors and does not add up to the overall total.

⁹ This was established using part of the consulting service budget of no more than 10 million yen in order to encourage collaborations with other projects funded by NGOs in the targeted areas (e.g., agricultural extension works, health and hygiene education and participatory capacity building).

at 34 sites. Considering that the implementation of these sub projects was consistent with the project's objectives (poverty alleviation through small-scale infrastructures), it can be judged that the change made to the outputs owing to the unutilized budget (implementation of additional sub projects) was appropriate.



Photo 1: Developed Irrigation/Drainage Facility. (Cam Khe District in the Phu Tho province)



Photo 2: Developed Road (Da Bac District in the Hoa Binh province).

3.2.2 Project Inputs

3.2.2.1 Project Cost

The planned total project cost was 17,398 million yen (out of which, 14,788 million yen was to be financed by the ODA loan). However, the actual project cost was 22,467 million yen (out of which, 13,668 million yen was financed by the ODA loan), which was higher than planned (129% of the plan). As explained earlier, the exchange rate fluctuation was expected to leave some of the approved ODA loan amount unutilized and thus, the outputs were modified (implementation of sub projects were added) using the balance. On the other hand, however, the unit prices of labor, construction materials and fuels dramatically increased¹⁰ in Vietnam during the project's implementation, which inevitably increased the construction cost. In other words, the project cost that was borne by the Vietnamese side increased and, as a result, the actual total project cost exceeded the plan¹¹. The number of sub projects increased by 34, which is 25%

¹⁰ For example, looking at prices before and after the peak of implementing the sub projects (Jan 2007 and June 2008), the labor cost increased by 70%, the fuel cost by 46% and the steel price by 36% (source: data provided by the Ministry of Construction of Vietnam). Although data from June 2008 to the project's completion could not be obtained, the unit prices continued to rise after June 2008, according to MPI.

¹¹ In other words, while it was anticipated that the approved ODA loan amount would not be fully utilized and implementation of additional outputs using the unutilized balance was considered appropriate and approved by the Japanese and Vietnamese sides, the construction cost ended up exceeding the initial plan due to inflation caused by the economic growth of Vietnam at that time.

more than the initial plan. Considering that the project cost increased by 29% from the initial plan, it can be judged that the exceeded amount was generally fair and that the increase in the project outputs (increase in project cost) was in accordance with the increase in the project outputs.

3.2.2.2 Project Period

At the time of the project's appraisal, the project period was planned to be four years and three months (51 months) from March 2006 to May 2010. However, the actual project period was six years and six months (78 months) from March 2006 to August 2012, which was longer than planned (153% of the plan). This was mainly because the additional outputs were implemented. The additional sub projects were commenced in 2010 and took a little less than two years. The implementation itself did not encounter major delays and was mostly completed without problems. Considering the implementation of additional sub projects which was as planned, it is thought that the project period can be judged as relevant, with the completion's delay of originally planned project scope (as of 112%, completed in December 2010). Therefore, it can be judged that the efficiency in terms of the project period is fair.

3.2.2.3 Results of Calculations of Internal Rates of Return (Reference only)

For this project, the Internal Rates of Return (IRR) was not calculated at the time of the appraisal. In addition, the data necessary for the calculation of benefits and costs could not be obtained and thus, the IRR was not calculated or analyzed.

Although the project cost was mostly as planned, the project period exceeded the plan. Therefore, efficiency of the project is fair.

3.3 Effectiveness¹² (Rating: ③)

3.3.1 Quantitative Effects (Operation and Effect Indicators)

This project constructed and rehabilitated small-scale infrastructures, such as roads, electricity distribution, water supply and irrigation, in the selected priority districts and provinces. These were selected according to the following criteria: the poverty indicator at district and provincial levels, the Human Development Indicator and whether or not the poverty program of the Vietnamese government exists. Table 2 shows the pilot provinces, the districts in

¹² Sub-rating for Effectiveness is to be put with consideration of Impact.

which sub projects are located and the three areas in which the pilot projects were implemented. Table 3 shows the baselines for the pilot provinces/districts, the pilot project sites and all of the provinces before the project's commencement, as well as the targets set for after the project's completion and the actual at the time of the ex-post evaluation.

Table 2: Pilot Provinces (Three Provinces), Districts Where Sub Projects Are Located (ten Projects in nine Districts), and Three Pilot Project Sites (Three Road Projects and One Water Supply Project) of This Project

Pilot Province	Districts in Which Sub Projects Are Located	Pilot Project Site
Phu Tho Province (Northeast Region)	Thanh Son district (road and water supply), Cam Khe district (irrigation), Yen Lap district (electricity distribution)	Ngo Xa village (road)
Ha Tinh Province (North Central Coast Region)	Huong Son district (road), Huong Khe (irrigation), Thach Ha district (electricity distribution), Ky Anh district (water supply)	Hoa An village (road and water supply)
Phu Yen Province (South Central Coast Region)	Son Hoa district (bridge), Song Dinh district (irrigation)	Trung Luong village (road)

Source: JICA document, answers to the questionnaire.

Table 3: Baselines, Targets and Actuals at the Time of Ex-post Evaluation of the Operation and Effect Indicators of This Project

Indicator	Before Project Commencement		After Project Completion
	Baseline 2004 Appraisal Year	Target 2012 Two Years After Completion	Actual 2013 One Year After Completion
1) Pilot Province/District			
【Road】 Travel time saving	It was to be set for each sub project.	It was not set for each sub project.	It was confirmed that the travel time has generally reduced, although detailed data is not available.
【Power Distribution】 Connection Rate (%)	83* 576,000	96* 780,000	98.5* N/A
Sales Volume (MWh) Distribution Loss (%)	35*	18*	13.11*
【Water Supply】 Water Supply ¹³ (m ³ /day)	5,600 40*	11,000 90*	10,500 82*

¹³ This indicates the daily average water quantity supplied.

Rate of Facility Utilization (%) House Connection Rate (%)	12.5*			95*			N/A		
【Irrigation】 Cultivated Area by Crop (ha)		Rice	Other than rice		Rice	Other than rice		Rice	Other than rice
	Spring	1,121	2,683	Spring	1,500	3,190	Spring	1,440	2,226
	Summer	7,869	308	Summer	8,369	400	Summer	8,900	323
	Winter	4,430	308	Winter	5,171	400	Winter	3,774	471
Irrigation Fee Collection Rate (%)	53*			82*			N/A		
2) Pilot Project Sites									
• Rural Industrial Production (million VND/year)	23,536			33,582			103,700		
• Transportation Cost (VND/ton)	N/A			39% reduction**			No change or slightly increased from the appraisal time.		
3) All Provinces									
【Road】 Annual Average of Daily Traffic Volume (Vehicle/Day) ¹⁴	183*			574*			769*		
【Power Distribution】 System Average Interruption Duration Index (Minutes/ Year /Household)	1,092*			272*			206*		
【Water Supply】 Service Population (People)	17,281***			255,384***			363,495***		
【Irrigation】 Benefited Area (ha)	15,427***			56,914***			57,228***		
4) Others									
• No. of Established DDB That Are	6			22			9		

¹⁴ According to JICA's appraisal document, the target was set as "7.7% increase after completion". However, taking a deeper look at the document, the actual expected target was for the figure to "increase to 334% on average after completion". It seems that there was a miscalculation in the indicator setting at the stage of the project design. On the other hand, 183 vehicles/day, 574 vehicles/day and 769 vehicles/day, shown in Table 2, were taken from the questionnaires that were answered by the targeted provinces and districts for this ex-post evaluation. In other words, the shown figures represent the data provided by the respondents at the time of the ex-post evaluation.

Effectively Functioning			
• Access to Public Facilities	N/A	Improved	Improved
• Diarrhea and Skin Disease Occurrence	N/A	Improved	Improved

Source: JICA document (baselines and targets) and answers to the questionnaire and interview results (actuals).

Note: *Average of all of the sub projects, **Average rate of increase of all of the sub projects and ***Total of all of the sub projects.

1) Pilot Provinces/Districts

With regard to roads, the targets for travel time saving were not set and the actual time saving was also not measured. According to the interviewed staff members, who operate and maintain each of the road projects, “The travel time has reduced as a result of the road pavement. Vehicles used to face obstacles in passing unpaved roads. Today, however, accessibility to nearby areas has greatly improved.” Therefore, it is thought that travel time has mostly reduced, thanks to the road development.

With regard to electricity distribution, data on sales volume could not be obtained. However, it was confirmed that the connection rate and the distribution loss both outperformed the targets. Thus, it can be judged that the situation surrounding power supply has improved.

With respect to water supply, data on house connection rate could not be obtained. However, as shown in Table 3, the daily average water supply and the rate of facility utilization generally achieved the targets¹⁵. Thus, it can be judged that this project, through the development of water supply facilities, has contributed to stable water supply.

Regarding the cultivated area by crops, there are gaps between the targets and the actual total, depending on the season and crop. However, looking at the total cropped area of the year, the targets have generally been achieved (the target total was 19,030ha compared to the actual total of 17,134ha, which means approximately 90% was achieved). Concerning the irrigation fee collection rate, the central government abolished the irrigation fee collection system by declaring Decree 115 in 2008, with the aim of further promoting agriculture. As a result, the facilities that are targeted by this project (pump stations, main canals, drainage canals, etc.) are being maintained using the funds allocated by the central government at the time of the ex-post evaluation. In other words, although, at the time of appraisal (2006), the fee collection rate was

¹⁵ The target for the daily average water quantity supplied was 11,000 m³/day, whereas the actual water supplied was 10,500 m³/day (approximately 95% achieved). As for the facility utilization rate, the target was 90%, whereas the actual rate was 82% (91% achieved).

expected to improve as a result of the implementation of this project, no fees have been collected since 2008¹⁶.

2) Pilot Project Sites

In this project, targets were set for changes in the rural industrial production and the transportation cost in the pilot project sites (hereafter referred to as “project sites”). Regarding the rural industrial production, the target was greatly outperformed. This can be attributed to the road development. According to people residing in the project sites, who were interviewed during the field survey, “Before, we faced difficulties in marketing and transporting our products because the roads were in bad conditions and we could not access the markets so easily. Now that the roads are developed, the markets have become more accessible, enabling us to sell our products more easily. In some cases, buyers even come to our doors or workshops and we can efficiently gain profits.” Based on such a comment, it can be presumed that this project contributes to the vitalization of local economies through the development of roads. On the other hand, accurate figures concerning actual transportation costs could not be obtained. However, residents of the project sites responded by stating either that “No change from the appraisal time” or “Slightly improved”. This is because the costs of fuel, labor and construction materials greatly increased during the project implementation, in accordance with the economic growth. While the road development and improvement in traffic networks that connect neighboring areas facilitate smooth traffic flow, inflation, which is associated with economic growth, affects the increase in fuel cost and others. It is presumed that the transportation cost has not reduced due to these external factors.

3) All Provinces

The indicators that apply to all of the provinces are analyzed based on the data of the sub projects provided in the answers to the questionnaires¹⁷. In all of the sectors, at the time of the ex-post evaluation, the actuals exceed the targets. It can be judged that the absorption of traffic demand, stable power supply, increase in water supply and expansion of the benefitted area have been realized.

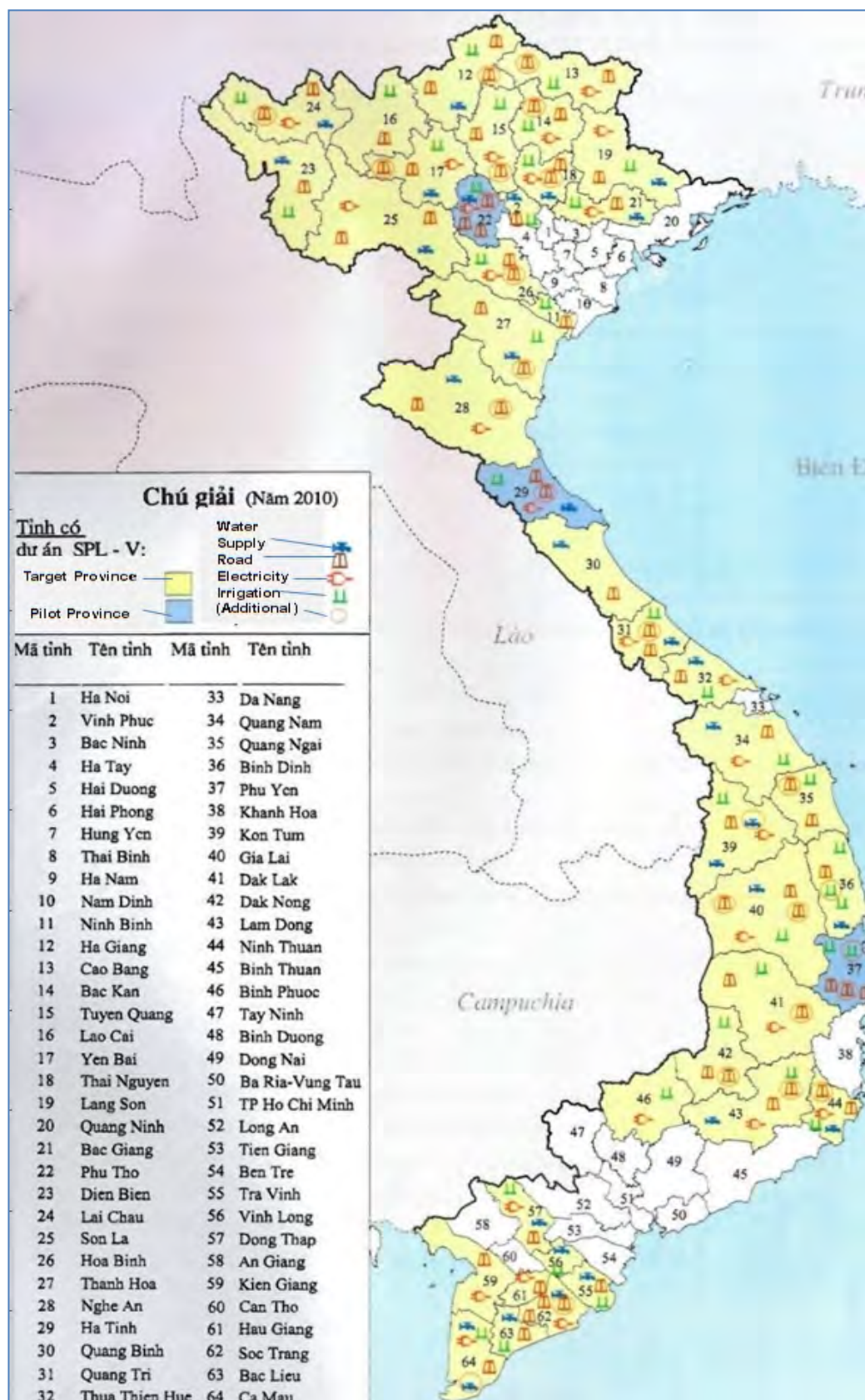
¹⁶ Farmers are supposed to continue paying irrigation fees for secondary or smaller canals (not targeted by this project) and collected fees are used for maintenance. Farmers either pay to their commune or agricultural cooperatives that are under communes.

¹⁷ The response rate concerning the questionnaires was 88% for roads, 76% for electricity distribution, 59% for water supply and 84% for irrigation.

4) Others

Regarding the “number of established DDB”, the plan was 22 districts in five provinces. However it was reduced to nine districts in three provinces. According to MPI, this was mainly because the budget and staffing at the province level had some constraints in monitoring the progress of the targeted sub projects. It was confirmed that there were many responses that indicated that “access to public facilities” has improved. In particular, through the implementation of road projects, intra-regional networks have been developed, which have extended and improved access to commercial facilities, hospitals and schools¹⁸. Concerning “diarrhea and skin disease occurrence”, according to interviews with the residents near the sub project site in Thanh Son district of the Phu Tho province, visited during the field survey of this evaluation study, “We see less cases of diarrhea, skin disease and eye troubles.” This is probably because, before the project’s commencement, people used to take water from wells, rivers and lakes. However, today, they rely on water supply facilities and their access to safe water has improved. Considering such a comment, it is thought that the water supply facilities of this project are making certain contributions to the improvement in residents’ health.

¹⁸ It is worth noting that the beneficiary survey, which will be discussed under the Impact section (Figure 7), also points out the improvement in traffic access.



Source: Document provided by MPI

Figure 1: Locations of the Project Sites



Photo 3: Installed Electricity Distribution Facility (Yen Lap District in the Phu Tho Province)



Photo 4: Pilot Project Site in the Ha Tinh Province (Sales of Agricultural Equipment Grew Due to the Improvement in Road Networks with Neighboring Areas)

3.3.2 Qualitative Effects (Other effects)

1) Improvement in the Living Conditions through the Development/Rehabilitation of the Irrigation, Road, Water Supply and Electricity Distribution Facilities

In interviews concerning the irrigation projects, farmers and residents in the provinces that were visited during the field survey commented, “Before the project’s commencement, our incomes were not stable because crops were affected by the flood before the harvest, which reduced the yields. Now, we are less worried. After the development of drainage facilities by this project, water can be discharged appropriately and we can expect a more stable income than before from rice and corn.” With regard to the road projects, they commented, “The wood processing industry has developed around the project site. After the completion of the project, buyers began to come for purchasing. Before the project’s commencement, we had to carry wood products to nearby towns, which was heavy physical labor. Now, we can sell our products easier than before and we can make profits in a short period of time.” Concerning the water supply projects, they said, “We think that the occurrence of skin diseases and eye troubles is decreasing thanks to the expansion of the service population. The water supply is also increasing in terms of both volume and hours supplied.” Regarding electricity distribution projects, they commented, “Before the project’s commencement, electricity supply was not sufficient and we only used to use electricity for lighting purposes. Now, we can purchase electronic goods and our life has changed dramatically.” Based on such comments, it can be presumed that this project contributes to the poverty alleviation by improving the living conditions of farmers and residents in the target areas.

2) Activities of the DDB

As discussed above, this project was also significant in that the DDB carried out activities along with the implementation of the sub projects in nine districts in three provinces. For example, farmers, women's groups and the People's Committee at the commune level¹⁹ collaborated with district level Project Management Unit (hereafter referred to as "PMU") in the project formulation and design, as well as in the supervision and monitoring of construction during the implementation²⁰ in the Phu Tho province, which was visited during the field survey. This project was a pioneer in introducing such activities of the DDB. It can be said that the project was significant in that it promoted resident participation, from project formulation/design to progress monitoring, using a participatory method, thereby facilitating the sharing of responsibilities for the project management. The activities of the DDB had already ended following the completion of this project. However, these organizations continue to monitor the maintenance of the sub projects, as needed²¹.

3.4 Impacts

3.4.1 Intended Impacts

3.4.1.1 Contribution to Poverty Reduction

As part of this evaluation study, a questionnaire-based beneficiary survey was conducted, which targeted the farmers and residents of Phu Tho, one of the pilot provinces. The sample size was 50 for the irrigation project, 58 for the road project, 50 for the water supply project and 65 for the electricity project (223 samples in total), which were selected using the random sampling method. The respondents were residents who had either farmed or lived in the same area for more than 10 years, starting from the project's commencement to the time of ex-post evaluation²². The beneficiary survey results are shown in Figures 2-11 below:

¹⁹ The local administrative boundaries are provinces, districts and communes in Vietnam.

²⁰ Five to seven people from PMU, five to seven people from farmers/women/commune-level People's Committee, a total of 10 to 14 people, participated in the regular meetings. At the meetings, they discussed from the selection of the sub projects to the construction supervision and monitoring during the implementation, while checking the progress. Various stakeholders communicated among each other through such discussions.

²¹ For example, if a maintenance related problem occurs (e.g., damage to road surface), they report it to PMU and request for action.

²² This was intended to measure effectiveness and impact as accurately as possible.

1) Irrigation Project

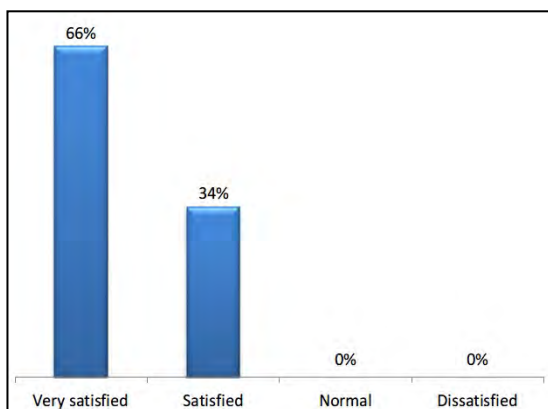


Figure 2: Are you satisfied with this project?

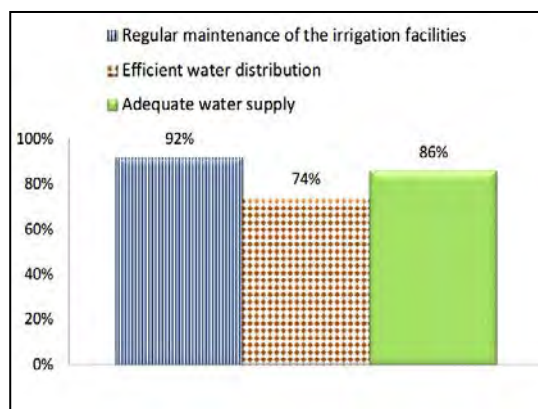


Figure 3: What is the reason (s) for your answer indicated in Figure 2?
(Multiple answers allowed)

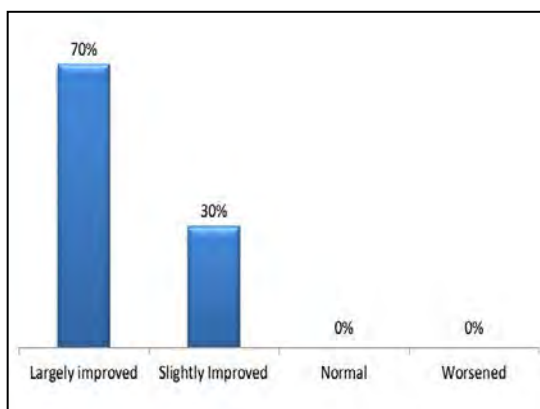


Figure 4: Do you think that the agricultural production has increased through this project?

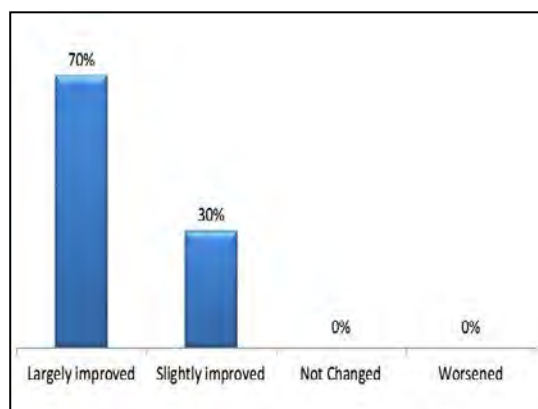


Figure 5: Has the agricultural income increased over the past 10 years?

It can be observed from Figure 2 that the level of satisfaction with the irrigation projects is high. From Figure 3, which indicates why, it can be judged that people are satisfied because of the factors that are directly linked to this project, such as the good maintenance of irrigation (drainage) facilities. As shown in Figures 4 and 5, there were many answers that pointed to the fact that agricultural productivity and incomes are improving. Thus, it is presumed that the living conditions of the target areas are improving.

2) Road Project

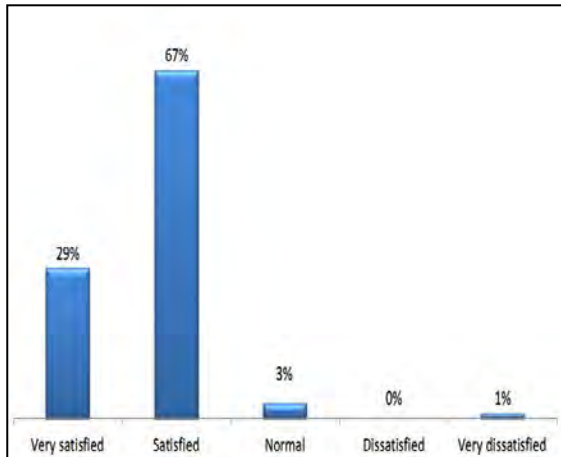


Figure 6: Are you satisfied with this project?

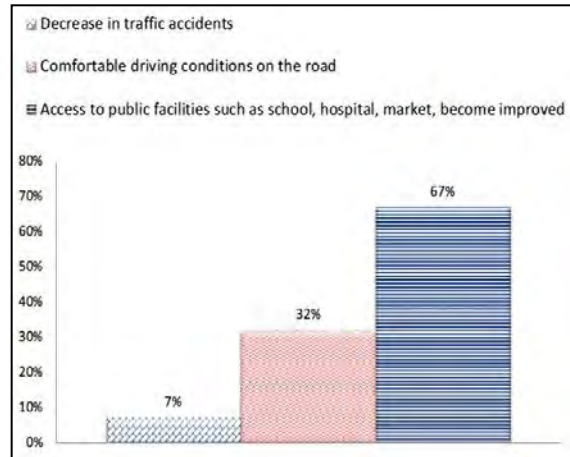


Figure 7: What are the reason(s) of your answer indicated in Figure 6?
(Multiple answers allowed)

As shown in Figure 6, the level of satisfaction with the road projects is also high. As shown in Figure 7, which indicates why, many respondents pointed to the fact that driving on the road has become comfortable and that traffic access to public facilities (schools, hospitals, etc.) has improved. It can be presumed that traffic accessibility, through this project in particular, has expanded marketing possibilities for agricultural products for farmers and made visits to nearby towns easy for residents, thereby facilitating the interactions among different localities.

3) Water Supply

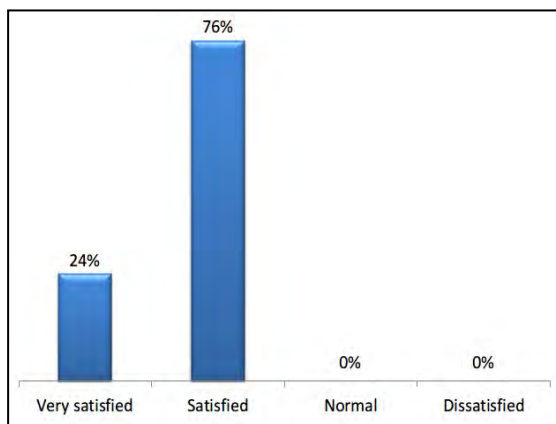


Figure 8: Are you satisfied with this project?

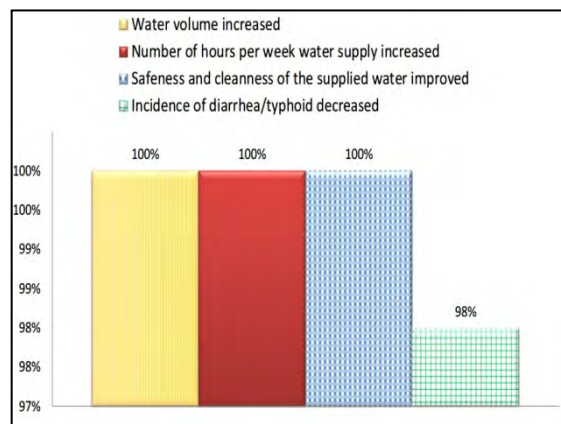


Figure 9: What are the reason(s) of your answer indicated in Figure 8?
(Multiple answers allowed)

As shown in Figure 8, the level of satisfaction with water supply projects is also high. In addition to the increase in water supply volume and hours, respondents point to the supply of

safe water and reduction of water-borne diseases as reasons for their satisfaction. Thus, it can be presumed that health and sanitation is improving in the target areas.

4) Electricity Distribution Project

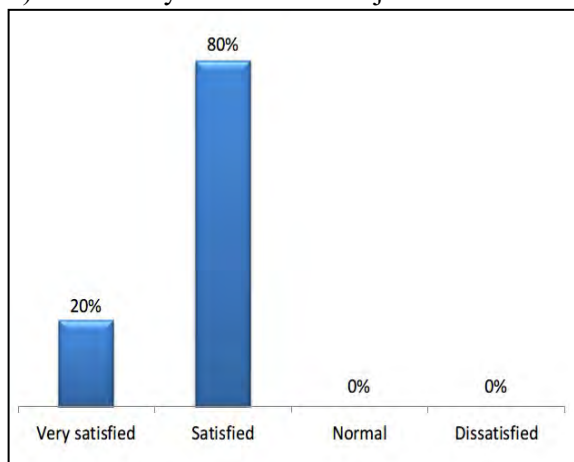


Figure 10: Are you satisfied with this project?

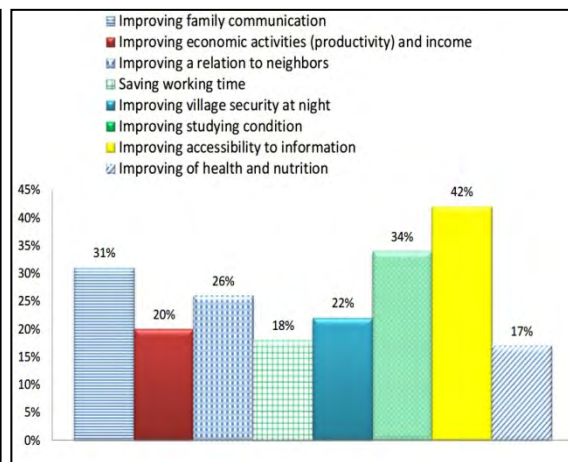


Figure 11: What is the reason(s) for your answer indicated in Figure 10? (Multiple answers allowed)

As shown in Figure 10, the level of satisfaction with the electrification distribution projects is also high. As seen from Figure 11, various reasons were given: communication among family members (conversation) has increased, the environment for studying at home has improved, security during the night time has improved and access to information has also improved. It can be presumed that the quality of life has improved, thanks to the stabilization of power supply in the target areas.

Based on the above beneficiary survey results, it is judged that this project supports the improvement in living conditions of farmers and residents, thereby positively impacting the target areas.

3.4.2 Other Impacts

3.4.2.1 Impacts on the Natural Environment

In this project, sub projects were only implemented if each of the provinces conducted an environmental appraisal, studied the environmental impacts on the sites and the surrounding areas and confirmed that there would be no negative impacts. During this evaluation survey, questionnaires that were sent to the pilot provinces/districts have confirmed that the project did not have a negative impact on the natural environment (air pollution, noise/vibration, impact on

the ecosystem, etc.) during the project implementation and after its completion²³.

3.4.2.2 Land Acquisition and Resettlement

It has been confirmed, through the questionnaires and interviews with MPI, that this project did not involve any large-scale resettlement. Land acquisition was required for some sub projects. However, in any case, the procedures were smooth, followed the land acquisition plans and compensation was paid to land owners without any problems²⁴.

3.4.2.3 Other Impacts (Positive and Negative)

1) Improvement in the Development Effects Through Partnership

This project attempted to enhance its development effects by partnering with NGOs, with the aim of alleviating poverty and realizing sustainable development of the local socio-economy in the project targeted areas. More specifically, the NGO Partnership Fund²⁵ (maximum 10 million yen) was set up using a part of the consulting service budget of this project. Out of the three pilot provinces, one organization from each of the Phu Yen and Ha Tinh provinces (all of which are local NGOs) were selected based on the criteria, such as NGO's operational capacity and experience within the province. They were then given funds for their activities²⁶. Descriptions and achievements of these two organizations are shown in the column below:

²³ No negative impacts were observed, in particular through the site visits and interviews with the residents and maintenance staff during the field survey.

²⁴ Interviews were conducted during the field survey with some landowners whose lands were subject to the land acquisition and they did not raise any particular complaints or concerns.

²⁵ It was expected that the activities of this fund would facilitate synergy between the pilot projects, such as road projects implemented in the project target areas, and the economic activities of the local residents.

²⁶ Regarding the selection process and procedure, the Department of Planning and Investment (DPI) of both of the provinces submitted their request for the NGO Partnership Fund to MPI. Simultaneously, the local NGOs submitted proposals to MPI via DPI, and MPI approved the utilization of the fund.

-Box.1 Enhancing Development Effects Through NGO Partnership: Overview of NGOs’
Activities and Their Achievements-

(1) The Phu Yen Province (South Central Coast Region)

- Organization Name: Phu Yen Intercooperative
- Project Duration: About 10 months from October 2009
- Total Fund: 332 million VND (a little less than 2 million yen)
- Activities: Forming rice power producers’ association, market research, publicity and conducting training for enhancing production capabilities. These included quality management and sales planning, with the aim of increasing incomes of the poor and supporting their economic activities.

This organization provided assistance to producers of rice-power products (rice paper, spring roll raps, rice cracker, etc.). Four communes were selected from four different districts. Then, 40 households (10 households in each commune) were assisted. According to the interview with this organization during the field survey, they commented, “Through various activities, households increased their sales by 30-40% and their profits by 10-15%. The marketing route was developed as a result of the development of the road by this project and thus, accessibility to the markets was improved. Each family participated in the activities enthusiastically.” Now, at the time of the ex-post evaluation, this organization continues their activities so that families targeted by this fund can share their experience and information about processing rice powder with other families in the neighboring towns.

(2) The Ha Tinh Province (North Central Region)

- Organization Name: Ha Tinh Union of Science and Technique (HUSTA)
- Project Duration: About 13 months from August 2009
- Total Fund: 332 million VND (a little less than 2 million) (+NGO’s self fund: approximately 1 million VND)
- Activities: Steel processing in rural areas, lantern lamps, bamboo crafts, wooden furniture design improvement, support for market planning and new product development, with the aim of increasing incomes of the poor and supporting their economic activities

This organization selected a total of 40 households and assisted them in market expansion and income improvement. Households engaged in woodwork (10 families), steel processing (20 families) and kerosene lamps production (10 families). According to the interview conducted during the field survey, they commented, “Through the project activities, village-to-village interaction and networks have expanded. Before the project, there was not

much interaction between villages and marketing routes were limited. Now, people produce various goods when they are not so busy with agriculture and are able to get stable non-agricultural income. As we see many women with increased cash incomes, we feel that our assistance was clearly effective.” In addition, comments were received about the fact that sales have increased as a result of the road development in the pilot site (Trung Luong village) targeted by this project. Now, after the project has ended, this organization is trying to disseminate the experience and knowledge gained through the project activities to other rural areas.

Based on the above information, it can be judged that the NGO Partnership Fund of this project was utilized effectively for poverty alleviation and economic activity support in rural areas, despite the fact that the activities were not so large-scale. Thus, it can be said that this is one of the cases in which a sub project of this project (road project) supported grassroots activities, thereby contributing to the improved livelihoods in rural villages.



Photo 5: Pilot project site in the Phu Tho province (lantern making by women is popular in this area).



Photo 6: Farmers supported by the NGP Partnership Fund and his rice paper product (in the Phu Yen province).

2) Women's Participation in the Project as Part of the DDB's Activities

As discussed above, in the case of the DDB of the Phu Tho province, farmers, women's groups and commune-level People's Committee were engaged in the project's formulation/design and construction supervision/monitoring in collaboration with PMU at the district level. There, it was observed that the women's groups were actively involved in the project. In the Phu Tho province, which is famous for lantern lamps, it is mostly women who produce the products. From the design stage of the sub project, the women's groups emphasized the importance of developing roads and enhancing networks with neighboring areas at DDB

meetings, envisaging the increased sales of and incomes from their products. The DDB then formulated a plan for road development, taking into consideration the opinions of the women's groups. It is presumed that the incomes of the women who produce lantern lamps have also increased, while "rural industrial production" has greatly increased, compared to before the project's commencement, as explained in "3.3.1 Quantitative Effects" under Effectiveness.

This project has largely achieved its objectives. Therefore, the effectiveness and impact of the project is high.

3.5 Sustainability (Rating: ②)

3.5.1 Institutional Aspects of Operation and Maintenance

During the project implementation, the MPI coordinated the entire project, while the provincial-level DPI, which is under MPI, virtually operated the sub projects. After the project's completion, the operation and maintenance of each of the facilities is mostly managed by the relevant division of the province or contracted out to private companies. However, the extent and scale vary from sector to sector and from province to province. The major operation and maintenance systems of this project are described below:

1) Road Projects

The operation and maintenance of this project are managed by the Department of Transportation (DOP), the People's Committees of each province/district/commune and private companies, which are commissioned by the People's Committee at the provincial level.

2) Electricity Distribution Projects

The operation and maintenance of power distribution facilities are managed by the EVN or electricity supply cooperatives at the district level, commissioned by EVN.

3) Water Supply Projects

The operation and maintenance of water supply facilities are managed by Water Supply Companies (WSC) of each of the provinces and the private companies managed by the People's Committees at the district and town levels.

4) Irrigation Projects

The operation and maintenance of irrigation facilities are managed by the Department of Agriculture and Rural Development (DARD) of each of the provinces, the People's Committees at a district, town and village level, and the Irrigation Management Company, under the

supervision of each province.

Through the interviews conducted in the provinces that were visited during the field survey and the answers to the questionnaires, no major problems or issues were observed in terms of the systems for operation maintenance, staffing, institutional functions, coordination between the MPI and DPI and the securing and storing of maintenance equipment concerning the sub projects. Therefore, it is thought that there were no major problems in the institutional aspects of this project.

3.5.2 Technical Aspects of Operation and Maintenance

It has been confirmed that, in the provinces that were visited during the field survey, the organizations that operate and maintain the sub projects have many staff members who have been working for a long time²⁷. Thus, they are sufficiently aware of the importance of operation and maintenance works. It has also been confirmed that the staff have maintenance manuals and carry out their maintenance works based on such manuals, as needed. With regard to training, although there are few, they are conducted as appropriate²⁸. Therefore, it is thought that there are no major problems in the technical aspects of the operation and maintenance of this project.

3.5.3 Financial Aspects of Operation and Maintenance

In this evaluation study, the information about operation and maintenance budgets of the sub projects was collected by sending questionnaires to the MPI and pilot provinces/districts, as well as non-pilot provinces/districts, and by interviewing the People's Committees who are responsible for the operation and maintenance. As a result, it has been confirmed that the provinces and projects generally tend to have minimum levels of operation and maintenance budgets allocated in recent years. However, quite a few road projects face harsh budget allocation situations²⁹.

²⁷ For the road projects, the staff know how to repair the road surface; for the electricity distribution projects, they know how to rehabilitate facilities such as transformers; for the water projects, they know how to operate the water purifying pumps and how to test the water quality; and for the irrigation projects, they know how to operate and repair the irrigation pumps. Many of the staff have been working since before the project's commencement.

²⁸ For example, training includes repairing the road surface for the road projects; maintenance of the transformer facilities for the electricity distribution projects; the operation and cleaning of the filter cisterns and chemical treatment for the water supply projects; and the operation of pumps for the irrigation projects.

²⁹ This is presumably because it is quite rare to charge fees for using the developed roads, unlike electricity distribution and the water supply projects. The maintenance costs of the irrigation projects are covered by the central government, as described above. It was confirmed through interviews that the provincial and district maintenance budgets for roads were limited; thus, it is presumed that the maintenance works are not sufficient.

Table 4 shows the operation and maintenance costs of the sub projects that were implemented in the Phu Tho province, which was visited during the field survey. The division responsible for the road project in the province commented, “The district’s budgets are limited. In addition, the disbursement of the budgets tends to face delay.³⁰” With regard to the electricity distribution project, the EVN operates and maintains it. As shown in Table 4, they did not disclose the operation and maintenance costs. However, it was confirmed that sufficient operation and maintenance budget has been allocated after the project’s completion, according to a focal person in the Yen Lap district. Concerning the water supply project, the operation and maintenance costs of this year are less than that of other years because it was completed in the middle of 2011. On the other hand, sufficient budgets have been allocated since 2012. A focal person in the Thanh Son district commented, “We allocate sufficient operation and maintenance budgets that are needed. It does not affect the maintenance works.” With respect to the irrigation project, “The sufficient amounts that are needed are being allocated. We do not have problems such as lack of maintenance attributed to budget shortage³¹.” Based on the above, it turned out that the sufficient budgets that are needed were generally allocated, except for the road project.

The maintenance division that is responsible for the road project³² in the Hoa Binh province, which was visited during the field survey, commented, “I think that the budgets for emergency and recovery from disasters are sufficient; however, the amounts that are disbursed on a yearly basis are limited. When we request budgets to the Provincial People’s Committee, only half of what we request has been allocated in recent years.” In addition, through interviews with the DPI of each pilot province, it has been confirmed that other road sub projects more or less face the same situations. Therefore, it is judged that there are some concerns regarding the allocation of operation and maintenance budgets for the road projects.

³⁰ Regarding the road project (Van Mieu-Thuong Cuu Road) in the Phu Tho province, there are mines along the roads developed by the project. The mining companies financially contribute to the province for road maintenance, as they use the road with their heavy vehicles. Some of the maintenance budget is also allocated by the Phu Tho district, which is responsible for the operation and maintenance of this project; however, the donation and the district’s budget are not enough. As a result, damages are observed and the condition of the road surface is worsening due to over-loaded heavy vehicles that pass on the road. It has been confirmed that the road is not repaired every year due to the budget shortage and that maintenance is limited. It is thought necessary that the province and the district should make further efforts to maintain the quality of the road surface by charging fees according to the actual damages.

³¹ As explained earlier, with regard to secondary or smaller canals (not targeted by this project), farmers pay irrigation fees. It was confirmed that the fees have been collected under the secondary canals and been allocated to repair and cleanings of the canals, in the case of the sub project in the Cam Khe district.

³² The Road 433 in the Da Bac district (Km55-Km75).

Table 4: Operation and Maintenance Costs of the Sub Projects in the Phu Tho Province (Actual)

(Unit: million VND)

	2011	2012	2013	2014
1) Road Projects ³³	176	600	0	0
2) Electricity Distribution Projects ³⁴	N/A	N/A	N/A	N/A
3) Water Supply Projects ³⁵	N/A	180.11	1,023.75	993.18*
4) Irrigation Projects ³⁶	960-1120	960-1120	960-1120	960-1120

Source: Answers to the questionnaires.

*Note: Data as of September 2014. According to the Thanh Son Town district, it is expected to be more than the 2013 figure.

3.5.4 Current Status of Operation and Maintenance

Interviews confirmed that there are no particular problems concerning the procurement and storage of the spare parts that are necessary for each facility of this project and that a proper procurement system is in place. In addition, it was also confirmed that maintenance and operation manuals are in place at each facility and that staff members refer to the manuals as needed. The status of operation and maintenance that was gathered from the questionnaires is discussed below:

1) Road Projects

According to the questionnaires concerning all of the road projects, it was confirmed that, in general, there are no problems such as damaged road surface. On the other hand, there is a problem with the surface of the Van Mieu–Thuong Cuu Road, as discussed in “3.5.3 Financial Aspects of Operation and Maintenance” (footnote 31), which needs improvement.

2) Electricity Distribution Projects

Through the questionnaires, such as above, it was confirmed that there are no problems with the status of the maintenance carried out by the EVN and the electricity supply cooperatives at the district level commissioned by EVN. In addition, it was confirmed, through the field visits to the sub project sites and interviews with the maintenance staff, that the power distribution facilities (e.g., transformers) are regularly checked.

³³ The Van Mieu–Thuong Cuu Road of the Phu Tho district.

³⁴ New construction of the electric network for a group of eight communes in the Yen Lap district.

³⁵ Water supply system for Thanh Son Tow in the Thanh Son district.

³⁶ The irrigation system of the Doc Gao–Dong Lang Chuong and the Ruot Tien Uy Reservoir of 16 in the Cam Khe district.

3) Water Supply Projects

It is thought that there are no particular problems with the maintenance that is carried out by the Water Supply Companies (WSC) within the provinces and the private companies managed by the People's Committee of the districts and towns. It was also confirmed, through the questionnaire answers and interviews with maintenance staff at the project sites visited during the field visits, that there are no major problems. It was also confirmed that the operation and periodic checks of the pump units are conducted appropriately.

4) Irrigation Projects

Through the field visits to the sub project facilities, it was confirmed that the drainage canals are managed and that the water gates are cleaned by the People's Committees at the districts, towns and village levels; thus, it was observed that the maintenance status is generally good. The questionnaires also confirmed that there are no major problems.

Some minor problems were observed in the financial aspect of this project and the status of maintenance of the road projects. Therefore, sustainability of the project effects is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project developed small-scale infrastructures in provinces and districts that require poverty reduction, with the aim of improving traffic accessibility, public services and increasing agricultural productivity. Since this project is in line with Vietnam's poverty alleviation policies, such as the "Five-year Socio-Economic Development Plan" and the "Ten-Year Strategy for Socio-Economic Development", as well as the need to develop roads, water supply, irrigation and electricity distribution facilities in rural and mountainous areas and Japan's assistance policy, its relevance is high. The project cost and project period slightly exceeded the plan (while the utilized ODA loan amount was less than the plan) because the number of sub projects was increased when the change in the exchange rates was expected to leave some of the approved ODA loan amount unused. Thus, its efficiency is fair. The initial targets of this project were generally achieved. It was confirmed that through the road project, smooth traffic was realized; through the electricity distribution project, the power supply was stabilized and the hours of power cuts were reduced; through the water supply project, the water supply and service population increased and through the irrigation project, agricultural production increased. Additionally, results from the beneficiary survey indicate that the level of satisfaction among

residents and living conditions has improved; thus, the project's effectiveness and impact is high. On the other hand, with regard to the operation and maintenance of this project, the allocated maintenance budget for the road project is not necessarily sufficient and thus, its sustainability is fair.

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

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

- Through interviews with the pilot provinces and maintenance staff and from questionnaire answers, it was confirmed that the road maintenance budgets of this project are not sufficient, compared to that of the electricity distribution/water supply/irrigation projects. It is thought necessary that each of the provinces and districts swiftly build a consensus so that the road maintenance budgets are secured and that they develop a system that ensures sufficient budget allocations.

4.2.2 Recommendations to JICA

- None.

4.3 Lessons Learned

(The necessity of establishing a system for the allocation of road maintenance budgets)

- As discussed in the "Quantitative Effects" section under Effectiveness and the beneficiary survey results, while the road projects are expected to generate significant project effects and impacts, appropriate maintenance works need to be conducted in order to sustain such effects. Interviews with the MPI, provinces and districts confirmed that sufficient maintenance budgets are not allocated, especially for the road projects in many of the provinces and districts. Before the project commenced, it would have been possible to build a consensus between the provinces/ districts regarding the maintenance budget allocations for after the project's completion. It would also have been preferable that a system was established from the very beginning in order to ensure that the needed budgets are duly allocated.

(Promoting the achievement of objectives of sub projects with participatory approach)

- With regard to the activities of the DDB in the Phu Tho province that was visited during the field visit, farmers, women's groups and the People's Committees at the commune level were

involved in the project formulation/design and construction supervision/monitoring during the project implementation, in collaboration with the PMU at the district level. Through such initiatives, the DDB's activities reflected the opinions and requests of the resident groups, who supervised the construction works of the contractors by their own interests. It is thought that, to some extent, this contributed to the quality maintenance, such as the road surfaces, because the resident groups had strong expectations of the sub project implementation. If a similar project that involves a resident group's participation is implemented in the future, it is worth assessing the capability of the resident group and understanding their expectations for the project before its formulation and design. This is also considered beneficial to the future of the local society.

Comparison of the Original and Actual Scope of the Project

Item	Plan	Actual
1. Project Outputs	<p>1) Forty road projects (concrete pavement, bridge construction, etc.)</p> <p>2) Twenty-nine electricity distribution projects (installation/extension/repair of medium and low voltage transmission lines, installation of transformers, etc.)</p> <p>3) Twenty-eight water supply projects (construction of water intake facilities, pump facilities, treatment and filtration facilities and water distribution networks.)</p> <p>4) Thirty-seven irrigation projects (reinforcement of irrigation canals, protection works for reservoirs, etc.)</p> <p>5) Consulting Services (Assistance in the detailed design and bid tendering/contracting; construction supervision (including environmental monitoring) and evaluations; institutional enforcement for project's implementation; institutional enforcement for maintenance; and operation and management of the NGO component (NGO partnership fund): planned M/M is 262.5M/M (out of which 125M/M were international and 137.5M/M were local)</p>	<p>1) Seventy road projects (concrete pavement, bridge construction, etc.)</p> <p>2) Twenty-nine electricity distribution projects (installation/extension/repair of medium and low voltage transmission lines, installation of transformers, etc.)</p> <p>3) Thirty-one water supply projects (construction of water intake facilities, pump facilities, treatment and filtration facilities, and water distribution networks.)</p> <p>4) Thirty-eight irrigation projects (reinforcement of irrigation canals, protection works for reservoirs, etc.)</p> <p>5) Consulting Services Mostly as planned: Actual M/M was 267.5MM (out of which 145M/M were international and 122.5M/M were local)</p>
2. Project Period	March 2006 – May 2010 (51 months)	March 2006 – August 2012 (78 months)
3. Project Cost		
Amount Paid in Foreign Currency	15,164 million yen	1,185 million yen
Amount Paid in Local Currency	2,234 million yen	21,282 million yen
Total	17,398 million yen	22,467 million yen
Japanese ODA loan portion	14,788 million yen	13,668 million yen
Exchange rate	1 VND=0.00703 yen (As of October 2005)	1 VND=0.00526 yen (Average during the project period: The rate's source is from International Financial Statistics (IFS)'s data of International Monetary Fund (IMF))

Socialist Republic of Viet Nam

Ex-Post Evaluation of Japanese Grant Aid Project
“The Project for Improvement of Rural Living Condition in Nam Dan District
in Nghe An Province”

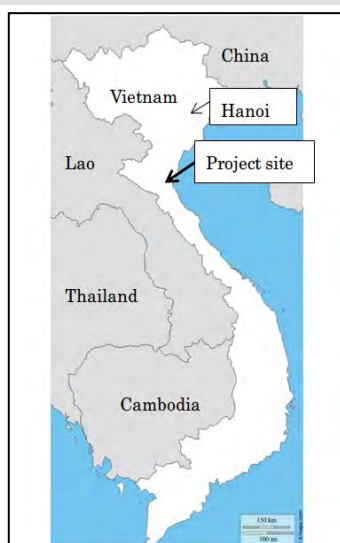
External Evaluator: Kenichi Inazawa, Octavia Japan Co, Ltd.

0. Summary

This project rehabilitated irrigation facilities and roads, and expanded facilities for rural electrification with the aim of recovering the irrigable area, improving traffic accessibility, and stabilizing the electricity supply in the Nam Nam area of the Nam Dan District of the Nghe An Province, located in the north-central part of the Socialist Republic of Viet Nam (hereafter referred to as “Vietnam”). At the time of the ex-post evaluation, the relevance of this project is high as the project is consistent with the policy stipulated in the “Five Year Socio-Economic Development Plan”, and with further development needs such as development of agricultural infrastructure, extension of road rehabilitation, and expansion of the electric distribution network. The project cost and project period did not exceed the original plan; thus efficiency is high. In this project, pumping facilities and canals were rehabilitated in the Nam Nam area, which led to the recovery of irrigable areas and reduced labor requirements and working hours for farmers, thereby realizing stable distribution of irrigation water. Through the rehabilitation of National Road 15A and district roads (Nam Kim-Nam Phuc-Nam Cuong road), smooth flow of traffic and reduced travel times have been realized, while improving traffic access to other parts of the country. The electric supply has been stabilized through the rehabilitation of substations and the electric distribution network, and all households in the area are registered members of the electricity service. The results from the beneficiary survey reaffirmed that the level of satisfaction with the project was high, and that the living conditions have been improved; thus, effectiveness and impact of this project are high. In addition, there are no major issues regarding the institutional, technical and financial aspects of the organizational structures, operation and maintenance of each facility developed/rehabilitated by this project; thus sustainability of this project is high.

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

1. Project Description



Project Location



Rehabilitated National Road 15A

1.1 Background

The Nam Dan District of the Nghe An Province, located in the north-central part of Vietnam, faces harsh natural conditions: such as unfertile soil, monsoons associated with hot wind (Laos wind), typhoons and flood damage. In the Nam Nam area¹, located at the southern edge of the Nam Dan District, farmers and residents were forced to live with harsh conditions before the project's implementation: such as limited access to markets and cities due to underdeveloped roads, isolation and inundated agricultural lands caused by floods in the rainy season, drought resulting from dilapidated agricultural infrastructures in the dry season, and an unstable power supply. Therefore, it was an urgent task to improve the accessibility through road development, to reduce labor and working hours for farmers through renewing the old irrigation drainage facilities, and to realize a stable power supply, thereby improving the living conditions of the residents, for which the government of Vietnam requested Japanese grant aid assistance.

1.2 Project Outline

The objective of this project is to recover irrigable areas, improve traffic accessibility and stabilize the electricity supply by rehabilitating irrigation facilities and roads and expanding rural electrical facilities, thereby contributing to the improvement of rural living conditions

¹ At the time of the ex-post evaluation, the Nam Nam area is composed of five communes (Khanhson, Nam Trung, Nam Phuc, Nam Cuong, and Nam Kim), 84 communities (an administrative unit which is one level lower than communes). The total area is approximately 7,200ha with a population of approximately 35,000; the total number of households is around 9,100, out of which 8,376 households (approximately 92%) are farmers. Most farmers are small holder farmers with an average area under cultivation of 0.3ha (as of the end of 2013).

through improved agricultural productivity, stable agricultural business and increased income levels in the Nam Nam area of the Nam Dan District of the Nghe An Province, located in the north-central part of Vietnam.

Grant Limit / Actual Grant Amount		1,227 million yen (Phase I: 472 million yen, Phase II: 755 million yen) / 1,181 million yen (Phase I: 463 million yen, Phase II: 718 million yen)
Exchange of Notes Date (/Grant Agreement Date)		Phase I: July 2003 Phase II: May 2004
Implementing Agency		Phase I: International Cooperation Department of the Ministry of Agriculture and Rural Development Phase II: People's Committee of Nghe An Province
Project Completion Date		Phase I: November 2004 Phase II: February 2006
Contractors	Main Contractor	Nishimatsu Construction Co., Ltd.
	Main Consultant	Taiyo Consultants Co., Ltd. / Pacific Consultants International (JV)
Basic Design		July 2002 – February 2003
Detailed Design		N/A
Related Projects		【Technical Cooperation】 “Model Rural Development in the Nam Dan District, Nghe An Province” (1996–1998) (Development Study)

2. Outline of the Evaluation Study

2.1 External Evaluator

Kenichi Inazawa Octavia Japan Co., Ltd.

2.2 Duration of Evaluation Study

Duration of the Study: August 2014 – December 2015

Duration of the Field Study: October 6–18, 2014 - January 12–18, 2015

3. Results of the Evaluation (Overall Rating: A²)

3.1 Relevance (Rating: ③³)

3.1.1 Relevance to the Development Plan of Vietnam

Before the project's commencement, the government of Vietnam formulated the "Sixth Five-Year Plan" (1996–2000), in which development of agriculture and rural economies was recognized as one of the priorities. Additionally, the main goals stipulated in the plan were "poverty alleviation and food security", "improvement in rural incomes, social infrastructures, culture, health and sanitation and education", "reduction in regional disparities and urbanization of rural areas", and "increase in forest area and conservation of the natural environment".

At the time of the ex post evaluation, the government of Vietnam formulated the "Five Year Socio-Economic Development Plan" (2011–2015). In this plan, reduction of economic disparities, poverty alleviation, and development of local infrastructures are listed as important issues. The Ministry of Agriculture and Rural Development (hereafter referred to as "MARD") developed the "Five Year Agriculture and Rural Development Plan" (2011–2015), in which the ministry set concrete goals such as improvement of agricultural productivity and social infrastructures. In addition, the People's Committee of Nam Dan district (the implementing agency of this project) in the Nghe An Province has plans for agricultural modernization and sustainable poverty reduction⁴.

In light of the above, poverty reduction as well as agricultural and rural development are consistent with the policies stipulated in the national and sector plans of Vietnam at the time of the ex-ante evaluation and ex-post evaluation.

3.1.2 Relevance to the Development Needs of Vietnam

Before the project's implementation, farmers and residents of the Nam Dan District had to work excessively and yet faced low agricultural incomes and living standards due to harsh natural conditions, such as unfertile lands, monsoons associated with hot winds (Laos wind), typhoons and flood damage. Especially in the Nam Nam area, located at the southern edge of the district, people had limited access to markets as roads were underdeveloped. This area would be isolated with agricultural lands submerged due to floods in the rainy season, while it was prone to droughts due to old agricultural infrastructures/facilities in the dry season. In

² A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory.

³ ③: High, ② Fair, ① Low.

⁴ The target year is 2020.

addition, the electricity supply was also unstable and some areas were not electrified; residents were faced with difficult living conditions. In light of such situations, there was a great need to improve living conditions of residents by improving traffic accessibility through developing/repairing roads, the backbone of rural livelihoods, by stabilizing agricultural production through renewal of irrigation drainage facilities and by realizing a stable power supply through improving distribution networks.

At the time of the ex-post evaluation, the poverty rate of the Nghe An Province is 15.6%, which is higher than the national average of 9.6%⁵. The People's Committee of Nam Dan district is working toward poverty reduction through the development and rehabilitation of infrastructures/facilities, including roads, irrigation/drainage and rural electrification as described below:

1) Road: The People's Committee of Nam Dan district is working toward realizing the smooth flow of traffic by rehabilitating and extending roads connecting to nearby communes⁶ that are outside the project's targeted areas.

2) Irrigation/drainage: Drainage facilities are being developed with the aim of improving drainage during heavy rain and increasing agricultural productivity in low lands of the Nam Nam area.

3) Rural electrification: The Nam Dan Office of the Electricity of Vietnam (hereafter referred to as "EVN"), which supplies power in Nam Dan district, is planning to introduce a high voltage 35kV distribution network in addition to the 10kv distribution network developed by this project, with the aim of further strengthening the power supply system in the province.

As described above, the Nam Dan District of the Nghe An Province continues to place importance on the needs of developing agricultural infrastructures, repairing and extending roads and developing the power distribution network; therefore, it can be observed that the objectives of this project are consistent with the development needs of the targeted area before the project's commencement as well as at the time of ex-post evaluation.

3.1.3 Relevance to Japan's ODA Policy

In 2003, when this project commenced, the ODA Charter of Japan placed importance on Asia; it especially focused on strengthening economic ties with East Asia through ODA. In

⁵ It is based on 2012 data released by the Ministry of Labour, Invalids, and Social Affairs (MOLISA). The definition of poverty at the time of the ex post evaluation is a household income of 400,000 VND (approximately 2000 JPY) or less monthly.

⁶ Commune is one of the local governmental levels. It normally refers to towns or villages under districts.

addition, the “Country Assistance Program for Vietnam” released by the Japanese Ministry of Foreign Affairs in 2000 identified the following five priority sectors: (1) Human Resource Development and Institution Building (lending particular support to the transition to a market economy); (2) Infrastructure Development such as the power supply and transportation; (3) Agriculture and Rural Development; (4) Education and Health; and (5) Environmental Conservation. Regarding (3) Agriculture and Rural Development, it was stated that supports for infrastructures such as “irrigation drainage”, and “development and dissemination of agricultural technologies”, were necessary. This project provides assistance to Vietnam based on the above priority sector and sectoral assistance policy (i.e., (3) Agriculture and Rural Development); thus it is consistent with the assistance policy of Japan.

This project has been highly relevant to the development plan and development needs of Vietnam, as well as Japan’s ODA policy. Therefore, its relevance is high.

3.2 Efficiency (Rating:③)

3.2.1 Project Outputs

The planned and actual outputs of this project are shown in Table 1. This project has roughly three components (irrigation facility, roads, and rural electrification).

Table 1: Planned and Actual Project Outputs

Plan (before project commencement)	Actual (at ex-post evaluation)
【Planned Inputs from Japanese Side】 1) Irrigation Facility • Rehabilitation of Nam Trung’s pump irrigation system: rehabilitation of pumping station and main canal 4.9km • Rehabilitation of Ho Thanh reservoir irrigation system: countermeasure for reservoir leakage, rehabilitation of existing canal 2.4km 2) Road • Improvement of National Road 15A (south): 15.7km (asphalt pavement, four bridges, one box culvert, countermeasures for erosion at three sites, raising up road surface at four sections) • Improvement of District Roads (Nam Kim-Nam Phuc-Nam Cuong road): 6.9km (concrete pavement 2.6 km long, asphalt pavement 4.3km, one bridge and four box	【Actual Inputs from Japanese Side】 1) Irrigation Facility →As planned. 2) Road →As planned.

<p>culverts)</p> <p>3) Rural Electrification</p> <ul style="list-style-type: none"> •Expansion of electrified areas: three areas (Construction of substations on three sites, installation of distribution network 10kV 5.1km, 0.4kV 11.8km) <p>【Planned Inputs from Vietnamese Side】</p> <p>1) Securing lands necessary for the construction</p> <p>The Vietnamese side is to secure lands necessary for irrigation facilities, roads, bridges, electrification facilities, temporary office and storage yards, and to clear, level and reclaim the lands.</p>	<p>3) Rural Electrification</p> <p>→Mostly as planned. (Regarding the distribution network, the 10kV line was slightly changed to 4.4km while the 0.4kV line was changed to 11.5km.)</p> <p>【Actual Inputs from Vietnamese Side】</p> <p>1) Securing lands necessary for the construction</p> <p>→As planned.</p>
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Source: Document provided by JICA (The planned outputs were taken from the basic design study report while the actual outputs were taken from the completion report and answers to the questionnaires and field surveys.)

The originally planned outputs both from the Japanese and Vietnamese sides were mostly implemented as planned. As for the distribution network installation under “3) Rural Electrification”, which was to be borne by the Japanese side, the 10kV line was slightly changed to 4.4km and the 0.4kV line to 11.5km, as a result of the site reconnaissance and line survey. The change was made based on the necessity identified during the detailed design; thus it can be judged that the change was appropriate.



Photo 1: Rehabilitated Nam Trung Pumping Station



Photo 2: Control Panel (left) and Pump Unit (right) inside Nam Trung Pumping Station

3.2.2 Project Inputs

3.2.2.1 Project Cost

The planned total project cost was 1,254 million yen (out of which 1,227 million yen was to be borne by the Japanese side, while approximately 27 million yen was by the Vietnamese side). Actually, the total project cost was approximately 1,197 million yen (out of which 1,181 million

yen was borne by the Japanese side, while approximately 16 million yen was by the Vietnamese side); thus it was lower than planned (95% of the plan).

3.2.2.2 Project Period

The planned project period was three years and two months (38 months) from July 2003 to September 2006. The actual period for the Japanese side was roughly two years and seven months (30.6 months) from July 2003 to February 2006. On the other hand, the project inputs by the Vietnamese side continued until the end of June 2006⁷, requiring about two years and 11 months (35 months) counting from the beginning of the project. Therefore, the originally planned project period was 38 months, while the actual project period was 35 months or 92% of the plan and the project period was shorter than originally planned.

Both the project cost and project period were within the plan. Therefore, efficiency of the project is high.

3.3 Effectiveness⁸ (Rating: ③)

3.3.1 Quantitative Effects (Operation and Effect Indicators)

This project rehabilitated irrigation facilities and National Road 15A and district roads (Nam Kim-Nam Phuc-Nam Cuong road), and expanded rural electrification facilities in order to recover the irrigable area, to reduce labor requirement and working hours of the farmers, to improve traffic accessibility, and to realize a stable power supply. Tables 2–4 show the targets and actual figures of the indicators before the project commencement and after the project completion that indicate operational effectiveness of each project component.

⁷ The activity was to secure, clear, level, and reclaim the lands needed for the main construction (including land for temporary field offices for construction). The Vietnamese side owned the land for some time even after the completion of construction by the Japanese side.

⁸ Sub-rating for Effectiveness is to be put with consideration of Impact.

1) Irrigation/Drainage Project

Table 2: Comparison of Indicator Data concerning Irrigation/Drainage Project

Indicator	Before Project Commencement		After Project Completion		
	2002 (Baseline)	2006 (Two years after completion) (Target)	2008 (Two years after completion) (Actual)	2012 (Six years after completion) (Actual)	2013 (Seven years after completion) (Actual)
Irrigable area of the targeted facilities (recovery)	Nam Trung Pump Irrigation System's command area: 370ha	470ha	490ha (470ha)* Note	490ha (470ha)	490ha (470ha)
	Ho Thanh Reservoir Irrigation System's irrigable area: 40ha	70ha	50ha (70ha)	50ha (70ha)	50ha (70ha)
Reduction in labor requirement (cleaning and repair of canals)	Frequency: four times yearly (one day x two times, before and after cropping)	Twice yearly	N/A	Twice yearly	Twice yearly
	Required time: 32 hours (4 x 8 hours)	16 hours (2x8 hours)	N/A	16 hours (2x8 hours)	16 hours (2x8 hours)
	Number of people required: 240 people each time	240 people each time	N/A	120 people each time	120 people each time
	Hours x number of people required: 7,680 man-hours	3,840 man-hours	N/A	1,920 man-hours	1,920 man-hours

Source: JICA document (before the project commencement), Post Basic Design Study Survey (2008), answers to the questionnaire and results from the interviews with the People's Committee of Nam Dan district (2012/2013) (After project completion).

Note: The Nam Trung Irrigation System and Ho Thanh Irrigation System have an overlapping command area (approximately 20ha). As this area gets water distributed from both the two systems, additional figures are presented in brackets.

With respect to the “Irrigable area of the targeted facilities (recovery)” in Table 2, the initial target was achieved after the project's completion. According to the People's Committee of

Nam Dan District, the Nam Trung Commune which operates and maintains the Nam Trung Pump Irrigation System and the Nam Dan Agricultural Irrigation Company (hereafter referred to as “Irrigation Corporation of the Nam Dan District”), a branch of Nghe An South Irrigation Corporation, which operates and maintains the Ho Thanh Reservoir Irrigation System, there is an overlapping area (roughly 20ha) served by both Nam Trung and Ho Thanh Irrigation Systems; and this area receives water either from the two irrigation systems⁹. The initial target was generally achieved regarding the indicator of “Reduction in labor requirement (cleaning and repair of canals)”. The People’s Committee of Nam Dan District and the Nam Trung Commune were asked during the interviews to comment on the fact that the inputs in terms of people and hours have been reduced to 120 people each time and to 1920 man-hours as shown in Table 2. They commented, “The main irrigation canal installed by this project is larger in size than what existed before; and its structure has been designed in such a way to prevent the build-up of silt and garbage. As a result, the time and frequency required for cleaning have reduced. In reality, it does not require many people to clean; with 120 people it can be maintained properly.” This indicates that the cleaning of the canals is being carried out efficiently with reduced labor (both in terms of frequency and hours)¹⁰.

2) Road Project

Table 3: Comparison of Indicator Data concerning the Road Project

Indicator	Before Project Commencement		After Project Completion		
	2002 (Baseline)	2006 (Two years after completion) (Target)	2008 (Two years after completion) (Actual)	2012 (Six years after completion) (Actual)	2013/14 (Seven/eight years after completion) (Actual)
Required travel time on National Road 15A *Note 1	26 minutes (45–60 min) *Note 2	19 minutes (30 min)	18 minutes (18–25 min)	18–25 minutes	18–25 minutes
Number of days that National Road 15A is impassable in a year	14 days	0 day	N/A	0 day	0 day
Required travel time on district	15 minutes	10 minutes	N/A	10 minutes	10 minutes

⁹ Hence some figures are in brackets.

¹⁰ Regarding irrigation canal repairs, there has been no repair work because no leakage or damage had been reported after the project completion up until the ex-post evaluation, as will be described in “3.5.4 Current Status of Operation and Maintenance”. No problems were observed in particular during the field survey of this evaluation study.

roads (all sections)					
Increase in traffic volume (fixed-route public bus)	None	Existing (a few daily)	Existing (six daily)	None	None

Source: JICA document (before project commencement), Post Basic Design Study Survey (2008), answers to the questionnaire, results from interviews with the People's Committee of Nam Dan District and measurement taken during the field survey (2012–2014) (after the project's completion).

Note 1: Required travel time from the Nam Dan Bridge to the entrance to the district road (approximately 15.7km)

Note 2: According to the People's Committee of Nam Dan District, it used to take 45–60 minutes considering the road condition of this section at that time, before the project's commencement. It was pointed out that they might have made a mistake in the time measurement during the basic design of this project.

As shown in Table 3, with respect to the indicator, “required travel time on National Road 15A”, the target was achieved two years after the project's completion and the target is also being met at the time of the ex-post evaluation¹¹. Additionally, the “number of days that National Road 15A is impassable in a year” is none at the time of the ex-post evaluation. The target on “required travel time on district roads (all sections)” is achieved at the time of ex-post evaluation¹². With respect to the indicator, “increase in traffic volume (fixed-route public bus)”, a fixed-route public bus was operating two years after the project's completion; however, there is none operation at the time of the ex-post evaluation. According to the People's Committee of Nam Dan District, it is because “up until two years after the project completion (2008), local communities were excited about the national road 15A rehabilitated by this project and the fixed-route public bus was operating. Thereafter, however, passenger demand declined and the route was suspended and discontinued.” One of the reasons behind the decline in passenger demand is that residents came to prefer motorbikes or automobiles to the public bus, as the former would not require waiting time and they can easily be on their way. The fact that residents' income levels increased after the project's completion contributed to the purchasing of vehicles; thus it can be attributed to the change in economic situations and traffic needs. Although some changes occurred in terms of transportation means and conditions between two years after the project completion and the time of ex-post evaluation, it can be judged that this does not mean that the effect of this project deteriorated.

¹¹ “45–60min” is written in brackets because the section from the Nam Dan Bridge to the start of the district road (15.7km) used to take 45–60 minutes considering the road condition at that time according to the People's Committee of Nam Dan District. It was pointed out that they might have made some mistake in time measurement at the time of the basic design. The People's Committee of Nam Dan District also pointed out that the figure for two years after the completion should be 18–25 minutes. Based on such comments, some figures are presented in brackets in Table 3. While it is not clear how the actual values (baselines) were measured before the commencement of the project, it might have been influenced by various traffic conditions (e.g., traffic volume, effects of oncoming cars and cattle blocking vehicle traffic).

¹² The said actual figure was also confirmed through actual measurements taken while riding in a car during the field survey of this evaluation study.

3) Rural Electrification Project

Table 4: Comparison of Indicator Date concerning Rural Electrification Project

Indicator	Before Project Commencement		After Project Completion		
	2002 (Baseline)	2006 (Two years after completion) (Target)	2008 (Two years after completion) (Actual)	2012 (Six years after completion) (Actual)	2014 (Eight years after completion) (Actual)
Electrification rate	69%	96%	100%	100%	100%
Electricity rates	1,100VN D/kWh	750VND /kWh	700VND /kWh	N/A	1,660VND /kWh

Source: JICA document (before project commencement); the Post Basic Design Study Survey (2008); the Defect Inspection Report (2008); and answers to the questionnaire (2012/2014) (after the project completion).

As shown in Table 4, it was confirmed two years after the project's completion that all households were electrified in the Nam Nam area. According to EVN's Nam Dan Branch responsible for the operation and maintenance as well as the People's Committee of Nam Dan District, all households were confirmed to be electrified in the sixth and eighth year after the project's completion. Regarding electricity rates, residents in this area used to pay 1,100VND/kWh, which was double the national average (500VND/kWh), due to low-quality distribution lines, unstable power supply voltage and distribution loss, resulting in frequent power cuts. On the other hand, with the installation of a distribution network by this project, the electricity rate went down to 700VND/kWh two years after the project's completion. However, people are paying 1,660VND/kWh, which is the national average, at the time of the ex-post evaluation. As a matter of fact, electricity rate level is uniform throughout the nation eight years after the project's completion, and residents of this area are charged at the same rate as those residing in other area. On the other hand, electricity rate levels differed from region to region until the second year after the completion. Then the practice was that EVN would provide electricity to each commune, and each commune would then sell power to each household by adding their operation and maintenance costs to the price. Now, at the time of the ex-post evaluation, EVN sells electricity to each household directly. When residents of the Nam Nam area were interviewed about current electricity rate levels, many people commented, "We do not think it is particularly expensive. I feel it is a fair price and affordable." The Nam Dan Branch of EVN also commented, "We do not receive any complaints from residents about the electricity rate level." Therefore, one cannot say that the project's effects are deteriorating. Setting

electricity rate level as an indicator might have been appropriate considering the situation surrounding power supply in the targeted area before the project commencement, as this project was expected to reduce maintenance costs by installing distribution networks, thereby decreasing electricity charges. However, it would have also been effective to measure more aspects of power supply by setting indicators on transmission end electrical energy and transmission/distribution loss because the objective of the project was to stabilize the power supply and not to reduce electricity charges.



Photo 3: Nam Nam area and the distribution line



Photo 4: Rehabilitated electric power substation



Source: JICA Document

Figure 1: Locations of the Project Sites
(The area marked with the black dotted line is the Nam Nam area)

3.3.2. Qualitative Effects

1) Irrigation/drainage Project

The rehabilitated Nam Trung pump station recovered its pumping function and is running well. With regard to the irrigation canal, which takes water from the pump station and distributes it to the surrounding farmlands, no water distribution loss or problems are observed. During the field survey of this study, staff members responsible for operating and maintaining the pump station were interviewed. They commented, “There has been no breakage since the completion of this

project. All of the three pump units are functioning well. Given that the units used to break and stop operating often before the commencement of this project, it is amazing.” As for the Ho Thanh reservoir, water used to leak from the reservoir before the commencement of the project. As a result of the leakage prevention and other repair works by this project, however, there is no problem with the leakage and water distribution. During the field survey of this evaluation study the leakage points were observed, and it was confirmed that there is no problem with breakage or leakage. According to staff members managing the reservoir, “The reservoir is functioning well. It distributes water to the nearby farmlands without problems.” Considering such a comment, it can be judged that irrigation water from the Nam Trung pump station and the Ho Thanh reservoir to the Nam Nam area is being distributed effectively.

2) Road Project

The rehabilitation of the National Road 15A and district roads (Nam Kim-Nam Phuc-Nam Cuong road) dramatically improved the traffic access from the Nam Nam area to neighboring towns and other areas of the Nghe An Province. This project not only promoted interaction among residents in the area but also contributed to the smooth transportation of goods. When residents and the People’s Committee of Nam Dan District were interviewed, they commented, “Before the project commencement, the National Road 15A used to be muddy during heavy rain, making vehicle traffic frequently difficult. Due to poor access to other areas, interaction among residents was also limited. Because of the poor accessibility, people were not able to market their crops and used to only consume what they grew and harvested within the household or in some cases even throw them away. As a result of the road development, vehicles and people have become able to come and go easily; and there are more opportunities to market agricultural crops.” Based on such a comment, it can be observed that traffic accessibility in the Nam Nam area is improving thanks to the road rehabilitation by this project.

3) Rural Electrification Project

As a result of the development of substations and distribution networks, the system of power supply was strengthened in the Nam Nam area. Residents of this area who were interviewed commented, “Power supply is now stable compared to before the project’s commencement. We have more confidence in the power service and began to purchase electronic appliances.” Additionally, according to the Nam Dan Branch of EVN, there are no power cuts. Therefore, it can be judged that the system of power supply has been strengthened and stabilized through this

project in the target area.

3.4 Impacts

3.4.1 Intended Impacts

3.4.1.1 Impacts on Stabilization of Agricultural Productivity in the Nam Nam Area

Table 5 shows the changes in yields per unit area of two of the major crops (rice and corn) in the Nam Nam area. It can be seen that the yields per unit area have increased compared to before the project's commencement¹³. According to the interviews with the People's Committee of Nam Dan District and farmers, many think that the yields increased because this project made effective and efficient water distribution possible¹⁴ through rehabilitation of pump stations, while they also attribute it to the improvement of seeds/seedlings/fertilizer/pesticide and the management ability of agricultural farmers, cooperatives and communes.

Table 5: Yields per Unit Area of the Two Main Crops in the Nam Nam Area (rice and corn)

Crop	(Unit: ton/ha)	
	Before Project Commencement (before 2003)	After Project Completion – Ex-Post Evaluation (2007–2013)
Rice	5.0–5.5	6.5–6.8
Corn	3.5–4.0	4.5–5.0

Source: People's Committee of Nam Dan District and results from farmers' interviews

With regard to rice production (dual cropping: spring and fall) in the Nam Nam area after the project's completion, it turned out that farmers do not really crop in fall although they do so in spring. According to the People's Committee of Nam Dan District, some communes are not so enthusiastic about disseminating rice cropping compared to others within the Nam Nam area in recent years. Now, at the time of the ex-post evaluation, the People's Committee of Nam Dan District is making efforts to promote rice cropping in fall¹⁵.

Table 6 shows production of major crops in the Nam Nam area. It can be observed that vegetable production as a whole is on the increase although rice production is stagnating¹⁶. This

¹³ The yield per unit area was 4.27 ton/ha for rice and 2.73 ton/ha for corn before the project commencement (source: JICA document (The Preparatory Survey Report, 2000)).

¹⁴ In other words, water pumped by the pumping facility along the Lam River is distributed to the targeted areas for irrigation purposes in a stable manner.

¹⁵ For example, they hold workshops for farmers in order to advocate for the expansion of rice production.

¹⁶ There is an increasing demand for corns not only for human consumption but also for fertilizer and livestock feed, and the numbers of corn farmers and production are increasing every year. However, as shown in Table 6, yield was limited in 2012. While corns are usually harvested in the winter, when there is a lot of rain throughout the year, the harvest is expected to reduce dramatically (and there was a relatively high rainfall that year). In 2012, there was a lot

is because vegetables, being a cash crop, are considered to be higher in value than rice and a good source of income, and that more and more farmers are shifting from rice to vegetables. In addition, it can also be attributed to the fact that production and sales are stable thanks to the road rehabilitation through this project. Farmers in the Nam Nam area who were interviewed commented, “Before the rehabilitation of the road we used to consume the vegetables that we grew within the family and extended family; and if there was a surplus we had to dispose of it. As the road was improved, buyers began coming to the area and we became to obtain cash income.” Regarding the latter, it can be judged that there is a correlation between road development and vegetable production.

Based on the above facts, it can be observed that this project contributes to stabilizing agricultural productivity in the Nam Nam area.

Table 6: Production of Major Crops in the Nam Nam Area
(rice, corns, sweet potatoes, and peanuts)

(Unit: ton)

Type of Crop	Before Project's Commencement	After the Project's Completion		
	2003	2011	2012	2013
Rice	13,251	14,639	13,279	12,558
Corns	2,199	3,380	1,656	3,732
Sweet Potatoes	1,596	558	454	426
Peanuts	798	942	833	1,148
(Vegetables' total, including the three kinds above)	N/A	6,952	6,991	8,716

Source: JICA document (before project's commencement); answers to the questionnaire; results from interviews with the People's Committee of Nam Dan District; and each commune (after the project's completion).

3.4.1.2 Contribution to the Increase in Farmers' Income in the Nam Nam Area

Before the project's commencement, the average annual income of one farmer in the Nam Nam area was approximately 1.7 million VND (or 150USD, 1996 data¹⁷), which is below the overall poverty line (1.78 million VND per person per year) set by the World Bank's study at that time (1997–1998). On the other hand, the average annual income of one farmer in the Nam Nam area is 16.34 million VND¹⁸ (or 760USD) at the time of the ex post evaluation, which is much more than before. The inflation rate between 1996 and 2013 is 350–360%¹⁹, setting 1996

of rainfall and the yields were low for the other vegetables, too. As for sweet potatoes, production is decreasing every year because the market price is lower than that before the project's commencement, and not as much is planted nowadays. Peanuts, on the other hand, have increased in demand compared to before the project's commencement and production is on the increase.

¹⁷ Source: JICA document (Reports on Model Rural Development in the Nam Dan District, Nghe An province)

¹⁸ Source: Statistics of Nam Dan District (2013)

¹⁹ Source: Trading Economics Vietnam Consumer Price Index (CPI) (1996–2013)

as 100. Calculating what 150USD (1996) then is worth today by applying the inflation rate, it is approximately 525–540USD. Since the income level at the time of the ex-post evaluation (760USD) is higher than the figure calculated, it can be said that farmers are benefiting from increased income even when inflation is considered. As per the results from a beneficiary survey that will be described in the next section, the majority of the farmers perceive that their incomes have increased. Therefore, it is thought that this project has contributed considerably to the increase in farmers’ incomes²⁰.

3.4.1.3 Impact on Rural Living Conditions in the Nam Nam Area (Beneficiary Survey Results)

As part of this evaluation study, questionnaire-based interviews were conducted with farmers and residents in the Nam Nam area²¹. The results are shown in Figures 2–9 below.

1) Irrigation/Drainage Project

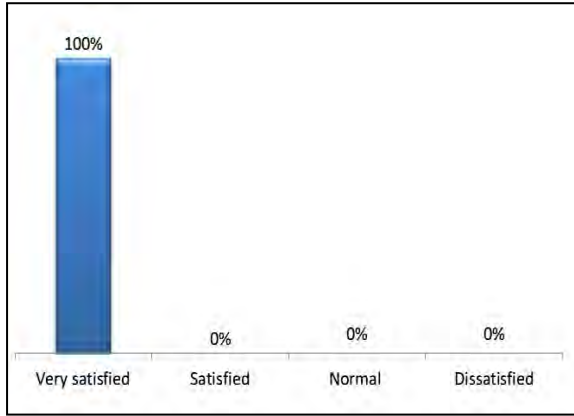


Figure 2: Level of satisfaction with this project (n= 60)

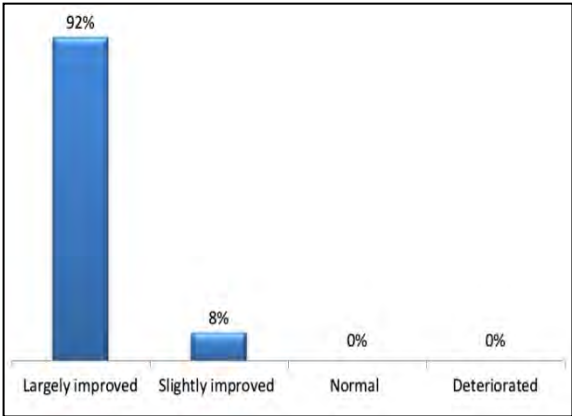


Figure 3: Has agricultural productivity improved over the past 10 years? (n= 60)

²⁰ As a comparison between income levels of the Nam Nam area and other parts of the district, average annual income of the Nam Dan District is 23.5 VDN (approximately 1,093USD, 2013). The income level of the Nam Nam area is lower than the district average because the area is located rather far from market places of agricultural products and faces a disadvantage in terms of high transportation costs as compared to other areas.

²¹ A beneficiary survey was conducted by drawing 60 samples from farmers, 26 samples from people residing along the national and district roads, 29 samples from people residing near the rural electrification facility (in total, 115 samples), using a random sampling method. Beneficiaries who have lived in this area for more than 10 years as farmers or residents were the targets of this survey. Since it has been some time since this project was completed, this beneficiary survey targeted those who have cultivated land or resided in this area for a long period of time (more than 10 years) with a view to accurately capture effectiveness and impacts.

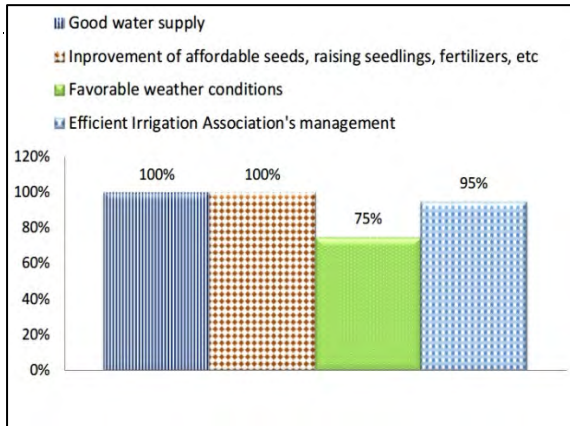


Figure 4: What are the reasons and factors behind the answer presented in Figure 3? (n= 60, multiple answers allowed)

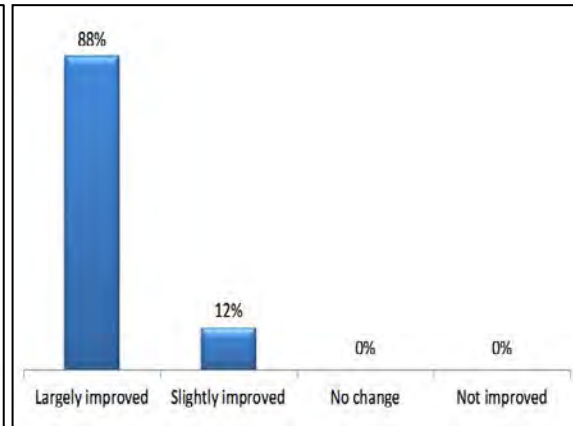


Figure 5: Has agricultural income been increasing for the past 10 years? (n= 60)

From Figure 2 it can be observed that the level of satisfaction with the irrigation/drainage project is high. Figure 3 shows that many farmers responded that agricultural productivity has improved. Figure 4 presents the reasons and factors behind such improvement; respondents said it was thanks to the efficient irrigation water distribution through the pump station and reservoir facilities and several other factors (e.g., improvement of seeds/seedlings/fertilizer/pesticide, and improvement in management ability of agricultural cooperatives and communes). While agricultural productivity was also influenced by factors other than this project, it is presumed that this project contributed to some extent. Additionally, many farmers said that their income levels “largely improved” as shown in Figure 5, confirming a correlation between this project and income increase.

2) Road Project

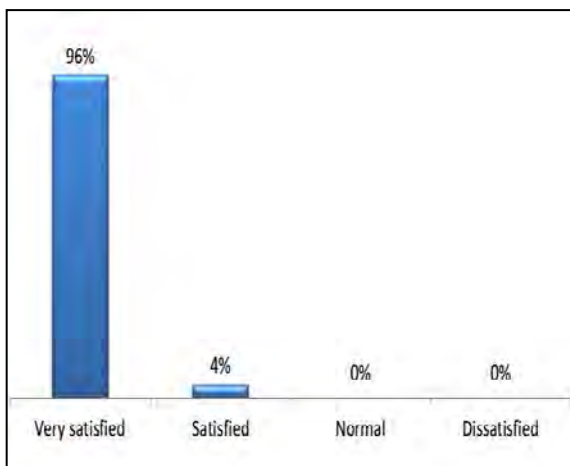


Figure 6: Are you satisfied with this project? (n= 26)

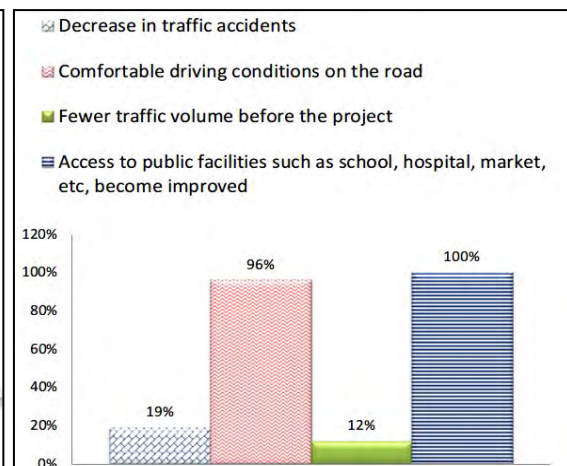


Figure 7: What are the reasons behind your answer presented in Figure 6? (n= 26, multiple answers allowed)

Figure 6 shows that the level of satisfaction with the road project is also high. Figure 7 presents reasons behind Figure 6; many people pointed to the fact that driving and riding in a car on the road became comfortable and that they can now easily access public facilities (e.g., schools and hospitals). It can be presumed that farmers have been able to produce and market more agricultural products and that residents are interacting with other areas because they can now visit neighboring towns easily.

3) Rural Electrification

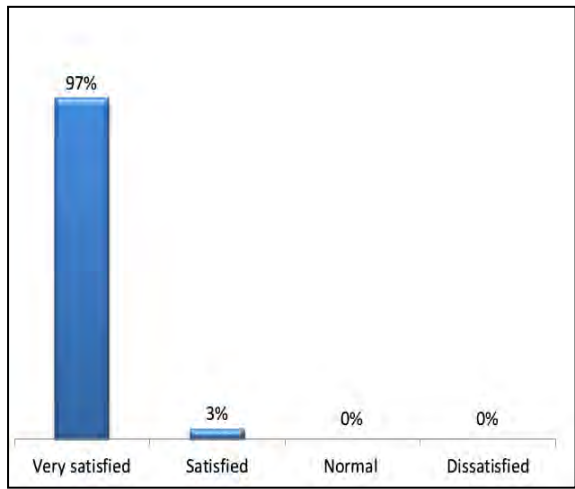


Figure 8: Are you satisfied with this project?
(n= 29)

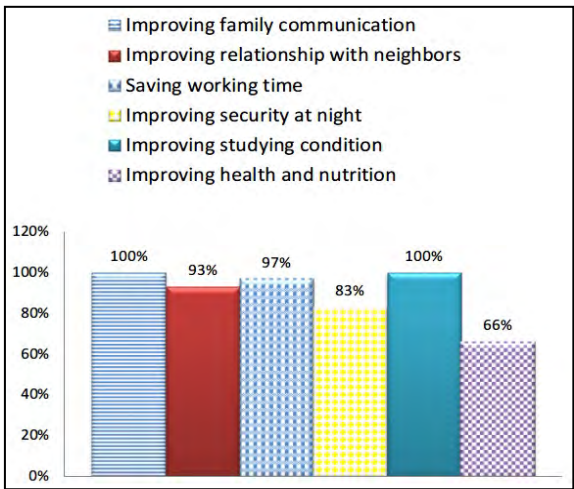


Figure 9: What are the reasons behind the answer presented in Figure 8?
(n= 29, multiple answers allowed)

Figure 8 shows that the level of satisfaction is also high with the rural electrification project. Figure 9 presents the reasons; various answers were given, such as longer lighting hours facilitating communication (conversation) among family members and an improved environment for studying at home, as well as improvement of night-time security. Therefore, it is presumed that this project is contributing through electrification to improvements in quality of life.

Considering the above beneficiary survey results, it can be judged that this project is supporting improvements in living conditions of farmers and residents in the Nam Nam area.



Photo 5: Rehabilitated district roads
(Nam Kim-Nam Phuc-Nam Coug road)



Photo 6: Ho Thanh reservoir (countermeasure
to reservoir leakage was taken from the center to
the right-hand side of the photo)

3.4.2 Other Impacts

3.4.2.1 Impacts on the Natural Environment

It has been confirmed through interviews with the People's Committee of Nam Dan District and residents of the Nam Nam area, as well as through site inspections, that there was no negative impact on the natural environment in particular. It was also confirmed that there were no environmental problems within the area (e.g., noise from the pumping station, dust associated with vehicles and air pollution) either during or after this project.

At the time of the basic design study it was judged that the Environmental Impact Assessment (EIA) was not necessary, as this project was mainly rehabilitation of existing facilities.

3.4.2.2 Land Acquisition and Resettlement

There was no resettlement in this project. On the other hand, land was acquired for the construction of the National Road 15A and district roads (Nam Kim-Nam Phuc-Nam Cuong road). According to the People's Committee of Nam Dan District, which was responsible for the land acquisition process, 5.06 ha of land (out of which 3.32ha was farmland and 1.74ha was residential/garden) was acquired in total, affecting 659 households. The Nam Dan District paid 2,082 million VND (approximately 16 million yen) in total for the compensation. It has been confirmed through interviews that the compensation was duly handled in accordance with the protocol set by the People's Committee of Nam Dan District.

This project has largely achieved its objectives. Therefore, effectiveness and impact of the project are high.

3.5 Sustainability (Rating:③)

3.5.1 Institutional Aspects of Operation and Maintenance

Table 7 shows responsible bodies for the operation and maintenance of each facility developed by this project at the time of the ex-post evaluation.

Table 7: Operation and Maintenance System at the Time of Ex-Post Evaluation

	Facility	Responsible Body for Operation and Maintenance
1) Irrigation /drainage	Nam Trung pump station	Nam Trung commune
	Nam Trung main canal	Relevant commune for each section
	Ho Thanh reservoir and main canal (No.2)	Irrigation Corporation of Nam Dan District (a branch of Nghe An South Irrigation Corporation)*Note
2) Road	National Road 15A	Management and Maintenance of Road and Navigation Company under the Department of Transportation (DOT)
	District roads (Nam Kim-Nam Phuc-Nam Cuong road)	People's Committee of Nam Dan District (Industry, Construction and Transportation Division), each commune, and private companies
3) Rural Electrification	Medium and High voltage lines, Distribution Networks and Substations	Nam Dan Branch Office of EVN
	0.4kV Distribution Lines	

Source: Answers to the questionnaire and interviews with each responsible body

Note: It is the Nam Kim Commune that maintains the No.1 main canal.

1) Irrigation/Drainage

Regarding the Nam Trung pump station, main canal, and secondary canals, the operation and maintenance system differs from the pump station to the main canal. The Nam Trung pump station is operated and maintained by the Nam Trung commune. On the other hand, main and secondary canals are operated and maintained by different communes depending on where the canal is located. Communes are under the People's Committee of Nam Dan District. With respect to the actual operation and maintenance works required for the pump station's operation, the management of pump units is required, and each unit is greased and cleaned every time the unit is operated. As for canals and secondary canals, the removal of silt and cleaning is carried out.

The Ho Thanh reservoir system is operated and maintained by the Nam Dan Pump Division

(with 15 staff members) within the Irrigation Corporation of the Nam Dan District²². Two staff members are working full time to open and close the water gates, patrol around the reservoir (e.g., watching out for illegal dumping of garbage), and do cleaning and weeding almost on a daily basis.

2) Road

The National Road 15A is operated and maintained by the Management and Maintenance of Road and Navigation Company under the Department of Transportation (DOT) of Nghe An Province. There are in total 150 staff members at the time of the ex-post evaluation, out of which 15 staff members are assigned to the sections targeted by this project. Their tasks include patrolling around the sites, measuring traffic volumes, weeding, cleaning and repairing traffic signs/the road surface/the bridge and they carry out their tasks periodically (daily or monthly depending on the task)²³.

The operation and maintenance of the district roads (Nam Kim-Nam Phuc-Nam Cuong road) is a responsibility of the Industry, Construction and Transportation Division within the People's Committee of Nam Dan District. However, operation and maintenance on the ground is a responsibility of different communes managing targeted sections under the supervision of the Industry, Construction and Transportation Division within the People's Committee of Nam Dan District. In reality, however, communes subcontract the required operation and maintenance to private companies and supervise their works. In other words the actual maintenance work on the ground is carried out by the contracted private companies²⁴.

3) Rural Electrification

The substations and distribution network facilities are operated and maintained by the Nam Dan Branch Office of EVN²⁵. The Nam Dan Branch has in total 60 staff members²⁶. Required

²² The division is operating and maintaining five reservoirs and nine pump stations throughout the Nam Dan district.

²³ The Management and Maintenance of Road and Navigation Company which belongs to the Department of Transportation (DOT) of Nghe An Province and its field staff members commented in interviews, "The number of staff is sufficient given the volume of the required tasks. We are maintaining cracks and pits without problems."

²⁴ The Industry, Construction and Transportation Division of the People's Committee of Nam Dan District and senior members of each commune commented in interviews, "The quality of the developed roads is high. After the project's completion we have not seen any cracks or pits and the road surface is in good condition. Although we contract private companies to maintain the road targeted by this project, the actual works are limited to cleaning and weeding of the areas along the roads; and maintenance works such as that of the National Road 15A are not necessary. In case the roads require major maintenance or repair, we can receive assistance of the People's Committee of Nghe An Province and Nam Dan District; thus there is no concern."

²⁵ The corporation has been operating and maintaining all the power transmission and distribution facilities since 2008.

²⁶ According to the interview with the Nam Dan Branch of EVN, they commented, "The number of staff assigned to operating and maintaining the facilities targeted by this project is sufficient. With the available staff we are patrolling the area, checking and cleaning distribution facilities and collecting electricity charges periodically without problems."

operation and maintenance works include checking transformers and changing oil, weeding around the distribution lines, and collecting electricity charges.

During the field survey of this evaluation study, sites of irrigation/drainage, road and the rural electrification facility developed by this project were visited. Problems, such as insufficient maintenance due to staff shortages and institutional issues, were not observed during the field visits. It was observed that a well-established maintenance system is in place in a manner responsive to the actual situations. Therefore, it is thought that there are no major concerns with the institutional aspect of the operation and maintenance of this project.

3.5.2 Technical Aspects of Operation and Maintenance

Each commune under the People's Committee of Nam Dan District and the Irrigation Corporation of Nam Dan District operating and maintaining the irrigation facilities developed by this project; the Management and Maintenance of Road and Navigation Company operating and maintaining the National Road 15A; the People's Committee of Nam Dan District (Industry, Construction and Transportation Division), each commune and private company operating and maintaining the district roads (Nam Kim-Nam Phuc-Nam Cuong road); and the Nam Dan Branch Office of EVN responsible for the operation and maintenance of the electrification facilities — all have highly experienced staff members. Through the interviews conducted during the field survey of this evaluation study, it has been confirmed that EVN staff members are well aware of the importance of operation and maintenance works. On-the-Job Training (OJT) is also given as needed to newly recruited staff members. It was also confirmed that they have sufficient knowledge of the operation of the equipment and facilities. In addition, training is generally given as needed, and efforts are being made to share information on maintenance technologies and skills. Therefore, it is thought that no major problem exists in relation to the technical aspect of the operation and maintenance.

3.5.3 Financial Aspects of Operation and Maintenance

Table 8 shows data on operation and maintenance costs (recent few years) associated with the facilities developed by this project.

Table 8: Operation and Maintenance Costs for the Facilities of this Project

	Facility	Operation and Maintenance Budget
1) Irrigation/ Drainage	Nam Trung pump station	Average annual budget for the past few years is 500 million VND (*It only represents the budget of Nam Trung commune.)
	Nam Trung main canal	
	Ho Thanh reservoir and main canal (No.2)	200 million VND for 2013. (*Budgets for the other years were not available.)
2) Road	National Road 15A	525 million VND in 2011, 675 million VND in 2012, and 850 million VND in 2013. (*It represents the budget of the entire Nam Dan district.)
	District Roads (Nam Kim-Nam Phuc-Nam Cuong district road)	Approved annual budget is 200–300 million VND on average for the past few years.
3) Rural Electrification	Medium and High voltage lines, Distribution Networks and Substations	1.1 billion VND in 2011, 1.2 billion VND in 2012 and 1.4 VND in 2013. (*It represents the operation and maintenance budget of the entire Nam Dan district.)
	0.4kV Distribution Lines	

Source: Answers to the questionnaire and interview results

The results of the interviews with the responsible bodies for the operation and maintenance of each facility shown in Table 8 are as follows:

1) Irrigation/Drainage

The average annual budget allocated by the People’s Committee of Nam Dan district and executed by the designated Nam Trung commune is 500 million VND in recent years. According to the respective communes and staff working at the pump station, the budget is reasonable.

The budget for operation and maintenance of the Ho Thanh reservoir and main canal No.2 allocated by the Irrigation Corporation of Nam Dan District is 200 million VND although only 2013 data are available. According to the corporation, the budget is sufficient and they do not face any problem of insufficient maintenance owing to budget shortage.

Before the project’s commencement water fees used to be collected for the purpose of covering maintenance costs of the irrigation/drainage facilities. However, after the central government issued “Decree 115” which bans collection of water fees, then it has ceased. Actually, maintenance costs needed for the pump station, reservoir, and main canal are allocated by the central government to the People’s Committee of Nam Dan district and the Irrigation

Corporation of Nam Dan District as a subsidy in the Nam Dan district²⁷. According to the People's Committee of Nam Dan district and each commune interviewed, the subsidy is not necessarily ample, but in most cases, the necessary amount is allocated.

2) Road

The operation and maintenance budget concerning the National Road 15A has been increasing every year, as shown in Table 8. According to the Management and Maintenance of Road and Navigation Company under the Department of Transportation (DOT) of the Nghe An Province, "sufficient budget is allocated by the province." With regard to the operation and maintenance costs for the district roads (Nam Kim-Nam Phuc-Nam Cuong district road), maintenance was covered by contributions from local residents before the project's commencement; however, at the time of the ex-post evaluation, maintenance of the sections targeted by this project is not borne by donations from local citizens. The Nghe An Province allocates the maintenance budget. According to the People's Committee of Nam Dan district (Industry, Construction, and Transportation Division) which oversees the operation and maintenance, "the allocated amount is sufficient."

3) Rural Electrification

According to the Nam Dan Branch Office of EVN, "the operation and maintenance budget for the rural electrification facilities has been increasing every year, which allows staff to carry out their duties without anxiety."

Based on the above facts, there is no issue of budget shortage regarding the operation and

²⁷ The People's Committee of Nam Dan District allocates 1.3 million VND for each 1ha to each commune, which is used for the maintenance costs of the facilities targeted by this project, as shown in Table 8. On the other hand, for the secondary and smaller canals (that are not targeted by this project) farmers continue to pay water fees to cover the maintenance cost. 540,000VND per ha (or 90kg of rice) is to be paid to agricultural cooperatives under each commune. According to the People's Committee, the water fees for the secondary or smaller canals borne by farmers are affordable. They also mentioned that before Decree 115 came into force, farmers could not afford the water fees most of the time and would borrow from agricultural cooperatives established under each commune. However, repayment did not go smoothly and some agricultural cooperatives went bankrupt due to debt accumulation. In other words, the loan repayment rate was so low that cooperatives could not cover their maintenance costs; thus, they faced a financial problem. Therefore, at the district level cooperatives are better off with the no-fee policy after the enforcement of Decree 115 because they are now able to secure maintenance costs in a more stable manner. However, the exemption of the water fees declared by the law contains a risk of minimizing the commitment of communes and farmers in terms of bearing maintenance costs. It also puts pressure on the national finances. With a view to encouraging farmers' participation in the maintenance of irrigation facilities for sustainability, the country may need to rethink the validity of this law.

maintenance of each facility of this project; thus, it is thought that there are no major issues in the financial aspect of the operation and maintenance.

3.5.4 Current Status of Operation and Maintenance

The facilities and equipment developed by this project are generally well maintained. The status of operation and maintenance of each facility at the time of the ex-post evaluation is as follows:

1) Irrigation/Drainage

Regarding the maintenance of the Nam Trung pump station and main canals, the pump units have never broken since the completion of the project and no major parts change or repair was needed. The rehabilitated irrigation canals, the Ho Thanh reservoir and main canal No.2, for which leakage countermeasures were taken, have had no breakage or leakage problems since the completion of this project.

2) Road

The national road and district roads (Nam Kim-Nam Phuc-Nam Cuong road) rehabilitated by this project are maintained well. In the case of the national road, it was confirmed during the field survey of this study that cracks and dents are being repaired immediately if they occur. It was also confirmed that the surface of the district roads (Nam Kim-Nam Phuc-Nam Cuong road) is in good condition after the project's completion. Regarding the National Road 15A, while cracks and dents are immediately fixed as they occur, the problems are occurring more frequently every year. This is because traffic volume is increasing, especially that of heavy duty vehicles like large trucks²⁸. The maximum load capacity is controlled by law and the Management and Maintenance of Road and Navigation Company under the Department of Transportation (DOT), as a body responsible for the operation and maintenance, controls overloaded vehicles²⁹; increasingly, more vehicles choose to drive at night in order to avoid such checking points. Since there is only so much that the company can do to enforce the rule on maximum load, the situation there is to some extent worrying.

3) Rural Electrification

The substations and distribution networks are operating without major breakage. Through the interview with the Nam Dan Branch of EVN concerning natural disaster and conditions of the facilities, it has been confirmed that there has not been any major impact of natural disaster, nor

²⁸ One of the reasons behind the increase in large vehicle traffic is that a gas station was constructed on the road targeted by this project and many heavy-duty vehicles take the road to get fuel, according to some comments.

²⁹ Loads are checked using a portable measurement device.

breakage or trouble after the completion of the project.

In addition it has been confirmed that there is no particular problem with the ways in which necessary spare parts are procured and stored at each facility targeted by this project and that a system is in place to enable needed procurement in a prompt manner. Furthermore, it has also been observed that manuals on maintenance and operation are in place at each facility and that staff carry out their maintenance duty by referring to these manuals as needed.

No major problems have been observed in the institutional, technical and financial aspects of the operation and maintenance system. Therefore, sustainability of the project effects is high.

4. Conclusion, Lessons Learned, and Recommendations

4.1 Conclusion

This project rehabilitated irrigation facilities and roads, and expanded facilities for rural electrification, with the aim of recovering the irrigable area, improving traffic accessibility and stabilizing the electricity supply in the Nam Nam area of the Nam Dan District of the Nghe An Province, located in the north-central part of Viet Nam. At the time of the ex-post evaluation, the relevance of this project is high as the project is consistent with the policy stipulated in the “Five Year Socio-Economic Development Plan” and with further development needs such as development of agricultural infrastructure, extension of road rehabilitation, and expansion of the electric distribution network. The project cost and project period did not exceed the original plan; thus, efficiency is high. In this project, pumping facilities and canals were rehabilitated in the Nam Nam area, which led to the recovery of the irrigable area and reduced labor requirements and working hours for farmers, thereby realizing the stable distribution of irrigation water. Through the rehabilitation of National Road 15A and district roads (Nam Kim-Nam Phuc-Nam Cuong road), smooth flow of traffic and reduced travel time have been realized, while improving traffic access to other parts of the country. The electric supply has been stabilized through the rehabilitation of substations and electric distribution network, and all households in the area are registered members of the electricity service. The results from the beneficiary survey reaffirmed that the level of satisfaction with the project was high and that the living conditions have been improved; thus, effectiveness and impact of this project are high. In addition, there are no major issues regarding the institutional, technical and financial aspects of the organizational structures, operation and maintenance of each facility developed/rehabilitated

by this project; thus, sustainability of this project is high.

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

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

It has been reported that the number of cases in which cracks and dents need repair is increasing every year for the National Road 15A developed by this project. It is thus preferable that the Department of Transportation (DOT) of the Nghe An Province and the Management and Maintenance of Road and Navigation Company which carries out the actual operation and maintenance on the ground, make further efforts to control overloaded vehicles.

4.2.2 Recommendations to JICA

None.

4.3 Lessons Learned

- The necessity of setting appropriate indicators to measure effectiveness and quantitative effects.

With regard to the quantitative indicators set to measure the effects of the rural electrification project, it may have been appropriate to use reduction in electricity charges as an effective indicator until two years after the project's completion (i.e., in the short-term, given the electricity situation of the Nam Nam area at that time). However, in a fast-growing country like Vietnam, it could have been possible to think that the electricity situation might change some time after the project's completion, such as by the time of the ex-post evaluation. Reduction in electricity charges can be attributed to many factors other than the project and is rather an indirect indicator. Therefore, it would have been worth considering setting indicators that can accurately capture the direct effects of the project outputs, such as transmission end electrical energy and transmission/distribution loss³⁰.

³⁰ Had the electricity charge not reduced due to some external factors of significant influence, some might have argued that the project was not effective. It is thought instructive to have these two indicators that place emphasis on the power supply aspect.

Socialist Republic of Viet Nam

Ex-Post Evaluation of Technical Cooperation Project

“The Project for Building Disaster Resilient Societies in Central Region in Vietnam”

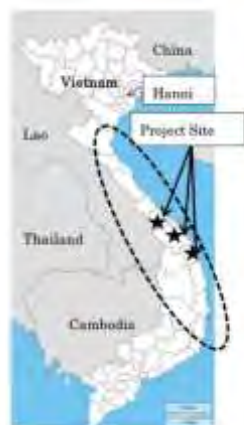
External Evaluator: Kenichi Inazawa, Octavia Japan Co., Ltd.

0. Summary

This project aimed to strengthen community-centered water-related disaster management systems, targeting the Hue, Quang Nam and Quang Ngai Provinces, located in central Vietnam. This project is consistent with the National Strategy for Natural Disaster Prevention, Response, and Mitigation (2007–2020), which places importance on community-based disaster management and responds to the need to strengthen disaster management systems in Vietnam, as the country faces multiple water-related disasters. Thus, this project is in line with the development policy and development needs. It is also consistent with the assistance policy of Japan, represented by the “Initiative for Disaster Reduction through ODA.” Therefore, the relevance of the project is high. The outputs of this project were achieved in each above-mentioned target province, and the water-related disaster management systems of the communities were strengthened; thus, the effectiveness and impact are also high. While the project period was as per the initial plan, the project cost slightly exceeded the initial plan; thus, the efficiency is fair. This project has remained consistent with the development policy and needs of Vietnam even after the completion of the cooperation. Additionally, almost all staff members who gained knowledge and developed abilities in the area of disaster management through this project have remained on duty and are maintaining their technologies and abilities by attending training after the completion of this project. Furthermore, the central government allocates sufficient budget to the Ministry of Agriculture and Rural Development (hereafter referred to as “MARD”) and for various disaster management measures. No major problems have been observed in the policy background or in the organizational, technical, and financial aspects of the implementing agency. Therefore, the sustainability of the project’s effects is high.

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

1. Project Description



Project location¹



Evacuation center constructed through this project
(An Xuan Village in Hue Province)

1.1 Background

Vietnam has long been exposed to risks of water-related disasters caused by typhoons and heavy rains. In particular, areas near rivers in central Vietnam have been affected by wind and floods, as well as sediment disasters, every year due to their climate and geographical conditions. The occurrence of typhoons and heavy rains and the associated floods has continued to increase, presumably because of climate change; in 1999 approximately 800 people died, and the economic damage amounted to 300 million USD. It has been anticipated that the situation will worsen due to climate change. Thus, the government of Vietnam was faced with the need to strengthen structural and non-structural measures² against water-related disasters. Under such circumstances, the government of Vietnam requested that the Japanese government implement a project with the aim of strengthening community-centered water-related disaster management systems. In the requested project, pilot sites (nine sites) were selected from the target provinces: Hue, Quang Nam, and Quang Ngai Provinces in central Vietnam. The proposed project aimed to: (1) strengthen organizational capacities for disaster management at provincial, district, and commune levels; (2) develop manuals for promoting community-centered disaster management; (3) develop standard designs and construction manuals for low-cost, small-scale structural measures against river bank erosion; and (4) strengthen the central government's capacity to support local governments such as local provincial government in the central region, in the area of disaster management.

¹ A large dotted ellipse line shows central Vietnam, while the top star mark indicates Thua Thien Hue Province, the middle star mark indicates Quang Nam Province; and the bottom star mark indicates Quang Ngai Province.

² Structural measures refer to disaster management measures that use facilities and structures (e.g., *sabo* dam) designed to stop/control/reduce disasters. On the other hand, non-structural measures represent the capacity side of the matter, such as strengthening capacities for disaster management and nurturing human resources.

1.2 Project Outline

Overall Goal		Measures against water-related disasters, adapted to the exacerbating effects of global climate change, are strengthened in central Vietnam.
Project Purpose		Community-centered disaster management (CCDM) systems are strengthened in the project areas (Thua Thien Hue Province, Quang Nam Province, and Quang Ngai Province)
Outputs	Output 1	Organizational capacities for disaster management at provincial, district, and commune levels are developed.
	Output 2	A manual for promoting CCDM is developed.
	Output 3	Appropriate technologies for low-cost, small-scale structural measures against river bank erosion are developed.
	Output 4	MARD's supporting capacities in disaster management for local governments are developed.
Total Cost (Japanese Side)		482 million yen
Period of Cooperation		March 2009–February 2012
Implementing Agency		Counterpart: Ministry of Agriculture and Rural Development, etc. Implementing Agency: People's Committee of Thua Thien Hue, Quang Nam, and Quang Ngai Provinces
Supporting Agency/Organization in Japan		Earth System Science Co., Ltd., IDEA Consultants, Inc.
Related Projects		<p>【Technical Cooperation】</p> <ul style="list-style-type: none"> • “Project for Building Disaster-Resilient Societies in Vietnam (Phase II)” (August 2013–August 2016) <p>【ODA Loan】</p> <ul style="list-style-type: none"> • “Support Program to Respond to Climate Change” (Loan agreement signed in November 2011) <p>【Grant Aid Projects】</p> <ul style="list-style-type: none"> • “The Project for Rehabilitation of Small-Scale Reservoirs in Quang Ngai Province” (August 2010–February 2011) <p>【Other International Organizations and Aid Agencies】</p> <ul style="list-style-type: none"> • “Natural Disaster Risk Management Project” (2005–2010, World Bank)

1.3 Outline of the Terminal Evaluation

1.3.1 Achievement Status of Project Purpose at the Time of the Terminal Evaluation

At the time of the terminal evaluation, it was judged that the project's purpose was likely to be achieved based on the fact that the information communication system used to disseminate information to all residents had improved through disaster management workshops and evacuation drills, the operational capacities of local government staff engaged in disaster management had improved through project activities, and training programs, such as community-based disaster management, had been established by the Government of Viet Nam and managed by MARD.

1.3.2 Achievement Status of Overall Goal at the Time of the Terminal Evaluation

The overall goal of this project was to strengthen measures against water-related disasters and build resilience against the increasing risks of water-related disasters associated with climate change in central Vietnam through developing hazard maps adapted climate change and water-related disaster management plans at the provincial level in central Vietnam by establishing Disaster Management Divisions (hereafter referred to as "DMD") within the provincial governments in central Vietnam and through activities promoting community-based disaster management. At the time of the terminal evaluation, it was unclear whether the overall goal would be achieved. On the other hand, it was thought that the overall goal could be achieved if the outputs of this project were replicated in other provinces of central Vietnam, as this project dealt with water-related disasters affected by climate change.

1.3.3 Recommendations at the Time of the Terminal Evaluation

At the time of the terminal evaluation, the following recommendations were made to those engaged in the project.

- (1) It was recommended that flood simulation and its results be used, considering that project counterparts requested additional training in the area of flood simulation.
- (2) This project was fairly well received by other development partners and NGOs engaged in community-based disaster management in central Vietnam. The outcome of the project and the pro-active attitudes of the project experts contributed to establishing a foundation for future collaboration at local levels. However, such recognition at local levels was not necessarily shared by their regional and country offices. Thus, it is recommended that aid coordination be promoted at the level of central government led by MARD.
- (3) The outputs of this project, guidelines and manuals, as well as the training course developed through this project, should be fully shared among project stakeholders and need to be promoted

in central Vietnam. It is recommended that these also be shared with and that other development partners be informed of their availability.

(4) The training for this project, which took the form of Training of Trainers (hereafter referred to as “TOT”), used the cascading method³ (hereafter referred to as the “cascade method”); this was designed so that those trained staff of Department of Agriculture and Rural Development (hereafter referred to as “DARD”), the local division of MARD would pass on their knowledge and skills to the district level and then to the commune levels. However, the mechanism of how the DARD staff would pass onto other levels was not clearly indicated in the TOT of this project; rather, staff members were all trained together at one time. There was also no clear monitoring method to ensure that trainers would maintain their abilities. Therefore, it was recommended that a manual be developed that would specify how trained and certified trainers such as DARD staff would train staff of other levels, using the cascade method, thereby strengthening the project’s support to the district and commune levels.

(About TOT and the Training Manual)

In this project, TOT was conducted following the cascade method; trained DARD staff members became facilitators and trainers for provincial/district/commune staff members at succeeding trainings. However, there was no clarity in terms of the training scheme for the TOT of this project—the way in which DARD staff would pass their knowledge onto other levels. There was also no clear monitoring method for maintaining the abilities of trainers. Thus, it was recommended at the time of terminal evaluation that a manual be developed by the end of the project with a view toward specifying how the cascade method by certified trainers was designed to work. It was confirmed at the time of the ex-post evaluation that a TOT manual on “community-based disaster management” had been developed and that the DARD disaster management focal points of the three provinces had been conducting Community-Based Disaster Risk Management” training (hereafter referred to as “CBDRM training”) in communes that were not the pilot sites.⁴ On the other hand, it was not confirmed that TOT manuals for training courses on “Bank Erosion Measures” and “Disaster Management Planning (Integrated Flood Management)” had been developed. According to MARD, the TOT manual on “Bank Erosion Measures” was pending internal approval at the time of the ex-post evaluation (as of April 2015), while the manual on “Disaster Management Planning (Integrated Flood

³ This refers to the system in which trained training participants become facilitators or trainers for the succeeding training, thereby transferring knowledge and technologies to incoming trainees.

⁴ For example, in the case of Hue Province, training had been conducted in 55 of the 150 communes existing in the province, with approximately 750 participants, up until the time of the ex-post evaluation. On the other hand, in Quang Nam Province, training was conducted in 2013, targeting the five most disaster-prone of the 50 communes existing in the province. It was also confirmed that there was a plan to conduct training in 10 additional communes in 2014. In the case of Quang Ngai Province, it was confirmed that disaster management training was given to the 55 most disaster-prone communes in 2011 and 2012.

Management)” was under preparation.⁵

2. Outline of the Evaluation Study

2.1 External Evaluator

Kenichi Inazawa (Octavia Japan Co., Ltd.)

2.2 Duration of Evaluation Study

Duration of the Study: August 2014–December 2015

Duration of the Field Study: October 6–18, 2014 and April 18–24, 2015

3. Results of the Evaluation (Overall Rating: A⁶)

3.1 Relevance (Rating: ③⁷)

3.1.1 Relevance to the Development Plan of Vietnam

At the time of the ex-ante evaluation, the government of Vietnam had formulated the “10-year Socio-Economic Development Strategy” (2001–2010). In this strategy, natural disaster measures were indicated as one of the priority strategies in central Vietnam. The Vietnamese government also developed the “National Strategy for Natural Disaster Prevention, Response, and Mitigation (2007–2020),” in which community-based disaster prevention was proposed as part of the country’s natural disaster policy. In this strategy, specific targets were set, such as strengthening capacities for forecasting natural disasters, including wind and flood damages; integrating disaster prevention and mitigation plans with socioeconomic and sector development plans; enhancing capacities of local government staff engaged in disaster management; and strengthening bank systems. Additionally, the government formulated the “National Target Program to Respond to Climate Change” in 2008 as a comprehensive climate change measure. This program said that “strengthening water resource management, improving systems for disaster reduction in the coastal areas, and enhancing capacities for disaster management” were among the priorities.

On the other hand, at the time of project completion, strengthening community-based disaster management and water resource management continued to be viewed as important in the above-mentioned “National Strategy for Natural Disaster Prevention, Response, and Mitigation (2007–2020)” and “National Target Program to Respond to Climate Change”; thus, the purpose of this project, which was “to strengthen community-centered disaster management systems”, is judged

⁵ With regard to the training on “Bank Erosion Measures” and “Disaster Management Planning (Integrated Flood Management)”, MARD has a plan to hold training in the future by utilizing the TOT manuals. At the time of the ex-post evaluation (April 2015), MARD was in the process of requesting the necessary budget from the central government.

⁶ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

⁷ ③: High, ②: Fair, ①: Low

to be appropriate and consistent with the above strategies and program.

In light of the above, it can be concluded that this project, which aimed to address natural disasters, had been consistent with the national development policy of Vietnam since its commencement and through its completion.

3.1.2 Relevance to the Development Needs of Vietnam

At the time of the ex-ante evaluation, Vietnam faced a high risk of water-related disasters caused by typhoons and heavy rains. Typhoons and heavy rains associated with floods were increasing, presumably due to climate change. It was anticipated that this trend would worsen as the impacts of climate change became greater. Thus, the Vietnamese government needed to significantly strengthen its structural and non-structural measures against water-related disasters. In particular, wind and floods, as well as sediment disasters, affected areas along rivers in central Vietnam almost every year. Thus, strengthening non-structural and structural measures was an urgent issue.

On the other hand, the same area continued to face wind and floods, as well as sediment disasters, during the implementation of this project. In early and mid-October 2010, areas such as the Ha Tinh and Quang Binh Provinces were hit by large-scale floods twice in one year, which left more than 160 people either dead or missing. The areas targeted by this project, such as Thua Thien Hue Province (hereafter referred to as “Hue Province”), Quang Nam Province, and Quang Ngai Province, were also frequently affected by natural disasters. The casualties and scale of damage (in monetary terms) were as shown in Table 1. Therefore, it can be said that urgent measures to prevent and reduce flood-related damages continued to be needed after the completion of this project and that this project, which aimed to strengthen flood controls and measures against water-related disasters, is consistent with the development needs of Vietnam.

Table 1: Damages from Natural Disasters in Three Provinces of Central Vietnam
(Accumulated Figures for 2009–2012)

Item	Hue Province	Quang Nam Province	Quang Ngai Province
Incidence of floods (no. of floods)	5*	11	21
Dead (people)	39	93	127
Injured (people)	84	No data	728
Total damage	1,516 billion VND	4,245 billion VND	7,254.1 billion VND

Source: Answers to the questionnaires

Note*: For Hue Province, the number of rivers' water levels exceeding alert level three, as an exact figure, was not available.

Remark: 100 million VND = approx. 500,000 Japanese yen (exchange rate as of October 2014)

3.1.3 Relevance to Japan's ODA Policy

In January 2005, Japan released the “Initiative for Disaster Reduction through ODA,” which stipulated its basic official development assistance policy for developing countries in the area of disaster management. In this initiative, it was said that Japan would promote assistance utilizing Japan's experience, knowledge, and technologies, that the focus would be on assisting on the software side of things (e.g., system building, human resource development, and planning), and that strengthening the disaster management capacities of individuals and local communities would be emphasized. Thus, it is considered that the Japan's ODA policy is in line with the direction of this project, and therefore, it can be concluded that this project is consistent with Japan's assistance policy.

This project was highly relevant to the country's development plan and development needs, as well as to Japan's ODA policy. Therefore, its relevance is high.

3.2 Effectiveness and Impact⁸ (Rating: ③)

3.2.1 Effectiveness

3.2.1.1 Project Output

Output 1: “Organizational capacities of disaster management at provincial, district, and commune levels are developed.”

At the time of the completion of this project, it was confirmed that the indicator 1-1 had been moderately achieved and that all of the other indicators had been achieved; thus, it can be concluded that Output 1 was generally achieved.

Indicator 1-1: Existence of specialized DMDs in Quang Nam and Thua Thien Hue Provinces

At the time of the terminal evaluation, it was confirmed that a DMD had been formally established in Hue Province. On the other hand, in Quang Nam Province, a DMD had not been established because it was decided that the staff of the Sub-Department of Water Resource and Flood and Storm Control under the DARD would also function as a DMD, due to budget and staff shortages. Thus, at the time of the terminal evaluation, it was determined that the indicator 1-1 had been partially achieved. Through interviews conducted at the time of ex-post evaluation, it was confirmed that staff of the Sub-Department of Water Resource and Flood and Storm Control under DARD would continue to function as a DMD in Quang Nam Province for some time, due to budget and staff shortages. In other words, it was confirmed that the establishment of a DMD had not been accomplished in Quang Nam Province at the time of the project's completion. Therefore, it was determined that this indicator had been moderately achieved.

⁸ The sub-rating for Effectiveness is to be given in consideration of the Impact.

Indicator 1-2: Number of Disaster Management Plans (DMPs) and integrated flood management plans (Target: One DMP for each target province, district, and commune, and one integrated flood management plan for each target province.)

At the time of the terminal evaluation, it was confirmed that a DMP had been developed in each target province, district, and commune. Additionally, according to the JICA provided document, an integrated flood management plan was developed in Hue Province, which was approved and was actually in use as an official DMP. On the other hand, in Quang Nam Province, recommendations for the “Plan for Integrated Natural Disaster Risk Management (– 2020)” (which plays a similar role to the above-mentioned integrated flood management plan), developed with the World Bank’s assistance, were prepared. This document was then submitted to Quang Nam Province as one of the materials used for implementing the above plan.⁹ Thus, it was concluded that this indicator had been achieved.

Indicator 1-3: Number of hazard maps in the project target area (Target: Two flood hazard maps, two river bank erosion maps, and two sediment disaster maps)

At the time of the terminal evaluation, it was confirmed that three kinds of hazard maps (flood, sediment, and bank erosion) had been completed in both the Hue and Quang Nam Provinces. Thus, it was determined that this indicator had been achieved.

Indicator 1-4: Level of achievement of the delivery of flood information to every resident in pilot site (Target: 100%)

According to residents of the pilot sites and the community-based disaster management experts who were interviewed at the time of the terminal evaluation, an intentionally redundant CFSC warning communication channel and method, which was designed to ensure information reached all residents, had been established or improved through workshops and evacuation training for the communes’ Committees for Flood and Storm Control (hereafter referred to as “CFSC”) (i.e., 100% transmission level was achieved). Additionally, it was confirmed that necessary communication equipment, such as speakers and radios, was supplied to CFSC. Thus, it can be concluded that this indicator had been achieved.

Output 2: “A manual for promoting CCDM is developed.”

It can be concluded that Output 2 has been achieved because indicator 2-1 below was achieved.

Indicator 2-1: Existence of the manual for promoting CCDM

According to the JICA provided document, it was confirmed that a manual for promoting community-based disaster management had been developed during this project. This manual

⁹ In Quang Nam Province, this document has been referred to as a material for annual disaster management planning since the completion of this project.

reflects situations surrounding disasters in Vietnam and explains how to implement community-based disaster management step-by-step, while specifying the conditions necessary for the promotion and continuation of community-based disaster management activities.¹⁰ Thus, it can be concluded that this indicator has been achieved.

Output 3: “Appropriate technologies for low-cost, small-scale structural measures against river bank erosion are developed.”

At the time of the completion of this project, Indicator 3-1 below had been achieved; and thus, it can be concluded that Output 3 has been achieved.

Indicator 3-1: Existence of the Guidelines for River Bank Erosion Management

According to the JICA provided document, it was confirmed that guidelines for low-cost, small-scale structural measures against river bank erosion had been developed during this project.¹¹ Thus, it can be concluded that this indicator has been achieved.

Output 4: “MARD’s supporting capacities in disaster management for local governments are developed.”

At the time of the completion of this project, it was confirmed that Indicators 4-1 and 4-2 below had been achieved; thus, it can be concluded that Output 4 has been achieved.

Indicator 4-1: Existence of draft of new technical guidelines for river structures, integrating low-cost, small-scale structural measures for bank erosion

According to the Terminal Evaluation Report and interviews conducted during the ex-post evaluation, technical aspects intended for the Guidelines for River Bank Erosion Management were incorporated into the new guidelines for river structures, integrating low-cost, small-scale structural measures for bank erosion, by the completion of this project. In other words, although the intended “technical guidelines for low-cost, small-scale structural measures for bank erosion” had not been developed, the guidelines for bank erosion measures have been developed, and these incorporate what was intended for the former. Thus, it can be concluded that this indicator has been achieved.

Indicator 4-2: Number of disaster management training courses for local government officials (Target value: Three courses are newly established)

According to the JICA provided document, three training courses were established:

¹⁰ This manual was well received by those involved in the project, as it is practical, with ample examples of actual cases. According to the interview with MARD during the ex-post evaluation, this manual was distributed to the pilot communes, districts, and the three target provinces during project implementation or at the time of the project’s completion. It was also confirmed through the interviews that those engaged in disaster management at different levels are using this manual for their activities related to community-based disaster management.

¹¹ Through interviews conducted during the ex-post evaluation, it was confirmed that MARD had been formally designated to develop, advertise, and distribute these guidelines as specified in an order from the Prime Minister’s Office (No. 01/2011).

“Measures against Bank Erosion,” “Community-based Disaster Management,” and “Flood Simulations and Disaster Management Planning (Integrated Flood Management).”¹² It was also confirmed that these courses were conducted in the second and third years of this project and that training materials used for these training courses had been revised as needed by the implementing partner under the supervision of the project experts. Thus, it can be concluded that this indicator has been achieved.

3.2.1.2 Achievement of Project Purpose

Table 2 shows the indicators for the project’s purpose and the actual values.

Table 2: Level of Achievement of the Project Purpose

Purpose	Indicator	Actual
Community-centered disaster management (CCDM) systems against water-related disasters are strengthened in the project areas.	Indicator 1) Level of awareness and knowledge of the residents in pilot sites (hamlets) about disaster risks, measures to be taken before and after disasters, location of evacuation shelters, and evacuation routes (Target: 70% of residents have sufficient knowledge)	Through interviews during the ex-post evaluation and answers to the questionnaires, it was confirmed that a system had been established for the information to reach community members by the completion of this project. ¹³ Thus, it is concluded that Indicator 1 has been achieved.
	Indicator 2) Level of disaster management capacities of target provincial, district, and commune governments (Target: 100% of staff responsible for natural disaster management in target provinces, districts, and communes attend the workshop/seminar held by the project)	Through interviews during the ex-post evaluation and answers to the questionnaires, it was confirmed that capacities of local government staff had been strengthened by the completion of this project. Additionally, it was confirmed that participant lists were developed for each

¹² In Quang Ngai Province, flood simulations were not implemented in this project, as they were not a part of the project activities from the beginning. Project activities were limited in Quang Ngai Province when compared to those of Hue and Quang Nam Provinces. (The only activity that was implemented in Quang Ngai Province was that of community-based disaster management.)

¹³ There was no clarity about how to verify the target: whether or not “70% of residents have sufficient knowledge.” On the other hand, it was observed from the interviews with those involved in this project that two-thirds of the residents had gained or already had knowledge, as specified in Indicator 1. Thus, it can be concluded that this indicator was sufficiently achieved.

		training and workshop done by the project, in collaboration with the implementation partner, during project implementation. Based on these lists, it was confirmed that 100% of the local government staff participated. Thus, it can be concluded that Indicator 2 has been achieved.
	Indicator 3) Level of central government's capacities for the disaster management support for local governments (Target: Disaster management training courses for local government officials shall be held annually by central government staff)	Through interviews during the ex-post evaluation and answers to the questionnaires, it was confirmed that training programs had been established by MARD at the time of the completion of this project. ¹⁴ However, training in the third year was conducted with the partial support by DARD in Hue and Quang Nam Provinces. The initial plan was that MARD would provide the necessary funds for such training, or at least that there would be a plan that MARD would allocate the necessary funds. However, at the time of the terminal evaluation and the project's completion, there was no prospect that it would be funded. Thus, it can be

¹⁴ Through the ex-post evaluation, it was confirmed that TOT manuals existed for "community-based disaster management" and that DARD's disaster management focal persons were continuing to give CBDRM training to the communes that were not the pilot sites targeted by this project in the three target provinces. For example, in the case of Hue Province, DARD offices have plans to give CBDRM training to 90 of the 150 communes that exist in the province. By the time of the ex-post evaluation, training had been completed in 55 communes, with the participation of roughly 750 residents. Budgets for these trainings came from the Provincial People's Committees. On the other hand, in Quang Nam Province, disaster management training was conducted in 2013 for five of the 50 disaster-prone communes that exist in the province. In 2014, disaster management trainings were planned for an additional 10 communes. Additionally, it was confirmed that disaster management training was given to 55 disaster-prone communes in 2011 and 2012 in the case of Quang Ngai Province.

		concluded that this indicator was moderately achieved.
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Source: Document provided by JICA (the terminal evaluation report, etc.); the questionnaires and interviews conducted during the ex-post evaluation.

Regarding Indicator 1), it was confirmed that residents deepened their understanding of disaster risks through the disaster management workshops of this project and that they were aware of evacuation shelters and routes based on hazard maps.¹⁵ Additionally, it was confirmed through the JICA provided document, questionnaires, and interviews of the ex-post evaluation that commune-level disaster response plans had been developed in all nine pilot sites at the time of the project's completion. It was also confirmed through interviews with residents that pre- and post-disaster responses were well communicated to all residents through community meetings, utilizing memorandums.¹⁶ In addition, a beneficiary survey¹⁷ was conducted, targeting residents of the pilot sites during the ex-post evaluation, in order to assess their level of satisfaction with this project, acquired knowledge, and capacities. As shown in Figure 1 and Figure 2, residents improved their knowledge about disaster management and their awareness of evacuation shelters and routes. Also, it can be observed in Figure 3 and Figure 4 that the residents continued to utilize the knowledge they had acquired through this project during disasters after the project's completion up through the time of ex-post evaluation.¹⁸ Therefore, it is observed that many residents are equipped with knowledge about pre- and post-disaster responses, evacuation shelters, and routes; thus, it can be concluded that this indicator has been achieved.

¹⁵ It was confirmed that residents demonstrated that they were aware of the priorities before and after water-related disasters at evacuation drills. Apart from ordinary members of communes, the training of this project focused on CFSC, such as village leaders and village groups, and agricultural cooperatives. Through interviews, it was confirmed that information was shared among community members and that many residents were equipped with the necessary knowledge.

¹⁶ For example, interviews in An Xung Village in Hue Province revealed that those engaged in this project at district and provincial levels responded quickly when the flood occurred during project implementation (2011). Residents were also able to evacuate before the situation became serious, having quick responses.

¹⁷ One site was selected from each of Hue, Quang Nam, and Quang Ngai Provinces, and from each site, the residents who participated in the activities of this project were randomly selected (n=50). During the implementation of this project, pilot sites were selected from each province (nine sites in total). The total number of people who participated in the project activities (i.e., population) is estimated to be 20–25 at each site, 180–225 people in total.

¹⁸ Commune leaders commented, when interviewed about disaster responses, "When a disaster occurred after the completion of this project, we sent early warning to residents and notified them about how to evacuate in advance; thus, the evacuation went smoothly, minimizing the casualties." Therefore, it can be presumed that the knowledge and skills gained through this project are being utilized.

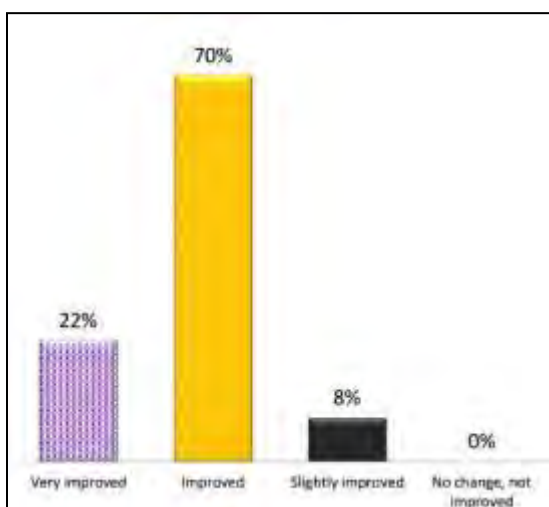


Figure 1: Awareness and knowledge of disaster management improved through the workshops of this project (n=50)

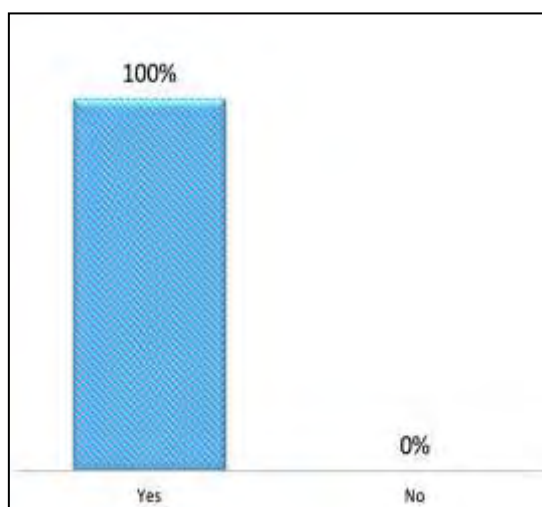


Figure 2: Have you been aware of the evacuation shelters and routes in case of disasters since the project's completion and up through the ex-post evaluation? (n=50)

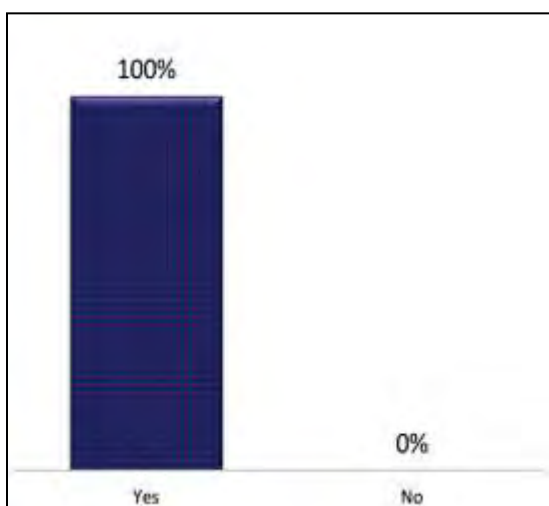


Figure 3: Are you utilizing the knowledge and skills acquired through this project during disasters after the project's completion and up through the time of ex-post evaluation (n=50)

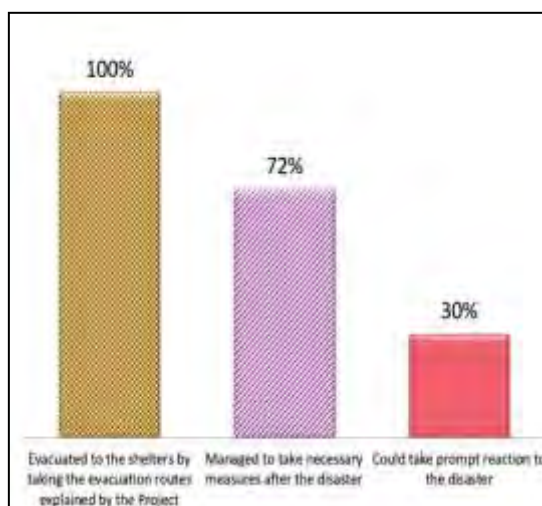


Figure 4: How exactly are you utilizing your knowledge and skills in relation to Figure 3? (n=50, multiple answers allowed)

Regarding Indicator 2), a total of 710 people participated in seven large-scale workshops, according to the JICA provided document. The main themes of the workshops were “integrated flood management planning,” “community disaster management,” and “bank erosion measures.” In addition, seminars were conducted on the themes of climate change, warning and evacuation, community-based disaster management, flood management plans, GPS utilization, river bank erosion, hazard maps, responses to large disasters, earthquake and tsunami, local disaster management plans, and dam management. Participants were disaster management government officials from the central region, such as the three target provinces. Furthermore, it

was confirmed that the participant lists were developed by the project staff and implementing agency for every training and workshop conducted during project implementation, according to the terminal evaluation report.¹⁹ Based on these participant lists, it was confirmed that 100% of the target population participated.

In addition, a beneficiary survey targeted those engaged in disaster management in central Vietnam,²⁰ as in the case of Indicator 1), to check their level of satisfaction with this project and their acquired knowledge and capacities. As shown in Figure 5, many staff members admitted that their knowledge and capacities had improved concerning bank erosion measures, flood simulations, disaster management planning, flood hazard maps, early warning, resident evacuation, and responses during disasters. Additionally, as shown in Figure 6, they continued to have opportunities after the project's completion and up until the ex-post evaluation to upgrade the knowledge and skills they had acquired through the activities of this project (e.g., workshops and seminars). Furthermore, according to MARD, of all of the participants, only one employee from Hue Province left his/her job, while the rest continued to work for the same offices after the completion of this project. It can be confirmed that the project's effects are sustained, and thus, it can be concluded that this indicator has been achieved.

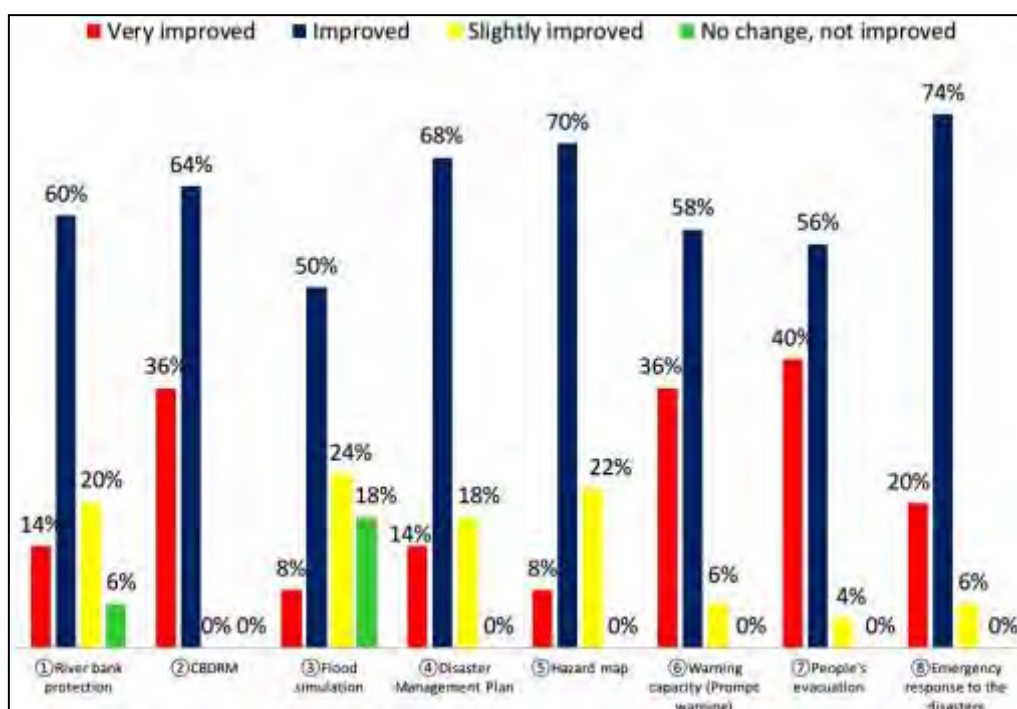


Figure 5: Knowledge and capacities developed through this project (n=50)

¹⁹ These participant lists were developed while paying attention to the fact that the participants were staff in charge of disaster management and by considering the relevance to their regular duties. The lists were also used as attendance lists to check their participation in the training and seminars.

²⁰ Samples were randomly selected from CFSC staff from the provinces, districts, and communes that were in charge of the pilot sites and that took part in the activities of this project (n=50).

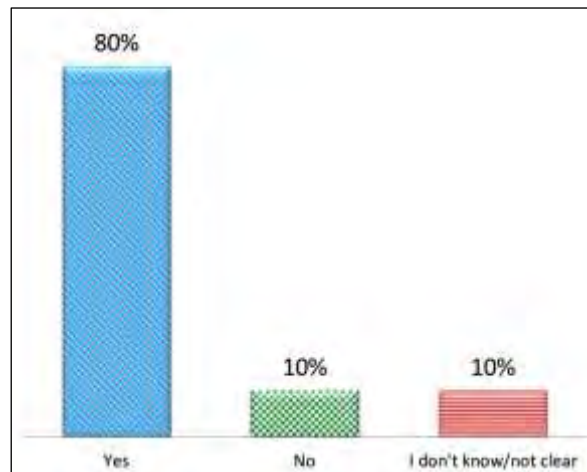


Figure 6: Did you have opportunities to improve the knowledge and skills you gained through the activities of this project (e.g., workshops and seminars) after the project's completion and up until the ex-post evaluation? (n=50)

Regarding Indicator 3), three training courses were conducted every year until the completion of this project: “Measures against Bank Erosion,” “Community Disaster Management,” and “Flood Simulations and Disaster Management Planning (Integrated Flood Management).” It was confirmed through interviews that, in this project, training participants had learned practical methods of promoting community-based disaster management, gained knowledge and skills regarding low-cost bank erosion measures using local materials, and acquired technologies needed to develop integrated flood management plans.²¹ On the other hand, while training costs were fully borne by this project for the second year, the third year's training costs were partially borne by DARD of Hue and Quang Nam Provinces. The initial plan was that MARD would provide budgets for such trainings, or at least that MARD would have allocated such budgets; however, at the time of the terminal evaluation and the project's completion, there was no prospect of MARD bearing training costs as such. Thus, it can be concluded that this indicator has been moderately achieved.

Based on the levels of achievement for Indicators 1)–3), it is considered that systems for managing water-related disasters, particularly those of communities, have been generally strengthened. Therefore, it is concluded that the project has achieved its purpose.

²¹ In addition, MARD commented that in addition to these technologies and knowledge, they developed capacities to draft policy documents, such as nation-wide CRDRM manuals and decrees about measures against bank erosion (an order from the Prime Minister's Office, No. 01/2011, a disaster management and prevention law) through developing manuals and guidelines.

3.2.2 Impact

3.2.2.1 Achievement of Overall Goal

The overall goal of this project was: “Measures against water-related disasters, adapted to the exacerbating effects of global climate change, are strengthened in central Vietnam.” In order to strengthen responses to water-related disasters, it was deemed necessary to strengthen the systems for managing water-related disaster, particularly those of communities, and thus, it was planned that hazard maps that took climate change into consideration and water management plans would be developed, and disaster management divisions would be established in central Vietnam. As shown in Table 3, four indicators were set before the commencement of this project, with the view toward measuring the extent to which the project’s overall goal was achieved: the existence of hazard maps; the existence of plans to manage water-related disasters; the existence of disaster management divisions; and activities to promote community-based disaster management. It can be confirmed that these indicators were generally achieved²². Thus, it can be concluded that the overall goal has been achieved.

Table 3: Achievement of Overall Goal

Overall Goal	Indicator	Actual
Measures against water-related disasters, adapted to the exacerbating effects of global climate change, are strengthened in central Vietnam.	Indicator 1) Existence of flood hazard maps, taking the effects of climate change into consideration, in central Vietnam	Provinces in central Vietnam (17 provinces in total) develop and/or renew hazard maps.
	Indicator 2) Existence of provincial DMPs for water-related disasters in central provinces	All provinces in central Vietnam develop/renew Flood and Storm Control Plans (hereafter referred to as “FSCP”).
	Indicator 3) Existence of specialized DMDs in the government of the central provinces	Provincial Committees for Flood and Storm Control (hereafter referred to as “PCFSC”) exist in all provinces in central Vietnam. In principle, a DMD has been established with the approval of either DARD or the People’s Committee of each province and is commissioned to provide technical advice to PCFSC. At the time of the ex-post evaluation, a DMD had not been established in all provinces of central Vietnam (17 provinces in total) ²³ ; however, MARD planned to guide DARD and the People’s Committee in each province to establish a DMD or a team equivalent to a DMD.
	Indicator 4) Existence of activities led by provincial governments for the promotion of CCDM in the	The government of Vietnam decided in 2009 that the “Strengthening Community Disaster Risk Management Project” should be implemented nationwide (Vietnamese decree No. 1002). In

²² As explained in footnote 15 and 16, it is confirmed that there are examples about the community members understanding location of evacuation shelters and evacuation routes, and the prompt action are taken by them.

²³ MARD could not provide clear indication as to how many DMDs have been established in the central Vietnam.

	central provinces	response to this decision, provincial People's Committees have prepared community-based disaster management plans until 2020 and are carrying out related activities.
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Source: Document provided by JICA (terminal evaluation report, etc.); the questionnaire and interviews conducted during the ex-post evaluation.

Regarding Indicator 1), it was confirmed through interviews with MARD during the ex-post evaluation that provinces in central Vietnam (17 provinces in total) had developed/renewed hazard maps. The knowledge gained through case studies of the target provinces in this project (Phase I) has been accumulated and expanded to 17 provinces, and was utilized in the succeeding project (Phase II). Thus, it can be said that this indicator has been achieved.

With respect to Indicator 2), the “Law on Natural Disaster Prevention and Control” (No. 33/2013/QH13), approved by the central government in 2013 after the completion of this project, mandates all provinces in the country to develop water-management plans. This demonstrates that the knowledge accumulated through the case studies of the provinces targeted by this project was utilized to formulate this law. It also indicates that the awareness of the central government about natural disasters improved as a result of the implementation of this project, which was utilized for the formulation of this law. Therefore, it can be said that this indicator has been achieved.

Concerning Indicator 3), PCFSCs exist not only in central Vietnam but also in all provinces of Vietnam. In principle, DMD, whose establishment is approved by the DARD or the People's Committee of each province, is mandated to provide technical advice to PCFSC. At the time of the ex-post evaluation, DMD did not exist in all provinces of central Vietnam. However, it was confirmed through interviews that MARD planned to guide DARD and the People's Committees at the provincial level in the establishment of DMD or designate a team equivalent to a DMD through the Phase II project. As for the three provinces targeted by this project (Phase I), in accordance with Circulation 14, issued by MARD, a DMD was established in Hue Province during project implementation, while a DMD was set up before the commencement of this project in Quang Nam Province. On the other hand, it was confirmed that the team is called DMC²⁴ in Quang Ngai Province, and that this was established during the implementation of this project. Thus, it can be said that this indicator has generally been achieved.

With respect to Indicator 4), the three target provinces gained knowledge about community-based disaster management through the project activities. It can be concluded that the government of Vietnam is utilizing this accumulated knowledge for implementing the above-mentioned nation-wide project. More specifically, it is thought that this project (Phase I) established a foundation of community-based disaster management (improved capacities among

²⁴ This stands for “Center for Natural Disaster Management and Mitigation.” It has the same function as a DMD.

the relevant central government offices) and that knowledge of community-based disaster management was accumulated through the case studies in the three target provinces. Additionally, these achievements became the foundation for the expanded activities through the succeeding project, Phase II. It was confirmed through interviews with those engaged in the Phase II project that the knowledge accumulated during the Phase I project is contributing to information sharing among stakeholders and to the smooth implementation of the Phase II project, in addition to providing various benefits in terms of procedures.

MARD is holding step-by-step workshops (TOT) for disaster management focal persons from each province, with the aim of improving the knowledge and capacities of community-based disaster management, under the “Strengthening Community Disaster Risk Management Project.” MARD has planned to train 25 CBDRM trainers at the national level and 25 provincial-level trainers in each province, training a total of 1,575 people (25 people x 63 provinces) by the end of 2015. At the time of the ex-post evaluation, it was confirmed through questionnaires and interviews that 25 national-level trainers had been trained, and 1,016 people had received training at the province level. Additionally, the Vietnamese government issued a decree (Vietnamese decree No. 1002) that mandated nationwide implementation of the “Strengthening Community Disaster Risk Management Project” in 2009.²⁵ In response, the People’s Committee of each province developed a community-based disaster management plan with the target year of 2020 and is now carrying out related activities. In relation to this project, MARD has commenced activities to promote community-based disaster management, targeting provinces nationwide after the completion of this project. According to MARD, these activities are built upon the knowledge accumulated through this project. Considering that community-based disaster management activities of the provincial government are promoted, it can thus be said that this indicator has been achieved.

As supplementary information, from 2010 to 2014, MARD was allocated approximately 120,000 USD per year from the central government for TOT for the provinces. On the other hand, MARD’s TOT plan will end in 2015, and there is a possibility that the budgets for these trainings will need to be secured in the future. Although the budget requested for 2015 was approved in 2014, it was not disbursed because the central government faced budget constraints after the budget’s approval. As will be later stipulated in “3.4.4 Financial Aspects of the Implementing Agency for the Sustainability of Project Effects,” MARD was requesting TOT budgets (2016 budgets) from the central government at the time of the ex-post evaluation, given

²⁵ With regard to the decree, it is thought that this project established a foundation of community-based disaster management (improved capacities among the relevant central government offices) and that knowledge of community-based disaster management was accumulated through the case studies in the three target provinces. The government began implementing nationwide activities after building foundations for disaster management in Vietnam through this project; thus, it can be said that this project has had a big effect on the issuance of the decree.

the importance of TOT.²⁶

In light of the above, the project has achieved its overall goal.

3.2.2.2 Other Impacts

3.2.2.2.1 Impacts on the Natural Environment

It has been confirmed through questionnaires and interviews with those involved in this project that there was no negative impact on the natural environment in or around the pilot sites.

3.2.2.2.2 Other Positive and Negative Impacts

It has been confirmed through questionnaires, interviews with those involved in this project, and site visits that there was no resettlement or land acquisition in the pilot sites of this project.

In light of the above, it can be concluded that the project purpose, “community-centered disaster management (CCDM) systems are strengthened in the project areas,” has been achieved. With regard to the overall goal of this project, each indicator was achieved, and it is observed that preparedness for water-related disaster risks has been strengthened. Therefore, the effectiveness and the impact of the project are high.



Photo 2: Hazard map posted inside one evaluation shelter
(An Xuan village in Hue Province)



Photo 3: Poster for community-based disaster management inside DARD in Quang Ngai Province

²⁶ At the time of the ex-post evaluation, the DMC within MARD played a main role in conducting CBDRM training, while the General Department of Water Resources within MARD led the trainings on “Bank Erosion Measures” and “Integrated Flood Management Plans.” The General Department of Water Resources incorporates the essence of “Bank Erosion Measures” and “Integrated Flood Management Plans” into many other training courses that they organize. (However, information was not available concerning the exact number of training courses or sessions completed.)

3.3 Efficiency (Rating: ②)

3.3.1 Inputs

Inputs	Plan	Actual
(1) Experts	10 fields (The number of experts and MMs were not specified.)	14 fields, 16 people (84.5 MM)
(2) Trainees received	3–4 people annually	32 people
(3) Equipment	Equipment related to early warning and evacuation, equipment for training, office equipment, and other necessary equipment	PC, laptops, flood management simulation software, plotters, printers, projectors, fax machines, GIS software, etc. were provided to Hue and Quang Nam Provinces.
(4) (Others)	A part of the local costs of strengthening off-site projects	Local contract costs: 238,183 USD (approx. 19 million yen) Local direct cost: 272,000 USD (approx. 21 million yen)
Japanese Side: Total Project Cost	465 million yen	482 million yen
Vietnamese Side: Operational Expenses	① Counterpart personnel ② Land and facilities ③ Local costs (amount was not specified)	① 31 people in total ② Two project offices, two pilot sites for bank erosion measures, and eight evacuation sites were provided free of charge by communes ③ Salaries for counterpart staff, communication costs, and utilities were borne by the Vietnamese side. The total local operational cost borne by the target provinces from the commencement of this project and through August 2011 was 429 million VDN (approx. 1.5 million yen) by Hue Province, 40 million VND (approx. 140,000 yen) by Quang Nam Province, and 70 million VDN (approx. 250,000 yen) by Quang Ngai Province.

Source: Document provided by JICA (Terminal Evaluation Report, etc.), questionnaires and interviews conducted during the ex-post evaluation.

3.3.1.1 Elements of Inputs

In interviews, the counterpart personnel commented, “The expertise and MM of Japanese

experts were appropriate.” It was confirmed that the experts were well received because they communicated well with community members and carried out their activities at the grassroots level.

With regard to the training in Japan, counterparts and training participants commented in interviews, “The training was based on Japan’s actual experience with disasters and was practical. We can use what we learned from the training in Vietnam. It was extremely useful.”

Concerning the equipment provided by this project, counterparts commented in interviews, “The disaster management equipment distributed to communities catered to the needs of local communities and could be used immediately; thus, they were highly useful in their disaster management activities.”

In light of the above, it can be concluded that the inputs of this project were appropriate.

3.3.1.2 Project Cost

The planned project cost was 465 million yen. The actual project cost was 482 million yen, which was higher than planned (104% of the plan). It is unclear why the actual project cost exceeded the plan.

3.3.1.3 Period of Cooperation

The project period was 36 months (three years), from March 2009 to February 2012, which was as planned.

Although the project period was within the plan, the project cost exceeded the plan. Therefore, the efficiency of the project is fair.

3.4 Sustainability (Rating: ③)

This project aimed to strengthen systems for water-related disaster management, particularly those of communities. In this section, the policy, institutional, technical, and financial aspects necessary to sustain the strengthened disaster management systems²⁷ will be examined.

3.4.1 Related Policy and Institutional Aspects for the Sustainability of Project Effects

The government of Vietnam developed the “National Strategy for Natural Disaster Prevention, Response, and Mitigation” in 2007 with a target year of 2020. It was confirmed that this strategy had continued to be in effect up to now, at the time of the ex-post evaluation. In addition, in Vietnam, community-based disaster management trainers are being trained at MARD and in each province, in accordance with the “Strengthening Community Disaster Risk

²⁷ Here, this refers to a system for managing water-related disasters.

Management Project,” by order of Prime Minister in 2009 (No. 1002). Institutionally, the Vietnamese government declared the “Law on Natural Disaster Prevention and Control” in June 2013, which demonstrates that disaster management continues to be a priority. This law stipulates the application of the disaster management concept to various development plans, such as national socioeconomic plans, the utilization of science for disaster management measures, approaches combining structural measures (hardware) and non-structural measures (software), adaptation to climate change, and the roles of local government in accordance with disaster levels. Thus, it can be concluded that the policy needed to sustain the disaster management systems strengthened by this project was in place at the time of the ex-post evaluation.

3.4.2 Organizational Aspects of the Implementing Agency for the Sustainability of Project Effects

In Vietnam, MARD is in charge of disaster management projects. As illustrated in Figure 7, the Disaster Management Center (hereafter referred to as “DMC”) within MARD plays a role, as central government, in strengthening the disaster management systems of provincial governments. Thanks to the strong leadership of the center head, the DMC continues to grow in terms of number of staff and volume of responsibilities. In each province, the People’s Committee and DARD play key roles in promoting disaster management projects. The DMC was established in 2010 under the General Department of Water Resources within MARD. Initially there were 13 staff, but at the time of the ex-post evaluation (as of April 2015), the number of staff had increased to 28, expanding at a stable pace.²⁸ Through questionnaires and interviews conducted during the ex-post evaluation, it was confirmed that there was no particular problem with the decision-making processes and the ways in which duties were being carried out and that activities were being implemented smoothly.²⁹ With regard to the disaster management systems of the People’s Committees and DARD at the province level, there were no major problems with the ways in which tasks were being carried out. They were constantly communicating and sharing information with MARD, and they have a sound system for coordination.³⁰ Therefore, it can be concluded that there were no particular problems with the institutional aspects of the counterpart at the time of the ex-post evaluation; thus, the systems

²⁸ According to the DMC, there is a plan to add 10 more staff in the future, as responsibilities continue to grow. Interviews with the DMC confirmed that no additional staff will be needed to sustain the project’s effects.

²⁹ Out of the 28 total staff, 13 are well experienced (with more than 10 years of experience in disaster management) and 15 are relatively inexperienced (fewer than five years of experience). It was confirmed through interviews during the ex-post evaluation that the DMC promotes knowledge and technology transfer from the experienced staff to inexperienced staff through regular meetings.

³⁰ Information about the number of staff members and the organizational structures of the three target provinces could not be obtained. Concerning community-based disaster management, the People’s Committees at the provincial level do the promotions, while staff members who developed their knowledge and skills through this project play key roles in carrying out related activities.

needed to sustain the disaster management systems that have been strengthened through this project are in place.

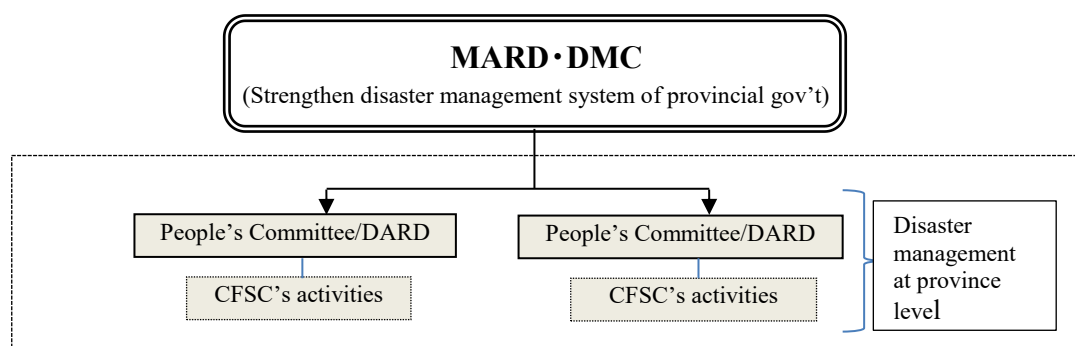


Figure 7: Organizational Structure of This Project (MARD, DMC and People's Committees / DARD)

3.4.3 Technical Aspects of the Implementing Agency for the Sustainability of Project Effects

At the time of the ex-post evaluation, MARD and DARD continued to maintain their knowledge and technologies gained through this project by attending trainings conducted after the project's completion. MARD conducts TOT on community-based disaster management for provincial government focal points, thereby renewing their knowledge.³¹ In the three provinces targeted by this project, the counterpart staff engaged in this project take leadership in transferring technology to other staff. With regard to disaster management at the community level, it was confirmed during the ex-post evaluation that the counterparts at the provincial level were continuing to provide assistance to districts and communes. Thus, it is thought that the knowledge and capacities necessary for continuing the activities of this project are being provided.³² Therefore, there was no problem with the technical aspects of the counterparts at the time of the ex-post evaluation, and thus, it can be concluded that the technologies are in place to sustain the disaster management systems strengthened by this project.

3.4.4 Financial Aspects of the Implementing Agency for the Sustainability of Project Effects

As described above, MARD had been receiving approximately 120,000 USD every year from the central government for community-based disaster management (TOT, manual development, etc.) from 2010 to 2014. In other words, MARD had continued to secure the necessary budgets for community-based disaster management trainings at the time of the ex-post evaluation. Table

³¹ Besides, the DMC within MARD gives on-the-job training to new staff in the areas of foreign language, techniques, and report writing. In addition, it was confirmed through interviews that the DMC holds all staff meetings weekly, where experienced staff transfer their knowledge and technologies to new staff in the form of on-the-job training. Furthermore, through site visits during the ex-post evaluation, it was confirmed that the equipment provided is properly maintained and that there is no particular problem with procuring spare parts. There is no demand for renewing equipment in the near future.

³² For example, disaster management training is given to communes in the three target provinces.

4 shows the DMC's budgets for its activities, while Table 5 shows the budgets allocated for CBDRM training. These two tables demonstrate that the budgets had continued to be allocated after the completion of this project and up through the ex-post evaluation. While the budgets seem to have been decreasing since 2013, the allocated amounts reflect the actual needs in terms of the tasks and training that needed to be carried out. MARD considers the essential budgets to have been allocated. Considering that the budgets are not actually affecting the disaster management activities and training, it can be concluded that there is no particular problem with the financial aspects required for sustaining the disaster management systems strengthened by this project.

While MARD's TOT plans for provinces are expected to end in 2015, MARD is fully aware of the importance of further TOT. At the time of the ex-post evaluation (as of April 2015), MARD had already requested the necessary TOT budgets for 2016 and beyond from the central government and was waiting for the result. According to MARD, the decision on the budget allocation would be made in Fall 2015.

Table 4: Budgets Allocated to DMC

(Unit: million VND)

	2011	2012	2013	2014	2015
Budgets	1,341	3,453	9,386	5,467	5,642

Source: MARD

Remark: 100 million VND = approx. 5,000 Japanese yen (as of October 2014)

Table 5: Budgets Allocated for CBDRM Training

(Unit: million VND)

	2011	2012	2013	2014
Budgets	5,000	6,703	2,800	2,500

Source: MARD

Remark: 100 million VND = approx. 5,000 Japanese yen (as of October 2014)

No major problems have been observed in the policy background or in the organizational, technical, and financial aspects of the implementing agency. Therefore, the sustainability of the project effects is high.

4. Conclusion, Lessons Learned, and Recommendations

4.1 Conclusion

This project aimed to strengthen community-centered water-related disaster management systems, targeting the Hue, Quang Nam and Quang Ngai Provinces, located in central Vietnam. This project is consistent with the National Strategy for Natural Disaster Prevention, Response, and Mitigation (2007–2020), which places importance on community-based disaster management and responds to the need to strengthen disaster management systems in Vietnam,

as the country faces multiple water-related disasters. Thus, this project is in line with the development policy and development needs. It is also consistent with the assistance policy of Japan, represented by the “Initiative for Disaster Reduction through ODA.” Therefore, the relevance of the project is high. The outputs of this project were achieved in each above-mentioned target province, and the water-related disaster management systems of the communities were strengthened; thus, the effectiveness and impact are also high. While the project period was as per the initial plan, the project cost slightly exceeded the initial plan; thus, the efficiency is fair. This project has remained consistent with the development policy and needs of Vietnam even after the completion of the cooperation. Additionally, almost all staff members who gained knowledge and developed abilities in the area of disaster management through this project have remained on duty and are maintaining their technologies and abilities by attending training after the completion of this project. Furthermore, the central government allocates sufficient budget to MARD and for various disaster management measures. No major problems have been observed in the policy background or in the organizational, technical, and financial aspects of the implementing agency. Therefore, the sustainability of the project’s effects is high.

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

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

As discussed in “3.4.4 Financial Aspects of the Implementing Agency for the Sustainability of Project Effects,” it is estimated that MARD’s TOT plans for the provinces will be completed by the end of 2015. MARD places importance on the effects and necessity of TOT and is requesting the necessary budget (the fiscal year 2016’s budget) from the central government at the time of the ex-post evaluation (as of April 2015). It is therefore recommended that the central government acknowledge that TOT is effective in strengthening the disaster management capacities of the local government and that it allocate the necessary budgets to MARD, while it is recommended that MARD continue its efforts to strengthen disaster management capacities.

4.2.2 Recommendations to JICA

None.

4.3 Lessons Learned

(Importance of practical and useful technology transfers)

The counterparts of this project demonstrated high levels of satisfaction with the practical

training and workshops that utilized actual sites. It was also commented that the training itself was practical and useful. During the project implementation, workshops were conducted on “Integrated Flood Management Plans” “Community-based Disaster Management” and “Bank Erosion Measures” and many counterparts from the three target provinces and other relevant professionals from central Vietnam attended these trainings. Since the training, they have been formulating integrated disaster management plans, developing and renewing hazard maps, and carrying out community-level disaster management. Thus, it can be said that they have been utilizing the knowledge and technologies they acquired through the workshops, thereby directly contributing to the realization of timely disaster responses. Therefore, in similar future projects, it is thought useful to plan and implement practical training/workshops such as “Integrated Flood Management Plans,” “Community-based Disaster Management,” and “Bank Erosion Measures,” with a view toward realizing concrete technology transfer, thereby motivating counterparts and sustaining project effects.

Socialist Republic of Viet Nam

Ex-Post Evaluation of Technical Cooperation Project

“The Project for Capacity Development of Participatory Irrigation Management System
through Viet Nam Institute for Water Resources Research for Improvement of
Agricultural Productivity in Viet Nam”

External Evaluator: Hisae Takahashi, Octavia Japan Co., Ltd

0. Summary

This project was implemented to promote water management with farmer participation by enhancing the capacities of leading farmers and water resource engineers, thereby improving agricultural productivity at three model sites¹ in two provinces (Hai Duong Province and Quang Ninh Province) in northern Viet Nam. The objective of this project is consistent with development policy and needs, which have placed priority on increasing income in rural areas; it is also consistent with Japan’s ODA policy in Viet Nam, where 70% of the total population is involved in the agricultural sector. Therefore, the relevance of this project is high. Through the project, training on Participatory Irrigation Management (hereinafter referred to as “PIM”) was formulated and implemented. This led to the strengthening of functions for promoting PIM activities conducted by the Viet Nam Academy for Water Resources²(hereinafter referred to as “VAWR”), and increased the knowledge and experience on PIM of engineers belonging to Irrigation Management Companies/Enterprises (hereinafter referred to as “IMC/IME”), as well as leading farmers. Accordingly, irrigation water management with farmer participation has been advanced and improvement in agricultural productivity was confirmed. However, activities have not been fully monitored at model sites and northern provinces after completion of the training conducted there, though PIM activities have continued through projects funded by other donors. Thus, details regarding continued activities and their dissemination have not been confirmed. Therefore, the effectiveness and impact of this project are fair, since sufficient information on impact could not be obtained, but the expected effectiveness was basically achieved. The efficiency was judged to be high as the original and actual input of this project was appropriate for generating output and achieving the project purpose. Both the project cost and period stayed within the planned values. Regarding sustainability, while no major concerns were observed in terms of related policy, institutional aspects, and technical aspects, there was an issue on organizational aspects, i.e. a lack of coordination on sharing the information of PIM activities between VAWR and IMC/IME. In terms of financial aspects, the lack of

¹ Three model sites (Irrigation area) include Hop Tien and Gia Xuyen (Hai Duong Province), and Yen Dong (Quang Ninh Province).

² Viet Nam Institute for Water Resources Research, which was established in 1959, was reorganized to Viet Nam Academy for Water Resources in 2008.

budget for conducting monitoring activities and PIM promotion/dissemination still remains an issue. Based on these findings, the sustainability of the effect produced in this project is fair.

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

1. Project Description



Project Locations



Hop Tien Model Site (Hai Duong Province)

1.1 Background

In Viet Nam, agricultural sector is a key industry which accounts for 23% of GDP³. On the other hand, due to rapid economic growth led by industrialization, widening income disparity between farmers in the rural area and people who belong to secondary and tertiary sectors in the urban area becomes major issue to be solved in the country. Therefore, the Government of Viet Nam (hereinafter referred to as “GOV”) prioritized improving agricultural productivity by accelerating crop diversification which affects the increase of income for farmers.

It is inevitable for expanding crop diversification to secure irrigation water efficiency in accordance with character of crop. However, existing mechanism for irrigation management which had been mainly led by GOV caused the lack of awareness in irrigation management by farmers and thus caused inefficient management. In order to solve above situation, GOV decided to develop new mechanism and methodology for sustainable and effective irrigation management with participation of farmers and submitted request for technical cooperation to the Japanese government. Under such circumstances, the Japanese government decided to provide technical assistance for five years in order to increase agricultural productivity through the promotion of water

³ Source: First Ex-ante Evaluation Report (2004)

management with the participation of farmers.

1.2 Project Outline

Overall Goal		Agricultural productivity is improved in terms of both yield and cost through improved irrigation management in the area where PIM is promoted.
Project Purpose		PIM is promoted and agricultural productivity is improved in terms of both yield and cost through enhancement of the capacity of leading farmers and water resources engineers in the model sites.
Output(s)	Output 1	The function of promoting PIM is strengthened in VAWR.
	Output 2	Engineers of IMC/IME acquire knowledge, technology and experience on water management.
	Output 3	Water management by farmers' organizations in the model sites is improved and crop diversification is promoted
Total cost (Japanese Side)		512 million yen
Period of Cooperation		June, 2005 – June, 2010
Implementing Agency		Viet Nam Academy for Water Resources (VAWR), Ministry of Agriculture and Rural Development
Other Relevant Agencies / Organizations		N.A.
Supporting Agency/ Organization in Japan		Ministry of Agriculture, Forestry and Fisheries
Related Projects		<p>Technical Assistance Project: “Project for Promotion of PIM for Sustainable Small-Scale Pro Poor Infrastructure Development” (2010-2013)</p> <p>Loan Project: “Small-Scale Pro Poor Infrastructure Development Project”(I)(II)(III)(2002-2013)</p> <p>Grant Aid for Grassroots: “Yen Dong Irrigation Canal Development”(2006)</p> <p>World Bank: “Viet Nam Water Resources Assistance Project” (2004-2012)</p>

1.3 Outline of the Terminal Evaluation

Each activity was implemented as planned without any particular problems; thus, it was judged that the project purpose and each output would be achieved at a satisfactory level.

1.3.1 Achievement Status of Project Purpose at the time of the Terminal Evaluation

PIM was implemented at three sites at the time of terminal evaluation. At each site, crop diversification, increased yield, decreased operating time of pumps, and shortened

working hours were confirmed through the efficient use of irrigation water based on the water management plan. The Practical PIM Guideline was in the process of being finalized. Therefore, though the guideline still must be completed and authorized by VAWR for the rest of the project period, the prospect of achieving the project purpose was evaluated as high.

1.3.2 Achievement Status of Overall Goal at the Time of the Terminal Evaluation

Resources to promote PIM, including PIM trainers, PIM Guideline, and materials for training were developed. As seen at the Yen Dong model site in Quang Ninh Province, the achievements of the project have been applied to other irrigation districts and spread to 25 provinces in the northern area through the PIM caravan⁴. Thus, it was expected the overall goal can be achieved.

1.3.3 Recommendations at the Time of the Terminal Evaluation

The following were recommendations for the remaining period of the project and after the project completion.

Recommendation for the remaining period of the project

- Continuation of project activities to achieve the remaining outputs
- Certify and register PIM trainers, create PIM guideline and training materials, etc. as PIM resources
- Discuss and determine how to manage PIM resources for activities and how to share the responsibilities of PIM resources after project completion
- Identify the issues and considerations in PIM promotion in other provinces, and provide feedback for future activities

Recommendation after project completion

- Dissemination of PIM to in other area
- Monitoring of PIM activities of the model sites and giving advices
- Institutionalization of PIM⁵

⁴ Workshops on PIM deployed by VAWR in 10 northern provinces in 2009 and 2010. In total, 607 engineers and staff members of IMC/IME, as well as members of the District People's Committee (193 in 2009 and 414 in 2010) participated in the workshops.

⁵ For example, budgeting PIM promotion activities, building institutional capacity (assistance and training) as one of the irrigation project components.

2. Outline of the Evaluation Study

2.1 External Evaluator

Hisae Takahashi, Octavia Japan Co., Ltd.

2.2 Duration of Evaluation Study

Duration of the Study: August, 2014 - December, 2015

Duration of the Field Study: May 24 - June 7 and August 6 - August 12, 2015

2.3 Constraints during the Evaluation Study

Monitoring the situation of PIM activities including their continuation and dissemination at the model sites and northern areas where this project promoted PIM activities has not been conducted after project completion. Accordingly, sufficient information on the situation of continued activities and dissemination of PIM promotion in each northern province except the model sites was not obtained at the time of ex-post evaluation. Therefore, the impacts gained from the project were analyzed based on statistical data as well as interviews with VAWR, which did not fully cover information on all ten northern provinces⁶.

3. Results of the Evaluation (Overall Rating: B⁷)

3.1 Relevance (Rating: ③⁸)

3.1.1 Relevance to the Development Plan of Viet Nam

At the time of project planning, the core national development plans the “10-year Socio-economic Strategy 2001-2010”, the “7th Five Year Socio-economic Strategy 2001-2005”, and “Comprehensive Poverty Reduction and Growth Strategy 2002-2005” aimed for sustainable development of the agricultural sector, in which the majority of the poor are engaged. These plans also stipulated the “modernization of irrigation systems and water management through farmer participation” as a priority measure. Under this measure, the GOV improved legal systems for water usage groups, water charges, and the delegation of operation and maintenance of irrigation facilities to farmers. The GOV also advanced the development of agricultural infrastructure, as well as improved and strengthened the functions of existing irrigation facilities.

The “10-year Socio-economic Strategy 2001-2010” in effect during the project planning period was still valid at the time of project completion. The “8th Socio-economic

⁶ 10 provinces include Ninh Binh Province, Thanh Hoa Province, Nam Dinh Province, Bac Giang Province, Thai Binh Province, Hai Phong Province, Ha Noi Province, Ha Nam Province, Hung Yen Province, Hoa Binh Province.

⁷ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

⁸ ③: High, ② Fair, ① Low

Five Year Plan 2006-2010” also placed the agricultural sector as a priority area. The GOV issued a legal decree in 2007 for “encouraging farmer participation and establishing/strengthening farmer organizations and water usage groups”⁹. In 2007 and 2008, other decrees were issued for “water charge exemptions to expand investment for agriculture production and to promote an active role by farmers in the maintenance of irrigation facilities”¹⁰.

As described above, this project, which aimed to strengthen the system for the promotion of water management through farmer participation, is consistent with development policy of Viet Nam.

3.1.2 Relevance to the Development Needs of Viet Nam

As the income disparity between in rural and urban areas increased, diversifying the production of cash crops other than rice was the main strategy for increasing income for farmers. However, at the time of planning, proper water management essential for producing cash crops was not conducted in Viet Nam. The mechanism of irrigation water management, led by the GOV, faced issues in that it did not fully meet the needs of farmers. The lack of technical capacity at IMC/ IME was also a problem, as they were in charge of allocating water resources and managing major irrigation facilities. The particularly rural parts of the northern area have relatively narrow cultivation areas,¹¹ requiring lifting irrigation by pumping. Thus, the high running cost of operating the pump system was also a serious issue¹². Therefore, development needs to systematize the knowhow on farming and water distribution in a manner that satisfies the needs of farmers existed. Additionally, there are strong needs for establishing a system of disseminating this knowhow in the northern area of the country, where support for water management was the most necessary.

At the time of project completion, income disparity between rural and urban areas was still large, especially in the northern area, where cultivation land is limited and the majority of farmers focus on subsistence farming. Thus, diversifying crops and improving agricultural productivity were urgent issues. Under these circumstances, the GOV promoted PIM to ensure sufficient irrigation water and efficient water management, which are two elements necessary for diversifying crops. However, detailed action plans were not disseminated and local authorities lacked the knowledge and experience needed for introducing PIM. Moreover, improvement or maintenance using a participatory

⁹ 151/2007/ND-CP (Dated as 10th October , 2007)

¹⁰ 154/2007/ND-CP (Dated as 15th October , 2007), 115/2008/ND-CP (Dated as 14th November, 2008)

¹¹ While cultivation area for farmers in the southern area was 1.1ha/farmer, in the northern area it was 0.38ha/farmer. (Source: Summary of the Ex-ante Evaluation Report)

¹² Source: Summary of the Ex-ante Evaluation Report

approach became popular as a more efficient approach, since many of the irrigation facilities were severely dilapidated. Therefore, there was a need at the time of project completion to develop a training system for PIM and a model to introduce PIM, as well as to improve management and maintenance of irrigation systems with participatory approach.

3.1.3 Relevance to Japan's ODA Policy

At the time of planning, the Country Assistance Program to Viet Nam (2004) specified "Agriculture and rural development/regional development" as a priority area in the "improvement of life and social aspects," which was one of the priority areas for assistance. More specifically, support was raised for 1) the development and management of infrastructure for agricultural production including farm irrigation; 2) the improvement/expansion of agriculture, forestry and fisheries technology (e.g. strengthening the functions of the hub research institute); and 3) the establishment and operation of farmers' organizations. Therefore, the relevance to Japan's ODA policy can be said to have been high.

This project was highly relevant to the Vietnamese development plan and development needs both at the time of planning and completion, as well as Japan's ODA policy at the time of planning. Therefore, its relevance is high.

3.2 Effectiveness and Impact¹³ (Rating: ②)

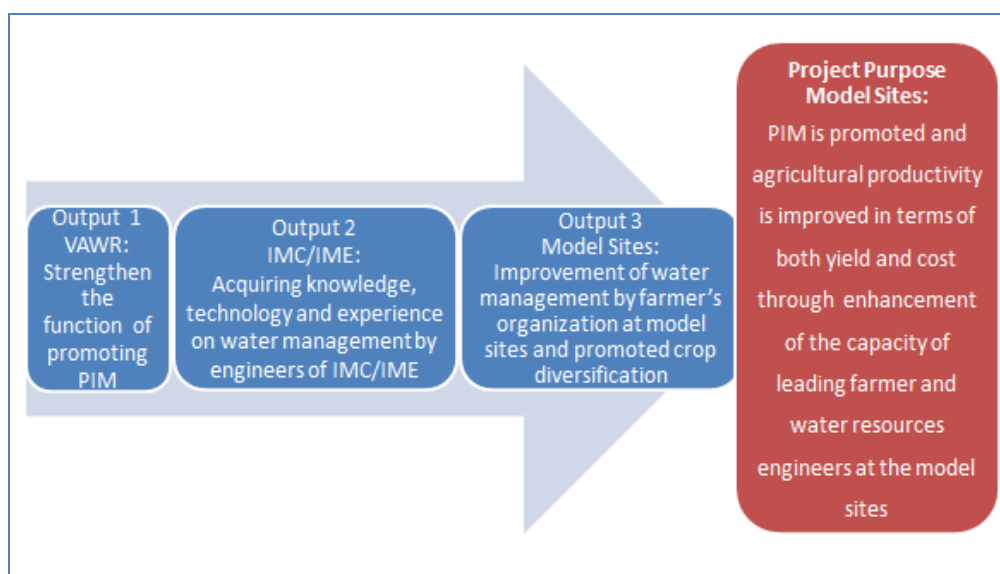
3.2.1 Effectiveness

This project conducted training for the staff of VAWR and engineers of IMC/IME as trainers, as well as On the Job Training (hereinafter referred to as "OJT") for leading farmers and the Commune People's Committee¹⁴ (hereinafter referred to as "CPC") at model sites with the aim of improving agricultural productivity through the promotion of PIM. This was comprised of three outputs: strengthening the function of promoting PIM in VAWR (Output 1); enhancing the knowledge, technology, and experience on water management for engineers of IMC/IME (Output 2); and improving water management by farmers' organizations and promoting crop diversification at model sites (Output 3). This was done through various types of activities as shown in Figure 1. Based on this project structure, effectiveness was evaluated by comprehensively examining the achievement level of the indicators for each output and project purpose at the time of project completion. Since detailed indicators to measure effectiveness were not set in the Project

¹³ Sub-rating for Effectiveness is to be put with consideration of Impact.

¹⁴ Equivalent to local government.

Design Matrix¹⁵ at the time of planning, numerous verifiable indicators were specified by the Project Coordinating Committee,¹⁶ which was convened one year after project commencement. During the mid-term review (2007), the outputs expected to be achieved as a result of each activity were re-organized and modified. However, these modifications were made to clarify each indicator and/or its wording, and would not have affected the evaluation.



Source: Prepared based on the document provided by JICA

Figure 1 Outputs and Project Purpose

3.2.1.1 Project Output

The achievement level of each output is as follows.

Table 1 Achievement Level of each Output

Output	Indicator	Actual Performance
Output 1: The function of promoting PIM is strengthened in VAWR	Indicator 1-1: Training Programs and materials for training PIM trainers in the VAWR for PIM are developed.	“PIM Trainer Training Program” for VAWR’s staff was developed and training materials consisting 55 documents were prepared and revised.
	Indicator 1-2: More than 15 PIM trainers who received training courses are certified.	39 staffs of VAWR attended the “PIM Trainer Training Program” and, 19 staffs were certified as PIM trainers.
	Indicator 1-3: More than 15 PIM trainers acquire	19 PIM trainers acquired necessary skills of PIM through OJT conducted

¹⁵ Called PDM, the Project Design Matrix is a summarized form of the project that includes basic elements such as the project plan, necessary inputs, activities, purpose, indicators, external conditions, etc., and shows their rationale.

¹⁶ A place to discuss the progress and future plan of the project, called the Joint Coordinating Committee (JCC).

	necessary skills of PIM through experiencing actual irrigation management activity in the model sites.	the model sites for at least one year.
Output 2: Engineers of IMC/IME acquire knowledge, technology and experience on water management.	Indicator 2-1 Programs and materials for training engineers of IMC/IME and other relevant agencies for PIM are developed.	For staff of IMC/IME and Department of Agriculture and Rural Development (hereinafter referred to as “DARD”), “PIM training Program for IMC/IME engineers and staffs” was developed. Relevant textbooks were also prepared.
	Indicator 2-2 More than 150 engineers and staff of IMC/IME and other relevant agencies in Hai Duong and Quang Ninh Provinces will receive training courses, acquire necessary knowledge and at least 60 % will be certified.	In Hai Duong and Quang Ninh Province, 167 engineers and staff of IMC/IME and DARD received the “PIM training Program for IMC/IME engineers and staff.” Through questionnaires given after the training, it was confirmed that trainees indicated their understanding of PIM and the maintenance of irrigation facilities at a level of 85%.
	Indicator 2-3 More than 250 engineers and staff of IMC/IME and other relevant agencies in 10 northern provinces receive training course on water management.	250 engineers and staff of IMC/IME in 10 northern provinces received the training courses on PIM.
	Indicator 2-4 More than 100 engineers and staff of IMC/IME in 26 provinces attend workshops and seminars and understand the experience and activities of the project.	In addition to Hai Duong and Quang Ninh Provinces, 607 engineers and staff of IMC/IME and the District People’s Committee ¹⁷ (hereinafter referred to as “DPC”) in 23 northern provinces attended workshops and seminars, and had a better understanding of PIM and activities of the project.
Output 3: Water management by farmers’ organizations in the model sites is improved and crop diversification is promoted.	Indicator 3-1 More than 90 of leading farmers and Agricultural Production Cooperative (hereinafter referred to as “APC”) members in the model sites receive trainings which are provided by VAWR and relevant IMC/IME.	92 (total of 184) leading farmers, staff members of APC, and irrigators participated in training courses on PIM and maintenance of irrigation facilities.
	Indicator 3-2 Irrigation management plan is developed with the participation of farmers and conducted as planned.	Regular monthly meetings were held with farmer participation at each model site. Water management plans prepared during the meeting were practiced.
	Indicator 3-3 Manuals of operation and maintenance	By project completion, manuals for operation and maintenance for

¹⁷ It is equivalent with prefectural government in Japan.

	for existing irrigation facilities are developed and conducted properly.	pumping stations and irrigation facilities were developed and applied.
	Indicator 3-4 The council among stakeholders such as IMC/IME and, local governments, APC and farmers is established and regularly held in order to discuss matters such as improvement of irrigation management and land utilization including crop diversification.	At each model site, monthly meetings were held with stakeholder participation. In meetings, issues faced by and measures to be taken for water management plans, cultivation plans, and the maintenance of irrigation facilities were discussed.

1) Output 1: The function of promoting PIM is strengthened in VAWR

Indicator 1-1: Training Programs and materials for training PIM trainers in the VAWR for PIM are developed.

Indicator 1-2: More than 15 PIM trainers who received training courses are certified.

Indicator 1-3: More than 15 PIM trainers acquire necessary skills of PIM through experiencing actual irrigation management activity in the model sites.

The “PIM Trainer Training Program,” which consisted of the four courses¹⁸, was developed after the project started. Training materials for the courses of the program were prepared, incorporating the opinion of project experts, thereby covering the basic knowledge and skills necessary for PIM trainers. During the project, 39 staff members of VAWR and DPC participated in the “PIM Trainer Training Program” and 19 were certified as PIM trainers. To be certified as trainers, they were required to experience PIM activities on-site. Therefore, all 19 trainers took part in PIM activities at model sites for at least one year. They were subsequently certified as trainers after increasing their understanding, practical experience, and knowledge on PIM based on their on-site experience. This program was officially approved as a VAWR program; thus, the basic structure for promoting PIM activities in VAWR was put in place.

As mentioned above, through the development and approval of the “PIM Trainer Training Program” and the training and certified PIM trainers, the VAWR’s functions to promote PIM were strengthened. Therefore, Output 1 is considered to have been achieved.

2) Output 2: Engineers of IMC/IME acquire knowledge, technology and experience on water management.

Indicator 2-1: Programs and materials for training engineers of IMC/IME and other

¹⁸ Four courses included 1) Basic TOT course, 2) PIM course, 3) Institution & organization course and 4) Irrigation techniques and management course.

relevant agencies for PIM are developed.

Indicator 2-2: More than 150 engineers and staff of IMC/IME and other relevant agencies in Hai Duong and Quang Ninh Provinces will receive training courses, acquire necessary knowledge and at least 60% will be certified.

Indicator 2-3: More than 250 engineers of IMC/IME and other relevant agencies in 10 northern provinces receive training course on water management.

Indicator 2-4: More than 100 engineers and staff of IMC/IME in 26 provinces attend workshops and seminars and understand the experience and activities of the Project.

At the time of project planning, a lack of knowledge and experience by local authorities in promoting the introduction of PIM was shown. Due to this situation, this project developed the “PIM Training Program for IMC/IME engineers and staff,” which consisted of two courses: 1) a PIM and water management training course; and 2) a water management and irrigation technical course. 167 engineers and staff members of IMC/IME attended the training programs in two provinces where model sites were located¹⁹. In addition to the concept of PIM, essential technical and practical training was incorporated. This included measuring flow volume, developing drainage plans, and conducting maintenance on irrigation facilities. Questionnaire surveys conducted after the training courses revealed that participants acquired necessary knowledge on PIM and the maintenance of irrigation facilities as expected (85%)²⁰. VAWR staff who were certified as PIM trainers acted as the trainers, which even furthered their understanding on PIM. This training program was also approved and signed as an official program between VAWR, JICA experts, and DARD at model sites in 2009. Later, training on PIM was conducted for engineers and staff of IMC/IME in ten targeted northern provinces. In addition to this training, VAWR initiated the “PIM Caravan” to disseminate knowledge on PIM and project activities in the northern area. With this, 607 engineers and staff of IMC/IME, and DPC in 23 northern provinces²¹ deepened their knowledge and understanding of PIM by participating in “PIM Caravan” seminars or workshops.

Based on the above, the “PIM Training Program for IMC/IME engineers and staff” was approved by relevant agencies and training was conducted at model sites and in the

¹⁹ Training courses were held 12 times from December 2007 to December 2008; 167 engineers and staff of IMC/IME participated in these courses.

²⁰ Based on documents provided by JICA and questionnaires given to the Implementing Agency.

²¹ Indicator 2-4 of Output 2 was that more than 100 engineers and staff of IMC/IME in 26 provinces of the northern area deepened their understanding of project activities through participating in seminars on PIM. As stated, the PIM Caravan was conducted in 23 provinces of the northern area. In addition to those 23 provinces, seminars and training on PIM were conducted in two project target Provinces (Hai Duong Province and Quang Ninh Province). Thus, engineers and staff in a total of 25 provinces of the northern area were covered.

northern area. This provided the knowledge, skills, and practical experience on PIM, as well as irrigation facility maintenance based on PIM to engineers of IMC/IME. An adequate number of trainees participated in the workshops conducted in the northern area, acquiring PIM knowledge and participating in project activities. Thus, Output 2 was largely achieved.

3) Output 3: Water management by farmers' organizations in the model sites is improved and crop diversification is promoted.

Indicator 3-1 : More than 90 of leading farmers and APC members in the model sites receive trainings which are provided by VAWR and relevant IMC/IME.

Indicator 3-2 : Irrigation management plan is developed with the participation of farmers and conducted as planned.

Indicator 3-3 : Manuals of operation and maintenance for existing irrigation facilities are developed and conducted properly.

Indicator 3-4 : The council among stakeholders such as IMC/IME and, local governments, APC and farmers is established and regularly held in order to discuss matters such as improvement of irrigation management and land utilization including crop diversification

In three model sites, PIM trainers and engineers of IMC/IME played the role of trainers and conducted PIM training for leading farmers, irrigators²², and APC members, with 92 (total of 184) attending the training²³.

After the training, committees were organized by communes at each model site and included farmers, irrigators, APC members, representatives of IMC/IME, and CPC members. These committees held regular monthly meetings. During the course of implementing the project, farmer participation was promoted through discussions on a series of plans and issues at meetings where all the stakeholders on irrigation management gathered. Before the project, the distribution plan of irrigation water did not reflect the stance of the farmers, with IMC/IME

Topics discussed in regular meetings

- Issues on water distribution and irrigation facilities.
- Measures for issues mentioned above.
- Problems that occurred in water distribution plans in the previous month and other difficulties.
- Formulation of water distribution plan based on the problems that occurred in the previous month.
- Maintenance plan for irrigation facilities.
- Cultivation plan for crops.

(Based on interviews with farmers at model sites.)

executing distribution plans without understanding the conditions in the field. According to APC staff, members of CPC, and farmers, these regular meetings became essential in conducting PIM. Farmers were allowed to state their opinion on water distribution plans, and they could know the schedule of water distribution plan. Moreover, these meeting made it possible to confirm whether water was actually distributed as planned. The implementation of plans prepared to reflect farmers' opinions contributed to efficient and fair water use, which thus reduced the number of complaints from farmers at downstream sites regarding lack of water²⁴. Manuals and regulations for the operation and maintenance of pumping stations and irrigation facilities were developed and utilized in some of the training for engineers of IMC/IME and PIM training conducted at model sites.

Based on the above, Output 3 was achieved, since water management with farmer participation was promoted at three model sites by the time of project completion and farmers were able to have a place to exchange information on diversifying crop cultivation.

3.2.1.2 Achievement of Project Purpose

Project Purpose: PIM is promoted and agricultural productivity is improved in terms of both yield and cost through enhancement of the capacity of leading farmers and water

²² Irrigators refer to persons who operate the irrigation gate of each irrigation area.

²³ During the project, training was conducted six times, and 92 (total 184) people participated. Training covered the farmers' basic role in PIM in addition to other PIM information.

²⁴ Based on the interviews with IMC/IME and APCs

resources engineers in the model site.

As described above, the programs conducted under the project such as the PIM Trainer Training Program and the PIM and technical training program for IMC/IME engineers and staff have contributed to strengthening the function and capacity of VAWR and IMC/IME in promoting PIM. The achievement level of indicators for the project purpose confirmed at model sites are as shown in Table 2.

Table 2: Achievement of Project Purpose

Target	Indicator	Actual Performance
Project purpose	Indicator 1: A practical guideline for PIM is developed based on experience of the Project.	Indicator 1: Achieved “Practical guideline for PIM” was drafted during the project and finalized through a series of revisions based on practical experience at model sites. The guideline was finalized and approved by VAWR in 2010.
	Indicator 2: Irrigation is conducted in accordance with irrigation management plan which was developed with participation of farmers and more than 80 % of farmers in the model sites are satisfied with irrigation services and recognize improvement of irrigation management.	Indicator 2: Achieved At three model sites, water management plan were formulated with participation from farmers, irrigators, APC members, IMC/IME staff, etc. Water distribution was then conducted in accordance with the plan. Results of a questionnaire survey conducted during the terminal evaluation showed that more than 80% of farmers were satisfied with their activities.
	Indicator 3: Acreage and yields of products in the model sites are increased. -Increase of cropping intensity and yields of paddy crops -Yield per unit of crops increases at least 5% -Cropping intensity of non-paddy increases at least 5 points. -Reduction in irrigation/production cost -Operation period of irrigation pumps reduces 5 %. -Labor day per ha reduces 5%.	Indicator 3: Generally achieved <u>Cropping intensity</u> ^{Note 1} Hop Tien : 128ha(2005)→245ha(2009) Gia Xuyen : Increased in dry season Yen Dong : Increased (Winter dry field crops) <u>Yield of rice and field crops</u> ^{Note2} Hop Tien : Increased more than 9 % compared to 2005 Gia Xuyen :Increased more than 6.7% compared to 2005 Yen Dong : Increased more than 8% compared to 2005 <u>Operation period of irrigation pumps</u> Hop Tien : Decreased about 20% Gia Xuyen : Decreased about 20% Yen Dong : Not relevant (They use gravity pumps.) <u>Labor hours</u> Hop Tien : Decreased 12% Gia Xuyen :Decreased the time for water management to one-fourth Yen Dong :Largely decreased (For irrigators, wait time for gate control was eliminated. For farmers, wait time for distributing water from early mornings was eliminated.)

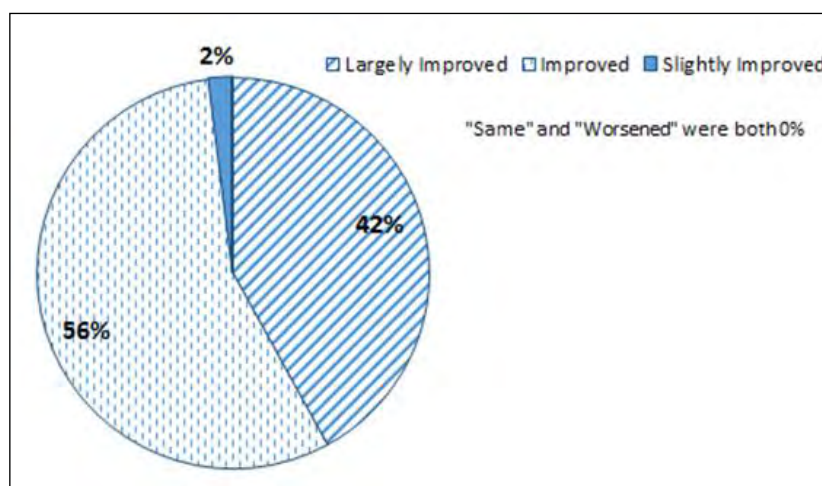
Source: Prepared based on the Terminal Evaluation Report and results of interview surveys at each model

site.

Note¹: As of the terminal evaluation, comparable data for other sites was not available.

Note²: Site-specific data was not organized at the model site in Hai Duong Province. Thus, the information for Hop Tien is as of the terminal evaluation. Yen Dong is as of project completion. For comparison, as of the terminal evaluation, Yen Dong showed a 6% increase over 2005.

As mentioned in Table 2, all indicators have been generally achieved. At the time of project completion, irrigation water management plans were formulated with the involvement of farmers through monthly meetings. By subsequently executing these plans, efficient water use has achieved at model sites. This effect, namely, the improvement of water usage by farmers, was confirmed in the beneficiary survey²⁵ conducted during the ex-post evaluation (See Figure 2 and Figure 3). 98% of the responding farmers answered that water management plans improved after project implementation. The major reason given for this was that water was used more efficiently.



Source: Beneficiary survey

Figure 2 Water Management Plan After the Project

²⁵ The beneficiary survey was conducted from May to June in 2015 via interview survey using questionnaires at three model sites in two target provinces. The number of respondents was 100 in total: 50 farmers (16 in Hop Tien, 17 in Gia Xuyen, 17 in Yen Dong) and 50 engineers or staff of IMC/IME (36 in Hai Duong Province and 14 in Quang Ninh Province). Respondents were extracted with a nonrandom selection method through APC and IMC/IME, 60% of responding farmers were male and 40% were female.



Source: Beneficiary survey

Figure 3 Reasons for Answers for Improving the Water Management Plan

In the beneficiary survey, agricultural production and cropping intensity of non-paddy fields after project completion were ascertained as a supplement to the information shown in Table 2. According to the survey results, all respondents answered that both agricultural production and non-paddy cropping intensity had increased (see Table 3 and Table 4). The reasons for this were given as efficient water use, which made water distribution to non-paddy crops possible, and discussions at regular meetings that encouraged farmers to produce fruit and vegetables²⁶. As described above, the implementation status of the water management plan of previous month (whether the water was distributed as planned), the plan for the following month, and the cultivation plan were reviewed and discussed in such meetings. The implementation of water management plans that were based on the opinions of irrigation water users enabled them to know the exact water distribution time. Accordingly, both water and time have been used efficiently and workloads have been reduced.

Table 3 Changes in Agricultural Production After the Project Implementation

Largely increased	Increased	Slightly increased	Same	Decreased	No Answer
56%	32%	12%	0%	0%	0%

Source: Beneficiary survey

²⁶ Based on interviews with farmers conducted at model sites during a site survey.

Table 4 Changes in Cropping Intensity of Non-paddy Fields After the Project Implementation

Largely increased	Increased	Slightly increased	Same	Decreased	No Answer
56%	40%	4%	0%	0%	0%

Source: Beneficiary survey

In the light of the above, the three outputs of the project are deemed to have been generally achieved. Achievement of the outputs allowed achievement of the project purpose of improving agricultural productivity through farmer participation. Therefore, the effectiveness of this project at the time of project completion is judged to be high.

3.2.2 Impact

3.2.2.1 Achievement of Overall Goal

Overall Goal : Agricultural productivity is improved in terms of both yield and cost through improved irrigation management in the area where PIM is promoted

The achievement level of the Overall Goal at the time of ex-post evaluation was confirmed as follows.

Table 5 Achievement of Overall Goal

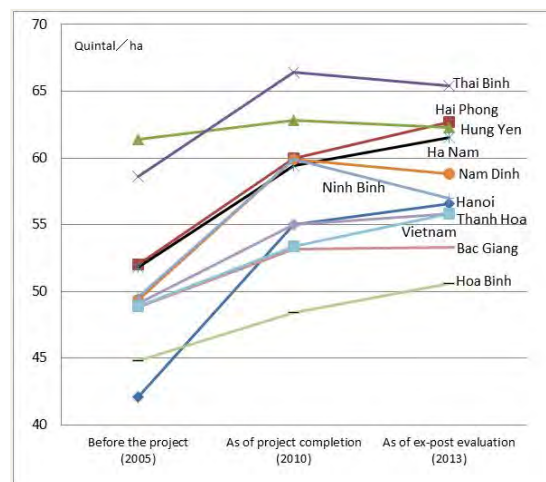
Overall Goal	Indicator	Actual
Overall Goal	10 sites which were selected as targeted distribution area among northern provinces materialize participatory irrigation management in line with the approach of the Project	<ul style="list-style-type: none"> • PIM training was implemented and promoted in 10 northern provinces by the end of the project completion. • VAWR formulated the Guideline of PIM Procedure. The guideline was approved by Ministry of Agricultural Rural Development (hereinafter referred to as “MARD”)²⁷, and will be distributed to the northern area in 2015 and then to the whole country. • Because monitoring activities have not been conducted, the situation of activities and dissemination after the project completion were not confirmed.

Source: Prepared based on the interviews with VAWR and response to the questionnaire.

For the overall goal, PIM was to be introduced and implemented not only at model sites, but also in the ten northern provinces where PIM training was implemented under this project. Through interviews with VAWR, it was confirmed that PIM was achieved in line with the approach of the project in these areas after training was conducted under the project. Data to show the effects of the project in terms of cost, such as changes in

²⁷ MARD is the ministry responsible for irrigation water management in Viet Nam.

workloads and irrigation pump operating hours could not be obtained. However, statistical data shows an increase in rice production at the time of ex-post evaluation when compared to conditions before the project was implemented (see Figure 4). Since an increase in the production of crops depends on various factors, it is not realistic for a direct causal relationship or contributions by the project to be seen. However, since rice production in the ten target provinces exceeded the national average of Viet Nam²⁸, it can be said that the improvement of water management through PIM promotion has contributed to increased agricultural productivity in terms of quantity, within a certain degree.



Source: Statistical Yearbook of Agriculture and Rural Development, MARD, (2011), (2013)
Note: “Quintal” is a unit to scale mass; 1 quintal is equivalent to 100kg.

Figure 4 Rice Production in Ten Northern Provinces and the National Average of Viet Nam

Furthermore, the Guideline of PIM Procedure²⁹ prepared by VAWR in 2013 will be distributed to all provinces in the northern area in 2015 (see details in section 3.4.3 Technical Aspects of the Implementing Agency for the Sustainability of Project Effects). Though the target areas differ, projects supported by the Asian Development Bank (ADB), French Development Agency (AFD) and World Bank (WB)³⁰ have utilized the training materials prepared by this project under their own project PIM components, and have also contributed to the promotion and dissemination of PIM³¹.

On the other hand, a budget to promote PIM activities and to conduct monitoring activities has not been allocated to VAWR, as described in section 3.4.4 Financial Aspects of the Implementing Agency for the Sustainability of Project Effects. Therefore, detailed

²⁸ The increase in rice production as of the project completion compared to 2005 was 9% for the national average and 15% in the 10 northern provinces. Figures as of the ex-post evaluation compared to 2005 were 14% for the national average and 16% in the 10 northern provinces.

²⁹ Guideline of PIM Procedure (Ver.1) (2013), Viet Nam Academy for Water Resources

³⁰ ADB/AFD: The Strengthening Water Management and Irrigation Systems Rehabilitation (2012-2016), WB: Irrigated Agriculture Improvement (2014-2020)

³¹ Based on the responses of questionnaire to VAWR

information on PIM and dissemination activities in the time between project completion and ex-post evaluation in the northern area has not been ascertained. In turn, nor has an accurate assessment on any impact which arose from the project been confirmed.

3.2.2.2 Other Impacts

(1) Impact on the Natural Environment

This project did not conduct facility construction or large scale rehabilitation. Therefore, there was no negative impact that occurred due to project implementation; this was confirmed with the implementing agency at the time of ex-post evaluation.

(2) Resettlement and Land Acquisition

Interviews conducted with the implementing agency during the ex-post evaluation confirmed there was no resettlement or land acquisition due to the implementation of this project.

(3) Other Indirect Impact

- Enhancement of Project Management Capacity of VAWR

This project was the first technical assistance project for VAWR. Many project counterparts considered the effects of this project to be capacity improvement, not only in terms of PIM technical knowledge and skills, but also for project management. Moreover, it was noted that the skills and experience in project management acquired through this project have become a base for VAWR, allowing them to successfully bid on projects supported by WB and ADB as a consultant³². This can be regarded as an indirect impact of this project³³.

- Improvement of Gender Balance

During project implementation, consistent efforts toward gender balance were made in PIM activities by encouraging the participation of women. For example, by clarifying the role of each woman participating in the regular meetings, participation by women was promoted in the process of the participatory approach. According to the members of CPC and APC at model sites, it was rare for women to attend meetings for on agriculture and irrigation. However, the beneficiary survey conducted during the ex-post evaluation revealed that 40% of respondents were women, indicating that participation by women was promoted and a gender balance was kept.

Through the project, tools such as the “PIM trainer’s training program” and the

³² Based on interviews with the VAWR director and staff members

³³ VAWR staff undertake the consultancy assignments from ADB, WB, AFD, etc. in addition to their regular work, which includes research commissioned by MARD.

“Training Program for IMC/IME” were developed. VAWR counterparts were certified as PIM trainers, and IMC/IME staff acquired knowledge and experience in PIM and irrigation facilities. This indicates function of promoting PIM with farmer participation has been strengthened. Moreover, water management with farmer participation at model sites has contributed to the improvement of agricultural productivity in terms of yield and cost. Although it was subsequently confirmed that PIM activities were continued at model sites, sufficient information has not been obtained due to the lack of continued monitoring activities in northern areas.

Since this project has, to some extent, achieved the project purpose, the effectiveness and impact of the project are fair. For the project purpose, the function for promoting PIM has been strengthened and water management through farmer participation has been introduced/performed at model sites. Achievement of the overall goal could not be fully confirmed because PIM activities were not monitored after project completion and the continuity and dissemination of activities were not appropriately assessed.

3.3 Efficiency (Rating: ③)

3.3.1 Inputs

The inputs of this project for implementing activities to generate outputs were made as planned for both the Japanese and Vietnamese sides (see Table 6).

Table 6 Inputs into the Project

Inputs	Plan	Actual ³⁴
(1) Experts	<ul style="list-style-type: none"> ● 4 Long-Term Experts (No information on MM³⁵) ● Short-Term as required (6 MM) 	<ul style="list-style-type: none"> ● Total 8 Long-Term (216 MM) ● Total 12 Short-Term (17.4 MM)
(2) Trainees received	<ul style="list-style-type: none"> ● Training in Japan ● Training in third country <p>Contents: PIM, Institutional management, operation and maintenance of facilities</p>	<ul style="list-style-type: none"> ● 51 trainees for training in Japan ● 2 trainees for training in a third country (Malaysia) <p>Contents: PIM, operation and management, sustainable agricultural development from the perspective of watershed management</p>
(3) Equipment	Equipment for making training materials, Laboratory equipment, Audio-visual equipment, Books, Vehicles,	Equipment: Equipment for training (video cameras, audio equipment), Equipment for common use (PC, projector, etc.), Equipment for

³⁴ Based on information from the Terminal Evaluation Report

³⁵ MM stands for “man-month.”

	Equipment for model site activities (meteorological and hydrological observations, survey, analysis, etc.)	laboratory at model sites, Vehicles, Facilities at model sites (Facilities improvement, Speaker system, Meteorological and hydrological equipment)
(4) Project operation cost and local cost	Approximately 50 million yen Survey conducted by local consultant, cost of training	68 million yen Other (general expenses, travel expenses, personnel expenses, miscellaneous expenses)
Japanese side Total Project Cost	600 million yen	512 million yen
Vietnamese side Operational Expenses	N.A.	34 million yen ³⁶

3.3.1.1 Elements of Inputs

The appropriateness of each input is as follows.

1) Input from Japanese side

Dispatch of experts

Eight long-term experts and 12 short-term experts in total were dispatched. The specialty areas of the dispatched long-term experts were chief advisor, irrigation and drainage, water management and organization, as well as training and coordination. The specialty areas of short-term experts focused on practical activities at model sites such as the management of water usage groups, marketing, cultivation of diversified crops, facility management of pumping stations, water management technology, compilation of teaching materials, drainage planning, water management for up-land crops, and development and management of on-farm-level facilities. According to interviews with VAWR, IMC/IME, and leading farmers, it was noted that the quality, expertise, and timing of dispatched experts were adequate for generating outputs and achieving project purposes.

Training in Japan and training in a third country

Training in Japan (country-specific training) and training in a third country (Malaysia) on PIM and etc.³⁷ were conducted. A total of 51 trainees from VAWR, MARD, IMC/IME, CPC, and APC participated. The results of interviews given to VAWR staff who participated in the training in Japan and the questionnaire given after the training

³⁶ Approximately US\$ 313,054 (exchange rate: US\$1 = 108.84 yen as the average rate between June 2005 and December 2009).

³⁷ Training was provided in PIM, basin management for sustainable development, and land reform in Japan as examples of PIM, in addition to the PIM courses.

showed that the training period, course content, and timing of implementation were appropriate. On the other hand, during interviews held with CPC and APC members during site surveys at model sites, some participants commented that the experience and knowledge obtained in Japan were more modern compared to the situation in Viet Nam, and thereby not fully utilized in the field. Thus, it can be said that it was necessary to reconfirm the meaning of the training received in Japan, and to pay more attention to the formulation of the training programs.

Provision of equipment

As shown in the Table 6, equipment for implementing training was provided to VAWR and IMC/IME, and equipment for water management at model sites was provided to APC. The variety, quantity, and quality of the equipment were appropriate; it was confirmed that they were being utilized during the field survey at the time of ex-post evaluation.

2) Input from Vietnamese side

Planned input: assignment of counterparts, office space and utilities, cost of training, operation cost, allowance for counterparts. These items were covered by the Vietnamese side as planned.

3.3.1.2 Project Cost

The actual project cost was 512 million yen, lower than planned project cost of approximately 600 million yen (85% of the original plan). Upon asking VAWR for confirmation, it was explained that this reduction was caused by emphasizing on-site training at model sites instead of classroom training, which lowered activity costs. Therefore, this reduced project cost had no particular effect for generating outputs.

3.3.1.3 Period of Cooperation

The cooperation period of this project was planned to be for 5 years from June 2005 to June 2010, and the actual period was also 5 years from June 2005 to June 2010 as planned. In order to promote the participatory approach for which this project aimed, capacity enhancement of VAWR, changes in the community's understanding, and changes in water usage behavior were needed. These changes would require a certain period of time to be implemented³⁸, therefore the project period of five years is judged as appropriate to achieve the project purpose.

As a consequence, both the project cost and project period were as planned. Therefore,

³⁸ Based on interviews with VAWR

efficiency of the project is high.

3.4 Sustainability (Rating: ②)

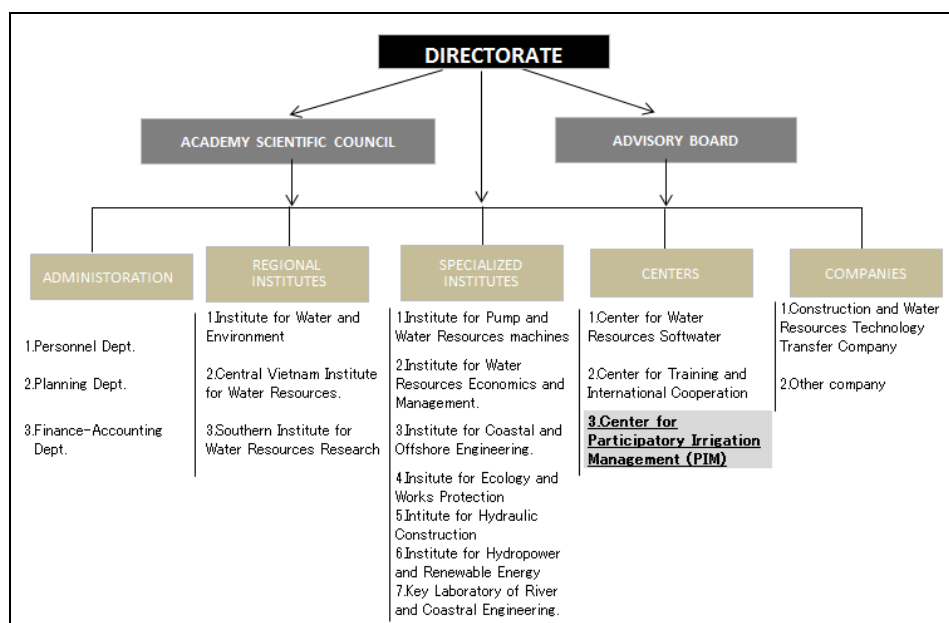
3.4.1 Related Policy and Institutional Aspects for the Sustainability of Project Effects

After project completion, policy and institutional support of the government, as well as disseminating the PIM were of critical importance in continuing the promotion of PIM and sustaining efficient water management in each area. The GOV prioritizes supporting the agricultural sector, which is a critical sector for social development. This is to be done while pursuing the development of an industrial country, as described in the national policy at the time of ex-post evaluation, namely “10-year Socio-economic Strategy 2011-2020” and “Five-Year Socio-economic Strategy 2011-2015”. Moreover, since the GOV places importance on improving social and living standards, as well as narrowing economic disparity, they have prioritized the development of agricultural infrastructure and the contribution of each entity including farmers as strategies for the support of rural and regional development. The Strategy for Water Resource Development formulated in 2009 was also still valid at the time of ex-post evaluation. It aimed for efficient irrigation water usage through the effective utilization of existing irrigation facilities, and promoted active farmer participation in the management, improvement, and protection of existing irrigation facilities. Moreover, MARD has encouraged all projects related to irrigation to include PIM activities as a component. MARD has also issued instructions to distribute the Guideline of PIM Procedure prepared by VAWR to each province, indicating that a system for supporting sustainability can be ascertained.

In this way, PIM activity ensured sustainability from policy and institutional aspects at the time of ex-post evaluation in Viet Nam.

3.4.2 Organizational Aspects of the Implementing Agency for the Sustainability of Project Effects

To sustain the project effects, a structure must be set for implementation, activity for PIM promotion must be continued, and regular meetings with farmer participation must be set up at sites. VAWR, which was counterpart institute of this project, was integrated with Southern VAWR in 2008 to become the institute covering all activities related irrigation water in the country. Within VAWR, the PIM Center is in charge of promoting PIM activities in Viet Nam. (See Figure 5).



Source: Document provided by VAWR

Figure 5 Organization Chart of VAWR

The total number of staff at VAWR is approximately 1,300 as of August 2015, with 36 assigned to the PIM Center. Almost all the counterparts from this project still work at VAWR, with staff members noting that there are no major concerns regarding the number of personnel. On the other hand, regarding coordination between VAWR and IMC/IME or model sites, the model sites have not shared or provided information, nor has VAWR monitored the sites after project completion. However, the necessary communication between VAWR and IMC/IME has been made. At the model sites, a system of having regular meetings necessary for PIM activities once in three months has been developed³⁹, and water distribution plans formulated on the basis of farmer opinions have been implemented.

As stated above, there are no serious concerns regarding organizational aspects at VAWR and model sites for the sustainability. However, future improvements are required on the system to coordinate, monitor, and further share information among stakeholders including IMC/IME and sites.

3.4.3 Technical Aspects of the Implementing Agency for the Sustainability of Project Effects

Promotion of PIM activities

By implementing this project, VAWR staff members (counterparts) acquired skills on

³⁹ Meetings were held every month during the project. However, the frequency was reduced to once in three months in accordance with cultivating seasons because the understanding of farmers had increased as of the ex-post evaluation. (Based on interviews with farmers at model sites)

PIM, experienced PIM activities at model sites, and became certified as PIM trainers. At the time of project completion, VAWR counterparts were able to independently use their experience, skills, and implementation methods on PIM flexibly according to the natural and social conditions at model sites. It was thus expected that technical capacity would be sustained through PIM promotion activities and PIM surveys conducted by these VAWR staff members⁴⁰. After project completion, the subsequent technical assistance project related to loan project entitled “Project for Promotion of PIM for Sustainable Small-Scale Pro Poor Infrastructure Development (hereinafter referred to as “P-PIM”) 2010-2013”⁴¹ was implemented. Counterparts from this project were also assigned to the P-PIM project, which made it possible for them to improve their knowledge and experience on PIM promotion. Thus, it can be said that VAWR resources on PIM and their capacity for implementing PIM training have improved to a certain degree and have been sustained. Furthermore, VAWR staff members have succeeded tendering the component of PIM activities of projects supported by ADB and AFD as consultants at the time of ex-post evaluation. This indicates through their performance that they have kept their technical capacity for sustaining project effects. In the interviews conducted during the site survey, no major concerns was found among IMC/IME engineers and staff, since their knowledge on maintenance of irrigation facilities, as well as their experience and knowledge on PIM activities has been utilized for actual water management.

Usage and maintenance conditions of provided equipment

Equipment for training provided to VAWR and IMC/IME, and equipment such as speaker systems⁴² procured for model sites have been properly utilized in line with the purpose. Since this procured equipment does not need high-level maintenance, there are no major issues in terms of technical aspects.

Utilization of manual and guidelines

The usage of manuals of operation and maintenance for irrigation facilities at IMC/IME sites were not confirmed with the exception of one IMC at a model site. During the site survey, it was explained that manuals were mainly prepared for engineers of IMC/IME. However, these manuals are quite thick, containing technical material with mathematical formulas. Thus, measures are needed to add simple explanations for

⁴⁰ Source: Terminal evaluation report and interviews to staff of VAWR.

⁴¹ P-PIM was implemented with the aim of strengthening the system for spreading PIM in MARD, VAWR, local authorities, and Nghe An and Hoa Binh provinces. More specifically, PIM training was implemented at pilot sites, guidelines were improved, manuals and training programs were developed, and a strategy for more common use of PIM at VAWR was formulated.

⁴² Speaker systems were procured at each model site as tools for announcing water management plans and PIM activities to farmers.

practical on-site application and to make the manuals more user- friendly.

After P-PIM was completed, VAWR compiled the outputs and lessons learned from this project and P-PIM, and formulated the Guideline of PIM Procedure, which explains the PIM activity procedures in a more comprehensive manner. MARD has already issued the letter to each province to promote the use of this guideline. VAWR is planning distribution of the guideline to all provinces in the northern area in 2015 and then later to other provinces across the country.



Speaker System

(Photo: left) In Hop Tien



(Photo: center) In Gia Xuyen

(Photo: right) Guideline of PIM Procedure



3.4.4 Financial Aspects of the Implementing Agency for the Sustainability of Project Effects

As stated above, continued activities for PIM promotion and securing budget for monitoring these activities are necessary to sustain the project effects. However, according to the staff of VAWR, they do not have the budget for promoting PIM activities after the project. Therefore, PIM activities up to the time of the ex-post evaluation were continued as a part of project activities assigned to VAWR in their role as consultant for projects by other donors. These activities are listed in Table 7.

Table 7 Projects on PIM Promotion Commissioned to VAWR

Project	Budget VND Million	Financial source	Duration	Target province
Institutional support to improve irrigation efficiency	8,000	AFD	2013 – 2014	Bac Ninh province
Proposed model of socialization management and development on farm canal systems in terms of exemptions from irrigation fee	2,400	MARD	2010 – 2013	Thai Binh and Long An province
Scientific research based on proposed	1,600	MARD	2013 –	Mekong

measures to promote and strengthen Public-Private-Partnership in investment, management and exploitation of irrigation system			2015	river Delta
Consulting on training and establishment of Water User's Associations	70	Canada	2014—2015	Ha Tinh province
On-farm and social support development program for irrigation system	13,700	ADB/ AFD	2015—2016	Tay Ninh province

Note: None of the projects have been implemented directly for PIM activities, but contained PIM promotion activities as one of the project components.

Source: Documents provided by VAWR

Furthermore, VAWR has not secured a budget for monitoring. This creates a situation in which it is difficult to collect sufficient information to assess how PIM activities have been continued and disseminated at model sites and the northern areas. It is essential for MARD and VAWR, as the institution responsible for promoting PIM activities in Viet Nam, to further understand the importance of monitoring activities and the continuation of use of PIM in each area. Therefore, VAWR should work not only to promote PIM activities as their consulting tasks, but should also propose on MARD to secure a budget to implement activities and monitor those activities.

At model sites, water fees are collected from farmers by APC, and then from APC to IMC/IME. The collected fees are used to pay the salaries of IMC/IME staff and also as a part of maintenance costs. In interviews with APC and IMC/IME, it was noted that water fee collection is not bad overall since farmers are aware of the importance of water. The GOV introduced a system to provide subsidies for water fees on maintenance of main canal facilities, which caused some farmers to misunderstand and assume they do not need to pay water fees on irrigation canals including farm canals. However, it will be explained by local authorities to make farmers understand that water fees for irrigation water must be covered by farmers⁴³.

In light of the above, some minor problems have been observed in terms of organizational and financial aspect of the implementing agency. Therefore, sustainability of the project effect is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project was implemented to promote water management with farmer participation by enhancing the capacities of leading farmers and water resource engineers,

⁴³ Source: Interviews to VAWR and MARD

thereby improving agricultural productivity at three model sites in two provinces (Hai Duong Province and Quang Ninh Province) in northern Viet Nam. The objective of this project is consistent with development policy and needs, which has placed priority on increasing income in rural areas; it is also consistent with Japan's ODA policy in Viet Nam, where 70% of the total population is involved in the agricultural sector. Therefore, the relevance of this project is high. Through the project, training on PIM was formulated and implemented. This led to the strengthening of functions for promoting PIM activities conducted by the VAWR, and increased the knowledge and experience on PIM for engineers belonging to IMC/IME, as well as leading farmers. Accordingly, irrigation water management with farmer participation has been advanced and improvement in agricultural productivity was confirmed. However, activities have not been fully monitored at model sites and northern provinces after completion of the training conducted there, though PIM activities have continued through projects funded by other donors. Thus, details regarding continued activities and their dissemination have not been confirmed. Therefore, the effectiveness and impact of this project are fair, since sufficient information on impact could not be obtained, but the expected effectiveness was basically achieved. The efficiency was judged to be high as the original and actual input of this project was appropriate for generating output and achieving the project purpose. Both the project cost and period stayed within the planned values. Regarding sustainability, while no major concerns were observed in terms of related policy, institutional aspects, and technical aspects, there was an issue on organizational aspects, i.e. a lack of coordination on sharing the information of PIM activities between VAWR and IMC/IME. In terms of financial aspects, the lack of budget for conducting monitoring activities and PIM promotion/dissemination still remains an issue. Based on these findings, the sustainability of the effect produced in this project is fair.

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

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

- The implementing and dissemination status of PIM activities at model sites and northern areas where PIM training was conducted have not been monitored from the time of project completion to the ex-post evaluation. Conducting monitoring activity is necessary to confirm sustainability and to learn the good and bad practices at the sites. Even if it is not possible to actually visit the site due to insufficient budget, it is possible to collect information and confirm the situation through telephone calls and E-mail. Therefore, it is recommended that VAWR start monitoring activities and the necessary follow-up procedures immediately.

- After the project completion, VAWR has conducted promoting PIM activities as a part of consulting works for the project funded by other donors while they have not have their own budget for promoting, disseminating and monitoring PIM activities. As a responsible institute for promoting PIM, VAWR is suggested to share the importance of those activities with MARD and work on MARD to ensure the budget for conducting VAWR's PIM promotion and monitoring activities. Furthermore, MARD is recommended to support the activities of VAWR through instructing IMC/IME and DARD regarding the delivering of PIM in irrigation projects, active usage of "Guideline of PIM procedure" and promotion of monitoring activities in addition to allocate the budget.

- When visiting model sites during ex-post evaluation, it was not ascertained if the manuals for operating and maintenance for irrigation facilities (pumping station and irrigation canal) were being fully utilized. Even though water management plans are formulated with farmer participation and water management is implemented in line with these plans, inadequate use of irrigation facilities hinders the efficient usage of irrigation water. Therefore, VAWR must promote further utilization of the manual by re-explaining the purpose of continued use of such manuals to IMC/IME and stakeholders. In addition, manuals examined at IMC/IME seem to contain sections that may be difficult for farmers on-site and at pumping station to understand. Thus, it is also necessary to re-examine the content of manual to determine if it is appropriate for use on-site. The possibility of re-formulating the manuals into a format that is easier for users must also be considered.

4.2.2 Recommendations to JICA

None

4.3 Lessons Learned

- Significance and objectives of training in Japan that allows participants to use acquired knowledge and experience in the field in their home country

For this project, 50 members participated in training on PIM and sustainable agricultural development in Japan. Trainees were highly satisfied with participating in this training in Japan and gaining experience in understanding Japanese irrigation. However, some participants noted they do not know how they can apply the knowledge and skills acquired in Japan to actual farming in Viet Nam, or that they needed opportunities to communicate with Japanese farmers. For this type of training in Japan, meeting all of participants' needs is difficult due to constraints on Japanese resources. However, the person who plans the training must share the purpose of the training with the implementing agency and the participants (candidates). This person must also carefully examine and confirm whether the training program meets the need of

participants, if the country or area where training is held is appropriate, and must plan and implement training that can be useful in the field after participants return to their country.