

Ex-Post Evaluation of Japanese ODA Loan
“Small-Scale Pro Poor Infrastructure Development Project”

External Evaluator: Masahiro Oseko, Nevka Co., Ltd.

0. Summary

This project has been implemented in 4 sectors, namely roads, electricity, water supply and irrigation, aimed at reducing rural poverty through the improvement of the local economy and the standard of living by constructing 141 small scale infrastructures in 106 districts in 28 provinces in Vietnam. Relevance of the project was high since the project plan was consistent with the Vietnamese national development policies, local development needs and Japanese aid policies. While some issues were still expected to be addressed in the water supply sector, Effectiveness and Impact were evaluated high due to the achievement of poverty reduction through the improvement of access to social services and the strengthening of livelihoods in rural areas. Efficiency of the project was judged as fair because of the schedule overruns in the road sector and water supply sector. Regarding the maintenance and operation of facilities constructed by the project, there were some concerns in the financial aspect of the operation and maintenance management conditions in the road sector, and the technical aspect and financial aspect in water supply sector. Therefore, sustainability of the project was judged as fair.

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

1. Project Description



Project Locations (28 provinces out of 63 provinces /municipalities)



A bridge constructed by the project in Phu Tho province
(Small boat was the only means of transportation before the project.)

1.1 Background

Vietnam has an area of 329,241km² which is about 90% of the area of Japan and a population of 87

million¹. The country has accelerated efforts toward a market economy and realised remarkable economic growth since introduction of the “Doi Moi” policy in 1986. Meanwhile, the economic disparity between urban and rural areas has widened. While the poverty rate² in urban areas has greatly decreased from 25% in 1993 to only 9% in 1998, in rural areas, where about 80% of the entire population lives, remains at 45%, decreased from 66%. Since the majority of poor families are in remote and/or mountainous areas, it has been necessary to increase and stabilize their income through agricultural development and to improve infrastructures for better living conditions. With these conditions in mind, JICA aimed at the improvement of road, electricity, water supply and irrigation infrastructure through the Rehabilitation Loan Program first phase (1997) and second phase (1995), the Rural Infrastructure Development and Living Standard Improvement Project first phase (1996), second phase (1997) and third phase (1999). Collectively these projects comprise the first phase of Small Scale Pro-Poor Infrastructure Development Project with the same objectives of infrastructure development in rural poor areas. The succeeding projects of the second phase (2006) and the third phase (2009) are currently in operation.

1.2 Project Outline

The objective of this project is to improve the socio-economic living conditions of local people through the construction and rehabilitation of small scale pro-poor infrastructure (road, electricity, water supply and irrigation) in rural areas selected based on the criteria of poverty rate and Human Development Index (HDI), thereby contributing to poverty alleviation in Vietnam.

Loan Approved Amount / Disbursed Amount	10,562 million yen / 9,934 million yen
Exchange of Notes Date / Loan Agreement Signing Date	March, 2003 / March, 2003
Terms and Conditions	Interest Rate: 1.8% (road, electricity, irrigation) Interest Rate: 0.75% (water supply) Repayment Period: 30 years (road, electricity, irrigation) Repayment Period: 40 years (water supply) (Grace Period: 10 years) Conditions for Procurement: General untied
Borrower / Executing Agency	Government of Viet Nam / Ministry of Planning and Investment (MPI)
Final Disbursement Date	July, 2009

¹ As of December 2010, Population at the time of project appraisal (2003) was 80 million. (Source: General Statistics Office of Vietnam (<http://www.gso.gov.vn>))

² Poverty rate in Vietnam discussed in this report is the one defined by the General Statistics Office of Vietnam and the World Bank. Poverty line is defined by the VND amount necessary for purchasing food of 2,100 kcal per capita per day (dietary poverty line) plus living cost which is 2/3 of dietary poverty line. Poverty line applied for the period of 2006-2010 provided VND 260,000 in urban area and VND 200,000 in rural area per capita per month. (Source: General Statistics Office of Vietnam (<http://www.gso.gov.vn>))

Main Contractor (Over 1 billion yen)	N/A
Main Consultant (Over 100 million yen)	Pacific Consultants International (Japan) / Asia Pacific Engineering Consultants (Vietnam) / Ernst & Young Vietnam (Vietnam)
Feasibility Studies, etc.	“Special Assistance for Project Formation (SAPROF)” March - August, 2002
Related Projects (if any)	“Rehabilitation Loan Program (I), (II)” “Rural Infrastructure Development and Living Standard Improvement Project (I), (II), (III)” “Small Scale Pro-Poor Infrastructure Development Project (II), (III)”

2. Outline of the Evaluation Study

2.1 External Evaluator

Masahiro Oseko, Nevka Co., Ltd.

2.2 Duration of Evaluation Study

Duration of the Study: September, 2011 - September, 2012

Duration of the Field Study: March 25 - April 8, June 3 - June 10, 2012

2.3 Constraints during the Evaluation Study

- 1) Coverage of the project was the entire area of Vietnam, and after selecting poor areas specifically based on the criteria, sub-projects have been implemented in 106 districts³ in 28 provinces out of the total of 58 provinces and 5 municipalities. Since it was practically impossible to conduct site surveys for all of the sub-projects due to the constraints of time and resources, the evaluation team has carried out field surveys in 5 provinces, namely Thai Nguyen, Phu Tho, Thanh Hoa, Nghe An and Ha Tinh, and a beneficiary survey in 1 province, Phu Tho. Questionnaires have been conducted by MPI on the central government level, by the DPIs⁴ of 28 provinces on the provincial level, and by all of the operation and maintenance organizations on the sub-project level.
- 2) Operation and effect indicators were not established and no quantitative data have been collected for measuring the development effects realized by the project. Therefore, the evaluator has tentatively selected operation and effect indicators after discussion with the MPI and has collected data for them through the questionnaires on all DPIs and operation and maintenance organizations in 28 provinces.

3. Results of the Evaluation (Overall Rating: B⁵)

3.1 Relevance (Rating: ③⁶)

³ Vietnamese local administration is structured with the levels of Province, District and Commune.

⁴ DPI: Department of Planning and Investment

⁵ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

3.1.1 Relevance with the Development Plan of Vietnam

The Vietnamese national development plans at the time of the project appraisal, Socio-Economic Development Strategies 2001-2010 and Five-year Socio-Economic Development Plan 2001-2005, have set out the rectification of regional disparities and poverty alleviation as their basic policies, and have laid out specific goals on high priority issues such as poverty reduction, employment creation, clean water supply, etc. Current national development ten-year strategies (2011-2020) and five-year plans (2011-2015) place economic globalization, international competitiveness and large-scale infrastructure development in front with the background of rapid economic growth and joining the group of middle income developing nations. Because of this, the emphasis on poverty reduction has been toned-down compared with former strategies and plans. Instead, the poverty alleviation, reduction of economic gaps and rural infrastructure development are treated as the basis of socio-cultural development which supports the national economic growth. Meanwhile, “Program 135,” promoting infrastructure development for poverty reduction and living standard improvement in remote and mountainous areas has accomplished its first (1998-2005) and second (2006-2010) phases, and the third phase (2011-2015) is currently in progress. As such, from the time of the appraisal to the ex-post evaluation of the project, the Government of Vietnam has consistently placed high priority on infrastructure development in rural areas for the sake of poverty alleviation. Therefore, the purpose of the project, aiming at the reduction of rural poverty through the improvement of small-scale infrastructure, is in line with the direction of the national development policy of Vietnam.

3.1.2 Relevance with the Development Needs of Vietnam

The poverty rate in Vietnam at the time of project appraisal was as stated above in “1.1 Background.” The major cause of rural poverty was the restricted production activities due to the limited access to social resources such as education, information, technology, medical care, etc., which resulted from the mountainous and remote geographical factors. Therefore, it was indispensable to develop basic infrastructure in accordance with local realities. Thus, the urgent necessity of the project was high. The poverty rate at the time of the ex-post evaluation⁷ is 14% on the national average, 7% in urban and 17% in rural areas. According to the “Programme Document of Program 135 (2010)”, the ratios of income of the richest 20% to the poorest 20% is 5 times and 11 times in Northern Mountainous provinces and Central Highlands provinces, respectively. In 2000, at the time of the project appraisal, these ratios were 7 times and 13 times respectively. While the situation has been improved, the economic gap is still big. Limited access to social resources due to insufficient infrastructure remains the major cause of rural poverty, and therefore the development needs of infrastructure in the four sectors targeted by the project are still high at the time of the ex-post evaluation.

Selection of districts was done by the criteria of HDI (Human Development Index) and poverty rate,

⁶ ③: High, ②: Fair, ①: Low

⁷ As of December 2010. (Source: General Statistics Office of Vietnam (<http://www.gso.gov.vn>))

firstly selecting poor provinces and secondly selecting poor districts out of those provinces⁸. According to the project appraisal document (2003), most of the districts selected were located in mountainous or highland areas, and agricultural activities were restricted due to geographical reasons and were vulnerable to natural calamity. Thus the needs for basic infrastructure development were particularly high in all of those areas.

3.1.3 Relevance with Japan's ODA Policy

"Medium-Term Strategy for Overseas Economic Cooperation Operations (2002-2005)" by the Ministry of Foreign Affairs of Japan at the time of project appraisal placed priority, for Vietnam in particular, on the rectification of regional disparities and the improvement of living conditions in rural areas through the development of basic infrastructure, supporting the poverty alleviation policy of the Government of Vietnam. The project, therefore, was aligned with the Japan's ODA policy.

As described above, this project has been highly relevant with the country's development plan, development needs, as well as Japan's ODA policy; therefore its relevance is high.

3.2 Effectiveness⁹ (Rating: ③)

3.2.1 Quantitative Effects

3.2.1.1 Operation and Effect Indicators

A total of 141 sub-projects have been implemented in four sectors across 106 districts in 28 provinces out of 63 provinces and municipalities in Vietnam. 59 roads and bridges have been built in the road sector, 31 distribution lines and transformers have been installed in the electric sector, 24 water treatment plants and supply pipes have been constructed in the water supply sector, and 27 irrigation canals, dams and sluice gates have been built in the irrigation sector. The evaluation team has collected operational data and effectiveness indicators through the literature survey on JICA's internal document (2011¹⁰), reports prepared by the consultants of this project, interviews at sites, and questionnaires to the provincial governments in charge (DPI: Department of Planning and Investment). Only a few data were available, which enable the comparison of situations before-the-project and after-the-project, because the pre-project information were rarely answered in Questionnaires to DPIs.

(1) Roads

Among the 59 road sub-projects, before the project (2002) and after the project (2010), data on traffic volume was obtained from 17 sub-projects. Regarding the annual average daily traffic

⁸ Selection criteria for province were (1) HDI was middle or low level, (2) under the coverage of Program 135, (3) poverty rate was over 20% and (4) no similar projects were implemented by the World Bank and/or ADB. Selection criteria for District were (1) poverty rate was over 20% or (2) poverty rate was in the range of 10% to 20% and under the coverage of Program 135.

⁹ Sub-rating for Effectiveness is to be put with consideration of Impact.

¹⁰ 2010 survey report on the current status of all sub-projects implemented under the Small-Scale Pro Poor Infrastructure Development Project (Phase I (this project) and Phase II) and the Regional Development & Living Environment Improvement Project (Phase I to III).

volume¹¹, all 17 cases showed an increase in traffic volume with 8 sub-projects experiencing double the volume, 4 sub-projects with 3 times the volume, and others, ranging from 10 to 60 times the previous volume. Among 25 sub-projects from which data on travel times to key facilities was obtained, there were 11 cases of shortened travel times to medical facilities, 9 cases to markets and 8 cases to schools. Each of these sub-projects resulted in a shortening of about 30 to 90 minutes in travel time.

(2) Electricity

Among 31 electric sub-projects, before the project (2001) and after the project (2010), data on household electrification ratio was obtained from 20 of them. The average electrification ratio of these 20 sub-projects was 75% in 2002 and 92% in 2010. Comparing the values in 2002 and 2010, the electrification rate dropped in 3 out of 20 cases while 7 cases remained unchanged, 6 cases increased by between 1 and 2 times and 4 cases increased by more than double. The reason for the drop in the ratio was due to the increase in the number of households where the electricity was supplied. In many rural communities, electricity distribution lines come to central part of villages without covering periphery of them. When new entrant households settle in those peripheral areas, the number of non-electrified household increases accordingly and the electrification rate of the community drops. For those where electrification rate remained unchanged, they were mainly in areas where the electrification rate had already reached to 100% in 2002 and the project existing old facilities have been done by the project. Although there has been no change in the household electrification rate in these areas, the electrical supply now has become more stable due to the rehabilitation.

(3) Water Supply

Among 24 water supply sub-projects, the data from before the project (2002) were obtained for 3 of them and the data of after the project (2010) were obtained for 17 of them. For the former 3 sub-projects, the water supply rate¹² before and after the projects were also available, which increased by 1.3 times, 1.8 times and 2.1 times, respectively. The operation and effectiveness indicators of the latter 17 sub-projects are shown in Table 1.

Table 1 Operation and Effect Indicators of Water Supply

	Minimum	Maximum	Average	Total
Facility utilization rate ¹³ (%)	8%	113%	41%	—
Water supply rate (%)	17%	95%	51%	—
Water supplied population	601	21,429	5,668	96,400
Daily water supply per person (ℓ)	57 ℓ	962 ℓ	206 ℓ	—

Source: Questionnaire on the DPIs, JICA's internal document (2011)

³ Annual average daily traffic volume is calculated based on passenger car units (PCU)

¹² Water Supply Ratio (%) = Actual number of people supplied with water / Supply target population x 100

¹³ Facility utilization rate (%) = average daily water supply (m³/day) / water supply capacity (m³/day) x 100

Among the other 17 sub-projects, 8 facilities had a facility utilization rate of less than 30% and 6 facilities had a water supply rate of less than 30%. The main reason behind the low facility utilization rate and water supply rate was that target areas of the project were located in poor regions where households found it a heavy financial burden to pay for water connection and usage fees¹⁴. According to the on-site surveys and interviews with beneficiaries, in regions where there were alternative water sources such as wells, rivers and collected rainfall, there was little motivation in paying for tap water. Although it is supposed to be necessary to conduct a residents' water needs survey and a survey of availability and quality of alternative water sources in the feasibility studies, such studies were not carried out. While in some provinces, the water connection costs were included in the project cost and exempted the residents from paying them, most provinces did not make such an arrangement, and it has resulted in low facility utilization and water supply rates.

(4) Irrigation

The impact of the 27 irrigation sub projects, according to JICA's internal document, is shown in Table 2. It was reported that the number of beneficiary farmers of the project was 269,000 and the increase of the agricultural production was 68,500 tons per year.

Table 2 Operation and Effect Indicators of Irrigation

Year	2003	2008	Increase
Irrigated area (ha)	12,806 ha	17,394 ha	4,588 ha
Planted area (ha/year)	18,348 ha/year	26,908 ha/year	8,560 ha/year
Yield of rice (ton/ha)	3.57 ton/ha	4.98 ton/ha	1.41 ton/ha

Source: JICA's internal document (2008)

Regarding the 7 cases where data have been obtained from the questionnaires to DPI before the project (2002) and after the project (2010), the irrigated area has increased by 1.6 times on average while the irrigation ratio¹⁵ has increased by 1.7 times on average.

3.2.2 Qualitative Effects

To measure the qualitative effects resulting from the project, the evaluation team conducted a beneficiary survey of 152 farmers living in the vicinity of and using these facilities in Phu Tho province. Direct interviews using questionnaires were carried out in geographically and temporally feasible areas. The verified qualitative effects of the project by sector are as follows:

(1) Road

The beneficiary survey for the road sector covered 37 users of the No.312 provincial road in the mountain range in Tam Nong District. 84% of the users replied that their travel time to their work places, such as agricultural fields, has been shortened. Their travel time was shortened by 40 minutes

¹⁴ Water connection fees (cost for connection piping and water meters) are in principle borne by the users in Vietnam.

¹⁵ Irrigation Ratio = Irrigated Area / Gross Planted Area

on average, ranging from 20 minutes to 120 minutes. All respondents also indicated that their travel time to markets, schools and hospitals has been shortened by 30 to 150 minutes and 50 minutes on average.

(2) Electricity

The beneficiary survey for the electricity sector covered 38 electricity users of the 18.6km long distribution line sub-project in Cam Khe District. This was a new construction and this area did not have any electricity before the project. About the frequency of power outages, the majority of replies indicated they occurred 1-2 times a month followed by those who said 1-2 times a week, with a proportion of 50% and 11% respectively. The average duration for each power outage was 1-2 hours. In terms of supply voltage, 29% replied that it was unstable, which can be interpreted as that about one-third of the users expressed dissatisfaction with the voltage stability¹⁶. According to Electricity of Vietnam (EVN), which is the agency in charge of the operation and maintenance of facilities, the main reason for the voltage fluctuation is due to the aging power generation stations and not caused by the distribution lines and transformers that are within the scope of this project¹⁷.

(3) Water Supply

For the water supply sector, the survey covered 40 households in the area where the service was provided by the newly constructed water treatment plant in Cam Khe District. 23 households (58%) among these 40 households have not received water supply service due to the difficulty in paying for the connection piping cost. These households without water supply rely mainly on well and rain water for their daily living needs. All of 17 households who receive water supply services replied that water is available throughout the year. Water outage happens 1 to 2 times a week for about half a day each time due to the water supply pump shutting off because of power outages. Regarding the water quality, 9 out of the 17 households replied that the water has a chlorine odour.

(4) Irrigation

For the irrigation sector, the beneficiary survey was conducted covering 37 farmers' households using the irrigation facilities in the Tam Nong District. While only 4 households or 12% of the households have expanded their cultivated area, all of the 37 households replied that the water volume has increased in both the dry and wet seasons. The main crop grown in the surveyed area is rice. Because of the increase in water



Irrigation canal constructed by the project and grown rice

¹⁶ Fluctuation of luminosity of electric light and unstable power of electric water pump were reported in the beneficiary survey.

¹⁷ According to EVN, as a counter measure against voltage fluctuation, EVN selects appropriate diameters of distribution lines for new facilities and replaces old distribution lines and transformers for existing facilities.

volume, all households have increased their number of rice harvests. 29 households (78%) reported that the number of harvests has increased from one to two times a year, while 3 households reported increasing their harvest from 1 to 3 times a year, and another 3 households from 2 to 3 times a year each. Yield has also increased for all households with the increase ranging from 20% to 100% and averaging of 55%. All households also replied that the quality of their crops have improved as a result of the increase in water volume. Many farming households have also diversified their crops with 59% of them having introduced new crops such as maize, cassava, peanuts etc. and 51% having introduced high-yield rice varieties.

3.3 Impact

3.3.1 Intended Impacts

In order to assess the cross-sectorial impact of the project on poverty reduction, the evaluation team has collected micro-data at the district level such as poverty rate and gross regional domestic products (GRDP). However, due to the low reliability of the data, coupled with the difficulty of verification of correlation of the micro-data with the small-scale infrastructure construction and rehabilitation undertaken by the project, the team has decided to assess the impact of the project sector-wise using beneficiary surveys and literature surveys.

(1) Road

The beneficiary survey has found that 65% of road users replied that crop selling opportunities at the market have increased and 81% replied having increased employment opportunities in the non-agricultural sector due to the shortened travel time and expanded mobility range resulting from the road improvements. In addition, various cost-saving effects were also reported, for example, savings of transport expenses such as bus fares (84%), lower maintenance costs for motor bikes and bicycles due to the improved road conditions (51%), lower fuel expenses due to shortened travel time (46%). Other positive impacts are such as the rising of land prices (95%), opening of new shops along roads (59%), population increase (46%), and increase in store customers (27%).

As negative impacts, noise and dust (3% each) due to passing vehicles were pointed out. While some documents¹⁸ have reported an increase in traffic accidents due to the increase in traffic volume, it could not be verified through the beneficiary surveys and interviews in this ex-post evaluation. On the contrary, many voices pointed that road accidents have decreased because of the improvement of road conditions. According to MPI, under the provincial and district budgets, counter measures have been taken against traffic accidents constructing traffic signs, traffic lights, guardrails, concrete guard posts etc., however the number and the effects of these have remained limited due to the insufficient funds.

As stated above, a variety of positive impacts have been verified, such as regional development resulting from the population inflow, cost reduction due to shortened travel time, and increased

¹⁸ JICA internal documents (2008) (20011) etc.

economic activities from the expansion of people's mobility. The increase of traffic accidents has been reported in some reports as a negative impact; mitigating measures have been taken by the local governments to the extent possible.

(2) Electricity

According to the beneficiary survey towards 38 households in Cam Khe District, 84% of households surveyed have purchased new electrical appliances such as electric lights, fans and TVs after getting stable electricity by the project. As shown in Figure 1, a wide variety of household electrical appliances are used at home.

Based on the survey, using these electrical appliances, positive impacts such as shortened time for farming and household works (53%), improvement in working efficiency (39%), increase of access to technical information on farming (37%) etc. have been reported. Furthermore, a majority of the respondents (61%) also cited increase in household income as a result of these positive impacts. The survey has also found other positive impacts such as better sleep at night using electronic fans (100%), access to health and nutrition information through the radio and TV (26%) and improved learning environment for children using electric lighting (89%).

Additionally, the on-site survey also found that some small-scale businesses relying on electric power have been started such as machine repair shops, photocopy services and sewing.

Improvements of living conditions such as health improvement, promotion of agricultural and commercial productivities resulting from the availability of electric power have thus been verified as stated above. No negative impacts have been identified through literature survey¹⁹, questionnaires and site surveys.

(3) Water Supply

According to the beneficiary survey, the availability of tap water has freed the local people from

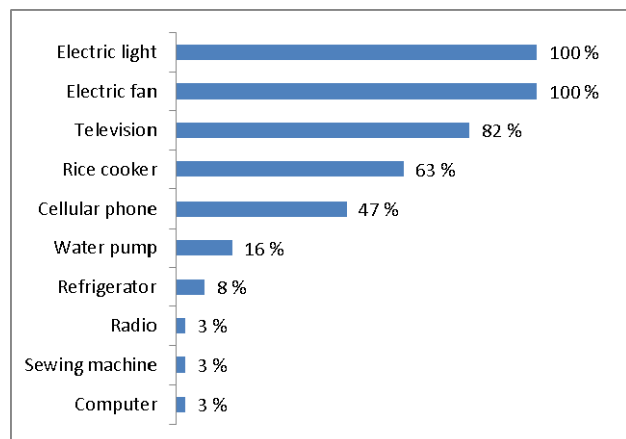


Figure 1: Electric appliances used in a village (multiple answers)



Distribution lines and transformer installed by the project

¹⁹ Project Completion Report by MPI and JICA's internal documents (2006, 2008, and 2011).

the labour of water drawing from wells and rivers, resulting in the shortening of time for housekeeping chores by 30 minutes to an hour (88%). In families which relied on water pumps to draw water, fuel cost savings have been realized (12%). In addition, reductions in waterborne diseases such as diarrhoea and other skin and eye diseases have also been reported (24%). The site survey also found that some farmers' household income has increased from starting crop processing businesses such as producing cassava powder. While there were a number of respondents voicing discontent over the chlorine smell of supplied water (53%), users of the water services including those who complained were largely satisfied with the services provided (94%). Again, negative impacts have not been identified through literature survey²⁰, questionnaires and site surveys.

(4) Irrigation

According to the beneficiary survey, 95% of survey respondents replied that time required for water drawing labour has been shortened by the improvement of irrigation facilities. Before the project, people had to draw water from the nearby rivers using buckets, and pails, and that was laborious and time-consuming work. Among those who reported a shortening of time required for water drawing, 74% stated a reduction of more than 180 minutes while another 11% cited a reduction of between 150 and 180 minutes. Huge savings of time for labour can thus be seen. In addition, agricultural income in all households surveyed has been increased due to the effects of improving yield, crop quality and crop diversification. The increase ranges from 20% to 100% with an average of 51%. Increases in income have led to further investment in the purchase of fertilizers (97%) and pesticides (49%). Other positive impacts reported include improvements in mobility within and between villages due to the construction of farm roads as part of the irrigation facilities (41%) and diversification in income sources by rearing fish and raising domestic animals such as pigs and chickens (8%). The on-site survey has also verified the benefits such as reduction in flood and drought damages, improvements in children's school enrolment rate and education continuance rate as a result of reinvestment of agricultural income, and improvements in diet due to the increased volume and variety of foods.

Accordingly, the improvement of irrigation facilities has realized a wide variety of positive impacts on living conditions in communities that are not limited to agricultural activities alone. No negative impacts have been observed.

(5) Collaboration with NGOs

Expecting the synergistic effects through the collaboration with NGO activities, the Vietnamese government has established a NGO Collaboration Fund to support NGO activities on a grant basis in the areas where the project was implemented. A part of the budget for consulting services has been allocated in the fund's capital.

Although the participation of several NGOs were anticipated, only one non-profit organization

²⁰ Project Completion Report by MPI and JICA's internal documents (2006, 2008, and 2011).

called AMDA, based in Okayama Prefecture, Japan and which focuses mainly on the medical, health and hygiene sectors, has applied to the fund. 400 million Vietnamese dong (2.8 million yen) from the NGO Collaboration Fund was granted to the “Surgery Room Functional Enhancement Project” in the Pac Nam District Hospital in Bac Kam Province, supported by AMDA, and the fund was allocated to the purchase of equipment such as anaesthesia tables, operating tables and non-reflecting lights etc. And under AMDA’s own budget, training for local medical practitioners was conducted and a Japanese anaesthetist provided technical guidance for the hospital staff.

This support allowed Pac Nam District Hospital to offer surgery services, and seriously ill patients who had to be referred to a higher-level medical facility three hours away could be treated at the hospital. Furthermore, because the hospital has become able to offer surgery service, national health program campaigns which had not been implemented previously could be carried out as well. 13 patients received surgery at the hospital under a cataract surgery campaign. According to the interview with AMDA, the equipment provided by the NGO Collaboration Fund coupled with AMDA’s technical guidance only enabled the hospital to offer such treatment services.

As this was the first time for the Vietnamese government to implement such a system, various adjustments and coordination were needed in order to meet NGO-related regulations and rules. The preparation process took two years after the application to the fund until the commencement of the project. Having received the capital from the fund, under Vietnamese law, JICA was to be designated as the Executing Agency of this project, not AMDA. Due to these issues, the scheme of this collaboration fund had made it difficult for NGOs to take part. Adding to this, although the aim of the fund was to exploit the synergistic effects between NGO activities and the project, no sub-projects other than those in the irrigation sector was implemented in Pac Nam District, and thus synergy could not be clearly seen. If the NGO could be involved from the stage of sub-project selection, a more direct and higher level of synergy could have been realized. The succeeding projects (Small-Scale Pro Poor Infrastructure Development Phase II and III) have not applied this NGO Collaboration Fund system.

3.3.2 Other Impacts

(1) Impacts on the natural environment

As the sub-projects of this project were small-scale infrastructure projects, government approval on Environmental Impact Analysis (EIA) was not required under Vietnamese law.

According to the JICA’s internal document (2008), some of the sub-projects in the road and electricity sectors required forests to be cleared during construction. However, these were all limited in scale and together with replanting efforts, the impact on the natural environment has been minimal. Based on interviews conducted at site, upon completion of some of the sub-projects in the road sector, more cases of illegal logging by local residents were reported as a result of improved access to the forests. Nonetheless, through the counter measures such as education and raising awareness among local people, this has not escalated into a major problem. Conversely, the power distribution

sub-projects have brought electricity to households and reduced the amount of consumption of wooden fuel for home use, thereby resulting in less deforestation.

(2) Land Acquisition and Resettlement

According to the results of the interviews and questionnaires to relevant sections in the provincial and district offices and the Executing Agency (MPI), land acquisitions have been carried out in the road and water supply sectors but not resettlement. Although it was not possible to acquire specific figures regarding the number and scale of the land acquisitions, the interview results indicated that these were on a small-scale and smoothly executed under the domestic laws. However, the process and negotiations took a time, thereby causing delays in the sub-projects in the two sectors of road and water supply. The beneficiary surveys and resident interviews did not find any cases of land acquisition and resettlement.

Although issues still remained, such as low facility utilization rate and water supply rate in the water supply sector, sub-projects in the other sectors have achieved development effects as planned. Besides, a certain level of benefits could be seen even in the water supply sector. Accordingly, this project has largely achieved its objectives; therefore, its effectiveness is high.

3.4 Efficiency (Rating: ②)

3.4.1 Project Outputs

3.4.1.1 Number and scale of sub-projects

The sub-project selection process of this project is as follows.

- 1) The Executing Agency (MPI) requests submission of feasibility study reports and a list of sub-project requests from the relevant provincial offices (DPIs).
- 2) DPIs decide on the priority of the sub-projects through discussions with the relevant institutions based on the 5-year development plan of the province before submitting the list of sub-project requests and feasibility study reports to MPI.
- 3) MPI reviews the documents submitted by the various provinces and selects the final sub-projects for implementation²¹.

The above selection process was started upon the conclusion of ODA loan agreement. As JICA approved the list of final sub-projects selected by MPI, the efficiency of the project in this post-ex evaluation was assessed by comparing the plan of the feasibility studies and actual results.

The number of sub-projects, provinces, and districts at the planning phase (at the time of appraisal),

²¹ Three to seven selection criteria are defined for sub-projects in each sector e.g. in the road sector, roads must link up the district capitals and be less than 20km long per road with an annual average traffic volume 150 cars per day while in the water supply sector, the water source must be identified with a designed water flow capacity of at least 1,000 tons per day etc. MPI selects the sub-projects by evaluating the suitability of the projects against these criteria.

feasibility study (F/S) phase, and the actual results (at the time of the ex-post evaluation) is given in Table 3.

Table 3 Original and Actual of Output

Sector	Original (Appraisal data)			Original (F/S data)			Actual		
	Number of Provinces	Number of Districts	Number of SPs	Number of Provinces	Number of Districts	Number of SPs	Number of Provinces	Number of Districts	Number of SPs
Road	21	44	36	28	55	59	28	55	59
Electricity	15	32	34	15	30	31	15	30	31
Water Supply	16	24	24	17	24	24	17	24	24
Irrigation	14	27	26	14	27	27	14	27	27
Total	23	91	120	28	106	141	28	106	141

Source: Appraisal document, JICA's internal document (2009), Questionnaire for MPI

SP: Sub-project

Note: Total is not the footing of the table because more than one sub-project have been implemented in a province and a district.

The plan of the feasibility study and actual of the output in each sector is as follows.

Table 4 Original and Actual of Output

Sector		Original (F/S data)	Actual	Actual / Original		
				Overall	Minimum	Maximum
Road		844.766 km	809.398 km	96 %	30 %	103 %
Electricity	MVL	352.118 km	360.175 km	102 %	9 %	354 %
	LVL	762.265 km	773.278 km	101 %	54 %	418 %
	Total Capacity	19,347 kVA	19,060 kVA	99 %	41 %	121 %
Water Supply		48,777 m ³ /day	48,698 m ³ /day	100 %	55 %	120 %
Irrigation		27,442 ha	27,410 ha	100 %	88 %	100 %

Source: JICA's internal documents (2008, 2009, 2011), Questionnaire for MPI

MVL: medium voltage line

LVL: low voltage distribution line

(1) Variance between the original plans and F/S plans

The variance between the original plan at the time of the appraisal and the plan of feasibility studies was caused by responding to the latest needs at the local level and reflecting surplus budget due to foreign currency transaction gains. According to the interviews with MPI, DPIs and the district offices, this revision has been desirable and appropriate to make the project designs to be more suitable to local conditions and realities. While the consultant's report highlighted the concerns on the reliability of data and recommended improvements in the quality of the F/S, no particular concerns has been expressed on the variance between the original plans and the plans by F/S.

(2) Variance between the F/S and the actual

Comparing the plans of F/S and the actual, the actual number of sub-projects, provinces, and districts was as planned by F/S. The outputs by each sector lies within a range of 96% and 102% of plans of F/S and thus the actual outputs were to be almost equal to the planned value. On the sub-project level, a difference of the length of distribution lines of electricity appears to be large with

the variance ranging from 9% to 418%. This was because the ratio or percentage of difference appeared to be big with the small differences since the absolute value of sub-projects were small, for example, the average of mid-voltage lines is 11km and low-voltage lines is 25km. The variance of sub-projects in water supply sector and road sector was also mostly due to the same reason such as a 1km planned road was changed to be 500m. However, in some cases, changes were found to be necessary during the implementation stage because of the improper demand forecast made in the F/S. For example, a 12km road in Nghe An Province had to be shortened to 4km; a water facility in Tra Binh Province had to be reduced in capacity from 1,300m³/day to 700m³/day.

As stated above, revised plans by F/S in all of four sectors were as a whole to be suitable to local conditions and realities. In light of the aim of poverty alleviation, these changes could be assessed to be reasonable revisions.

Although deviations could be seen to a certain extent between the plans of F/S and the actual on sub-project levels, as on the sector level, the most of the expected outputs had been realized as planned.

3.4.1.2 Consulting Services

The consulting services planned in the project were as shown below and mostly carried out by consultants as planned.

- Review of F/S and detail designs of potential sub-projects, and the support of biddings and contracts
- Construction supervision, including environmental monitoring and evaluation
- Organizational capability development for project implementation
- Provision of technical guidance to operation and maintenance organizations
- Operation and management of NGO Collaboration Fund

The contract period for the consulting services was originally scheduled from September 2004 to March 2007 (30 months), but was extended to September 2008 (48 months). This was a reasonable extension in response to the delay of construction period.

3.4.1.3 Quality of F/S

According to the consultant reports and interviews with the consultant, although the quality of the F/S has improved, as experience has been accumulated from the preceding projects, the reliability of the data still remained an issue. In line with the administrative decentralization in Vietnam, the implementation and management of sub-projects has been shifted from provincial governments to district governments²². The experience and know-how that have been accumulated at the provincial

²² For the sub-projects managed by the district government, the F/S is outsourced to a local consultant by the district government. The provincial government then vets the completed F/S report before submitting it to MPI.

level have not necessarily been transferred to district governments. In particular, in the water supply sector, design changes due to the poor quality of the F/S, such as changing the water source after construction work has begun, resulted in delays in construction. Insufficient studies on the availability of alternative water sources and the residents' needs also led to low facility utilization rate and water supply rate. In the road sector, due to the inadequate estimation of future demand arising from increases in population and traffic volume, damages on the road surface resulting from overloading and increased traffic volume could be widely seen. According to the consultant reports and interview results, the consultants had only gotten involved in the work after the sub-projects had been selected. Consequently, they could neither contribute to the selection of sub-projects nor provide sufficient review over the preparation of the F/S reports.

3.4.1.4 MIS: Management Information System

In order to efficiently manage the many sub-projects in many regions, a Management Information System (MIS) to support and strengthen the overall management capability of MPI and DPIs was planned to be introduced as part of the consulting services of this project. Although a survey was carried out by the project consultant in 2005, it was deemed too early for such a system to be introduced due to insufficient infrastructure such as personal computers and communication networks. The study thus ended up producing a concept paper for MIS only. Subsequently, a MIS was installed in the succeeding project of the Small-Scale Pro Poor Infrastructure Development Project (Phase 2) and training has been conducted for officers of MPI, DPIs and district offices. Considering the fact that it was installed in the succeeding project, it could be highly evaluated that such a concept was conceived in this project. However, as far as the interviews and on-site surveys in this ex-post evaluation observed, the MIS does not seem to be actively utilized whether at the central, provincial or district levels. The reason for this could be partly due to the difficult-to-use interface as pointed out by some officers, however, according to the interviews with MPI and DPIs, the lack of recognition of the necessity of a comprehensive and centralized project information management, particularly of the information about operation and effects after the completion of sub-projects, was thought to be a more essential factor.

3.4.2 Project Inputs

3.4.2.1 Project Cost

The actual amount of total project costs was 13,923 million yen, or 103% of the 13,498 million yen initially estimated at the time of project appraisal and thus largely in line with the plan. As F/S data on the sub-project costs of the water supply sector and the consulting service fees could not be obtained, a comparison between the plan of F/S and the actual has not been performed. The planned and actual expenditure of the project is shown in Table 5.

Comparing the plan of project appraisal and the actual, the costs in the road, water and irrigation sectors have exceeded the budgeted amounts. This was due to an increase in the number (for road) and scope (for water supply and irrigation) of sub-projects, on top of design changes in the middle of

construction (for water supply), changes in means of transportation due to poor accessibility to construction sites in remote and mountainous areas.

As stated above, although some of the sub-project costs have exceed the budgeted amount for the individual sector, the overall project cost has been mostly as planned.

Table 5 Original and Actual of Project Cost

(Unit: million yen)

Sector & Items	Original (appraisal data)	Original (F/S data)	Actual		Original / Actual
			Total	Loan portion	
Road	5,816	8,553	8,260	6,314	142 %
Electricity	1,128	1,145	1,082	830	96 %
Water Supply	1,687	—	2,008	1,040	119 %
Irrigation	1,727	1,909	2,264	1,438	131 %
Consulting Service	877	—	309	309	35 %
Others (contingency, etc.)	2,262	—	0	0	—
Total	13,498	—	13,923	9,934	103 %

Source: JICA's internal documents (2008, 2009)

3.4.2.2 Project Period

The planned project period of the project appraisal was from Mar 2003 to Sep 2007 (55 months). The final loan disbursement date was Jul 2009, and the construction completion dates for sub-projects are as shown in Table 6. While the electricity and irrigation sub-projects were mostly completed within the project period, about one-quarter of the sub-projects of road sector exceeded the project period and a few even exceeded it by 150% or more. In the water supply sector, about three-quarters of sub-projects exceeded the project period and the exceeded period was 8.4 months on average.

Table 6 Original and Actual of Project Period

Sector	Number of SP	Number of SP provided project period data	Actual / Original		
			under 100%	over 100% and under 150%	over 150%
Road	59	48	36	8	4
Electricity	31	26	26	0	0
Water Supply	24	24	6	18	0
Irrigation	27	20	20	0	0

Source: JICA internal documents (2008, 2009, 2011), Questionnaire for operation and maintenance organizations
SP: Sub-project

Delays in the road sector were mostly caused by land acquisition issues. Besides this, changes of plan due to inflation-led escalating costs of construction materials, poor access to construction sites and landslides due to bad weather in the mountains could also be cited as reasons for the delays. "Poor access to construction sites" means the difficulties of carrying of construction vehicles and materials to the sited due to the rough roads which connect cities and construction sites in rural areas. JICA internal documents (2006 and 2008) report the 8 cases of poor access to construction sites and 18 cases of land slides, falling rocks and scouring out of 59 sub-projects.

The reasons for the delays in the water supply sector were similar to those in the road sector such

as delays in land acquisition and changes of plan due to rising construction material costs. The complexity of the facilities themselves was also a major contributing factor. These sub-projects of the water supply sector include the laying of water pipes in addition to the construction of the water purification plant. The water purification plant itself is made up various facilities such as the sedimentation basin, intake pump, chemical mixing tank, filter basin, chlorine feeding facility and water supply pump among others. The procurement, construction and acceptance validations of these facilities take up a lot of time. Laying distribution and service pipes, land acquisition, and construction approval from other ministries and agencies takes time, too. However, these are ordinary parts and processes of water supply projects and naturally should have been taken into consideration in the project planning.

Construction delays in the road and water sectors have been pointed out in ex-post evaluations of three preceding projects (Rural Infrastructure Development and Living Standard Improvement Project phase I, II and III) but improvements have not been observed.

Other key reasons for exceeding the project period were as follows.

- 1) After the completion of the F/S until the commencement of construction works, finalization of project details and administrative procedures took one to two years. In the meantime, local conditions have changed and material costs escalated due to inflation, resulting in design changes (road sector and water supply sector).
- 2) The quality of the F/S was insufficient and design changes were required after construction work had started (water supply sector).

3.4.3 Results of Calculations of Internal Rates of Return (IRR)

Due to the nature of the project and the fact that data needed for quantitative analysis was not available, a quantitative analysis of the internal rate of return was not possible.

As stated above, the overall project costs have been contained within the planned budget, sub-project costs in individual sector have exceeded plans, and that there were delays in the road and water supply sectors. Accordingly, although the project cost was within the plan, the project period was exceeded; therefore efficiency of the project is fair.

3.5 Sustainability (Rating: ②)

3.5.1 Structural Aspects of Operation and Maintenance

The Executing Agency (MPI) was in charge of the overall project management and coordination while the Departments of Planning and Investment of provinces (DPIs) were responsible for the execution of sub-projects. O&M of the facilities upon completion of the project have been delegated to provincial authorities responsible for that sector or to related private companies. O&M organizations vary depending on the province and sector but they can be broadly categorized as follows:

1) Road

The parties responsible for O&M in road sector are: The Department of Transport (DOT) or the Department of Agriculture and Rural Development (DARD) of the province; the People's Committee of the district, town or village; and companies funded by the regional governments. For community roads and some of the district roads, the people living in the vicinity also check the road surface conditions and provide labor and funds for repair works when necessary.

2) Electricity

Before February 2009, Provincial Power Companies (PPCs) belonging to the Electricity of Vietnam (EVN) were responsible for the O&M of facilities, which came under the direct control of EVN, while the Electricity Cooperatives of communities were responsible for those under the control of provincial governments. After February 2009, all the facilities have been transferred to the management of EVN, and O&M has been outsourced to either PPCs or District Power Supply Cooperatives.

3) Water Supply

O&M of facilities are undertaken by Water Supply Corporations under the supervision of provinces or private water supply companies operated by the People's Committees of districts or towns.



Filter basin in a treatment plant constructed by the project

4) Irrigation

O&M of main facilities (dams, dikes, pumping stations, and main canals) is carried out by either the Department of Agriculture and Rural Development (DARD); the Irrigation Management Company (IMC) supervised by the province and People's Committee of the district, town or village; or a private enterprise funded by the local government. O&M of secondary facilities such as tail canals is undertaken by farmers' organizations.

O&M of all the facilities in the four sectors is performed by local organizations to suit actual operating conditions under the supervision of the provincial government. No organizational problems have been raised in the interviews and various reports.

5) Operation and maintenance by the Executing Agency (MPI)

Under the Decree No.131/2006 in 2006, the Vietnamese government has directed that all ODA projects be centrally managed by the MPI. Responding to this Decree, MPI has issued its own

Guideline No.09/2009/TT-BKH for the Sector Program Loan (SPL)²³ projects, in which the implementation progress and O&M of SPL projects are supposed to be centrally monitored by MPI using the MIS.²⁴ However, as described in Section 3.4.1.4, the MIS has been hardly used, and the O&M situations of facilities and the beneficiary effects of the project have therefore not being centrally monitored by MPI.

3.5.2 Technical Aspects of Operation and Maintenance

(1) Road

Most of the O&M organizations have their own annual O&M plan and policy. The questionnaires and interviews did not find any technical problems in the execution of these plans. Any technical problems were not observed at the on-site surveys, either. According to the questionnaires, about half of the organizations conduct regular O&M training. It was also found from the interviews that the Vietnamese Ministry of Transport (MOT) created a road management manual in 2003, under the support of the World Bank, in which the frequency and procedures for regular inspections were defined. Although the manual has been distributed to the relevant provincial and district O&M organizations, few of them actually have carried out the regular inspections as described in the manual due to a lack of funds and equipment. As a result, maintenance work is not a preventive maintenance but a corrective maintenance in nature conducting repair works after problems occur.

(2) Electricity

As stated above, O&M is under the responsibility of Provincial Power Companies (PPC) under the EVN group or the District Power Supply Cooperatives. In both cases, EVN directly or indirectly provides technical supervision and guidance. Being the enterprise responsible for the planning, construction and O&M of all power plants, transmission and distribution in the entire area of Vietnam, the technical level of EVN is quite high. Prior to the transfer of all O&M activities to EVN in 2009, problems such as rusting on transformers and power distribution loss have been observed in facilities managed by local governments. These problems have largely been resolved since EVN took over. Although it has been reported in the beneficiary surveys that power outages and voltage fluctuation are common problems, as mentioned in Section 3.2.2 (2), these are caused by the aging of power generation systems; they are not due to the O&M of facilities installed by the project.

(3) Water Supply

While the technical level of Water Supply Corporations under the supervision of Department of Construction (DOC) of the province has been maintained at certain level, the technical competencies

²³ Regional Development and Living Environment Improvement Plan is SPL1 while this project is SPL4. Subsequent projects are being executed as SPL 5 (2006) and SPL 6(2009).

²⁴ Decree No.131 stipulates MPI acting as the focal point agency to take the leading role in the management of ODA projects from their formulation through evaluation. And Guideline No.09 directs PMUs including MPI to monitor the implementation of projects using MIS while POs (Project Owners) to be responsible for O&M of facilities.

of water supply companies under the management of People's Committee of district or town have some issues to be addressed. In particular, newly-built facilities by the project have employed staff from the towns and villages nearby, and those young employees have little knowledge and experience. As a counter measure, DOC conducts technical training regularly, however, according to interviews, the frequency of the training is about once a year which is not enough to improve the technical level of staff.

Most facilities do not have laboratories to test water quality. While basic checks such as residual chlorine and turbidity are carried out, all other quality tests have to be conducted by either the provincial health centers or the head offices of water supply companies. The reason for not having their own laboratories is that even if one is available, it is difficult to manage them technically and financially. Moreover, it is cheaper to outsource the water quality check to an external specialized authority or the head offices. However, according to the interviews, it takes about one to two weeks for the test results to arrive from health centers.

(4) Irrigation

Concerning the Irrigation Management Corporations (IMCs) and regional government levels, their staff is rich in experience and has high technical skills as they tend to serve for many years in the organizations. Most O&M organizations also have their own annual maintenance plans and retain a certain level of technical skills for their executions. O&M training has been conducted on regular basis, and in addition to those conducted by the provincial government, some training courses are also outsourced to IMCs and vocational schools. Farmers' organizations do not require high level technical skills since they are only engaged in basic daily maintenance work such as cleaning and visual checks.

3.5.3 Financial Aspects of Operation and Maintenance

(1) Road

The annual O&M budget is provided from the Ministry of Transport (MOT) for provincial roads and from the District People's Committees for district and community roads. However, the budget is mostly used for smaller-scale but urgent repairs caused by heavy rains, overloaded vehicles and increased traffic volume, resulting in a shortfall in both the provincial and district budgets. In the questionnaires, all the respondents answered complained about the insufficient budget. As a result, few have the resources to carry out regular inspections as recommended by the MOT manual. When there is a need for major repairs, a supplementary budget is supposed to be provided from the province.

(2) Electricity

O&M for distribution lines and transformers comes under the budget of Provincial Power Companies (PPCs) or District Power Supply Cooperatives, and these budgets are approved by the

regional EVN power companies supervising the PPCs and Cooperatives. According to the interviews, no particular issue regarding the budget has been cited, and major and urgent repair works are supposed to be done by the supplementary budget provided by the regional EVN power companies.

(3) Water Supply

With unaccounted-for water rate staying at a high level of about 20%, coupled with the low facility utilization rate, the water supply facilities have financial issues to be addressed. While water leakage has been cited as a reason for the high unaccounted-for water rate in the interviews, according to the JICA's internal document (2011), issues with the accuracy of the measurements at the supply side and receiving side, such as the accuracy of water meters and measurement errors, have also been pointed out as contributory factors in addition to water leakage. The collection rate of water charges is reported to be almost 100% in the various reports and questionnaires. However, since water charges have been set at a low level²⁵, few organizations expect to fund their O&M expenses using water revenue alone and the most of them rely on subsidies from the provincial governments.

(4) Irrigation

Under the Decree 115/2008/CP issued in 2008 for further promotion of the agricultural activities, collection of irrigation water fees were abolished and all the O&M expenses for irrigation facilities are currently provided by the subsidy from the central government. According to the questionnaires and interviews, while the subsidy cannot be said to be generous, it is still able to meet most requirements. Because a stable budget is currently available, longer term O&M plans can be developed and thus the financial and institutional sustainability of O&M organizations has been improving. For emergency and urgent repair works due to natural disasters and other reasons, financial assistance is supposed to be provided by the provincial government.

3.5.4 Current Status of Operation and Maintenance

(1) Road

An asset survey for SPL facilities conducted by JICA in 2010 assessed the current conditions and level of damages of roads constructed by the five of preceding, current and succeeding projects. According to this survey, it has been verified that all of fifty nine (59) roads constructed by the project remain in good conditions with 8 roads ranked A for no damage, 50 roads ranked B for minor damages and one road ranked C with moderate damages. As stated above, periodic inspection is not

²⁵ Water charges in Vietnam are set by the regional governments but the upper and lower limits are determined by the Ministry of Finance. The average rate is about 3,500dong/m³ (20 yen /m³), which covers only about 3/4 of the operation costs. While prohibiting the increases of water charges due to the financial crisis in 2008, the Vietnamese government also directed that water businesses be managed using revenue from water charges (ref: 2008 Working Report on the International Promotion of Water Resources by Ministry of Labour, Health and Welfare). Generally, prices for industrial and commercial use are set at a high level while residential water is stayed at an inexpensive rate. However, there are few industrial and commercial enterprises in rural poor areas, and most of the water supplied is for residential use. Thus the in rural poor areas, it is difficult to manage the business with revenue only derived from water levies.

preventive but corrective maintenance in nature conducting repair works only after problems arise. Nonetheless, the overall maintenance situation is considered satisfactory and no particular visible damage was observed during the on-site survey, either.

Road damages due to the overloaded vehicles have been reported in various reports²⁶ and the interviews conducted at sites also found the same problems for most of the roads except the small district and community roads. While the enforcement of traffic regulations have been tightened by the police and local governments, this has not been sufficiently effective.



District road constructed by the project

(2) Electricity

The ex-post evaluation of the preceding project reported problems such as inadequate rustproof treatment, inappropriate calibration of KWh meters, and lack of technical support for the installation of leading wires to households. Since O&M has been transferred exclusively to EVN in 2009, there have been improvements in the financial and technical aspects and such problems have not been reported in this project. The on-site survey did not find any problem in particular, either.

(3) Water Supply

Regarding the hardware of facilities, few problems have been reported in particular and neither did the on-site survey reveal any major issue in this matter. However, in addition to the technical and financial problems stated above, there are problems in operations such as the quantity and quality of water. This is mainly due to the insufficient feasibility studies about residents' water needs and the availability of alternative water sources.

(4) Irrigation

According to the interviews, management of irrigation facilities by the province, district, IMCs and private companies are satisfactory in general, while some of the small facilities managed by the Community People's Committees or farmers' organizations have not been well maintained with insufficiently cleaned canals and/or overgrown weeds and bushes. As far as the on-site survey observed, the canals seemed to be cleaned well and the main facilities also look well-maintained. Cooperation with farmers has been maintained well, and coupled with the O&M subsidy from the central government, the facilities are all generally kept in good condition.

²⁶ JICA internal documents (2008, 2009, 2011)

Accordingly, some problems have been observed in terms of current status of O&M and financial problems in the road sector as well as technical, financial and current status of O&M in the water supply sector, therefore sustainability of the project effect is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project has been implemented in four (4) sectors, namely road, electricity, water supply and irrigation, aiming at reducing rural poverty through the improvement of local economy and the standard of living by constructing a hundred forty one (141) small scale infrastructures in a hundred six (106) districts in twenty eight (28) provinces in Vietnam. Relevance of the project was high since the project plan was consistent with the Vietnamese national development policies, local development needs and Japanese aid policies. While some issues were still expected to be addressed in water supply sector, Effectiveness and Impact were evaluated high due to the achievement of poverty reduction through the improvement of access to social services and the strengthening of livelihoods in rural areas. Efficiency of the project was judged as fair because of the schedule overrun of road sector and water supply sector. Regarding the maintenance and operation of facilities constructed by the project, there were some concerns in financial aspect and operation and maintenance management conditions in road sector, and technical aspect and financial aspect in water supply sector. Therefore, sustainability of the project was judged as fair.

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

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

(1) Overall management by the Executing Agency

Information on the implementation progress of sub-projects, O&M situations and beneficial effects for local residents of this project is supposed to be collected by the provincial and district project management units (PMU) and reported to MPI, where they are centrally integrated and managed. However, in reality, the project progress monitoring was carried out by the consultants,²⁷ and data about benefits such as the operation and effectiveness indicators have not been collected. The Management Information System (MIS) has been introduced in order to support this management structure and the SPL database²⁸ that has been developed in the asset survey for SPL facilities conducted by JICA has remained largely unused. This is believed to be caused mainly by a lack of recognition by MPI of the need to integrate and centrally manage all project information. “All project information” here signifies the overall PDCA information of sub-projects including the commencement, progress, completion, operation, maintenance and beneficial effects for local residents. In order to promote comprehensive management by MPI, it is necessary, for instance, to

²⁷ According to JICA internal documents (2008), the progress status of each sub-project is not centrally observed by MPI, and it was reported that consultants had to visit each sub-project site to verify the completion of construction.

²⁸ It is a database that has been created using survey results of all the roads, power distribution, water supply and irrigation facilities built with SPL 1-5. It is desired to be used with MIS.

strengthen the organizational motivation and enhance the system by making it mandatory²⁹ to include specific recommendations for improvement that have been identified in preceding projects into the plans of succeeding projects.

(2) Improvement in the F/S quality

Although the quality of the F/S has improved with the accumulation of experiences of provincial governments, the execution and management of sub-projects has been shifted from the provincial to the district governments in line with administrative decentralization policies. Due partly to this reason, data quality and future forecasts remain unreliable. This has led to problems such as construction delays resulting from changes of plans, low facility utilization rate and water supply rate in the water supply sector and increased traffic volume that exceeds initial forecast in the road sector. As the provincial governments have accumulated sufficient technical capabilities³⁰, it is expected for them to check and support the district governments in making F/S and detailed designs, and for MPI to play supervisory and coordinating roles in these activities.

(3) Counter measures against schedule overrun

As stated above in section 3.4.2.2, the schedule overrun in the road and water supply sectors were reported in three preceding projects, and the causes were common such as delay of land acquisition, change of plans, bad weather and poor access to the construction sites. The fact that no improvement has been made even though the causes were identified indicates the difficulties of this issue. But it is still expected to work out any counter measures. For uncontrollable external factors such as land acquisition, bad weather, and poor access, estimation of sufficient time margin in schedule could be one of the management counter measures³¹. The improvement in the F/S quality mentioned above could be one of the counter measures against change of plans.

(4) Sustainability in water supply and road sectors

Regarding the sustainability of this project, as stated above in section 3.5, there are some issues to be addressed in the water supply sector and in the road sector. Specifically, there are some concerns in technical level, financial aspect and current status of operation and maintenance in the water supply sector, and in financial aspect and current status of operation and maintenance in the road sector. As for the water supply sector, as stated above in (2), it is expected to improve the financial status by raising facility utilization rate and water supply rate. Through the improvement of financial status, rehabilitation and repair of facilities would be possible, and the improvement of facilities would reduce the unaccounted-for water and lead the water sector eventually to better financial status, thus a virtuous cycle could be formulated in future. Also, the betterment of financial status will enable the improvement of technical level through sufficient training and implementation of water quality test.

²⁹ In the case of JICA project, it is required to make use of the lessons learned from past similar projects.

³⁰ Based on JICA internal documents (2008)

³¹ This type of time margin is called "contingency reserve." The reserve time should be estimated based on the past experience.

As for the road sector, since it isn't an income generation business, the improvement of financial status largely depends on the budgetary support from central and local governments. With regard to overloaded vehicles which cause the damages of road surface, administrative actions are expected to be executed, such as strengthening of penalties to drivers and business owners, installation of height and width limiting facilities, and collection of road maintenance tax according to a payload.

4.2.2 Recommendations to JICA

(1) Monitoring Support

To promote the monitoring of operation and effectiveness indicators and project progress as mentioned in 4.2.1(1) above, technical guidance and support for using the MIS and SPL database is expected to be provided by JICA to MPI and the PMUs in the provinces and districts.

(2) F/S and detailed design support in water supply sector

In the water supply sector of this project, the low quality of F/S and the detailed designs have resulted in a variety of issues such as construction delays, the low facility utilization rate and water supply rate, poor water quality management and un-accounted for water. Moreover, these issues have been highlighted in the preceding projects and there is a concern that it may be repeated in the succeeding projects. A follow-up, such as survey of the current situations in the water supply sector using resources such as the Special Assistance Facility (SAF), is desirable.

4.3 Lessons Learned

(1) Comprehensive management of small-scale scattered projects

Operation and effectiveness indicators have not been defined in this project and data on the development effects has not been collated either. The MIS and SPL database introduced by JICA to enhance monitoring of the projects have remained largely unused and various information have scattered around the local governments as described above. This is not desirable for the management of small-scale scattered projects.

Multiple small-scale projects spread across different sectors in a large area of the country can be named as a small-scale scattered project. The characteristics of this type of project can be given as follows:

- 1) Overall project management and individual sub-project management are required.
- 2) A central project management unit oversees the comprehensive project management and individual sub-project management unit for managing individual sub-project are required.
- 3) The central project management unit needs to manage the project horizontally across all sectors while adopting a vertical perspective in managing the local situations in the centre.
- 4) During the project implementation period, as sub-projects are completed and start operating, O&M and ex-post monitoring of those sub-projects should be conducted and feedback the lessons for other sub-projects' still in execution stages. If necessary, the project implementation needs to

be amended.

Accordingly, operation and effectiveness indicators ought to be set up early, and monitoring of the effects, including a baseline survey, should be conducted in such project. To do this, the roles and responsibilities of the central management unit and the individual local project management units need to be clearly defined. It is also necessary to build a system where the latter monitors the actual situation on the ground, and the former consolidates the information from the various sources accurately. Furthermore, by making it mandatory to incorporate the experience and information accumulated in earlier projects into the planning for subsequent projects, it is necessary to maintain the user's motivation in continuing to use the system.

(2) Small-scale scattered project in the water supply sector

For small-scale scattered project in the water supply sector, there are broadly 2 two types of projects. One involves community-based projects such as installing water tanks and wells while the other type involves the provision of water services including the construction of water purification facilities. This project evaluated in this report belongs to the second category. In this case, the construction is very time-consuming due to the interplay of various complex factors, including obtaining construction permissions from other ministries and agencies and acquiring land for laying pipes for installing distribution pipes and supply pipes; and the procurement, construction, and acceptance of various facilities which make up the water purification plant. Furthermore, it also requires the close and thorough study of social considerations, such as the ability of the users to pay for the services and the expected water demand in the targeted area. In other words, there is a need to ensure that a bare minimum of these factors are satisfied even in small-scale projects. To achieve this, an experienced project manager and close technical supervision are required to build up the capabilities of the relevant parties. Measures are also required concerning the system to standardize the format of F/S and detailed designs to ensure that the necessary items are not left out in the planning process.

BOX 1 Management of Small-Scattered Type Project

This project belongs to a “Small-Scattered Type Project” which is characterized by a complex of large number of small-scale sub-projects scattered throughout a vast area of a country. Different from a “Large Single-Type Project,” like a large-scale power plant, irrigation system etc., which is situated in a single location or area, the project management of such type requires particular points as follows.

- (1) In addition to individual project management for each “sub-project,” total management of the “project” as their aggregate is separately needed.
- (2) An overall structure involving both a “vertical project management system” from central through the local project locations and a “horizontal project management system” encompassing different sectors has to be prepared and effectively operated.

- (3) Since each sub-project enters into operation one after another during the “project” implementation, the project management should involve continual effect and impact monitoring and timely review of the project contents and way of implementation based on the monitoring results on the way.
- (4) Procurement and progress management constitutes the central part of the project management of “Large Single-type Projects.” On the other hand, smooth implementation progress does not necessarily assure favourable project implementation performance.
- (5) In addition to designing, procurement support, construction supervision and other kinds of technical services, such management-oriented consulting services as grass-root assistance to support participatory sub-project implementation and operational assistance for the vertical and horizontal project management system are also required.
- (6) Involvement of auditing could play a more important role as a function to assure effective operation of the vertical and horizontal project management systems, implementation of a large number of procurement transactions and sub-project evaluations.

Comparison of the Original and Actual Scope of the Project

Item	Original (F/S data)	Actual
1. Project Outputs	<p>1) Construction / rehabilitation of provincial and rural roads Number of sub-project: 59 Total length: 845 km</p> <p>2) Construction / rehabilitation of medium and low voltage lines Number of sub-project: 31 Total length: 1,114 km Total capacity: 19,347 kVA</p> <p>3) Construction / improvement of water supply systems Number of sub-project: 24 Total capacity: 48,777 m³/day</p> <p>4) Construction / rehabilitation of irrigation facilities Number of sub-project: 27 Irrigated area: 27,442 ha</p> <p>5) Consulting services</p>	<p>1) Construction / rehabilitation of provincial and rural roads Number of sub-project: 59 Total length: 809 km</p> <p>2) Construction / rehabilitation of medium and low voltage lines Number of sub-project: 31 Total length: 1,170 km Total capacity: 19,060 kVA</p> <p>3) Construction / improvement of water supply systems Number of sub-project: 24 Total capacity: 48,698 m³/day</p> <p>4) Construction / rehabilitation of irrigation facilities Number of sub-project: 27 Irrigated area: 27,410 ha</p> <p>5) As planned except the installation of MIS (Management Information System)</p>
2. Project Period	March 2003 - September 2007 (55 months)	March 2003 - June 2009 (76 months)
3. Project Cost		
Amount paid in Foreign currency	3,522 million yen	
Amount paid in Local currency	9,976 million yen (1,265,990 million VND)	
Total	13,498 million yen	13,923 million yen
Japanese ODA loan portion	10,562 million yen	9,934 million yen
Exchange rate	1 VND = 0.00788 yen (As of February 2003)	1 VND = 0.00699 yen (Calculated from disbursed amount (yen) and actual construction cost (VND))

VND: Vietnam Dong