

Republic of the Philippines

FY2019 Ex-Post Evaluation of Japanese ODA Loan

“Agrarian Reform Infrastructure Support Project (Phase III)”

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

## 0. Summary

This project aimed to raise the income level of the residents of Agrarian Reform Communities (hereinafter referred to as ARCs<sup>1</sup>) across the country, thereby contributing to poverty reduction in these areas. For this purpose, the project provided support to infrastructure development such as installation of small-scale irrigation facilities, and establishment of information marketing centers and institutional development of organizations that promote exchange of information and wide-ranging cooperation in ARCs. The *Medium-Term Philippine Development Plan (2004–2010)* and the *Philippine Development Plan (2017–2022)* formulated by the Philippine Government both indicated the importance of addressing inequality and other relevant aspects including that of productivity in agriculture and rural businesses in order to expand economic opportunities in the fields of agriculture, forestry, and fishery. In addition, it was confirmed that the project was consistent with Japan’s ODA policy, and that there was a demand for continued provision of agrotechnical services, support for institutional formulation, financial services, and infrastructure development to micro-farmers and other relevant parties in the ARCs. As such, the relevance of this project is high. With regard to efficiency, the actual project cost was almost as that of initially planned but the figures did not reach the planned targets such as the number of information marketing centers, number of institutional formulation and enhancement of federations of agricultural cooperatives, areas for construction and rehabilitation of communal irrigation facilities, and number of construction of water supply systems. Given these, it cannot be concluded that the results were necessarily efficient relative to the planned outputs. Additionally, the project period exceeded the initially planned timeframe, due to the prolonged negotiation with landowners for land acquisition, which affected the commencement of construction work in some areas. In light of the above, efficiency of the project is judged to be low. Many indicators that

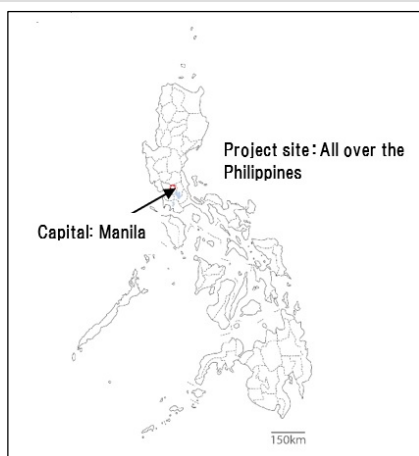
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<sup>1</sup> According to the *Republic Act No. 7905* which was adopted in February 1995, ARCs are defined as “barangays (the smallest unit of LGU indicating a village, district, or ward), community organizations, or organizations undertaking the integrated development of an area through cooperatives.” However, the Department of Agrarian Reform (hereinafter DAR), which is the Executing Agency of this project, established agrarian reform zones (KAR Zones) in 2003, and does not have clear differentiation between barangays, community organizations and cooperatives, as their initiatives include expansion of the targeted area of ARCs to non-ARC barangay regions and LGUs. While 1,216 LGUs in the country are home to 9,724 barangays, DAR has confirmed the existence of 2,216 ARCs. A total of approximately 1.52 million people are estimated to be residents of the 2,216 ARCs (source: DAR, data from 2017). There are some cases where one or more barangays, agricultural cooperatives, etc., act as ARCs.

measure quantitative effects show that these effects have been achieved almost as planned, or exceeded the plan. Moreover, through interviews with people relevant to the project, such as those from agricultural cooperatives, federations of agricultural cooperatives, LGUs (hereinafter LGUs) and farmers, it can be considered that the impact of the project has manifested in terms of increased agricultural productivity and revenue, improved quality of life of residents of the targeted ARCs, and reduction of poverty. In light of the above, the effectiveness and impact of the project is judged to be high. With regard to operation and maintenance in the LGUs, irrigators' associations, agricultural cooperatives, federations of agricultural cooperatives, and water users' associations visited during this field survey, no particular major concerns are thought to exist in the conditions of their organizational structures, technical aspect, financial affairs, and operation and maintenance. Thus, sustainability of the effects realized through this project is judged to be high.

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

## 1. Project Description



Project Location



Communal Irrigation Facilities Constructed by This Project/Rice Field (Pampanga Province)

### 1.1 Background

Since the Marcos administration, the Philippine Government has promoted agrarian reform with the view of helping farmers become economically self-reliant. Under the *Comprehensive Agrarian Reform Program* (hereinafter referred to as CARP), which was launched in 1987 under the Aquino administration, the government (1) distributed land to landless farmers, (2) supported their post-distribution farming activities, (3) supported the establishment of ARCs, and (4) mediated in disputes over the allotment and distribution of lands. Before the start of this project in 2006, 83% of the CARP's goal of allotting 8.06 million hectares (ha.) of farmlands was already

achieved. However, access to financial and technical services and other infrastructures was limited for the poor and the agricultural productivity was stagnating, in addition to land ownership proving difficult for this class of people. Assistance to farmers who had received land allotment was weak in terms of, among others, infrastructure, institutional formulation, and financial and technical services. Thus, there was high necessity of assistance for farmers to improve productivity and increase their income. Prior to this project, ODA loan “Agrarian Reform Infrastructure Support Project (Phase 1)” and “Agrarian Reform Infrastructure Support Project (Phase 2)” were implemented. The Phase I project provided basic infrastructure development and organizational strengthening support for 78 ARCs nationwide. Based on the recommendations derived through the Phase I project, 150 new ARCs nationwide were targeted and implemented for the phase 2. With regard to the phase 2 project, in addition to basic economic infrastructure development, support was provided for organizing farmers and strengthening LGUs, which contributed to improving agricultural productivity and livelihoods of local farmers.

## 1.2 Project Outline

The objective of this project was to raise the income level of residents in the targeted ARCs in 54 provinces across the Philippines by providing (1) support for infrastructure development such as installation of small-scale irrigation facilities in 129 ARCs and (2) establishment of information marketing centers and development for organizations that promote exchange of information and wide-ranging cooperation between the ARCs targeted by the project and the surrounding area, thereby contributing to poverty reduction in rural areas of the country.

Loan Approved Amount/ Disbursed Amount	11,802 million yen / 11,672 million yen
Exchange of Notes Date/ Loan Agreement Signing Date	December 3, 2007 / December 18, 2007
Terms and Conditions	<p>General Condition: Interest Rate: 0.01%, 1.5%  Repayment Period: 30 years  (Grace Period: 10 years)  Conditions for Procurement: General Untied</p> <p>Priority Condition: Interest Rate: 0.75%  Repayment Period: 40 years  (Grace Period: 10 years)  Conditions for Procurement: General Untied</p>
Borrower/	Government of the Republic of the Philippines / Department of Agrarian Reform

Executing Agency	
Project Completion	February, 2020
Target Area	The Whole Philippines
Main Contractor (Over 1 billion yen)	No more than one billion yen
Main Consultant (Over 100 million yen)	Nippon Koei Co., Ltd. (Japan)
Related Studies (Feasibility Studies, etc.)	N/A
Related Projects	<p>[ (Japanese) ODA Loan]</p> <ul style="list-style-type: none"> <li>• Agrarian Reform Infrastructure Support Project (1995)</li> <li>• Agrarian Reform Infrastructure Support Project (Phase 2) (1999)</li> <li>• Mindanao Sustainable Settlement Area Development Project (2001)</li> <li>• Mindanao Sustainable Agrarian and Agriculture Development Project (2012)</li> <li>• Rural Farmers and Agrarian Reform Support Credit Program (LBP) (1996)</li> <li>• Rural Farmers and Agrarian Reform Support Credit Program (DAR) (1996)</li> </ul> <p>[Grant Aid]</p> <ul style="list-style-type: none"> <li>• The Project for Development of Agrarian Reform Communities in Marginal Areas (2001)</li> <li>• The Project for the Bridge Construction for Expanded Agrarian Reform Communities Development (2009)</li> <li>• The Project for the Bridge Construction for Expanded Agrarian Reform Communities Development, Phase 2 (2012)</li> </ul> <p>[Other international organizations, aid organizations, etc.]</p> <ul style="list-style-type: none"> <li>• Agrarian Reform Communities Project (1999, Asian Development Bank)</li> <li>• Second Agrarian Reform Communities Project (2008, World Bank)</li> <li>• Italian Agrarian Reform Community Development Support Program (2018, Italy)</li> <li>• Convergence on Value-chain Enhancement for Rural Growth and Empowerment (Project ConVerge) (2016, International Fund for Agricultural Development (IFAD))</li> </ul>

## 2. Outline of the Evaluation Study

### 2.1 External Evaluator

Kenichi Inazawa, Octavia Japan, Co., Ltd.

## 2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: August 2019–September 2020

Duration of the Field Study: November 17–December 12, 2019 and February 24–March 3, 2020

## 2.3 Constraints during the Evaluation Study

Until at the time of the second field survey period of the evaluation (February 2020), there are still subprojects that are yet to be handed over to the LGUs. At the time of the project appraisal, project completion was defined as “when hand-over of all components in the targeted ARCs to the maintenance body (i.e., LGUs) is completed.” With hand-over of some sub-projects confirmed pending during the second field survey period, it can be concluded that the project is not yet finished. Therefore, evaluation of the efficiency aspect of the project is conducted with this in mind.

## 3. Results of the Evaluation (Overall Rating: B<sup>2</sup>)

### 3.1 Relevance (Rating: ③<sup>3</sup>)

#### 3.1.1 Consistency with the Development Plan of the Philippines

At the time of the project appraisal, the Philippine Government formulated the *Medium-Term Philippine Development Plan (2004–2010)*, which positioned CARP as one of the main policies for poverty reduction. Of which, initiatives such as the completion of farmland allotment and provision of support to the beneficiary farmers were proposed as priority policies by the Department of Agrarian Reform (hereinafter DAR), which is the Executing Agency of agrarian reform.

At the time of the ex-post evaluation, the Philippine Government has formulated the *Philippine Development Plan (2017–2022)*. As its poverty reduction strategy, the plan proposes the importance of redressing inequality and other relevant aspects in order to expand economic opportunities in the fields of agriculture, forestry, and fishery. Moreover, the plan places importance on improving agricultural productivity and working on securing food safety, in order to achieve balanced development goals amidst population increase. DAR has also formulated *DAR’s Thrusts and Policy Directions (2016–2022)*, which shows its direction in areas such as the productivity in agriculture and rural businesses, promotion of tourism and investment in rural

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<sup>2</sup> A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

<sup>3</sup> ③: High, ②: Fair, ①: Low

areas, and enforcement of land ownership and control.

In light of the above, providing support to the farmers, fishermen and the poor, improving agricultural productivity, and securing food safety, among other efforts, are considered important in the national plans and sector plans at the time of the project appraisal and the ex-post evaluation. Therefore, the project's consistency with the policies and measures can be confirmed.

### 3.1.2 Consistency with the Development Needs of the Philippines

Before the start of this project, the poverty level was high among the micro- or landless farmers and fishermen, among others in the countryside. For the poor, land ownership proved difficult and access to financial and technical services and other infrastructures was limited, while agricultural productivity was also stagnating. Assistance was needed to improve farmers' productivity and increase their income.

At the time of the ex-post evaluation, DAR has continued providing assistance for the micro-farmers, fishermen, the poor, and landless farmers, based on the abovementioned *DAR's Thrusts and Policy Directions (2016-2022)*. Specific examples include (1) initiating and streamlining legal procedures; (2) increasing issuance of Certificates of Land Ownership Awards (hereinafter referred to as CLOAs), which is an official certification for land distribution; (3) implementing and arranging programs that help farmers retain their CLOAs and stay in their farms. DAR has also been proceeding with its assistance to micro-farmers and other relevant parties within ARCs whether before or after their CLOA ownership, in aspects of agrotechnical services, institutional formation, financial management services, and infrastructure development. As an example, the Department has drafted a program that foresees the ageing problem of micro-farmers and other relevant parties, thus encouraging children to take over farming business as a way to support their livelihoods.

In light of the above, it can be concluded that the project is highly consistent with the development needs of the Philippines, given the continuing demand for assistance in agrotechnical services, institutional formulation, financial services, and infrastructure development at the time of the appraisal and the ex-post evaluation.

### 3.1.3 Consistency with Japan's ODA Policy

In the *Country Assistance Program for the Republic of the Philippines*, formulated in 2000 by the Japanese Government, the priority challenges were identified as (1) securing sustainable economic growth; (2) alleviating poverty; (3) environmental protection; (4) human resources

development; and (5) improvement of governance. In it, importance was placed on agricultural and rural development, which would contribute to alleviating poverty. Poverty reduction was also given importance in the *Medium-Term Strategy for Overseas Economic Cooperation Operations* formulated by JICA (former JBIC) in 2005. Similarly, poverty reduction through agricultural and rural development was positioned as a priority area in the *Country Assistance Strategy* formulated by JICA in 2006. Therefore, this project contributes to poverty reduction in the rural areas of the Philippines, and its consistency with the priority areas in the aforementioned *Country Assistance Program* and *Medium-Term Strategy for Overseas Economic Cooperation Operations* is recognized. Therefore, the project's consistency with Japan's ODA policy is confirmed.

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

### 3.2 Efficiency (Rating: ①)

#### 3.2.1 Project Outputs

Table 1 shows the planned project outputs at the time of the project appraisal and the actual results at the time of the ex-post evaluation. (The underlined part is the main difference from the planning stage)

Table 1: Planned Project Outputs at the Time of Project Appraisal and Actual Results at the Time of Ex-post Evaluation

Planned Project Outputs (At the time of project appraisal: 2007)	Actual Results (At the time of ex-post evaluation: 2019)
1) Support for infrastructure development in ARCs (129 ARCs in 54 provinces across the country) (i) Construction and rehabilitation of communal irrigation facilities (approx. 111 systems, covering approx. 21,845 ha), construction of post-harvest treatment facilities (approx. 67 facilities), building of new market access roads & improvement of existing roads (approx. 677 km), construction of bridges (approx. 1,334 m), construction of water supply systems (approx. 81 systems, servicing approx. 33,865 households) (ii) Institutional formulation and enhancement (111 irrigators' associations, 81 water users' associations, 129 agricultural cooperatives) *The "institutional formulation and enhancement" here	1) Support for infrastructure development in ARCs ( <u>136</u> ARCs in 54 provinces across the country) (i) Construction and rehabilitation of communal irrigation facilities ( <u>120</u> systems, covering <u>12,611</u> ha), construction of post-harvest treatment facilities ( <u>68</u> facilities), building of new market access roads & improvement of existing roads ( <u>701</u> km), construction of bridges ( <u>1,822</u> m), construction of water supply systems ( <u>70</u> systems, servicing <u>21,461</u> households) (ii) Institutional formulation and enhancement ( <u>128</u> irrigators' associations, <u>84</u> water users' associations, <u>328</u> agricultural cooperatives: *DAR formulated and enhanced another 192

has the same definition as the “number of businesses established” presented in 3.3.1.1 Quantitative Effects, 3.1 Effectiveness (Operation & Effect Indicators).	agricultural cooperatives using its own funds, thus the actual figure upon completion increased to a total of 328)
2) Support for development of areas around ARCs (i) Establishment of information marketing centers (approx. 26 facilities) (ii) Improvement of existing access roads (approx. 30 km)  (iii) Institutional formulation and enhancement (targeting around 54 federations of agricultural cooperatives)	2) Support for development of areas around ARCs (i) Establishment of information marketing centers (8 facilities) (ii) Improvement of existing access roads (*none implemented in this project) (iii) Institutional formulation and enhancement (targeted 21 federations of agricultural cooperatives)
3) Consulting services Overall project management, development for organization, construction supervision	3) Consulting services Implemented as planned.

Source: Documents provided by JICA (at the time of project appraisal), answers on questionnaire by DAR, JICA documents, interview results with DAR, NIA, and DPWH (at the time of ex-post evaluation)

Analysis of the differences between the planned project outputs at the time of the project appraisal and actual results at the ex-post evaluation shown in Table 1 is shown as follows.

#### 1) Support for infrastructure development in ARCs

With regard to the actual outputs in the ARCs, including infrastructure development support, there were 7 more facilities than planned, totaling 136. Before the start of this project, DAR formulated the output plan at the time of the project appraisal based on the requests submitted by its Regional offices, after identifying the approximate target areas and estimated the project components in collaboration with the National Irrigation Administration (hereinafter NIA), and the Department of Public Works and Highways (hereinafter DPWH), which are DAR’s cooperating agencies. However, after the project’s commencement, the final number of targeted ARCs changed to 136, considering accessibility issues of some of the proposed project sites, cases in which the implementing capacities of LGUs (maintenance bodies of the facilities after completion) were considered questionable, and where more ARCs were requesting for inclusion to the project<sup>4</sup>. In relation to these changes, DAR has stated that “the figures in the output plan including the targeted number of ARCs are built upon the requests submitted by each region, and the Department predicted before the start of the project that the figures would be closely examined through detailed design and preparatory survey (see 3.2.2.2 Project Period, 3.2 Efficiency), which take place after the project has started. Had it invested more labor and budget and conducted a detailed survey, the Department may have been able to establish planned figures (baseline figures)

<sup>4</sup> JICA and National Economic and Development Authority (hereinafter NEDA) have agreed to the series of changes in 2013.



and target figures. However, unable to afford these, it was left with no choice but to address this after the project had started. This means that the planned figures (baseline figures) and target figures were not based on actual situation but just mere estimates.” Given the prerequisite being revision of the indicators after the start of the project, the output plan at the time of the project appraisal was not necessarily a thoroughly examined version<sup>5</sup>. Comparison and analysis of the plan at the time of the project appraisal and actual results are conducted as follows, with the abovementioned background in mind.

The discrepancies between the planned and actual figures in Table 1 are particularly significant for the irrigation service area (12,611 ha. against approx. 21,845 ha.) and serviced household population for water supply systems (21,461 against approx. 33,865 households), in (i) Construction and rehabilitation of communal irrigation facilities. According to DAR, the initially planned figures (approx. 21,845ha.) were not clear about the soil and ground condition of the project sites, and that landowners and water sources were not identified before the start of the project. The areas were thoroughly reexamined through detailed design and preparatory survey that was conducted only after the start of the project<sup>6</sup> (13,648 ha.). The comparison with this figure shows that the result came out almost as planned, but the validity of the initially planned figure remains questionable. With regard to the construction of water supply systems, some of the ARCs selected through the initial plan turned out to be salt-damaged, flood-prone, have shortage of groundwater, and its water sources depleted<sup>7</sup>. In quite a few cases, development had to be deferred, resulting to decreasing number of developments and households supplied with water. (ii) Institutional formulation and enhancement were implemented almost as planned. Seminars and other initiatives took place, which included promotion of organic farming, business plan formulation, and financial planning.

## 2) Support for development of areas around ARCs

(i) The number of information marketing centers has decreased compared to the plan. As its explanation, this decline is related to the decrease in the number of federations of agricultural cooperatives (from 54 to 21) that were targeted for institutional formulation and enhancement stated in (iii) below. The number of developed centers decreased to eight facilities, which is

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<sup>5</sup> Inadequate collection of information on ARCs and lack of sufficient research and statistical data on the landless farmers in the Philippines, as well as data often using estimated figures are some of the examples contributing to this background.

<sup>6</sup> DAR held a discussion with NEDA and JICA in 2013, and each confirmed the change in the planned figures.

<sup>7</sup> According to DAR, there have also been cases where the water source was confirmed at the time of the planning, but then depleted due to earthquakes.

proportionate to the decrease in the targeted number of federations of agricultural cooperatives<sup>8</sup>.

(ii) Improvement of existing access roads was not implemented in this project. Improvement of existing roads (provincial roads and municipal roads) was in the initial plan along with the development of information marketing centers, but such improvement was no longer needed as the centers were established adjacent to main roads such as national roads for convenience<sup>9</sup>.

(iii) With regard to the numbers of institutional formulation and enhancement (support for the federations of agricultural cooperatives), firstly “federations of agricultural cooperatives” refer to institutional unions made up of several agricultural cooperatives. According to the criteria set forth by the Cooperative Development Authority (CDA), in principle a federation is formed when there are 14 primary agricultural cooperatives organizing themselves into a federation. Federations can make agricultural cooperatives’ activities more powerful and comprehensive. At the time of project appraisal, DAR predicted that there would be one federation for each of the 54 provinces targeted for the project and anticipated to enhance the skills of the staff of such federations through initiatives such as training. However, it became clear after the project started that some provinces did not necessarily have 14 agricultural cooperatives. That is to say the organizations in these provinces did not meet the criteria set by the Department of Agriculture, so the actual number of targeted federations was lowered to 21 from 54.

### 3) Consulting services

Support related to overall project management, development for organization, and construction supervision was provided as initially planned.

Given the above, even though there was a preparatory survey mentioned in 3.2.2.2 Project Period, 3.2 Efficiency, the discrepancies were significant between the initially planned figures and the actual figures, leaving their efficiency questionable.

## 3.2.2 Project Inputs

### 3.2.2.1 Project Cost

The total project cost at the time of the project appraisal was planned to be 17,037 million yen (of this, 11,802 million yen was covered by ODA Loan). The actual total project cost was 16,935

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<sup>8</sup> Out of the eight facilities that were developed, two used the existing facilities to reduce the project cost, as it was discovered after the start of the project that it was possible to utilize the facilities of the Department of Agriculture, the Department of Trade and Industry’s Board of Investments, and LGUs (those confirmed to have a remaining lifespan).

<sup>9</sup> According to DAR, the necessity of improving the existing roads was not clear during the planning, but was included in the plan as a project component.

million yen (of this, 11,672 million yen was covered by ODA loans), which was within the plan (approx. 99% of the plan). However, as indicated by Table 2 (Planned Project Costs at the time of the appraisal) and Table 3 (Actual Project Cost at the time of Project Completion), the cost required for the civil works has exceeded the plan (approx. 131% of the plan).

Table 2: Planned Project Costs

(Unit: Million yen)

Item	Planned Project Costs at the Time of Project Appraisal		
	Foreign Currency	Local Currency	Total
Civil Works	2,912	6,795	9,707
Institutional Development	-	1,631	1,631
Preparatory Survey	-	283	283
Procurement of Equipment	110	-	110
Consulting Services	936	480	1,416
Price Escalation	220	-	220
Contingencies	162	436	598
Administration Costs	-	1,396	1,396
Tax	-	1,676	1,676
<b>Total</b>	<b>4,340</b>	<b>12,697</b>	<b>17,037</b>

Source: Documents provided by JICA

Table 3: Actual Project Cost at the time of Project Completion (PHP and JPY basis)

Item	Actual Costs based on PHP <sup>10</sup> (Total amount of foreign and local currency, unit: 1,000 PHP)	JPY Equivalent (Unit: Million Yen)
Civil Works	5,900,882	<b>12,746</b>
Institutional Development	550,653	1,189
Preparatory Survey	116,382	252
Procurement of Equipment	48,093	104
Consulting Services	641,736	1,386
Administration Costs and Tax	582,334	1,258
<b>Total</b>	<b>7,840,080</b>	<b>16,935</b>

Source: Answers on questionnaire by DAR

Remarks: Exchange rate: 1 yen = 0.46 PHP (1 PHP = 2.16 yen: average value during project implementation)

According to DAR, NIA, and DPWH, the reasons for the increased cost for civil works in comparison to the plan include the following: (i) construction work cost increased for the development of communal irrigation facilities and roads due to the rise of labor cost and escalation of prices of construction materials during the project implementation. In addition, the cost for

<sup>10</sup> Total amount of foreign currency was about 4,295 million yen (about 1,988.267 million PHP), total amount of local currency was about 12,640 million yen (about 5,851.814 million PHP). Yearly data of breakdown on the foreign and local currencies of each cost item could not be obtained, and only total amounts are shown.

construction works including recovery work and repair in the Cordillera Administrative Region (CAR) rose significantly due to damages from the typhoons; (ii) in some development projects of new market access roads and improvement projects of existing roads, weak grounds were discovered near the project sites, thus retaining walls and guardrails were additionally installed to improve the soil and address safety, and the thickness of the road surface was raised to 20 cm from the initially planned 15 cm, anticipating future increase in traffic. These are understood to have been difficult to predict at the time of the project appraisal, thus considered excusable. However, the output plan at the time of the appraisal was not clear, and bearing in mind the fact that the cost for the construction work (Table 3) was higher than with contingencies utilized (Table 2), the project cost cannot be said with certainty to have been efficient relative to the output plan.

#### 3.2.2.2 Project Period

Table 4 shows the project's initially planned and actual periods. At the time of the project appraisal, the project period was planned for the seven years from December 2007 to August 2014 (84 months). However, the actual project period was the 12 year 3 month period from December 2007 to February 2020 (147 months), significantly longer than planned (approx. 175% of the plan).

The main reasons for the extended period were: (1) prolonged negotiation with land owners for land acquisition which delayed the commencement of construction work in some ARCs; (2) delayed internal proceedings in some of the LGUs, which are the cooperating agency and the maintenance bodies after the project's completion, especially on matters related to budget allocation and procurement of labor force and materials that tended to be delayed, leading to delayed commencement of the construction work; (3) changes in the leadership as a result of the national and local elections that took place during the project's implementation period, which disrupted the project's progress. These factors made it necessary for DAR to rearrange and renegotiate with the LGUs regarding some of the project components, which was a lengthy process. Another factor for the delay is the existence of subprojects that have not yet been transferred to the LGUs at the time of the ex-post evaluation (February 2020)<sup>11</sup>.

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<sup>11</sup> At the time of the project appraisal, completion of the project was defined as "when hand-over of all components in the targeted ARCs to the maintenance bodies is completed." As the hand-over was confirmed pending, the project is concluded to be incomplete at the time of the ex-post evaluation. The two subprojects concerned are the market access roads in the Province of Ifugao in CAR, and Province of Southern Leyte in Region 8. The reasons for the delay include: (1) delayed selection of the construction company and longer time taken than expected to confirm budget and construction methods for the difficult work that was anticipated for road development in the mountainous region (the road in the Province of Ifugao); (2) after construction work was completed, the roads were damaged by typhoons, which then required repair work (both roads in the Provinces of Ifugao and Southern Leyte). Meanwhile, most subprojects

Table 4: Planned and Actual Project Periods

	Planned	Actual
(Whole project)	December 2007–August 2014 (84 months)	December 2007–February 2020 (147 months)
1) Consulting Services	September 2008–August 2014	April 2008–March 2015
2) Preparatory Study	January 2008–June 2013	January 2008–April 2014
3) Civil Works	March 2008–August 2014	April 2008–February 2020 *Note
4) Institutional Development	March 2008–August 2014	May 2008–August 2015

Source: Documents provided by JICA, Project Completion Report (PCR), Answers on questionnaire by DAR

Note: Since some of the sub-projects have not been handed over, timing point at conducting the secondary field survey (February 2020) will be the end point.

### 3.2.3 Results of Calculations for Internal Rates of Return (Reference only)

#### Financial Internal Rate of Return (FIRR)

The project was not designed to incur return such as fee revenues, thus FIRR was not calculated at the time of the project appraisal. Therefore, there was no recalculation at the time of the ex-post evaluation.

#### Economic Internal Rate of Return (EIRR)

The Economic Internal Rate of Return (EIRR) was recalculated at the time of the ex-post evaluation using the improvement of productivity and agricultural product prices, reduction of production cost and water pumping labor hours as profit, and project cost and the operation and maintenance costs as costs, and assuming a project life of 30 years. The result was 16.5%, which is lower than 18.5% assumed at the time of the project appraisal. The main reason is that, while the benefits have not changed much, costs such as the construction cost and the operation and maintenance costs were affected by the inflation rate and other relevant factors more than what was predicted at the time of the appraisal.

Given the above, the actual project cost was almost as initially planned, but the number of information marketing centers, number of institutional formulation and enhancement of federations of agricultural cooperatives, area for construction and rehabilitation of communal irrigation facilities, and number of constructions regarding water supply systems decreased in comparison to the initial plan. In particular, the construction and rehabilitation area of the communal irrigation facilities, which had a large project cost, and the number of information marketing centers decreased significantly. Therefore, it cannot be said that the results were

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were completed almost as planned.

necessarily efficient relative to the output plan. The actual project period exceeded the initially planned timeframe, due to the prolonged negotiation with landowners for land acquisition which affected the commencement of construction work in some areas. Based on a holistic review of the above, the project’s efficiency is judged to be low.



Photo 1: Irrigation Canal Facilities Constructed by This Project (Pampanga Province)



Photo 2: Farm to Market Access Road Constructed by This Project (Bohol Province)

### 3.3 Effectiveness and Impacts<sup>12</sup> (Rating: ③)

#### 3.3.1 Effectiveness

##### 3.3.1.1 Quantitative Effects (Operation and Effect Indicators)

Table 5 shows indicators (baseline, target, and actual figures) to measure the quantitative effects of the project. Some indicator’s target figures were the same as the planned scope presented in 3.2.1 Project Outputs, 3.2 Efficiency.

Table 5: Operation and Effect Indicators (baseline, target, and actual) of This Project

Indicators	Baseline	Target (2016) [2 years after project completion]	Actual
1) Agricultural income per household (Unit: PHP/year/household)	(107,913) *Note 1	Increased 30% from the baseline figure (*30% increase from the baseline figure is about 140,000)	Approx. 110,000–150,000 (Data from the ex-post evaluation in 2019. The sources are entities such as agricultural cooperatives interviewed during the field survey)

<sup>12</sup> Sub-rating for Effectiveness is to be put with consideration of impacts.

(2) Irrigation area benefited by the project (Unit: ha)	-	21,845 (However, given the discussion with NEDA and JICA in 2013, the target figure was revised to 13,648 ha)	12,497 (Data at the time of completion in 2018. Source: NIA)
(3) Institutional formulation and enhancement of irrigators' associations (Unit: groups)	-	111 (However, given the discussion with NEDA and JICA in 2013, the target figure after revision is 134)	128 (Data at the time of completion in 2018. Source: DAR)
(4) Rice yield per harvest season (Units: ton/ha/season)	(3.64) *Note 1	5.0	4.5–6.5 (Data from the ex-post evaluation in 2019. The sources are DAR and NIA, as well as entities such as agricultural cooperatives interviewed during the field survey)
(5) Number of agri-enterprises established (Unit: number)	-	129	328 *Note 2 (Data at the time of completion in 2018. Source: DAR and Project Completion Report)
(6) Number of training participants (Unit: people)	-	18,031	29,489 (Data at the time of completion in 2018. Source: DAR and Project Completion Report)
(7) Reduction of required time to major destinations such as markets (Unit: %)	N/A (provided it is reduced by 40%) *Note 1	40% reduction	40–50%+ (Data from the ex-post evaluation in 2019. The sources are entities such as DPWH, LGUs, and agricultural cooperatives interviewed during the field survey)
(8) Reduction in transportation costs for agricultural products (Unit: %)	N/A (provided it is reduced by 40%) *Note 1	40% reduction	30–50%+ (Data from the ex-post evaluation in 2019. The sources are entities such as DPWH, LGUs, and agricultural cooperatives interviewed during the field survey)
(9) Population supplied with water by this project (Unit: household)	-	33,865	21,461 (Data at the time of completion in 2018. Source: DAR)
(10) Institutional formulation and enhancement of water users' associations (Unit: groups)	-	81	84 (70) *Note 3 (Data at the time of completion in 2018. Source: DAR)
(11) Institutional formulation and enhancement of federations of agricultural cooperatives (Unit: groups)	-	54	21 (Data at the time of completion in 2018. Source: DAR)

Source: Documents provided by JICA, baseline survey report, answers on questionnaire by DAR, DAR's documents, interview results with DAR/NIA/DPWH, LGUs, agricultural cooperatives/agricultural cooperatives, etc.

Note 1: The figures in the parentheses are based on the baseline survey (2014) conducted during this project's implementation.

Note 2: Apart from this project, the figure includes a resulting figure from the institutional formulations and enhancements of agricultural cooperatives conducted using DAR's own funds.

Note 3: The number of facilities that were the target for "institutional formulation and enhancement of water users' associations," for which the work has been done were 84, but the number of facilities that are operating as organizations at the time of the ex-post evaluation is indicated in the parenthesis.

Each indicator shown in Table 5 is explained as follows.

(1) With regard to the "Agricultural income per household," the baseline figure is the one that was calculated based on the baseline survey, and the target figure was anticipated to increase 30% from the baseline figure. Results of the interviews<sup>13</sup> conducted during the field survey with agricultural cooperatives, federations of agricultural cooperatives and farmers, to identify the rough amount of income while visiting the following regions: Region I (Provinces of Ilocos Norte, and Ilocos Sur), Region III (Provinces of Pampanga and Nueva Ecija), and Region VII (Province of Bohol) reveal that the annual household income of project beneficiaries ranges from 110,000 to 150,000 PHP. Based on this, it can be surmised that the target figure is almost achieved since the same answers were received from each region.

(2) With regard to "Irrigation area benefited by the project", the project developed 12,611 ha. of farmland area, and the actual figure is calculated to be the planted area of 12,497 ha. This is low compared to the initial target figure 21,845 ha. The reasons are as described in 3.2.1 Project Outputs, 3.2 Efficiency.

(3) With regard to "Institutional formulation and enhancement of irrigators' associations", the results have slightly exceeded the target figures. This is because there were some cases where multiple irrigators' associations existed in the targeted ARCs. According to DAR and NIA, in one ARC there was a case where the scale of the irrigators' association was large with multiple water sources and multiple pumping facilities, and the association was decentralized.

(4) "Rice yield per harvest season" was confirmed to be almost as planned, or achieved more than the target figure according to the interviews with DAR, NIA, agricultural cooperatives, etc. The reason for this is that the irrigation facilities of this project have contributed to efficient water distribution.

(5) The "Number of agri-enterprises established" indicates the number of households and farmers organizations that received enterprise support (training) for agribusiness or in the

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<sup>13</sup> Key informant interviews were conducted with a total of 10 organizations and 28 people (21 men and 7 women), after the targeted regions were selected with the considerations including the following points in mind, based on the discussions with DAR headquarters and its regional offices: (1) invested project budget was relatively large; (2) ARCs in which communal irrigation facilities, post-harvest treatment facilities, access roads, bridges, water systems, etc., were developed and rehabilitated as outputs of this project, which may also have synergistic effect; (3) no security concerns around the project sites.



agricultural sector. The training provided was hands-on, aimed at the households and farmers organizations in the targeted ARCs to be able to access the appropriate production techniques and fully utilize the developed facilities such as the irrigation facilities. Such training included provision of information and instruction on agribusiness, project plan formulation, operation methods for organizational management and financial plan drafting, as well as promoting production techniques of crops such as rice, corn, vegetables, watermelon, and melon, selling organic produce, and popularizing food processing and handicrafts. The figure (328) includes a resulting figure from executing the project using DAR's own funds<sup>14</sup>, apart from this project.

(6) The "Number of training participants" increased in proportion to the abovementioned "Number of agri-enterprises established (328)," and total of 29,489 beneficiaries/individuals benefitted. There was no data of the actual figure of training participants to compare to the initial actual figure (number of businesses established: 136). According to DAR, this at least exceeded the target figure (18,031 people).

(7) As for the "Reduction of required time to major destinations such as markets," it was confirmed through the interviews during the field survey that the time required was significantly reduced. It can be surmised that about 40 to over 50% reduction in the time required has been achieved, as it can be understood through these comments: "it used to take a whole day on an unpaved road to transport agricultural products from ARCs to markets and clients before the start of the project, but with the road now paved with concrete we can access these places in two to three hours"; "there is more travel of people and goods with the improved accessibility between ARCs."

(8) Similarly, the "Reduction in transportation costs for agricultural products" was recognized through interviews. It can be surmised that about 30 to over 50% cost reduction has been achieved, as it can be understood through these comments: "the bottleneck of unpaved roads was the high cost for gasoline, but since the road has been paved with concrete it has been possible to curb the cost"; tires do not need changing as often"; "it made the transportation of production inputs such as seeds, seedlings and fertilizers easy, and I think the transportation cost of agricultural products in general has improved."

(9) The "Population supplied with water by this project" fell below the target figure for reasons described in 3.2.1 Project Outputs, 3.2 Efficiency.

(10) The number of executed initiatives such as training covered by "Institutional formulation

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<sup>14</sup> DAR states that this increase was due to receiving more requests than expected from households and farmers organizations who wanted the support. DAR claims that they decided to accept as many requests as they could.

and enhancement of water users' associations" was 84, exceeding the target figure. However, the number of these associations that are operating as organizations at the time of the ex-post evaluation is 70. Before start of this project, although support for institutional development, including 84 water user's associations was identified, 14 of them were found to be unfeasible because the population served was less than originally expected or in some areas it was difficult to provide water.

(11) The reasons for the number of "Institutional formulation and enhancement of federations of agricultural cooperatives" are as described in 3.2.1 Project Outputs, 3.2 Efficiency.

#### 3.3.1.2 Qualitative Effects (Other Effects)

Interview survey was conducted on the executives of agricultural cooperatives, federations of agricultural cooperatives, irrigators' associations, and LGUs in the targeted ARCs of the regions visited during the field survey<sup>15</sup>. The following are the effects of the project based on these interviews.

##### (1) Improvement of income through infrastructure development

Results of the interviews with farmer-members of agricultural cooperatives and their federations during the field surveys reveal that each household is earning between 110,000 and 150,000 PHP a year from agricultural activities. This confirmed the achievement of the target income increase as also supplemented by the following comment from an interviewee: "I think income from selling agricultural products is increasing every year, while the labor required in farming is decreasing."

##### (2) Improvement of logistics and services in and out of the project's target ARCs through construction of new farm-to-market access roads and improvement/rehabilitation of existing roads

Time required to major destinations such as markets has been reduced following the development of market access roads. Traffic in goods and people in and out of ARCs is active. It can be considered that improvement in logistics and services in target ARCs have been achieved, as it can be understood through these comments from the interviewees: "before, travel was difficult on the muddy unpaved road when it rained, but thanks to the road being paved with concrete, I can reach the destination quickly and safely. It is also easy to predict how long it may

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<sup>15</sup> The survey was conducted using the same methods as those describe in footnote no. 14 under 3.3.1.1 Quantitative Effects (Operation and Effect Indicators), such as the survey method, number of respondents, selection methods, and gender ratio.

take to the destination”; “thanks to the road, it is easy to transport inputs required for agricultural products, such as seeds, seedlings, and fertilizers. I can now easily carry agricultural products to the market”; delivery of “administrative services (e.g. services of firefighting and police vehicles) seem to have also improved.”

(3) Economic ripple effects on the neighboring areas of the project site as a result of the establishment of information marketing centers

Through interviews with the executives of the federations of agricultural cooperatives of the information marketing centers visited during the survey, the following comments were received: “Before the start of this project, even if we wanted to create agricultural goods and commercialize them, we did not know how to do it. At this time of the ex-post evaluation, we have been able to display products and samples at the local specialties sales corner in the information marketing center, and negotiate with visiting buyers for the purchase volume and business opportunity”; “product development is a good motivation to produce for the agricultural cooperatives and its members”; “in line with the effects of the developed market access roads and irrigation facilities, it is now easy to promote agricultural products through the center.” In some cases observed during the field visit, pamphlets that introduce the activities were created, and PR and promotional activities for the agricultural products were carried out, as well as active sales promotion at the trade fair held annually in Manila. In light of the above, it can be considered that the increased communication between agricultural cooperatives through the centers has played a role in sales promotion of the agricultural products that have been produced.

### 3.3.2 Impacts

#### 3.3.2.1 Intended Impacts

Contribution to Improvement of Quality of Life and Poverty Reduction for Local Residents

##### 1) Qualitative effect

Interview survey was carried out on the members of agricultural cooperatives, federations of agricultural cooperatives, irrigators’ associations, water users’ associations, and LGUs staff in the same regions, in order to observe the improvement of the living conditions of the poor, and understand the state of poverty reduction, same as in the interview survey in 3.3.1.2 Qualitative Effects (Other Effects)<sup>16</sup>. Below are excerpts of comments received.

○Communal irrigation facilities and post-harvest treatment facilities

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<sup>16</sup> A group discussion was held with a total of 12 organizations and over 50 people participating (about 30 men and 20 women). Sites where interviews were held were selected based on the selection method described in footnote no. 14.

“Production volume of rice went up, which increased the family income. This produced a comfortable amount of assets, which could be put into savings that enabled me to send my son to university”; “the increased income enabled me to buy a vehicle such as a tricycle”; “the selling price of rice is sometimes unstable these days, but improved self-sufficiency and increased production of rice have been a good motivation for us farmers.”

○ Building of new market access roads and improvement of existing roads

“It feels like the developed roads have led to the expansion of sales opportunities for agricultural products, increase of income, and improved logistics and transport”; “the improved road accessibility to other cities and villages has led to increased sales opportunities for agricultural products”; “improved road accessibility has created price competition for daily necessities and agricultural products, which I could purchase at a cheaper price than before. ”

○ Water supply infrastructure

“Before the installation of the water supply facilities, the water of this region was not entirely safe. Though rare, we sometimes drank water that got mixed with that from a water treatment tank. Currently the water from the water supply facilities is safe, and I am not concerned about it”; “my skin feels different from before when I wash my body.”

The abovementioned comments indicate that the living standards have improved in the targeted ARCs as there is more diversity and comfort in their lives.

## 2) Quantitative effect

Table 6 shows the number of landless farmers (estimated figure)<sup>17</sup>. The change can be observed in the comparison between 2003 (before the start of the project) and 2019 (after completion). It can be said that efforts including allotment of land to landless farmers, mediation of disputes over the allotment of land, and resolution of rights issues have been successful. Moreover, development of infrastructure and provision of soft support (e.g. organizational development) such as training on farming skills and knowledge in the ARCs, as it was done in this project, can be concluded to be supporting farming by landless farmers.

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<sup>17</sup> DAR calculates the estimate figure by identifying the farmland from an approximate land area and taking into account multiple elements, such as the number of Certificates of Land Ownership Awards (CLOA) issued, and the attributes of the farmers. Data only exists for 2003 and the end of September 2019.

Table 6: Trend of the Number of Landless Farmers Nationwide (Estimated values)

2003 (Before starts of project)	End of September 2019 (at the time of ex-post evaluation)
3,375,917 people	2,403,250 people

Source: DAR's documents

Table 7 shows the regions visited during the survey and the national poverty rate, which shows a generally declining trend.

Table 7: Trend of Poverty Rate in the Regions (region level) Visited in This Survey

Region (Province)	2006	2009	2012	2015
Region I (Region including the Provinces of Ilocos Norte and Ilocos Sur)	19.9	16.8	14.0	9.6
Region III (Region including the Provinces of Pampanga and Nueva Ecija)	10.3	10.7	10.1	8.9
Region VII (Region including Bohol Province)	30.7	26.0	25.7	23.6
National	21.0	20.5	19.7	16.5

(Unit: %)

Source: Philippine Statistics Authority (PSA)

Note: Data on poverty rate is gathered every three years by PSA. The data from 2018 is not published at the time of the ex-post evaluation (February 2020).

**Box. (Reference) Environment Surrounding Agriculture and Discussion Regarding the Future**

Initiatives by the Executing Agency

The gap of wealth distribution shown in Table 7 above is on a downward trend. Meanwhile, with regard to rice which is the major crop of the region (region level) visited during the survey, its yield trend has shown a general increase since the start of the project (2007) as seen in Table 8, though this growth has stagnated since 2015 in Regions I and VII. This is considered to be due to the impact of decreasing farming population and progressing urbanization. As shown in Table 9, the national farming population is on a downward trend<sup>18</sup>, and urbanization is progressing as seen in Table 10. Table 11 shows that the national working population has increased, and unemployment rate is on a downward trend. What underlies these trends is considered to be the ongoing trend of population influx from rural regions into the metropolitan, such as the capital region of Manila and urban area of Cebu. This means that the environment surrounding agriculture in the Philippines may be changing. The measures and initiatives by

<sup>18</sup> In addition to this, the average age of farmers is considered to be on an upward trend. Though there is no concrete statistical data for this, when agricultural cooperatives and farmers were asked during the interview survey about the average age, their answers centered around mid to late 50s. Many interviewees also claimed that there are not many young farmers this time.

DAR, including this project, are thought to have contributed to the reduction of the number of landless farmers, and improvement of farmers' income and their living environment. However, for future programs, it may be necessary to carefully reflect on the state of these elements (it is important to explore how support should be, for example whether to continue with the initiatives such as small-scale infrastructure development and providing training as done through this project, or whether to work on eliminating landless farmers by focusing on solving legal challenges, as explained in 3.1.2 Consistency with the Development Needs, 3.1 Relevance).

Table 8: Trend of Rice Yield in the Region (region level) Visited During the Survey

	(Unit: ton)			
	2009	2012	2015	2018
Region I (Region including the Provinces of Ilocos Norte and Ilocos Sur)	1,351,715	1,737,695	1,777,121	1,720,044
Region III (Region including the Provinces of Pampanga and Nueva Ecija)	2,805,467	3,220,607	3,304,310	3,615,115
Region VII (Region including Bohol Province)	276,818	327,120	336,194	309,459

Source: Philippine Statistics Authority (PSA)

Note: Data exists for every year, however due to the space restriction the table shows data from every three years.

(Reference) Table 9: Trend of the National Farming Population

(Unit: thousand people)			
2009	2012	2015	2018
12,403	12,092	11,294	9,998
(about 81% of that in 2009)			

Source: Philippine Statistics Authority (PSA)

Note: Data exists for every year, however due to the space restriction the table shows data from every three years.

(Reference) Table 10: Trend of Urbanization (based on the trend of urban population: comparison between 2010 and 2015)

	(Unit: %)	
	2010	2015
Region I (Region including the Provinces of Ilocos Norte and Ilocos Sur)	12.7	20.5
Region III (Region including the Provinces of Pampanga and Nueva Ecija)	51.6	61.6

Region VII (Region including Bohol Province)	43.7	49.4
National	45.3	51.2

Source: Philippine Statistics Authority (PSA)

Note: The data is collected every five years. Only two years of data could be obtained.

(Reference) Table 11: Trend of the National Working Population and Unemployment Rate

	2009	2012	2015	2018
Working population at age 15 and over (Unit: thousand people)	59,237	62,985	64,939	71,339
Unemployment rate (Unit: %)	7.5	7.0	6.3	5.3

Source: Philippine Statistics Authority (PSA)

Note: Data exists for every year, however due to the space restriction the table shows data from every three years.

### 3.3.2.2 Other Positive and Negative Impacts

#### 1) Impacts on the Natural Environment

Before the start of the project, formulation of Environmental Impact Assessment (EIA) report was not mandatory under the Philippines' domestic law. However, some subprojects required Environmental Compliance Certificates (hereinafter ECC), in which case necessary procedures were asked to be taken before executing the project. Through a questionnaire and interviews with DAR, NIA, and DPWH, it was confirmed that right-of-way acquisition procedures had been completed smoothly after the start of the project, with regard to ECC or Certificate of Non-Coverage (hereinafter CNC) notifications<sup>19</sup>.

It was confirmed through interviews with entities such as DAR, as well as LGUs, agricultural cooperatives, irrigators' associations, and water users' associations visited during the field survey, that there was no negative impact on the natural environment through factors such as air pollution, noise and tremors, or waste disposal, during the project implementation or after its completion<sup>20</sup>.

#### 2) Resettlement and Land Acquisition

Through a questionnaire and interviews with DAR, NIA, DPWH, and LGUs, it was confirmed that there were no subprojects that entailed resettlement. With regard to right-of-way acquisition, some subprojects (mainly market access roads) required this process for the implementation, but

<sup>19</sup> The two subprojects that required ECC were: bridge in the Province of Quirino (Region II), and irrigation project in the Province of Davao Oriental (Region XI). Other subprojects were eligible for CNC notifications.

<sup>20</sup> After handing over the subprojects, in principle the LGUs' Municipal Environment and Natural Resource Office (MENRO) is responsible for environmental monitoring. If a problem occurs in the environmental aspect, the office is supposed to take necessary measures. It was confirmed through an interview with DAR that there has not been any particular issue by the time of the ex-post evaluation, thus there is no actual example of such measures.

landowners provided their land for free (donated)<sup>21</sup>, thus there was no compensation payment. Since no disputes have occurred during the project implementation or after completion, it is considered that no negative impact has occurred.

In light of the above, out of the 11 indicators that measure effectiveness and quantitative effects, eight of them achieved the figures almost as planned, or exceeded the plan. These eight indicators are: agricultural income per household; institutional formulation and enhancement of irrigators' associations; rice yield per harvest season; number of businesses established; number of training participants; reduction of required time to major destinations such as markets; reduction in transportation costs for agricultural products; institutional formulation and enhancement of water users' associations. Some of the indicators should have been adjusted at the time of the project appraisal since the analysis items for efficiency and effectiveness overlap. In any case, the initial target figures can be concluded to have basically been achieved through the project implementation. Moreover, the project can be considered to have played a role in poverty reduction, as the interview survey revealed that the project has achieved increase in agricultural productivity and revenue, improvement of living standards, and some degree of improvement in the quality of life for the residents of the targeted ARCs. Based on a holistic review of the above, the effectiveness and impact of the project is judged to be high.

### 3.4 Sustainability (Rating: ③)

#### 3.4.1 Institutional / Organizational Aspect of Operation and Maintenance

The Executing Agency of this project is DAR. The operation and maintenance system of the facilities that were developed through this project is as follows.

##### ○Market access roads and bridges

DAR has concluded Minutes of Understanding (hereinafter MOU) with each LGU within the ARCs. Based on the MOU, the LGUs provide operation and maintenance budget and staff for 10 years after the subprojects are handed over to them, and are in charge of operation and maintenance with the cooperation from the barangays around the project site. The local barangay staff only conducts weeding around the developed roads and clean the road surface, but the LGUs

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<sup>21</sup> As an example, landowners welcomed the increasing price of their land caused by road development, when part of the road was targeted for acquisition for the development of a market access road (they were hopeful for the value to go up even if they had to provide their land). According to DAR, LGUs were in charge of negotiation with the landowners and procedure for land acquisition, in line with the domestic laws. The data on actual number of targeted owners and area could not be obtained, but DAR stated that most of their areas were small-scale.



allocate the operation and maintenance budget as necessary. In addition, when disaster such as a typhoon occurs, the LGU's technical staff visit the site, check the damage situation, consider necessary support, and rehabilitate based on the LGUs' budget. However, there may be differences in the response depending on the financial status of the LGUs.

○Communal irrigation facilities

The irrigators' associations within the targeted ARCs are in charge of operation and maintenance. The irrigators' associations collect the irrigation service charges through the affiliated association members, and allocate these for the operation and maintenance costs of the irrigation facilities that have been developed. There are also cases in which some LGUs are in charge of operation and maintenance of these facilities in collaboration with the irrigators' associations.

○Post-harvest treatment facilities

The agricultural cooperatives within the targeted ARCs are in charge of operation and maintenance. Operation and maintenance tasks are carried out using the agricultural cooperatives' budget.

○Water supply system

The water users' associations within the targeted ARCs are in charge of operation and maintenance. Maintenance cost is covered by the water bills collected from the beneficiaries. As with the communal irrigation facilities, there are also regions where some LGUs are in charge of operation and maintenance of these facilities in collaboration with the water users' associations.

○Information marketing centers

The federations of agricultural cooperatives are in charge of operation, such as maintenance of the information marketing centers, and selling agricultural products. Staff members are dispatched from each agricultural cooperative to run the organization. As previously mentioned, federations of agricultural cooperatives require at least 14 agricultural cooperatives to form, and their operation and maintenance is supported by the financial contributions of each cooperative and sales revenue of agricultural products sold at the center.

It was confirmed through the interviews with the agricultural cooperatives, federations of agricultural cooperatives, irrigators' associations, water users' associations, and LGUs in the regions visited during the survey, that there was no particular shortage of staff who are in charge of the operation and maintenance.

With regard to the storing system of the maintenance equipment, the operation and maintenance

bodies for communal irrigation facilities, post-harvest treatment facilities, and water supply systems generally purchase and store the supplies and parts from local private companies. LGUs are supposed to be in charge of addressing market access roads and bridges. However, as mentioned above, this does not require large-scale maintenance, therefore there were no particular cases of purchase/storage that could be confirmed.

According to DAR, in principle they are not involved in operation and maintenance after the subprojects are handed over to them. However, DAR regional offices visit the subproject sites when necessary, and monitor the facilities' conditions and how they are being utilized<sup>22</sup>. When problems arise, DAR stated that they notify the provincial government in which the LGU and the subproject is located, and request appropriate measures. As already mentioned, though DAR does not have the responsibility over operation and maintenance of the developed facilities, they understand that they are following up on the project by monitoring these facilities regularly.

In light of the above, it can be concluded that there are no particular major issues in the aspect of operation and maintenance system for the facilities that have been developed through the project. Meanwhile, the project has many subprojects, and it is desirable for DAR to continue visiting and monitoring the subproject sites regularly to secure the quality of the facilities, and maintain a system that can resolve arising issues.

#### 3.4.2 Technical Aspect of Operation and Maintenance

No particular major issues were observed in the technical aspect of operation and maintenance by the irrigators' associations, agricultural cooperatives, LGUs, water users' associations, and federations of agricultural cooperatives in the regions visited during this survey. Each organization is made up of experienced operation and maintenance staff members with generally five years or more experience working there. It was confirmed through the interview survey that they properly understood the importance of their tasks.

Each organization provides a variety of education and training for its staff. These cover the themes including financial management, development for organization, agribusiness and marketing, developing and planning business in water supply systems and post-harvest treatment facilities, promoting sales of agricultural products, and practicing operation and maintenance.

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<sup>22</sup> All facilities developed through this project are subject to visits at least once a year. As previously mentioned, there are two subprojects (market access roads) which have not yet been handed over. Therefore, DAR must continue monitoring these subprojects and make arrangements smoothly with the LGUs until the hand-over is complete.

### 3.4.3 Financial Aspect of Operation and Maintenance

Below is an explanation of the financial aspect of operation and maintenance by the irrigators' associations, agricultural cooperatives, LGUs, water users' associations, and federations of agricultural cooperatives in the regions visited during this survey. Although this survey conducted interviews in multiple regions, each project component described below takes one region as an example<sup>23</sup>.

#### ○Market access roads and bridges

Sarrat Municipal Office (LGU, Ilocos Norte Province) visited during this survey bears the expense of 500,000–700,000 PHP annually for the barangays around the area where the road is located, in line with the MOU agreed with DAR<sup>24</sup>. Table 12 shows the revenue and business tax income of the LGU. Business tax income has more than doubled in the most recent four years, indicating the trend of business tax income being high in line with the increase in revenue. According to the municipal office, “budget allocated for maintenance of the roads developed through this project is adequate. Revenue has increased year by year.” The LGU has also pointed out that the increase in fixed asset revenue and the number of new businesses are also contributing factors.

Table 12: Sarrat Municipal Office's (LGUs) Revenue and Business Tax Income

(Unit: 1000 PHP)

	Year 2016	Year 2017	Year 2018	Year 2019 *Note 1
Revenue	12,323	14,020	16,644	17,328
Of which, business tax income	2,022	3,295	4,217	5,249

Source: Sarrat Municipal Office (Ilocos Norte Province, population approx. 3,000)

Note: Data for 2019 is as of the end of November

#### ○Communal irrigation facilities

It was confirmed through interviews with the irrigators' associations visited during this survey, that many ARCs have high collection rates of irrigation service charges. Some associations have a collection rate almost as high as 100%. It was also confirmed that appropriation of these

<sup>23</sup> In this survey, financial data were obtained only from the organizations visited in Ilocos Norte and Ilocos Sur.

<sup>24</sup> The LGU strictly follows the agreed MOU, and allocates the project budget for operation and maintenance tasks of the market access roads every year. This is paid out of the budget item called Annual Investment Program. If this is insufficient, the same will be paid out of the supplementary budget. As for other items, 5% of the whole budget of the LGU is allocated to disaster measures every year, meaning typhoon damages will be addressed using this budget. Moreover, in some cases they pay the barangays development cost for cleaning the road or installing street lights and poles, and the barangays are in charge of executing such work. According to DAR, a similar trend can also be observed in other LGUs, but it varies in scale due to their different financial capacities.

collected charges on maintenance costs was adequate<sup>25</sup>.

○ Post-harvest treatment facilities

Revenue (profit is the amount after deduction of the operation and maintenance costs) of the agricultural cooperatives in charge of the operation and maintenance (San Nicolas Agricultural Cooperative in the Province of Ilocos Norte) is shown in Table 13. The reasons for increased profit in 2018 compared to the year before given by this agricultural cooperative was that they have been a recipient of a grant of agricultural equipment than in the past from the Department of Agriculture, such as farming tools, and have worked on more efficient production.

Table 13: Profit and loss (income minus the expenses, such as the operation and maintenance costs) of San Nicolas Agricultural Cooperative (Province of Ilocos Norte), in charge of the operation and maintenance of the post-harvest treatment facility

(Unit: 1000 PHP)

2017	2018
157	310

Source: San Nicolas Agricultural Cooperative

○ Water supply system

At San Jose and San Cristobal Water Users' Association (Province of Ilocos Norte), which was visited during this field survey, the water bill revenue is 435,600 PHP<sup>26</sup> per year. According to the association, "the amount of bills collected is proportionate to the number of registered households. The amount is enough to allocate on the operation and maintenance costs for managing the water distribution facilities and water sources. Collection rate of water bills is also high." The amount and method for collection is decided by each association, and it can be considered that there are no particular concerns about this.

○ Information marketing centers

For Federation of Patriotic Farmers Cooperatives of Nueva Ecija (Province of Nueva Ecija), which was visited during this field survey, their final profit saw net positive, as indicated by the profit and loss statement in Table 14 (most recent two years). It was confirmed through the interviews that they have made profit after deduction of the operation and maintenance costs, and that their budget is also sufficient.

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<sup>25</sup> This is underlined by the fact that water cannot be drawn to the irrigation farmland without paying for its service, which affects planting and output. Therefore, collection of the service charges is smooth, and these charges are appropriated as the maintenance cost for the irrigation facilities. It is also thought that the project has been successful in aspects such as improving operation and thoroughly communicating within the organizations, through its initiatives in institutional formulation and enhancement (such as training).

<sup>26</sup> Monthly revenue from this is 36,300 PHP. Breakdown: payment of 150 PHP per household x 242 households.

Table 14: Profit and Loss Statement Regarding the Federation of Patriotic Farmers Cooperatives of Nueva Ecija

	2018	2019
Total sales	3,030	2,755
Total expenses	2,908	2,631
Final profits	122	124

(Unit: 1000 PHP)

Source: Federation of Patriotic Farmers Cooperatives of Nueva Ecija (Province of Nueva Ecija)

In light of the above, it can be concluded that there are no particular major issues in the financial aspect of operation and maintenance for the facilities that have been developed through the project.

#### 3.4.4 Status of Operation and Maintenance

The operation and maintenance condition of the facilities in the regions visited during this survey is explained below. No particular major issues were observed in the operation and maintenance condition of the facilities by the irrigators' associations, agricultural cooperatives, LGUs, water users' associations, and federations of agricultural cooperatives.

##### ○Market access roads and bridges

It was confirmed that there were no problems with the condition of the road surface. No major damages were observed. Local barangays clean the road surface and the bridges and weed the roadside regularly.

##### ○Communal irrigation facilities

The irrigators' associations utilize the irrigation service charges they have collected, and carry out activities such as cleaning the irrigation waterways, managing the drainage, and cleaning the sluice gates. Maintenance condition also appeared to be good.

##### ○Post-harvest treatment facilities

No damages or other issues were seen on the rice storehouses, and no problems were confirmed for the operation condition of the dryers.

##### ○Water supply system

No particular issues are considered to exist in maintenance by the water users' associations. It was also confirmed that tasks including operation check and regular inspection of the water distribution facilities are performed regularly.

##### ○Information marketing centers

No particular issues were observed in the operation and maintenance of the centers' facilities (agricultural products' sales corner, training and conference rooms, etc.) by the federations of agricultural cooperatives. No large-scale or regular maintenance is particularly required, and the extent of such tasks include cleaning and replacing parts for electric fixtures.

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



Photo 3: Established Water Supply Facility (Ilocos Norte Province)



Photo 4: Established Information Marketing Center (Bohol Province)



Photo 5: Established Post-harvest Treatment Facility (Office/drying facility, Ilocos Norte Province)



Photo 6: Established Post-harvest Treatment Facility/Warehouse (Pampanga Province)

#### 4. Conclusion, Lessons Learned and Recommendations

##### 4.1 Conclusion

This project aimed to raise the income level of the residents of ARCs across the country, thereby contributing to poverty reduction in these areas. For this purpose, the project provided support to infrastructure development such as installation of small-scale irrigation facilities, and establishment of information marketing centers and institutional development of organizations that promote exchange of information and wide-ranging cooperation in ARCs. The *Medium-Term*

*Philippine Development Plan (2004–2010)* and the *Philippine Development Plan (2017–2022)* formulated by the Philippine Government both indicated the importance of addressing inequality and other relevant aspects including that of productivity in agriculture and rural businesses in order to expand economic opportunities in the fields of agriculture, forestry, and fishery. In addition, it was confirmed that the project was consistent with Japan's ODA policy, and that there was a demand for continued provision of agrotechnical services, support for institutional formulation, financial services, and infrastructure development to micro-farmers and other relevant parties in the ARCs. As such, the relevance of this project is high. With regard to efficiency, the actual project cost was almost as that of initially planned but the figures did not reach the planned targets such as the number of information marketing centers, number of institutional formulation and enhancement of federations of agricultural cooperatives, areas for construction and rehabilitation of communal irrigation facilities, and number of construction of water supply systems. Given these, it cannot be concluded that the results were necessarily efficient relative to the planned outputs. Additionally, the project period exceeded the initially planned timeframe, due to the prolonged negotiation with landowners for land acquisition, which affected the commencement of construction work in some areas. In light of the above, efficiency of the project is judged to be low. Many indicators that measure quantitative effects show that these effects have been achieved almost as planned, or exceeded the plan. Moreover, through interviews with people relevant to the project, such as those from agricultural cooperatives, federations of agricultural cooperatives, LGUs and farmers, it can be considered that the impact of the project has manifested in terms of increased farming productivity and revenue, improved quality of life of residents of the targeted ARCs, and reduction of poverty. In light of the above, the effectiveness and impact of the project is judged to be high. With regard to operation and maintenance in the LGUs, irrigators' associations, agricultural cooperatives, federations of agricultural cooperatives, and water users' associations visited during this field survey, no particular major concerns are thought to exist in the conditions of their organizational structures, technical aspect, financial affairs, and operation and maintenance. Thus, sustainability of the effects realized through this project is judged to be high.

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

## 4.2 Recommendations

### 4.2.1 Recommendations to the Executing Agency

- There are two subprojects that have not yet been handed over at the time of the ex-post

evaluation<sup>27</sup>. It is desirable for DAR to promptly take appropriate measures to facilitate the proper hand-over of these subprojects to LGUs in collaboration with DPWH and LGUs which are maintenance bodies.

- DAR regularly visits and monitors the subproject sites. Though DAR does not hold the responsibility for operation and maintenance of the developed facilities, it is desirable for them to continue monitoring the extent and results of utilization of these facilities.

#### 4.2.2 Recommendations to JICA

- It is desirable for JICA Philippine Office to check, follow-up DAR and submit requests as necessary until the procedures are completed for the long-delayed handing-over of the abovementioned subprojects. Moreover, it is desirable for the office to regularly check the progress of ex-post monitoring activities of DAR as mentioned above, and keep track of the condition of the facilities.

#### 4.3 Lessons Learned

(Need to adjust the output plan and quantitative effect indicators during the pre-implementation phase as much as possible and understand effect and impact of the project)

- Before the start of the project, there was no adequate amount of information on ARCs, or enough survey and statistical data on landless farmers. Thus the output plan was not thoroughly examined to a satisfactory level. This is considered to have been excusable, and DAR's actions could be considered appropriate when they created and revised the indicators related to the output plan and quantitative effects following the approval of JICA and NEDA during the course of project implementation. But it is desirable to invest time and budget to establish baseline figures after reconfirming target figures and adjust quantitative effect indicators on or before the start of the project. It is not always correct to carry out project supervision and monitoring after the start of the project or during the project implementation, with changes in the planning scope and indicators. In formulating similar projects in the future, it is desirable for the Executing Agency and JICA to appropriately adjust the output plan and quantitative effect indicators before the start of the project, as much as possible. JICA, the Executing Agency, and project consultants in charge of case management (including local consultants) must enhance their focus on efforts to keep track of the effects and impact of the project before its commencement, premised on the initially

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<sup>27</sup> Market access roads in the Province of Ifugao in CAR, and Province of Southern Leyte in Region 8.



planned project scope and figures of the quantitative effect indicators, and have the attitude to continue this monitoring during the project implementation.

Comparison of the Original and Actual Scope of the Project

Item	Plan	Actual
1. Project Outputs	<p>1) Support for infrastructure development in ARCs (129 ARCs in 54 provinces across the country)</p> <p>(i) Construction and rehabilitation of communal irrigation facilities (approx. 111 systems, approx. 21,845 ha), construction of post-harvest treatment facilities (approx. 67 facilities), building of new market access roads &amp; improvement of existing roads (approx. 677 km), construction of bridges (approx. 1,334 m), construction of water supply systems (approx. 81 systems, approx. 33,865 households)</p> <p>(ii) Institutional formulation and enhancement (111 irrigators' associations, 81 water users' associations, 129 agricultural cooperatives)</p> <p>2) Support for development of areas around ARCs</p> <p>(i) Establishment of information marketing centers (approx. 26 facilities)</p> <p>(ii) Improvement of existing access roads (approx. 30 km)</p> <p>(iii) Institutional formulation and enhancement (targeting around 54 federations of agricultural cooperatives)</p> <p>3) Consulting services Overall project management, development for organization, construction supervision</p>	<p>1) Support for infrastructure development in ARCs (<u>136</u> ARCs in 54 provinces across the country)</p> <p>(i) Construction and rehabilitation of communal irrigation facilities (<u>120</u> systems, <u>12,611</u> ha), construction of post-harvest treatment facilities (<u>68</u> facilities), building of new market access roads &amp; improvement of existing roads (<u>701</u> km), construction of bridges (<u>1,822</u> m), construction of water supply systems (<u>70</u> systems, <u>21,461</u> households)</p> <p>(ii) Institutional formulation and enhancement (<u>128</u> irrigators' associations, <u>84</u> water users' associations, <u>328</u> agricultural cooperatives: *DAR formulated and enhanced another 192 agricultural cooperatives using its own funds, thus the actual figure upon completion increased to a total of 328)</p> <p>2) Support for development of areas around ARCs</p> <p>(i) Establishment of information marketing centers (8 facilities)</p> <p>(ii) Improvement of existing access roads (*none implemented in this project)</p> <p>(iii) Institutional formulation and enhancement (targeted 21 federations of agricultural cooperatives)</p> <p>3) Consulting services Implemented as planned.</p>
2. Project Period	December 2007–August 2014 (84 months)	December 2007–February 2020 (147 months)

3. Project Cost Amount Paid in Foreign Currency	4,340 million yen	4,295 million yen
Amount Paid in Local Currency	12,697 million yen	12,640 million yen
Total	17,037 million yen	16,935 million yen
ODA Loan Portion	(11,802 million yen)	(11,672 million yen)
Exchange Rate	1 yen = 0.43 PHP, 1 USD = 119 yen (as of November 2006)	1 yen = 0.46 PHP, 1 USD = 101.97 yen (The average value is based on which the exchange rate is divided by the IMF's International Fiscal Statistics (IFS) 2008–2019.)
4. Final Disbursement	April 2017	