

Republic of the Philippines

FY2015 Ex-Post Evaluation of Japanese ODA Loan

“Post Ondoy and Pepeng Short-term Infrastructure Rehabilitation Project”

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

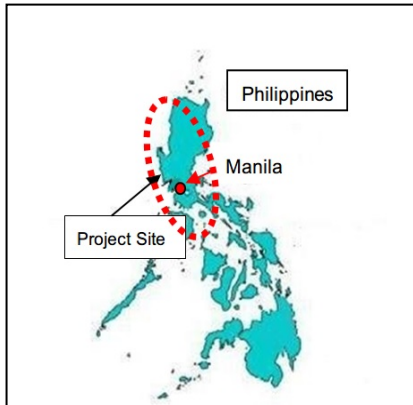
0. Summary

This project rehabilitated flood control facilities, roads and bridges in central and northern Luzon Island, which was seriously affected by the Typhoons Ondoy and Pepeng of 2009, with a view to prevent future damage and facilitate the early recovery of socioeconomic activities in the affected areas. Regarding relevance, the objectives of this project are consistent with the development policy of the Philippines at the start of this project, considering that the National Economic and Development Authority (hereafter referred to as “NEDA”) held a public-private partnership dialogue to share the rehabilitation and reconstruction efforts and the private sector’s initiatives, following the damage caused by Typhoon Ondoy and Pepeng. Importance was also placed on measures against climate change and natural disasters at the time of the ex-post evaluation, which is stipulated in the Philippine Development Plan (hereafter referred to as “PDP”). Furthermore, this project is also consistent with the development needs of the country, considering that at the time of the ex-post evaluation the executing agency of this project, the Department of Public Works and Highways (hereafter referred to as “DPWH”), has embarked on an initiative for timely responses of restoration in the event of natural disasters destroying infrastructures essential to people’s livelihoods. Furthermore, the project is consistent with the assistance policy of the Japanese Government. Thus, relevance is high. Regarding efficiency, costs were economized as a result of competitive bidding for approximately half of the contracts for sub-projects disbursed under the special account procedure and it was possible to implement additional sub-projects. Meanwhile, the actual total project cost slightly exceeded the initial plan due to the fluctuation in exchange rates. As for the project period, each step such as tendering, contracting, commencement and completion of the construction took longer, and caused delays. Thus, efficiency is low. With regard to effectiveness and impact, flood control facilities, roads and bridges remain functional at the time of the ex-post evaluation, and meet the design specifications. It was confirmed that the risks for floods have been reduced and residents are less worried. Furthermore, a beneficiary survey revealed that the level of satisfaction with the project was high and that positive impacts such as increased and stable agricultural production were confirmed after the road constructions. Thus, the effectiveness and impact are high. Regarding sustainability, no particular problems were

observed in the institutional, technical and financial aspects of the operation and maintenance of this project; thus, sustainability of the project's effects is high.

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

1. Project Description



Project Location



Gabion Developed Along the Road in the Mountainous Region (Benguet)

1.1 Background

Typhoon Ondoy (Typhoon Ketsana, hereafter referred to as “Ondoy”) and Typhoon Pepeng (Typhoon Parma, hereafter referred to as “Pepeng”) hit Central and Northern Luzon in September and October 2009. They caused strong winds, heavy rains, floods and landslides, causing serious damage to the region; 1,700 people died and more than nine million people were affected. Damage was severe in production sectors like agriculture, industry and commerce, as well as in the social sector such as housing and educational facilities. Particularly, damage was caused to infrastructures including electrical power, water and sewage, flood control/drainage/dam, transportation and communication, with total damages amounting to approx. 237 million USD. The damage caused by Ondoy and Pepeng had a serious influence on the livelihoods and economic activities of the poor, who were vulnerable to the external risks of natural disasters. Therefore, assisting rehabilitation and reconstruction works that aimed for early recovery of socioeconomic activities in the affected regions was an urgent task.

1.2 Project Outline

The objective of this project is to protect the affected areas from further damage and to facilitate early recovery of socioeconomic activities by rehabilitating the damaged flood control facilities, roads and bridges to the pre-disaster level, thereby contributing to the safety of the

affected population and to the sustainable economic development in Central and Northern Luzon which were seriously affected by Ondoy and Pepeng.

Loan Approved Amount/ Disbursed Amount	9,912 million yen / 8,134 million yen
Exchange of Notes Date/ Loan Agreement Signing Date	April 2010 / May 2010
Terms and Conditions	Construction: Interest Rate 0.01% Repayment Period 40 years (Grace Period 10 years) Conditions for Procurement: General Untied
Borrower / Executing Agency(ies)	The Government of the Republic of the Philippines / Department of Public Works and Highways (DPWH)
Final Disbursement Date	September 2013
Main Contractor (Over one billion yen)	None
Main Consultant (Over 100 million yen)	None
Feasibility Studies, etc.	Post-Disaster Needs Assessment (hereafter referred to as “PDNA”) (Philippine government and development partner led by the World Bank, November 2009)
Related Projects	<p>【Grant Aid】</p> <ul style="list-style-type: none"> • 2009: “Typhoon Disaster in the Republic of the Philippines” (Emergency Grant Aid from Japan) (Emergency Grant Aid through the World Food Program of the UN (Food Aid)). • 2009: “Emergency Assistance for the People Affected by Typhoons in Manila Metropolitan and Province of Rizal” (Grant Assistance for Grass-Roots Human Security Projects). <p>【Other International Organizations】 (World Bank)</p> <ul style="list-style-type: none"> • 2009: Assistance for Local Governments in response to

	<p>Disasters (grant).</p> <ul style="list-style-type: none"> • 2009: Food Crisis Response Development Policy Operation (loan). <p>(Asian Development Bank)</p> <ul style="list-style-type: none"> • 2009: Disbursement from the Asia Pacific Disaster Response Fund. <p>(EU)</p> <ul style="list-style-type: none"> • 2009: Implementation of the PDNA, emergency rescue, humanitarian assistance.
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2. Outline of the Evaluation Study

2.1 External Evaluator

Kenichi Inazawa, Octavia Japan Co, Ltd.

2.2 Duration of Evaluation Study

Duration of the Study: August 2015 – September 2016

Duration of the Field Study: November 15 – November 29, 2015 and
February 14 – February 23, 2016

2.3 Constraints during the Evaluation Study

As will be explained in Section 3.2.1 Project Outputs under Efficiency, this project is composed of many sub-projects¹. With the given time and budget, it was difficult to visit all 720 sub-projects in all the areas affected by Ondoy and Pepeng. This evaluation study focused on three regions, namely the Cordillera Administrative Region (hereafter referred to as “CAR”), Region I and Region III², by analyzing collected information and data as well as interview and beneficiary survey results since 80% of the rehabilitated flood control facilities and 50% of the rehabilitated roads and bridges were concentrated in these regions.

Regarding the quantitative effect indicators to measure effectiveness, at the time of the appraisal it was thought that effectiveness should be measured using annual highest water level and annual largest inundation for the flood control facilities, thickness and width and loading limits for the roads and bridges as per the design specifications. However, such data were not

¹ All projects that were implemented under this project are collectively called “sub-projects”.

² The sub-projects sites that were visited are listed at the end of this report.

collected before the start of the project or even after the completion of the project. In this evaluation study, effectiveness was judged based on the answers to the questionnaires and interviews with management officials by looking into the status of the DPWH Regional Office's (hereafter referred to as "RO") sub-projects before the disasters and after the completion of the project, and whether the rehabilitated facilities adhered to the design specifications at the time of the ex-post evaluation.

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

3.1 Relevance (Rating: ③⁴)

3.1.1 Relevance to the Development Plan of the Philippines

Before the start of this project, the government of the Philippines appealed to the international community, requesting support to restore the damage caused by Ondoy and Pepeng. The Philippine government established a special national committee for public restoration and a system for restoration through public-private partnership. Furthermore, the Philippine government and international agencies such as the World Bank implemented the PDNA. The NEDA initiated a dialogue for public-private restoration support, shared the Philippine government's restoration and rehabilitation plans and initiatives of the private sector, and requested the international community to assist the post-Ondoy and Pepeng restoration efforts.

At the time of the ex-post evaluation, the government of the Philippines has formulated the PDP (2011-2016) and stipulated its policy and strategy for environment and society with a view to preventing natural disasters. This document lists the response to climate change and natural disasters and developing mechanisms for post-disaster restoration and rehabilitation as priorities. In addition, the government of the Philippines recognizes in its PDP that climate changes and the associated influences on natural disasters by the changes would lead to the expansion of poverty and lowering of environmental quality. Based on such an understanding, the Philippine government enacted the Disaster Risk Reduction and Management Act (Republic Act No. 10121).

As described above, measures were taken to respond to climate change and natural disasters in the Philippines at the time of the appraisal and at the time of the ex-post evaluation. Therefore, it can be said that this project was in line with the country's policy, such as national and sector plans.

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

⁴ ③: High, ②: Fair, ①: Low

3.1.2 Relevance to the Development Needs of the Philippines

Ondoy and Pepeng brought strong winds and storms, causing floods and landslides in Central and Northern Luzon. They left 1,700 people dead and more than nine million people injured. There was serious damage to the production sector including agriculture, industry and commerce, as well as to the social sector such as housing and educational facilities. In particular, there was severe damage to the infrastructure, such as the water supply and sewage, flood control/drainage/dam, transportation and communication. The total damage amounted to approx. 237 million USD. According to the PDNA, there is demand for repair and reinforcement of housing and construction of temporary housing, as well as assistance for infrastructures such as flood control facilities, roads and bridges. Therefore, Ondoy and Pepeng had serious impacts on people's daily lives and economic activities, especially the poor who are vulnerable to outside risks such as natural disasters. Thus, the restoration and rehabilitation of socioeconomic activities of the affected regions were an urgent task.

At the time of the ex-post evaluation, it can be judged that rehabilitation and restoration of flood control facilities, roads and bridges through this project have greatly contributed to stabilizing the foundations of local people's lives, as will be explained in Sections 3.3 Effectiveness and 3.4 Impacts. Furthermore, the executing agency of this project, the DPWH, adopted a policy of rapid response in 2015 in the event of natural disasters damaging infrastructures essential for people's lives. For example, if infrastructures such as flood control facilities, roads and bridges are damaged by a typhoon, the DPWH headquarters will quickly respond to regional offices' requests to conduct on-site assessment of the damage, thereby procuring contractors and disbursing budgets necessary for restoration.

As explained above, the effects of restoring and rehabilitating flood control facilities, roads and bridges through this project are clear and the government is also undertaking prompt measures. Therefore, this project can be judged to be consistent with the development needs of the country before the start of the project, as well as at the time of the ex-post evaluation.

3.1.3 Relevance to Japan's ODA Policy

Japan's Country Assistance Program for the Philippines formulated in June 2008 indicated that supporting the poor to be self-sufficient and improving their living conditions is one of the important development issues. The policy said: "Prompt emergency assistance and support for rehabilitation and reconstruction will be provided to regions which have suffered from

enormous damage from sudden natural disasters” as a measure for “protecting life from natural disasters”.

Based on such policy, the Japan International Cooperation Agency (hereafter referred to as “JICA”) formulated the Country Cooperation Strategy and Program for the Philippines, which said that JICA would promptly organize emergency assistance such as goods, human resources and finance in case of disasters, depending on the scale.

This project aimed to provide emergency assistance to the disaster-affected areas in the Philippines and is thus consistent with Japan’s above-mentioned assistance plan and policy regarding emergency rehabilitation and reconstruction. Therefore, it can be said that the project is in line with the development policy of Japan.

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



Photo 1: Seawall Protection along the Asian Highway (Ilocos Norte, Region I)



Photo 2: Crib Wall Built along Trunk Road (Abra in CAR)

3.2 Efficiency (Rating: ①)

3.2.1 Project Outputs

After the above-mentioned PDNA confirmed that there was a need to respond to the damage of Ondoy and Pepeng, flood control facilities were restored, which included rehabilitation of shore protection works, protective walls, dikes, dams/weirs and drainage systems, as well as dredging operations. With regard to roads and bridges, slopes, abutment, piers, superstructure, retaining walls, road shoulders and disconnected roads were rehabilitated and roads were paved with asphalt. The numbers of implemented sub-projects are summarized in Table 1. This project targeted Metro Manila (hereafter referred to as “NCR”) in Central Luzon, CAR, Region I, Region II, Region III, Region IV-A, Region IV-B and Region V. This project was an emergency

restoration and constructions did not require high level of technologies; thus, consultants were not recruited to assist in procurement and manage the needed construction works⁵.

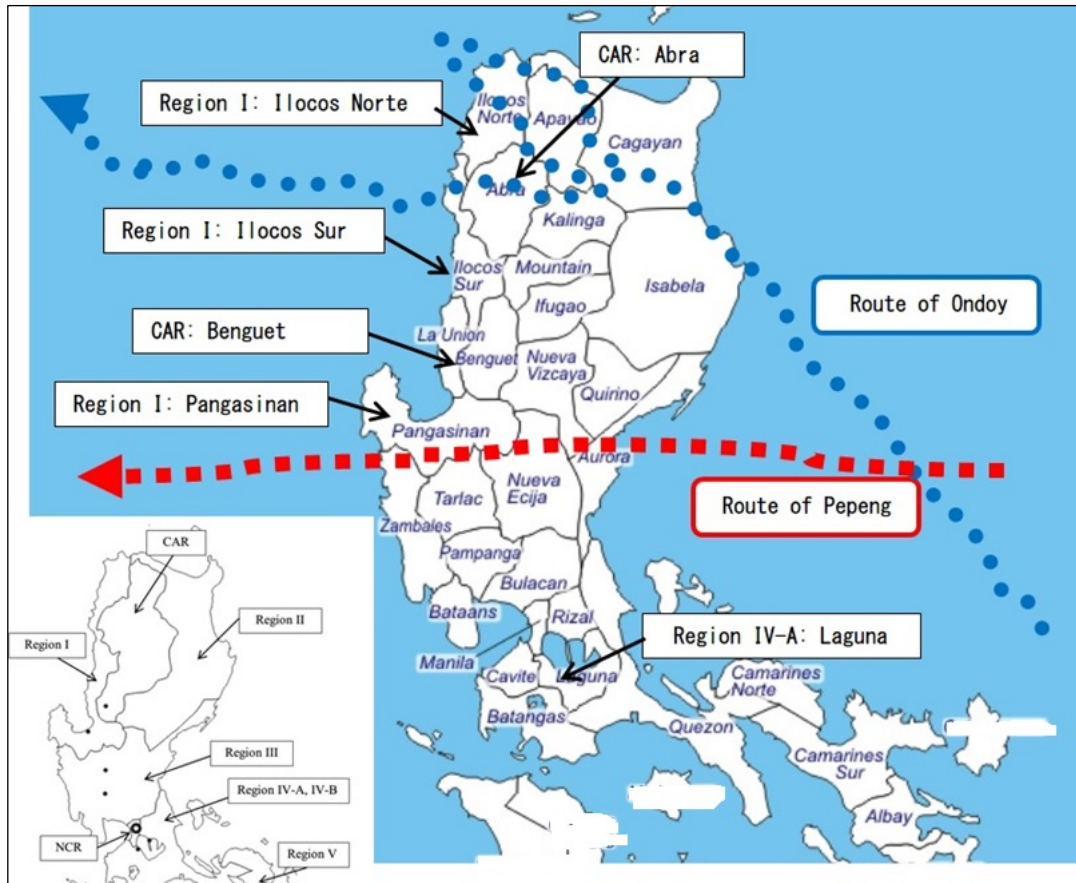


Figure 1: Route of Ondoy (red dotted arrow) and route of Pepeng (blue dotted arrow), which hit Central and Northern Luzon (The location of each region is displayed on the lower left-hand side⁶)

Table 1: Number of Sub-projects Implemented under this Project

【Flood Control Facilities】

(Unit: Number of sub-projects)

Region	Number of Sub-Projects	
	Special Account Procedure	Reimbursement Procedure
NCR	9	2
CAR	30	0
Region I	75	2
Region II	21	39
Region III	46	24

⁵ On the other hand, consultants were recruited who managed the sub-projects and monitored the progress of the constructions.

⁶ Photos in the main report and districts explained in the text are shown by markup balloons. This project covers all districts indicated in Figure 1.

Region IV-A	6	3
Region IV-B	7	2
Region V	0	0
Total	194 (Proportion: 73%)	72 (Proportion: 27%)

Source: Document provided by the DPWH

Note: The numbers concerning the special account procedure in the above table include 48 additional sub-projects, as will be explained in Section 3.2.2.1 Project Cost, below.

【Roads and Bridges】

(Unit: Number of sub-projects)

Region	Number of Sub-Projects	
	Special Account Procedure	Reimbursement Procedure
NCR	1	10
CAR	60	43
Region I	11	112
Region II	17	36
Region III	21	21
Region IV-A	46	34
Region IV-B	9	9
Region V	14	16
Total	179 (Proportion: 39%)	281 (Proportion: 61%)

Source: Document provided by the DPWH

Note: The numbers concerning the special account procedure in the above table include 73 additional sub-projects, as will be explained in Section 3.2.2.1 Project Cost, below.

As shown in Table 1, sub-projects on flood control, roads and bridges were conducted based on both special account⁷ and reimbursement procedures⁸. The special account procedure was used for newly implemented projects using the ODA loan. On the other hand, the reimbursement procedure was applied to projects already under implementation at the time of the start of this project or were about to be implemented using the budget of the Philippine government. The ODA loan was allocated to reimburse these project costs. For either method, the number of planned projects was not fixed at the time of the appraisal; rather, they were selected and implemented based on the selection criteria after the start of the project⁹. The

⁷ This is one of the disbursement methods used for loans. The borrower (the government of the Philippines) will open an account exclusively for the ODA project, and the lender (JICA) will transfer funds to the account. The borrower will withdraw the necessary funds from the account in accordance with the project's progress.

⁸ This is one of the disbursement methods used for loans. The borrower (the government of the Philippines) will first use their own funds for payment and, later, the lender (JICA) will reimburse the money from the loan.

⁹ The criteria were as follows. The flood control facility needed to be rehabilitated by the following rainy season and so the construction had to be completed within three months. As for the roads and bridges, the construction had to be completed by December 2011 and it had to be either a national road or a bridge managed by the country. Common criteria for the flood control facilities, roads and bridges were: (1) the infrastructure was not covered by other projects/programs supported by other donors; (2) the project does not have negative environmental impacts; (3) land acquisition does not occur; (4) resettlement does not occur and (5) priority will be given to areas where the population is concentrated.

special account procedure was applied to 73% of the flood control projects, while 27% were subject to the reimbursement procedure. Thirty-nine percent of the roads and bridges were implemented via the special account procedure, while 61% were implemented via the reimbursement procedure. Overall, 51% of sub-projects were implemented by the special account procedure and 49% by reimbursement.

Sub-projects subject to the special account procedure included those implemented as additional contracts (hereafter referred to as “additional sub-projects”). The reasons why additional projects were implemented are as follows. Since the priority of the project was to restore the damage caused by Ondoy and Pepeng as swiftly as possible, the initial plan was to select contractors for the sub-projects through single tendering. However, immediately after the start of this project, a presidential election was held in the Philippines in May 2010, and DPWH under the new administration had to revisit the policy and procedure for contractors’ selection and tendering. Accordingly, it was decided that the contractors should be selected through competitive bidding instead of single tendering. As a result, the contracted project cost was lower than that in the initial plan. In other words, efficient contract negotiation led to surplus funds, which enabled the implementation of additional sub-projects¹⁰. On the other hand, competitive tendering of contractors required a longer time for preparation, contracting and the start and completion of the construction, causing delays. Thus it became difficult to complete the project within the initial project period.

3.2.2 Project Inputs

3.2.2.1 Project Cost

At the time of the appraisal, the total project cost was planned to be 12,086 million yen (of which 9,912 million yen was to be an ODA Loan). The actual project cost was 13,428 million yen (of which 8,134 million yen was an ODA Loan), which was slightly higher than planned (111% of the plan). As explained earlier, contractors of the sub-projects were selected through competitive tendering which minimized the construction costs. As a result, there was surplus funding to implement additional sub-projects. Although the actual project cost was almost as per the initial plan in Philippine pesos, fluctuation of the currency exchange rate¹¹ made the

¹⁰ It was also true that needs for additional sub-projects kept arising from the regions given the scale of the damage caused by Ondoy and Pepeng. The NEDA held a meeting called “NEDA ICC-CC” in October 2011 to discuss the redistribution of surplus funds. After getting comments from and agreeing with JICA, the NEDA requested approval of the budget being allocated to additional sub-projects.

¹¹ At the time of the appraisal, 1PHP was equal to 1.86 Japanese yen. 1PHP equaled 2.07 Japanese yen on average during the project’s implementation, which means that the exchange rate changed by about 11%.

total project cost slightly higher than the initial plan when converted to Japanese yen.

3.2.2.2 Project Period

At the time of appraisal, the project period was planned to be one year and eight months (20 months) from May 2010 to December 2011. In fact, the actual project period was five years and seven months (67 months) from May 2010 to November 2015, which was significantly longer than initially planned (335% of the plan). This is because the DPWH's policy for contractor selection was changed from single tendering to competitive bidding, as explained above. Consequently, many sub-projects took longer than the designated periods: completion within three months after the start of the project for the flood control projects and by December 2011 for the road and bridge projects¹². During this ex-post evaluation study, executive members of the headquarters of the DPWH, RO and the offices responsible for the actual operation and maintenance under the RO (District Engineering Office, hereafter referred to as "DEO") were asked to answer questionnaires and be interviewed concerning the selection criteria and sub-projects' selections. The results confirmed that sites had generally been selected in accordance with the selection criteria. At the same time, it was confirmed that the delays were indeed caused by the change in the DPWH's policy on contractor selection. The higher the number of DEOs managing the sub-project (e.g., more than 8 to 10 sub-projects) and the more cross-sectional they were, the longer it took until the completion, due to factors such as coordinating among DEOs and bidding of local contractors, construction and payment of the contractors' fees. It also turned out that coordination between the DPWH headquarters and ROs and DEOs was not so efficient in some cases.

Furthermore, the fact that some sub-projects had not yet been completed (construction was ongoing) at the time of the field survey (November 2015) is prolonging the project period. More specifically, it is the construction in the Province of Laguna, Region IV-A (Calabarzon), "Marikina-Infanta Road and the Buenavista Bridge"¹³. According to the DPWH, immediately after the construction began, the need for a design change arose due to the site conditions (an unexpected geological problem). The contractor also faced difficulties in procuring the large anchorage needed to stabilize the ground, which forced them to consider redesigning. At the

¹² This means that it took longer to coordinate within the DPWH, select the contractors and complete the constructions.

¹³ Package contract number is RB26. It is composed of seven sub-projects, of which five had been completed and the completion of the remaining two has been delayed.

time of the ex-post evaluation, redesigning was being explored¹⁴.

Table 2 shows the percentages of contract packages that had been completed within the time frame specified at the time of appraisal (special account procedure only). It shows that there were many cases of delays both for the flood control and the roads and bridges.

Table 2: Percentage of Packages Completed within the Initially Planned Timeline¹⁵
(Planned packages using the special account procedure)

Flood Control Facilities	Roads and Bridges
Approx. 54% (26 packages were completed, as per the plan, out of 48 that had been contracted)	Approx. 29% (9 packages were completed, as per the plan, out of 31 that had been contracted)

Source: Document provided by the DPWH

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

At the time of appraisal, internal rates of returns were not calculated as the nature of this project was an emergency assistance. The rates were not calculated for the ex-post evaluation because there was no initial calculation and assumptions were not known.

Considering that the project cost exceeded the plan and that the project period significantly exceeded the plan, the efficiency of the project is low.

3.3 Effectiveness¹⁶ (Rating: ③)

3.3.1 Quantitative Effects (Operation and Effect Indicators)

This project aimed to recover the conditions of flood control facilities, roads and bridges to the pre-disaster levels. Although it was thought preferable to measure effectiveness by using quantitative data that correspond to the design specifications, such as the highest water level and annual largest inundation for the flood control facilities and thickness/width/loading limits for the roads and bridges, such data were not collected at the start nor at the completion of this project. Nevertheless, it was confirmed through the questionnaires and interviews with management of the DPWH's ROs and DEOs that almost all facilities had been rehabilitated, minimizing the damage caused by typhoons that occurred between the completion of the project and the ex-post evaluation and remained functional. Table 3 shows the percentages of flood

¹⁴ The time of completion is unknown at the time of ex-post evaluation.

¹⁵ The ratios shown in Table 1 and Table 2 do not match. This is because the former is purely a percentage calculated by looking at the number of sub-projects, while the latter was calculated by comparing the number of contact packages that had been completed within the planned periods.

¹⁶ The sub-rating for effectiveness is to be put with the consideration of impact.

control facilities, roads and bridges that are maintaining the functions and design specifications. The rates are generally high, and it can be judged that the project's effects are sustained.

Table 3: Percentages of Facilities that Are Functional and Maintaining Design Specifications at the Time of Ex-post Evaluation (November 2015)

Flood Control Facilities	Roads and Bridges
<p style="text-align: center;"><u>Approx. 96%</u> (73 packages out of 76 including the additional contracts do not have any particular problem)</p>	<p style="text-align: center;"><u>Approx. 95%</u> (40 packages out of 42 including the additional contracts do not have any particular problem)</p>

Source: Document provided by the DPWH

On the other hand, the facilities that are not sustaining the functions and design specifications are listed below:

【Flood Control Facilities】

1) Contract No. CP7 (Region I: Ilocos Norte)

A gabion-type revetment was constructed along Colioet River in Cabauran Village to control floods. According to the local DEO, the initial design specification was maintained after Pepeng and a number of typhoons and disasters that followed. However, heavy rain and flash flood during Typhoon Goni of 2015¹⁷ caused unexpected river flow. Consequently, erosion of the riverbank's protection accelerated and the structure finally collapsed (Photo 3). At the time of the ex-post evaluation (as of November 2015), the local DEO is consulting the RO to submit a request to restore the structure and the estimated cost to the headquarters.

2) Contract No. CP47 (Region I: Pangasinan)

Dikes constructed along Bued River and Sinocalan River in Tayug were partially damaged during the typhoon and flash flood due to heavy rain in 2015. The local DEO is requesting that the headquarters restore the damage.

3) Contract No. CP49 (Region I: Pangasinan)

A dike constructed in Barangobong Village was partially damaged by the typhoon and flash water due to heavy rain in 2015. The local DEO is requesting that the headquarters restore the damage.

【Roads and Bridges】

1) Contract No. RB35 (Region I: Ilocos Sur)

The concrete blocks laid around the piers of a bridge on Amburayan River was damaged by a

¹⁷ The Philippine name of the typhoon is Ineng. It left 33 people dead, 24 people injured, seven people missing and 5,742 houses damaged by 5 September 2015. Approximately, 318,000 people were evacuated.

series of typhoons and heavy rain in 2015. The local DEO is in touch with the RO to request restoration from the headquarters.

2) Contract No. RB26 (Region IV-A: Laguna)

Constructions of the Marikina-Infanta Road and the Buenavista Bridge in the province of Laguna, Region IV-A (Calabarzon) are delayed because of the reasons explained in Section 3.2.2.2 Project Period under Efficiency.

Briefly classifying, common features of the above-mentioned facilities: (1) they were significantly affected by the recent typhoons (particularly Typhoons Goni (August 2015) and Koppu (October 2015)) and (2) the initial design specifications were maintained until 2015 when typhoons hit the areas. With the recent trend of climate change, the frequency and size of typhoons are on the increase year after year, which may be causing damage beyond the initial prediction when the project began. In a country like the Philippines, which faces natural disasters every year, it is considered preferable to be prepared to restore damaged infrastructure, prevent further damage, assure security for the residents of affected areas and recover socioeconomic activities as swiftly as possible.



Photo 3: Gabion Fell Down due to Typhoon Koppu of 2015 (Region I: Ilocos Norte)



Photo 4: Functional Revetment Wall along the Residential Areas (Region I: Ilocos Norte)

3.3.2 Qualitative Effects

1) Assuring Security for Residents in the Affected Areas

Management of the DPWH's ROs and DEOs were interviewed during the evaluation study, and they commented: "The implemented sub-projects contribute to preventing river bank erosion and flooding during heavy rains. Particularly, people residing near the rivers are

probably less worried about flooding. The rehabilitated roads enable smooth evacuation right after a natural disaster such as typhoons. Thanks to the retaining walls constructed along the roads, people are able to pass without worrying when the weather is bad. There are fewer cases of landslides. Because there are fewer cases of flood damages, sanitary conditions have also improved, so have health situations.” Judging from such a comment, it can be presumed that the sub-projects implemented under this project are contributing to safer lives of the residents, reducing the risks of floods and disasters.

2) Confirming Qualitative Effects through the Beneficiary Survey

As part of this evaluation study, a beneficiary survey¹⁸ was conducted by selecting one site from flood control and one site from roads and bridges, selecting residents of the targeted areas (both male and female were targeted). More specifically, the survey was conducted by interviewing them on the project’s effects, such as: whether the targeted facilities recovered their original functions, whether residents were less worried about floods and whether commuting became safer and less difficult. Sub-projects with the largest construction contract amounts were selected as the sites for the beneficiary survey. The survey results are shown in Figures 2 to 6. The upper bar charts represent answers regarding roads and bridges (75 valid responses) and lower bar charts represent answers concerning flood control facilities (51 valid responses). As shown in Figure 2, the levels of satisfaction are generally high, both with the flood control facilities as well as with the roads and bridges. Figure 3 was in relation to a question on whether people thought the rehabilitated facilities met the originally designed standards and were able to prevent further damage from natural disasters; the majority said that they thought so. From Figures 4 and 5, it can be observed that people residing near the sites are less worried about natural disasters and feel safer in their neighborhoods. It can be confirmed from Figure 6 that many people think that road access to schools, companies and community centers improved. Therefore, it can be seen that beneficiaries think that this project is contributing to improving security for the local residents and lowering flood risks.

¹⁸ For flood control contract no. 15 (Restoration of damaged earth dike with protection works, Narra-San Vicente, San Manuel, Pangasinan, Region I) was selected, while for the roads and bridges, contract no. 18 (Construction of Acop-Kapangan-Kibungan Road, Benguet, CAR) was selected. The survey based on interviews was conducted by visiting and organizing gatherings. The characteristics of the respondents were as follows: (1) Flood control – 44% male, 56% female, average age 51, occupations were 52% farmers, 43% housewives, 4% students and 1% workers of private companies; (2) Roads and bridges – 90% male, 10% female, average age 49, occupations were 58% agriculture, 27% public servants, 13% others and 2% housewives.

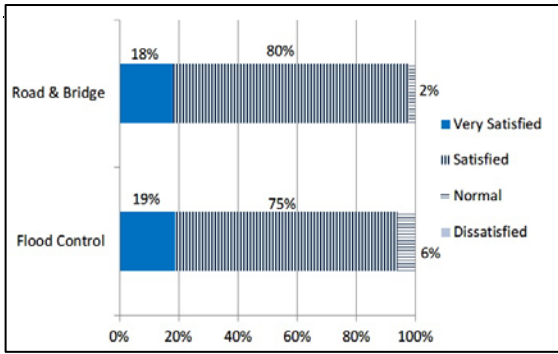


Figure 2: Are you satisfied with the facilities developed by this project?

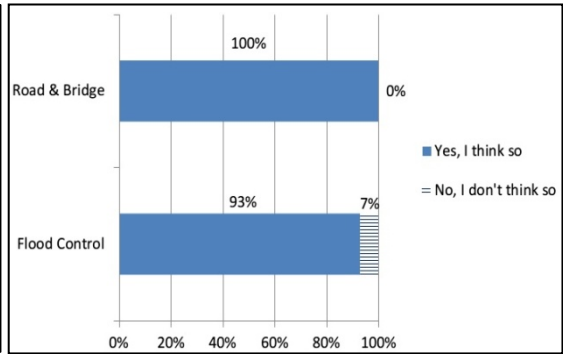


Figure 3: Do you think that the rehabilitated facilities meet the initially designed standards and that they can prevent further damage from natural disasters?

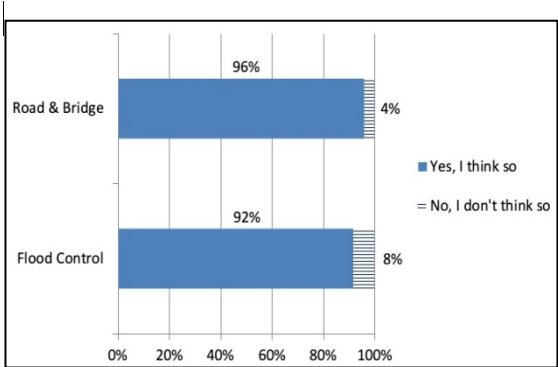


Figure 4: Do you think that you are less worried about natural disasters after this project?

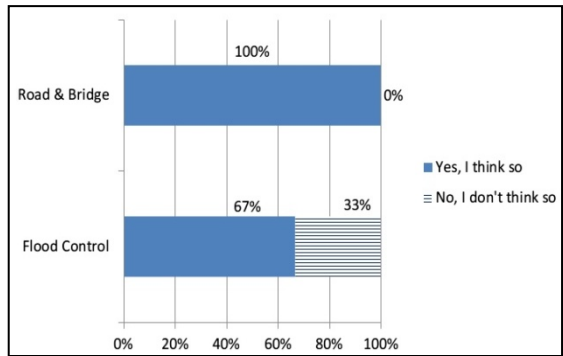


Figure 5: Do you think that local security improved after the implementation of this project?

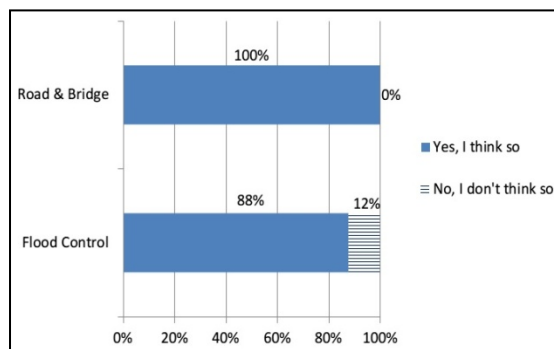


Figure 6: Do you think that access to school/company/community centers has improved after the implementation of this project?

3.4 Impacts

3.4.1 Intended Impacts

3.4.1.1 Contribution to the Regional Economy and Social Development

① Qualitative Effects

One site was selected from the flood control facilities, and another site was selected from the roads and bridges, in the same manner as the beneficiary survey¹⁹ explained in 3.3.2 Qualitative Effects for a beneficiary survey which aimed to assess whether rehabilitated facilities contributed to stable agricultural production, improved transport of goods and better awareness about disaster prevention. The results are shown in Figures 7 to 9.

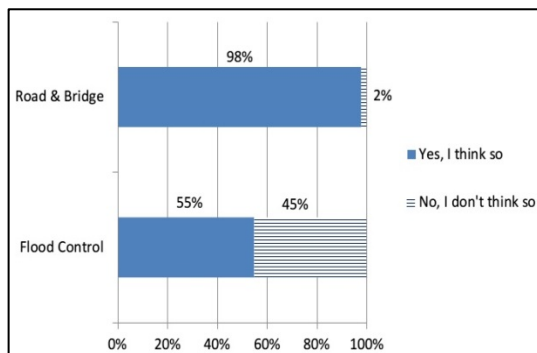


Figure 7: Do you think that agricultural production is increasing and stabilizing through the implementation of this project?

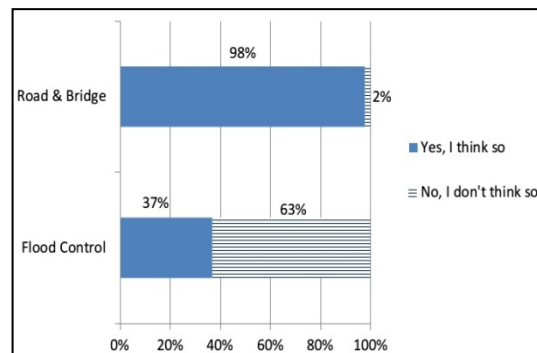


Figure 8: Do you think that living standards improved after the project completion as compared to before the start of this project?

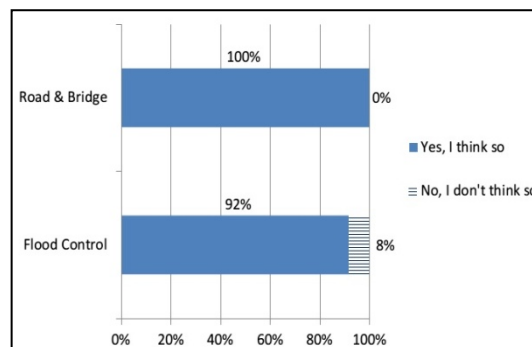


Figure 9: Do you think that your awareness about disaster prevention has improved though the implementation of this project?

Figure 7 was concerned with agricultural production in the areas. Generally, the majority think it has improved, but the percentage of people who thought so was higher for the roads and bridges. It can be confirmed that residents seem to think that roads and bridges had more

¹⁹ The sample size, number of valid responses and characteristics of the respondents are the same as earlier.

indirect impacts on stabilizing agricultural productivity than the flood control facilities. The same was true for the question regarding living standards shown in Figure 8: a higher percentage of people thought that roads and bridges had effects on their living standards (improvement of transport access by restoration of the facilities²⁰). Thus, the survey confirmed that residents felt certain impacts from the project. On the other hand, concerning awareness about disaster prevention shown in Figure 9, the majority thinks that their awareness improved both for the flood control and the roads and bridges. It can be observed that people residing near the sites have developed a better sense of crisis and awareness about disaster prevention²¹ through the infrastructure development under the sub-projects. From the beneficiary survey results above, it can be judged that this project is contributing to the socioeconomic development of the targeted regions.

② Quantitative Effects

Table 4 shows the changes in gross regional domestic product (nominal GRDP) growth in the regions targeted by this project. In all regions, production has been on the increase until recently on and after the Ondoy and Pepeng typhoon. However, it is not easy to prove if this project caused the increase in GRDP because other factors must have contributed to the economy. On the other hand, the management of the DPWH RO²² visited during the evaluation study commented in interviews on the relation between flood control facilities, roads and bridges and the local economy: “The land prices of the neighboring residential areas have stabilized or increased due to this project. New shops have been opened in places that are not so far from the rivers. Rehabilitation of the roads and bridges facilitated the movement of people and goods, realizing smooth transport of agricultural goods. Rehabilitation of the facilities is the foundation for growth of the regional economy. Had the facilities not been rehabilitated, we think that the local economy and transport of goods would have stagnated.” Therefore, it can be presumed that the contribution of this project’s rehabilitation works to the local economy is not small.

²⁰ The reason for the tendency of answers in Figure 7 and 8 may be that facilities of flood control may not always be perceived as giving positive influences toward living standards compared with the case of roads and bridges, which people actually utilize for daily activities or economic opportunities. Therefore, the local people may have a different perception between the two.

²¹ This refers to the awareness that they should be prepared for disasters, including checking evacuation routes, places and procedures in advance.

²² The interviewed people were three to four males and one female in CAR, Region I and Region III. Their titles were Engineer III and District Engineer.

Table 4: Gross Regional Domestic Product (Nominal GRDP)
of the Targeted Regions for the Recent Years

(Unit: Thousand PHP)

Region	2008	2009	2010	2011	2012	2013
NCR	2,740,343	2,813,802	3,224,786	3,461,448	3,823,187	4,290,630
CAR	145,790	149,450	198,504	209,516	211,961	227,925
Region I	207,409	215,073	279,787	299,315	326,639	359,707
Region II	131,905	138,872	149,564	166,150	187,748	208,547
Region III	571,165	576,550	795,503	885,869	960,983	1,018,224
Region IV-A	801,842	802,837	1,561,506	1,640,078	1,775,645	1,881,381
Region IV-B	162,400	161,986	159,091	173,610	181,355	186,762
Region V	189,139	213,099	185,857	199,312	216,675	240,303

Source: National Statistical Coordination Board

3.4.2 Other Impacts

3.4.2.1 Impacts on the Natural Environment

The sub-projects of flood control, roads and bridges acquired the “Certificates of Non-Coverage (CNC)” before the start of this project and were exempted from going through an environmental assessment. Furthermore, one of the selection criteria for the sub-projects was that it would not have negative impacts on the environment. Through the interviews with the management of the DPWH headquarters, visited ROs and DEOs, it was confirmed that there were no major problems during the implementation of the project. In addition, interviews with the visited DEOs, barangay²³ heads who represent community members residing around the sub-project sites, confirmed that there were no negative impacts on the environment (e.g., air pollution, noise/vibration and negative impacts on the ecosystem) during the project implementation, and that there were no complaints from the local residents. Regarding the environmental monitoring concerning the implemented sub-projects, the DEO’s maintenance staff is patrolling on ad hoc basis. In case of a problem, the DEO addresses the issue if they can. If not, the DEO consults the RO and headquarters to address the matter. It was confirmed that there were no major problems at the time of the ex-post evaluation.

3.4.2.2 Land Acquisition and Resettlement

In this project, there were no resettlement and land acquisition. No negative impacts were observed through the interviews with the management of the DPWH headquarters, ROs and DEOs visited during the study.

²³ This is the smallest administrative division, comprising cities and towns; it is a term for a village or ward.

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

3.5 Sustainability (Rating: ③)

During this evaluation study, three major regions (CAR, Region I and Region III) where 80% of the rehabilitated flood control contract packages and 50% of the rehabilitated road and bridge contract packages concentrated were visited. Through the visits, the institutional, technical and financial aspects, and the status of the operation and maintenance, were examined. The findings are as follows:

3.5.1 Institutional Aspects of Operation and Maintenance

The executing agency of this project is the DPWH. The facilities under the jurisdiction of the DPWH, including the ones developed by the sub-projects, are operated and maintained by eight ROs and 51 DEOs²⁴ under the ROs in central and northern Luzon. The total numbers of staff in each region for the DEO's visited were: roughly 1,300 in the CAR, roughly 800 in Region I and roughly 900 in Region III. On the other hand, the DPWH headquarters supervise ROs and DEOs. At the headquarters, it is the Unified Project Management Office Flood Control (UPMO-FC) Management Cluster that is supervising ROs and DEOs regarding flood control issues, while it is the Bureau of Maintenance that is supervising ROs and DEOs concerning roads and bridges. Through the interviews with the management of DEOs, it was confirmed that staff shortages were not an issue. Thus, it can be judged that there is no institutional concern about DEOs²⁵. Therefore, it is thought that there are no particular problems with the institutional aspects of the operation and maintenance of this project.

3.5.2 Technical Aspects of Operation and Maintenance

In general, DEOs' maintenance staff members have a rich experience, and most of them have certificates to operate heavy machinery²⁶. Through the interviews with DEO staff members, it was confirmed that they were sufficiently aware of the importance of the operation and maintenance work.

²⁴ In the Philippines, there exist 16 ROs and 180 DEOs.

²⁵ As supplementary information, road and bridge projects handled by DEOs are categorized into three classes (1st class, 2nd class and 3rd class) depending on the size of the jurisdictional areas. In principle, numbers of staff and engineers are specified for each class, with a view to preventing staff shortages.

²⁶ According to the Bureau of Equipment (BOE) at the headquarters, almost all operators who belong to DEOs have licenses to operate vehicles and machinery.

On the job training (OJT) is provided as needed at each DEO. Whenever new staff is recruited, such training is given; thereby maintenance techniques and skills are shared among staff members. In addition, ROs and DEOs hold training courses for their staff. For example, the DPWH held training courses techniques on flood control, evaluation of road surface and retaining walls and techniques and practice on maintenance in 2014 and 2015 for durations ranging from a few days to a few weeks. Therefore, it is observed that there are no major problems with the technical aspects of the operation and maintenance of this project.

3.5.3 Financial Aspects of Operation and Maintenance

Table 5 shows total operation and maintenance budgets of DEOs under ROs in the CAR, Region I and Region III²⁷.

Table 5: Operation and Maintenance Budget for the Regions Visited During the Study

(Unit: Thousand PHP)

RO	2013	2014	2015
CAR ²⁸	45,116	407,916	420,702
Region I	210,511	300,268	315,412
Region III	273,894	413,668	428,437

Source: Answers to the questionnaire.

No major problems were observed in the financial aspects of the operation and maintenance of DEOs in the regions visited during the study: namely, the CAR, Region I and Region III. As shown in Table 5, operation and maintenance budgets of the DEOs under ROs have been increasing every year. Basically, each DEO develops an “Annual Maintenance Program” and calculates necessary budgets for operation and maintenance works on a yearly basis, which is submitted to the DPWH headquarters via the RO. The headquarters examines the requested budgets and finalizes allocated budgets by consulting DEOs. According to the headquarters, budgets requested by DEOs have generally been approved in the last few years and that the trend is foreseen to continue in the future. If flood control facilities, roads and bridges get damaged under normal circumstances, DEOs use their budgets to address the problem.

On the other hand, if flood control facilities, roads and bridges get damaged by natural disasters such as typhoons and urgent repairs are necessary, DEOs can request calamity funds

²⁷ These data are based on the answers submitted by DEOs under ROs regarding a question on operation and maintenance budgets.

²⁸ 2013 data for CAR do not include a road maintenance budget generated from the Motor Vehicle Users' Charge (MVUC). Their budget should be larger than the amount specified in the table, but the data could not be obtained.

from the headquarters. The DEO first estimates the construction cost for the damaged facilities. The Bureau of Maintenance from the headquarters then inspects the site, evaluates the request and as necessary validates the damaged facilities/structures and recommends funding for their repair. Then, The DPWH from the headquarters is responsible for disbursing the funds to the DEO swiftly. The amounts of calamity funds received by DEOs are shown in Table 6²⁹. The interviews with the headquarters and DEOs conducted during the study confirmed that such procedures and budget disbursement were handled in a timely manner³⁰. Therefore, no major problems are observed in the financial aspects of the operation and maintenance of this project.

Table 6: Calamity Funds for the Areas Targeted by This Project

【CAR】

(Unit: Thousand PHP)

DEO	2013	2014	2015
Baguio City	347	35,150	N/A
Benguet 1st	N/A	31,688	27,023
Benguet 2nd	26,600	42,700	28,800
Mt. Province	N/A	85,424	17,315

Source: DPWH CAR

【Region I】

(Unit: Thousand PHP)

DEO	2013	2014	2015
Ilocos Norte I	5,000	33,192	3,784
Ilocos Norte II	N/A	148,279	N/A
Ilocos Sur I	N/A	N/A	5,480
La Union I	314	9,900	N/A
La Union II	7,926	N/A	N/A
Pangasinan I	N/A	N/A	3,782
Pangasinan II	N/A	36,000	N/A
Pangasinan III	N/A	N/A	4,188

Source: DPWH Region I

【Region III】

(Unit: Thousand PHP)

DEO	2013	2014	2015
Aurora	43,429	8,204	8,300
Bataan I	43,965	N/A	8,000
Bataan II	N/A	13,866	7,000

Sources: DPWH Region III

²⁹ N/A in the table means that the DEO did not receive any funds because there was no natural disaster.

³⁰ Before, it used to take a few months and up to one year for the funds to be disbursed. However, the average processing time has been two to three months since 2015. According to the DPWH headquarters, experiences were built around rapid site inspections and disbursement procedures when Typhoon Haiyan (Yolanda) occurred in 2013, which is presumably the reason why the processing time has improved.

3.5.4 Current Status of Operation and Maintenance

As shown in Table 3, about 96% of the flood control facilities and 95% of the roads and bridges constructed by the sub-projects under this project were maintaining the designed functions and specifications. Regarding the operation and maintenance of flood control facilities, roads and bridges in the CAR, Region I and Region III, interviews with engineers and the management of concerned DEOs, as well as site inspections, revealed that there were no concerns such as significant damage or dents. Thus, it is thought that there are no particular problems with the status of operation and maintenance at the time of the ex-post evaluation. Regarding spare parts, there were no problems observed in terms of procurement.

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

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project rehabilitated flood control facilities, roads and bridges in central and northern Luzon Island, which was seriously affected by the Typhoons Ondoy (the No. 16) and the typhoon Pepeng (the No. 17) of 2009, with a view to prevent future damage and facilitate the early recovery of socioeconomic activities in the affected areas. Regarding relevance, the objectives of this project are consistent with the development policy of the Philippines at the start of this project, considering that the NEDA held a public-private partnership dialogue to share the rehabilitation and reconstruction efforts and the private sector's initiatives, following the damage caused by Typhoon Ondoy and Pepeng. Importance was also placed on measures against climate change and natural disasters at the time of the ex-post evaluation, which is stipulated in the PDP. Furthermore, this project is also consistent with the development needs of the country, considering that at the time of the ex-post evaluation the executing agency of this project, the DPWH, has embarked on an initiative for timely responses of restoration in the event of natural disasters destroying infrastructures essential to people's livelihoods. Furthermore, the project is consistent with the assistance policy of the Japanese Government. Thus, relevance is high. Regarding efficiency, costs were economized as a result of competitive bidding for approximately half of the contracts for sub-projects disbursed under the special

account procedure and it was possible to implement additional sub-projects. Meanwhile, the actual total project cost slightly exceeded the initial plan due to the fluctuation in exchange rates. As for the project period, each step such as tendering, contracting, commencement and completion of the construction took longer, and caused delays. Thus, efficiency is low. With regard to effectiveness and impact, flood control facilities, roads and bridges remain functional at the time of the ex-post evaluation, and meet the design specifications. It was confirmed that the risks for floods have been reduced and residents are less worried. Furthermore, a beneficiary survey revealed that the level of satisfaction with the project was high and that positive impacts such as increased and stable agricultural production were confirmed after the road constructions. Thus, the effectiveness and impact are high. Regarding sustainability, no particular problems were observed in the institutional, technical and financial aspects of the operation and maintenance of this project; thus, sustainability of the project's effects is high.

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

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

Regarding the delayed sub-project along the Marikina-Infanta Road (package contract number: RB26) in Laguna, Region IV-A (Calabarzon), the DPWH should see to it that the construction is promptly completed, so that it can contribute to smooth road access for the areas targeted by this project.

4.2.2 Recommendations to JICA

JICA's Philippine Office has been periodically monitoring the sub-projects under this project. It is recommended that the office continues such efforts.

4.3 Lessons Learned

Emergency Assistance for a Country Prone to Natural Disasters

Emergency assistance like this project, face challenges of having to tackle multiple things simultaneously: restoring infrastructures damaged by a typhoon, preventing further damage, assuring the safety of the residents of affected areas, recovering socioeconomic activities and coordinating timely design, bidding, procurement and construction. The delays for this project did not adversely affect the project's effects and impacts. However, it is worth considering that JICA establishes a system which enables timely assistance with using the strong point of the

assistance scheme for future programs and projects (e.g., establishing a system with the only consultants hired for supervision of construction, which enables timely allocation of budgets so that constructions can begin immediately for timely recovery, tendering and contracting of packages without the use of procurement consultants, in order to shorten the processing time of recovery works if the organizational structure and capacity of the executing agency is sufficient, etc.). For a country prone to natural disasters like the Philippines, it is worth considering the use of the scheme like “Post Disaster Stand-by Loan³¹” signed in 2014, which is an emergency recovery loan developed after the completion of this project.

³¹ This is a Stand-by Emergency Credit for Urgent Recovery (SECURE) scheme, which enables the country to secure a credit line for natural disasters, as loan agreements are signed beforehand so that financial needs for post-disaster recovery can be met in a timely manner.

Comparison of the Original and Actual Scope of the Project

Item	Plan	Actual
1. Project Outputs	1) Restoration and Rehabilitation of Flood Control Facilities: Restoration works such as shore protection, protective walls, dikes, dams/weirs and drainage systems, as well as dredging operations were implemented.	1) The implemented sub-projects are as follows; Special Account procedure is 194. Reimbursement procedure is 72.
	2) Restoration and Rehabilitation of Roads and Bridges: Restoration works such as slopes, abutment, piers, superstructure, retaining walls, road shoulders and disconnected roads were implemented and roads were paved with asphalt.	2) The implemented subprojects are as follows; Special Account procedure is 179. Reimbursement procedure is 281.
2. Project Period	May 2010 – December 2011 (20 months)	May 2010 – November 2015 (67 months)
3. Project Cost		
Amount Paid in Foreign Currency	32 million yen	14 million yen
Amount Paid in Local Currency	12,054 million yen	13,414 million yen
Total	12,086 million yen	13,428 million yen
Japanese ODA Loan Portion	9,912 million yen	8,134 million yen
Exchange Rate	1 PHP=1.8602JPY (As of May 2010)	1 PHP=2.07JPY (Average during the project implementation. Source: International Financial Statistics, IMF)

List of Project Sites Visited (November 16-27, 2015)

1. CP52: Seawall Protection
Place: Barangay Caruan, Pasuquin, Ilocos Norte
Contract amount: 14,117,438.23PHP
Date of visit: November 17

2. CP72: River Wall Protection
Place: Barangay Caburuan, Bacarra, Ilocos Norte
Contract amount: 14,100,460.46PHP
Date of visit: November 17

3. CP73: Earth Dike
Place: Barangay Nalbo, Laoag City
Contract amount: 3,108,815.30PHP
Date of visit: November 17

4. RB3-CAR 21: Improvement of Kennon Road[Crib Wall with Concrete Armor/Slope Protection/Retaining Wall]
Place: Barangay Camp 6, Baguio City
Contract amount: 5,812,190.71PHP
Date of visit: November 19

5. RB3-CAR 22: Crib Wall with Concrete Armor/Slope Protection/Retaining Wall
Place: Barangay Camp 7, Baguio City
Contract amount: 5,879,900.77PHP
Date of visit: November 19

6. RB3-CAR 13: Crib Wall, Grouted Riprap, Spillway
Place: Major Raine Road, Barangay Loakan, Baguio City
Contract amount: 12,833,575.00PHP
Date of visit: November 19

7. RB32-CAR 43: Gabion-type Retaining Wall
Place: Shilan-Beckel Road, Barangay Lamut, La Trinidad
Contract amount: 21,719,673.94PHP
Date of visit: November 19

8. CP37: River Protection Wall/Retaining Wall along Balili River
Place: Benguet State University, La Trinidad
Contract amount: 41,491,133.32PHP
Date of visit: November 19

9. CP 36: Drainage Canal/Box Culvert Type
Place: Barangay Balili, La Trinidad
Contract amount: 9,808,079.00PHP
Date of visit: November 19

10. RB32-CAR 42: Gabion-type, Concrete Protection Wall (mountain fell down, 115 people died on October 2009 on the onslaught on Typhoon Pepeng)
Place: Pico-Lamtang Road, La Trinidad, Benguet
Contract amount: 38,786,889.80PHP
Date of visit: November 19

11. RB3-CAR 20: Rehabilitation/Improvement of Quezon Hill: Concrete Wall (Tam-awan village, collapsed in 2009)

Place: Barangay Tam-awan, Baguio City

Contract amount: 6,536,879.40PHP

Date of visit: November 19

12. RB4: Slope Protection/Gabion Type, Ambassador's Road Section

Place: Tublay, Benguet

Contract amount: 87,102,077.56PHP

Date of visit: November 20

13. RB4: Retaining Wall/Gabion Type

Place: Atok, Benguet

Contract amount: 87,102,077.56PHP (same as above)

Date of visit: November 20

14. RB 35: Retrofitting of Amburayan Bridge

Place: Tagudin, Ilocos Sur

Contract amount: 64,868,131.95PHP

Date of visit: November 23

15. RB 35: Repair/Restoration of San Fernando-Bagulin Road

Place: Bagulin, San Fernando, La Union

Contract amount: 2,644,160.58PHP

Date of visit: November 23

16. RB 35: DELETED/Repair/Restoration of San Fernando-Bagulin Road/Bridge

Place: Bagulin, San Fernando, La Union

Contract amount: 14,974,695.56PHP

Date of visit: November 23

17. CP15: Restoration of Damaged Earthdike with Protection Works at Brgy Narra-San

Place: Vicente-San Manuel, Pangasinan [Agno River Control Project]

Contract amount: 120,264,380.90PHP

Date of visit: November 24

18. CP46: Restoration/Rehabilitation of Flood Control Facilities along Viray-Depalo

Place: Ambayaoan and Cabalisan rivers in San Quintin and San Nicolas, Pangasinan

Contract amount: 29,892,858.40PHP

Date of visit: November 25

19. RB41-RegIII-31: Mancatian Bridge, Angeles-Porac Road

Place: Pampanga

Contract amount: 39,970,137.79PHP

Date of visit: November 26