Republic of Indonesia

FY2019 Ex-Post Evaluation of Japanese ODA Loan

"Aceh Reconstruction Project"

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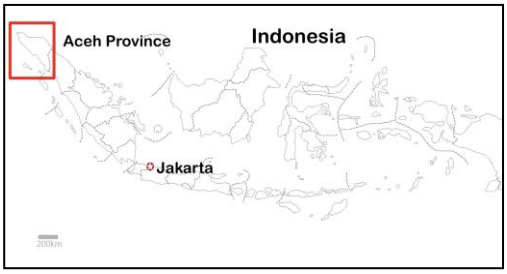
0. Summary

This project was implemented to reconstruct infrastructures in the transportation and water resources sectors to make them better than they had been before disasters in Aceh, thereby contributing to improvement of living conditions for the people affected by the disaster and conflict, and enhancing the local economy and sustainable peace in Aceh. The project's direction, which aimed at reconstruction of economic society by rehabilitation of infrastructure in the area affected by disaster and peace building in the area affected by conflict in Aceh Province, where development was delayed and conflict prolonged for a considerable time, has been highly relevant to the country's development plan and needs, as well as Japan's ODA policy. Therefore, its relevance is high. The project outputs were achieved mostly as planned, although the section of the road was changed in the road sub-project. Although the project cost was within the plan, the project period exceeded that of the plan. Therefore, efficiency of the project is fair. Concerning the quantitative effects, it is judged that the project's objective was partially achieved for the road sub-project, and achieved for the drainage sub-projects at Banda Aceh City and Meulaboh City. As for the improvement of living environment by the project, these included an improvement of convenience in traffic by the road sub-project, as well as a decrease in bad smell and improved convenience in traffic after rainfall by the drainage sub-projects. There were other positive impacts, such as the smooth distribution of agricultural crops and an increase in amount of sales by the road sub-project, as well as the decrease in mosquitoes, flies, and dengue fever and so on by the drainage sub-project. Therefore, effectiveness and impacts of the project are high. Some minor problems have been observed in terms of the institutional / organizational aspect, technical aspect, financial aspect and current status of operation and maintenance. Therefore, sustainability of the project effects is fair. In light of the above, this project is evaluated as satisfactory.

1. Project Description



Project Locations

The improved drainage facility at Banda Aceh

1.1 Background

The earthquake and tsunami in the Indian Ocean off Sumatra (December 2004 and March 2005) caused large-scale damage in Aceh Province[1] and North Sumatra Province (mainly Nias Island) in Indonesia, both in terms of materials and human resources. The damage included approximately 130,000 deaths and cost 4.5 billion US dollars. Although many donors expressed a huge amount of support in response to this situation, there was a shortage of 1.3 billion US dollars as of April 2006.

In Aceh Province, armed conflict between the Aceh Free Movement (hereinafter referred to as GAM), separatist, and Indonesian government security forces had been ongoing for about 30 years. However, the security status of the area drastically improved after a peace agreement between the government of Indonesia (hereinafter referred to as GOI) and the leaders of the GAM on August 15, 2005. Although GOI addressed not only rehabilitation and reconstruction from the damage by the earthquake and the tsunami but also from the conflict in the above area, the external support to Aceh Province was concentrated in the area damaged by the tsunami (i.e., Banda Aceh City and the coast area).

Under these circumstances, the Japanese government Mission Team for ODA Loan was dispatched in September 2006, responding to an official request from the GOI in August 2006. Following the dispatch of the Japan Bank for International Development (JBIC, the partial function of which has been taken over by JICA) appraisal mission in November 2006, the Exchange of Notes (hereinafter referred to as E/N) and Loan Agreement (hereinafter referred to as L/A) for this project were concluded in March 2007.

1.2 Project Outline

The objective of this project was to reconstruct infrastructures in transportation and water resources sector to be better than before these disasters in Aceh, by improving roads and drainage facilities, thereby contributing to improvement of living conditions of the people

[1] The name of Aceh Province used to be Aceh Special Province until 2001 and Nanggroe Aceh Darussalam from 2002-2009 (i.e., from appraisal up to implementation of the project), and was revised to Aceh Province in 2009. To avoid confusion, the name Aceh Province is utilized throughout the report.

affected by disaster and conflict, enhancing the regional economy and sustainable peace in Aceh.

<ODA Loan Project>

Loan Approved Amount/ Disbursed Amount	11,593 million yen/8,619 million yen	
Exchange of Notes Date/ Loan Agreement Signing Date	March 2007/March 2007	
Terms and Conditions	Interest Rate	0.75%
	Repayment Period	40 years
	(Grace Period	10 years)
	Conditions for Procurement	General Untied (including consultant)
Borrower / Executing Agencies	Republic of Indonesia / (until April 2009) Agency for Rehabilitation and Reconstruction for Aceh and Nias (hereinafter referred to as BRR) (since May 2009) Directorate General of Highways and Directorate General of Human Settlement, Ministry of Public Works and Housing (hereinafter referred to as PUPR)	
Project Completion	June 2017	
Target Area	Aceh Province	
Main Contractors (Over 1 billion yen)	Drainage: PT. Pembangunan Perumahan (PERSERO) (Indonesia) Road: 1) PT. Nindya Karya (Indonesia)/PT. Lampiri Djaya Abadi (Indonesia), 2) PT. Wijaya Karya (Indonesia)/Pelita Nusa Perkasa (Indonesia), 3) PT. Waskita Karya (Indonesia)/Andesmont Sakti (Indonesia)	
Main Consultant(s) (Over 100 million yen)	Drainage: PT. Kwarsa Hexagon (Indonesia)/PT. Infratama Yakti (Indonesia)/Nippon Koei Co., Ltd. (Japan)/CTI Engineering International Co., Ltd. (Japan) Road: Yachiyo Engineering Co., Ltd. (Japan)	
Related Studies (Feasibility	"JBIC Special Assistance for Project Formation	

Studies, etc.)	(SAPROF) for Assistance for Preparation of Rehabilitation and Reconstruction Plan for Nanggroe Aceh Darussalam Province and Nias Island, North Sumatra Province, Indonesia"
Related Projects	**Technical Cooperation** - "Banda Aceh City Quick Impact Project" (2005) **Grant Aid Cooperation** - "Non-Project Grant Aid (Assistance for the Damage Caused by the Earthquake off the Coast of Sumatra and Tsunami in the Indian Ocean) (January 2005) **Other International Organizations and Donors** - "Multi-Donor Fund for Aceh and Nias"（World Bank, etc., 2005-2012） - "Earthquake and Tsunami Emergency Support Project" (ETESP) (Asian Development Bank, 2005-2010)

2. Outline of the Evaluation Study

2.1 External Evaluator

Mayumi Hamada, Foundation for Advanced Studies on International Development

2.2 Duration of Evaluation Study

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

Duration of the Study: August 2019–October 2020

Duration of the Field Study: November 12, 2019–December 1, 2019

February 9, 2020-February 20, 2020

3. Results of the Evaluation (Overall Rating: B[2])

3.1 Relevance (Rating: ③[3])

3.1.1 Consistency with the Development Plan of Indonesia

The Master Plan for Rehabilitation and Reconstruction for the Regions and People of the Province of Nanggroe Aceh Darussalam and Nias Island of the Province of Sumatra (approved in April 2005) was formulated by the National Development Planning Agency (hereinafter referred to as BAPPENAS) concerning Aceh Province, which was seriously damaged by the

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

[3] ③: High, ②: Fair, ①: Low

earthquake and tsunami in the Indian Ocean off Sumatra (2004, 2005). It positioned the period between July 2006 and the end of 2009 as a reconstruction stage focused on the reconstruction of comprehensive socioeconomic system, through restoration of economic system, rehabilitation of infrastructure and administrative systems at local level; as well as revitalization of social and cultural systems[4]. Moreover, *The National Medium-Term Development Plan 2004-2009* underlined the importance of normalization of people's lives in Aceh Province, where conflict had persisted for 30 years, as well as prevention of a new conflict in specific areas related to "preventing and overcoming separatism." The direction of the above-mentioned rehabilitation and reconstruction plan was unchanged during the project implementation. At project completion and at the time of the ex-post evaluation, *The National Medium-Term Development Plan 2014-2019* set human resources development, the priority development sector, and equity as its three pillars of development[5]. Furthermore, the *Master Plan for Acceleration and Expansion of Indonesia Economic Development 2011-2025* (hereinafter referred to as MP3EI, 2011) upholds economic development through Economic Corridors as one of the three strategies, and six Economic Corridors are planned. The Sumatra Central Road, which was the target of the road sub-project (both at the appraisal and implementation stages) is a part of the Sumatra Economic Corridor[6]. Hence, consistency has been maintained from appraisal to the time of the ex-post evaluation between the project direction—aimed at reconstruction through improvement of infrastructure, thereby enhancing the living environment of people affected by the disaster and the conflict, as well as enhancing sustainable peace—and Indonesia's development plan.

3.1.2 Consistency with the Development Needs of Indonesia

The earthquake and tsunami in the Indian Ocean off Sumatra resulted in damage both in terms of material and human resources, totaling 130,000 deaths and 4.5 billion US dollars. According to a survey conducted by the GOI (late January 2005), infrastructure damage reached approximately 900 million US dollars. The transportation sector accounted for 61%, followed by the water resources sector at 25%. The damage to the water resources sector was estimated to be approximately 200 million US dollars, and rehabilitation of the rivers and the drainage system was urgently needed. In spite of many donors' support, there was still a shortage of funds for the transportation and water resources sectors compared with the needs of reconstruction and development.

Moreover, as a result of the 30-year armed conflict between the GAM and the Indonesian security forces, advancement and development were delayed in Aceh Province even before the earthquake and tsunami. The poverty rate in Aceh Province was 29.76%, which significantly

[4] THE NATIONAL MEDIUM-TERM DEVELOPMENT PLAN 2004-2009 (Chapter 5-1~5-3)
[5] MEDIUM-TERM DEVELOPMENT PLAN: RPJMN 2014-2019 (Presentation, Director of Forestry and Water Resources Conservation, BAPPENAS)
[6] MP3EI (P46-72)

surpassed the national average of 17.42%[7]. At the time of project completion, the poverty rate of Aceh Province was 15.97% (2018), which was still higher than the national average of 10.98%; Aceh Province was positioned as the 6th among 33 provinces (including special provinces) in the country[8].

Furthermore, support for Aceh Province was concentrated in the area damaged by the tsunami, in contrast to the central area affected by the conflict, where support was insufficient. Working opportunities were insufficient for the rehabilitation of ex-GAM soldiers, which led them to unstable economic and mental situations and prompted a new destabilizing factor in society. Accordingly, developing the local economy through rehabilitation and reconstruction of distribution and economic infrastructures was necessary for the rebuilding and advancement of Aceh Province.

Thus, the project's direction to reconstruct the area affected by disaster, mitigate unstable factors in the area affected by conflict, and develop the local economy through rehabilitation of infrastructure in the sectors of transportation and water resources in Aceh Province, where the poverty rate is high, were consistent with development needs, both during appraisal and ex-post evaluation.

3.1.3 Consistency with Japan's ODA Policy

The Country Assistance Program for the Republic of Indonesia (2004) emphasized the importance of supporting the improvement of public goods (such as water, sanitation, and roads) and measures against natural disaster from the viewpoint of sustainability of local area for the sake of the "creation of a democratic and fair society." It also underlined the importance of rehabilitation and reconstruction of infrastructure in the areas affected by conflict (such as Aceh) from the standpoint of "peace and stability." *The Overseas Economic Cooperation Implementation Principle (2005)* set "support for global issues and peace building" as a priority and aimed to support the establishment of disaster-resilient infrastructure through rehabilitation and reconstruction of public infrastructure in the area affected by the earthquake and tsunami in the Indian Ocean off Sumatra. Therefore, the rehabilitation of drainage infrastructure in the seriously disaster affected area in and the improvement of road infrastructure in the conflict area in the above province were highly consistent with Japan's ODA policy at the time of appraisal.

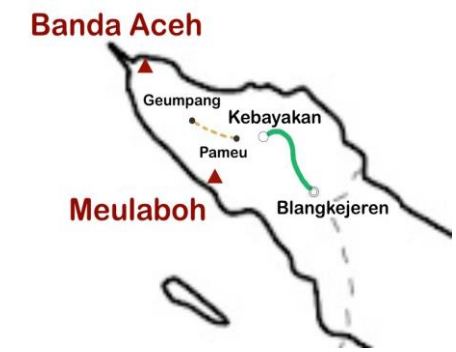
3.1.4 Appropriateness of the Project Plan and Approach

With regard to the road sub-project, there was no road in the originally planned section, indicating a "Missing Link" for the Sumatra Central Corridor. Thus, the need was especially high. However, the initial plan to construct a new road between Geumpang and Pameu (64.8

[7] Minutes of Discussions (Annex I-2)
[8] Data dan Informasi Kemiskinan Kabupaten/Kota Tahun 2018 (Badan Pusat Statistik, P9-P24)

km) was changed to improve an existing road between Kebayakan and Blangkejeren (137.24 km) during the implementation period. The reason for the change was that the Ministry of Environment did not grant permission for the new road; the ministry and an NGO opposed the construction, as the initially planned section included an environmentally protected area (forest).

At the time of appraisal, it was not grasped that the section between Geumpang and Pameu included an environmentally protected area. It is possible that there was not sufficient time for a detailed survey due to the chaos during the restoration period. Moreover, the possibility of drastic delays could not be denied if the section were not changed, as progress was already delayed significantly when the section change was requested and accepted by JICA based on the recommendation of the Special Assistance for Project Implementation (hereinafter referred to as SAPI) Team in March 2011.



＊ Aceh Province and the Sub-projects
(The triangles show Drainage Sub-projects and the rest show the Road Sub-project)

On the other hand, it is unlikely that the above change significantly lowered the relevance of the project, although consistency with the need is slightly lower due to the shift from road construction that would have connected the missing link. The reasons are that both sections of the road belong to the area severely affected by conflict, both are part of the Sumatra Economic Corridor, and the revised section is a route for moving crops from production to urban areas. Therefore, the change can be judged appropriate.

Based on the above, this project aiming at reconstruction of economic society by rehabilitation of infrastructure in the area affected by disaster and contribution to peace building in the area affected by conflict in Aceh Province, where development was delayed and conflict prolonged for a long time, has been highly relevant to the country's development plan and development needs as well as Japan's ODA policy. Therefore, its relevance is high.

3.2 Efficiency (Rating: ②)

3.2.1 Project Outputs

With regard to the sub-project, it was expected to be implemented upon concurrence of the JBIC after the implementing agency's submission of Project Plan/Investment Action Plan[9] for each sub-project. At the time of appraisal, the road and drainage sub-projects (Banda Aceh City and Meulaboh City) were expected to be implemented. After the project commencement, no

[9] It consists of project scope, cost, schedule, implementing structure, operation and maintenance structure, internal rate of return, and so on.

additional request for the sub-project other than the above was made by the implementing agency, and each sub-project was implemented as follows.

The three sub-projects expected at the time of appraisal were implemented as planned, except for the section change of the road sub-project (as shown in Table 1).

Regarding the road sub-project, the section of road was changed as stated above because the Ministry of Environment did not grant permission for construction, as the intended construction area included an environmentally protected area. However, the revised section is also located in an area seriously affected by conflict and part of Sumatra Central Corridor. Moreover, it was stated at the time of appraisal that the sub-project was subject to change. Thus, there is no significant problem in the above change of the road section from the viewpoint of the project outcome, i.e., "to reconstruct infrastructures to a level better than before the disasters."

Table 1: Achievement of Outputs

	Appraisal（2007）	Ex-post Evaluation（2019）
1. Central Road	Construction of road between Geumpang and Pameu (64.8km)	1) Improvement of road between Kebayakan – Blangkejeren 137.24 km (4.5 m width pavement, 1.5 m x 2 shoulders) was implemented in the following three sections: - Package 1: Kebayakan – Sp. Kraft (39.510 km) - Package 2: Sp. Kraft – Batas Aceh Tengah (45.545 km) - Package 3: Batas Aceh Tengah – Blangkejeren (52.182 km)
2. Drainage at Banda Aceh City	No detailed description	1) Drainage channel improvement Drainage cleaning 2,500 m, drainage channel improvement 3,000 m, pavement 3,000m^2, box culvert 33 pieces, concrete slab 151 pieces, flood gate 3 units 2) Retention basin Concrete sheet pile 900 m, embankment dike 1,130 m, pavement 4,000 m^2, flap gate 5 units, slide gate 2 units, collector drain 1,500 m, drain culvert 5 units, pipe culvert 455 units - The collector drain is 225 m less than planned because 3,180 m^2 of land could not be acquired due to budget shortage and design change. - The size of the retention basin was decreased because 460 m^2 of land could not be acquired due to budget shortage and design change. According to Banda Aceh City, the influence of this decrease on the overall plan was small. 3) Lower Kr. Neng channel improvement Concrete sheet pile 450 m, pavement 3,500 m^2, slide gate 2 units 4) Mid Kr. Neng channel improvement 2,600 m 5) Kr. Neng drain outlet 8 units
3. Drainage at Meulaboh City	No detailed description	1) Drainage channel improvement 16,514 m 2) Kr. Meurebo flood dike 650 m 3) Kr. Cangkoy flood wall Concrete 1,400m^2, flap gate 4 units, slide gate 4 units 4) Jl. Garuda embankment 120 m

Source: Ex-ante evaluation sheet, appraisal document, PCR, questionnaire to implementing agencies, interviews with implementing agencies

Since the appraisal stage, it had been expected that BRR would be the implementing agency from project commencement to April 2009, transferring to PUPR starting in May 2009. Consequently, a Project Management Unit (hereinafter referred to as PMU) was planned for all the sub-projects before transition from BRR to PUPR to secure smooth transitions among the implementing agencies by assigning PUPR staff to the PMU[10]. As for the transition of the implementing agencies during the implementation stage, there was no problem because the staff at the Directorate General of Highways of PUPR (seconded to BRR) continued to be engaged after the transition[11]. It was considered to be meaningful for the smooth transition that a key person at PUPR who was engaged before the transition from BRR to PUPR continued their engagement after the transition for the road sub-project. However, those concerned did not necessarily recognize that setting up PMU would promote a smooth transition, because PMU had been established for all the loan projects[12]. On the other hand, sufficient information could not be gained on the transition status from BRR to the Directorate General of Human Settlement and PUPR on the drainage sub-projects, because most of those at the executing agencies and consulting companies who knew the situation at that time were not in the same organizations anymore.

3.2.2 Project Inputs

3.2.2.1 Project Cost

Compared to the planned total project cost at the time of appraisal (15,458 million yen, including a loan of 11,593 million yen), the actual total project cost was 9,869 million yen (including a loan of 8,619 million yen). Thus, the project cost was within the planned constraints (63.8% of the plan and 74.3% of the loan). As for the Indonesian side, the actual cost was 1,270 million yen, compared to the planned amount of 3,865 million yen (for details, please refer to the "Comparison of the Original and Actual Scope of the Project" on the last page).

There is no problem with the project cost, because the total cost was lower than planned. Furthermore, as one of the reasons for the gap between the planned and the actual amount is that no request was made by the Indonesian side other than the three sub-projects, although the planned amount included construction of ports and so on, which were on the list of candidate sub-projects in case they were needed to flexibly cope with the restoration from disaster.

3.2.2.2 Project Period

The planned project period was 94 months[13], whereas the actual project period was 124 months. Thus, it exceeded the plan (131.9% of planned period). The reason for the delay was

[10] The ex-ante evaluation sheet (P3)
[11] Interview with the implementing agency
[12] Interview with the implementing agency
[13] The project completion was defined as the completion of the final guarantee period in the loan agreement.

that the road sub-project required time for coordination, as the initially planned section of the road included an environmentally protected area. As a result, the road section was changed, which led to a delay of 2 years and 5 months for the road sub-project.

3.2.3 Results of Calculations for Internal Rates of Return (Reference Only)

The financial internal rate of return (FIRR) was not recalculated because this project was not profitable, and the FIRR was not calculated at the time of appraisal. The economic internal rate of return (EIRR) for the road sub-project was not recalculated, either, because it was not calculated at the time of appraisal. The drainage sub-project in Meulaboh City could not be recalculated, as sufficient data was not available. The EIRR for the drainage sub-project in Banda Aceh City was 13% based on the condition of a 30-year project life after the loan agreement was signed, including the cost of construction and maintenance, the benefit of prevented damage, benefit to the surrounding area, and increasing land value. The major reason for the gap with the value at the time of appraisal (9%) is considered to be the less maintenance cost compared with the estimation.

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

3.3 Effectiveness and Impacts[14] (Rating: ③)

3.3.1 Effectiveness

3.3.1.1 Quantitative Effects (Operation and Effect Indicators)

This project consists of three sub-projects: one in the road sector and two in the drainage sector. Thus, the project's effectiveness was assessed based on the achievement of indicators for respective sub-project, and then analyses of qualitative indicators and impacts were added. The actual values of the indicators set at the time of appraisal are shown in Table 2.

Concerning the road sub-project, the annual average daily traffic between Takengon and Blangkejeren (via a provincial road for the section from Kebayakan to Blangkejeren) was 1,410 (vehicles/day) in 2018 and 1,515 in 2019, both of which significantly fell below the target of 3,590. Hence, the target value was not achieved. On the other hand, time saving reached 3.1 hours in 2018, which achieved the target. Although it was 3.4 hours in 2019, having increased by 18 minutes, it was significantly improved compared with 5.5 hours in 2016. Thus, the quantitative indicators for the road sub-project were partially achieved.

[14] Sub-rating for Effectiveness is to be put with consideration of Impacts.

Table 2 Operation Indicators

Indicator	Baseline	Actual (PCR)	Target	Actual	
1. Central Road	(Before Earthquake)	(2016)		(2018)	(2019)
(Appraisal) Annual Average Daily Traffic (vehicle/day) Pameu – Banda Aceh	N/A	N/A	(2017) 1,158	(the section not constructed)	(the section not constructed)
(Revised Plan) Annual Average Daily Traffic (vehicle/day) Takengon – Blangkejeren	N/A	1,028 (Remarks 1) 940 (Remarks 2)	(2018) 1,378 (Remarks 1) 3,590 (Remarks 2)	N/A (Remarks 1) 1,410 (Remarks 2)	N/A (Remarks 1) 1,515 (Remarks 2)
(Appraisal) Time saving Pameu – Banda Aceh	Approx. 12 hrs	N/A	(2017) Approx. 8hrs	(the section not constructed)	(the section not constructed)
(Revised Plan) Time saving Takengon – Blangkejeren	N/A	Approx. 5.5 hrs	(2018) Approx. 3.1 hrs	3.1 hrs	3.4 hrs
Indicator	Baseline (Before Earthquake)	Actual (PCR)	Target (2 years after completion)	Actual	
2. Drainage at Banda Aceh City	(recurrence period: 5 yrs)	(2012)	(2014) (recurrence period: 5 yrs)	(2014) (recurrence period: 5 yrs)	(2019) (recurrence period: 5 yrs)
Annual Maximum Inundated Area (ha)	(2000) 118.8	213	64	N/A	5.4
Annual Maximum Inundated Time (hrs)	(2002) 4 - 12 (Remarks 3)	6	2 (10 – 15 cm)	N/A	0.4 (10 – 15 cm)
Annual Maximum Number of Inundated Houses	(2000) 1,087 (Whole Aceh)	N/A	N/A	N/A	N/A
3. Drainage at Meulaboh City	(2005)	(2012)	(2013) (recurrence period: 5 yrs)	(2013) (recurrence period: 5 yrs)	(2019) (recurrence period: 5 yrs)
Annual Maximum Inundated Area (ha)	264.6	178	54	54	62
Annual Maximum Inundated Time (hrs)	N/A	12	4 (Remarks 4)	4	8
Annual Maximum Number of Inundated Houses	N/A	N/A	N/A	N/A	N/A

Source: documents provided by JICA and Implementing agencies

Remarks 1: via National Road for section Takengon – Blangkejeren (average speed 26 km/h)

Remarks 2: via Provincial Road for section Kebayakan – Blangkejeren (average speed 46 km/h)

Remarks 3: "4 - 12 hrs" is indicated in the PCR of the road sub-project, while it is "4 hrs - 12 days" in the ex-ante evaluation sheet and appraisal document. The above correction was made based on the information collected through the questionnaire and interview with Banda Aceh City Office that the "day" is unrealistic and should be understood as the mistyping of "hours."

Remarks 4: Although it was "2 (10 – 15 cm)" at the time of appraisal, it was corrected as "4" at PCR.

Regarding the drainage sub-project in Banda Aceh City, the annual maximum inundated area was 5.4 ha and the annual maximum inundated time was 0.4 hour at the time of the ex-post evaluation (2019), both of which show favorable results far below the target values, although 2014 data for each indicator were not available. Data on the annual maximum number of inundated houses do not exist. However, it is considered appropriate to assess the achievement based on the annual maximum inundated area and annual maximum inundated time, because the number of inundated houses is influenced by the increase in the number of houses and not necessarily vital as an indicator. Hence, the objective was achieved in Banda Aceh City.

Furthermore, the drainage in Banda Aceh City received many donors' support, such as the Multi-Donor Fund for Aceh and Nias (2005-2012), Japan's Non-Project Grant Aid "Assistance for the Damage Caused by the Earthquake off the Coast of Sumatra and Tsunami in the Indian Ocean" (2015), and JICA's technical cooperation project, "Banda Aceh City Quick Impact Project" (2005). The achievement of the indicator did not result from only this project, but the synergetic effects of those projects were large.

Concerning the drainage in Meulaboh City, both the annual maximum inundated area and the annual maximum inundated time achieved the target values in 2013, the target year. At the time of the ex-post evaluation (2019), the annual maximum inundated area had increased by 14.8% and the annual maximum inundated time had doubled compared with the target year. According to the implementing organization, the reasons are extreme weather conditions and damage to the river[15].

Therefore, the achievement of quantitative effects for the road sub-project was medium, and the drainage sub-projects in Banda Aceh City and Meulaboh City achieved the targets.

3.3.1.2 Qualitative Effects (Other Effects)

Concerning the improvement of traffic volume on the Central Road, interviews were conducted with 20 road users[16] who knew the situation both before and after the project at the location of the starting point, the ending point, and the middle of the road. As a result, the traffic volume at the time of the ex-post evaluation significantly increased compared with before the project implementation (See Table 3). Although the representativeness is low due to the small sample size, the road users recognized the increased traffic volume compared to before the project implementation.

[15] Questionnaire to the implementing organization

[16] The interviews were conducted in December 2019 with interviewees who knew the situation both before and after the improvement of the road by the project. The interviews were conducted with 20 road users (14 males and 6 females); 6 persons at Kebayakan, the starting point of the section, 5 persons at Blangkejeren, the end point of the section, and 9 persons in between the two locations on the road. The breakdown of the interviewed road users was: 8 road users living near the road, 11 road users working around the road (4 shop owners, 3 road users engaged in transportation such as drivers of mini busses and taxis, and 4 other road users) and 1 student.

Moreover, regarding the drainage sub-projects, interviews were conducted in Banda Aceh City and Meulaboh City with 77 residents who knew the situation before and after the project implementation. The results of a question about the frequency of inundation are shown in Table 4[17]. Concerning the frequency of inundation, 54 out of 77 interviewees responded "almost none" at the time of the ex-post evaluation, while 30 out of 77 interviewees responded "often" before the project implementation. Thus, the frequency of inundation decreased. Although this data cannot be said to represent the tendencies of the whole population, it can be assumed that the residents at the project sites recognized that the frequency of inundation had decreased at the time of the ex-post evaluation compared to before the project was implemented.

Therefore, the qualitative effects of the road sub-project and the drainage sub-projects in Banda Aceh City and Meulaboh City were high.

Table 3 Change of Traffic Volume
(for section Takengon – Blangkejeren)

(Unit: persons)

	2004	2019
Very big	0	20
Big	1	0
Fair	4	0
Small	6	0
Very small	9	0
Total	20	20

Source: Interviews with road users

Table4 Frequency of Inundation

(Unit: persons)

	2008	2019
Almost none	18	54
Not often	13	11
Fair	9	3
Often	30	9
Very often	7	0
Total	77	77

Source: Interviews with residents near the drainage sub-projects' sites

3.3.2 Impacts

3.3.2.1 Intended Impacts

It was expected at the time of appraisal that the project would contribute to the improvement of the living environment for people who had been unable to benefit from development and advancement due to long conflict; the project was also intended to contribute to the promotion and establishment of peace after the conflict. The improvement status of the living environment at the time of the ex-post evaluation is as follows.

[17] In November 2019, interviews were conducted with residents living near the drainage facilities constructed by the project who knew the situation before and after the project implementation (42 residents at Banda Aceh City, consisting of 25 males and 17 females, and 35 residents at Meulaboh City, consisting of 17 males and 18 females).

a) The road sub-project

Concerning the safety and convenience of traffic and its influence, interviews were conducted with 20 users[18] of the road improved by the project. Their replies to questions regarding the status before the tsunami and at the time of the ex-post evaluation are shown in Table 5. The time required for commuting, going to school, and clinics as well as for shopping was shortened. Thus, it is regarded that the convenience of traffic improved.

Table 5 Change of Living Environment by Road Improvement

Time for Commuting

(Unit: person)

	2004	2019
5 Very short	0	20
4 Short	1	0
3 Neither short nor long	6	0
2 Long	4	0
1 Very Long	9	0
0 I don't know	0	0
Total	20	20

Time for Going to School

(Unit: person)

	2004	2019
5 Very short	0	20
4 Short	1	0
3 Neither short nor long	6	0
2 Long	4	0
1 Very Long	9	0
0 I don't know	0	0
Total	20	20

Time for Going to Clinics/Hospitals

(Unit: person)

	2004	2019
5 Very short	0	20
4 Short	1	0
3 Neither short nor long	6	0
2 Long	4	0
1 Very Long	9	0
0 I don't know	0	0
Total	20	20

Time for Going to Shops

(Unit: person)

	2004	2019
5 Very short	0	20
4 Short	1	0
3 Neither short nor long	6	0
2 Long	4	0
1 Very Long	9	0
0 I don't know	0	0
Total	20	20

Source: Interview of road users

b) The drainage sub-projects

In Banda Aceh City and Meulaboh City, interviews were conducted with 77 residents[19] who lived near the drainage facilities improved by the project and knew the situation both before and after the project. The result of the interviews surrounding the questions about the change of sanitary status and convenience of traffic after rain are shown in Tables 6 and 7. A decrease in bad odor is recognized as a change in the sanitary aspect of the living environment. However, the accumulation of sludge and bad odor at the time of low tide were pointed out at a specific place. Moreover, some interviewees recognized that certain infectious diseases that are common after rainfall, such as diarrhea and malaria, also decreased. However, this cannot be assessed as

[18] The timeframe of the interviews and the interviewees were the same as indicated in footnote No. 16.
[19] The timeframe of the interviews and the interviewees were the same as indicated in footnote No. 17.

a significant change because neither disease was particularly prevalent, even before the project. On the other hand, regarding the change in the convenience of traffic, it is recognized frequency in taking a detour, time for commuting, going to school, and clinics after rain improved compared with before the project.

However, the above may not show the full tendency of each sub-project, due to the small sample size.

Table 6　Change in the Living Environment by Drainage Improvement

(Sanitation)

Frequency of Bad Smell

(Unit: persons)

	2008	2019
5 Almost none	28	48
4 Not often	18	21
3 Fair	11	3
2 Often	15	4
1 Very often	3	0
Total	75	76

Diarrhea after Rainfall

(Unit: persons)

	2008	2019
5 Almost none	63	74
4 Not often	6	2
3 Fair	5	0
2 Often	2	1
1 Very often	0	0
Total	76	77

Cholera after Rainfall

(Unit: persons)

	2008	2019
5 Almost none	68	76
4 Not often	2	1
3 Fair	4	0
2 Often	1	0
1 Very often	1	0
Total	76	77

Tetanus after Rainfall

(Unit: persons)

	2008	2019
5 Almost none	68	76
4 Not often	3	1
3 Fair	4	0
2 Often	0	0
1 Very often	1	0
Total	76	77

Source: Interview with residents of the drainage sub-projects' sites

Remarks: The reason why there is difference between the sub-total of 2008 and 2019 is that the number of the respondents who did not answer the question is excluded.

Table 7　Change in the Living Environment by Drainage Improvement
(Traffic after Rainfall)

Frequency in Taking Detour

(Unit: person)

	2008	2019
5 Very Good	25	58
4 Good	12	14
3 Fair	25	4
2 Bad	10	0
1 Very Bad	3	0
Total	76	76

Time for Commuting

(Unit: person)

	2008	2019
5 Very Good	26	57
4 Good	12	14
3 Fair	23	5
2 Bad	12	0
1 Very Bad	2	0
Total	75	76

Time for Going to School

(Unit: person)

	2008	2019
5 Very Good	28	56
4 Good	12	15
3 Fair	22	5
2 Bad	10	0
1 Very Bad	3	0
Total	75	76

Time for Going to Clinics/Hospitals

(Unit: person)

	2008	2019
5 Very Good	27	55
4 Good	12	16
3 Fair	23	5
2 Bad	10	0
1 Very Bad	3	0
Total	75	76

Source: Interview with residents of the drainage sub-projects' sites
Remarks: The reason why there is difference between the sub-total of 2008 and 2019 is that the number of the respondents who did not answer the question is excluded.

3.3.2.2 Other Positive and Negative Impacts

(1) Impacts on the Natural Environment

At the time of appraisal, the project may have had a certain impact on the environment[20], because it was not possible to determine all of the sub-projects before acceptance of the loan, as there was an emphasis on quick and flexible measures against the disaster. Among the expected sub-projects, BRR and PUPR obliged the contractor, in its contract of the road sub-project, to formulate an environmental management plan, which included public health and internal safety training, and agreed upon measures, including an HIV/AIDS prevention clause in the bidding document[21].

At the implementation stage and at the time of ex-post evaluation, there were no negative impacts on the environment by the construction of any sub-project. Procedures for necessary permission were taken without delay[22]. In the road sub-project, the initially planned section of the road was revealed to include an environmentally protected area (forest). As a result, the plan was modified to make an improvement to another section of the road. Consequently, the project was implemented without destroying the environment. Although the contractor's contract did not include an HIV/AIDS prevention clause, formulation and implementation of the

[20] Categorized as FI in Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Consideration (April 2002)
[21] PCR of the road sub-project (P16)
[22] Questionnaire by implementing organizations

environment management plan and environment monitoring plan were conducted by contractors and consultants[23]. However, these monitoring records could not be obtained.

(2) Impacts on the Resettlement and Land Acquisition

As not all of the sub-projects were determined before acceptance of the loan, it was planned at the time of appraisal to confirm the assessment of environmental and social impacts for each sub-project, according to the environment guideline and with the support of the consultant.

As for the road sub-project, land acquisition was not conducted because the initial plan to construct a new road was changed to improve the existing road[24]. Concerning the drainage sub-project in Banda Aceh City, 22.5 ha of land was acquired and approximately 200 persons were resettled. This did not produce a significant change, although a partial scale-down was observed, due to the delay in land acquisition[25]. Based on the examination made in accordance with the domestic law, financial compensation was made for the acquisition of the land and buildings in the above city, and resettlement was conducted without a problem[26]. In Meulaboh City, small-scale land acquisition was conducted to broaden the width of the drainage facility (about 1 – 2 m). However, there was neither a problem with the procedure for the acquisition nor was resettlement required[27].

(3) Other Positive/Negative Impacts

Decreases in flies, mosquitoes, and dengue fever were other positive impacts of the drainage sub-projects in the interviews with the residents as mentioned before. Moreover, interviewees pointed out that the scenery was improved due to the construction of the retention basin, which became a place of relief of the citizens[28]. As for the road sub-project, smooth distribution and increased sales of agricultural crops, as well as positive effects on the local economy, were positive impacts.

On the other hand, concerning negative impacts, a bad odor is generated in the retention basin in Banda Aceh City depending on the area, due to accumulated sludge at high tide. Moreover, some have fallen into the retention basin (including one fatal accident) because there was no fence[29]. After falling into the retention basin, even an adult can hardly get out by himself or help someone out of it, because there are no stairs or handrail. However, it cannot be said that there was a specific problem compared with the other retention basins in Indonesia, because it

[23] PCR of the road sub-project (P16 – 18)
[24] Interview with implementing organization
[25] Interview with maintenance and operation (M&O) organization
[26] Interview with M&O organization
[27] Interview with M&O organization
[28] Interview with the residents at the drainage sub-projects sites. The timeframe and the target are the same as in footnote No. 17.
[29] Interview with the residents at the drainage sub-projects sites. The timeframe and the target are the same as in footnote No. 17.

was constructed in accordance with the Indonesian design standard of the retention basin. Furthermore, at the time of appraisal, the possibility of a fatal accident resulting from the children's wandering onto the rim of the retention basin was unforeseeable.

Based on the above, concerning the quantitative effects, the project's objective was partially achieved for the road sub-project, and achieved for the drainage sub-projects at Banda Aceh City and Meulaboh City. As for the improvement of the living environment, among the impacts expected at the time of appraisal, improvement of convenience in traffic by the road sub-project as well as a decrease in bad odor and improved convenience in traffic after rainfall by the drainage sub-projects were observed. There were other positive impacts, such as economic effects, including the smooth distribution of agricultural crops and an increase in amount of sales by the road sub-project, as well as decreases in mosquitoes, flies, and dengue fever by the drainage sub-projects, although there were also negative impacts, such as accidents where children fell into the retention basin and the emission of a bad odor from accumulated sludges by the drainage sub-projects. As stated above, this project has mostly achieved its objectives. Therefore, effectiveness and impacts of the project are high.

3.4 Sustainability (Rating: ②)

3.4.1 Institutional / Organizational Aspects of Operation and Maintenance

In this project, the operation and maintenance structure were expected to be determined upon submission of the project plan document by the implementing organization. The sub-projects already expected at the time of appraisal were those of the road, the drainage at Banda Aceh, and the drainage at Meulaboh. The expected implementing structure was as follows.

1) Executing agency until April 2009 was BRR.

2) Executing agency since May 2009 was PUPR (a. Central Road: Directorate General of Highway, b. Drainage at Banda Aceh City: Directorate General of Human Settlement, c. Drainage at Meulaboh City: Directorate General of Human Settlement)

The project was implemented in accordance with the above implementing structure. Also, there was no request for an additional sub-project other than the above three sub-projects. In this project, the establishment of the PMU and dispatch of staff from PUPR to PMU were planned, because the executing agencies were scheduled to be changed (from BRR to PUPR) during implementation, and the maintenance and operation organizations would be different from the executing agencies. During the implementation period, PMU was established and the staff was dispatched from PUPR.

The operation and maintenance structure after project completion is as follows.

a) The road sub-project

At the time of appraisal, the Directorate General of Highway, PUPR was expected to be responsible for operation and maintenance. Investment Action Plan stated that PUPR would conduct O&M through its local office in Aceh. At the time of the ex-post evaluation, PUPR's local office (Balai Pelaksanaan Jalan Nasional (hereinafter referred to as Balai) PU Jalan) in Aceh conducted O&M until December 2019 (sufficient number of staff, i.e., 90 staff, are allocated to the O&M section, and secured). Although a part of the road improved by the project (section Kebayakan – Sp. Kraft) is a provincial road, the central ministry coped with its implementation, together with the other section of the road, to ensure smooth progress. As of 2019, a landslide had occurred at the provincial road section mentioned above, which required repair of the road. Due to a misunderstanding of the responsibility for the repair among Balai and the road section of the Aceh Province Government (Dinas), maintenance was delayed. However, Dinas was confirmed as being responsible for the O&M of the above section from January 2020, and the problem was solved[30]. Dinas also has a sufficient number of staff at the section in charge of road maintenance[31].

b) The drainage sub-project at Banda Aceh

At the time of appraisal, the Human Settlement Section of Banda Aceh City and the Water Resources Section of Aceh Province Government were expected to be responsible for O&M. At the time of appraisal, the Water Resources Section of Banda Aceh City was intended to be responsible for the drainage system in the city (Zone 1), City Cleaning Service of the city responsible for cleaning the channel, and the Water Resources Section of Aceh Province Government responsible for Kr. Neng (Neng River). At the time of ex-post evaluation, the Water Resources Section of Banda Aceh City was responsible for the O&M, including monitoring. The section has 37 staff, including 12 staff and 25 outsourcing staff (such as pump operators), who were engaged in O&M of the drainage facilities. No significant shortage of staff was observed. The channels are cleaned by the City Cleaning Services on regular basis.

c) The drainage sub-project at Meulaboh

At the time of appraisal, the Human Settlement Section of Meulaboh City was expected to be responsible for the O&M. At the time of appraisal, the Water Resources Section of Meulaboh City was expected to be responsible for the drainage facilities in the city, while Water Resources Section of Aceh Province Government was responsible for the water dikes of the rivers. At the

[30] It was confirmed at PUPR Headquarters, during the 2nd field visit of the ex post evaluation team, that the asset was not transferred from the provincial government to the central ministry from the beginning, i.e., from the project commencement until the ex-post evaluation, and that recognition of those who were concerned at the project site was based on misunderstanding.

[31] Interview with implementing organization

time of ex-post evaluation, West Aceh District (district capital is Meulaboh City) owned the drainage facility and was in a position to assume responsibility for O&M. However, those who were concerned with the project in the past were not available, due to sudden and frequent personnel reshuffling, and taking over of the task from the predecessors to the successors were not conducted sufficiently, in addition to inappropriately filing and storing documents. Thus, there was confusion about the O&M's responsibility for the drainage facilities by the project, as it was not recognized by the organization. It is possible that serious damage and chaos caused by a huge earthquake and tsunami resulted in a confusion of O&M responsibilities for drainage facilities, and it was not taken over from the predecessors. The Water Resources Section of West Aceh District is responsible for the drinking water, sanitation, and drainage in West Aceh District, including Meulaboh City. However, the staff is eight in number, which is small for the task. Moreover, the Environment Office of West Aceh District is responsible for general cleaning (including drainage facilities) of West Aceh District. The staff is nine in number, which is insufficient. Also, residents do not have the mindset to clean up on their own initiative. Hence, the O&M structure in West Aceh District is fragile.

On the other hand, West Aceh District established a cross-sectoral committee in 2017, with the aim of improving the district by choosing a theme annually. Currently, Coordinating Team for Flood Control has been established and there have been regular policy-level discussions among Offices of Public Works, Human Settlement, Environment, Disaster Prevention. Moreover, at the working level, "1st Response Team for Flood Control" was established in January 2020, and it started a survey on the current flood situation. Furthermore, during the 2nd field visit by the ex-post evaluation team, those concerned with West Aceh District understood the responsibility for O&M of the drainage facilities supported by the project. As of August 2020, the procedure is taken by West Aceh District for asset transfer and budget requests[32], and there is an indication for improvement of the organizational aspect.

d) Other

There is insufficient information to judge whether the establishment of PMU contributed to continuous monitoring during the implementation stage and after project completion, because very few people are familiar with the history of the project due to organizational changes/restructuring.

Based on the above, the O&M implementation structure is sufficient for the road sub-project and the drainage sub-project at Banda Aceh City, whereas that for the drainage sub-project at Meulaboh City is medium. Therefore, sustainability from institutional/operational aspects is fair.

[32] Telephone interview with implementing organization

3.4.2 Technical Aspect of Operation and Maintenance

At the time of appraisal, it was judged there was no problem from technical aspect. The reasons were as follows: project managers were expected to be dispatched from PUPR to BRR to ensure quality control from a technical aspect and a smooth transition among the implementing organizations; both the Directorate General of Highway and the Directorate General of Human Settlement of PUPR, the Executing Agency from 2009, had considerable experience with ODA Loan.

At ex-post evaluation, Balai of PUPR and the Road Section of Aceh Province Government are regarded to have sufficient technical capacity for O&M of the road[33]. Banda Aceh City also is considered to have sufficient technical capacity for O&M of the drainage facilities[34]. However, West Aceh District commented on Meulaboh City on the questionnaire, indicating that the technical capacity was insufficient, as it could not cope with the increased inundated area and time caused by extreme weather and damage to the watershed of Meurebo River (Kr. Meurebo)[35].

Based on the above, the technical capacity of O&M is sufficient for the road sub-project and the drainage project at Banda Aceh City, whereas that for the drainage sub-project at Meulaboh City is insufficient. Therefore, sustainability from the technical aspect of O&M is fair.

3.4.3 Financial Aspect of Operation and Maintenance

At the time of appraisal, the GOI budget was intended to cover the construction cost except for that covered by the loan and administration costs that are not covered by the loan, as well as tax and duties. The actual cost for O&M at ex-post evaluation is shown in Tables 8 and 9.

Table 8 Actual Cost of O&M for the Road Sub-project

(Unit: million Rupiah)

	2016	2017	2018
Sp. Kraft - Batas Aceh Tengah	N/A	N/A	946
Batas Aceh Tengah – Blangkejeren	N/A	N/A	5,877
Kebayakan – Sp. Kraft	N/A	N/A	N/A

Source: Questionnaire by Implementing Organization

[33] Questionnaire by and interview with implementing organization
[34] Questionnaire by implementing organization
[35] Questionnaire by implementing organization

Table 9 Actual Cost of O&M for the Drainage Sub-projects

(Unit: million Rupiah)

	2016	2017	2018
The Drainage Sub-project at Banda Aceh City	1,000	1,000	1,000
The Drainage Sub-project at Meulaboh City	0	0	0

Source: Questionnaire to and Interview with Implementing Organization

According to the implementing organization, the cost of O&M for the road sub-project is sufficient[36]. For the drainage sub-project at Banda Aceh City, the response indicated that the O&M cost was not sufficient. However, it has borne a certain level of maintenance costs for the last three years. On the other hand, there was no O&M cost secured for Meulaboh City for the last three years. This was due to a confusion of responsibility for O&M of the drainage facility, due to frequent personnel changes among those who were concerned, insufficient taking-over, and document filing and storing as already described; moreover, the district-level budgetary status is generally severe. However, as described in the section "Institutional / Organizational Aspect of Operation and Maintenance," the committee members of the Coordination Team for Flood Control at West Aceh District consist of Offices of Public Works, Environment and Disaster Prevention, in addition to Human Settlement; each office has a certain budget[37]. Hence, sustainability from a financial aspect may, to some extent, improve in the future.

Based on the above, no major problems have been observed from financial aspect for the road sub-project and the drainage sub-project at Banda Aceh City, whereas the major financial problem is observed for the drainage sub-project in Meulaboh City. Thus, sustainability from financial aspect of O&M is fair.

3.4.4 Status of Operation and Maintenance

At ex-post evaluation, landslides had occurred at several sites along the provincial road of the road sub-project. As stated before, the Indonesian domestic law stipulates that the owner of the facility is responsible for O&M, although Balai had been coping with the O&M of the road improved by the project. However, those who were concerned with the sites recognized the difficulty of making major repairs on the provincial road (section Kebayakan – Sp. Kraft) until asset transfer from the central government to the provincial government is completed. This resulted in insufficient maintenance status, as the major repair works were not conducted[38]. However, this problem was solved, as in January 2020, there was clarification that the road section of Aceh Province is for O&M of the provincial road section, as stated in the clause of Institutional / Organizational Aspect of Operation and Maintenance.

[36] Questionnaire by implementing organization
[37] Interview with related organizations
[38] Interview with implementing organizations

As for the drainage sub-project at Banda Aceh City, the main channel generally functioned well[39] at ex-post evaluation, despite accumulated sludge and so on. The improved Neng River (Kr. Neng) also functions well as a whole, although the watergate is partially damaged.

Concerning the drainage sub-project at Meulaboh City, the O&M status of some areas was insufficient, including the cleaning status.

As explained above, the O&M status of the road sub-project and the drainage sub-project at Banda Aceh City are in good condition, whereas the drainage sub-project at Meulaboh City has problems. Hence, the project's O&M status is fair.

Based on the above, some minor problems have been observed in terms of the institutional/organizational aspect, technical aspect, financial aspect, and current status. Therefore, sustainability of the project effects is fair.

4. Conclusion, Lessons Learned, and Recommendations

4.1 Conclusion

This project was implemented to reconstruct infrastructures in the transportation and water resources sectors to make them better than they had been before disasters in Aceh, thereby contributing to improvement of living conditions for the people affected by the disaster and conflict, and enhancing the local economy and sustainable peace in Aceh. The project's direction, which aimed at reconstruction of economic society by rehabilitation of infrastructure in the area affected by disaster and peace building in the area affected by conflict in Aceh Province, where development was delayed and conflict prolonged for a considerable time, has been highly relevant to the country's development plan and needs, as well as Japan's ODA policy. Therefore, its relevance is high. The project outputs were achieved mostly as planned, although the section of the road was changed in the road sub-project. Although the project cost was within the plan, the project period exceeded that of the plan. Therefore, efficiency of the project is fair. Concerning the quantitative effects, it is judged that the project's objective was partially achieved for the road sub-project, and achieved for the drainage sub-projects at Banda Aceh City and Meulaboh City. As for the improvement of living environment by the project, these included an improvement of convenience in traffic by the road sub-project, as well as a decrease in bad smell and improved convenience in traffic after rainfall by the drainage sub-projects. There were other positive impacts, such as the smooth distribution of agricultural crops and an increase in amount of sales, as well as the decrease in mosquitoes, flies, and dengue fever and so on. Therefore, effectiveness and impacts of the project are high. Some minor problems have been observed in terms of the institutional / organizational aspect, technical aspect, financial aspect and current status. Therefore, sustainability of the project

[39] Questionnaire by implementing organization, direct observation

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

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

(1) The drainage sub-project at Banda Aceh

It is recommended that Banda Aceh City promptly constructs a guard fence to prevent accidents, mainly of children, involving a fall into the retention basin. Also, it is suggested to equip the retention basin with stairs and handrail, to facilitate rescue or getting out of the basin, in case a person falls. It is also desired that the sludge be removed in a prompt manner.

(2) The drainage sub-project at Meulaboh

The West Aceh District, i.e., the O&M organization for the drainage sub-project is recommended to secure the necessary budget and to promote maintenance of the drainage facilities at Meulaboh City, in collaboration with the Coordination Team for Flood Control as well as the 1st Response Team for Flood Control through integrated coordination.

4.2.2 Recommendations to JICA

None.

4.3 Lessons Learned

Safety measures required for construction of a retention basin

The retention basin constructed by the drainage sub-project commands a fine view and became a place of relief for the residents. On the other hand, some accidents involving falls into the retention basin occurred, mainly involving children, including one fatal accident, as there is no guard fence. The residents around the retention basin pointed out that even an adult can hardly get out by himself or help someone get out of it, once someone has already fallen into the retention basin, because there are no stairs or handrail. As the retention basin was constructed in accordance with the Indonesian design standard, it is not regarded as having a design problem, compared with other retention basins in Indonesia. However, when a retention basin is constructed in a drainage improvement project, when formulating a construction plan, it is useful to include in the design the construction of a guard fence to prevent accidents involving falling into the basin, as well as stairs and handrails to get out or for rescue, in case someone falls, to prevent accidents and keep them from becoming serious.

Planning and follow-up for a facility to be handed over to district level government

Among the three sub-projects of the project, the status at ex-post evaluation was most serious for the drainage sub-project at Meulaboh City, where the facility had been handed over to the

district-level government. Other sub-projects were handed over to either the province or the city. In general, financial and organizational aspects of a district-level government body tend to be fragile. In the case of the sub-project at Meulaboh City, there was no expenditure of the maintenance cost for the facility from project completion until ex-post evaluation. The O&M responsibility in the project was not recognized, due partly to frequent personnel transfer in the past.

It is desirable to include at the time of appraisal, “prior coordination of asset transfer from the central government to local government,” into the terms of reference of the contract of consultant, in case asset transfer is expected for the constructed facility, especially in the ODA Loan related to restoration from disasters.

Particularly when there is an anticipated asset transfer to local government, the financial and organizational capacities of which are fragile, it is necessary to conduct sufficient information collection and analysis on these capacities and select the organization to which it will be handed over, to ensure that the organization can conduct O&M appropriately after completion.

Comparison of the Original and Actual Scope of the Project

Item	Plan	Actual
1. Project Outputs a) The Road Sub-project b) The Drainage Sub-project at Banda Aceh c) The Drainage Sub-project at Meulaboh	a) Central Road: construction of road Geumpang – Pameu (64.8km) b) Drainage facilities (No detailed information at the time of appraisal) c) Drainage facilities (No detailed information at the time of appraisal)	a) Central Road: improvement of existing road Kebayakan – Blangkejeren (137.24 km) b) Drainage facilities Collector Drain Retention Basin Drain Outlet Improvement of Kr. Neng c) Drainage facilities Kr. Meurebo flood dike Kr. Cangkoy flood wall
2. Project Period	April 2007 – January 2015 (94 months)	March 2007 – June 2017 (124 months)
3. Project Cost Amount Paid in Foreign Currency Amount Paid in Local Currency Total ODA Loan Portion Exchange Rate	 3,844 million yen 11,614 million yen (936,612 million Rupiah) 15,458 million yen 11,593 million yen 1Rupiah = 0.0124 yen (As of September 2006)	 729 million yen 9,140 million yen (993,478 million Rupiah) 9,869 million yen 8,619 million yen 1Rupiah = 0.0092 yen (Average between January 2008 and December 2016[40])
4. Final Disbursement	July 2017	

[40] In this project, there was no expenditure in 2007, the 1st year, and in 2017, the last year. Thus, the annual average rate between 2008 and 2016 for nine years is applied as the exchange rate.