Ex-Post Project Evaluation 2020 : Package Ⅲ-4

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Republic of Ghana

FY2020 Ex-Post Evaluation Report of Japanese Grant Aid Project

"The Project for Fishery Promotion in Sekondi"

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0. Summary

This project was implemented to reduce the congestion at the fishing port and improve the freshness of the caught fish by extending the mooring quay and improving related facilities, thereby contributing to the stable supply of marine products at Sekondi Fishing Harbour (hereinafter SKFH).

This is a project for infrastructure development related to the fishing industry, an important industry in Ghana, therefore the project is consistent with the Government of Ghana's development policy. The measures to an increasing number of fishing vessels and efficient fishing port management are urgent issues, and development needs are high. These issues are also highly relevant as with Japan's ODA policy of supporting economic infrastructure, therefore relevance is high. The actual project period exceeded the planned duration because re-bidding was necessary due to the spread of Ebola haemorrhagic fever, but the project cost was within the revised E/N amount, so efficiency is fair. One of the initially set target indicators was not appropriate, but the fishing port facilities' congestions have been improved, which is the project's purpose, by improving the operation of the fishing port's facilities. The positive impacts also were recognized, such as maintaining the freshness of the catch, which helps increase its unit price. Due to the influence of external conditions such as fewer fishery resources, the volume of fish landings has decreased. Therefore, not all, but some fishermen and fishmongers have increased their income, so effectiveness and impact are high. No major problems have not observed in the institutional, financial, or technical aspects required for the maintenance of SKFH. The operation and maintenance status is generally good, and this project's effects are expected to continue, so sustainability is high.

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

1. Project Description

Project Location

Overview of Sekondi Fishing Harbour

1.1 Background

Ghana is one of Africa's leading fishing countries, with an annual catch of 3.2 million tonnes and 110,000 fishermen, and the annual per capita consumption of marine products is about twice the world average. SKFH, which was developed by the Fisheries Grant Aid Project, "Construction of Sekondi Fishing Port in the Republic of Ghana" (1998), is the second important fishing port in Ghana after the Tema Fishing Port. The Takoradi commercial port, which is managed under the control of Ghana Ports and Harbours Authority (GPHA), operated it. The number of vessels operating at SKFH was increasing and surpassed the port's capacity, and even though it had operated without major problems as a port facility with support from the Takoradi commercial port, its operational capacity as a "fishing port facility" was insufficient. Therefore, problems such as the inefficiency of landing due to improper operation, the deterioration of the quality of the catch after fishing due to insufficient capacity of landing facilities and ice production facilities, and the loss of income opportunities for fishermen due to these issues arose.

1.2 Project Outline

This project was implemented to reduce congestion at the fishing port and improve the freshness of the caught fish by extending the mooring quay and improving related facilities, thereby contributing to the stable supply of marine products at SKFH.

<Grant Aid Project>

Grant Limit/Actual Grant Amount	1,825 million yen (Amended to 2,169 million yen)/ 2,102 million yen
Exchange of Notes Date /Grant Agreement Date	April 2014 (Amended in December 2015) /April 2014 (Amended in December 2015)
Executing Agency	Ghana Ports and Harbours Authority (GPHA) (Operating Agency is SKFH)
Project Completion	March 2018
Target Area	Sekondi, Takoradi city, Western Region
Main Contractor(s)	Toa Corporation
Main Consultant(s)	Joint Venture of Echo Corporation and OAFIC Ltd. (Representative: Echo Corporation)
Procurement Agency	N.A.
Basic Design/Preparatory Survey	June 2013 - February 2014
Related Projects	- Grant Aid Project, "Tema Outer Fishing Harbour Rehabilitation Project in the Republic of Ghana" (1994)

	- Fisheries Grant Aid Project, "Construction of Sekondi Fishing Port in the Republic of Ghana" (1998)

2. Outline of the Evaluation Study

2.1 External Evaluator

Keiko Asato, Foundation for Advanced Studies on International Development (FASID)

2.2 Duration of Evaluation Study

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

Duration of the study: December 2020 - January 2022

Duration of the field study: Due to the spread of COVID-19, the external evaluator refrained from traveling to the country. A remote survey was conducted by visiting the project site and collecting information by a local consultant[1]. Surveys were conducted by visiting the project site twice, from April 14 to 22, 2021, and August 17 to 22, 2021.

2.3 Constraints during the Evaluation Study

Due to the spread of COVID-19, the external evaluator could not conduct a field survey. Project-site-visit surveys were conducted with the local consultant residing in the capital, Accra, by remote instruction to collect project information and data and conduct the beneficiaries' interviews. In addition, the external evaluator conducted online interviews with related organizations. However, it took much time to collect the information, and some information was difficult to obtain.

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

3.1 Relevance (Rating: ③[3])

3.1.1 Consistency with the Development Plan of Ghana

In Ghana's mid-term country development plan framework, *Ghana Shared Growth and Development Agenda (2010-2013)* (hereinafter referred to as "GSGDA"), at the time of the ex-ante evaluation, supply shortages for the domestic demand of marine products and the non-sustainable and less than optimal use of fishery resources arose as issues in the fishing industry. The expansion of the landing, storage, processing, and export facilities was set as goals. GSGDA II (2014-2017) emphasized the improvement of catch volume and productivity in the items of

[1] In the first project site survey, in addition to SKFH administration office, the interview survey was administered to 23 fishermen (8 canoe fishermen, 15 inshore vessel fishermen, 1 trawler owner), fishmongers (6), smoked product manufacturers (3), small store owners (3), and local residents (3) (all fishermen and smoked product manufacturers were male, and all fishmongers were female). In the second project business site survey, we interviewed new canoe fishermen (7) and an additional 2 canoe fishermen, inshore vessel fishermen and fishmongers, who answered that their income had increased in the first survey.

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

[3] ③: High, ②: Fair, ①: Low

Development of fisheries for food security and income increase in "Modernization of agriculture and management of natural resources management."

At the time of the ex-post evaluation, the fishery aquaculture field was listed as a priority field in the mid-term country development plan framework, *An Agenda for Jobs: Creating Prosperity and Equal Opportunity for All (2018-2021)*, which is the successor policy to GAGDA II. Along with promoting the growth of the aquaculture field, the strategy is set to control illegal fishing and reduce post-catch loss with sustainable marine resource management.

In this regard, this project is consistent with Ghana's development plan.

3.1.2 Consistency with the Development Needs of Ghana

At the time of the ex-ante evaluation, Ghana was a fishing country with an annual catch volume of about 3.2 million tonnes and 110,000 fishermen. The annual per capita consumption of marine products was about 30 kg, which was about twice the world average (16.7 kg). However, the domestic catch was not enough to cover the vigorous fishery consumption, the fishery industry's share of GDP has decreased from 4.4% (2007) to 1.7% (2011), and about 190,000 tonnes of marine products were imported (2011). Although many fishing ports were operating along the Gulf of Guinea in Ghana, the only modern fishing ports with ice production facilities were the Tema fishing port and SKFH. Inshore fishing was the main activity at SKFH, and the catch from inshore vessels and canoes were mainly transported and sold to the cities of Sekondi and Takoradi and the hinterland of Kumasi. The number of fishing vessels operating at SKFH had been increasing[4], and the issues were raised, such as congestion at the time of landing, poor landing efficiency due to improper use of fishing port facilities[5], deterioration of the quality of the catch after fishing due to insufficient capacity of landing facilities and ice production facilities, and the loss of income opportunities for fishermen. In addition, although SKFH had the ability to operate port facilities, it lacked the ability to operate the facilities as a fishing port, including guiding efficient landing.

At the time of the ex-post evaluation, 70% of the catch at Ghana's fishery was marine fishery (17% inland fishery, 13% in aquaculture), and the importance of marine fishery had not changed. In the "*FISHERIES MANAGEMENT PLAN OF GHANA" A National Policy for the Management of the Marine Fisheries Sector, 2015-2019* (Ministry of Fisheries and Aquaculture Development, hereinafter MOFAD), the importance of fish is mentioned as an inoculation source of animal-origin protein for Ghana's people (60% of animal-origin protein is inoculated from fish). This plan also addresses concerns about the decrease in the catch in recent years. Suppression of excessive exploitation of marine fishery resources, compliance with the Fisheries Law to protect

[4] It was 51 vessels in 1998, but it doubled to 106 in 2006 (ex-ante evaluation sheet, p.1-2).
[5] Only 30% of entire handling shed space was used for its original purpose, because it was used for other purposes, such as storing fishing nets, small sales shops, and gambling.

fishery resources, promotion of the export of fishery products with the increased value of catch, and management of the fisheries by participatory decision-making are required to address issues.

In addition to the cities of Sekondi and Takoradi, Kumasi, the second-largest city in Ghana after the capital, Accra, remains a distribution destination for the catch from SKFH. For fishermen using inshore vessels and canoes, whose main fishing ground is the western part of the Guinea Gulf, having a well-equipped fishing port in the western region is important for keeping the catch fresh. In addition, processed marine products are exported from the Takoradi commercial port. SKFH, which provides the catch used as the raw material for exported marine products, plays an important role. Under these circumstances, SKFH is still an important fishing port, following the Tema fishing port, and its development needs are high.

In this regard, this project was consistent with the development needs at the time of planning and upon the ex-post evaluation.

3.1.3 Consistency with Japan's ODA Policy

According to the Country Assistance Policy to Ghana (April 2012) and the JICA Country Analysis Paper (August 2013), at the time of the ex-ante evaluation, "Economic Infrastructure" was mentioned as a priority issue. This project to renovate SKFH, which supports the local economy, was considered in line with this policy.

Therefore, this project was in line with Japan's ODA policy at the time of planning.

This project has been highly relevant to Ghana'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

The achievement status of this project's output was as follows.

Table 1: Output planning and performance

Plan	Actual
Japanese Side	
Facility component	
Civil Facilities Outline	
Additional lay-by berth (Improvement of the existing breakwater)	As planned (length: 180 m, crown width: 15.5 m, crown height: DL +2.6 m)
Access driveway with canoe-berthing facilities	As planned (length: 324 m, crown height: DL +2.6 m to +2.0 m), Crown widths: 5 m road, 2 m sidewalk
Architectural Facilities Outline	
Additional ice plants	As planned (floor area of expansion: 444.0 m^2, ice machinery: 15 t/day)
Additional administration office	As planned (floor area of expansion: 384.25 m^2,

	floor area of access passage: 12.39 m^2)
Pavement of the area behind fish handling shed (parking lot/net mending area, in-port road)	As planned (floor area of expansion: 384.25 m^2, floor area of access passage: 12.39 m^2)
Pavement of the area behind fish handling shed (parking lot/net mending area, in-port road)	As planned (paved areas: parking lot: 695.85 m^2)
Utilities (street lighting, water supply and drainage)	As planned (street lighting: 19 in total, water supply and drainage facilities, reservoir, high tank, high tank with RC concrete, pump room, additional cesspit
Fuel-oil-tank site construction	As planned (trenches for piping: 139.7 m, expected fuel tank site area: 128 m^2)
Consulting Service	
Consulting service for detailed design and administration of construction	As planned
Soft Component First Soft Component (March 18-May 1, 2017)/ Second Soft Component(November 14-December 13, 2017)	
【Output 1】Operation and management plan of SKFH is finalized.	Achieved Based on the survey of the Tema fishing port and discussions at each stakeholder (SH) meeting, drafts of an operation and maintenance plan and a fishing port operation rule were created. The agreement to establish a multi-stakeholder advisory committee (hereinafter referred to as "MSAC") was drafted, and the first MSAC was held, involving various stakeholders (hereinafter SHs).
【Output 2】Responsible use of fishing harbour facilities is promoted.	Achieved The operation and maintenance plan was finalized, and through the establishment of the MSAC and the SH meeting, fishermen learned how to use the zoning system and fishing port facilities. SKFH's management office learned how to monitor the facilities' usage status, and the countermeasures and recommendations to solve the possible problems were provided.
Ghanaian Side	
Transfer of small-scale shops	As planned The 15 target stores were relocated along the road leading to the mooring and landing quay, next to the ice machine in the port.
Installation of refuelling tank and refuelling machine at mooring pier	Not completed The planned location at the mooring quay was crowded with fishing vessels. The location to set the refuelling machine was not decided on yet, and its installation had not been completed.

(Source: Documents provided by JICA and executing agency)

For all hard components, the planned output was achieved. Soft Component was implemented to strengthen the operational capacity as a "fishing port facility", and the output was achieved as planned.

3.2.2 Project Inputs

3.2.2.1 Project Cost

The original E/N amount at the time of ex-ante evaluation was 1,825 million yen, but in December 2015, its limit was revised to 2,169 million yen. The actual amount was 2,102 million yen, 96.9% of the revised plan, and the project cost was within the amended plan. Details are as follows:

Table 2: Planned and actual project cost

(unit: 1,000 yen)

	Planned amount	After amendment of E/N	Actual amount		
			Domestic currency	Foreign currency	Total
Construction	1,638,000		1,092,842	790,350	1,883,192
Design and Administration	186,000		18,192	200,992	219,184
Total	1,824,000	2,169,000	1,111,034	991,342	2,102,376

(Source: documents provided by JICA)

The reasons for the amendment of the E/N limit are as follows: (1) The bid price reflected the cost of risk countermeasures against Ebola haemorrhagic fever that occurred in countries around Ghana in March 2014 (about 5 months before bidding), and the bid price did not fall within the planned price. (2) The exchange rate at the time of bidding (August 2014) changed due to depreciation of the yen from the time of calculation (March 2014) (the yen depreciated from ¥ 100.45 / USD to ¥110 / USD). (3) While we awaited the decrease of the Ebola haemorrhagic fever, the yen depreciated further, and the average rate for May-July 2015 was ¥122.56 / USD, which was beyond the calculated limit. Considering these circumstances, the E/N limit was revised in December 2015.

The project cost on the Ghana side was 37 million, which was as planned[6].

3.2.2.2 Project Period

At the time of the ex-ante evaluation, the project period was planned as 24 months (from April 2014 to March 2016), but the actual period resulted in 36 months (April 2014 to March 2018, but this project period excludes 12 months, which is the period when the project could not be implemented due to Ebola haemorrhagic fever), which exceeded the initial plan, at 150%. Details are as follows:

Table 3: Project period

	Planned	Actual
Grant agreement signing	April 2014	April 2014

[6] According to the answer to the questionnaire

Consultant contract	April 2014	May 2014
Design and bidding period	April - September 2014 (6 months)	First bidding round: August – September 2014 (6 months, starting at G/A signing) Second bidding round: September 2015 – April 2016 (8 months)
Construction period	October 2014 - March 2016 (18 months)	May 2016 – March 2018 (22 months)
Project completion	March 2016	March 20, 2018
Total project period	April 2014 - March 2016 (24 months)	April 2014 - March 2018 (12 months, from October 2014 to September 2015, were excluded from the project period, which means substantially 36 months)

(Source: Preparator survey report and documents provided by JICA)

The reasons the project period exceeded the plan are as follows: (1) The first bidding round was unsuccessful due to additional expenses to deal with Ebola haemorrhagic fever and the yen's depreciation. (2) The exchange rate was not stable even though Ebola haemorrhagic fever decreased in 2015, the E / N limit was revised in December of the same year, and the second bidding round was held in April 2016[7]. (3) Some inconveniences arose regarding the material for the additional administration office construction, and it was suddenly procured from Japan[8].

Although the project cost fell within the planned amount, the project period exceeded the plan. Therefore, efficiency of the project is fair.

3.3 Effectiveness and Impacts[9] (Rating: ③)

3.3.1 Effectiveness

3.3.1.1 Quantitative Effects (Operation and Effect Indicators)

The achievement status of the operational indicator to measure "reduction of the congestion of the fishing port and improvement of the freshness of the fish catch", this project's objective, was as follows.

[7] According to documents provided by JICA.
[8] With this procurement, project completion was delayed from October to December 2017.
[9] Sub-rating for Effectiveness is to be put with consideration of Impacts.

Table 4: Achievement status of operational indicators

【Operational Indicator】 Indicator	Baseline (2013, Actual)	At the time of completion (2018)	Target (2021, 3 years after completion)	Actual		
				Response by executing agency		Re-calculation
				2019	2020	2021
(1) Congestion rate of landing berths and preparation berths(%)	400%	200%	100% or less	100%	40%	257%*
(2) Occupation ration by fishing nets behind preparation berth(%) (except short storage for preparation works)	70%	40%	10% or less	30%	10%	
(3) Sufficiency ratio to ice demand SKFH (annual average) (making ice demand volume at the time of plan as standard)	45.5%	50%	70% or more	50%	60%	85%**

(Source: Baseline/Target: Ex-ante evaluation sheet, Actual: Answer to the questionnaire from SKFH administration office, interview with fishermen[10], Re-calculation: external evaluator calculated based on the data collected in this ex-post evaluation study)

* Because the basis for calculating 40% in the response from the executing agency was different from that at the time of the ex-ante evaluation, this value was recalculated using the 2021 data. The calculation basis was applied at the time of the ex-ante evaluation.

** The responses from the executing agency of "50%" and "60%" are based on the demand for ice at the time of the ex-post evaluation. Subject to the indicator originally set, this value was recalculated using the data for 2021. The calculation basis was applied at the time of the ex-ante evaluation.

(1) Average congestion rate at landing quay and preparation quay

The response from the executing agency was "40%" for the average congestion rate, but because this figure was calculated using a different calculation basis from that used at the time of the ex-ante evaluation, it was recalculated using data for 2021, with the same calculation basis at the time of ex-ante evaluation, resulting in the figure of 257%. The baseline of the congestion rate at the time of ex-ante evaluation was calculated as the ratio (100/25=400%) of the average number of inshore vessels (100 vessels) to the target number of vessels for landing (25 vessels)[11]. In this ex-post evaluation study, the figure was recalculated using the same calculation basis, with the average number of using vessels (113 vessels) and the target number of vessels for landing (44 vessels), resulting in a ratio of 257%. Table 5 and the footnotes show the calculation for the average number of using vessels (113 vessels). The target number of vessels for landing (44 vessels) is that of inshore vessels brought by this project[12], which was introduced by actual values measured in this project's baseline survey, referring to the standards established in Japan's *"Guide for Fishing Port Planning"*.

[10] According to the interview with fishermen in the first project site survey.
[11] According to the interview with the consultant.
[12] Refer to the preparatory survey report, p1-4 "Figure 1-1-1(3) Basic Project Concept" and p.2-31

Table 5: Number of fishing vessels registered and used at the fishing port

Year	Target Landing Vessel	Canoe		Inshore vessels				Trawler	
		Registered	Including non-registered	Registered	Including non-registered			Registered	Including non-registered
			High season		High season	Low season	Average		High season
2014	25	----	130	106	123	70	100	9	8
2021	44	----	More than 200	106	144	82	**113***	4	N.A.
Change ratio	176%		153%	100%	117%			44%	----

(Source: 2014: Preparatory survey report p. 3-3 and p.3-36, 2021: Documents provided by executing agency and in interview responses)

Because it was difficult to obtain the number of inshore vessels for the low season (82), we calculated it by prorating the number of vessels and low season at the time of planning. The average number of vessels in the high season (144) and low season (82) is 113.

From Table 5, it is clear that the number of fishing vessels using SKFH has increased from the time of the ex-ante evaluation[13]. To achieve the target congestion rate of 100% or less, the number of landing vessels at the time of the ex-post evaluation must be 44 or less. Considering the average number of vessels at the time of the ex-ante evaluation was already 100, the originally established target value was not a realistic one.

On the other hand, regarding this project's objective, congestion has decreased with improved use of the quay, due to compliance with the zoning system, which was introduced by the Soft Component. The situation has improved. The zoning system is the method of operating the facility efficiently by dividing the facility/quay into sections, defining their use, and restricting non-intended use. For example, (1) only the landing fishing vessels use the landing quay, (2) fishing vessels wait offshore in the bay before landing and therefore do not occupy the landing quay, (3) after completing their landing, the fishing vessels quickly separate from the quay and rest at the mooring quay or offshore, and (4) fishing preparations will take place on the preparatory quay.

In the interviews with fishermen, all respondents stated that the waiting time until they started landing and the number of skirmishes resulting from trying to secure a quay for quick landing had decreased[14]. The waiting time decreased because (1) no fishing vessels occupied the quay other than those landing, so they could land as soon as space became available, and (2) the landing time decreased. Landing time decreased due to (1) increased unloading staff, (2) efficient landing because fishing nets left on the landing quay were removed, and (3) a decrease in the volume of the catch landed[15].

[13] It was said that SKFH's effective facility layout and easy access to cheap ice allows the fishing vessels whose fishing area is the western part of Ghana to gather SKFH, which is one of reasons that the number of fishing vessels has increased (according to the interview with SKFH's administration office).

[14] According to the interview with fishermen in the first site survey.

[15] The decrease in fish caught is attributed to the decrease in marine resources, which is an external condition in this

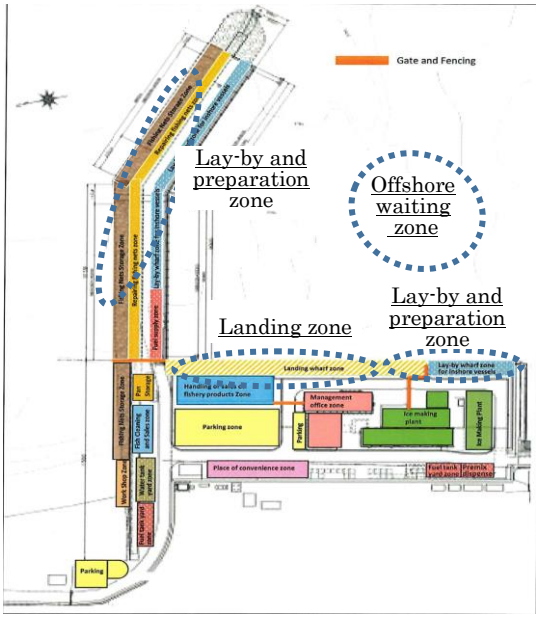

Figure 1: Area zoning

The fishing port management office staff constantly monitors the use of the quay and strictly controls the use of the quay for other purposes. At the SH meeting, the significance of compliance with zoning requirements was explained, and each SH representative called on members to comply with zoning expectations.

Although it cannot be judged from the numerical target of "congestion rate", considering the above situation, the previously chaotic situation has improved, and landing has been carried out efficiently with the introduction of the operational effort for facility use, called "zoning system."

(2) Fishing nets' occupancy rate behind landing and preparation quay

At the time of the ex-ante evaluation, fishing nets occupied the landing quay and handling shed, hindering the rapid landing and the sale and transportation of the catch. At the time of the ex-post evaluation, some fishing nets might have temporarily been placed behind the preparation quay for repairs and drying, but besides those occasions, they have been cleaned on board[16], and the fishing net's occupancy rate at the landing quay and handling shed has greatly improved.

(3) Supply of ice to meet demand (annual average)

Fulfilment of the demand for ice at the time of the ex-post evaluation, based on the figures at the time of planning, was 85%. Table 6 shows the volume of ice production at the fishing port after the project's completion.

With the new ice machine introduced with this project and the old ice machine, ice production has reached 30 tonnes per day (15 tonnes/day/unit x 2 units). However, the old ice machine has not operated at full capacity due to spare parts trouble (water leakage from the ice production can). The new ice machine has extended its operating hours since March 2020 to compensate for the old machine's decreased output and to meet the strong demand for ice. The two machines produce 115% of the full production volume. The ice demand at the time of the ex-ante evaluation was 40.6 tonnes[17], and the sufficiency rate based on the production volume at the

project. Please see the details in 3.2.2 Impact, 3.2.2.1 Impact appearance.
[16] According to the interview with SKFH management office and fishermen.
[17] The annual average reported in the preparatory survey report, p. 2-50.

time of the ex-post evaluation was 85% (= 34.60/40.6), achieving the target value of the operational indicator.

On the other hand, at the time of the ex-post evaluation, fishermen's demand for ice increased significantly from the time of the ex-ante evaluation, and the current ice production does not meet their demand. During the interview, the fishing port's management office replied that the sufficiency rate was 60%. The inshore fishermen (15 people), canoe fishermen (8 people), and trawler owners (1 person) replied "insufficient in ice production", and they reported the sufficiency rate as "50% or less[18]".

Table 6 : Ice production

(unit: tons)

	2018	2019	2020	2021
January	313.03	680.38	548.90	682.13
February	250.93	608.95	638.88	548.75
March	457.38	713.63	713.85	722.18
April	540.15	665.40	703.35	718.35
May	382.45	452.78	709.55	811.53
June	610.13	283.15	702.60	668.63
July	606.73	530.48	803.90	N.A.
August	429.03	457.75	807.03	N.A.
September	549.85	496.33	603.23	N.A.
October	705.83	497.30	774.55	N.A.
November	861.75	510.33	673.53	N.A.
December	694.73	512.08	626.63	N.A.
Total	5,972.93	6,125.375	8,305.975	4,151.55
Production volume/day*	27.15	27.84	34.61	34.60
Occupancy rate	0.0%	92.8%	115.4%	115.3%

(Source: Calculated by the external evaluator based on the data provided by the executing agency)

The number of working days per month is 20 days, and the full production of two ice machines is calculated as 30 tonnes. August 2018 and June 2019 were excluded from the calculation of the production volume per day because it was not in full operation due to the maintenance and repair of the ice machine.

The reason for the increasing demand for ice is that fishermen have come to recognize the benefits of using ice, such as maintaining the freshness of the catch, which increases the sales unit price. According to interviews with fishermen, fishmongers, and smoked product manufacturers, fresh products are sold and purchased at higher prices[19]. As a result, the consumption volume of ice by fishermen who have used ice since before the ex-ante evaluation has increased, and fishermen who did not use ice before have started to use ice. According to interviews with fishermen, the amount of ice loaded by one vessel has increased by about 70% for canoes and

[18] According to the interview in the first site survey.
[19] Same as above.

about 20% for inshore fishing vessels compared to the time of the ex-ante evaluation[20].

The fishing port's management office is aware that the current ice production volume at the port does not meet the growing demand for ice from fishermen. They try to repair the above-mentioned parts trouble at the old ice machine and the two ice machines are expected to be fully operational soon to increase the production volume. The repair of the ice cans will be completed in July 2021, and the two units are predicted to produce about 50 tonnes after September 2021[21].

Old ice-making can that leaks water (left) and new ice-making can that was purchased (right)

The shortage of ice is covered by purchasing from outside ice vendors. At the time, there was a rule that the ice produced in the fishing port should be sold out first, and outside vendors were allowed to enter the port to sell ice after that. The price of ice from outside ice vendors is 11 GHS/block, which is higher than that produced in SKFH (8 GHS/block). Fishermen said that the quality of ice (difficulty of melting ice) transported from around the Tema fishing port is good, but that of the vendors around SKFH melts too easily.

3.3.1.2 Qualitative Effects (Other Effects)

The following qualitative effects were recognized through the implementation of this project.

(1) Fair and equal facility operation

As part of strengthening the facility's operational capacity as a fishing port, the MSAC and SHs were introduced by Soft Component. Since the first MSAC meeting was held on December 6, 2017 (during the implementation of the Soft Component), the chief of the fishing port of Sekondi and other staff of the fishing port management office (civil engineer, security officer, finance officer, asset/environment officer, fire prevention and safety officers, etc.), fishermen's association representatives (canoes, inshore fishing vessels, trawlers), maritime police, navy, fuel seller representatives, food market officials, and other major fishing port facility users gathered to discuss issues related to fishing port management, countermeasures, operational policy, facility usage rules, and usage fees. These meetings are held periodically to make recommendations to the management office. In addition, the SH meetings are held regularly between representatives of each major stakeholder who uses the fishing port, such as fishermen, fuel dealers, small store

[20] According to the interview with fishermen in the first site survey (with inshore vessels) and second site survey (with canoes). The trawler said there is no change for the loading volume of ice. The trawler recognizes the utility of ice since before the ex-ante evaluation and loaded the necessary volume.
[21] According to the interview with the acting manager of SKFH.

owners, fishmongers and ice vendors, and the fishing port management office[22]. The facility is operated fairly and equitably, involving these various parties related to the operation of the port.

(2) Restoration of function for the landing, preparation, and mooring quays

The functions of the landing and preparation quays are considered to have been restored by the thorough dissemination and practice of zoning introduced through the Soft Component (see 3.3.1.1 Quantitative effect (1) Average congestion rate of the landing and preparation quay).

The returning fishing vessel waits offshore in the bay or at the mooring quay, then, according to regulations, moves to the landing quay when it has space, and leaves from there when finished (the fishing vessels that have finished landing do not stay at the quay to rest or to land their catch at the mooring quay). In addition, the fishing nets are placed in the fishing net storage zone and are not left on the landing quay (see 3.3.1.1 Quantitative effect (2) Fishing net occupancy rate). Since so many fishing vessels use the fishing port facilities, they can use the quay for landing and preparation, but to have rest, only 25% of canoes and 20% of inshore fishing vessels can use the quay[23].

Based on these situations, the functions of the landing, preparation, and mooring quays are considered to have been restored.

(3) Improvement of the safety of fisheries-related work & reduction of the cross-contamination risk

The Safety Check Task Force (hereinafter Safety Check TF) of the fishing port management office patrols the port, preventing the use of quays in unintended ways, prohibiting the use of the fishing port for activities for which it was not intended (gambling, missionary activities, etc.), and monitoring for unnecessary objects (fishing nets, metal bowls) that need to be put in their designated areas. Although the fishing port facility is crowded with more fishermen than before, the fishermen and fishmongers recognize that the usage situation is more orderly than before[24], and safety can be considered to be better than before.

There is room for improvement in the risk of cross-contamination[25] because the fuel supply tank is not installed on the preparation quay and the fuel for the fishing vessels is transported from the fuel storage area behind the administration building. Fuel transportation methods include (1) plastic tanks, (2) drums on carts, and (3) rolling drums. Since there is a risk of oil leakage with (3), an effort has been made to reduce the risk of cross-contamination through instruction at SH meetings and by the Safety Check TF, but it has not been completely eliminated.

[22] According to the second site survey.
[23] 2 out of 8 for canoes, 3 out of 15 for inshore vessels, and 1 out of 1 for trawlers answered the first site survey.
[24] According to the first site survey.
[25] In general, cross-contamination means that a highly contaminant pathogen comes into contact with a less contaminant substance. In this project, this means the risk of contamination spread by pathogens to catch and the catch storage facilities associated with refueling work.

(4) Qualitative improvement of fishery statistical data

Fishery statistical data is collected by MOFAD staff who board fishing vessels chosen for sampling. Previously, the fishing vessels landed at places other than the landing quay, so it took time for MOFAD staff to go to each place to collect data. At the time of the ex-post evaluation, since fishing vessels land their catch only at the landing quay, accessing fishing vessels had become easier, and collecting data had become more efficient. Moreover, because more accurate data collection is possible with more time, the quality of the statistical data has improved[26].

(5) Strengthening the supervision and guidance of the fishermen

As mentioned above, MSAC and SH meetings are held regularly, and the fishing port management office discusses facility operations with key stakeholders who use the fishing port, such as fishermen's representatives, fishmongers, ice vendors, fuel dealers, and small store owners. Their decisions are well announced by speakers, posters, and in SH meetings. In addition, the supervision and guidance have been strengthened, such as through patrolling by the Safety Check TF and collecting fines from violators.

(6) Logistics promotion

The access road between the Old Beach[27] and the fishing port facility has been improved, which has made it easier for people and goods to move. On the other hand, fishing nets placed on some areas along the access roads makes it difficult for them to move. The fishing port management office is aware of this problem and said that they will strengthen their guidance to fishermen[28].

3.3.2 Impacts

3.3.2.1 Intended Impacts

As a "quantitative effect" for "contribution to the stable supply of marine products" which was expected to be brought by this project, a "post-fishing damage rate[29]" was set. However, this practice was not done by fishermen at SKFH in either the ex-ante or ex-post evaluation[30].

On the other hand, since maintaining the freshness of the catch is considered to contribute to a stable supply, the interviews were done with fishermen, fishmongers, and smoked product manufacturers about the improvement of the freshness of the catch, the changes in the sales unit prices of the catch, and the changes in their income. The results are as follows.

[26] The collected data includes the type of catch landed, the amount of catch landed, the number of fishing days, and the number of fishing vessels per day.
[27] The beach next to this project's fishing port facility; it is mainly used by canoes.
[28] According to the interview with the acting manager of SKFH.
[29] Ratio of disposal due to deterioration of the quality of the catch after fishing.
[30] According to the preparatory survey report and the interviews with fishermen.

Table 7: Results of interviews with fishing port users[31]

Question items	Change status	Number of respondents				
		Fishermen			Fish-mongers	Smoked product manufac-turers
		Inshore vessel	Canoe	Trawler		
(1) Changes in the freshness of the catch	Improved	15	8	0	6	3
	Same	0	0	1	0	0
	Worsened	0	0	0	0	0
(2) Changes in the sales price of the catch per unit caused by the change in freshness	Improved	15	8	NA	6	3
	Same	0	0		0	0
	Worsened	0	0		0	0
(3) Increase in income of fishermen and fish mongers	Improved	6	4	1	2	
	Same	0	0	0	0	
	Worsened	9	4	0	4	

(Source: Interviews with fishermen, fishmongers, and smoked product manufacturers)

(1) Improvement in freshness of the catch

Fishermen (inshore fishing vessels and canoes), fishmongers, and smoked product manufacturers all answered that the freshness of the catch was "improved". The reasons for the improvement are keeping the catch on ice while fishing, shortening the waiting and landing times, buying and selling the catch out of direct sunlight (buying and selling under handling shed with a roof or umbrella), and shortening the time it takes fishmongers to transport the catch to a vehicle after purchase.

(2) Changes in the sales unit prices of the catch due to its improved freshness

Fishermen (inshore fishing vessels, canoes), fishmongers, and smoked product manufacturers all said that fresher catch would sell or be bought at higher prices. Smoked product manufacturers, who sell smoked products around the cities of Kumasi, Accra, and Takoradi, cited quality (freshness) as one of the determinants of the price[32].

(3) Income improvement of fishermen and fishmongers

Although the unit prices of the catch have increased, the income of fishermen and fishmongers has not improved. All responded that the sales' unit price has increased, and 40% of the inshore fishermen, 50% of the canoe fishermen, 100% of the trawlers, and 33% of the fishmongers said that their income had increased. The reason their income has not increased is the decreased landing volumes of the catch. The transition of landing volumes at SKFH over the past 10 years is as follows. The fishermen recognize that the amount of landings has decreased

[31] According to the first site survey (number of interviewees: 15 for inshore vessels, 8 for canoes, 1 for trawlers, 6 for fishmongers, and 3 for smoked product manufacturers).
[32] As with other determinants, market price was mentioned.

compared to that of the year before the start of this project (construction) (2016). This tendency is not limited to SKFH, but the landing volume in Ghana as a whole has been declining since peaking in the 1990s (see Fig. 3). Even after the period covered by the graph, the landing volume, which was 364,000 tonnes in 2000, decreased to 229,000 tonnes in 2016, a drop of 37%[33]. One of the reasons for the decrease in landings volume is "overfishing". As a countermeasure to this situation, MOFAD has set a closed fishing period[34] and prohibits fishing of the target species during its spawning season. In addition, although fishing grounds are usually segregated according to the types of fishing vessels, in recent years, there have been illegal acts of trawlers penetrating the grounds of inshore fishing vessels and canoes to catch fish. Changes can also be seen in sea currents, water temperatures, the use of dynamite, and illegal fishing[35]. All these have a great impact on the catch of inshore fishing vessels and canoes. MOFAD tries to revive marine resources by protecting fishery resources and implementing sustainable fisheries in response to this situation.

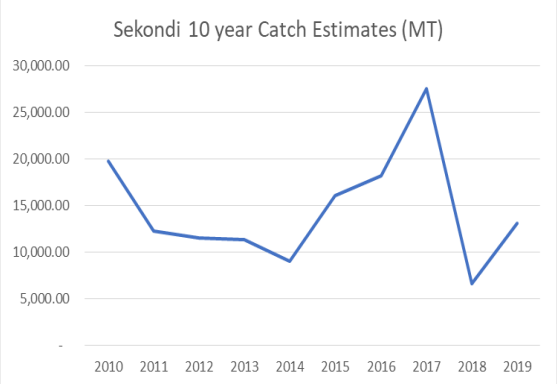

Figure 2: Transition of the catch volume at SKFH

(Source: Elaborated from the documents provided by MOFAD)

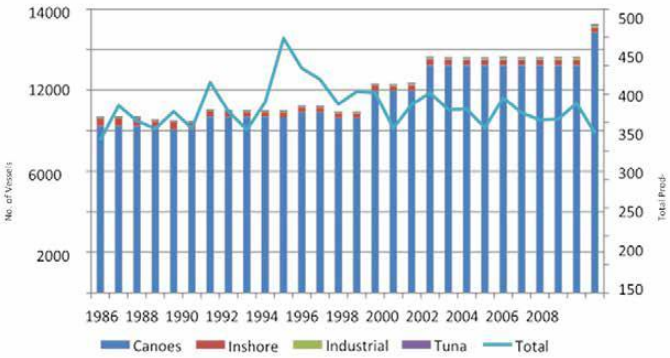

Figure 3: Transition of the number of fishing vessels and total volume of the catch in Ghana

(Source: "Fisheries Management Plan of Ghana," A National Policy for the Management of the Marine Fisheries Sector, 2015-2019)

(4) Improvement of life

The increased income of the fishermen and fishmongers was used as follows[36]. Both fishermen and fishmongers spent the most on family clothing, children's education, and business expansions. Other spending included medical insurance, extended family[37] support, and parental

[33] "Empty Oceans: EU Policy and Illegal Fishing in Ghana" (October 2020).
[34] In 2021, the closed fishing period for inshore vessels and canoes was July and for trawlers was July and August.
[35] ADF, "Saiko Practices Are Killing Ghana's Fishing Industry", Oct. 21, 2020. The influence to the catch volume caused by the water pollution during the project period was not confirmed in this study.
[36] According to the interviews in the first and second site surveys. This is the results of answers by 10 respondents among the 23 fishermen interviewed (15 for inshore vessels and 8 for canoes), and 2 respondents among the 6 fishmongers, who said their income had increased, by the multiple-choice question.
[37] This is the form of families, centered on the nuclear family composed of parents and children, who reside with other nuclear families of children and brothers and sisters.

support.

The increase in income has made it possible not only to spend for the above purposes, but also to have extra money; improve relationships with family, friends, and extended family members; and feel calm.

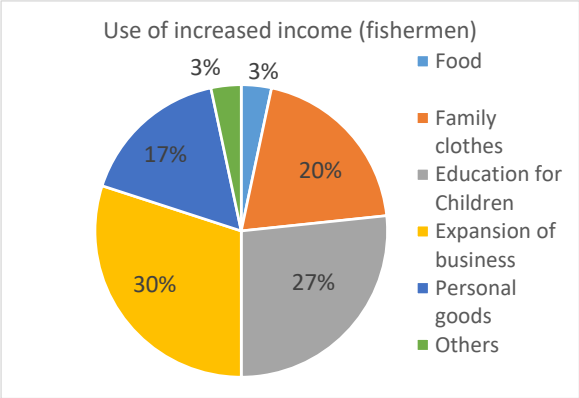

Figure 4: Use of increased income (fishermen)

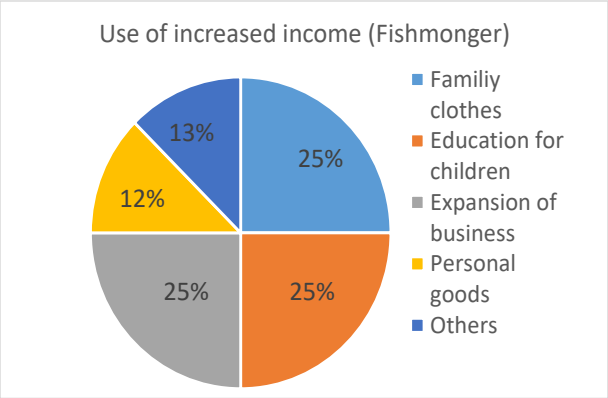

Figure 5: Use of increased income (fishmongers)

3.3.2.2 Other Positive and Negative Impacts

(1) Impact on the natural environment[38]

This project started by getting permission from the Environmental Protection Agency (EPA), and necessary measures were taken to manage air pollution, public health, waste, sewage, traffic congestion, and noise during the project implementation period. A report on monitoring the related environmental and social considerations was also submitted, and no major problems occurred in either case[39]. Even at the time of the ex-post evaluation, no particular problems caused by this project were confirmed in the interviews with the executing agency, fishing port facility users, and local residents or from the inspection records regarding the cleaning status, as submitted to the executing agency by the contractor[40]. Waste from fishing port facilities is collected daily and treated by a contracted cleaning company, and the toilets are also cleaned and treated by the company every day. As a result, no complaints about bad odours were heard. Regarding refuelling and waste oil leaks, the act of rolling drums to transport fuel from the refuelling tank behind the administration building is prohibited. The Safety Check TF patrols the inside of the port and strives to eliminate such risks.

On the other hand, users of SKFH who were interviewed pointed out that vinyl bags and oil floats were conspicuous in the bay and that the water quality near Old Beach was poor. Floating substances, such as vinyl bags and oil floats, gather due to a bay's physical structure, in which seawater prone to stay. The fishing port management office plans to strengthen its patrols for the

[38] This project was categorized as "B," subject to the JICA's "Guidelines for Environmental and Social Considerations" (2010)
[39] According to the interview with the consultant.
[40] According to answers to the questionnaire given by the fishing port management office and in the first site survey.

dumping of unnecessary materials, such as vinyl bags, into the bay[41]. In addition, the water quality near Old Beach is attributed to the domestic wastewater of Sekondi City residents and is not because of this project. In addition, any complaints from the residents were not heard, such as those regarding traffic congestion around the port due to vehicles entering or leaving the fishing port facility.

(2) Relocation of residents and acquisition of land

To obtain environmental approval from the EPA, the executing agency is responsible for dealing with negative social impacts such as the relocation of residents[42]. GPHA secured relocation destinations for the 15 small stores that were on the access road construction site so that their business could continue even after the relocation. At the time that the project was completed, they were once again relocated to the side of the road leading to the quay, inside the facility. At the time of the ex-post evaluation, their relocation destinations were secured in the food market next to the port facility[43]. Initially, there were complaints that sales fell because the flow of people heading for SKFH did not necessarily pass through the food market[44].

In accordance with domestic law, no financial compensation was provided for the relocation, but the fishing port management office banned store operations on the connecting road next to the food market. That road allowed only vehicles to pass, and passers-by were required to pass through the food market, which was an action taken from the viewpoint of revitalizing the food market as a whole and securing the safety of the connecting road. As a result, sales that had once declined are now recovering[45].

Food market next to the connecting road and gate to prevent the passengers-by pass (Foreground is port facility and circle with dashed line is the gate to prevent the passengers-by flow)

Since this project was an expansion of an existing fishing port facility, there was no relocation of residents or acquisition of land.

(3) Other impacts

The MSAC and SH meetings introduced by the Soft Component have given ownership as a

[41] According to the interview with the acting manager of the fishing port management office.
[42] Preparatory survey report in Japanese version, p. 2-86. Relocation of small store was agreed by the letter submission by the executing agency to the consultant at the time of preparatory survey, stating that the compensation based on the Ghana's regulation would be done.
[43] The shops located in the food market were secured by the fishing port management office.
[44] According to the first site survey.
[45] According to the interview with the small store owners.

fishing port user to each related stakeholder and have contributed to efficient fishing port management. The fishermen and fishmongers who participated in the SH meetings commented that they can receive direct explanations from the fishing port management office about the facility's new operational rules and that they greatly appreciated having the opportunity to convey their opinions on those rules[46]. Based on discussions with facility users about the management policies of the fishing port facility and the dissemination of management policies and rules to the parties concerned through these meetings, the users seem to feel ownership now that they also are involved in the facility's operation, and this seems to have increased the sense of compliance with the rules[47]. In addition, the acting manager of SKFH was selected as one of 16 members of the committee on improving the fishing port's operation. He has shared the fishing port's operational method (such as zoning system and the participatory manner of facility management and users in the MSAC and SH meetings) introduced by the Soft Component[48].

Most of the fishmongers are women. Not all the fishmongers' income has increased due to the decline in landings, but some women who have increased their incomes commented that they have the right to decide how to use their increased incomes, and they use them effectively, such as for education for their children, expenses for their families, and re-investment for expanding their businesses. Moreover, the surplus time secured by the shortened waiting and landing times can now be used for doing housework and spending time with family and friends[49].

On the other hand, some comments asking for environmental improvements were heard from the fishermen regarding the dumped waste (mainly vinyl bags) flowing from the Old Beach and accumulating on the landing and mooring quays, with which the contracted cleaner has not been able to keep up.

As mentioned above regarding the quantitative effects (operation and effect indicators), (1) the congestion rate has not been achieved, (2) the fishing net occupancy rate and (3) ice sufficiency has been achieved, and other qualitative indicators generally have been achieved. Regarding the congestion rate, there has been doubt about the appropriateness of the initially set target value, but judging from the improvement of congestion at the landing brought about by the effort to improve the operational manner of the fishing port facility, it has been confirmed that the landing of the catch is done more quickly and efficiently since the introduction of zoning system. The chaotic situation seen at the time of the ex-ante evaluation is considered to have been improved.

As for the impact, the maintenance of the catch's freshness is attributable to this project, which has raised the sales prices. An increase in the sales unit price does not necessarily lead to an increase in income, due to external factors such as a decrease in landing volume. However, in

[46] According to the second site survey.
[47] According to the interview with the acting manager of SKFH.
[48] Same as above.
[49] According to the interview in the second site survey.

cases where income has increased, the reinvesting of that income for business expansions and spending of it for improved living conditions were confirmed, so qualitative effects can be seen. The sales of relocated stores declined initially, but now are recovering due to the effort to change the flow of people into the food market.

In light of the above, the effectiveness and impacts of the project are high.

3.4 Sustainability (Rating: ③)

3.4.1 Institutional/Organizational Aspects of Operation and Maintenance

While SKFH is under the control of the Takoradi commercial port supervised by GPHA, MOFAD is also involved in its operation because it is a fishing port (MOFAD mainly collects fishery-related statistical data). The number of people assigned to each department involved in the daily operation and maintenance of the fishing port facilities is as follows.

Table 8: Implementation system of SKFH

Department	Position	Number of staff		
		At plan	Defect inspection	Ex-post evaluation
Administration	Fishing harbour manager, secretary	3	3	3
Finance/Audit	Finance supervisor, Audit	2	2	2
Operation	Senior traffic officer	1	1	1
	Traffic officer	1	1	1
	Harbour operation supervisors	0	5	5
	Ice man	8	12	12
	Tally clerk	1	2	2
Engineering	Mechanical/Electrical engineering supervisor	2	2	1
	Mechanical engineering staff	3	3	1
	Electrical engineering staff	4	4	1
	Civil supervisor	0	1	1
	Civil engineering supervisor	0	1	1
Security	Security supervisor	3	2	1
	Fire and safety supervisor	9	3 (9)	10
	Security guard	6 (18)*	4 (12)	15
Total		43 (55)	46 (60)	55
Number of contract staff				
Entry fee and port dues collection			11	10
Cleaning works			5	6
Assistance to security works			6	6
Water sales			2	3
Total			24	25

*The number in parenthesis is the total number of people by shift system

(Source: Documents provided by JICA and answers to the questionnaire from the executing agency)

The number of people is the same as at the time of the ex-ante evaluation, but no shortage in the number of people assigned has been recognized. The number of the technical staff was reduced, and the number of people in charge of ice sales has increased. This is the result of support from the engineers at Takoradi commercial port as needed and the transferral of staff to meet the high ice demand.

In addition to establishing such a daily facility operation and maintenance system, the MSAC is held quarterly to examine facility operational policies, usage rules, and usage fees at SKFH. Moreover, representatives of fishing port users such as fishermen's associations, fishmongers, ice vendors, water dealers, fuel dealers, small store owners, security personnel, etc., and the fishing port management office have regular meetings and discuss an agenda specific to each SH. In this way, an operation and maintenance system involving the users is in place.

3.4.2 Technical Aspects of Operation and Maintenance

The operation and maintenance of fishing port facilities and equipment are focused on daily inspections and do not require special skills. If a special problem arises which SKFH alone cannot handle, the Takoradi commercial port is consulted to dispatch technicians as necessary to handle it, and no major problems have occurred.

The fishing port management office recognizes the significance of the operational skills of the fishing port, such as the formulation and implementation of the fishing port operational plan and its zoning system. These skills are fully utilized and put into practice. Operational plans and detailed usage rules are made known to users at SH meetings, and that information is shared among the stakeholders and transmitted by speakers in the bay. Further, rule violators are instructed through the patrols of the Safety Check TF.

There is no technical training for maintenance, but manuals and guidance from superiors have been put in place.

3.4.3 Financial Aspects of Operation and Maintenance

The breakdown of the revenues, expenditures, and operating income related to the operation and maintenance of SKFH is as follows.

Table 9: Balance of revenues and expenditures at Sekondi Fishing Harbour

(Unit: GHS)

	2017	2018	2019	2020
Revenue	2,591,645	2,661,769	2,956,896	3,747,130
Expenditure	3,309,986	3,784,977	N.A.*	N.A*
Balance	△718,342	△1,123,208		

(Source: Answers to the questionnaire provided by the executing agency)

* Expenditures are managed together with those of the Takoradi commercial port. In 2017-2018, the consultant collected detailed information at the project site because it was within the period before the end of the defect inspection.

On the other hand, at the time of the ex-post evaluation, it was difficult to obtain that information by remote survey through local consultant after the end of the project.

Table 10: Transition of operating income

(Unit: GHS)

	2012	2018	2019	2020
Ice sales	576,000	1,533,780	1,948,253	2,706,347
Entrance fee	36,569	372,867	338,655	358,637
Water sales	63,539	221,140	221,527	205,208
Landing fee	114,809	253,950	192,974	149,541
Others	151,173	280,032	255,487	327,397
Total	942,090	2,661,769	2,956,896	3,747,130

(Source: Answers provided by the executing agency)

Since the completion of this project, income has increased significantly. The revised price list for fishing port facility usage fees, which were raised in May 2019, was applied at the time of the ex-post evaluation. The most significant increases in income are from ice sales and entrance fees. The sales unit price of ice was increased in March 2019 (from 6 GHS/block to 8 GHS/block), and the production volume is also increasing to meet the high demand for ice. Moreover, the entrance fee is strictly collected to control entrance to and exit from the port. On the other hand, it was not possible to obtain information on the expenses of the SKFH exclusively, since the operating expenses of the harbour are managed together with those of the Takoradi commercial port. The SKFH requests the necessary expenses for the following month from the Takoradi commercial port every month, and the approved amount is provided. Although the SKFH management office does not handle its income and expenses, the deficit range might have been reduced because the operating expenses have not increased as much as the operating income has[50].

3.4.4 Status of Operation and Maintenance

(1) Facility status and utilization status

The facilities and equipment this project constructed and installed, such as quays, management offices (existing/expansion) and ice machine were being used quite often at the time of ex-post evaluation. As mentioned above, the quay is moored and landed efficiently by the zoning system. Further, the handling shed area is controlled for activities other than its intended purpose (such as gambling, missionary activities, etc.) to ensure the space for trading and handling of the catch is available. However, small goods sellers continue their business. Fishing nets and metal bowls have been cleaned up in the designated areas, and the handling shed area, which unintended stuff had previously occupied, has been improved. Regarding the ice production machine, the old ice machine's leaking ice cans will be replaced with new ones at the end of July

[50] According to the interview with the acting manager.

2021, and it is expected that both ice production machines, the old and new one, will operate at full capacity in the future.

The connecting road is also used according to its purposes, such as the stairs revetment being used for landing and ice loading, and the rubble revetment being used for fishing net storage and its repair.

The administration building is used for not only the fishing port management office but also the MSAC/SH meetings, meetings of the fishing port's users, and MOFAD statistical data collection work. The cesspit[51], which was a concern at the time of the defect inspection, is being pumped more frequently because the number of users is larger than that of the equipment scale.

(2) Facility maintenance status

Machines, facilities, and buildings, including ice production machines, are inspected on a daily basis. The inspection's results are recorded in a prescribed format and the person in charge of the fishing port management office confirms them. The availability of spare parts required for maintenance is generally fine, but in some cases, it takes some time to acquire them. In particular, the response to the water leaks from the ice production machine's ice cans was delayed, which had a considerable influence on the ice production.

Contracted workers clean the port facility area. The port area is divided into 15 sections, and the cleaning status of each section is scored for management. Scoring records are submitted on a monthly basis and confirmed by GPHA trust and environment officer residing at SKFH. Those with less than 70 points are subject to guidance, and those with less than 50 points are affected by their payment.

Canoe fishermen have complained that the canoe landing area is "slippery." GPHA proposed a countermeasure to thoroughly clean that area during the defect inspection study. At the time of the ex-post evaluation, although cleaning was done to some extent, the landing area is still slippery. This could be due to how the surface of the stairs at the landing site is smooth and always submerged in seawater. Fishermen have suggested that the surface of the stairs should be a little rougher.

The facility's maintenance status is regularly reported to the Takoradi commercial port, and an on-site check is made when necessary as well as during the twice-weekly regular visits from the Takoradi commercial port to the SKFH.

(3) Fuel tank installation

The fuel tank had not been installed at the time of ex-post evaluation. Even if it had been installed, the planned installation location is difficult to construct or refuel for use because fishing

[51] This is some kind of facility which treat the domestic wastewater. Here, it means tank which keeps the wastewater from toilet.

vessels always crowd that area. Therefore, another place has been examined for an alternative location, which is behind the mooring quay. By issuing a quick survey, the consensus of users at the MSAC and SH meetings was obtained. The survey determined that a new alternative location was appropriate. The harbourmaster of Takoradi commercial port instructed to conduct an additional survey; therefore, another resurvey will be conducted to reconsider the appropriate installation location.

(4) Prospect to alleviate congestion

Since August 2019, GPHA has been strengthening the landings sites along the Guinea coast (Axim, Dixcove, Elmina, Moree, Fete, Jamestown, and Tesi) and its endeavour will be completed in the first quarter of 2022[52]. However, considering there is no plan to install the ice production machine at these landings sites, it is necessary to confirm the situation in the future and to confirm to what extent that expanding these facilities will alleviate the congestion rate at SKFH.

(5) Lessons from a fire[53] on Old Beach

In November 2020, a fire broke out at Old Beach, due to the fishing vessels' fuel being ignited. To prevent this from happening in the future, SKFH has been strictly reminded how to handle fuel, such as handling fuel only in the designated place and prohibiting rolling the drums to carry them to the quay.

With the appropriate support from the Takoradi commercial port, the supervising entity, there have been no major problems in the institutional, technical and financial aspects of the fishing for the facility. The operation and maintenance status is generally good, and the sustainability is high because the new ice cans for ice production machine will be introduced and full operation will be expected in the future.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project was implemented to reduce the congestion at the fishing port and improve the freshness of the caught fish by extending the mooring quay and improving related facilities, thereby contributing to the stable supply of marine products at SKFH.

This is a project for infrastructure development related to the fishing industry, an important industry in Ghana, which is consistent with the Government of Ghana's development policy. The increasing number of fishing vessels and efficient fishing port management are urgent issues, and development needs are high. These issues are also highly relevant as with Japan's policy of supporting economic infrastructure, therefore relevance is high. The actual project period

[52] This is according to the interview with GPHA and acting manager at SKFH.
[53] This fire happened next to this fishing port facility, and there was no damage to this grant-aided facility.

exceeded the planned duration because re-bidding was necessary due to the spread of Ebola haemorrhagic fever, but the project cost was within the revised E/N amount, so efficiency is fair. One of the initially set target indicators was not appropriate, but the fishing port facilities' congestions have been improved, which is the project's purpose, by improving the operation of the fishing port's facilities. The positive impacts also were recognized, such as maintaining the freshness of the catch, which helps increase its unit price. Due to the influence of external conditions such as fewer fishery resources, the volume of fish landings has decreased. Therefore, not all, but some fishermen and fishmongers have increased their income, so effectiveness and impact are high. No major problems have not observed in the institutional, financial, or technical aspects required for the maintenance of the SKFH. The operation and maintenance status is generally good, and this project's effects are expected to continue, so sustainability is high.

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

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

- SKFH takes care of operation and maintenance of the fishing port facility with a good sense of ownership and responsibility. The constraints in the physical facilities for its operation and maintenance are compensated by operation method for the fishing port which was provided by Soft Component (such as a zoning system and participatory facility management involving users (MSAC and SH meetings)). That experience is then shared with other fishing ports[54]. It is desirable to continue to share the experience at the current SKFH because it strengthens the operational capacity of all the fishing ports in Ghana. It is expected that fishing vessels landing at SKFH will be diversified due to the increasing number of fishing ports that allow efficient landing. This will occur with the cooperation of the SKFH and if their operation management is thoroughly implemented at other fishing ports.
- To improve the safety in SKFH, it is desirable to proceed with the survey on the fuel tank's location and to prepare the refuelling facility to be installed, thus ensuring the fuel can be refuelled directly on the quay as soon as possible.

4.2.2 Recommendations to JICA

- Monitor the implementation status of the recommendations to the executing agency.

4.3 Lessons Learned

The accurate needs comprehension from social and economic aspects for the improvement of fishing port operation method during the preparatory study, and the appropriate staff

[54] The acting manager visits the Axim fishing port and provides them with technical guidance, and SKFH receives the technical visit from other fishing ports.

assignments during its technical assistance stage.

This project is a good example of the effective use of constructed facilities and procured equipment in the crowded fishing port with an increased number of vessels, due to the facility's easy use. The specific effective use of facilities includes (1) MASC and SH meetings that enable formulating the operation policies of facilities and equipment by a participatory manner with users and related parties, which allows for enforcing the compliance of these policies, and (2) making fishing vessels, whose number is beyond the physical capacity of facilities, put into practice the zoning, under the crowded fishing port, and trying to operate the facilities as efficiently as possible. These two points were attained through the Soft Component. This effective Soft Component was achieved because the accurate analysis was conducted from both the physical and technical aspects regarding the causes of the target facility's problems, the accurate comprehension of the executing agency's capacity on the facility's operation, and their needs for the target facility. In addition, the executing agency recognized the need to improve the facility operation manner in addition to the physical repairs the facility needed as well as its equipment related to its location condition. Further, the executing agency recognized the need to assign the appropriate personnel, such as an ex-fishing port manager, as a counterpart of Soft Component, and personnel would be instructed to master firmly the content of the Soft Component[55]. It was confirmed that in order for the facilities and equipment to be effectively utilized in the fishing port facility's projects, not only appropriate facilities and equipment procurement in terms of physical aspect, but also appropriate personnel assignment and implementation of useful Soft Component for the target executing agency (in this project, it was technical assistance on the facility's operation method, such as zoning system and improvement of ownership involving users to the facility operation management) would be significant so that the effects would appear, even though that technical assistant can be done in a short period. It is important to plan the project so that both the physical aspects and Soft Component can produce synergistic effects.

Moreover, considering the indicator setting was not appropriate in this project, the evaluation judgment was made by measuring the achievement of the project objective while confirming the achievement level of the initial indicator. At the time of project planning, it is important to set appropriate indicators and target values. With that in mind, if an appropriate indicator is not set and the initially set indicator cannot be used to extract an appropriate evaluation judgment, it is desirable to create an alternative indicator and make an appropriate judgment at the time of ex-post evaluation.

[55] This is according to the interview with consultant.

West African Economic and Monetary Union (UEMOA), Burkina Faso, Republic of Cote d'Ivoire, Republic of Ghana, Republic of Togo

FY2020 Ex-Post Evaluation Report of Technical Cooperation Project

"The Project on the Corridor Development for West Africa Growth Ring Master Plan"

External Evaluator: Maki Hamaoka

Foundation for Advanced Studies on International Development

0. Summary

This project was implemented to identify development potentials and bottlenecks in corridor transportation in four international corridors spanning Burkina Faso, Cote d'Ivoire, Ghana, and Togo (hereinafter referred to as the WAGRIC region[1]), and to formulate regional development strategies and corridor development plans that will lead to balanced economic development between coastal and inland areas.

The implementation of this project was consistent with the development policy of the implementing agencies, which emphasized economic growth in the target area from the perspective of corridor development. While development issues such as high transportation costs, low agricultural productivity, and economic disparity between coastal and inland areas were identified in the target areas, potential was recognized in terms of high population and economic growth. In this regard, there was a need to develop regional development strategies and corridor development plans that would lead to balanced economic development throughout the region. In addition, the implementation of this project was fully in line with Japan's ODA policy, which emphasized the promotion of regional integration and the development of wide-area transportation corridors in West Africa. Therefore, the relevance of the project is high. Through this project's implementation, a plan that contributes to the improvement of disparities and logistics within the region was formulated and approved. In addition, a system was established (introduced) in which the four target countries work together to implement the approved plan. Therefore, the effectiveness of the project is high. Moreover, the target countries have followed the concept of corridor development proposed by the project, and each country has updated its own high-priority projects[2] after the completion of the project. Since the initiation rate of priority projects is high, the degree of achievement of the overall goal is also high, and the effectiveness and impact of these projects are high. Since both the project cost and period exceeded the plan, efficiency of the project is fair. In terms of sustainability, while policy and political commitment have been

[1] Abbreviation of West Africa Growth Ring Corridor

[2] Through this project, 377 priority projects to realize the growth scenario based on the key strategies were identified in 2018. Among the priority projects, 77 projects of higher priority were regarded as high-priority projects. In 2019, each country updated its own high-priority projects, bringing the total number of high-priority projects to 114.

secured, some minor problems have been observed in terms of the organizational, technical, and financial aspects. Therefore, sustainability of the project effects is fair.

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

1. Project Description

Project Location(s)

Technical Monitoring Meeting (July 2021)

1.1 Background

The West Africa Growth Ring consists of four international corridors in the WAGRIC region: the Abidjan-Ouagadougou Corridor, the Accra-Ouagadougou Corridor, the Lomé-Ouagadougou Corridor, and the Abidjan-Lagos Corridor. These corridors are located in West Africa, are the main roads connecting the major cities in West Africa, and serve as logistical arteries for landlocked countries. The West African region, with a population of over 300 million people, was experiencing real economic growth averaging about 7% in 2013, and this economic growth has had a direct impact on transport demand. However, common issues such as high transportation costs, low agricultural productivity, and high labor wages were impeding employment expansion, industrial development, and economic growth in the region. In particular, transportation costs are extremely high (1.8 to 3.5 times higher than in Asia and Latin America) due to factors such as poor hard infrastructure and inefficient border customs and checkpoint systems. In view of this situation, the Union Economique et Monétaire Ouest-Africaine (UEMOA) Commission and the Government of Ghana requested support for the establishment of a regional development plan to identify development potential and bottlenecks in corridor transportation in the Growth Ring Corridor region, strategically review existing plans for infrastructure and industrial development throughout the region, and to minimize negative impacts on local communities.

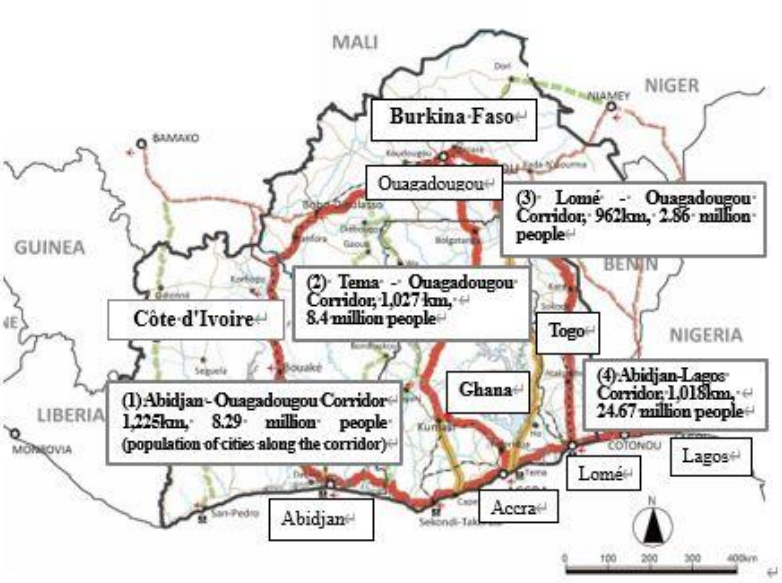

Figure 1 Target Corridors of the Project

Source: Prepared by the evaluator based on the "The Project on the Corridor Development for West Africa Growth Ring Master Plan Final Report Summary"

1.2 Project Outline

Overall Goal		To contribute to regional economic growth and expansion of private investment by implementing plans that lead to the improvement of regional disparities and logistics.
Project Purpose		● Regional development strategies and plans[3] that lead to balanced economic development between coastal and inland areas are approved. ● Implementation and management systems are in place to utilize regional development strategies and plans that lead to balanced economic development between coastal and inland areas.[4]
Output(s)	Output 1	Integrated development plans consistent with sub-regional development plans and national development plans are formulated.
	Output 2	Data and information of various sectors attracting investment at national, regional, and international levels are compiled and analyzed.
	Output 3	Transportation data based on the Origin-Destination (OD) survey are compiled and analyzed.
Total cost (Japanese Side)		690 million yen

[3] The WAGRIC Master Plan developed under this project was composed of two levels of development strategies and plans. One is at the sub-regional level, and the second is at the individual country level. The former deals with the overall strategy to achieve the goals of the master plan, while the latter includes country-specific strategies and priority projects for corridor infrastructure and industrial development in line with the regional development strategy.

[4] As for the project purpose, it was confirmed through interviews with several JICA officials that the project was intended to develop a system to promote regional integration among four countries with different official languages, namely English-speaking and French-speaking countries, in the process of project implementation. Therefore, at the time of the ex-post evaluation, a new indicator was added: "Implementation and management systems are in place to utilize regional development strategies and plans that lead to balanced economic development between coastal and inland regions."

Period of Cooperation	June 2015 – March 2018 (Extension period: January 2017 – March 2018)
Target Area	Burkina Faso, Cote d'Ivoire, Ghana, Togo Main target corridors: (1) Abidjan-Ouagadougou corridor, (2) Tema-Ouagadougou corridor, (3) Lomé-Ouagadougou corridor, (4) Abidjan-Lagos corridor
Implementing Agency	• Burkina Faso, Côte d'Ivoire, and Togo under the Department of Community Territorial Administration and Transport (DATC: Département de l'Aménagement du Territoire Communautaire et des Transports), the UEMOA Commission • Ghana under Ghana's National Development Planning Commission (NDPC) and Ghana's Ministry of Roads and Highways (MRH) Note: JICA signed a Record of Discussions (R/D) for this project with the UEMOA Commission and the Government of Ghana. The implementation structure is shown in Figure 2.
Other Relevant Agencies/ Organizations	Representative bodies of the three French-speaking countries (Burkina Faso: Ministry of Economy and Finance; Côte d'Ivoire: Ministry of Economy and Finance; Togo: Ministry of Development Planning)
Consultant in Japan	Consortium of Oriental Consultants Global Co., Ltd., CTI Engineering International Co., Ltd. and CTI Engineering Co., Ltd.
Related Projects	(1) Abidjan–Ouagadougou corridor 【Loan projects】 • Cote d'Ivoire "Project for the Construction of Three Intersections in Abidjan" (January 2019) • Cote d'Ivoire "Abidjan Port Cereal Berth Construction Project" (March, 2017) • Burkina Faso "Gounghin-Fada N'Gourma Road Improvement Project" (March 2018) 【Technical cooperation】 • Cote d'Ivoire "Project for Revitalization of Inland Aquaculture Production in Cote d' Ivoire" (2016–2019) • Cote d'Ivoire "Local Rice Promotion Project in Cote d'Ivoire" (2014–2020) • Cote d'Ivoire "Local Rice Promotion Project in Cote d'Ivoire Phase 2" (2020–2025) • Cote d'Ivoire "Project for the Operationalization of Urban Master Plan in Greater Abidjan" (2021–2024) • Burkina Faso "Project for the Reinforcement of Sesame Production" (2014–2021) • Burkina Faso "Project of Study for Formulation of National Development Program of Bas-Fonds" (2017–2019) 【Grant aid projects】 • Burkina Faso "Project for Improvement of the southeastern Tansoba bypass in Ouagadougou" (August 2017) • Cote d'Ivoire "Project for Improvement of Ivorian-Japanese Friendship Interchange) (July 2015) • Cote d'Ivoire "Project for Improvement of Ivorian-Japanese Friendship Interchange [Phase II])(January 2019)

	(2) Tema-Ouagadougou corridor 【Loan projects】 • Ghana “Construction of a New Bridge across Volta River” (December 2016) • Ghana “Cocoa Value Chain Enhancement Project” (February 2021） 【Grant aid projects】 • Ghana “The Programme for Improvement of Ghanaian International Corridors” (March 2017) • Ghana “The Project for Rehabilitation of National Trunk Road N8 (Phase 2)” (December 2018) • Ghana “The Project for Improvement of the Tema Motorway Roundabout (Phase 2)” (October 2021) (3) Lomé-Ouagadougou corridor 【Grant aid projects】 • Togo–Burkina Faso “Project for the Interconnection of Customs Clearance Systems between Togo and Burkina Faso” (2016–2017) (4) Abidjan–Lagos corridor[5] • Benin “The Project for Construction of the Vêdoko Interchange in the City of Cotonou” (January 2021) • Nigeria “The Project for Emergency Rehabilitation and Reinforcement of Lagos Transmission Substations” (November 2018) 【Dispatch of experts】 UEMOA “Advisor on Infrastructure” (2011–2018) UEMOA “Advisor on Custom” (2012–2015) UEMOA “Advisor on Acceleration of Regional Corridor Development” (2020–2022) JICA Cote d'Ivoire office “Wide-area project formulation advisor” (2020–2022) 【Country-specific training】 “The Project for Facilitation of Commerce in the UEMOA Region” (2015–2020) 【Other international organizations, aid agencies, etc.】 West Africa Trade Facilitation Program (Basket fund by EU/USAID/WBG /BMZ/ECOWAS/UEMOA） West Africa Regional Transport Observatory (EU)

[5] Benin and Nigeria were not target countries but are included in the related projects, as they are located on the Abidjan-Lagos corridor, one of the main target corridors. Benin was added to the implementation framework of the Master Plan during the 2019 roundtable meeting held for fund mobilization.

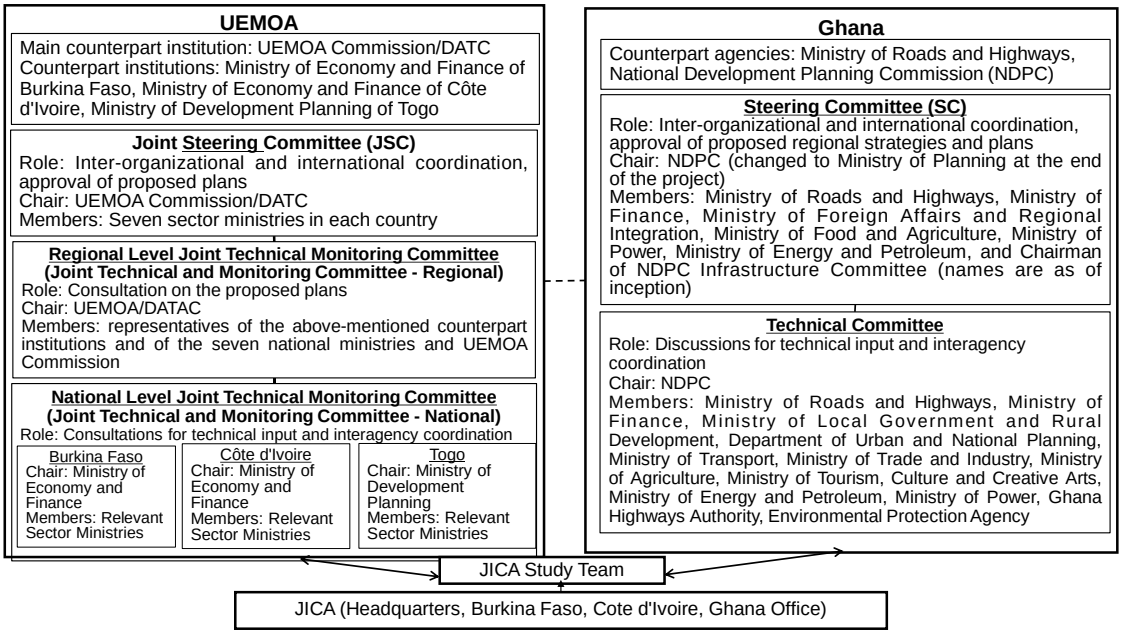

Figure 2 Implementation Structure of the Project
Source: Prepared by the evaluator based on the documents provided by JICA

1.3 Outline of the Terminal Evaluation

As this project was the form of Technical Cooperation for Development Planning, the terminal evaluation was not conducted.

2. Outline of the Evaluation Study

2.1 External Evaluator

Maki Hamaoka, 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: December 2020 – January 2022

Duration of the Field Study by local consultants: April 2021 – October 2021

2.3 Constraints during the Evaluation Study

As for the implementation status of priority projects in each country, it was not possible to verify a detailed work schedule, which made it difficult to compare the planned and actual progress of priority projects and budget mobilization. Therefore, the evaluator had to make judgments based on limited information regarding the degree of achievement of the overall goal and the financial aspects of sustainability.

3. Results of the Evaluation (Overall Rating: B[6])

3.1 Relevance (Rating: ③[7])

3.1.1 Consistency with the Development Plan[8]

At the time of the ex-ante evaluation, the UEMOA Commission had identified five priority areas in the *Programme Economique Régionale pour l'UEMOA II (2012-2016) (PER II)*: (1) governance and economic integration, (2) economic infrastructure development, (3) production improvement, (4) human resource development, and (5) donor collaboration and evaluation. Eighty-seven percent of the planned budget was allocated to economic infrastructure development. In the *Ghana Shared Growth and Development Agenda II (GSGDA II [2014–2017])*, the government of Ghana set the goal of macroeconomic stabilization through sustainable development of energy, mineral, and agricultural resources and increased investment by attracting the private sector to make strategic efforts in infrastructure and human resource development to promote industrialization. In addition, the *Programme for Infrastructure Development in Africa (PIDA)*, a strategic framework for regional infrastructure in Africa, was adopted at the 18th Ordinary Session of the African Union (AU) Summit in February 2012. The *PIDA Priority Action Plan (PIDA-PAP)* included 433 projects under 51 programs covering the transport, energy, information and communication technology (ICT), and water sectors. It also included programs for transportation, energy, and ICT in the countries covered by the project.

PERII and *PIDA* were still in effect at the time of project completion. Regarding Ghana's governmental policies, in October 2017, the government of Ghana announced a new development policy, The *Coordinated Programme of Economic and Social Development Policies 2017–2024.* The program identifies (1) economic revitalization, (2) agricultural and industrial transformation, (3) strengthening social protection and inclusion, (4) renewing economic and social infrastructure, and (5) reforming public service delivery institutions as key strategic pillars to promote growth and development. The five priority areas of the program are (1) social development; (2) environment, infrastructure, and housing; (3) governance, corruption, and public accountability; and (4) strengthening Ghana's role in international affairs. In terms of infrastructure development, the policy is to undertake major road rehabilitation and development of international corridors, with emphasis on completing the western, central, and eastern corridors.

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

[7] ③: High, ②: Fair, ①: Low

[8] In this project, JICA concluded the R/D with the UEMOA Commission representing the three French-speaking countries and the government of Ghana. In the ex-ante evaluation, the development policies of the UEMOA and the government of Ghana were confirmed to be consistent with the project, as they are positioned in the policies of the counterpart governments. In the ex-post evaluation, the same consistency between the project and the policies of the UEMOA Commission and the government of Ghana was confirmed. In addition, the policy of the African Union was added to the ex-post evaluation, as it was judged necessary to confirm the consistency between the project and the positioning of wide-area corridor development.

In light of the above, the economic growth of the WAGRIC region, which the project aims to achieve at the time of ex-ante evaluation and at the time of completion of the project, was consistent with the development policy of the target countries.

3.1.2 Consistency with the Development Needs

(1) Economic Growth

Since 2000, the economic growth rate of the target countries has been high, averaging 5% per year. The high prices and production expansion of primary commodities of mineral resources and agricultural products worldwide that occurred in the 2000s brought economic growth to the supply areas of these resources and products in Africa, causing the emergence and growth of intra-regional consumer markets. However, the development of industry in inland areas lagged behind, leading to regional disparities between inland and coastal areas. The national economies of the four target countries have all been growing, supported by the development of mineral resources and the export of agricultural products to the external market. In particular, global prices of mineral resources and agricultural products were high from the 2000s until 2012, and the production volume of these products has increased, resulting in high annual real growth rates of more than 5% (see Figure 3).

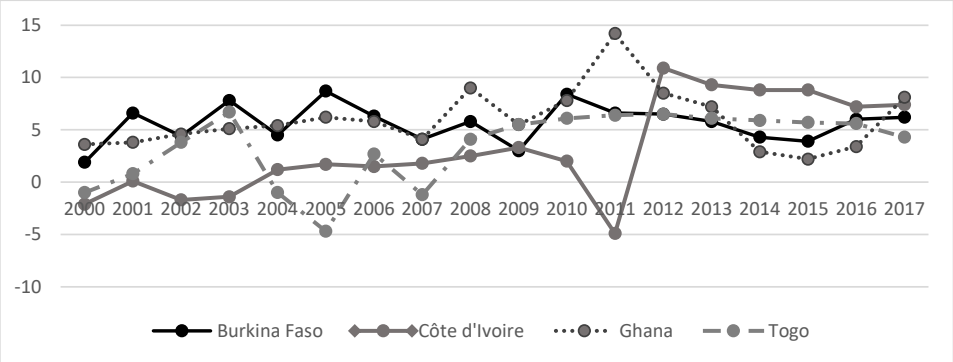

Figure 3 Real GDP Growth Rates of the Four Target Countries (%)

Source: Prepared by the evaluator based on IMF

In addition, although a customs union was institutionalized by the UEMOA and the Economic Community of West African States (ECOWAS), it has not been strongly implemented. Moreover, there were barriers between the coastal and inland areas due to transportation costs and times, which hindered economic development in the inland areas.

(2) Import and export

From the beginning to the end of the project, it was confirmed that the two main export sectors, mining and agriculture, occupied such an important place in total exports that the national economy of each of the four countries could not function without the dynamics of these two sectors' activities. It was also confirmed that, taking into account the list of

imported articles and their high import amounts, it could be said that the national production of agriculture, livestock and fisheries as well as those of the daily consumer-goods manufacturing industry in the four countries are not sufficiently developed to meet their own needs.

In terms of imports, the high real GDP growth rate was accompanied by an increase in the urban middle-income population and the consumption of imported goods such as food, processed food, daily sundries, household appliances, and transport machinery until before the project started (2014). Since then, the value of imports has declined along with GDP growth.

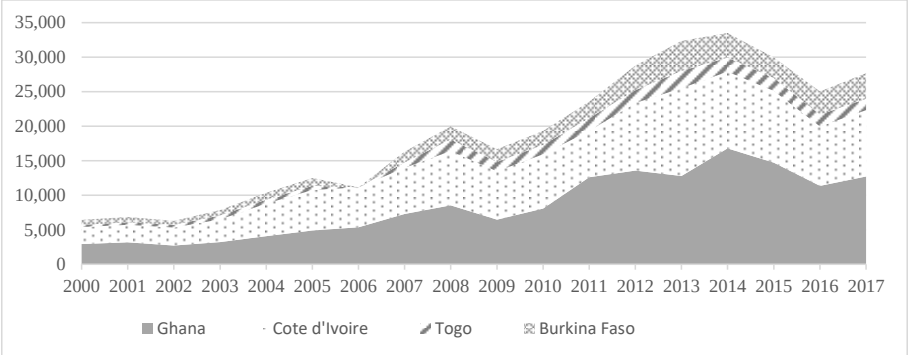

Figure 4 Trends in Import Value of the Four Target Countries

Unit: Millions of U.S. dollars

Source: Prepared by the evaluator based on the UN Comtrade Database

(3) Population

The cumulative population of the four target countries at the time of planning (2014) was approximately 74 million, and at the time of project completion (2017) was 82 million; the population growth rate from 2010 to 2017 was 2.1% to 3.07% per year. This growth rate was higher than the average global population growth rate of 1.1% to 1.2% during the same period. Thus, the population growth rate remained high compared to the world population growth rate over the medium term, indicating the economic growth potential of the target countries.

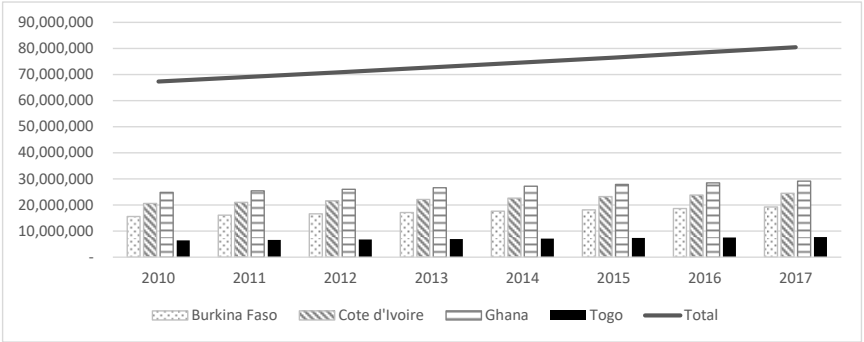

Figure 5 Population of the Four Target Countries

Source: Prepared by the evaluator based on the World Bank database

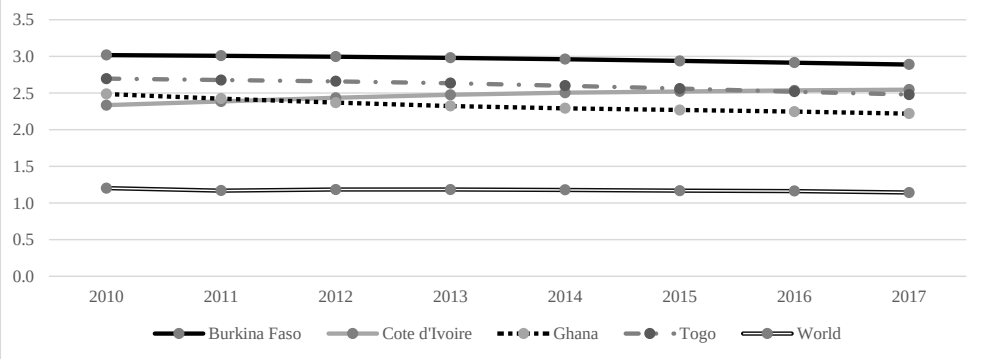

Figure 6: Population Growth Rates for the World and the Four Target Countries (%)
Source: Prepared by the evaluator based on the World Bank database

In light of the above, based on the economic situation and industrial issues in the target area, there was a need to identify the development potential and bottlenecks in corridor transportation and to formulate a regional development strategy and corridor development plan through this project that would lead to balanced economic development between coastal and inland areas.

3.1.3 Consistency with Japan's ODA Policy

In the *Yokohama Action Plan 2013-2017* adopted at the 5th Tokyo International Conference on African Development in 2013, the promotion of regional integration and development of wide-area transport corridors was positioned as priority areas, and this project corresponded to the "Strategic Master Plan for Infrastructure Development" in the Yokohama Action Plan. In addition, this project was implemented in line with the "Economic Infrastructure Development Program" and the "Industrial Development Program" among the priority areas of the *Country Assistance Policy for the Republic of Ghana (2012)* of the Ministry of Foreign Affairs of Japan and the "Promotion of Regional Economic Integration," one of the priority areas of the *Country Assistance Policy of Burkina Faso (2012)*.

Based on the above, this project was highly relevant to the development policies and needs of the four target countries as well as Japan's ODA policy. Therefore, its relevance is high.

3.2 Effectiveness and Impact[9] (Rating: ③)

Since this project was in the form of Technical Cooperation for Development Planning, the outputs, project purpose, and overall goal and indicators of these three levels based on the "Project Design Matrix" (PDM) were not set, unlike other technical cooperation projects. For this reason, in this ex-post evaluation, after reading the relevant documents carefully, the evaluator defined the objective of this project as follows: "Plans that contribute to

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

redressing regional disparities and the improvement of logistics are approved (project purpose), by identifying development potential and bottlenecks in the corridor transport in the target area, and formulating regional development strategies and regional development plans that lead to balanced economic development between coastal and inland areas (outputs), thereby contributing to regional economic growth and the expansion of private investment (overall goal [impact])".

3.2.1 Effectiveness

3.2.1.1 Project Output

(1) Output1: Integrated development plans consistent with sub-regional development plans and national development plans are formulated.

1) Outline of the Regional Development Plan

In January 2018, the Joint Steering Committee approved the draft final report, in which regional development plans consistent with the regional and respective national development plans were compiled. Through Output 2, "Data and information of various sectors attracting investment at national, regional and international levels are compiled and analyzed" and Outcome 3, "Transportation data based on OD studies are analyzed and developed," three alternative growth scenarios were evaluated by using three factors. These are 1) which economic sectors are emphasized for promotion, 2) to what extent sub-regional economic integration is promoted, and 3) what kinds of corridor infrastructures are strengthened for connecting inland and coastal areas:

- Alternative Growth Scenario No. 1 Corridor Development oriented to Sub-Regional Markets: While seeking a strong sub-regional economic integration, Growth Scenario No. 1 is aimed at the development of economic sectors targeting sub-regional markets and of corridor infrastructures for north-south and coastal east-west corridors for the purpose of strengthening economic and transport connectivity between inland and coastal areas.
- Alternative Growth Scenario No. 2 Corridor Development oriented to Individual Domestic Markets: Growth Scenario No. 2 is aimed at development of various economic sectors in both inland and coastal areas by developing the infrastructures of north-south corridors in individual countries.
- Alternative Growth Scenario No. 3: Corridor Development oriented to Outside Sub-Regional Markets (Overseas Export Markets): Growth Scenario No. 3 is aimed at the development of economic sectors oriented to outside sub-regional markets (overseas export markets) in both inland and coastal areas by developing north-south corridor infrastructures.

Of the above three alternatives, Growth Scenario No. 1 was evaluated as the one that could make the most effective impact on strengthening connectivity between inland and coastal areas in terms of economy and transport.

To achieve this growth scenario, 10 essential strategies were formulated and categorized in four groups (buttons); 377 priority projects were identified for which to implement 10 essential strategies;[10] 77 of these were identified as high-priority projects. In the concept developed for the project, the four sets of necessary actions (four buttons) should be considered in an integrated manner, as in pressing a start button (See Figure 7).

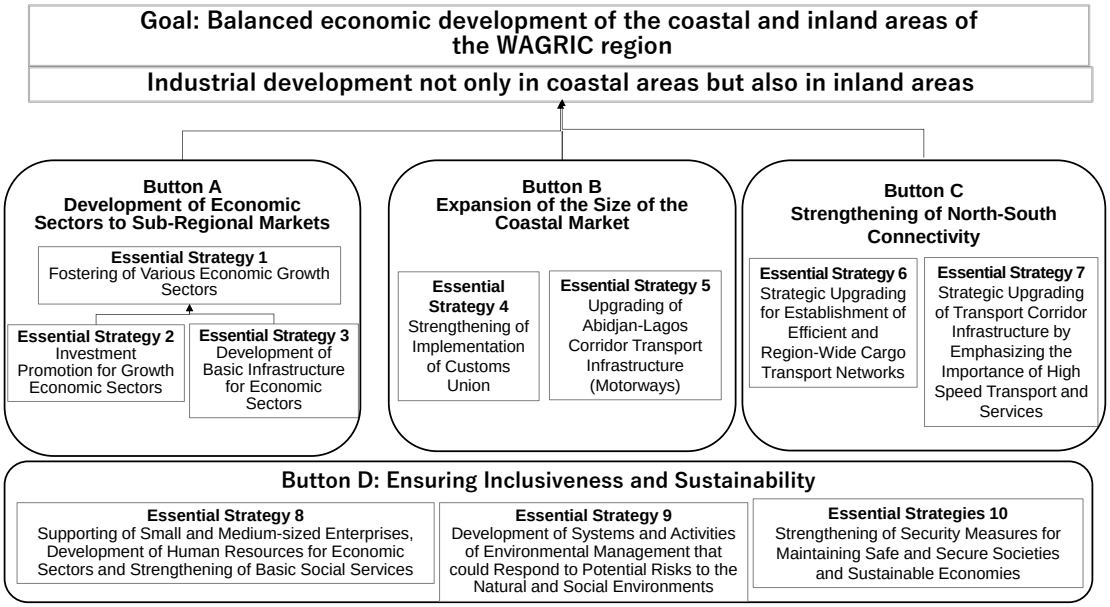

Figure 7 Overview of the Regional Strategy

Source: Prepared by the evaluator based on documents provided by JICA

2) Strategies and Plans for Corridor Development by Country

To promote the development of the corridor in line with the above growth scenario, the following table summarizes the measures for emphasis in the four countries.

[10] 377 priority projects were selected using the following criteria: (1) those projects required for implementing the ten essential strategies, (2) those that could initiate and drive corridor development in line with the selected growth scenario, (3) those needing proactive implementation ahead of increased demand for infrastructure or production of economic sectors, and (4) those that were technically and institutionally implementable. (Source: The Project on Corridor Development for West Africa Growth Ring Master Plan Summary, Final Report）

Table 1 Corridor development strategies and plans by country

<Burkina Faso> **Button A:** • Expand production of existing products and development of new signature products oriented to sub-regional markets (agricultural, livestock, agro-processed, and livestock-processed products) • Improve access roads to ‘ areas with agricultural potential and expansion of irrigation schemes facilities **Button C:** • Develop a multi-modal dry port in Ouagadougou and expand the multi-modal dry port in Bobo–Dioulasso (expand rail service area, reduce cargo transport costs) • Phased development of motorway from Ouagadougou to Bobo–Dioulasso • Phased development of four-lane high-speed way from Ouagadougou toward Togo and Ghana	**＜Cote d'Ivoire>** **Button A:** • Promote investment by appealing to integrated and expanded markets within the WAGRIC sub-region • Develop access roads to potential agricultural areas from the Abidjan-Ouagadougou corridor • Develop economic infrastructure to support the production of rice, maize, soybeans, vegetables, and fruits • Develop economic infrastructure in Bouaké and Khorogo **Button B:** • Strengthen the implementation of the customs union at the border • Improve the east exit line of the Cocody–Bonoua motorway **Button C:** • Extend the motorway further north, up to Niakaramandougou • Develop multi-modal dry ports in the suburbs of Abidjan and Ferkessédougou
<Togo> **Button A:** • Promote inland agriculture and agro-processing industries targeting the regional market: develop inland agro-polls and infrastructure (especially access roads to inland agricultural potential areas) • Establish infrastructure to develop Kara and Sokodé as major regional hubs (construct industrial parks for agro-processing industries) • Develop an industrial and logistics park in the Lomé metropolitan area **Button B:** • Strengthen implementation of the customs union at the border • Develop strategically selected coastal highways, especially east–west motorway s around the Lomé metropolitan area **Button C:** • Improve traffic congestion around the Port of Lomé to maintain its competitiveness • Phased development of a four-lane highway and urban bypass in the Rome–Ouagadougou corridor • Phased railway development between Lomé and Cinkasé	**<Ghana>** **Button A:** • Establish inland agriculture and agro-processing industries targeting the regional market in the northern region: attract investment and develop infrastructure (in particular, develop east–west access roads from the central corridor to inland agricultural potential areas) • Develop infrastructure to make Tamale a major regional hub **Button B:** • Strengthen the implementation of the customs union at the border • Develop strategically selected coastal highways (especially the east–west motorway in the Accra metropolitan area) **Button C:** • Reconstruction of railways (Takoradi–Awaso [western line], Tema–Boankura [eastern line], Tema–Akosombo [newly built]) • Extend the four-lane road between Kakau and Kumassi, construct the Kumassi Urban Area Outer Ring Road, and extend the four-lane road between Kumasi and Kintambo.

Source: Prepared by the evaluator based on documents provided by JICA

(2) Output 2: Data and information of various sectors attracting investment at national, regional, and international levels are compiled and analyzed

To achieve Output 1 "Integrated development plans consistent with sub-regional development plans and national development plans are formulated," the following were implemented as planned as Output 2. Additional studies within each item are described in Section 3.3, Efficiency.

- Review of existing national high-level plans and consideration of regional development visions
- Review of the current socio-economic status and industrial development plan of the target area
- Setting up a socio-economic framework
- Image study of corridor development based on existing industrial development plans and corridor infrastructure development plans
- Finalizing the regional development vision
- Cross-checking analysis of existing industrial development plans with corridor infrastructure development plans
- Review of corridor infrastructure development plans and understanding of current conditions
- Confirmation of corporate needs and consideration of their reflection in the master plan
- Strategic environmental assessment (SEA)

(3) Output 3: Traffic data based on the OD survey is analyzed and maintained.

Transportation surveys, including surface cross-section traffic volume surveys and roadside OD surveys, were conducted in 2015–2016 to determine traffic volumes and flow conditions on major trunk roads. The results were used for logistics and traffic demand forecasting, comparison of proposed development scenarios for each corridor, and selection of development scenarios. At the time of the ex-post evaluation, it was confirmed that the MRH of Ghana is using the traffic data compiled in this project to formulate projects in the infrastructure sector.

3.2.1.2 Achievement of Project Purpose

(1) Achievement of Project Purpose

Through the above three outputs, the project purpose was achieved as planned (see Table 2).

Table 2 Achievement of Project Purpose

Project Purpose	Actual
● Regional development strategies and plans that lead to balanced economic development between coastal and inland areas are approved.	● Achieved The regional development strategy and plan presented by the JICA Study Team as a draft final report were approved by the Regional-Level Joint Steering Committee held on January 23rd, 2018 in Abidjan.[11] Subsequently, the final report in Japanese, English, and French was disseminated in March 2018.
● An implementation and management structure will be developed for the use of regional development strategies and plans that lead to balanced economic development between coastal and inland areas.	● Achieved Ministerial officials from the three French-speaking countries that are members of the UEMOA and from the English-speaking country of Ghana raised awareness of the need to implement the proposed plan together as a result of discussions during the counterpart training in Japan and at several meetings. In the process of implementation, the French-speaking countries were led by the UEMOA Commission, which brought the whole process together. Despite the extent to which Ghana participated in this process,[12] the implementation and management system had been introduced to a certain extent by establishing the system led by the UEMOA Commission.

Source: Prepared by the evaluator based on documents provided by JICA and interviews with JICA officials

(2) Evaluation of the Master Plan by Counterpart Organizations and JICA Officials

According to the interviews with the parties concerned, the target countries did not have a long-term perspective that included target years and synergies among sectors for the entire WAGRIC region. Therefore, this project was evaluated to be very useful in that it provided for a long-term perspective on infrastructure development in the West African sub-region.[13] In addition, the collected and analyzed data that were carefully examined and compiled by JICA Study Team were evaluated by other donors as valuable "data collection." For example, the World Bank used the data collected through this project in the formulation of its *Country Analysis Strategy*.[14] In addition, the NDPC, which is a governmental agency of Ghana responsible for the formulation of national long-term plans, incorporated the contents of the WAGRIC into its Ghana Infrastructure Plan. In this way, the utilization of the proposed plan

[11] Documents provided by JICA and interview with the UEMOA Commission

[12] Ghana is not a member of the UEMOA and is an English-speaking country, which makes it difficult to communicate and coordinate with other French-speaking countries due to language differences. The JICA Ghana office communicated the UEMOA message and the overall project status to the implementing agencies in Ghana and encouraged them to collaborate with other target countries, which facilitated the process of regional planning through discussions among the four countries.

[13] Source: Interviews with the UEMOA Commission, Ministry of Economy and Finance of Burkina Faso, and Ministry of Economy and Finance of Cote d'Ivoire.

[14] Source: Interview with JICA Ghana office

by this project was confirmed through the ex-post evaluation.[15]

As described above, the three outputs have been achieved, the quality of the outputs has been highly evaluated by the parties concerned, the technology transfer to the counterparts has been properly implemented, and the system implementing the proposed plan has been established. Therefore, the project achieved its purpose.

3.2.2 Impact

Since this project was in the form of Technical Cooperation for Development Planning, the indicator of the overall goal was not set. "Utilization targets of proposed plans" in the *Summary of the ex-ante evaluation* can be regarded as the same as the overall goal of technical cooperation project. This information was intended "to contribute to the economic growth and expansion of private investment in the region through the approval and implementation of the plan that contributes to the improvement of disparities and logistics in the region." In the ex-post evaluation, the impact was evaluated primarily based on the "status of utilization of the proposed plan," i.e., "implementation of the proposed plan." However, while the target years of the master plan were set as short-term 2025, medium-term 2033, and long-term 2040, it is too early to confirm the effects at the time of the ex-post evaluation in 2021, even for the short-term target years. In addition, the definition of "implementation" was not specified at the time of project planning, so the evaluation on implementation was made by referring to the ex-post evaluation of the similar Technical Cooperation for Development Planning. As a result, "start of priority projects" is regarded as implementation of priority projects in the ex-post evaluation. As for the "achievement target by utilization" set at the time of planning, the degree of achievement was confirmed as "other impact" as an effect that would appear after achieving the higher target.

3.2.2.1 Achievement of Overall Goal

With regard to the overall goal, "To contribute to regional economic growth and expansion of private investment through implementing plans that lead to the improvement of regional disparities and improvement of logistics," the implementation status of 114 high-priority projects approved at the July 2019 Roundtable (Table 3) was confirmed as of July 2021 (see Tables 4 and 5).

[15] Source: Interview with JICA Ghana office

Table 3 List of High-priority Projects

Country	Number of Projects	Sector								
		Agriculture	Livestock	Mines and Hydrocarbons	Energy	Industry	Transport	Infrastructures and Roads	ICT	Commerce
Benin	10	3	0	1	2	0	4	0	0	0
Burkina Faso	27	5	0	0	3	1	7	10	0	1
Cote d'Ivoire	42	3	2	4	3	5	5	4	1	11
Togo	15	3	0	1	3	4	0	4	0	0
Ghana	13	2	0	0	1	1	1	8	0	0
UEMOA Commmission	7	0	0	0	0	0	6	0	0	1
Total	114	16	2	6	12	11	23	26	1	13

Source: Prepared by the evaluator based on documents provided by the implementing agencies

Table 4 Achievement of the Overall Goal

Goal	indicator	Achievement
To contribute to regional economic growth and expansion of private investment by implementing plans that lead to the improvement of regional disparities and logistics.	Implementation status of high-priority projects	Mostly Achieved At the time of ex-post evaluation, 95 projects, or 83% of the 114 high-priority projects, were at the feasibility study (F/S) stage or later. This is a high level compared to the status of utilization of subsequent proposed plans of corridor development strategies prepared in similar Technical Cooperation for Development Planning.[16] Of the high-priority projects, there are 34 projects where the main construction work is underway and one project where the main construction work has been completed.

Source: Prepared by the evaluator based on documents provided by the implementing agencies

Table 5 Progress of High-priority Projects

Country	Number of High Priority Projects	Status (as of July 2021)										Overall Initiation Rate
		Nothing has started	Study in progress	Study completed	Discussion with donors in progress	MOU signed with donor	Looking for funding	Funding Pledged	Bidding process stage	Implementation in progress	Project completed	
Benin	10	1	1	8	0	0	0	0	0	0	0	83%
Burkina Faso	27	6	2	1	2	1	6	1	3	5	0	
Cote d'Ivoire	42	2	9	0	0	0	20	0	0	11	0	
Togo	15	4	2	0	0	0	0	0	1	7	1	
Ghana	13	4	0	1	0	0	0	0	0	8	0	
UEMOA Commission	7	2	2	0	0	0	0	0	0	3	0	
Total	114	19	16	10	2	1	26	1	4	34	1	

Source: Prepared by the evaluator based on documents submitted by the governments of Benin, Burkina Faso, Cote d'Ivoire, and Togo for the Joint Technical Monitoring Committee held in July 2021. Ghana's progress on high priority projects is based on responses to questionnaires from sector ministries.

[16] The Project for Nacala Corridor Economic Development Strategies was implemented in Mozambique in the same form of Technical Cooperation for Development Planning as this project and the ex-post evaluation was conducted in FY2018. The percentage of priority projects since the start of the F/S in the ex-post evaluation phase of this project was 56%. Since the situation at the time of the adoption of the High-priority projects is different, a simple comparison cannot be made, so the comparison with this project is for reference only. However, since the initiation rate of this project is higher than the initiation rate of High-priority projects of the Project for Nacala Corridor Economic Development Strategies, it is judged that the implementation status of High-priority projects is good.

The target countries are implementing the priority projects in line with the individual corridor development plans proposed in this project. An overview and implementation status of the priority projects are shown in the table below.

Table 6: Status of the Proposed Plan

<Burkina Faso> • **Button A**: Projects for three large-scale irrigation schemes are being implemented. • **Button C:** The development of a multi-modal dry port at Ouagadougou and a road from Ouagadougou in the direction of Bobo–Dioulasso, "Strengthening of North–South Connectivity," includes as proposed in the master plan, which will also address the real issue of reducing cargo transportation costs.	**＜Cote d'Ivoire>** • **Button A**: The construction of an access road from the Abidjan–Ouagadougou corridor to areas with agricultural potential is included, which is almost completed. In addition, a project to construct an agro-industrial zone specializing in cashew nut processing is underway at four sites, including Bouaké and Khorogo. • **Button B**: The development of the east exit line of motorway Cocody–Bonoua highway is included. • **Button C**: Projects extending the motorway further north are included. Multi-modal dry ports are being developed on the outskirts of Abidjan and in Ferkessédougou.
<Togo> • **Button A:** Projects for development of agro-poles in inland areas including infrastructure, such as access roads and irrigation facilities to potential areas with agricultural potential as part of the promotion of inland agriculture and agro-processing industries targeting the sub-regional market are included. The industrial and logistics park in Greater Lomé is now operational (see Box 1). • **Button C:** Projects for phased upgrading of the north-south corridor road to a 4-lane high-standard road and phased development of railway between Lomé and Cinkasé (Burkina Faso) are included.	**<Ghana>** • **Button A:** Projects for development of infrastructure to make Tamale a major regional city are included. • **Button B:** Projects for the development of coastal motorways, particularly the East-West highway in the Greater Accra are included. • **Button C:** Road improvements associated with the linkage of coastal markets to inland areas are included.

Source: Prepared by the evaluator based on documents provided by JICA and implementing agencies

As mentioned above, it was confirmed that the initiation rate of high-priority was high. Factors for this may include that the target countries share the sense of crisis that no single country in West Africa can survive on its own, and the importance of uniting multiple countries is strongly rooted as a result of the fact that the JICA Study Team kept stressing the need to come together as one during the implementation of the project. Additionally, the UEMOA Commission has been leading the implementation system, and the West African Development Bank (BOAD, Banque Ouest Africaine de Développement) is providing financial support.

As mentioned above, the evaluation was made with an emphasis on "initiation of high-

priority projects including surveys." As a result, the initiation rate of high-priority was high at 83%, and the contents of the high-priority projects were in line with the concept proposed in this project. It is judged that the plan proposed by the project has been fully utilized and the project has achieved its overall goal.

3.2.2.2 Influence of Important Assumptions on the Achievement of the Overall Goal

Although the initiation rate of implementation of high-priority projects is good, only about 30% of the projects have reached the construction stage. This is due to the fact that the procurement of materials and equipment necessary for project implementation stalled due to the sealing of the border in 2020 and 2021 to prevent the spread of the new coronavirus infection (COVID-19). In addition, people's movement was also restricted, which delayed the start of surveys, implementation, and consultations with donors on completed projects. In addition, there have been terrorist attacks in Burkina Faso since 2016, which affected the implementation of this project, and security has not recovered since then, which has affected the implementation of high-priority projects.[17]

BOX 1: Status of Project Implementation Contributing to the Development of the West African Growth Ring

Through this project, 377 projects were selected as priority projects, and 77 high-priority projects were identified among them in 2018. Subsequently, the number of these high-priority projects increased to 114, including those of Benin, which was subsequently added to the target countries. The following are examples of the implementation of priority projects or high-priority project implemented in line with the concept of this project.

(1) Togo, "Projet de construction d'un Parc Industriel à Adétikopé dans le Grand Lomé (Project for Construction of Industrial Park in Adétikopé in Greater Lomé)" (Button A: Development of Economic Sectors to Sub-Regional Markets, Key Strategy 1: Fostering of Various Economic Growth Sectors) - High-priority project for 2018 and 2019

[17] Since 2019, terrorist organizations based in Mali have moved southward toward Burkina Faso, and the scope of terrorist attacks has expanded yearly, with a sharp increase in attacks in the central and northern regions of Burkina Faso, as well as sporadic attacks in the southwestern region around the borders with Côte d'Ivoire and Ghana. Although the government of Burkina Faso has strengthened the security system in the country, administrative services and security activities have not been sufficiently provided, especially in rural areas, and the security situation has not yet improved, with more than one million people displaced throughout Burkina Faso. (Source: web site of Ministry of Foreign Affairs of Japan on overseas safety: https://www.anzen.mofa.go.jp/info/pcterror_117.html)

In Togo, the only industrial site in the capital city's Lomé port area had become saturated. Togo built the Plateforme Industrielle d'Adéticopé (PIA) in Adéticopé, 12 km from the port of Lomé through a Public-Private Partnership with Arise Integrated Industrial Platforms (IIP). The PIA, which opened in June 2021, is located at the backbone of the industrial zone between Lomé and Burkina Faso along National Road No. 1, which leads to the inland countries. The aim here is establishing a value chain of storage, processing, manufacturing and export. For example, the PIA textile complex has the infrastructural facilities to establish an integrated textile unit for spinning, weaving, processing, and sewing.

Main entrance of PIA

Note: Arise IIP is a group with expertise in the development of industrial infrastructure and associated ecosystems to design, finance, construct, and manage large-scale projects in Africa. Shareholders are Africa Finance Corporation (50.5%) and Olam (49.5%). The Arise IIP will be responsible for the development, financing, construction, and management of the PIA. (Source: https://pia-togo.com/about-us/)

(2) Burkina Faso, "Project for Improvement of the southeastern Tansoba bypass in Ouagadougou" (implemented with JICA grant aid) (Button C: Strengthening of North–South Connectivity, Key Strategy 7: Strategic Upgrading of Transport Corridor Infrastructure by Emphasizing the Importance of High-Speed Transport and Services)—Priority Project in 2018

Ouagadougou, the capital of Burkina Faso, is landlocked and functions as a logistics node connecting the surrounding coastal and landlocked countries. A ring bypass road has been constructed to prevent large cargo vehicles from entering the city center. The southeast section, which has the highest concentration of traffic, had not been fully renovated since its completion in 1990, and damage to the road surface and shoulders has hindered smooth traffic. The list of priority projects formulated in 2018 included projects for the improvement of the ring road, the replacement and repair of old road bridges, and the improvement of the road surface to strengthen the main transport corridor. The Project for Improvement of the Southeastern Tansoba Bypass in Ouagadougou is one of them. The project was implemented to improve the network of urban transportation and intra-regional logistics by fully renovating the southeast section of the bypass road and constructing new bike lanes and other facilities, thereby contributing to the facilitation of intra-regional trade and the promotion of intra-regional economic integration (Grant Agreement: August 2017).


Condition of the road before implementation of the project[18]


Photographs taken after implementation of the project[19]

[18] Source: JICA website. https://www.jica.go.jp/oda/project/1760330/index.html
[19] Source: Field survey by the local consultant

(3) Ghana, “Development of Irrigation Infrastructure for Agricultural Production for Export and Agro-industry at Tamne,” Phase 1 and Phase 2, Upper East Region） (Button A, Key Strategy 1) - High-priority project in 2018 and 2019

The project, funded by the government of Ghana, commenced in 2018 and is intended to reduce poverty through the development of irrigation infrastructure to support the horticultural industry for domestic and international markets. It was constructed in the Tamne River Basin, a tributary of the White Volta, and is currently providing agricultural guidance to farmers.

(4) Cote d'Ivoire, “Projet de Construction de l'autoroute du Nord” (Section: Bouaké–Burkina Faso border, Mali border), Frontière du Burkina Faso avec une bretelle du Mali): (Button C, Key Strategy 7) - High-priority project in 2019.

The condition of the 412-km road section covered by the project is poor and has been a hindrance to the promotion of trade and travel between the three neighboring countries (Cote d'Ivoire, Burkina Faso, and Mali). The project, funded by the UEMOA, is being implemented to improve the transportation capacity of goods and products from inland areas to the port of Abidjan by constructing a two-lane asphalt-paved motorway.

3.2.2.3 Status of Outputs and Project Purpose

After the project completion, the UEMOA Commission organized a roundtable in Abidjan in July 2019, in collaboration with JICA, BOAD, and the Economic Community of West African States (ECOWAS) for the mobilization of funds for high-priority projects. Many participants attended the roundtable, including ministers of the target countries; presidents of the UEMOA, ECOWAS and BOAD; vice presidents of JICA; and Japanese, local, and third countries’ private companies and development agencies. The project summary sheet for high-priority projects prepared at that time has a section titled “5. STRATEGIC AXES IN MASTER PLAN: (Axes of the WAGRIC master plan in which the project fits).” This column contains the buttons from A to D and the 10 key strategies that the priority project corresponds to. The sheet’s structure allows the concerned parties to be aware of the strategies to activate the four buttons proposed by the project when preparing the project summary sheet. In this way, the concept of the proposed plan was followed even at the time of the ex-post evaluation.

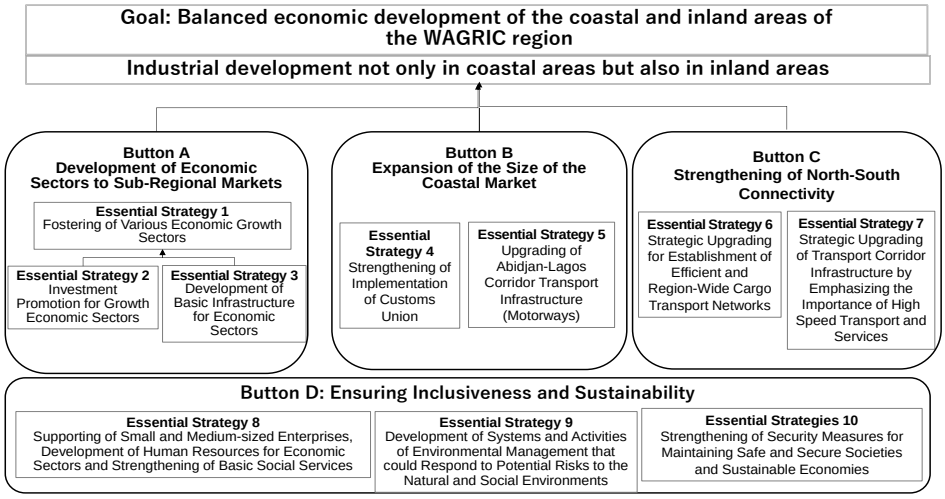

Figure 7: Summary of the Regional Strategies (reproduced)
Source: Prepared by the evaluator based on documents provided by JICA

Also at this roundtable, 1 trillion FCFA[20] and a total of 352 billion FCFA (641 million USD) of financial support was pledged by the private sector (BOAD), which expressed interest in implementing high-priority projects. At the roundtable, BOAD met with representatives of sector ministries and agencies from the four French-speaking countries, and PPPs are being promoted under BOAD's leadership, as shown by the selection of 15 projects for PPPs. In addition, one PPP project has been implemented in Ghana, and one project has been confirmed for private-sector investment.

3.2.2.4 Other Positive and Negative Impacts

(1) Impacts on the Natural Environment

In this project, a comparison of alternative scenarios for several corridor development plans was conducted through scoping[21] in the SEA[22] as described below.

- Collection and analysis of baseline information and data on social and environmental conditions (land use, natural environment, and social and economic conditions) in target countries
- Scoping based on the understanding of concepts and approaches to develop regional development strategies and corridor development plans (analysis of the identification of potential impacts caused by the implementation of the project based on the four pillars

[20] BOAD's funding of 1 trillion FCFA included private-sector support with plans for (1) public and private funding of 500 billion FCFA and (2) funding through public-private partnerships (PPPs) of 500 billion FCFA.
[21] A procedure for obtaining the opinions of local population and governments familiar with the local environment to determine the method of environmental assessment.
[22] Strategic Environmental Assessment refers to an environmental assessment carried out at the time of the decision-making at a stage higher than the environmental assessment at the project stage. For Technical Cooperation for Development Planning projects, such as this project, the implementation of Strategic Environmental Assessment in the guideline is stipulated by JICA.

of natural resources, socio-cultural, economy, and institutional aspects)[23]

- Comparative evaluation of alternative corridor development scenarios through risk-opportunity matrix analysis

Stakeholder meetings were held in the four target countries for scoping and environmental impact assessment, as follows.

Table 7 SEA Stakeholder Meetings (French-speaking countries)

Meeting	Purpose	Date and Participants		
		Burkina Faso	Cote d'Ivoire	Togo
1st Stakeholder Meeting	• Explain and discuss the objectives, approaches, and scope of the project • Discuss issues related to corridor development and the environment	• September 16, 2015 • 70 persons: 11 from ministries and authorities at the national level, 38 from 13 regional governments, 2 from communes, 4 from NGOs, 2 from private organizations, and 13 from others (including JICA Burkina Faso office and JICA Study Team)	• October 2, 2015 • 53 persons: 24 from ministries and authorities at the national level, 11 from regional governments of 9 regions, 2 from communes, 2 from NGOs, 3 from private organizations, and 12 from others (including JICA Cote d'Ivoire office and JICA Study Team)	• October 2, 2015 50 persons: 25 from ministries and authorities at the national level, 9 from regional governments of 5 regions, 7 from NGOs, 5 from private organizations, and 4 others (including JICA Cote d'Ivoire office and JICA Study Team)
2nd Stakeholder Meeting	• Identify potential social and environmental impacts of the corridor development strategies	• July 28, 2016 • 72 persons: 17 from ministries and authorities at the national level, 25 from the regional governments of 13 regions, 2 from communes, 4 from NGOs, 2 from private organizations, and 22 persons from others (including JICA Burkina Faso office and JICA Study Team)	• July 28, 2016 • 62 persons: 18 from ministries and authorities at the national level, 13 from regional governments, 3 from communes, 3 from NGOs, 1 from a private organization, and 21 from others (including JICA Cote d'Ivoire office and JICA Study Team)	• August 4, 2016 • 81 persons: 45 from ministries and authorities at the national level, 10 from regional governments, 1 from a commune, 6 from NGOs, 2 from private organizations, and 17 others (including JICA Cote d'Ivoire office and JICA Study Team)
3rd Stakeholder Meeting	• Analyze and assess the impacts of implementing the corridor development strategies	• October 10-11, 2016 • 67 persons: 17 from ministries and authorities at the national level, 25 from the regional governments of 16 regions, 1 from a commune, 1 from an NGO, 2 from a private organization, and 18 from others (including JICA Burkina Faso Office and JICA Study Team)	• October 13, 2016 • 36 persons: 10 from ministries and authorities at the national level, 3 from regional governments, 2 from communes, 3 from NGOs, 1 from a private organization, and 21 others (including JICA Cote d'Ivoire office and JICA Study Team)	• October 6, 2016 81 persons: 76 from ministries and authorities at the national level, 10 from regional governments, 2 from communes, 6 from NGOs, 7 from private organizations, and 16 others (including JICA Cote d'Ivoire office and JICA Study Team)

Source: Prepared by the evaluator based on "The Project on the Corridor Development for West Africa Growth Ring Master Plan" Final Report Volume 3, Appendix E Planning Study's Activities"

[23] For a detailed analysis of each country, see "The Project on the Corridor Development for West Africa Growth Ring Master Plan" Final Report Volume 3, Appendix F Records of SEA Stakeholder Meetings. https://libopac.jica.go.jp/images/report/12308847.pdf

For Ghana, the JICA Study Team prepared a Terms of Reference (TOR) proposal for the outsourcing of SEA and submitted it to the Environmental Protection Agency (EPA) for approval. It was not approved on the grounds that the project promoter side (NDPC, MRH, JICA, and the JICA Study Team) and the competent authorities' SEAs in Ghana (EPA and NDPC) should meet to discuss it prior to the preparation of the TOR. Therefore, the project promoter side and the SEA-competent authorities in Ghana conducted a series of meetings between October 2015 and February 2016, including with the SEA core team meetings, before the TOR was prepared and a series of steps and activities for the SEA were agreed upon. The achievements of the meetings on SEA in Ghana are as follows.

Table 8 SEA Meetings in Ghana

Meeting	Purpose	Period of implementation and participants
Stakeholder Consultation Meeting	• Explain and discuss objectives, approach, scope of the master plan, and SEA	• Meetings were held from August 18, 2016 to September 2, 2016, in 12 districts in each of the 10 regions in Ghana and attended by a total of 979 participants Note
SEA Scoping Workshop	• Consult on baseline information and institutional analysis for SEA reports, three base scenarios, and matrix of key issues	• October 19–21, 2016 • EPA's SEA Unit, NDPC, MRH, JICA Study Team, etc. 注
SEA Assessment Workshop	• Explain and assess the corridor development plan for Ghana	• February 1 and 2, 2017 • 51 participants': 28 from ministries and authorities at the national level, 2 from regional governments, 13 from districts, one from an NGO, and 7 from others (including JICA Ghana office and JICA Study Team)

Source: Prepared by the evaluator based on "The Project on the Corridor Development for West Africa Growth Ring Master Plan "Final Report Volume 3, Appendix E Planning Study's Activities""
Note: The breakdown of participants could not be confirmed, as it was not included in the report.

Many lagoons are located in the coastal zone of Cote d'Ivoire, Ghana, and Togo. In the coastal zone, the construction of a six-lane motorway is planned as part of the coastal east-west corridor development. In the final report of the project, it was recommended to formulate land use plans and development regulations in the coastal zone for monitoring the coastal environment, including lagoons, and implementing measures for environmental conservation in the implementation of the master plan. It was confirmed through the ex-post evaluation that this recommendation was implemented in accordance with the laws of each country.[24]

In addition, the project summary sheet of the high-priority projects contains a column describing the measures to be taken in case of negative socio-environmental impacts. The governments of each country plan the measures to mitigate negative socio-environmental impacts during the planning of the high-priority projects according to this form, and the

[24] Sources: interviews with the Ministry of Economy and Finance of Burkina Faso, two members of the Ministry of Economy and Finance of Côte d'Ivoire, and the Ministry of Development Planning of Togo.

implementation is based on the laws of each country.[25]

(2) Resettlement and land acquisition

As mentioned above, measures to mitigate negative environmental and social impacts have been taken in the implementation of the high-priority projects. No problems related to resettlement or land acquisition for the implementation of the project have been reported at present.

(3) Other indirect effects

With regard to high-priority projects, facility construction has been completed for one project as of now. It is too early to evaluate the impact of this high-priority project, as it just started operation in June 2021.

Through the implementation of this project, a plan that contributes to the correction of disparities and improvement of logistics within the region has been formulated and approved and a framework has been established (introduced) for the target countries to work together to implement the approved plan. Therefore, the effectiveness of the project is high. In terms of the overall goal, the concept of the proposed corridor development has been followed and each country has already updated its own high-priority projects. In addition, the initiation rate for implementation of high-priority projects is high, so the degree of achievement of the overall goal is high. Therefore, effectiveness and impact of the project are high.

3.3 Efficiency (Rating: ②)

3.3.1 Inputs

The planned and actual inputs for this project are shown in Table 9.

[25] Sources: interviews with the Ministry of Economy and Finance of Burkina Faso, two members of the Ministry of Economy and Finance of Côte d'Ivoire, and the Ministry of Development Planning of Togo.

Table 9 Plan and Actual of Inputs of the Project

Inputs	Plan	Actual
(1) Experts	Dispatch of study teams (14 sectors) (Total: 82 MM*)	Dispatch of study teams (17 sectors) (Total: 113.5 MM)
(2) Trainees received	One training course of about 2 weeks in Japan in the field of regional development	Training in Japan in the field of regional development was conducted from January 17 to 30, 2016, with 22 participants.
(3) Equipment	Not mentioned	Personal computers (2 desktops, 1 notebook), computer software, 2 color laser printers, 2 copy machines, 20 office chairs, 20 office desks
(4) Japanese Side Total Project Cost	Total 500 million yen	Total 690 million yen
(5) Inputs of the implementing agencies	1. Assignment of counterparts 2. Office for the JICA Study Team 3. Operational expenses necessary for the project implementation	As planned

* MM stands for man month.
Source: Prepared by the evaluator based on documents provided by JICA

3.3.1.1 Elements of Inputs

As for the dispatch of experts, 17 experts were dispatched at the time of implementation of the project, whereas 14 experts were planned to be dispatched at the time of planning. The difference between the plan and the actual results is due to the addition of experts in the fields of (i) water supply planning and water supply facilities, (ii) land use planning, and (iii) GIS analysis and data. In (i), the need to collect and analyze information on the investment promotion in urban water supply was recognized based on the trend of private-sector interest in Côte d'Ivoire after the start of the project, and therefore, a basic survey of the urban water supply sector in Côte d'Ivoire and the water supply-demand balance and future plans in Abidjan were conducted. In addition, for (ii) and (iii), Japanese private companies expressed interests in investing in the Abidjan–Lagos corridor at the Expanded ODA Task Force held in Abidjan in August 2015, and it was recognized that the Abidjan–Lagos corridor would be an important mobilizing force for the development of the West Africa Growth Ring Corridor. Inputs (ii) and (iii) were added because the spatial structure of the project would make it easier to attract investment to the target area. The additional inputs also produced outputs and were incorporated into the corridor development plan (e.g., the strategy to use the Abidjan–Lagos corridor as a starting force was put forward); the priority projects finally organized by the JICA Study Team included eight water-resource development plans for urban water supply in Cote d'Ivoire, four of which were identified as high-priority projects. Of the four high-priority projects, three have been completed and one

is expected to be completed in November 2021; one of the four is being implemented through private investment and one through a PPP. Thus, the additional inputs of the urban water supply study in Cote d'Ivoire produced outputs in the form of analysis of the support status for urban water supply and the supply–demand balance, as well as outcomes in the form of identifying priority projects that contribute to investment promotion. As a result, it also contributed to the impact of the project in terms of promoting the commercialization of priority projects and attracting private investment in the implementation phase.[26]

There is a lack of concrete description in the initial plan concerning the number of trainees received, transfer of equipment, and the inputs by the implementing agencies; hence, comparing the plan and the actual outcome is difficult. However, it was confirmed that the inputs necessary for the implementation of the project were provided.

3.3.1.2 Project Cost

The actual project cost was 690 million yen, compared to the planned 500 million yen (138% of the plan). The main reason for the difference between the planned and actual results was that the scope and survey components were added to the plan.

3.3.1.3 Project Period

The project period was 18 months (May 2015 to October 2016) at the time of planning, but the actual period was June 2015 to March 2018 (34 months). The project has undergone eight contract amendments. The project period was calculated according to the reference of the ex-post evaluation of JICA,[27] and the plan and actual results were compared. Specifically, the addition of the survey related to "Output 2: Data and information of various sectors attracting investment at national, regional, and international levels are compiled and analyzed" by the contract amendment in January 2017 contributed to the promotion of investment, which is the project's overall goal.[28] After comparing the planned period (24 months) with the actual period (34 months), the project period exceeded the plan (136% of the plan).

Based on the above, the project cost and project period exceeded the plan. Therefore, the project's efficiency is fair.

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[26] Source: Responses to questionnaire by the Ministry of Economy and Finance of Cote d'Ivoire

[27] The project period calculation in the ex-post evaluation is based on JICA's ex post evaluation reference: "If the project period or project cost is increased or decreased due to changes in the project scope, the evaluation is not based on the actual results of the increase or decrease. In the case of a change in the component, if the change is found to be appropriate based on the consistency with the project objectives, the planned value after the change is used for comparison with the actual value.

[28] See "3.3.1 Efficiency 3.3.1.1 Elements of Inputs"

3.4 Sustainability (Rating: ②)

3.4.1 Policy and Political Commitment for the Sustainability of Project Effects

UEMOA's *Regional Economic Program for UEMOA III (2017–2021) (Programme Economique Régionale pour l'UEMOA III [2017–2021])* has not been adopted as of November 2021. Therefore, the policy at the time of the project's completion, PERII, described in the "3.1 Relevance 3.1.1 Consistency with development policies," is maintained as a valid policy, and its policy sustainability is ensured. In addition, the UEMOA Commission website has a site called "*Projets CACAO*,"[29] which includes a video introducing the 2019 roundtable and project summary sheets of 114 high-priority projects. The UEMOA Commission has appealed its efforts externally to promote corridor development proposed in the project. Furthermore, on October 1, 2021, the DATC of the UEMOA Commission hold a roundtable conference on *Regional Economic Development Plan 2021–2040 (le Shéma de Déxveloppement de l'Espace Régional [SDER], adopted in September 2020).* In the conference, the UEMOA Commission emphasized the importance of the master plan proposed in the project and mentioned that *the SDER* and the implementation of high-priority projects in the project will be carried out in parallel. At the time of the ex-post evaluation, it can be concluded that the sustainability of the political commitment in the project is ensured, given that the UEMOA Commission continues to lead the implementation of the proposed master plan since the implementation of the project.

In addition, the Assembly of Heads of State and Government of the African Union, at its 34th Ordinary Session on February 7, 2021, adopted a strategy document related to the second phase of *the Programme for Infrastructure Development in Africa (PIDA-PAP2). PIDA-PAP2* is the development of an integrated corridor approach for infrastructure development in Africa. The integrated corridor approach in this context is a multi-infrastructure corridor approach to infrastructure development that works toward a prosperous Africa with projects that maximize job creation and climate friendliness. This approach contributes to the integration of the African continent by focusing on projects that improve linkages between urban and rural areas and interconnect infrastructure, thereby creating synergies between sectors.[30] Thus, the concept of PIDA-PAP2, which aims at connectivity and synergies between urban and rural areas, is consistent with the approach to economic development of coastal and inland areas by "pressing the four buttons simultaneously," as promoted by the project.

For Ghana, the *Coordinated Programme of Economic and Social Development Policies*

[29] http://www.uemoa.int/fr/plan_directeur-de-l-amenagement-des-corridors-pour-l-anneau-de-croissance-en-afrique-de-l-ouest

[30] Source: The Integrated Corridor Approach - "A Holistic Infrastructure Planning Framework to establish PIDA-PAP 2 Strategic Note", p7-8)

2017–2024, which is a high-level policy already mentioned in 3.1.1 Consistency with Development Policies, was still in effect at the time of the ex-post evaluation, and its policy sustainability is assured.

As previously shown, the UEMOA Commission and Ghana have maintained the same policy, emphasizing corridor development at project completion. *PIDA-PAP2* has emphasized an integrated corridor approach that emphasizes sustainability, inclusiveness, and rural connectivity. Furthermore, the UEMOA Commission is politically leading the implementation of the master plan, and policy and political commitment for the sustainability of project effects is high.

3.4.2 Institutional/Organizational Aspect for the Sustainability of Project Effects

The project's implementation was carried out within two frameworks by the UEMOA commission and the government of Ghana (see Figure 2). At project completion, the operation and management of the master plan was to be conducted as one framework led by UEMOA commission instead of two frameworks, as shown in Figure 8.

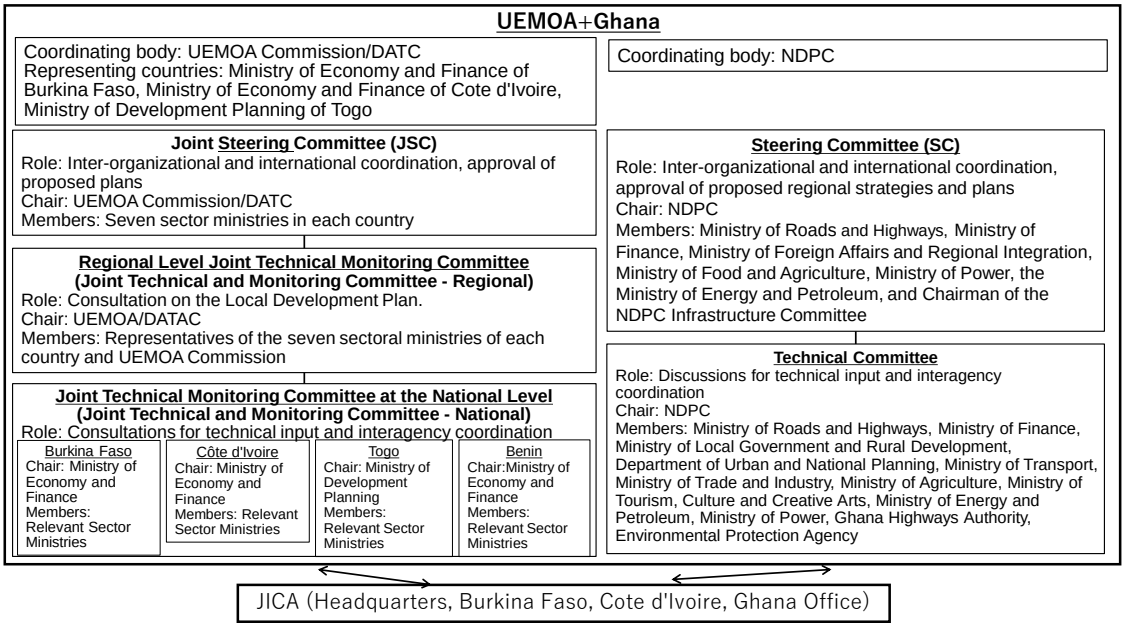


Figure 8 Implementation and Operation System at the Time of Ex-Post Evaluation
Source: Prepared by the evaluator based on the interview with concerned parties

The DATC of the UEMOA Commission played a central role during the project implementation, and a counterpart personnel and another staff member of the DATAC assigned after the project's completion are coordinating the target countries in the implementation of the high priority projects. BOAD, an independent agency of the UEMOA, is also playing a leading role in mobilizing funds.

JICA is also supporting the implementation of high-priority projects at the field level on a continuous basis by dispatching an expert to the UEMOA Commission from 2021 and a wide-area project formulation advisor to JICA Côte d'Ivoire office from 2020.

Under this structure, various meetings have been held.

- Steering Committee: The committee is supposed to meet once a year. It met in 2019 in parallel with the roundtable, but the committee did not meet in 2020 due to COVID-19.[31]
- JTMC-Regional: The UEMOA Commission organized the JTMC-Regional in July 2021. Four UEMOA member countries (Burkina Faso, Benin, Côte d'Ivoire, and Togo, except Ghana), BOAD, and JICA, participated in the meeting, during which the progress of high-priority projects and mobilization of funds were shared and challenges and future approaches were discussed. With regard to Ghana, the UEMOA Commission had prepared an invitation, but ultimately, Ghana was not able to participate because of a lack of timely procedures. Due in part to insufficient participation in the meeting, the progress on Ghana's high-priority projects has not been shared with the UEMOA Commission and the other four countries.

Since Ghana is an English-speaking country and the language is different from the French-speaking countries that are members of UEMOA, so it is necessary to be creative in order to share information and have active discussions among target countries, the UEMOA Commission requested JICA to provide logistical support, such as simultaneous interpretation and translation of materials. Ghana is expected to participate in the JTMC-Regional in December 2021. The DATC of the UEMOA Commission is well aware that the corridor cannot be developed without all participating countries, a sentiment that is shared by all of the French-speaking countries under its umbrella.[32]

With regard to Ghana during implementation, the Ministry of Planning was established after the change of government in January 2017, and the coordinating responsibility for the project was transferred from the NDPC to the Ministry of Planning. At that time, the Ministry of Planning, which had just been established, did not function adequately as a coordinating body, and NDPC continued to play a secretarial role. Subsequently, the Ministry of Planning was abolished in January 2021, and the coordinating responsibility reverted to the NDPC. However, it was confirmed that meetings and information sharing were not sufficiently conducted due to the frequent changes in the structure and the lack of a functioning

[31] Source: Interview with the DATC of the UEMOA Commission
[32] Source: Interview with JICA advisor to the UEMOA and discussion in the JTMC-Regional meeting in July 2021.

coordinating body. Compared to the other three countries, the system for monitoring high-priority projects seems somewhat weak.

From the above, as well as during implementation, information sharing between the UEMOA Commission and the four member countries (Burkina Faso, Benin, Cote d'Ivoire, and Togo) was confirmed at the initiative of the UEMOA Commission, but Ghana, which is not a member of UEMOA, was not able to attend the meeting since the invitation to the meeting was not sent in time due to the procedures of the UEMOA Commission. At the time of the ex-post evaluation, the progress of Ghana's high-priority projects has not been shared with other countries. In addition, although Ghana is expected to participate in the next technical monitoring meeting with the support of JICA, it cannot be said that a system has been established to enable information sharing among all target countries, even when JICA's support is no longer available. In this regard, institutional and organizational aspects for the sustainability of project effects is judged to be fair.

3.4.3 Technical Aspect for the Sustainability of Project Effects

As previously mentioned, after the project's completion in 2018, the UEMOA Commission and the four target countries updated the list of priority projects in 2019, without any technical assistance from other donors, to hold a roundtable for fund mobilization. The "Project Summary Sheet" used in this update had a column to indicate which of the four buttons and 10 key strategies the high-priority projects correspond, which are the concepts of the regional development strategy proposed by the project, and which sector ministry officials prepared the project summary sheet with the regional development strategy proposed by the project in mind.

Although it is believed that the concerned parties have understood the regional development strategy and have updated the priority projects by themselves, the following issues were found in the monitoring of the high-priority projects.

- In the JTMC-Regional, the monitoring format is not unified, and some monitoring information submitted by each country showed the project progress rate in figures, while others showed qualitative information. Furthermore, the currency units and digits were not unified, such as for the mobilized funds. In this regard, it is difficult for a third party to grasp the progress.
- In addition, there seemed to be a lack of analysis regarding project progress for each Button or corridor, nor was there a bird's eye view of how much overall progress contributed to corridor development.

Therefore, it can be concluded that the implementing agencies have the necessary skills

to sustain the emerging effects in terms of updating the necessary priority projects in line with the regional development strategy. However, there has been no monitoring to analyze the corridor development plan's status in terms of "regions" after tracking the progress of each of the four buttons. Because of the issues in the monitoring method, the technical aspect for the sustainability of project effects was judged to be fair.

3.4.4 Financial Aspect for the Sustainability of Project Effects

Initially, the ex-post evaluation was planned to evaluate financial sustainability based on government budgets dedicated to high-priority projects in the UEMOA Commission and target countries, as well as investment budgets for the past three years, but there were no budgets dedicated to high-priority projects. Therefore, the ex-post evaluation confirmed the extent to which funds necessary for the implementation of high-priority projects have been secured at the time of ex-post evaluation. However, due to the inaccuracy of the information on funds submitted at the technical monitoring meeting in July 2021, the evaluation focused on the number of projects that have secured funds and their future prospects, as described below.

(1) Financial Support by BOAD

At a roundtable held in July 2019, BOAD expressed financial support of 1 trillion FCFA (approx. 201.5 billion yen[33]). The private sector also expressed interest in implementing high-priority projects and pledged financial support of 352 billion FCFA. The 1 trillion FCFA originally to be financed by BOAD will be financed by (1) public and private funds (500 billion FCFA) and (2) PPP (500 billion FCFA for 15 projects). These can be evaluated as a result of the UEMOA commission and target countries' efforts to encourage donors and the private sector to provide financial support.

(2) Mobilization of Funds in Each Country

The status of fund mobilization for the implementation of high-priority projects as of July 2021 is as follows.

[33] 1 FCFA = 0.2 JPY

Table 10 Mobilization of Funds by Country

country	Situation
Burkina Faso	Of the 27 high-priority projects, 12 have been funded, are in discussion with donors, have received funding commitments, or are in the bidding process. It can be concluded that a certain level of funding has been secured. Among the remaining projects, six projects have not started feasibility study (F/S); two projects are in the process of F/S; and seven projects have not secured funding sources and are looking for funders.
Côte d'Ivoire	Of the 42 high-priority projects, 11 projects have been funded and are in the process of implementing construction works; 11 projects have not yet started or are undergoing F/S; and 20 projects are looking for funding sources. Reasons for the delay include the delay of the Identification Mission by BOAD scheduled for October 2020, due to the presidential election, and the delay in the prequalification of PPP projects.
Ghana	Eight of the 13 projects have been funded, and the construction work is underway.
Togo	Of the 15 projects, nine have been funded. Among the funded project, one is in the bidding process; seven are under construction works; and construction work was completed for one project. No progress has been made in the procedure from the government of Togo to BOAD regarding the advance payment of funds for the study and PPP conversion.
Benin	Eight out of 10 F/Ss have been completed. One project's F/S is under implementation, and one has not been started. One of the projects, for which F/S has been completed, will be implemented by PPP with financial support from BOAD. The BOAD mission will be implemented in October–November 2021, despite the delay in discussions between BOAD and the government of Benin.

Source: Prepared by the evaluator based on documents provided by the implementing agencies

As previously mentioned, the delay in F/S and the delay in BOAD's review missions to governments have affected the mobilization of funds. In this context, it was a positive sign that the UEMOA Commission and BOAD organized a joint mission to tour four French-speaking countries in October–November 2021 to facilitate the mobilization of funds. However, in view of the number of projects for which funding sources have not yet been secured, it is recommended that the surveys of projects without previous studies be completed as soon as possible to determine the necessary funding. Furthermore, roundtables should be held, and development partners and private companies approached to secure funding sources.

Although the mobilization of funds has been delayed, commitments of financial support have been obtained from development partners through the 2019 roundtable, and BOAD continues to provide close financial mobilization support to the four French-speaking countries. In this regard, the financial aspect for the sustainability of project effects is judged to be fair.

Some minor problems have been observed in terms of the institutional/organizational,

technical, and financial aspects. Therefore, the sustainability of the project effects is fair.

Box 2: JICA's Role and Contribution in Motivating the Stakeholders before and during the Project Implementation

It was confirmed that the UEMOA Commission led other countries during the implementation and the ex-post evaluation and maintained the target countries' motivation for corridor development. This was probably because the Japanese side often encourage the UEMOA Commission to take the lead in the formulation and implementation of the master plan before the project's implementation. In February 2015, immediately after the R/D of the project was concluded, JICA invited the director of UEMOA/DATC, the director of land transport and ports, and the director of regional land and transport development to Japan for training. As a result of the visit, (1) Before the start of the project, the director of UEMOA Commission, the chief cabinet secretary, and the director of UEMOA/DATC were able to understand the contents and implementation system of the project, and the commitment of the director of UEMOA/DATC was directly obtained. (2) By directly observing the current status of Japan's infrastructure in terms of hardware and software, their trust and expectations to the master plan to be formulated by JICA were raised. (3) Officials of the UEMOA Commission were motivated by the opportunity to meet directly with JICA's key stakeholders, including JICA board members.[34] This was probably due to the efforts of JICA's advisor on infrastructure dispatched to UEMOA.

Going back further, JICA dispatched an infrastructure advisor to UEMOA in 2011, held a policy dialogue for UEMOA member countries hosted by the Ministry of Finance of Japan in 2012 with the directors general of the member countries' customs bureaus, dispatched two customs experts to UEMOA in 2012, and held a meeting between the president of JICA and the president of UEMOA at UEMOA headquarters in March 2013. In June 2013, the "Japan–UEMOA High Level Seminar on Customs Cooperation" was jointly organized by UEMOA, JICA, and the Customs Bureau of the Ministry of Finance of Japan in Burkina Faso. Thus, the relationship between JICA and UEMOA is deep. During the project's implementation phase, an infrastructure advisor was stationed at UEMOA and was trusted by the high-level staff of UEMOA, which is said to have been a factor in gaining UEMOA's commitment.[35]

In addition, the two-week training program in Japan in January–February 2016 was attended by high-level counterparts from the four countries and the UEMOA Commission, and provided an opportunity for the countries and institutions to discuss the direction of regional development strategies. In addition, the JICA Survey Team has strongly emphasized the importance of formulating a single plan for the target countries since the

[34] Source: Documents provided by JICA
[35] Source: Answers to questionnaire by the JICA Study Team

beginning of the project.[36] This awareness remains at the time of the ex-post evaluation, and the target countries are strongly aware of the importance of multi-country collaboration.[37]

In addition, this project was implemented under the UEMOA Commission and the government of Ghana, and although coordination was difficult, the JICA Ghana office played an important role by acting as a liaison and coordinator between the two entities.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project was implemented to identify development potentials and bottlenecks in corridor transportation in four international corridors spanning the WAGRIC region, and to formulate regional development strategies and corridor development plans that will lead to balanced economic development between coastal and inland areas.

The implementation of this project was consistent with the development policy of the implementing agencies, which emphasized economic growth in the target area from the perspective of corridor development. While development issues such as high transportation costs, low agricultural productivity, and economic disparity between coastal and inland areas were identified in the target areas, potential was recognized in terms of high population and economic growth. In this regard, there was a need to develop regional development strategies and corridor development plans that would lead to balanced economic development throughout the region. In addition, the implementation of this project was fully in line with Japan's ODA policy, which emphasized the promotion of regional integration and the development of wide-area transportation corridors in West Africa. Therefore, the relevance of the project is high. Through this project's implementation, a plan that contributes to the improvement of disparities and logistics within the region was formulated and approved. In addition, a system was established (introduced) in which the four target countries work together to implement the approved plan. Therefore, the effectiveness of the project is high. Moreover, the target countries have followed the concept of corridor development proposed by the project, and each country has updated its own High-priority projects after the completion of the project. Since the initiation rate of priority projects is high, the degree of achievement of the overall goal is also high, and the effectiveness and impact of these projects are high. Since both the project cost and period exceeded the plan, efficiency of the project is fair. In terms of sustainability, while policy and political commitment have been secured, some minor problems have been observed in terms of the organizational, technical, and financial aspects. Therefore, sustainability of the project effects is fair.

[36] Source: Answers to questionnaire by the JICA Study Team
[37] Source: Interview with the JICA advisor to the UEMOA

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

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

(1) Recommendations to the UEMOA Commission and other target countries: Establishment of a Mid- to Long-term Efficient and Effective Monitoring Mechanism

It is highly evaluated that the UEMOA Commission is leading the four member countries in the implementation of the 114 high-priority projects approved in 2019. However, although the UEMOA Commission was preparing to invite the government of Ghana to the technical monitoring meeting in July 2021, the internal procedure of the UEMOA Commission could not be completed in time, and the four countries other than Ghana, the UEMOA Commission, and BOAD participated in the meeting. At the meeting, the progress and issues of high-priority projects were shared, and active discussions were held among the participants. Nonetheless, the progress of Ghana's high-priority projects was not shared among the target countries because Ghana's participation was not realized. In this respect, one piece is missing in the monitoring of the entire corridor development. The UEMOA Commission must continue its efforts to involve Ghana and to remain aware of the need to work with the government of Ghana to implement the master plan.

With this in mind, the UEMOA Commission has already requested that JICA provide logistic support for Ghana's participation in the meeting, and the cost of interpretation and translation will be supported for the technical monitoring meeting expected for December 2021. In the future, it may be necessary to include logistics costs in the UEMOA Commission's budget to conduct the meeting without JICA's support.

It is also commendable that monitoring meetings are held and progress is shared among the concerned parties. However, the monitoring format is not unified, and although the status of each country is shared, the progress (i.e., project's progress rate and funding status) as a whole and for each Button are not aggregated and analyzed. As a result, the monitoring does not provide an overall overview of whether the implementation of the master plan is linked to economic development in the target areas. To promote the mobilization of funds from external investors in the future, an information database should be developed, in which progress can be grasped by each button and information analyzed for efficient progress management and master plan improvement. The introduction of a unified format will also make it possible to share information among countries without resorting to meetings. To achieve this, the UEMOA Commission should take the lead in considering the introduction of a unified reporting format and database, and each country should use the unified format to collect accurate information and data periodically.

4.2.2 Recommendations to JICA

(1) Recommendations to the JICA Ghana Office

For the collaboration between the UEMOA Commission and the government of Ghana, the support of the JICA Ghana Office is also essential, just as it was during the project's implementation. Whenever technical monitoring meetings, roundtables, and other meetings are held, the JICA Ghana office should approach the NDPC focal points to encourage concerned parties within the government of Ghana to participate in these meetings.

(2) Recommendations to the Advisor to UEMOA

With regard to the aforementioned establishment of a mid- to long-term efficient and effective monitoring mechanism, it is desirable that a monitoring format is introduced and database maintenance should be provided during the dispatch period of the UEMOA expert.

4.3 Lessons Learned

Project Implementation and Monitoring after Project Completion in the case of Working with Multiple Countries or Independent Agencies as Counterpart Organizations

The project's R/D was concluded between JICA and two institutions respectively (i.e., the UEMOA Commission and the government of Ghana), and the project was implemented under two frameworks with different languages. The recommendations in the project's final report were compiled on the assumption that the proposed master plan would be implemented under the leadership of the UEMOA Commission. However, no specific assumptions or actions related to the trial were confirmed as to how the UEMOA Commission and the government of Ghana would actually continue high-priority projects and monitor them as a unified line after completion.

Thus, for projects that have multiple independent organizations as C/Ps from the beginning, a simulation should be conducted, before the project's completion, to determine what kind of framework will be used by the organizations to continue project and then monitor it after completion.

Republic of Indonesia

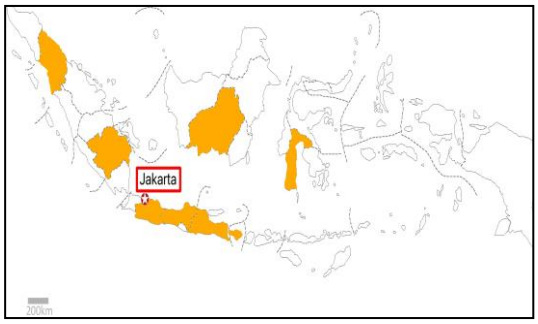
FY2020 Ex-Post Evaluation Report of Technical Cooperation Project:
"The Project of Capacity Development for Climate Change Strategies"

External Evaluator: Mayumi Hamada
Foundation for Advanced Studies on International Development

0. Summary

This project was implemented to strengthen the capacity of the key ministries and the local governments concerned to formulate climate chan e policies and develop information administration as its foundation, by enhancing the capacities to incorporate mitigation and adaptation actions into the national development plan, practice the adaptation actions in agriculture and other sectors, and develop the Greenhouse Gas (hereinafter referred to as GHG) Inventory in Indonesia. The project sufficiently corresponded with the Indonesian development policy, which aimed at promoting climate change measures, and development needs, such as reducing a large amount of GHG emissions from the planning stage to project completion, as well as the Japan's ODA policy to promote "environment conservation and disaster prevention" at the time of planning. Thus, the relevance of the project is high. The achievement of the Outputs by project completion was high in all Sub-projects (SPs), while the achievement of the Project Purpose was high because the indicators of the Project Purpose were achieved in all the SPs. The achievement of the Overall Goal was high, because the achievement of the objective to eliminate GHG emissions and so on was high. The continuation of the Outputs and the Project Purpose after project completion until the ex-post evaluation has been high. Other positive impacts have been confirmed. Therefore, the effectiveness and impacts are high. Whereas the project's duration was just as planned, the project cost exceeded the plan. Hence, the project has fair efficiency. No problems have been observed in the policy background or in the institutional/organizational and financial aspects, and the sustainability in the technical aspect is mostly high. Therefore, sustainability of the project effects is high. In light of the above, this project is evaluated to be highly satisfactory.

1. Project Description



Project Locations

Farmland for which crop insurance was paid (Jombang Regency, East Java Province)[1]

1.1 Background

Indonesia's total national GHG emissions were the third highest in the world[2] in 2006, when CO2 emissions from deforestation and deterioration of peatland and so on are included. With economic growth increasing in the future, further increase of GHG emissions was also concerned. In 2020, the government of Indonesia set a goal to reduce GHG emissions unilaterally by 26% compared to business as usual (BAU), and it submitted to the United Nations Framework Convention on Climate Change (UNFCCC) secretariat seven actions to achieve the goal as the Unilateral Mitigation Action Plan. However, the specific process for the actions and its effect of reducing GHG emissions was not clarified. The development of the nationally appropriate mitigation actions (NAMAs) in a measurable, reported, and verifiable (MRV) manner was still a challenge. Furthermore, the change in annual rainfall pattern, which is considered a result of global warming, became significant in Indonesia. It was pointed out as necessary to mainstream the concept of mitigation of climate change into the national and the local level development plans because there was concern that escalation of disasters resulting from future climate change would become a significant risk factor that could jeopardize the country's sustainable development. Under these circumstances, four new technical cooperation projects were officially requested for assistance in relation to the climate change measures. This project was implemented by integrating three of them as SPs under one technical cooperation project[3].

[1] Terminal Evaluation Report (photo taken in May 2015)
[2] Indonesia's Greenhouse Gas Abatement Cost Curve (Dewan Nasional Perubahan Iklim) (2010)
[3] The rest of the requested projects (a technical cooperation project for promoting Program CDM in Energy-self-sufficient villages) still had some issues in implementing structure and technical capacity. Thus, it was agreed with Coordinating Ministry of Economic Affairs (EKUIN) at the detailed plan formulation study to re-examine specific contents by implementing necessary feasibility study after commencement of this project.

1.2 Project Outline

The project outline is shown below.

Table1: Project Outline

Overall Goal		Mitigation and adaptation actions for climate change are promoted in Indonesia.
Project Purpose		Capacity of the key ministries and local governments concerned of the Government of Indonesia to formulate climate change policies based on the sound information and approaches is developed.
Outputs	Output 1	**Sub-project 1** (hereinafter referred as SP-1): Capacity enhancement to mainstream mitigation and adaptation actions **Output 1-1** The capacity to formulate mitigation actions in a monitored, evaluated, and reported manner in the pilot sector(s) or sub-sector(s) **Output 1-2** Enhanced capacity to formulate adaptation action plans, integrate adaptation into development planning, and monitor, evaluate, and report on the progress of adaptation **Output 1-3** Conducted the background study of the *National Mid-term Development Plan* (*Rencana Pembangunan Jangka Menengah Nasional*, hereinafter referred to as *RPJMN*) *2015-2019* for the relevant sectors (1) Food and Agriculture, 2) Marine and Fishery, 3) Forestry and Water Resources Conservation, 4) Energy, Minerals and Mining, 5) Environmental Affairs) is conducted and its reports are utilized for the formulation of *RPJMN* 2015-2019
	Output 2	**Sub-project 2** (hereinafter referred to as SP-2): Capacity enhancement to actually practice adaptation actions **Output 2-1** Capacity of analysis on climate variability and change and of its communication is enhanced at Indonesian Agency for Meteorology, Climatology, and Geophysics (hereinafter

		referred to as BMKG). **Output 2-2** Climate change adaptation by farmer communities is practiced to secure rice production. **Output 2-3** Comprehension of the importance of crop insurance in agricultural protection is improved among stakeholders.
	Output 3	**Sub-project 3** (hereinafter referred as SP-3): Capacity enhancement to develop GHG Inventory **Output 3-1** National system for preparing national GHG inventories is designed. **Output 3-2** Capacity to periodically and systematically manage data necessary for national GHG inventories is enhanced. **Output 3-3** Understanding on accuracy, transparency and reliability of GHG inventories is improved for each sector (energy; industrial processes; agriculture; land use, land-use change and forestry [LULUCF]; and waste) among key ministries and local governments.
Total cost (Japanese Side)		1,493 million yen
Period of Cooperation		October 2010 – October 2015 (5 years and 0 months)
Target Area		Entire area of Indonesia
Implementing Agency		The National Development Planning Agency (hereinafter referred to as BAPPENAS), BMKG, Ministry of Agriculture (hereinafter referred to as MOA), Ministry of Environment and Forestry[4] (hereinafter referred to as KLHK)

[4] It was Ministry of Environment (KLH) at project commencement. Due to reorganization in 2015, however, it was merged with Ministry of Forestry, and became KLHK. In order to avoid confusion, the terminology 'KLHK' was used consistently in this report, except when it is necessary to distinguish the two.

Other Relevant Agencies/ Organizations	Local governments (the provinces and so on in the pilot area)[5]
Consultants	- Mitsubishi UFJ Research and Consulting Co., Ltd. - SUURI-KEIKAKU Co., Ltd. - Japan Meteorological Business Support Center
Related Projects	**Japanese ODA Loan** - Climate Change Programme Loan (CCPL) (Phase 1: 2008; Phase 2: 2009; Phase 3: 2010) **Technical Cooperation** - The Project of Capacity Development for Climate Change Strategies Phase 2 (May 2019 – May 2022) - Capacity Development Assistance for Low Carbon Development (June 2014 – December 2017) - Project of Capacity Development for Green Economy Policy (September 2013 – September 2015) - Project for Capacity Development for the National Focal Point on Climate Change to Enhance the Implementation of Climate Change Policies (December 2012 – December 2014)

[5] The pilot area of this project is as follows. SP-1: [Mitigation] South Sumatra Province, North Sumatra Province, West Kalimantan and Province [Spatial Planning] North shore of Java Island, Bengawan solo River watershed, Southern coast of Sulawesi Island SP-2: [Vulnerability Assessment] Bali Province, [Dissemination of weather information to farming communities (TOT, TOF)] East Java Province, West Java Province, Central Java Province, South Sulawesi Province [Crop Insurance] East Java Island SP-3: [GHG Inventory in the waste area] South Sumatra Province, North Sumatra Province, and East Java Province.

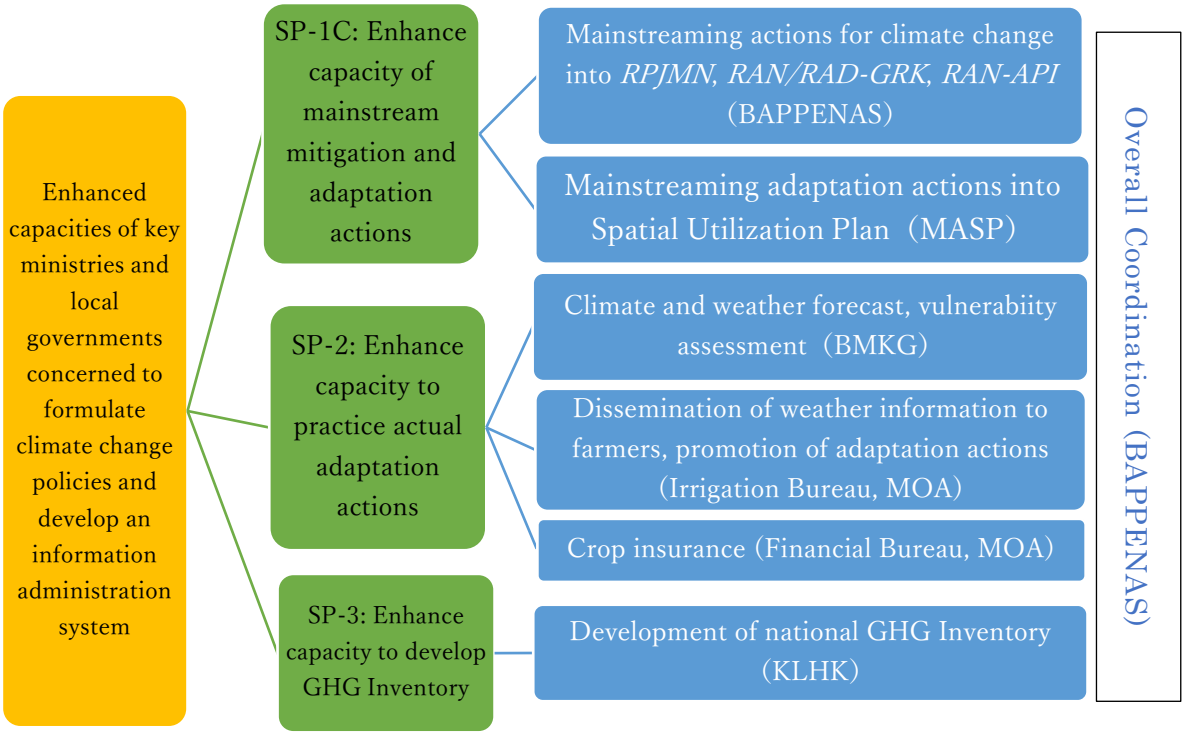


Fig. 1. The Project Overview and the Ministries in Charge

Source: Produced by the evaluator based on the Final (Terminal) Evaluation Report (p6)

1.3 Outline of the Terminal Evaluation

The overview of the terminal evaluation result is as follows.

1.3.1 Achievement Status of Project Purpose at the Terminal Evaluation

The Project Purpose was evaluated as having almost been achieved because most of the indicators for the Project Purpose in each SP were achieved by the time of terminal evaluation. More specifically, in SP-1, the project supported each region's formulation of the *Regional Action Plan for GHG Emissions Reduction* (hereinafter referred to as *RAD-GRK*) based on *the National Action Plan for GHG Emissions Reduction* (hereinafter referred to as *RAN-GRK*). In addition, it supported the formulation of *the National Action Plan on Climate Change Adaptation* (hereinafter referred to as *RAN-API*). In SP-2, the result of the vulnerability assessment conducted by BMKG was shared among the stakeholders, and the training program to train the farming community on adaptation actions was developed. Furthermore, the technical guideline of crop insurance was developed and utilized. In SP-3, the GHG Inventory for 2008 was developed in 2013, and the GHG Inventory for 2010 to be utilized for the Biennial Update Report (hereinafter referred to as BUR) was finalized.

1.3.2 Achievement Status of Overall Goal at the Terminal Evaluation (Including Other Impacts)

With regard to the achievement of the indicators of the Overall Goal, it was indicated that some positive factors were confirmed, although difficulty was indicated in assessing the achievement of the Overall Goal at the time of the terminal evaluation. Specifically, improvement was observed in the reduced amount of CO2 emissions from 2010 to 2013 in the sectors of energy, transport, waste, and agriculture. It was pointed out that the reduction of GHG emissions in 2013 compared with the target value for 2020 was 33.3%. In addition, it was indicated that the formulation of *RAD-GRK* was completed in 33 regions in the country through the project's support of the *RAN-GRK* secretariat.

1.3.3 Recommendations from the Terminal Evaluation

The following recommendations were made in the terminal evaluation.

(1) Recommendations by the project completion

It was recommended to ensure a steady implementation of the remaining activities shown in Table 2.

Table 2: Recommendations by the project completion

SP-1	● Updating the online Monitoring, Evaluation and Reporting (MER) system of *RAN-GRK* and *RAD-GRK* ● Policy recommendations (concept note) for mainstreaming *Regional Action Plan on Climate Change Adaptation* (*RAD-API*) into the development plan ● Development of the Spatial Planning Guideline
SP-2	● Implementation of a national training workshop for capacity development on downscaling[6] ● Finalization of training guideline for farmers ● Development of a roadmap for crop insurance
SP-3	● Additional surveys to improve activity data and develop local emission factors specific for respective local areas in the waste field ● Finalization of policy recommendations for the national GHG Inventory

Source: Terminal Evaluation Report (p36)

[6] Downscaling means spatial refinement. Phenomena in small-scale areas (several kilometers) such as extremely hot temperature and rainfall, or detailed landscape are difficult to be replicated with the resolution (approximately 100 km) of the Global Climate Models, which are utilized for climate change studies. Therefore, it is necessary to show spaces in detail by using the technique named downscaling (Web page, Climate Change Adaptation Information Platform https://adaptation-platform.nies.go.jp/materials/e-learning/study/el-glossary_04.html?font=standard, accessed on November 5, 2021).

(2) Recommendations after the project completion

1) Disseminating the pilot activity results to other areas (Dissemination to the other areas by utilization of the guidelines and manuals developed, which compiled recommendations and lessons learned through the pilot activities)

2) Further strengthening of the organizations and coordination for promoting climate change measures (maintaining collaborative relationships, strengthened by the project, with the related ministries, agencies, and other organizations in the climate change measures, which requires a cross-cutting approach)

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 according to the following schedule:

Duration of the Study: December 2020 – January 2022

Duration of the Field Study: May 20, 2021 – November 20, 2021 (implemented through a local consultant)

2.3 Constraints during the Evaluation Study

Due to the prevalence of COVID-19, the planned first and second field surveys had to be cancelled and switched to remote information collection through the local consultant, while the evaluation analysis was conducted by the evaluator in Japan. The local stakeholders increasingly began to work at home, resulting in more time being needed to make appointments for offline meetings, and thus it took more time than it normally would have. When the local stakeholders were available, online interviews were conducted by the evaluator and the local consultant to collect information. Sometimes, the deterioration of internet access limited the amount of information collected. In addition, setting other opportunities for the local consultant to have offline interviews was necessary. Consequently, more days were required.

3. Results of the Evaluation (Overall Rating: A[7])

3.1 Relevance (Rating: ③[8])

3.1.1 Consistency with the Development Plan of Indonesia

At the time of planning, *RPJMN (2020-2014)* indicated the voluntary objective of

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

[8] ③: High, ②: Fair, ①: Low

reducing GHG emissions by 26% compared with BAU in 2020 (the objective was set in 2009). *The Indonesian Climate Change Sectoral Roadmap* (*ICCSR*) was formulated in March 2010 and was established to be utilized as the guiding principle for reducing GHG emissions by 26% compared with BAU by 2020 to cope with the influence caused by climate change in advance by strengthening the collaboration among the central ministries and related organizations.

In addition, *Presidential Regulation No.61/2011 on the National Action Plan for GHG Emission Reduction (RAN-GRK)* was issued in September 2011, which mandated the formulation of *RAD-GRK*. Furthermore, *Presidential Regulation No.71/2011 on the National GHG Inventory*, also issued in October 2011, presented the principle by which to develop a GHG Inventory at the national and local levels (province, regency, and city). In the *RPJMN (2015-2019)*, strengthening spatial planning and introducing crop insurance were indicated in addition to the implementation of *RAN-GRK* and *RAN-API* upon the achievement of project outputs. Moreover, in relation to the crop insurance of SP-2 (Output 2-3), promotion of insurance and its government support was stipulated in *Law No.19/2013 on the Protection and Empowerment of Farmers* (August 2013).

Based on the above, the project's direction to aim at promoting climate change measures was consistent with the Indonesian policy from the planning stage to project completion.

3.1.2 Consistency with the Development Needs of Indonesia

At the time of planning, total national GHG emissions in Indonesia were the third largest in the world when CO2 emissions from forestry and deforestation of peatland and so on are included. With economic growth increasing in the future, higher CO2 emissions were a concern. In addition, the change in the pattern of annual rainfall became significant in Indonesia affected by global warming. In the area south of the equator especially, the increased risk resulting from climate change (e.g., longer dry season, less rainfall, shorter rainy season, and more intense rainstorms) was predicted, which was concerned about leading to economic stagnation and increased poverty.

At the time of project completion, the same concern at the planning stage was also observed in relation to the problem of GHG emissions and their increase in the future. There was no change in Indonesia's vulnerability to climate change from the planning stage to project completion[9]. Thus, this project, which aimed to enhance the capacity of the key ministries of the Indonesian government as well as local governments for the sake of promoting mitigation and adaptation actions, matched the development needs of Indonesia.

[9] Questionnaire to BAPPENAS

3.1.3 Consistency with Japan's ODA Policy

At the time of planning, the *Country Assistance Program for Indonesia* (2004) document by the Ministry of Foreign Affairs set forth three key objectives. One of them was "the creation of a democratic and fair society," for which assistance to improve "environmental preservation and disaster prevention" were emphasized. Hence, this project, which intended to enhance the Indonesian government's capacity to take climate change measures, matched the Japan's ODA policy at the time of planning.

3.1.4 Appropriateness of the Project Plan and Approach

At the planning stage, JICA selected three projects out of the four technical cooperation projects requested, excluding one, with which some problems remained in terms of technical aspects and implementing structure. Each project was positioned as an SP, and three SPs were integrated into one technical cooperation project. The reason given was that each project was connected to each other, and synergetic effects were expected by implementing them in an integrated manner[10]. Although it was pointed out that implementing this project required a high degree of time and effort in its coordination, some indicated the merits. For example, they indicated that much more information was shared with the implementing organizations more quickly, and a close collaborative relationship with the implementing organizations was established because of it, in addition to cost reduction of coordinating the dispatch of experts and so on, compared with the case in which each project was implemented separately[11]. Moreover, all of the SPs' contents (i.e., collection and provision of accurate data by developing the GHG Inventory, enhancement of technical analysis capacity such as vulnerability assessment, and policymaking and mainstreaming of modification and adaptation actions) are regarded as indispensable for promoting climate change measures.

On the other hand, as explained later in the section of Effectiveness, there is a gap in the logic between the Project Purpose and the Outputs in the Project Design Matrix (PDM) of this project. The Project Purpose rephrased the entire expression of Outputs differently, and the Project Purpose was not set clearly. This might have happened because the integration of the three projects came first, and the planning did not begin from thinking of the specific objective to be achieved by project completion (the Project Purpose). Although there was room for improvement in the project planning and the approach, it is assessed that the above was not a serious problem because it did not result in delaying the progress of activities or disturbing the emergence of project effects.

[10] Detailed Planning Survey Report (pp1-8)
[11] Interview to Japanese expert

As stated above, this project, which aimed to enhance the capacity of the key ministries of the Indonesian government as well as local governments in promoting mitigation and adaptation actions for climate change, was highly relevant to the country's development plan and needs from the planning stage until project completion. It also met Japan's ODA policy at the time of planning. No significant problems were observed in terms of appropriateness of the project planning and the approach. Therefore, the project's relevance is high.

3.2 Effectiveness and Impact[12] (Rating: ③)

3.2.1 Effectiveness

This project has four PDMs (i.e., a PDM for each SP in addition to the one for the whole project), and each PDM was revised during the implementing period. Although there is only one Project Purpose for the PDM of the whole project, its indicators refer to the indicators of the Project Purpose of each SP's PDM. At the same time, the following items related to the logic and the indicators of this project's PDM are of concern: First, it is possible that all of the outputs were rephrased by the Project Purpose, and the Outputs and the Project Purpose are not in a "means and ends" relationship. Second, the objectives and indicators for each SPs are not in the relation between objective and its scale to measure the achievement, but in the relation between the objective and its means to achieve the objective. Third, some indicators are not the indicators but achieved status of the activities. Consequently, the achievement of some indicators does not mean the achievement of the Output.

This evaluation survey was conducted based on the latest PDMs (both the whole project's PDM and each SP's PDMs were formulated in 2013), after examining all the PDMs. The evaluation questions were developed based on the PDM for the whole project, and analysis was made, referring to each SP's PDMs when necessary. Regarding the above concerns, document reviews and interviews with stakeholders in the project in the past were made to collect information to comprehend the intention of the project plan in relation to the logic of the PDM, while simultaneously collecting information on the achievement of the indicators established in advance. The PDM of the project frequently utilizes the terminology of "capacity enhancement." However, the term "capacity enhancement" does not necessarily mean acquisition or improvement of knowledge and techniques, and it differs depending on each SP. Although the information that was collected addressed this point, sufficient information was not available to clarify specific objectives intended by the project to be achieved by project

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

completion. Hence, setting alternative indicators was difficult. Therefore, the indicators in the PDM were utilized without being modified. Therefore, information was collected on the achievement of the Outputs themselves also through interviews and the questionnaire to make it reference information for evaluation analysis.

3.2.1.1 Project Output

With regard to the achievement of the Outputs by project completion, the indicators and their achievements are shown from Table 3 to Table 5.

(1) SP-1: Capacity enhancement to mainstream mitigation and adaptation actions

Concerning Output 1 (capacity enhancement of policy formulation of mitigation actions in the pilot sectors) and Output 3 (implementation and utilization of the background study for *RPJMN 2015-2019*), achievement of both outputs is high because the achievement of all the indicators is high. Output 2 (capacity enhancement to mainstream the adaptation action plans and to monitor, evaluate, and report on the progress) is assessed as fair, considering its achievement level.

Thus, achievement of SP-1 is high.

Table 3: SP-1 The Achievement of the Outputs (By Project Completion)

Outputs	Indicator		Achievement	Achieve-ment Level
【Sup-project 1 (SP-1)】				H
Output 1: The capacity to formulate mitigation actions in a monitored, evaluated, and the reported manner in the pilot sector(s) or sub-sector(s) is enhanced.	1-1	Understanding of potential types of nationally appropriate mitigation action (NAMA) and associated measurement, reporting and verification (MRV) submitted by developing country parties to the UNFCCC is obtained.	- A general matrix of NAMAs and their associated MRVs were developed based on the UNFCCC Secretariat suggestion document. These were shared and discussed in the pilot sites, and needs assessment for feasible NAMA projects were conducted (Terminal Evaluation Report p15). - At the time of the ex-post evaluation, the response from the implementing organization indicated that the level of understanding of NAMA and MRV established at project completion was 4 in the 5-scale assessment (5 is the best and 1 is the worst) (Questionnaire). (Achievement: High)	H
	1-2	Understanding of potential types of NAMA and associated MRV in the pilot sector(s) or sub-sector(s) in Indonesia is obtained.	- Potential types of NAMAs were developed based on the exchange of opinions with the provincial working group, and they were evaluated according to the selection criteria (Terminal Evaluation Report p15). - At the time of the ex-post evaluation, the response from the implementing organization indicated that the level of established understanding at project completion was 4 on the 5-scale assessment (5 is the best and 1 is the worst) (Questionnaire). (Achievement: High)	
	1-3	MRV is incorporated into the formulation of NAMA in the pilot sector(s) or sub-sector(s).	- A list of feasible NAMA projects and their associated MRVs was developed at the pilot sites (Terminal Evaluation Report p15). - At the time of the ex-post evaluation, the response from the implementing organization indicated that the extent to which the MRVs were incorporated into the formulation of NAMAs in the pilot area was 4 on the 5-scale assessment (5 is the best, and 1 is the worst) (Questionnaire). (Achievement: High)	
	1-4	Guideline of the Provincial Action Plan for GHG Emission Reduction (RAD-GRK) is authorized by BAPPENAS.	- RAN-GRK Secretariat was established in collaboration with GIZ and AusAID, and so on. - The guideline for the formulation of RAD-GRK was developed with the support of RAN-GRK Secretariat, and approved by BAPPENAS (Terminal Evaluation Report p15). (Achievement: High)	
	1-5	RAD-GRK is issued as the governor decree in pilot provinces.	- RAD-GRK was developed at three pilot sites (North Sumatra, South Sumatra and West Kalimantan provinces) in 2012 by the working group consisting of BAPPEDA and the related agencies with the project's support (Terminal Evaluation Report p15 and Questionnaire). - RAD-GRK was issued as the governor's decree at the pilot site (Terminal Evaluation Report p15). (Achievement: High)	
	1-6	Report of monitoring of the National Action Plan for GHG Emission Reduction (RAN-GRK) and RAD-GRK is submitted to BAPPENAS in pilot provinces.	- MER reports of RAD-GRK for North Sumatra and South Sumatra were submitted to BAPPENAS in 2012 (Terminal Evaluation Report p16 and Questionnaire). (Achievement: High)	
Output 2: The capacity to formulate the adaptation action plans, to integrate adaptation into development planning, and to monitor, evaluate and report on the progress of adaptation is enhanced.	2-1	Adaptation related policy(ies)/instruction(s) in selected pilot area(s) is (are) officially issued.	The governor's decree on climate change adaptation action for protecting rice cultivation was issued in North Sumatra, and it was integrated into their Regional Medium-Term Development Plan (hereinafter referred to as RPJMD) (Terminal Evaluation Report p16). There were three pilot provinces in SP-1. (Achievement: Fair)	F
	2-2	The draft Strategy for Mainstreaming Adaptation into Developing Planning is accepted by BAPPENAS.	- As a result of the project's support for the establishment of an advisory panel and its management, a draft strategy paper (proposal) for mainstreaming adaptation into national development planning was developed and submitted to BAPPENAS (Terminal Evaluation Report p16). - (Achievement: High)	
	2-3	The National Action Plan for Climate Change Adaptation (RAN-API) is officially issued.	- The formulation of RAN-API was completed and officially approved in February 2014 (Terminal Evaluation Report p16). (Achievement: High)	
	2-4	Report(s) on monitoring and evaluation of implementation of RAN-API in the selected pilot activity(ies) is (are) submitted to BAPPENAS.	- Monitoring indicators for the above governor's decree in North Sumatra province were developed and utilized for the monitoring and evaluation of RPJMD (Terminal Evaluation Report p16). There were three pilot provinces for SP-1. (Achievement: Fair)	
Output 3: The background study of the Mid-term National Development Plan (RPJMN) 2015-2019 for the relevant sectors (1) Food and Agriculture, 2) Marine and Fishery, 3) Forestry and Water Resources Conservation, 4) Energy, Minerals and Mining, 5) Environmental Affairs) is conducted and its reports are utilized for the formulation of RPJMN (2015-2019).	3-1	Reports of the background study of RPJMN (2015-2019) for the relevant sectors are approved by BAPPENAS.	- The background studies for all five targeted directorates (environment, forestry and water resources, food and agriculture, marine and fishery, energy and minerals) of BAPPENAS were completed, and each report was published. - The results of the studies were reflected in the formulation of RPJMN (2015-2019), specifically in relation to climate change issues/strategies, improvement of the livelihood of farmers and fishers, the demand and supply of major agricultural products, energy demand and supply, forest management, environmental performance indicators, etc. (Achievement: High)	H
	3-2	RPJMN (2015-2019) is approved.	- RPJMN (2015-2019) was formulated based on the background studies, and it was issued as a presidential regulation in January 2015. (Achievement: High)	

Source: Terminal Evaluation Report, questionnaire to the implementing organization, and interviews
Note: H: High (80% or more of the target level); F: Fair (50%～79%) L: Low (less than 50%)

(2) SP-2: Capacity enhancement to practice actual adaptation actions

The achievement of the indicators of Output 1 (strengthening of BMKG's capacity to analyze climate change and variability as well as develop a structure for information sharing) and Output 3 (enhanced comprehension of the importance of crop insurance among stakeholders) is mostly high. Thus, the achievement of the above outputs is high. Output 2 (practicing climate change adaptation techniques by farming communities) is assessed as fair because of the achievement status of the indicators.

Hence, the achievement of SP-2 as a whole is high.

Table 4: SP-2 The Achievement of the Outputs (By Project Completion)

Outputs	Indicator		Achievement	Achieve-ment Level
【Sub-project 2(SP-2)】				H
Output 1: Capacity of analysis on climate variability and change and of its communication is enhanced at Indonesian Agency for Meteorology, Climatology and Geophysics (hereinafter referred to as BMKG).	1-1	A lessons-learnt report for improving vulnerability assessment is produced.	- The experiences with pilot activities and technical training concerning rice production on Bali Island were compiled in the lessons-learnt report of BMKG (Terminal Evaluation Report p17). (Achievement: High)	H
	1-2	Skills for seasonal weather forecasting and its communication are obtained by the training participants and evaluated.	- The BMKG staff at the headquarters and at Bali Island acquired basic skills for analyzing the relationship between agriculture and climate change as well as conducting the statistical downscaling of the climate model (Terminal Evaluation Report p17). (Achievement: Fair)	
	1-3	At least two BMKG staff members are engaged as their regular operational tasks in producing information related to exposure to climate change.	- Four BMKG staff who participated in the Training-in-Japan were engaged in producing information related to exposure to climate change as a regular operational task (Terminal Evaluation Report p17). - At the time of the ex-post evaluation, BMKG responded to the question on the number of staff who were engaged in producing information on exposure to climate change in 2015. Four staff were mainly in charge of the analysis on exposure to climate change, and 12 supporting staff were also engaged (Questionnaire). (Achievement: High)	
	1-4	A study report is produced on climate impacts and agriculture.	- Training for BMKG staff on the climate index in relation to crop insurance was conducted, and its report was compiled (Terminal Evaluation Report p17). - At the time of project completion, a survey report on the impact and agriculture was developed (Questionnaire). (Achievement: High)	
Output 2: Climate change adaptation by farmer communities is practiced to secure rice production.	2-1	Monthly/weekly local weather information is utilized by WUA, extension workers and other stakeholders.	- The training program, curriculum, and teaching materials were evaluated through the training of trainers (TOT) and the training of farmers (TOF) for future dissemination. Although the climate and weather information was utilized by extension workers and farmers, some issues on access to the information were also identified as one of the lessons learned, and they were shared with MOA. - Climate and weather information was sent to all of the areas in Indonesia every six months by MOA in cooperation with BMKG (Terminal Evaluation Report p18). - At the time of the ex-post evaluation, the implementing organization responded that the extent to which the information shown in the indicator was utilized at project completion was 3 on the 5-scale assessment (5 is the best, and 1 is the worst) (Questionnaire to the implementing organization). (Achievement: Fair)	F
	2-2	Good practices on water management and rain water harvesting are tested on the ground at the pilot sites.	- The ground testing for water management and rain harvesting was conducted at the pilot sites (Questionnaire to the implementing organization). - At the time of the ex-post evaluation, the implementing organization indicated that the level of completion of the indicator was 4 on the 5-scale assessment (5 is the best, and 1 is the worst) (Questionnaire to the implementing organization). (Achievement: High)	
	2-3	Recommendations on the way-forward for good practices on climate resilient agricultural development are developed and agreed.	- The results and recommendations of the pilot sites for developing training models were compiled and shared with related institutions (Terminal Evaluation Report p18, Questionnaire to the implementing organization). - At the time of the ex-post evaluation, the implementing organization responded that the achievement of this indicator at project completion was 3 on the 5-scale assessment (5 is the best, and and 1 is the worst). Although the recommendations included the methodology of deciding the timing for planting as well as planting calendar, more information on the countermeasures for extreme weather, such as flood and drought, also (Questionnaire to the implementing organization). (Achievement: Fair)	
Output 3: Comprehension of the importance of crop insurance in agricultural protection is improved among stakeholders.	3-1	Result of the pilot study is presented by the agricultural officials at a national policy discussion meeting.	- The workshop for sharing the results of crop insurance at pilot sites as well as plans for future implementation was held in March 2015 for the participants from East Java province, some regencies and the central ministries (Terminal Evaluation Report p18). (Achievement: High)	H
	3-2	A general guideline and technical guidebook on crop insurance are developed.	- A general guideline and a technical guidebook on crop insurance were developed and utilized at the pilot sites (Terminal Evaluation Report p18). (Achievement: High)	
	3-3	A range of agricultural risk mitigation instruments is listed and evaluated.	- Agricultural risk mitigation instruments were scrutinized through the development of the road map of crop insurance, which was planned to be finalized in August 2015 (Terminal Evaluation Report p18). (Achievement: Fair)	
	★ Output 3 itself	Comprehension of the importance of crop insurance in agricultural protection is improved among stakeholders.	- Although the achievement of the above indicators is either fair or high, the achievement of some indicators does not necessarily mean the enhancement of understanding, etc., because the achievement of activities is the focus here. Thus, a question was posed to the implementing organization about the achievement of Output 3 itself. It responded that the achievement was 4 on 5-scale assessment. (Achievement: High)	

Source: Terminal Evaluation Report, questionnaire to the implementing organization, and interviews
Note: H: High (80% or more of the target level) F: Fair (50%～79%) L: Low (less than 50%)

(3) SP-3: Capacity enhancement to develop the GHG Inventory

All of the indicators for Output 1 (designing the system for preparing national GHG inventories), Output 2 (enhancement of capacity to manage the data for the national GHG inventories), and Output 3 (improvement of understanding the accuracy, transparency, and reliability of GHG inventories among key ministries and local governments) were achieved. Thus, the achievement of each output is high.

Therefore, the achievement of SP-3 as a whole is high.

Table 5: SP-3 The Achievement of the Outputs (By Project Completion)

<table>
<tr><th>Outputs</th><th colspan="2">Indicator</th><th>Achievement</th><th>Achieve-ment Level</th></tr>
<tr><td colspan="3">【Sub-project 3(SP-3)】</td><td></td><td>H</td></tr>
<tr><td rowspan="3">Output 1:
National system for preparing national GHG inventories is designed.</td><td>1-1</td><td>Procedure for inventory compilation is documented.</td><td>- A digest version of GHG guideline of IPPC 2006, the Step-by-step Manuals, and a manual for GHG inventory in the waste sector were developed and utilized by KLHK and the key ministries (Terminal Evaluation Report pp18-19).
(Achievement: High)</td><td rowspan="3">H</td></tr>
<tr><td>1-2</td><td>Procedure for quality assurance/quality control (QA/QC) is documented.</td><td>- Procedures of QA/QC methods were documented in the Step-by-Step Manual and the manual for GHG inventory on the waste sector (Terminal Evaluation Report pp18-19).
(Achievement: High)</td></tr>
<tr><td>1-3</td><td>Institutional arrangement for preparation of national GHG inventories is documented.</td><td>- Institutional arrangements were compiled in the GHG inventory manual and were recorded in the BUR (Terminal Evaluation Report pp18-19).
(Achievement: High)</td></tr>
<tr><td>Output 2:
Capacity to periodically and systematically manage data necessary for national GHG inventories is enhanced.</td><td>2-1</td><td>National GHG inventory data is properly archived and maintained.</td><td>- At the time of the ex-post evaluation, the implementing organization responded that the archive and storage status of the GHG inventory data at project completion was 5 on 5-scale assessment (5 is the best, and 1 is the worst) (Questionnaire to the implementing organization).
(Achievement: High)</td><td>H</td></tr>
<tr><td rowspan="3">Output 3:
Understanding on accuracy, transparency and reliability of GHG inventories is improved for each sector (energy; industrial processes; agriculture; land use, land-use change and forestry [LULUCF]; and waste) among key ministries and local governments.</td><td>3-1</td><td>Improvement for estimating emissions from and removals by categories is documented.</td><td>- Based on the pilot activity, the GHG inventory manual and inventory software were developed in the waste sector (Terminal Evaluation Report pp19-20).
(Achievement: High)</td><td rowspan="3">H</td></tr>
<tr><td>3-2</td><td>Emission factors and other parameters are improved for the waste sector.</td><td>- Through the pilot activities in South Sumatra province, the tier of calculation method of the GHG emission and activity data were improved in each category shown below in the waste sector (Terminal Evaluation Report pp19-20).
(Achievement: High)
<table>
<tr><th>Category</th><th>Second National Communication (2012)</th><th>BUR (2014)</th></tr>
<tr><td>Waste landfill of waste</td><td>Tier 1</td><td>Tiers 2/3</td></tr>
<tr><td>Biological treatment</td><td>Nothing</td><td>Tier 1</td></tr>
<tr><td>Incineration</td><td>Nothing/ Tier 1</td><td>Tier 2</td></tr>
<tr><td>Waste water treatment</td><td>Nothing/ Tier 1</td><td>Tier 1</td></tr>
</table></td></tr>
<tr><td>★
Output 3 itself</td><td>Understanding on accuracy, transparency and reliability of GHG inventories is improved for each sector (energy; industrial processes; agriculture; land use, land-use change and forestry [LULUCF]; and waste) among key ministries and local governments.</td><td>- Although the achievement of the above two indicators is high, it does not necessarily indicate the enhancement of the understanding of the stakeholders because the indicators are actually point to the achievement of activities. Thus, the implementing organization was asked about the achievement level of Output 3 itself. It responded that the achievement status of the Output 3 at project completion was 5 on the 5-scale assessment (Questionnaire to the implementing organization).
(Achievement: High)</td></tr>
</table>

Source: Terminal Evaluation Report, questionnaire to the implementing organization, and interviews
Note: H: High (80% or more of the target level) F: Fair (50%～79%) L: Low (less than 50%)

Based on the above, the achievement of all the outputs for SP-1, SP-2, and SP-3 is high.

In addition, concerning the change of important assumptions and the project's countermeasures, *Presidential Regulation No. 61/2011 on the national action plan for*

GHG emissions reduction (*RAN-GRK*) was issued in September 2011 in relation to SP-1, which mandated formulation of *RAD-GRK* in all the provinces. Consequently, the project modified its plan and took measures to support formulation of *RAD-GRK* in the pilot province in a timely manner. In addition, in relation to SP-3, *Presidential Regulation No. 71/2011 on the National GHG Inventory* was issued in October 2011. At project commencement, KLHK was expected to collect the data from related ministries and calculate GHG emissions and the absorption in all the fields. However, with the issuance of the above regulation, other ministries, except for the waste field, came to be responsible for reporting the data to the National GHG Inventory System Center (hereinafter referred to as SIGN Center)[13], and KLHK became responsible for verifying the result. Furthermore, KLHK came to be responsible for the whole process from data collection to calculating and reporting of the GHG emissions, but only for the waste field[14]. Because SP-3 was designed on the assumption that KLHK would cover the whole process of developing the GHG Inventory, the project modified the implementing structure. However, no serious problem was observed because of this modification.

Furthermore, as for SP-1, the support for formulation of *RAD-GRK* was made in collaboration with the German Corporation for International Cooperation GmbH (Deutsche Gesellschaft für Internationale Zusammenarbeit, hereinafter referred to as GIZ), sharing the area by province. As for the support for *RAN-API*, collaboration was made with GIZ and the Asian Development Bank. One of the reasons that formulating policies both at the national and the local levels ran smoothly and effectively was that aid coordination among the international donors mentioned above functioned well, in addition to the strong commitment of the Indonesian government.

Based on the above, the achievement of the Outputs by project completion is assessed as high.

3.2.1.2 Achievement of Project Purpose

With regard to the achievement of the Project purpose by project completion, the indicators and the achievement status are shown in Table 6. The indicators of the Project Purpose for the whole project (capacity development of the key ministries and the local governments to formulate climate change policies and improve information administration as its foundation) were planned to apply the indicators stated in the PDM for their respective SP.

[13] It was set in KLHK in 2012.
[14] Project Completion Report (pp5-6)

(1) SP-1: Capacity enhancement of the key ministries and local governments to formulate mitigation actions and integrate adaptation into development planning

The achievement of Indicator 1 (sharing and utilization of the developed reports) was high. Thus, the achievement of the Project Purpose of SP-1 is assessed as high.

(2) SP-2: Capacity enhancement to promote adaptation actions in the agriculture and relevant sectors

The achievement of all the indicators (i.e., Indicator 1 [sharing information on adaptation actions among the related ministries] and Indicator 2 [issuance of the developed documents in the name of the Indonesian government]), and Indicator 3 [integration of climate change adaptation into national development planning]) was high. Hence, the achievement of the Project Purpose of SP-2 is assessed as high.

(3) SP-3: Compilation of GHG Inventories on a regular basis

The achievement of both Indicator 1 (annual development of national GHG inventory) and Indicator 2 (documentation of the improved calculation method) was high. Thus, the achievement of the Project Purpose of SP-3 is high.

Based on the above, the achievement of the Project Purpose by project completion is assessed as high.

Table 6: Achievement of Project Purpose (By Project Completion)

Project Purpose	Indicator		Achievement	Achieve-ment Level
Capacity of the key ministries and local governments concerned of the Government of Indonesia to formulate climate change policies based on the sound information and approaches is developed.			- Achievement of the Project Purpose is assessed high because achievement of the Project Purpose of each SP by project completion was high.	H
【SP-1】 The capacity of the key ministries and local governments to formulate mitigation actions in a monitored, evaluated and reported manner and integrate adaptationn into development planning is improved.	1-1	The reports produced by project activities are shared and utilized among stakeholders in Indonesia.	- The reports of RAD-GRK, RAN-API and the background study produced through the project activities were shared by the stakeholders and utilized by the counterpart organizations in the central ministries, key ministries and local governments (Terminal Evaluation Report p22). - At the time of the ex-post evaluation, the implementing organization responded that the utilization status of the reports mentioned above at project completion was 4 on 5-scale assessment (5 is the best, and 1 is the worst) (Questionnaire). (Achievement: High)	H
【SP-2】 Capacity to promote climate change adaptation actions in agriculture and other relevant sectors is improved.	2-1	Information on adaptation actions is regularly exchanged among concerned ministries (BAPPENAS, BMKG, MOA).	- Results of vulnerability assessment implemented by BMKG were shared by related ministries (Terminal Evaluation Report p22). - At the time of the ex-post evaluation, the response from the implementing organization indicated the status of sharing the above results at project completion was 5 in 5-scale assessment (5 is the best and 1 is the worst) (Questionnaire). (Achievement: High)	H
	2-2	Document/materials produced in Project are issued in the name of Government of Indonesia.	- Guidelines for TOT, TOF, and crop insurance implementation developed through the project activities were issued with authorization by the Indonesian government (Terminal Evaluation Report p22). (Achievement: High)	
	2-3	Integration of climate change adaptation into national development planning is achieved.	- The promotion of crop insurance was stated in RPJMN (2015-2019). - MOA Ministerial Regulation regarding the implementation of crop insurance was being prepared (Terminal Evaluation Report p22). (Achievement: High)	
【SP-3】 National GHG inventories are compiled by KLH on a regular basis in cooperation with key ministries and local governments concerned of the Indonesian government.	3-1	National GHG Inventory Development is annually prepared by KLH.	- The GHG inventory of 2008 was developed in March 2013. Afterward, an inventory of 2010 for BUR was drafted and was to be finally confirmed (Terminal Evaluation Report p22). (Achievement: High)	H
	3-2	The improvement of estimation method (from lower tier to higher tier, e.g. by improving emission factor and/or activity data or by reporting with appropriate notation key) is documented.	- The improved estimation method was documented in the GHG inventory manual in the waste sector (Terminal Evaluation Report p22). (Achievement: High)	

Source: Terminal Evaluation Report, questionnaire to the implementing organization, and interviews
Note: H: High (80% or more of the target level)　F: Fair (50%～79%)　L: Low (less than 50%)

However, there is some question as to the appropriateness of some indicators for the Project Purpose mentioned above (SP-1 and SP-2), and there is the possibility that the relationship between the indicators and the respective objective of each SP is a "means and ends relationship," which is different from what they should have been. In addition, some of the objectives were not specific enough. However, the assessment was made in accordance with the preset indicators since setting alternative indicators was difficult for the reason mentioned earlier in 3.2.1.

As explained above, concerning the achievement of the outpts by project completion, the achievement of two outputs was high, whereas one was almost high among the three outputs of SP-1. Among three outputs of SP-2, the achievement of two

outputs was high and one was fair. As for SP-3, all the outputs were highly achieved. Hence, the achievement of each SP is assessed as high. As the achievement of all the indicators for each SP by project completion was high, the achievement status of the Project Purpose for the whole project by project completion is high. Therefore, effectiveness is high.

3.2.2 Impact

3.2.2.1 Achievement of Overall Goal

(1) Achievement of Overall Goal

With regard to the achievement of the Overall Goal at the time of the ex-post evaluation, the indicators and the achievement status are shown in Table 7.

Table 7: Achievement of Overall Goal (at Time of Ex-Post Evaluation)

<table>
<tr><th>Overall Goal</th><th colspan="2">Indicator</th><th>Achievement</th><th>Achieve-ment Level</th></tr>
<tr><td rowspan="2">Mitigation and adaptation actions for climate change are promoted in Indonesia.</td><td>1</td><td>GHG emission is reduced by 26% by 2020 relative to BAU in Indonesia.</td><td>(1) The ratio of reduced GHG emissions relative to the BAU is shown below. Although the reduction ratio in 2020 was 21.48%, which did not reach the target value, it achieved 82% of the target value. Also, it exceeded 23% in both 2018 and 2019. (Achievement: High)

GHG Emission (Gton CO2e)
<table><tr><th></th><th>2010</th><th>2011</th><th>2012</th><th>2013</th><th>2014</th><th>2015</th><th>2016</th><th>2017</th><th>2018</th><th>2019</th><th>2020</th></tr><tr><td>Baseline</td><td>1.33</td><td>1.52</td><td>1.57</td><td>1.61</td><td>1.67</td><td>1.70</td><td>1.76</td><td>1.86</td><td>1.95</td><td>1.96</td><td>2.24</td></tr><tr><td>Reduction/year</td><td>0.21</td><td>0.22</td><td>0.36</td><td>0.25</td><td>0.43</td><td>0.14</td><td>0.61</td><td>0.41</td><td>0.92</td><td>0.41</td><td>0.10</td></tr><tr><td>Reduction/cumulative</td><td>0.21</td><td>0.43</td><td>0.79</td><td>1.04</td><td>1.46</td><td>1.60</td><td>2.22</td><td>2.63</td><td>3.54</td><td>3.95</td><td>4.05</td></tr><tr><td>Emission status (after reduction)</td><td>1.12</td><td>1.30</td><td>1.21</td><td>1.36</td><td>1.24</td><td>1.56</td><td>1.15</td><td>1.45</td><td>1.04</td><td>1.55</td><td>2.15</td></tr><tr><td>Reduction Percentage (yearly)</td><td>15.87%</td><td>14.56%</td><td>22.69%</td><td>15.38%</td><td>25.46%</td><td>8.18%</td><td>34.82%</td><td>22.16%</td><td>46.89%</td><td>21.00%</td><td>5.0%</td></tr><tr><td>Reduction Percentage (cummulative)</td><td>15.87%</td><td>15.17%</td><td>17.84%</td><td>17.19%</td><td>18.98%</td><td>17.02%</td><td>19.83%</td><td>20.16%</td><td>23.65%</td><td>23.34%</td><td>21.48%</td></tr></table>Source: BAPPENAS</td><td rowspan="2">H</td></tr>
<tr><td>2</td><td>The number of development strategies integrating adaptation in local governments is increased.</td><td>– At the time of the ex-post evaluation, five local governments (five provinces) have RPJMD, with which adaptation actions were integrated. Furthermore, seven local governments (two provinces, two regencies and three cities) have completed the formulation of RAD-API (BAPPENAS).
– Although the formulation of RAD-API is not mandated, the number of local governments which formulate adaptation policies is increasing not only at the provincial level but also at the regency and city levels (Interview to BAPPENAS).
– The planned target value was not set, and it is unclear whether the project intended to achieve the indicator in all areas of the country. Taking a look at the provincial level, the total number of local governments, including mainstreaming RPJMD and formulating RAD-API, is 7 out of 34 provinces in the country. So, it cannot be assessed as high. However, it is possible to consider it as a big change that 12 local governments have already integrated adaptation into their strategies, although the formulation of RAD-API is not mandatory. Thus, the achievement is assessed as fair. (Achievement: Fair)</td></tr>
</table>

Source: Questionnaire and interview to the implementing organizations
Note: H: High (achieved by 80% and above) F: Fair (50% - 79%) L: Low (less than 50%)

There are two indicators for the Overall Goal (promotion of mitigation and adaptation actions for climate change). With regard to Indicator 1 (reduction of GHG emission by 2020 by 26% relative to BAU), the reduction rate in 2020 was 21.48%.

Although it did not reach the target value, the achievement rate was 82% compared with the target value. In addition, the reduction rate was more than 23% in both 2018 and 2019, which exceeded 80% of the target value. Thus, the achievement of Indicator 1 is high. As for Indicator 2 (an increase in the number of development strategies integrating adaptations in local governments), five local governments (provinces) have *the Regional Mid-term Development Plan (RPJMD)*, which incorporated the concept of adaptation. Moreover, seven local governments (two provinces, two regencies, and three cities) have already formulated RAD-API[15]. At the time of the ex-post evaluation, formulation of RAD-API has not been mandated. However, the number of local governments, which formulate adaptation policies has been increasing, not only at the provincial level but also at the level of regencies and cities[16]. As no target value was set for this indicator at the time of planning, it is not clear whether the project aimed at achieving this indicator in all over the country. Looking at the provincial level, for instance, seven of the 34 provinces in the country have either formulated RAD-API or integrated adaptations into RPJMD. In this sense, it is hard to assess the achievement as high. On the other hand, the fact that 12 local governments have already incorporated adaptation into their strategies when formulation of RAD-API is not mandatory yet can be understood as a significant change. Therefore, the achievement is assessed as fair.

In light of the above, the achievement of the Overall Goal is high. Although the achievement of Indicator 1 is high and Indicator 2 is fair, assessment was made by putting emphasis on the high achievement of the reduced GHG emissions (Indicator 1), which is difficult to achieve. In addition, this project aimed at enhancing the capacities of the central ministries and the local government related to climate change, and it is difficult to reduce GHG emissions drastically only by this project. Hence, it is regarded that Indicator 1 was planned from the beginning as the effect, which was expected to be achieved together with the complementary/synergy effects of other donors' projects, other Japanese projects, and other Indonesian projects. Actually, the complementary/synergy effects brought by other projects, including other donors such as USAID and GIZ, are regarded as having contributed to the achievement of the Overall Goal.

(2) Continuation of Outputs and Project Purpose

(2-1) Continuation of Outputs

With regard to the continuation of the outputs for each SP after project completion

[15] BAPPENAS
[16] Interview to BAPPENAS

up to the ex-post evaluation, the indicators and the continuation status are shown from Table 8 to Table 10.

1) SP-1: Capacity enhancement to mainstream mitigation and adaptation actions

Concerning Output 1 (capacity enhancement of policy formulation of mitigation actions in the pilot sectors) and Output 3 (implementation and utilization of the background study for *RPJMN* (2015-2019)), continuation status of all the indicators is high just as the implementation period. Hence, the continuation status for both outputs is high. The continuation status of Output 2 (capacity enhancement to mainstream the adaptation actions and to monitor, evaluate, and report on the progress) is assessed as fair, considering the achievement status of its indicators. Based on the above, the continuation status of the outputs for SP-1 is high.

Table 8: SP-1 The Continuation of the Outputs (at Time of Ex-Post Evaluation)

Outputs	Indicator		Achievement	Achievement Level
【Sup-project 1 (SP-1)】				H
Output 1: The capacity to formulate mitigation actions in a monitored, evaluated, and the reported manner in the pilot sector(s) or sub-sector(s) is enhanced.	1-1	Understanding of potential types of nationally appropriate mitigation action (NAMA) and associated measurement, reporting and verification (MRV) submitted by developing country parties to the UNFCCC is obtained.	- At the time of the ex-post evaluation, the implementing organization responded that the level of established understanding was 4 on 5-scale assessment (5 is the best, and 1 is the worst) (Questionnaire). (Achievement: High)	H
	1-2	Understanding of potential types of NAMA and associated MRV in the pilot sector(s) or sub-sector(s) in Indonesia is obtained.	- At the time of the ex-post evaluation, the implementing organization responded that the level of understanding mentioned in the indicator was 4 on 5-scale assessment (5 is the best, and 1 is the worst) (Questionnaire). (Achievement: High)	
	1-3	MRV is incorporated into the formulation of NAMA in the pilot sector(s) or sub-sector(s).	- At the time of the ex-post evaluation, the extent to which the MRV was incorporated was 4 on 5-scale assessment (5 is the best, and 1 is the worst) according to the implementing organization (Questionnaire). (Achievement: High)	
	1-4	Guideline of the Provincial Action Plan for GHG Emission Reduction (RAD-GRK) is authorized by BAPPENAS.	- The RAD-GRK guideline was utilized as the reference material for work until 2016. Afterward, review of RAD-GRK was conducted in all the provinces. As the government announced a policy promoting a low-carbon development plan to replace RAN-GRK at the national level, the same replacement was promoted at the provincial level. Consequently, RAD-GRK shifted to the low-carbon development plan in all of the provinces. (Achievement: High)	
	1-5	RAD-GRK is issued as the governor decree in pilot provinces.	- The governor's regulation issued during the project duration had been effective by 2020, but not any more at the time of the ex-post evaluation. As mentioned before (Indicator 1-4), the RAD-GRK have been already replaced with the Low-carbon Development Plan in all of the provinces. Some of the major differences with RAD-GRK are that it set a long-term higher goal to reduce GHG emissions by 2030, it added a new target sector (i.e., coastal and marine), which is more advanced compared with RAD-GRK. (Achievement: High)	
	1-6	Report of monitoring of the National Action Plan for GHG Emission Reduction (RAN-GRK) and RAD-GRK is submitted to BAPPENAS in pilot provinces.	- All of the provinces, including the three pilot provinces (i.e., North Sumatra, South Sumatra, and West Kalimantan), report the monitoring results to BAPPENAS through an online system called "AKSARA" (Questionnaire). This system was established in 2017. (Achievement: High)	
Output 2: The capacity to formulate the adaptation action plans, to integrate adaptation into development planning, and to monitor, evaluate and report on the progress of adaptation is enhanced.	2-1	Adaptation related policy(ies)/instruction(s) in selected pilot area(s) is (are) officially issued.	- In general, adaptation policies are incorporated into RPJMD. However, they are incorporated into RPJMD only in North Sumatra province among the three pilot provinces. In the other remaining two provinces, adaptation action plan documents have not been formulated yet. (Achievement: Fair)	F
	2-2	The draft Strategy for Mainstreaming Adaptation into Developing Planning is accepted by BAPPENAS.	- The design of the draft strategy was utilized for the formulation of adaptation actions in RPJMN (2015 – 2019). After that, RAN-API was reviewed in 2017 and became the basis of the adaptation actions in the Climate Resilient Development Policy (PBI) launched in 2021. (Achievement: High)	
	2-3	The National Action Plan for Climate Change Adaptation (RAN-API) is officially issued.	- At the time of the ex-post evaluation, RAN-API was not effective. Based on the review and the integrated and comprehensive survey result, PBI was formulated to replace RAN-API. PBI sets outcome indicators for the climate resilient capacity for climate change, as well as for decrease of potential economic loss as percentage to GDP. In addition, it is indicated that monitoring and evaluation will be conducted according to the control and evaluation of the development plan shown in the national development plan document. (Achievement: High)	
	2-4	Report(s) on monitoring and evaluation of implementation of RAN-API in the selected pilot activity(ies) is (are) submitted to BAPPENAS.	- The monitoring and evaluation reports on the implementation of RAN-API were not submitted by the three pilot provinces to BAPPENAS. At the time of the ex-post evaluation, BAPPENAS was in the process of developing its monitoring and evaluation tool for climate resilience capacity development activity in the AKSARA system (Monitoring and Evaluation Report on the Low-Carbon Development Activity). The analysis of the activities by the central government is currently being conducted. The same procedure will be applied at the local governments in the future. (Achievement: Fair)	
Output 3: The background study of the Mid-term National Development Plan (RPJMN) 2015-2019 for the relevant sectors (1) Food and Agriculture, 2) Marine and Fishery, 3) Forestry and Water Resources Conservation, 4) Energy, Minerals and Mining, 5) Environmental Affairs) is conducted and its reports are utilized for the formulation of RPJMN 2015-2019.	3-1	Reports of the background study of RPJMN (2015-2019) for the relevant sectors are approved by BAPPENAS.	- For supporting the formulation of climate change adaptation actions in RPJMN (2020-2024), a variety of studies were conducted, including those in the air and marine climate forecast, climate hazard and the projection of economic loss in the four priority sectors (marine and coast, water, agriculture, and health) (Achievement: High)	H
	3-2	RPJMN (2015-2019) is approved.	- The survey results mentioned above (Indicator 3-1) include the objective of decreasing potential economic losses, which has promoted discussions on the climate resilience capacity as a national priority. (Achievement: High)	

Source: Terminal Evaluation Report, questionnaire and interviews to the implementing organization
Note: H: High (achieved by 80% and above) F: Fair (50% - 79%) L: Low (less than 50%)

2) SP-2: Capacity enhancement to practice actual adaptation actions

Although the continuation status of Output 3 (enhanced comprehension of the importance of crop insurance among stakeholders) is fair, Output 1 (strengthening of BMKG's capacity to analyze climate change and variability and develop a structure for information sharing) and Output 2 (practicing of climate change adaptation by farming communities) is high. Thus, the continuation status of the outputs for SP-2 is high.

Table 9: SP-2 The Continuation of the Outputs (at Time of Ex-Post Evaluation)

Outputs	Indicator		Achievement	Achievement Level
【Sub-project 2(SP-2)】				H
Output 1: Capacity of analysis on climate variability and change and of its communication is enhanced at Indonesian Agency for Meteorology, Climatology and Geophysics (hereinafter referred to as BMKG).	1-1	A lessons-learnt report for improving vulnerability assessment is produced.	- At the time of the ex-post evaluation, the report is utilized at BMKG and other organizations. It is utilized for analyzing agricultural productivity at MOA, as well as formulating adaption actions in the agricultural sector as a reference material at BAPPENAS. It is sometimes utilized for undergraduate students at universities as a reference for writing reports. (Achievement: High)	H
	1-2	Skills for seasonal weather forecasting and its communication are obtained by the training participants and evaluated.	- The capacity of BMKG staff to conduct a vulnerability assessment and analysis of the climate change index enhanced even after project completion (Interview to BMKG). - Those who were involved in the project in Bali already left Bali due to personnel transfers. Their technique was not taken over by their successors (Interview to BMKG Bali). (Achievement: Fair)	
	1-3	At least two BMKG staff members are engaged as their regular operational tasks in producing information related to exposure to climate change.	- The implementing organization responded that the number of staff who were engaged in producing information on exposure to climate change at the time of the ex-post evaluation, was four (Interview to BMKG). (Achievement: High)	
	1-4	A study report is produced on climate impacts and agriculture.	- The study report is utilized as a reference material at BMKG. It is also utilized at universities, BAPPENAS, MOA, and NGOs in the agricultural sector (Questionnaire). (Achievement: High)	
Output 2: Climate change adaptation by farmer communities is practiced to secure rice production.	2-1	Monthly/weekly local weather information is utilized by WUA, extension workers and other stakeholders.	- The implementing organization indicated that the level of the utilization of the weather information was 4 on of 5-scale assessment (5 is the best, and 1 is the worst) (Questionnaire). (Achievement: High)	H
	2-2	Good practices on water management and rain water harvesting are tested on the ground at the pilot sites.	- The implementing organization responded that the achievement level of conducting the tests was 4 on the 5-scale assessment (5 is the best, and 1 is the worst) (Questionnaire to the implementing organization). - At the pilot sites such as Pasuruan Regency, the pilot activities have been continuing at the time of the ex-post evaluation. According to the local government staff, the pilot project was important, especially for the farmers. They acquired the water management methodology, which matched the area and was easy to apply. Because the pilot project in this area succeeded, some other sub-districts in the same regency began to apply this methodology also (Questionnaire to the implementing organization). (Achievement: High)	
	2-3	Recommendations on the way-forward for good practices on climate resilient agricultural development are developed and agreed.	- The implementing organization stated that the achievement status of the indicator at the time of the ex-post evaluation was 3 on the 5-scale assessment (5 is the best, 1 is the worst). Although the recommendations included a methodology for deciding the timing for planting as well as a planting calendar, weather status had uncertain factors, and a new problem arose every year (Questionnaire to the implementing organization). (Achievement: Fair)	
Output 3: Comprehension of the importance of crop insurance in agricultural protection is improved among stakeholders.	3-1	Result of the pilot study is presented by the agricultural officials at a national policy discussion meeting.	- The result of the pilot activities of crop insurance has been shared at meetings for discussing national policies even after project completion. Furthermore, nation-wide meetings have been organized almost every year to evaluate the crop insurance program (Questionnaire to the implementing organization). (Achievement: High)	F
	3-2	A general guideline and technical guidebook on crop insurance are developed.	- The guideline of the crop insurance is important for all of the stakeholders who are involved with crop insurance, such as farmers, staff at the agriculture bureau of provincial governments, provincial agriculture officers, insurance companies. Thus, the crop insurance guideline is utilized by these stakeholders at the time of the ex-post evaluation as well. As for the utilization status of the technical guideline, the information could not be obtained. (Achievement: Fair)	
	3-3	A range of agricultural risk mitigation instruments is listed and evaluated.	- The agricultural sector is the most fragile when it comes to climate change. Extreme weather leads to serious damages to agricultural productivity and farmers' livelihoods. Thus, MOA will continue the assessment of risk mitigation instruments. (Achievement: Fair)	
	★Output 3 itself	Comprehension of the importance of crop insurance in agricultural protection is improved among stakeholders.	- The implementing organization responded that the achievement status of Output 3 itself was 4 on the 5-scale assessment. According to MOA, securing sufficient funds for the next planting even at the time of a poor harvest sparked farmer's interest in the need for crop insurance. (Achievement: High)	

Source: Terminal Evaluation Report, questionnaire, and interview to the implementing organization
Note: H: High (achieved by 80% and above) F: Fair (50% - 79%) L: Low (less than 50%)

3) SP-3: Capacity enhancement to develop GHG Inventory

Although the continuation status of Output 2 (enhancement of capacity to manage the data for GHG inventories) is high, those of Output 1 (designing the system for preparing national GHG inventories) and Output 3 (improvement of understanding on accuracy, transparency, and reliability of GHG inventories among key ministries and local governments) are fair. Therefore, the continuation status of the outputs for SP-3 is fair.

Table 10: SP-3 The Continuation of the Outputs (at Time of Ex-Post Evaluation)

Outputs	Indicator		Achievement	Achieve-ment Level
【Sub-project 3(SP-3)】				F
Output 1: National system for preparing national GHG inventories is designed.	1-1	Procedure for inventory compilation is documented.	- The documents, such as the ICC Guideline in 2016 and a new guideline are utilized at KLHK (Questionnaire to the implementing organization). - At the time of the ex-post evaluation, the Ministry of Industry does not use "the Step-by-step Manual," and so on. Because the updated version of the IPCC guidelines (2016 and 2019) were released, the ministry has been utilizing the manual, which the ministry originally developed, and tries to update this manual. MOI developed approximately 34 manuals for specific fields since 2010. (Achievement: Fair)	F
	1-2	Procedure for quality assurance/quality control (QA/QC) is documented.	- Although the manual has been utilized since project completion, it could not be confirmed whether there has been any change in the description of the QA/QC method. (Achievement: Fair)	
	1-3	Institutional arrangement for preparation of national GHG inventories is documented.	- Although the document has been utilized since project completion, it could not be confirmed whether there has been any change in the description. (Achievement: Fair)	
Output 2: Capacity to periodically and systematically manage data necessary for national GHG inventories is enhanced.	2-1	National GHG inventory data is properly archived and maintained.	- The implementing organization responded that the status of the storage and management of the data was 5 on the 5-scale assessment (5 is the best, 1 is the worst) (Questionnaire to the implementing organization). (Assessment: High)	H
Output 3: Understanding on accuracy, transparency and reliability of GHG inventories is improved for each sector (energy; industrial processes; agriculture; land use, land-use change and forestry [LULUCF]; and waste) among key ministries and local governments.	3-1	Improvement for estimating emissions from and removals by categories is documented.	- Although the manual has been utilized since project completion, it could not be confirmed whether the description was changed. As for the software, it could not be confirmed whether it was changed or not, as well as its utilization status. (Achievement: Fair)	F
	3-2	Emission factors and other parameters are improved for the waste sector.	- In North Sumatra Province and South Sumatra Province, waste stream data have been continuously collected since project completion till the time of the ex-post evaluation. However, the reason for this continuation is the program called "ADIPURA" (a program to rate environmental cleanliness and sanitary status, which is conducted by KLHK (Questionnaire to BLH in North Sumatra Province and South Sumatra Province). - The information on the improvement status of the emission factors and the quantitative data could not be obtained. (Achievement: Fair)	
	★Output 3 itself	Understanding on accuracy, transparency and reliability of GHG inventories is improved for each sector (energy; industrial processes; agriculture; land use, land-use change and forestry [LULUCF]; and waste) among key ministries and local governments.	- The implementing organization responded that the achievement status of the Output 3 itself at the time of the ex-post evaluation is 5 on the 5-scale assessment (Questionnaire to the implementing organization). (Questionnaire: High)	

Source: Terminal Evaluation Report, questionnaire, and interview to the implementing organization
Note: H: High (achieved by 80% and above) F: Fair (50% - 79%) L: Low (less than 50%)

Based on the above, the continuation status of all of the outputs for SP-1, SP-2, and SP-3 is high.

(2-2) Continuation of Project Purpose

With regard to the continuation of the Project Purpose after project completion up to the ex-post evaluation, the indicators and the continuation status are shown in Table 11.

Table 11: The Continuation of the Project Purpose (at Time of Ex-Post Evaluation)

Project Purpose	Indicator		Achievement	Achievement Level
Capacity of the key ministries and local governments concerned of the Government of Indonesia to formulate climate change policies based on the sound information and approaches is developed.			- The continuation status of the Project Purpose of the project is assessed as high because continuation status of all of the Project Purposes of SPs from SP-1 to S-3 at the time of the ex-post evaluation is high.	H
【SP-1】 The capacity of the key ministries and local governments to formulate mitigation actions in a monitored, evaluated and reported manner and integrate adaptation into development planning is improved.	1-1	The reports produced by project activities are shared and utilized among stakeholders in Indonesia.	- At the time of the ex-post evaluation, the implementing organization responded that the utilization status of the reports mentioned was 3 on the 5-scale assessment (Questionnaire). - The discussions on climate change are very dynamic at the national and local levels. Thus, the latest or updated survey and analysis are required for the formulation of the policies. The results of the surveys conducted from 2010 to 2015 are not effective at the time of the ex-post evaluation. - On the other hand, as mentioned in the clause of the Output 3 achievement (Indicator 3-1), many surveys were conducted to formulate policies on adaptation actions for RPJMN 2020-2024. And new surveys are implemented and utilized at the time of the ex-post evaluation. (Achievement: High)	H
【SP-2】 Capacity to promote climate change adaptation actions in agriculture and other relevant sectors is improved.	2-1	Information on adaptation actions is regularly exchanged among concerned ministries (BAPPENAS, BMKG, MOA).	- The implementing organization responded that the status of sharing the information at the time of the ex-post evaluation was 5 on the 5-scale assessment (5 is the best, and 1 is the worst) (Questionnaire). - BMKG regularly provides weather information, and MOA analyzes the data through its research development agency. The data are input into the application software called "Advance Planting Calendar" (KATAM), which was developed by MOA. The data of KATAM have been updated daily and are utilized for predicting planting schedules. Moreover, the information provided by BMKG on the extreme weather forecast has been useful for taking countermeasures based on the prediction in advance. - Concerning crop insurance, MOA shares information on the current situation and the issues for future dissemination with BAPPENAS at the coordination meetings (both at online and offline). The frequency of sharing depends on the situation. (Achievement: High)	H
	2-2	Document/materials produced in Project are issued in the name of Government of Indonesia.	- TOT guideline and TOF guideline are utilized when the Irrigation Bureau of MOA formulates adaptation action program as a reference material. - In addition, these guidelines are utilized to improve knowledge of extension workers and local government staff at Agriculture Bureau for the further dissemination of crop insurance as well as a better understanding of farmers on the usefulness of crop insurance. (Achievement: High)	
	2-3	Integration of climate change adaptation into national development planning is achieved.	- The RPJMN (2020-2024) set forth increasing availability, access and quality of food consumption together with the provision of crop insurance, in addition to the fishery insurance and aquaculture insurance in its "Policy Directions and Strategies - Management of Economic Resources" (English version pII-24). - The ministerial decree of MOA (No. 40/2015) was issued in 2015 and stipulates the types of agricultural insurances, payment patterns of insurance premium and so on. The crop insurance in Indonesia started with rice in 2015, and cattle and buffalo were added in 2016 as the target. It is currently being discussed whether hot peppers and red onions should be added in the near future. As for the insurance premium, the government pays 80% and the farmer 20%. (Achievement: High)	
【SP-3】 National GHG inventories are compiled by KLH on a regular basis in cooperation with key ministries and local governments concerned of the Indonesian government.	3-1	National GHG Inventory Development is annually prepared by KLH.	- The GHG Inventory has been compiled annually even after project completion (the annual version is only for internal use). It has been useful for the submission of data to UNFCCC (Questionnaire and Interview to the implementing organization). The report submitted to UNFCCC is open to the public through internet. (Achievement: High)	H
	3-2	The improvement of estimation method (from lower tier to higher tier, e.g. by improving emission factor and/or activity data or by reporting with appropriate notation key) is documented.	- At the time of the ex-post evaluation, efforts have been made to improve the activity data and the emission factors for the respective sector. The Methodological Panel was established under KLHK, and an assessment has been conducted on the methodologies of the ministries (Questionnaire to the implementing organization). Clear information could not be obtained on the utilization status of the calculation method of the emission factors developed by the project at the time of the ex-post evaluation. (Achievement: Fair)	

Source: Questionnaire and interview to the implementing organizations
Note: H: High (achieved by 80% and above) F: Fair (50% - 79%) L: Low (less than 50%)

1) SP-1: Capacity enhancement to formulate mitigation actions and integrate adaptation into development planning

Concerning Indicator 1 (sharing and utilization of the developed reports), the implementing organization responded that the utilization status, at the time of the ex-post evaluation, of the reports developed by the project was rated as 3 on the 5-point assessment scale (5 being the best and 1 being the worst). Compared with the response to the same question regarding the utilization status at the time of the project completion, which was rated as 4, the status decreased to some extent. One of the reasons for the decrease was that the discussions on climate change are so dynamic that new survey results and decisions in line with the world trend are required for formulation of policies. Thus, the results of surveys conducted from 2010 to 2015 were not necessarily effective at the time of the ex-post evaluation[17]. On the other hand, mitigation action policies had already shifted from *RAN-GRK* to the *Low-Carbon Development Plan* and from *RAD-GRK* to the *Regional Low-Carbon Development Plan*. In addition, adaptation actions policies had already shifted from *RAN-API* to the *Climate Resilient Development Policy* (PBI), which succeeded *RAN-API*. Thus, the continuation status of SP-1's Project Purpose is high.

2) SP-2: Capacity enhancement to promote adaptation actions in relevant sectors

With regard to Indicator 1 (sharing and utilization of the developed reports among related ministries), BMKG regularly provides weather information and MOA analyzes the data through its research development agency. The data are input into the application software called Advance Planting Calendar (KATAM), which MOA developed. The data of KATAM has been updated daily and has been utilized for predicting the planting schedules. Concerning crop insurance, MOF and BAPPENAS share and utilize the information on the current dissemination and issues for future dissemination at the coordination meeting (both online and offline)[18]. Thus, the continuation status of Indicator 1 is high. As for Indicator 2 (issuance of the developed documents in the name of the Indonesian government), The TOT Guideline and the TOF Guideline developed by the project have been utilized when the Irrigation Bureau of MOA formulates adaptation action programs as reference material. In addition, these guidelines are utilized to improve knowledge of extension workers and local government staff at the Agriculture Bureau for further dissemination of crop insurance as well as to improve farmers' understanding of the usefulness of crop insurance. Hence, the continuation status of Indicator 2 is high. Relating to Indicator 3 (integration of climate change

[17] Questionnaire to BAPPENAS
[18] Interview and questionnaire to MOA

adaptation into national development planning), *RPJMN* (2020-2024) set forth increasing availability, access, and quality of food consumption together with the provision of crop insurance in addition to the fishery insurance and aquaculture insurance[19]. Consequently, the continuation status of Indicator 3 is high. Because the continuous status of all the three indicators is high, the continuous status of SP-2's Project Purpose is high.

3) SP-3: Capacity enhancement to compile GHG Inventories on a regular basis

As for Indicator 1 (annual development of national a GHG inventory), the GHG Inventory has been compiled annually even after project completion and useful for the submission of data to UNFCCC[20]. Hence, the continuation status of Indicator 1 is high. With regard to Indicator 2 (documentation of the improved calculation method), efforts have been made to improve the activity data and the emission factors for the respective sector. The Methodology Panel[21] was established under KLHK in 2017, and assessment and discussions have been made on the improved methodologies of emission factors for each sector proposed by the ministries[22]. Clear information could not be obtained on the utilization status of the calculation method of the emission factors developed by the project at the time of the ex-post evaluation. Based on the above, the continuation status of Indicator 2 is fair. Therefore, the continuation status of SP-3's Project Purpose is high.

Since the continuation status of the Project Purpose in every SP is high from project completion to the ex-post evaluation, the continuation status of the Project Purpose for the whole project after completion is high. The climate change measures have been a nationwide challenge with the efforts made by the ministries and the local governments under the strong leadership of the president with his international commitment. This led to the eager involvement of the implementing organizations and the related ministries, which seems to have contributed to the high continuation status.

3.2.2.2 Other Positive and Negative Impacts

No relocation of residents or land acquisition was caused by the project. As for the impact on the natural environment, reduction of GHG emissions, which is one of the indicators of the Overall Goal, is included. However, this is not included in this section

[19] English version (pII-24)
[20] Questionnaire and interview to KLHK
[21] The Methodological Panel was formed with task to evaluate methodologies for defining baseline and monitoring emission proposed by sectors or actors that implement mitigation actions (Indonesia's Second Biennial Update Report under the UNFCCC [P4-2]).
[22] Questionnaire to KLHK

because it has already been analyzed in the section of the achievement of the Overall Goal. Other indirect impacts were pointed out, such as utilization of the teaching materials for TOT developed by the project for promoting farmers' utilization of weather information into agriculture in relation to SP-2 are utilized for other training conducted by MOA. In addition, in relation to SP-3, surveys in the waste sector were conducted at city/regency level instead of provincial level for development of GHG inventories. No negative impact was observed.

As stated above, the achievement of the Outputs and the Project Purpose by project completion is high. Thus, project effectiveness is high. The achievement of the Overall Goal is high, while the continuation status of the Outputs and the Project Purpose from project completion to the ex-post evaluation is high. Some other positive impacts are pointed out to have emerged. Hence, impact is high. Therefore, effectiveness and impact of the project are high.

3.3 Efficiency (Rating: ②)

3.3.1 Inputs

The project's planned and actual inputs at the time of the project completion are shown in Table 12.

Table 12: Planned and Actual Inputs

Inputs	Plan	Actual (Project Completion)
(1) Experts	● Long-term Expert: No description of number or duration (Climate Change, Project Coordinator, Vulnerability Assessment, National GHG Inventory) ● Short-term: as needed	● Long-term Expert: 8 persons in total ● Short-term Expert: 29 persons in total (SP-1: 10 persons; SP-2: 4 persons; SP-3: 15 persons)
(2) Trainees received	● Training in Japan: No description of number or duration ● Third-country training: No description of number or duration	● Training in Japan: 128 persons - Long-term: 5 persons - Shor-term:123 persons
(3) Equipment	● Equipment provision: (no description of the amount)	● Equipment provision: Computer, server, work station, etc.

<table>
<tr><td>(4) Local Cost</td><td>● Local cost: No description of the amount</td><td>● Local cost: IDR 45,782,251,799 (approximately 419 million yen)[23]</td></tr>
<tr><td>Japanese Side Total Project Cost</td><td>● Total: 1,100 million yen</td><td>● Total: 1,493 million yen</td></tr>
<tr><td>Indonesian Side Total Project Cost</td><td>(No description of the amount)
● Allocation of counterparts
- Project Director (Director of Environmental Division, BAPPENAS)
- Sub-Project Director (Output 1: Director, Environment Division, BAPPENAS; Output 2: Director, Climate Change and Atmosphere Center, BMKG; Output 3: Division Head, Climate Change Mitigation, KLH)
- Sub-Project Manager (Output 1: Deputy Director, Environment Division, BAPPENAS; Output 2: Deputy Director, Climate Change and Atmosphere Center; Output 3 Division Head, Climate Change Mitigation, KLH)
- Counterpart (Division of Environment, BAPPENAS, Climate Change and Atmosphere Center, BMKG, Climate Change Mitigation Division, KLH)
● Project Office space and facilities
● Operational and maintenance cost, electricity, water, etc.</td><td>(No description of the amount)
● Allocation of counterparts
- Project Director: 1 person
-Project Counterpart :73 persons from BAPPENAS, MASP, BMKG, MOA, and KLHK (SP-1:35 persons, SP-2: 24 person, SP-3: 14 persons)
● Office space
● Operational cost: IDR14,421,205,450[24]
The breakdown is as follows.
(Unit: IDR)<table><tr><th>Counterpart Organization</th><th>Amount</th></tr><tr><td>BAPPENAS</td><td>2,481,135,000</td></tr><tr><td>PU (MASP)</td><td>600,000,000</td></tr><tr><td>BMKG</td><td>2,835,647,600</td></tr><tr><td>MOA (Irrigation)</td><td>429,422,850</td></tr><tr><td>MOA (Insurance)</td><td>75,000,000</td></tr><tr><td>KLHK</td><td>8,000,000,000</td></tr><tr><td>Total</td><td>14,421,205,450</td></tr></table></td></tr>
</table>

3.3.1.1 Elements of Inputs

As the major inputs from the Japanese side, the implementing organization was asked to rate the quality, quantity, and timeliness of dispatching experts and training in Japan on 5-point scale (5 being the best). All the responses were 4 out of 5, and no problem was observed in the inputs from the Japanese side. The inputs from the

[23] As of May 2015. Terminal Evaluation Report (p10)
[24] As of December 2014. The Terminal Evaluation Report (p11)

Indonesian side were implemented almost in accordance with the plan, and no specific problem was observed in terms of quality, quantity, or timeliness.

3.3.1.2 Project Cost

The total project cost borne by the Japanese side was 1,493 million yen. This exceeded the plan (135% of the intended total)[25]. The reason for the excess of the project cost was that the expenses for the country-focused training, the long-term training, and the local cost support were more than expected[26]. As stated in the section on effectiveness, the achievement of the outputs in all SPs is high. However, sufficient information could not be obtained on the specific relationship between the three kinds of cost mentioned above, which exceeded the plan, and the achieved outputs.

3.3.1.3 Project Period

The project period initially planned was from October 2010 to October 2015 (60 months). The actual period was from October 2010 to October 2015 (60 months[27]), which was just as planned (100% compared with the plan).

In light of the above, although the project period was just as planned, the project cost exceeded the plan. Therefore, efficiency of the project is fair.

3.4 Sustainability (Rating: ③)

3.4.1 Policy and Political Commitment for the Sustainability of Project Effects

The *RPJMN (2015-2019)*, which was established during the project period, set a goal to strengthen spatial planning and introduce agriculture insurance, in addition to the implementation of *RAN-GRK* and *RAN-API*, reflecting the effect of this project[28]. In September 2015, the government of Indonesia aimed to reduce GHG emissions and submitted to the UNFCCC Secretariat the Intended Nationally Determined Contributions (INDCs). It stipulates its objective to reduce GHG emissions by 29% relative to BAU by 2030 (41% if it receives international support), which is a more advanced target compared with before. *RPJMN (2020-2024)*, which is effective at the time of the ex-post evaluation, referred to this target, as well as the promotion of the low-carbon development. In light of the above, sustainability concerning the aspects of policy and political commitment is high.

[25] The comparison was made with the amount initially planned because the planned amount in the latest PDM was not shown.
[26] Material provided by JICA
[27] The project period was from October 26, 2010, to October 25, 2015 (Global Environment Department, JICA) The project period was calculated on a day count basis.
[28] Terminal Evaluation Report p33

3.4.2 Institutional/Organizational Aspect for the Sustainability of Project Effects

Regarding SP-1, the secretariat of *RAN-GRK* and *RAN-API* was managed by BAPPENAS with the support from this project and other donors. On the other hand, as for the substantial support, the Technical Team, which was established and consisted of the personnel from related ministries, received technical support from the Secretariat of *RAN-GRK* and *RAN-API*. According to BAPPENAS, which was responsible for SP-1 and coordinated the whole project, the number of staff at *RAN-GRK* Secretariat, *RAN-API* Secretariat, and the Technical Team from the project commencement to the ex-post evaluation has been maintained and even slightly increased.

In relation to the capacity enhancement to analyze climate change in SP-2, the number of BMKG staff, who are engaged in producing information on exposure to climate change, is four at the time of the ex-post evaluation, which remains the same as it was in the project implementation period. In addition, there is no shortage in the staff number[29]. Concerning the crop insurance, the MOA's *Ministerial Regulation (No. 40/2015)* established in 2015 stipulated the types of crop insurance, payment patterns of insurance premiums, and so on, and the crop insurance started in Indonesia with rice. In 2016, cattle and buffalo were added as the target of the agricultural insurance. Discussions of whether hot peppers and red onions should be added as targets in the near future are now in the process. Thus, the institutional foundation for agricultural insurance has been well established.

In SP-3, SIGN Center was established as a permanent body at KLHK based on *Presidential Regulation No. 71/2011 on the National GHG Inventory*, and the staff has been appropriately allocated. The center remains under the Directorate of GHG Inventory and the MRV of the General Directorate of Climate Change after reorganization of KLHK. In addition, with the issuance of the Ministerial Regulation in 2017, the rule of the implementing structure was revised so that the related ministries calculate the GHG Inventory for each sector and KLHK is responsible for the quality control and compilation. However, actually, the related line ministries submitted the data only, and KLHK calculated the data[30]. The actual situation, in which KLHK has been heading the whole process of calculation for GHG Inventory, has been the same since before reorganization when it used to be KLH (although the calculation task was outsourced during the time). Concerning the staff allocation for SP-3, necessary data

[29] Questionnaire to BMKG

[30] Kawanishi, M., Fujikura, R., Kato, M., & Morizane, J. (2021). Comparative Study on the Institutional Designs for National Greenhouse Gas Inventory - The Cases of Japan, Indonesia, Vietnam, and Thailand -. *Environmental science.* 34 (3): 124-138 p129

could not be obtained due to reorganization[31]. Thus, a comparison could not be made between the current number of staff with that of the implementing period.

As explained above, there is no significant problem for staff allocation for each SP at the time of the ex-post evaluation, and the implementing structure is stable. Thus, sustainability from institutional/organizational aspect is high.

3.4.3 Technical Aspect for the Sustainability of Project Effects

With regard to SP-1, there was little personnel transfer at BAPPENAS throughout the project duration. Consequently, it was confirmed at the time of the terminal evaluation that the transferred technology had been established. When asked about the level of knowledge or skill of its staff concerned at the time of the ex-post evaluation, BAPPENAS responded that policy formulation of mitigation actions and MRV as well as MRV in the adaptation process was rated as 4, and the mainstreaming of the adaptation strategy was 3 on the 5-point scale (5 being the best)[32].

As for SP-2, the number of staff who were engaged in producing information on exposure to climate change was four at project completion, which achieved Indicator 1-3. At the time of the ex-post evaluation, the number of the staff remains the same. However, the staff at BMKG Bali who used to be engaged with the project have already been transferred outside Bali Province, and their skills were not taken over by their successors[33]. In addition, in relation to the crop insurance of SP-2, JICA is implementing the *Capacity Development for the Implementation of Agricultural Insurance Project* to support enhancement of the capacity to implement the current agricultural insurance in the pilot area (i.e., East Java Province, South Sulawesi Province, and West Java Province). The above project has been conducting TOT for those involved, including agricultural extension workers to promote agricultural insurance. Thus, complementary effects are expected with the project with which capacity to disseminate agricultural insurance is enhanced.

Concerning SP-3, the necessity of technology transfer was pointed out for improving accuracy of the GHG Inventory at the time of the terminal evaluation. At the local government level, some provincial staff, while receiving support from local resource persons, could give technical guidance to the city/regency staff on the inventory development. At the time of the ex-post evaluation, no significant problem on the technical level of staff was observed[34]. The GHG Inventory Step-by-Step Manual[35]

[31] Interview to KLHK
[32] Questionnaire to BAPPENAS
[33] Interview to BMKG, Bali Province
[34] Questionnaire to KLHK
[35] GHG Inventory Step-by-Step Manual was developed as a part of SP-3's activities as a manual for

developed by this project has been utilized by KLHK at the time of the ex-post evaluation[36]. However, in some ministries related to SP-3, some staff in charge responded that they did not know about the manual, which means the possibility that the manual is not utilized by the ministries[37].

In light of the above, no significant problem was observed on the technical capacity of the implementing organizations, although there is possibility that the manual developed by the project is not utilized in some ministries related to SP-3. Therefore, sustainability from the technical aspect is mostly high.

3.4.4 Financial Aspect for the Sustainability of Project Effects

As for SP-1, the budget for necessary cost and salary for continuing activities to promote mitigation and adaptation actions at the time of the ex-post evaluation is mostly secured, and the implementing organization indicated there is no problem with the financial aspect[38]. Although *RAD-GRK* has been implemented with the budget of local governments at the time of the ex-post evaluation, it is possible to provide budget funds from the donors or the Indonesian government, when necessary[39].

With regard to the budget for SP-2, the source of funds is different depending on the related ministries. Regarding Output 1 on the capacity of analysis on climate change, the budget of BMKG fluctuates every year, and a specific tendency could not be observed for the last 4 years. However, it is thought possible that BMKG can secure budget funds to some extent because it is one of the targets for the Capacity Development for the Implementation of Climate Change Strategies Phase 2 Project, which succeeded this project. In addition, in Output 2 concerning the agriculture sector, development of good practice on water management and rainwater harvesting, the training on agricultural water management in the pilot area is conducted with a regular budget, and no problem is observed. In addition, a proposal for improving and repairing irrigation water channels and so on in the pilot area was submitted with the responsibility of MOA, and the implementation was decided with utilization of the counterpart fund of the food aid (4.5 billion Indonesia rupiah). As for the agricultural insurance in Output 3, the government secured a budget of 150 billion Indonesian rupiahs (approximately 1.4 billion yen) for the expense of the premium[40] for agricultural

calculating GHG emissions. The manual was developed in the fields of energy, industrial process, agriculture, LUUCF, and waste. The manual was utilized in the training seminar for GHG Inventory development, and provided the participants from related ministries with the methodology of calculating the emissions as well as verification procedure.

[36] Questionnaire to KLHK

[37] Questionnaires to the pilot ministries

[38] Questionnaire to BAPPENAS

[39] Questionnaire to BAPPENAS

[40] According to MOA, 80% of the premium is paid by the government, and 20% by the farmers.

insurance as well as 2 billion Indonesian rupiahs (approximately 18 million yen) for dissemination activity expense as the annual budget for 2015, approved by National Assembly (DPR) in February 2014. Although the government budget amount since then could not be obtained, the area of farmland, for which agricultural insurance is applied and for which the government pays the insurance premium, drastically increased from 233,000 ha in 2015 to 1,000,000 ha in 2020[41]. Hence, no problem is observed in securing the government budget for expanding the agricultural insurance.

The budget for the development of the GHG Inventory in SP-3 has been secured as the budget for compiling the National Communication by Global Environment Facility, the international organizations, and bilateral donors. Moreover, GHG inventory at the regional level can be developed with the provincial budget based on *Presidential Regulation No. 32/2009*. Thus, sustainability from a financial aspect was assessed as high at the terminal evaluation. At the time of the ex-post evaluation, the transition of the financial status related to climate change measures could not be obtained, as it was not open to public. However, the budget of KLHK as a whole since 2016, the year when the project was completed, has been slightly increasing, although there is some fluctuation.

In light of the above, sustainability concerning the financial aspect is high.

Table 13: The Financial Status of KLHK

(Unit: Thousand Rupiah)

Year	2015(1)	2016(1)	2017(1)	2018(1)(3)	2019(1)
Revenue	6,660,752,124	5,947,308,766	6,477,038,468	8,060,961,667	9,196,117,308
Expenditure	5,766,396,912	4,883,100,047	5,871,663,456	7,180,934,725	8,843,040,517

Source: Formulated based on the followings.
(1) Rencana Strategies Kementrian Lingkungan Hidup dan Kehutanan 2020-2024 (p50)
The Ministerial Regulation of Environment and Forestry No. P.16/MENLHK/SETJEN/SET.1/8/2020
(2) Laporan Kinerja KLHK 2020 (p4)
https://www.menlhk.go.id/site/single_post/3624/laporan-kinerja-tahun-2020
(3) Laporan Kinerja KLHK 2018 (p4)

Sustainability from the policy background, the institutional/organizational, financial aspects is high, while sustainability from technical aspect is mostly high. Therefore, sustainability of the project effects is high.

[41] Interview to MOA

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

This project was implemented to strengthen the capacity of the key ministries and the local governments concerned to formulate climate change policies and develop information administration as its foundation, by enhancing the capacities to incorporate mitigation and adaptation actions into the national development plan, practice the adaptation actions in agriculture and other sectors, and develop the GHG Inventory in Indonesia. The project sufficiently corresponded with the Indonesian development policy, which aimed at promoting climate change measures, and development needs, such as reducing a large amount of GHG emissions from the planning stage to project completion, as well as the Japan's ODA policy to promote "environment conservation and disaster prevention" at the time of planning. Thus, the relevance of the project is high. The achievement of the Outputs by project completion was high in all Sub-projects (SPs), while the achievement of the Project Purpose was high because the indicators of the Project Purpose were achieved in all the SPs. The achievement of the Overall Goal was high, because the achievement of the objective to eliminate GHG emissions and so on was high. The continuation of the Outputs and the Project Purpose after project completion until the ex-post evaluation has been high. Other positive impacts have been confirmed. Therefore, the effectiveness and impacts are high. Whereas the project's duration was just as planned, the project cost exceeded the plan. Hence, the project has fair efficiency. No problems have been observed in the policy background or in the institutional/organizational and financial aspects, and the sustainability in the technical aspect is mostly high. Therefore, sustainability of the project effects is high. In light of the above, this project is evaluated to be highly satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

None.

4.2.2 Recommendations to JICA

None.

4.3 Lessons Learned

Points to consider when projects requested separately are combined into one

At the planning stage of this project, JICA selected three officially requested projects out of four, and combined them as one project, keeping them as three SPs. This is because the integration was expected to bring about a synergic effect by implementing

them in a unified manner. During implementation, it was pointed out that a significant amount of time and effort was required for coordination. On the other hand, it was also pointed out that the combination of the three projects helped to improve the quantity and speed of information sharing and information exchange compared with the case in which each project is implemented respectively. It is mentioned that it contributed to establishing a close collaborative relationship, reducing the cost of coordinating and dispatching experts, and so on. When examining whether requested projects should be combined, it should be judged on a case-by-case basis based on sufficient information and analysis of the characteristics of the sector, content of the official request, and the situation of the counterpart organization at the time of planning.

On the other hand, the background mentioned above might have affected the planning. This project has four types of PDM (i.e., the PDM for the whole project as well as for each SP). A part of the Project Purpose of the PDM for the whole project consists of the Project Purpose of PDM for respective SP. There are some issues regarding the logic of the PDMs. For example, some of the indicators of the PDMs are not necessarily appropriate, and the Project Purpose rephrases all of the outputs using a different expression. It is regarded as one of the reasons for the above problems with the three requested projects, which were originally independent climate change projects but were combined into one.

Combining some projects into one project can be understood as substantially a planning of a JICA program. In this case, it is necessary to proceed firstly with project planning by setting a specific and measurable objective to be achieved by the project completion, identify some components to achieve the objectives, and then to clarify specific means for achieving the objectives based on the “means and ends” relationship. When some components already planned to some extent are combined, the relation between the objective of each component and that of the whole project tends to be “rephrasing the same thing in another expression” instead of “means and ends” relationship. After identifying the means to achieve each objective at proper levels, it is important to set indicators, which show something to be achieved as the result of conducting activities, instead of something to show the conducted activities, and establish appropriate indicators which can objectively assess the achievement status of the objectives, for effective and efficient monitoring and evaluation.