Republic of Indonesia

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

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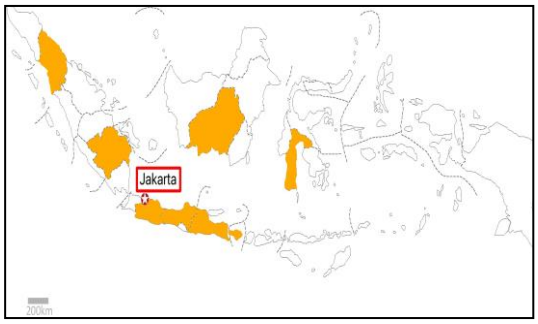
0. Summary

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.

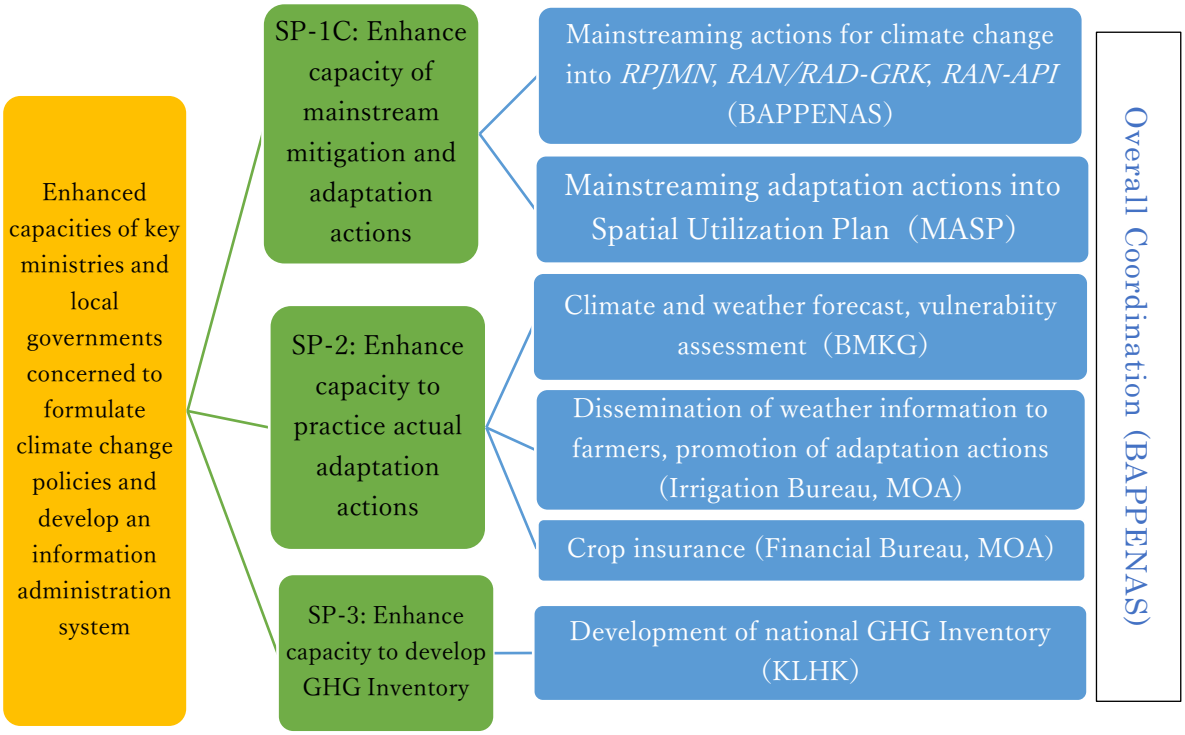


Fig. 1. The Project Overview and the Ministries in Charge

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.