Project Completion Report

Project Title: The Project of Capacity Development for the Implementation of Climate Change Strategies Phase 2

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PM Form 4 Project Completion Report

Abbreviations

AKSARA	Aplikasi Perencanaan-Pemantauan Aksi Rendah Karbon Nasional
APIK	Adaptasi Perubahan Iklim dan Ketangguhan
ATR	Kementerian Agraria dan Tata Ruang
BAPPENAS	Badan Perencanaan Pembangunan Nasional
BAU	Business as Usual
BMKG	Badan Meteorologi, Klimatologi, dan Geofisika
BNPB	Badan Nasional Penanggulangan Bencana
CCA	Climate Change Adaptation
COP	Conference of the Parties
CRD	Climate Resilience Development Policy
DRR	Disaster Risk Reduction
FGD	Focus Group Discussion
GHG	Greenhouse Gas
HPC	High Performance Computer
ICCS2	The Project of Capacity Development for the Implementation of Climate Change Strategies Phase 2 (JICA ICCS Phase2)
IT	Information and Technology
KTA	Konservasi Tanah dan Air
JCC	Joint Coordinating Committee
JMBSC	Japan Meteorological Business Support Center
KLHK	Kementerian Lingkungan Hidup dan Kehutanan
KRISNA	Kolaborasi Perencanaan dan Informasi Kinerja Anggaran
LCDI	Low Carbon Development Indonesia
MASP	Ministry of Agrarian Affairs and Spatial Planning
MER	Monitoring, Evaluation and Reporting
M&E	Monitoring and Evaluation
MM	Minutes of Meeting
NDC	Nationally Determined Contribution
PBI	Pembangunan Berketahanan Iklim
RAD-API	Rencana Aksi Daerah Adaptasi Perubahan Iklim
RAD-GRK	Rencana Aksi Daerah Penurunan Emisi Gas Rumah Kaca

RAN-API	Rencana Aksi Nasional Adaptasi Perubahan Iklim
RAN-GRK	Rencana Aksi Nasional Penurunan Emisi Gas Rumah Kaca
RCP	Representative Concentration Pathways
RD	Record of Discussion
RPJMD	Rencana Pembangunan Jangka Menengah Daerah
RPJMN	Rencana Pembangunan Jangka Menengah Nasional
SDGs	Sustainable Development Goals
SIDIK	Sistem Informasi Data Indeks Kerentanan
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
WG	Working Group
WGD	Working Group Discussion

I. Basic Information of the Project

1. Country

The Project has been implemented in Indonesia, based on the meeting agreements in the Detailed Planning Survey on the Project of Capacity Development for the Implementation of Climate Change Strategies Phase 2 signed on October 21st, 2015, between BAPPENAS and JICA. JICA held a series of discussions with authorities concerned of the Republic of Indonesia to develop a detailed plan for the Project. While BAPPENAS is responsible for the coordination of the Project, all the counterpart organizations (KLHK, BMKG, and ATR) are responsible for conducting their respective roles in the Project.

2. Title of the Project

The Project of Capacity Development for the Implementation of Climate Change Strategies Phase 2 (JICA ICCS Phase2 / ICCS2).

3. Duration of the Project (Planned and Actual)

The planned period of the project was 3 years from May 9th, 2019, to May 8th, 2022.

The actual period of the project is 3 years and 10 months from May 9th, 2019 to March 31st, 2023 after the amendment of R/D. The extension is mainly due to the COVID-19 pandemic in the world which gave a negative impact on the progress of the project implementation including delay in the issuance of VISA for both long and short term experts, around two-year absence of a chief advisor of the project in Indonesia, difficulties of face to face meetings with counterparts and stakeholders at both central and local levels, a difficulty to conduct capacity building and project activities, especially at the pilot sites.

4. Background (from Record of Discussions(R/D))

Greenhouse gas (GHG) emissions in Indonesia, when deforestation and peatland conversion is counted, are among the largest in the world, and there is a concern that they may increase further along with economic development and population growth. Indonesia is also vulnerable to the impacts of climate change, such as sea level rise as well as increases in frequency and intensity of extreme weather events. Integration of adaptation into development planning has therefore become important at both the national and local levels.

Indonesia is the host country of the 13th Conference of the Parties (COP13) to the United Nations Framework Convention on Climate Change (UNFCCC) in 2007 and has taken an important role in international negotiations on climate change. At the G20 summit in 2009, the then President of Indonesia announced a voluntary commitment to reduce GHG emissions by 26% with its own resources and 41% with international support by 2020 compared to the business as usual

(BAU) scenario. (In Sep 2022, the Government of Indonesia increased the emission reduction target from 29% in First NDC and Updated NDC to 31.89% unconditionally and from 41% in the Updated NDC to 43.20% conditionally.)

In response, JICA implemented the “Project of Capacity Development for Climate Change Strategies” in Indonesia from October 2010 to October 2015. In September 2011, Presidential Regulation No.61 Year 2011 on the National Action Plan on Greenhouse Gas Emissions Reduction (RAN-GRK) and Presidential Regulation No. 71 Year 2011 on the GHG Inventory System were issued, which was followed by the formulation of the Regional Action Plan for Greenhouse Gas Emissions Reduction (RAD-GRK). The National Action Plan for Climate Change Adaptation (RAN-API) was also developed and officially approved in February 2014.

In order to promote the appropriate implementation, monitoring and evaluation of the above plans, the Government of the Republic of Indonesia requested the Government of Japan for the Project of Capacity Development for Implementation of Climate Change Strategies (2nd Phase).

5. Overall Goal and Project Purpose (from Record of Discussions(R/D))

A. Expected goals which will be attained after implementing the Propose Plan

(1) Overall Goal

Climate change actions are properly promoted and mainstreamed in Indonesia’s National Development Plan to support low-carbon and green economic development.

(2) Project Purpose

Capacities of the key ministries and local government for climate action cycle (policy assessment, development of framework, development of process and methods, plan, implementation, monitor, and evaluation) are improved.

B. Outputs

(1) Output 1:

Implementation of climate change mitigation actions under RAN-GRK and INDC/NDC to support Low Carbon Development (LCD) and Green Economic Development in the next RPJMN 2020-2024 is strengthened.

(2) Output 2:

National Action Plans on Climate Change Adaptation (RAN-API) as the basis for climate change adaptation (CCA) policies, planning, and program in the next RPJMN 2020-2024 is reinforced and reformed.

6. Implementing Agency

The roles and assignments of relevant organizations are as follows:

(1) Joint Coordinating Committee (JCC) Chairperson for this Project

Deputy for Maritime and Nature Resources (BAPPENAS)

(2) Project Coordinator (BAPPENAS)

Director for Environmental Affairs, Directorate for Environmental Affairs, will be responsible for overall coordination of the Project.

(3) Responsible Partners (BAPPENAS, KLHK, ATR, BMKG)

Representatives from each organization will be responsible for the implementation, managerial, technical, and administrative matters of their respective activities of the Project as Responsible Persons

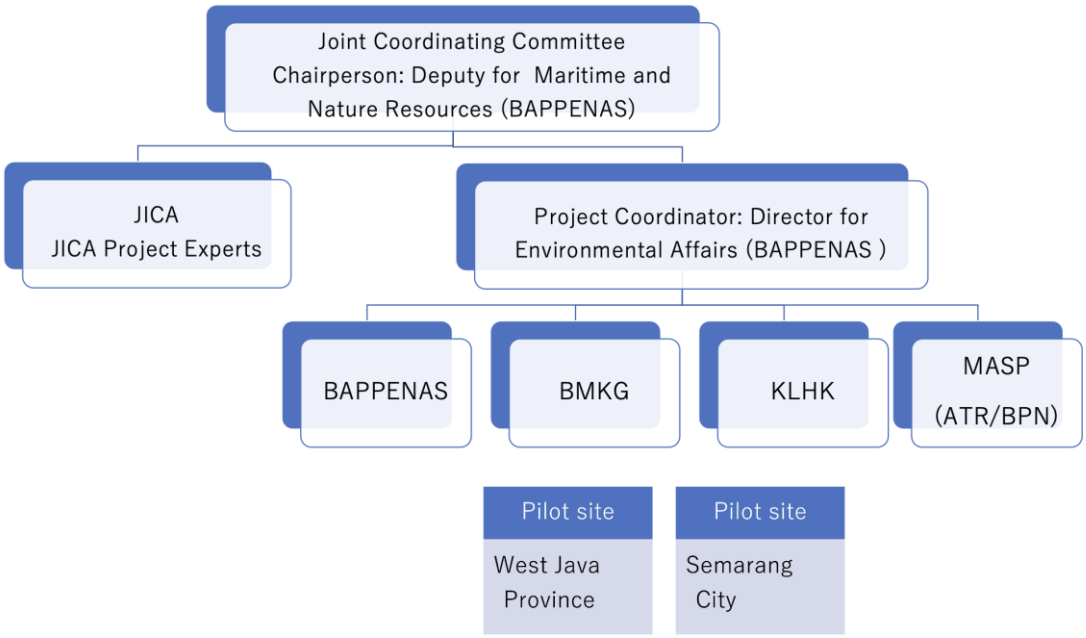

Figure 1: Project Structure

II. Results of the Project

1. Results of the Project

1-1 Input by the Japanese side (Planned and Actual)

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1-1 Input by the Japanese side (Planned and Actual)

(1) JICA Long Term Experts

Three (3) Long Term Experts have been dispatched from May 2019 till March 2023.

-Mr. Hiroshi Enomoto, Chief Adviser, May 15, 2019, to Dec 31, 2019 (Completed)
-Dr. Jun Ichihara, Chief Adviser, October 28, 2021 (planned April 2020) to March 31, 2023
-Mr. Kazushi Suzuki, Project Coordinator, May 9, 2019, to March 31, 2023

(2) JICA Short Term Experts

JICA Short Term Expert teams have been dispatched under the following timeline:

-Mr. Michihiko Tonouchi, Statistical Downscaling Consultant, Jan 29, 2022, to Mar 5, 2022
-Dr. Koichi Kurihara, Long Range Forecasting Consultant, Jan 28, 2021, to Mar 4, 2021
-Mr. Masaru Chiba, Dynamical Downscaling Consultant, July 13, 2022, to Aug 27, 2022
-Dr. Koichi Kurihara, Long Range Forecasting Consultant, July 13, 2022, to Aug 27, 2022
-Mr. Hiroshi Satoda, Dynamical Downscaling Consultant, July 31, 2022, to Aug 21, 2022
-Mr. Michihiko Tonouchi, Statistical Downscaling Consultant, Feb 27, 2023, to Mar 8, 2023
-Dr. Koichi Kurihara, Long Range Forecasting Consultant, Feb 26, 2023, to Mar 11, 2023
-Mr. Masaru Chiba, Dynamical Downscaling Consultant, Feb 26, 2023, to Mar 14, 2023

(3) Training in Japan and/or Indonesia.

The following training programs for counterparts and relevant stakeholders have been implemented to further enhance the technical knowledge and capacities of the officers in data utilization, planning, implementation, monitoring, and evaluation of climate change mitigation and adaptation.

Training in Japan：

- Capacity Building for Climate Change Projections in Indonesia, December 4-17, 2022, (6 Participants, Center for Climate Change Information, Agency for Meteorology, Climatology and Geophysics (BMKG)).

Training in Indonesia:

- Developing AKSARA (Aplikasi Perencanaan-Pemantauan Aksi Rendah Karbon Nasional) and the System, December 30, 2021 (50 Participants)
- Climate Change and Climate Change Adaptation in Spatial Planning Process, January 25, 2022 (35 Participants)

- Capacity Building and Trial Testing on Mainstreaming CCA into Spatial Planning in West Java, August 22, 2022 (141 participants)
- Capacity Building and Trial Testing on Mainstreaming CCA into Spatial Planning in Semarang, September 13, 2022 (39 participants)
- Climate Projection and Seasonal Prediction sharing knowledge in Bandung, West Java, October 1-3, 2022 (Day 1: 50 participants, Day 2: 40 Participants and Day 3: 40 participants)
- Climate Projection and Seasonal Prediction sharing knowledge in Semarang, November 15-17, 2022 (Day 1: 60 participants, Day 3: 40 participants and Day 3: 40 participants)
- The New SIDIK Operationalization Capacity Improvement. February 6, 2023 (19 Participants)
- Training on trial-utilization of the guideline for ATR Staff, February 15-16, 2023 (25 Participants for day 1 and day 2 (in total 50 participants for 2 days))

See Annex 1 for more details.

(4) Equipment Provision

The Project has provided the following equipment for the implementation of the Project: High-Performance Computer (around 7,000,000 JPY).

(5) Project Cost

The total amount of Overseas Operation Cost is IDR 20,990,942,202 equivalent to 170,044,282 Japanese Yen as of December 31, 2022 (JICA's monthly exchange rate as of month/year).

Year 2019 4,856,460,000 IDR (equivalent to 37,951,000 JPY)
Year 2020 2,573,000,000 IDR (equivalent to 18,856,000 JPY)
Year 2021 8,837,000,000 IDR (equivalent to 71,332,000 JPY)
Year 2022 2,369,526,462 IDR (equivalent to 20,875,528 JPY)
Year 2023 2,354,955,740 IDR (equivalent to 21,029,754 JPY)

Main Expenditure

1 Miscellaneous – Hiring local staff, Domestic transportation Fee, etc.
2 Business Trip Cost – Transportation (Airplane, Rental Car, etc)
3 Agent Cost – Short Term Consultant 41 Contracts and Long-Term Consultant 6 Contracts

(6) Studies

The Project has conducted the following studies deemed necessary for the implementation of the Project (see details in Annex2):

1)Output1

- Finalization of Mangrove Map and Identification for Gaps to Improve the Accuracy of Mangrove Data
- Development of Mangrove Map and Database for National Baseline and Carbon Stock Estimation

- Improvement of monitoring and evaluation in AKSARA system - Identification of Renja / RKA related to Goal 13 of SDGs
- Improvement of monitoring and evaluation in AKSARA system integration between AKSARA and related system in BAPPENAS
- Identification and Review of Investment for LCDI Development
- Review of Challenges and Engagement Strategy in Mobilizing Further Investment for LCDI Development
- Mapping and Reviewing the Innovative Financing Schemes of the Domestic Private Sector and Foreign Investment under the LCDI Priority Sectors
- Identifying Challenges and Barriers to Promote the Domestic Private Sector and Foreign Investment under the LCDI Priority Sectors
- Comprehensive Study on Review of Challenges and Engagement Strategy in Mobilizing Further Investment for LCDI Development.
- Quick study Improvement of Monitoring and Evaluation in AKSARA System to Support the LCDI Development for the Non-state Actors (Private Sector)
- Identification of Private Sector Monitoring System based on SDGs Activities to Support the AKSARA System Development

2)Output2

- Study on Guideline of Mainstreaming Climate Change Adaptation (CCA) Into Spatial Planning.
- Study on Revision on Guideline of Mainstreaming CCA Into Spatial Plan.
- Study on Data and Information Provision Mapping
- Initial study of Gap Analysis to improve the economic loss analysis of RAN-API.
- Formulation of Adaptation Policy and Strategy on Coastal-Marine and Health Sector (RAN-API)
- Formulation of Adaptation Policy and Strategy on Water and Agriculture Sector (RAN-API)
- English translation of Climate Resilience Development Policy Document (6 books):
    - Executive Summary;
    - Book (1) List of Priority Locations & Climate Resilience Actions;
    - Book (2) Institutional Arrangement for Climate Resilience;
    - Book (3) The Roles of Non-State Actors in Climate Resilience;
    - Book (4) Climate Resilience Funding;
    - Book (5) Monitoring, Evaluation, and Reporting of Climate Resilience Actions in The Framework of National Development Planning
- Methodology For Measuring Climate Resilience Action
- Study on Information System for Vulnerability Index Data (SIDIK): Gap analysis
- Study for improvement of methodology for the assessment of vulnerability in the SIDIK system
- Comprehensive Study on Guideline of Mainstreaming CCA Into Spatial

Plan
- Study on Policy Review on Climate Resilience Development Strategy in Development Planning Document of West Java Province
- Study on Policy Review on Climate Resilience Development Strategy in Development Planning Document of Semarang City
- Study on the Baseline of Economic Loss Due to Climate Change Impact of West Java Province
- Study on the Baseline of Economic Loss Due to Climate Change Impact of Semarang City
- Updating the Priority Location of Climate Resilience in West Java Province
- Updating the Priority Location of Climate Resilience in Semarang City
- English version of KLHK Book with the title SIDIK Chapter I - Chapter IV, Page 1-57

1-2 Input by the Indonesia side (Planned and Actual)

Following is the list of counterparts who worked on the project (JCC Chairperson, Project Coordinator, and Responsible Partner)
- Deputy Minister for Maritime and Natural Resources BAPPENAS, JCC Chairperson, Responsible Partner
- Director for Environmental Affairs BAPPENAS, Project Coordinator, Responsible Partner
- Director General of Climate Change KLHK, Responsible Partner
- Director for Climate Change Adaptation KLHK, Responsible Partner
- Director General of Spatial Planning ATR, Responsible Partner
- General Secretary of Directorate General of Spatial Planning ATR, Responsible Partner
- Director for Synchronization of Spatial Utilization ATR, Responsible Partner
- Director of National Spatial Planning ATR, Responsible Partner
- Deputy Director General for Climatology BMKG, Responsible Partner
- Head of Center for Climate Change Information BMKG, Responsible Partner

Indonesian counterparts have provided the following inputs:
- Utilization of the counterpart financing in connection with the implementation of the Project, such as providing room for the project agenda or supporting local transportation for participants in an event.
- Meeting Room for the mini JCC in 2021 and JCC meeting in 2022.
- Local Transport for LCDI staff at regional workshops of AKSARA in Bali, West Java, Central Java, and Semarang City.
- Meeting package for National Expert Forum (NECEF) on 26 July 2022 at Holiday Inn Hotel, Jakarta
- Meeting Package for Formulating Extreme Index Map on 29-30 July 2022 in Red Top Hotel Jakarta
- Meeting package for National Climate Outlook forum Forecaster

assembly on 2-5 August 2022 in Raja Hotel Lombok
- Facilitation Climate Field School in Medan on 19-22 August 2022
- Meeting Package for Consignment of Data Processing and Analysis to Formulate Rice Production Projection on 7 October 2022 in Swiss Bell-in Bogor
- Meeting Package for Discussion on Climate Projection and Seasonal Prediction Workshop Preparation on 19 October 2022 at Best Western Kemayoran Jakarta
- Meeting Package for Finalization of Draft Guideline of mainstreaming CCA into Spatial Planning into Draft Juknis in the Veranda Hotel, Jakarta on 28-29 November 2022
- Jointly Financing for Climate Projection and Seasonal Prediction Workshop in Bandung
- Jointly Financing for Climate Projection and Seasonal Prediction Workshop in Semarang
- Meeting Package for FGD Shared Socioeconomic Pathways Climate Projection to Support Climate Resilience Development on 25 January 2023 at Mercure Hotel Bandung
- Meeting Package for Finalization of Draft Circular Letter (SE) of Mainstreaming CCA into Spatial Planning in the Ambhara Hotel, Jakarta on 7 February 2023
- ATR jointly financing with Institut Teknologi Bandung for training to mainstream CCA into spatial planning on 15-16 February 2023

1-3 Activities (Planned and Actual)

The detailed progress of the activities based on Outputs, implemented by the JICA project, are as stated in the following sections.

Activity 1-1 "Develop and advance MER system for government and non-state actor/private sector intervention under RAN-GRK mechanism (BAPPENAS)"

1-1-1 Develop framework, process and method for advancing online MER system of RAN-GRK. (Completed)

The Project has conducted a variety of activities and studies to advance the MER system called AKSARA below.

- A study "Finalization of Mangrove Map and Identification for Gaps to Improve the Accuracy of Mangrove data" was completed in February 2020.
- A study "Development of Mangrove Map and Database for National Baseline and Carbon Stock Estimation" was completed in January 2021.
- Blue Carbon Liaison identified the differences between all the existing mangrove maps (Planology Map KLHK, KTA Map KLHK, and Google Earth Engine).
- Methodology for the blue carbon sector in LCDI was agreed upon among

relevant ministries, inputted, and integrated into the AKSARA system through FGDs.

- Study for Improvement of Monitoring and Evaluation in AKSARA System Integration Between AKSARA and Related System in BAPPENAS (KRISNA) was completed on 23 September 2022.
- Capacity building on methodology utilization for mangroves had been conducted under the West Java Log frame framework.
- The Study on Review of the OJK regulation No.51/2017, identify and map for the private sector's activities via SR documents, and recommendation for OJK is completed. The final report was submitted to JICA Project and BAPPENAS (LCDI Secretariat) in March 2023.

1-1-2 Identify non-state actor/private sector. (Completed)

The project has identified the "blue carbon sector" as a priority area for cooperation in consultation with BAPPENAS first.

- Based on BAPPENAS' request, rather than non-state actor/private sector, the project has implemented relevant activities on advancing the online MER system for the "blue carbon" sector. The project reviewed and identified relevant stakeholders in the blue carbon sector within the government of Indonesia.
- After that, non-state actors have been identified by the following studies and BAPPENAS own activities such as review of sustainability reports by the LCDI secretariat.
- BAPPENAS recommended to integrate the AKSARA system with Sustainable Development Goals (SDGs) system, especially for Private Sector activities under Goal 13, after the project reviewed POME's progress and the possibility for AKSARA to integrate with the POME.
- The "Study of Private Sector Monitoring System based on SDGs Activities to Support the AKSARA System Development" was conducted and completed. The "Study on AKSARA Improvement or Monitoring and Evaluation in AKSARA System to Support the LCDI Development for the Non-State Actors (Private Sector)" was completed in 2022.

1-1-3 Establish network and agreement with non-state actor/private sector. (Completed)

- On the blue carbon sector/mangrove, the project has established a network with relevant stakeholders of GOI and others and organized several coordination meetings on mangrove maps and other issues.
- BAPPENAS (SGDs team) has established a network with non-state actor/private sector. The project started establishing a network with the office and staff in charge of SDGs Monev and other Monev systems such

as KRISNA and will expand the network with stakeholders related to non-state actors. BAPPENAS / LCDI secretariat has identified relevant activities by key private sectors by reviewing sustainability reports by the end of the project.

- Other than SDGs, the Directorate of Environmental Affairs of BAPPENAS is in the process of developing cooperation with OJK on private sector data sharing.
- In addition to mitigation, BAPPENAS requested the project to support MER/AKSARA development in adaptation and worked together with relevant stakeholders (see details in below Activity 2-1).
- The connection between AKSARA and KRISNA is established. In addition, the Project supports BAPPENAS to connect the AKSARA with OJK via Sustainability Reports. Both studies were completed (see the details in Activity 1-1-1).

1-1-4 Establish framework, process and method for online MER system of non-state actor/private sector. (Completed)

- JICA project has contributed to the development of a draft framework, process, and method of blue carbon/mangrove through blue carbon liaison and has been supporting the establishment of the mangrove framework and methodology in the AKSARA system. The activities include:
  - ✓ A study “Finalization of Mangrove Map and Identification for Gaps to Improve the Accuracy of Mangrove data” was completed in February 2020.
  - ✓ A study “Development of Mangrove Map and Database for National Baseline and Carbon Stock Estimation” was completed in January 2021.
  - ✓ ➢ Blue Carbon Liaison identified the differences between all the existing mangrove maps (Planology Map KLHK, KTA Map KLHK, and Google Earth Engine).
  - ✓ ➢ Methodology for the blue carbon sector in LCDI was agreed upon among relevant ministries, inputted and integrated into the AKSARA system through FGDs.
- The conducted “Study of Private Sector Monitoring System based on SDGs Activities to Support the AKSARA System Development” provided a basic framework and method for the MER system for non-state actors.
- Then, the studies of integration between the AKSARA system with the MER system in BAPPENAS (KRISNA, eMonev, SDGs) and the development of the AKSARA system for Non-State Actor (NSA) are started in April 2022 to finalize the framework, process, and method on the system.

- Study for Improvement of Monitoring and Evaluation in AKSARA System Integration Between AKSARA and Related System in BAPPENAS (KRISNA) was completed in September 2022. The capacity for future integration between the SDGs monitoring and evaluation system and AKSARA was developed through the study.
- In addition to AKSARA related to mitigation, BAPPENAS requested the project to support MER/AKSARA development of adaptation and the project supported development such as MER method for AKSARA in adaptation (see details in below Activity 2-1)
- Study on Review of the OJK regulation No.51/2017, to identify and map for the private sector's activities via SR documents, and recommendation for OJK is completed.

1-1-5 Assess quality, review, and test non-state actor/private sector MER system. (Completed)

- BAPPENAS priority was set for integration among MER systems within the GOI (BAPPENAS), rather than non-state actor/private sector. This activity is implemented under the studies on integration between the AKSARA system with MER systems in BAPPENAS (KRISNA, eMonev, SDGs) explained in activity 1-1-4. The final result presentation was held on 15 September and the final report was on 23 September 2022. To test connecting AKSARA and KRISNA was conducted.
- (Prototype of) AKSARA NSA system (for local governments and the private sector) was prepared and started operation in cooperation with GIZ in early 2022. AKSARA for local governments has been completed and working (while private sector MER has to be improved by developing simplified methods by BAPPENAS/LCDI). The Project supported the Study on Review of the OJK regulation No.51/2017, identifying and mapping the private sector's activities via SR documents, and recommendations for OJK is completed. This study is utilized to improve the AKSARA NSA system.

1-1-6 Implement and launch non-state actor/private sector MER system. (Completed)

- AKSARA has been connected with KRISNA as the result of our study.
- The AKSARA NSA system was utilized in LCDI workshops in Bandung in April 2022.
- AKSARA for NSA started implementation. AKSARA for the private sector has been improved. AKSARA for local governments has been working well through a series of LCDI regional workshops including AKSARA capacity building organized by LCDI sec in 2022 (although no launching event was organized due to COVID-19).
- In addition, the project supported AKSARA PBI development and

implementation (see details in below Activity 2-1).

1-1-7 Build capacities and consult public for MER RAD-GRK and non-state actor/private sector. (Completed)

- On the blue carbon sector/mangrove, the project conducted consultation with relevant stakeholders and organized several coordination meetings on mangrove maps and other issues.
- Kick-off meeting for launching LCDI of West Java Province was held on March 5, 2020.
- The project supported the West Java Log frame and conducted a seminar to socialize the AKSARA system in West Java Province (Bandung) on March 8, 2021, and April 20-22, 2022.

Activity 1-2 "Investment for NDC (BAPPENAS)"

1-2-1 Review the investment capacity for NDC implementation. (Completed)

- The quick study on the Identification and Review of Investment for LCDI Development was completed. It includes a review and analysis of GOI financing capacity for NDC.

1-2-2 Measure investment required for NDC in the next RPJMN 2020-2024. (Completed)

- The RPJMN 2020-2024 was issued by Presidential Regulation in January 2020. The study on the indicative investment required for NDC in the RPJMN was conducted as a part of the quick study.

1-2-3 Identify financing options for unlocking private investment. (Completed)

- The project has conducted with BAPPENAS for studies on financing options to mobilize further investment for LCDI Development.
- The financing study started with three quick studies (QS 1-1, QS, 1-2, and QS 1-3) and one comprehensive study (CS). The 3QSs were started in August and completed in December 2022. The Comprehensive study (Comprehensive Study on Review of Challenges and Engagement Strategy in Mobilizing Further Investment for LCDI Development) was completed at the end of the project.

1-2-4 Build capacities for local government and community in regard to implementation of NDC. (Completed)

- BAPPENAS has MoU with 7 provinces about mitigation: South Sulawesi, Central Java, West Java, West Papua, Papua, Bali, and Riau. With consultation with Bapppenas, the JICA project assisted capacity development for selected provinces (West Java and Central Java).

- Following capacity-building activities have been conducted:
  - ✓ The Kick-off meeting for launching LCDI of West Java Province was held on March 5, 2020.
  - ✓ The project supported the West Java Log frame and conducted a seminar to socialize the AKSARA system in West Java Province (Bandung) on March 8, 2021, and April 20-22, 2022.
  - ✓ The LCDI Secretariat held the Regional Workshop in Bali on 10-12 of August 2022 and in Semarang on 23-25 August 2022.

Activity 2-1 "Review current RAN-API (BAPPENAS)"

2-1-1 Review current RAN-API framework, process, and methods. (Completed)

- The project reviewed RAN-API through several activities including the Initial Study of Gap Analysis to Improve the Potential Economic Loss Valuation Analysis of RAN-API.
- The Study on the Development of Calculation Methodologies for Adaptation Activities was completed.
- With the review and other activities in 2-1, BAPPENAS finalized and launched Climate Resilience Development Policy (PBI) Document in April 2021 in Bahasa Version and in October 2021 with English Version
- The project hired three (3) consultants (in 2021) and hired (4) consultants (in 2022) for the PBI secretariat to support BAPPENAS and conduct activity 2-1.

2-1-2 Review the status on how CCA is defined in the context of national development planning in Indonesia. (Completed)

- The project conducted a "Study of Gap Analysis to Improve the Potential Economic Loss Valuation Analysis of RAN-API" in 2020.
- CRD/PBI Secretariat conducted a review and analysis regarding the definition of adaptation activity.
- The PBI/CRD policy for CCA has been implemented at the National and Local Levels as mandated in the RPJMN 2020-2024, especially in National Priority number 6.

2-1-3 Review the status of integration of CCA into national development planning. (Completed)

- The project conducted the review and assisted integration through the following project activities. National priority #6 of the current RPJMN is set on adaptation and resilience.
- The project supported (1) the Development of climate resilience national

policy and strategy for the new RAN-API in November 2019 and (2) the Launching of the revised RAN-API in December 2019.

- The project supported a workshop for finalizing the RAN-API document on November 1st, 2019.

2-1-4 Identify gaps and priority areas (or sectors) for further improvement of the integration of CCA to national development planning. (Completed)

- Gaps related to further improvement of CCA such as technical work on the revision of RAN-API, methodologies, and others were identified.
- In 2020, a study to review and analyze the gap of the current potential economic loss study (as a background study of RPJMN 2020-2024) was conducted.
- The project supported the development process of a List of Climate Change Adaptation Actions and Locations for 4 priority sectors in preparation of PBI.
- Through these activities, BAPPENAS determined the priority sectors for climate resilience development. The priority sectors are the water sector, agriculture sector, marine and coastal sectors, and health sectors. BAPPENAS also developed a list of climate resilience actions based on priority sectors.

2-1-5 Strengthen capacities for integration of CCA to national development planning in the priority areas (or sectors), as identified in the Activity 2-1-4. (Completed)

- BAPPENAS provided tagging criteria for planned activities that were registered by line ministries through the KRISNA platform.
- BAPPENAS finalized and launched Climate Resilience Development Policy (CRD or PBI) in 2021. The JICA project supported the preparation of PBI and the translation of the 3 PBI documents in February 2022 for dissemination of PBI.
- The project has been conducting dissemination of the PBI approach in Semarang city and West Java province with capacity building (such as climate resilience action list, economic loss and priority location analyses).
- In the course of PBI analysis at pilot sites, relevant studies on sectoral hazard assessment were conducted, covering Health, Water, Agriculture, and Coastal and Marine Sectors. The studies updated the hazard assessment by utilizing the 5x5 Hi-Resolution Climate Projection from BMKG.
- The list of climate change adaptation actions and locations in PBI was socialized and used as the reference to formulate adaptation activities in

the government work plan (RKP). The socialization was done two times: April 2021 and October 2021.

- JICA Project conducted a study on the Development of Calculation Methodologies for Adaptation Actions in December 2020 for the development of MER of PBI. Then, the project through the PBI secretariat facilitated the monitoring and evaluation of PBI actions.
- Studies of Economic Loss, Priority Location and Climate Resilience Actions were conducted in West Java and Semarang City.

2-1-6 Develop database for resilience index for improvement of M&E on adaptation plan. (Completed)

- A relevant study was conducted before JICA long-term experts started working.
- A study on Methodology for Measuring Climate Resilience Action was completed in February 2021.
- The Study on the Development of Calculation Methodologies for Adaptation Activities was completed.
- CRD/PBI Secretariat has finalized the methodology and tested (demo) the system utilization in early June 2021.
- CRD/PBI Secretariat conducted several meetings and capacity building for relevant line ministries at the national level regarding AKSARA PBI.

2-1-7 Conduct hazard assessment based on climate projections from the Activity 2-2. (Completed)

- One of the components of Pilot Activity under activity 2.4 was hazard assessment based on new climate projection (high-resolution) from the activity 2.2.
- The project has conducted the hazard assessment for the Pilot Sites (West Java and Semarang) in the ATR study and separated studies. The analysis finished in the middle of December 2022 for all priority sectors of Climate Resilience Development.
- The Hazard Assessment results of the pilot sites (West Java and Semarang City) were utilized to assess Economic Loss, Priority Location and Climate Resilience Actions studies in West Java and Semarang City. All relevant studies were completed.

2-1-8 Develop system for M&E on adaptation plan. (Completed)

- There was another initiative from ADB to begin the study of developing an M&E system for adaptation actions. The system (AKSARA PBI) was completed and established in June 2021. Then, the system was tested in July-September, and it was launched in October 2021.
- As explained in 2-1-6, the project assisted in the development of M&E

methods for the adaptation plan and PBI.

2-1-9 Build capacity for government officials for improving the adaptation planning. (Completed)

- The launching events of PBI documents were held on April 2021 (Bahasa Version) and October 2021 (English Version) with participation from the project.
- The workshop on capacity building for West Java Province was conducted in April 2022.
- The project disseminated the PBI approach for Semarang with the Tokyo Mission (JICA HQ) in June 2022.
- The project continues conducting further capacity building activities at the local level if needed.
- The LCDI Secretariat held the Regional Workshop in Bali on 10-12 of August 2022 and in Semarang on 23-25 August 2022.
- Workshop and training on “mainstreaming CCA into Spatial Plan” in West Java and Semarang were conducted in August and September 2022. The training also supported the integration of the hazard assessment result of both pilot sites into spatial plans.
- The project has conducted and assisted dissemination of the PBI approach in Semarang city and West Java province with capacity building of PBI analysis (such as climate resilience action list, economic loss and priority location analyses). The project has also conducted a series of FDGs/seminars related to the PBI studies (Hazard Assessment, Potential Economic Loss, Priority Location, and Climate Resilience Actions) in West Java Province and Semarang City.
- The Final Workshops for Pilot Sites were conducted in West Java (March 2023) and in Semarang (March 2023). The objective was to disseminate the result of the studies, in particular Hazard Assessment, Economic Loss, Priority Locations, and Climate Resilience Actions.

Activity 2-2 “Predict seasonal change and project climate change (BMKG)”

2-2-1 Review the status of seasonal prediction and/or climate change projection to support vulnerability and/or risk assessments at the national level and Pilot Site(s). (Completed)

The project reviewed the above status, and the followings were key findings.

- BMKG conducted a variety of climate projections. However, BMKG doesn't have consistent time series data of climate projection until 2100 and is not high-resolution data for nationwide.
- The JICA agriculture insurance project worked on seasonal prediction,

historical data archive and its quality check with BMKG. Several topics of seasonal prediction in JICA Agriculture Insurance-BMKG cooperation and historical data archive/quality check are expected to be continued in the JICA Project.

2-2-2 Identify gaps and priority areas for further improvement of seasonal prediction and/or climate change projection to support vulnerability and/or risk assessments at the national level and Pilot Site(s). (Completed)

JICA Project conducted several discussions to determine potential support for BMKG and identified gaps and priority areas on it.

- The priority for climate projection was to have a high-resolution downscaling complete a period toward 2100 at least for one method, dynamical method, or statistical method, and one scenario (RCP8.5 or 4.5) and providing it properly for other stakeholders such as BAPPENAS KLHK, ATR, Ministry of Finance. Furthermore, it would be better to produce both RCP8.5 and RCP4.5 if the resources allow it. With regards to the high-resolution climate projection, BAPPENAS requested BMKG to provide climate projection with high-resolution in 2020-2045 for the entire Indonesia.
- For the seasonal prediction, it was focused on long term (up to 1 year ahead) seasonal prediction and prediction with good accuracy to fulfill those needs by the other Counterparts. By reviewing the results of the JICA agriculture project, BMKG wished to continue several seasonal prediction activities namely: seasonal forecast evaluation; Monsoon variability study; S2S prediction study; IOD forecast evaluation and one-year forecast study as a new topic in this project.

2-2-3 Strengthen capacities in the priority areas, as identified in the Activity 2-2-2, for BMKG and its concerned local offices to conduct seasonal prediction and/or climate change projection to support vulnerability and/or risk assessment at Pilot Site(s). (Completed)

- For assisting BMKG target on climate projection towards 2100 with RCP8.5 (and RCP4.5 if possible), JICA ICCS 2 project with short-term experts started to work for fulfilling the dynamical downscaling for near-future period (2034-2058) and for future period (2071-2100). Additionally, post processing methods, evaluation of downscaled data and calculate various indexes (frequency of heavy rain, dry spells and so on) were developed. For the projection with RCP4.5, BMKG can do by High Performance Computer provided by the project. It aims to cover the hotspots at first due to the size of the nation.
- The statistical downscaling data (RCP 2.6, 4.5, 6.0 and 8.5, from 2006 to 2100) was shared and methods of statistical downscaling using historical observation data were shared and exercised. BMKG tried statistical downscaling to cover the period originally asked by BAPPENAS (2006-

2100) and evaluated.

- The JICA experts with BMKG jointly conducted activities/studies on key topics on seasonal predictions by monthly meetings. These meetings were held to share and consult the progress of each topic.
- The JICA experts shared a guideline to analyze dynamical and statistical downscaling data and provide technical assistance for BMKG Officers especially for post processing to produce detailed climate projection data. In particular, during their visit in July/August 2022, the JICA experts surveyed the requirements of ATR and BAPPENAS for climate change projection. They developed a guideline regarding the methods to develop products that meet their specific requirements from the downscaled climate change projections and shared the guideline with BMKG.
- JICA Short-term Experts visited Jakarta three times in January-March 2021, July-August 2022, and February-March 2023 to conduct capacity building for BMKG members such as climate model installation and share the data & script as well to implement climate projection and seasonal prediction.
- JICA successfully shipped an HPC to BMKG in September 2022 and the HPC was installed in BMKG's server room. Working Group 1 members started to implement dynamical downscaling using the HPC.
- The JICA project and BMKG conducted workshops in Bandung on 1-3 November 2022 and Semarang on 15-17 November 2022, respectively to deliver results of Climate Projection and Seasonal Prediction. The workshop was attended by local departments of West Java, Bandung City, Central Java, Semarang City, and other local organizations including NGOs. In these workshops, the JICA short-term experts made presentations on "Overview of the Project" "Climate Change and Climate Modelling" and "Project Overview -Seasonal Prediction- "

2-2-4 Conduct seasonal prediction and/or climate change projection to support vulnerability and/or risk assessments at Pilot Site(s) according to the needs of users, such as ATR and relevant local government. (Completed)

- JICA project supported by Japanese researchers implemented the dynamical downscaling for BMKG because BMKG officers could not go to Japan due to the COVID-19 pandemic.
- Dynamical downscaling RCP8.5 for entire Indonesia for the near future period (2035-2058) was completed in FY2020 (and future period (2071-2100) conducted by The JICA agriculture insurance project). The data were sent to Indonesia and BMKG officers, who started their analysis.
- Some studies of seasonal prediction were completed. BMKG released a one-year forecast as the climate outlook. In the process, Japanese experts provided consultation and information regarding the study.

- Additionally joint co-research by the Japanese experts and BMKG officers for downscaling 1-2 km was completed. Japanese researchers and BMKG have targeted Jakarta as a pilot area to study flood events in early 2021 as the topic. Japanese researchers trialed the simulation to see the impact of global warming and urbanization. BMKG members assisted the simulation by providing the station data and land use coverage in Jakarta and its surroundings as input. The result has been shared at open Seminar Workshop in Jakarta in March 2023.
- BMKG supported by JICA short-term experts conducted statistical downscaling with 25KM resolution with several scenarios (RCP2.6, RCP4.5, RCP6.0, RCP8.5) for whole Indonesia in 2022. The data is now available in BMKG.

2-2-5 Compile lessons learned from the Activities 2-2-1 to 2-2-4 and share with stakeholders, including other local offices of BMKG, for the enhancement of the capacity at the national level. (Completed)

- Japanese experts provided advice and information at several “Dry season/Wet season preparation meetings”, which were attended by BMKG seasonal forecasters and researchers/professors outside BMKG.
- The JICA project and BMKG have conducted the workshop in Bandung on 1-3 November 2022 and Semarang on 15-17 November 2022 to deliver results of Climate Projection and Seasonal Prediction. The workshop was attended by local departments of West Java, Bandung City, Central Java, Semarang City, and other local organizations including NGOs.

- The climate field school for the application of weather/climate information, organized by BMKG in cooperation with the local organization, was held in Medan on 21-22 August 2022 and was attended by stakeholders including Sharing projection data and data archived to stakeholders were required and BMKG shared the data through data provision server to users contracted with BMKG. The project has improved Climate Change Information System (CCIS) to share projection and data archiving. The application of seasonal forecast was lectured by the JICA experts.

- BMKG held the national forecaster meeting for the preparation of the wet season 2022/23 in Lombok Island on 2-4 August 2022. The meeting was attended by BMKG local offices over the nation and the results of the Seasonal Prediction were delivered and the climate change issues were lectured by the JICA experts.

- Sharing projection data and data archived to stakeholders were required and BMKG shared the data through data provision server to users contracted with BMKG. The project has improved Climate Change

Information System (CCIS) to share projection and data archiving.

- BMKG jointly with JICA conducted an Open Seminar to share climate projection data and its utilization. In the seminar, both Indonesian research and Japanese researchers shared their experience regarding climate data utilization.

2-2-6 Establish collaboration with RAN-API's Secretariat and APIK-USAID Project. (Completed)

- The ICCS phase 2 Project collaborated with APIK to revise the RAN-API document and develop CRD/PBI policy. It was completed in February 2020. The project has worked closely with PBI secretariat (renamed from RAN-API secretariat).

Activity 2-3 "Strengthen Climate Vulnerability Index assessment for improving National Adaptation Plan (KLHK)"

2-3-1 Support review of RAN-API (Activity 2-1) and local governments at Pilot Site(s), in M&E of the progress of adaptation by using the Inventory System of Climate Vulnerability Index (SIDIK). (Completed)

- Since 2020 Vulnerability index from the SIDIK result was utilized to support RAN-API and the development of Climate Resilience Development Policy.

- KLHK has conducted training and seminars for local governments on climate change adaptation by utilizing SIDIK as a key tool.

2-3-2 Support the development of SIDIK in prioritize sectors as a national tool for building climate change resilience and conduct convergence on national vulnerability assessment based on Activity 2-3-1 and coordination with relevant stakeholders, including BNPB. (Completed)

- There are four sectors prioritized in the revision of the national adaptation plan/ climate resilience development policy: water, agriculture, coastal and marine, and health. In consultation with KLHK, the vulnerability index for the water sector was chosen to develop for SIDIK under JICA project cooperation.

- JICA project conducted a study to identify key problems or gap assessment of the current SIDIK, this activity finished in March 2020.

- JICA project conducted another study based on the result of the first one in 2020. The study was focused on the improvement of the SIDIK methodology which finished in March 2021.

- KLHK and the JICA project have conducted FGDs related to the water sector with other related institutions for the water sector such as the ministry of agriculture and PU in 2020, 2021, and 2022.

- The project has conducted a comprehensive study (CS) to fill the gap in the result shown in previous studies. The development of the method for water sector vulnerability indicators was completed Sep 2022.

- KLHK obtained new climate projection data from BMKG Aug 2020 for assessing current and future climate risks from the integration of vulnerability with a probability of extreme wet and extreme dry, which are derived from historical climate data and climate projections. The decision letter (Surat Keputusan/SK) for institution arrangement/data sharing among relevant ministries for SIDIK was drafted (in the future it is expected to be enacted as Decree by KLHK DG after the project is completed).

- KLHK and JICA conducted coordination meetings with other key national ministries/agencies including the one in Aug 2022 and the development of a draft scheme on data sharing with a review of regulations and policies for data utilization in the GOI was completed in 2022. The draft decree (Surat Keputusan/SK) for institution arrangement/data sharing among relevant ministries for SIDIK was (it is expected to be enacted as Decree by KLHK DG after the project is completed).

- Developing a new data structure for SIDIK and enhancement of the SIDIK IT system for better performance were completed in Feb 2023.

2-3-3 Compile lessons learned from the Activities 2-3-1 to 2-3-2 and provide recommendations to support the review of RAN-API. (Completed)

- Information and lessons learned from the activities to develop SIDIK was compiled under the comprehensive study.

2-3-4 Strengthened capacity of stakeholders in utilizing SIDIK system at national and sub-national level in the development plan. (Completed)

- The project has organized capacity building for key stakeholders for a better understanding of SIDIK utilization at the national level in Feb 2022. Further capacity building at pilot sites is to be conducted until the end of the project. Other than the project activities, KLHK has conducted a series of training for local governments for adaptation and SIDIK, for example at Kendal regency in April 2021.

Activity 2-4 “Integrate CCA into Spatial Plan (MASP(ATR))

2-4-1 Review the existing spatial plans and their associated vulnerability and/or risk assessments at Pilot Site(s), taking account of the results of the Activity 2-2-4 and/or other relevant inputs. (Completed)

- In November 2019, the JICA project conducted a workshop, which had speakers from several experts and ATR staff who were involved in the phase 1 project.

- A study on “Mainstreaming CCA into spatial plan” was completed in March 2020. The study identified the gaps in the current guidelines, ATR JICA-2015 and ATR-2018, as well as other relevant technical guidelines.

- A study on “Revision on the guideline of mainstreaming CCA into spatial planning” was completed in March 2021. The study supported the improvement of the guideline and provided recommendations for spatial planners on how to mainstream CCA into Spatial Plans.

- A study on “Data and information provision mapping” was also completed in March 2021. This study supported the identification of the relevant data and information provision in a more detailed manner as well as mapping the related stakeholders.

- A study on policy analysis has been conducted in Semarang City in November 2021. The study compared RPJMD with RAD-API and PBI documents.

- A study on policy review for West Java Province has finished in August 2022. The study compared the RPJMD with local adaptation policy (such as draft RAD-API) and PBI document.

- Review of West Java and Semarang Spatial Plans was conducted as part of the comprehensive study. The result was presented in the training and workshop for West Java Province (August 2022) and Semarang City (September 2022).

2-4-2 Improve vulnerability and/or risk assessments at Pilot Site(s), if necessary. (Completed)

- A study on policy analysis has been conducted in Semarang City in November 2021. The study compared RPJMD with RAD-API and PBI documents.

- The comprehensive study started in March 2022, and it includes climate change risk analysis at the pilot site.

- The climate change risk and adaptation assessment (CCRAA) report was delivered in August 2022. It includes updates on the risk assessment of both Pilot Sites.

- Additionally, relevant studies on sectoral hazard assessment were conducted in Pilot Site, covering Health, Water, Agriculture, and Coastal

and Marine Sectors. The studies updated the hazard assessment utilizing the 5x5 Hi-Resolution Climate Projection from BMKG.

- The project has conducted the hazard assessment for the Pilot Sites (West Java and Semarang). The analysis finished in the middle of December 2022 for all sectors of Climate Resilience Development.

2-4-3 Support integration of the results of the vulnerability and/or risk assessments into spatial plans at Pilot Site(s). (Completed)

- The project supported the utilization of results of activity 2-4-2 into policies of West Java Province and Semarang city.

- Under the comprehensive study started in March 2022, the guideline to integrate CCA into spatial plans was improved and finalized in Dec. 2022.

- Workshop and training on “mainstreaming CCA into Spatial Plan” in West Java and Semarang were conducted in August and September 2022. The training also supported the integration of the hazard assessment result of both pilot sites into spatial plans.

- FGD presenting the result of the Sectoral Hazard Assessment was also conducted in West Java Province in January 2023. The results have also been shared with pilot sites' governments to support their planning.

2-4-4 Strengthen capacities of stakeholders, including the ATR, other relevant ministries and agencies, and the concerned local governments, to implement the Activities from 2-4-1 to 2-4-3 at Pilot Site(s). (Completed)

- On January 25th, 2022, training for ATR staff on “Climate Change and Climate Change Adaptation in the Spatial Planning Process” was conducted. The training invited speakers from JICA Project, IAP (Urban Planner Experts Community) and Climate Change Center-ITB.

- Workshop and training on “mainstreaming CCA into Spatial Plan” in West Java and Semarang were conducted in August and September 2022.

- Capacity building to utilize the formalized guideline was also conducted in February 2023 for ATR staff. The training also aimed to support ATR to become a trainer for future training to users/local government.

2-4-5 Evaluate the existing guideline(s) and/or other relevant documents concerning the integration of disaster risk reduction (DRR), as well as CCA, into spatial planning, based on the Activities from 2-4-1 to 2-4-4, in coordination with relevant stakeholders, including BNPB and RAN-API Secretariat. (Completed)

- In November 2019, the JICA project conducted a workshop, which had

speakers from several experts and ATR staff who were involved in the phase 1 project.

- A study on “Mainstreaming CCA into spatial plans” was completed in March 2020. The study identified the gaps in the current guidelines, ATR JICA-2015 and ATR-2018, as well as other relevant technical guidelines.

- In addition to the review, the project also supported revising and strengthening the existing guideline on mainstreaming CCA into spatial plans under comprehensive study starting in March 2022. After intensive cooperation, the revised guideline as the results of the project has been processed into a legalized document as Circular Letter (SE) and aimed to become a Ministerial Decree later.

2-4-6 Compile lessons learned from the Activities 2-4-1 to 2-4-5 and provide a recommendation for the review of RAN API as well as the improvement of the guideline and/or other relevant documents concerning integration of DRR and CCA into spatial planning. (Completed)

- A study on “Revision on guideline of mainstreaming CCA into spatial planning” was completed in March 2021. The study supported the improvement of the guideline and provide recommendations for spatial planners on how to mainstream CCA into Spatial Plan.

- A study on policy analysis has been conducted in Semarang City in November 2021. The study compared RPJMD with RAD-API and PBI documents.
- With compiled lessons and analysis results, the draft guideline to integrate CCA into spatial plans was developed and finalized in December 2022 under the comprehensive study started in March 2022. After intensive cooperation, the revised guideline has been processed into a legalized document as Circular Letter (SE) and aimed to be Ministerial Decree.

2-4-7 Enhance public awareness concerning integration of CCA into spatial planning related to the thematic issues of activities from 2-4-1 to 2-4-6. (Completed)

- On January 25, 2022, training for ATR staff on “Climate Change and Climate Change Adaptation in the Spatial Planning Process” was conducted. The training invited speakers from JICA Project, IAP (Urban Planner Experts Community), and Climate Change Center-ITB.

- Workshop and training on “mainstreaming CCA into Spatial Plan” in West Java and Semarang were conducted in August and September 2022. The training not only invited the local government of pilot sites, but also practitioners and academics.

- Additionally, the revised guideline was finalized in December 2022, and after intensive cooperation, the revised guideline has been processed into a legalized document as Circular Letter (SE) and aimed to be Ministerial Decree. After its signing, ATR plans to disseminate it with ATR local offices as well as local governments in Indonesia.

2. Achievements of the Project

2-1 Outputs and indicators

The detailed progress of the Output 1 and Output 2, against relevant indicators implemented by the JICA project, are as stated in the following section.

Output 1:

“Implementation of climate change mitigation actions under RAN-GRK and the Nationally Determined Contribution (NDC) and support for Low Carbon Development (LCD) and Green Economic Development in the next RPJMN 2020-2024 is strengthened.”

Objectively Verifiable Indicators

“1-1 Framework, process, and method for MER system of RAN-GRK and non-state actor/private actor are formulated.”

“1-2 Number of potential financing for NDC are identified.”

The indicator 1-1 is considered as achieved, and it is high. The indicator 1-2 is considered as achieved, and it is high.

For the activity on 1-1, the project completed several works on MER system development for the blue carbon/mangrove sector as well as enhancing the AKSARA system such as integrating AKSARA with the KRISNA system based on BAPPENAS' request. The activity for AKSARA also included capacity building for the integration between the SDGs monitoring and evaluation system and AKSARA when both systems would be connected. In addition, the project assisted the development of AKSARA for PBI including assisting the development of sectoral priority location, potential economic loss, resilience actions, MER methods, and SOP.

As for the activity 1-2, the project also conducted several studies to identify the possible financial options for NDC (i.e., the quick study on Identification and Review of Investment for LCDI Development and a comprehensive study on Review of Challenges and Engagement Strategy in Mobilizing Further Investment for LCDI Development). This study provided a key analysis for accelerating the low carbon development in Indonesia and increasing the contribution from the private sector to achieve the NDC target and Paris Agreement.

In general, The Implementation of climate change mitigation actions under RAN-GRK and the Nationally Determined Contribution (NDC) and support for Low Carbon Development (LCD) and Green Economic Development in the next RPJMN 2020-2024 has been strengthened through the studies, review report, development of framework and methods, development of MER system of AKSARA, system integration between AKSARA and KRISNA (MER system in BAPPENAS), capacity buildings and trainings.

Output2:

“National Action Plans on Climate Change Adaptation (RAN-API) as the basis for climate change adaptation (CCA) policies and program in the next RPJMN is reinforced and reformed.”

Objectively Verifiable Indicators

“2-1 Draft of RAN-API document and resilience index are formulated.”

“2-2 Climate data from BMKG is applied to the vulnerability and risk assessment.”

“2-3 SIDIK is applied for M&E of the progress of adaptation.”

“2-4 Draft spatial plans are formulated, and/or recommendations for mainstreaming CCA into those plans are submitted to MASP.”

The indicators 2-1 and 2-2 are considered achieved and those achievement levels are high. BAPPENAS prepared and launched a climate resilience development policy after the review of the RAN-API. Climate projection data under cooperation with BMKG has been utilized for hazard and risk assessment in pilot sites.

For indicators 2-3 and 2-4 are also considered as achieved and those are high. For 2-3, SIDIK has been utilized for a variety of assessments. CRD/PBI analysis at the national level for determining priority locations for intervention utilized SIDIK results. The PBI analysis was applied to local levels by applying SIDIK such as Semarang city and West Java province. Also, SIDIK has been utilized for local strategic environmental assessment (KLHS) for RPJMD or spatial planning. In KLHS, ten (10) criteria of policy/plan/program (KRP) which has a potential impact on the environment are mandatory to be included in the assessment (either KLHS for RPJMD or KLHS for spatial planning). One of the content criteria is the vulnerability and adaptation capacity of climate change. In this context, SIDIK can play an important role to provide data and information, as well as can be utilized to fulfill the analysis and assessment. Since the SIDIK was improved up to a 1 km grid, it also fits with the specification of spatial planning at the city level.

On 2-4, the project conducted several studies for mainstreaming CCA into spatial plans such as gap analysis and policy analysis and provided recommendations

to enhance the guideline to mainstream CCA into Spatial Planning. In addition, the project also concretely supported the revision of the guidelines and the process of legalizing the document.

The project had conducted relevant studies to achieve indicators 2-1 to 2-4 such as improvement of SIDIK and development of the guideline for spatial plans, holding workshops and capacity development activities in several places including the pilot site of the project, West Java, and Semarang.

Therefore, the achievement for output 2 is considered high.

2-2 Project Purpose and indicators

The detailed progress of the Project Purpose, against relevant indicators implemented by the JICA project, are as stated in the section below.

"Project Purpose: Capacities of the key ministries and local government for climate action cycle (policy assessment, development of framework, development of process and methods, plan, implementation, monitor and evaluation) are improved."

Three indicators are set for the Project Purpose as below.

"1. RAN-GRK/RAD-GRK are revised based on the results of MER and MRV; Number of potential financings for NDC are identified."

"2. RAN-API and Integration of Adaptation into Spatial Planning are revised."

"3. Climate change actions are implemented in national and local development planning."

Indicator 1. is considered as achieved and its achievement level is high. RAN-GRK was upgraded into LCDI while financing options were studied and identified.

Indicator 2. is considered as achieved and its achievement level is high. On the RAN-API, it was a great achievement that RAD-API was revised and upgraded into Climate Resilience Development Policy with support from the project.

On the integration of adaptation into spatial planning, the project formulated necessary recommendations to strengthen the existing policy on spatial planning preparation by creating a new guideline on mainstreaming CCA into the spatial planning process. To legalize the recommendation/guideline, the technical guideline (Juknis) to integrate adaptation into spatial planning by ATR was drafted. After consultation with the law bureau of the Ministry of ATR, a Circular letter (Surat Edaran) was proposed as the appropriate legal format and will be finalized by the end of the project period. The Surat Edaran can be circulated to local governments to support the integration of climate change adaptation into spatial planning at the national and local levels.

Indicator 3. was considered achieved and its achievement level is high. Climate change actions were included in national and local development plans and implemented in Indonesia. PBI/CRD policy was developed and has been a tool for enhancing adaptation planning for the sectoral ministries and local governments with the project activities. Although it is the early stage of implementation of PBI, it is considered that it has enhanced the awareness of relevant stakeholders, improved budget allocation and promoted more climate actions. Based on AKSARA data, economic benefits increased in all priority sectors as the result of implementing climate change resilience actions from 2020 to 2021.

For progress at a pilot site, climate change actions in RAD-API were included in RPJMD in Semarang city and further mainstreaming in the next RPJMD is expected based on the project's activities and capacity building. For the next RPJMD of Semarang City, project results will be utilized as an input, for instance, sectoral hazard assessment, potential economic loss, priority location, resilience actions as well as the gap analysis of the implementation of RAD-API of Semarang City, which is expected to promote more climate actions there.

The mainstreaming of climate change mitigation and adaptation into development plans has successfully progressed up to the local level (Province/City/Regency) via RPJMD because it is strongly stipulated in the current RPJMN 2020-2024. With that, the Ministry of Finance can allocate the budget for the climate change actions (mitigation and adaptation) toward the relevant ministries, institutions, and local governments.

From the above joint assessment, the achievement for project purpose is considered high.

3. History of PDM Modification

N/A

4. Others

N/A

III. Results of Joint Review

1. Results of Review based on DAC Evaluation Criteria

The project assessed the Project's relevance, coherence, effectiveness, efficiency, impact, and sustainability. The project concludes that the Project activities have produced positive outcomes with achieving Outputs and Project Purpose duly in a comprehensive point of view.

(1) Relevance

The relevance of the Project is evaluated as very high due to its contribution and alignment to development planning and climate change policies as well as development needs in Indonesia.

Indonesia is vulnerable to the adverse impacts of climate change and The GHG emissions in Indonesia are significant. The current National midterm development plan (RPJMN) stipulates climate change measures to be further promoted by the government of Indonesia. National priority 6 of the current RPJMN is on improving the environment and increasing disaster and climate change resilience. The plan promotes LCDI and climate resilience development (CRD) policy as the key climate change measures and the project has worked on a lot of activities on the LCDI and CRD.
For example, on mitigation, the JICA project has assisted in enhancing the implementation and monitoring & evaluation of LCDI by improving AKSARA and analyzing financing options for LCDI. Also, the JICA activities played a key role in the preparation and implementation of the climate resilience development policy (CRD) by BAPPENAS such as review of RAD-API, Gap Analysis to Improve the Potential Economic Loss Analysis of RAN-API, Development of Calculation Methodologies for Adaptation Activities and Policy analysis on CRD sectors and CRD documents formulation. Those activities are very much relevant to the national midterm development plan and policy direction of the government of Indonesia.

In addition to RPJMN, the Indonesian NDC under the Paris Agreement set national mitigation targets for 2030 and identified key adaptation measures and our activities are very relevant to the NDC. To achieve the NDC target, the GOI recognizes the importance of mobilizing financing against projected economic development and population growth. The project worked together for the development of financing options for energy sectors and a variety of project activities for adaptation policy and measures.

Mangrove / blue carbon is stated as a key area for both adaptation actions and mitigation in the NDC and RPJMN 2020-2024. The project cooperated with many activities related to the mangrove in terms of mapping identification, preparation, and development with BAPPENAS.

National need has been very high on providing climate data and information as a scientific base for many assessments of Climate policy for instance climate resilience development, vulnerability assessment as well as mainstreaming climate change into spatial planning. The project activities are highly relevant to advancing climate projection data and seasonal prediction. BAPPENAS has had a strong interest in enhancing development plans by utilizing seasonal prediction.

Minister of Environment Regulation No. 32/2009 on Environmental Management and Protection states that Vulnerability Assessment (VA) must be included in the

development of the Environmental Strategic Assessment (SEA) which leads as a basis for ensuring that sustainable development principles are included in the policy, as a basis for the preparation of the RPJM at national and regional levels. Since 2014, the Ministry of Environment and Forestry has been developing a tool online VA, known as SIDIK (Information System for Vulnerability Index Data) as a key instrument under relevant regulations such as the regulation of the Minister of Environment and Forestry Number 33 of 2016 concerning Guidelines for Climate Change Adaptation Action Plans and regulation of the Minister of Environment and Forestry number 7 of 2018 concerning Guidelines for Assessment of Vulnerability Risks and Impacts of Climate Change. The SIDIK can be used to automatically assess the regional vulnerability of the village level in provincial, district, or municipal jurisdictions. The JICA project played an important role to refine SIDIK so that it could improve the previous system limitations and work better in presenting data or information.

The project activities with ATR are highly relevant to Law No 26/2007 on Spatial Planning and the Ministerial Decree of ATR No 11/2021 on Guideline on Spatial Planning Formulation by addressing and filling the technical gaps in the guideline to integrate CCA into Spatial Plan. The additional guideline on mainstreaming CCA by the project can help the national and local government strengthen their spatial plan.

In Semarang city, the city government has been implementing the climate change adaptation plan since 2019. The Semarang city and West Java province are in the process of next development plans after 2025. The project activities on the CRD approach in both local governments provide key inputs for the preparation of the development plans and enhancing local adaptation plans in terms of planning and implementation. Project activities are highly relevant to the climate policy process in both local governments.

(2) Coherence
The coherence of the project is evaluated from fair to high.

1) Other institutions

The project shared roles and maintained synergies with other institutions such as GIZ, ADB, and USAID.

ADB and GIZ projects have worked to improve the quality of the AKSARA platform by sharing different roles related to it. WRI also contributed to Mangrove baseline information and emission reduction required in the AKSARA.

On CRD policy preparation, USAID and other donor projects helped the development of the CRD with the project. The synergy among donors could contribute to the smooth and efficient development and finalization of CRD policy.

Among Japanese organizations, MOEJ has implemented the PASTI project which conducted an AKSARA-related analysis. The project referred to those results in the operation of the project.

2) Other JICA projects and activities

Since 2017, the JICA Project of Capacity Development for the Implementation of Agriculture Insurance has supported BMKG by downscaling climate projection data in baseline (1981-1990) and far-future (2078-2088). Then JICA Climate Change Strategies Project continued to downscale baseline data (1991-2000), far-future (2089-2098), and add near future (2035-2055). Several topics of seasonal prediction are also a continuation from the JICA Agricultural project namely, monsoon evaluation, S2S study, and ENSO study. In this project, additional topics were studied, namely one-year forecast and IOD study. The additional topic is to answer a request from the government of Indonesia to have a long-term forecast (1-year ahead) for the scientific basis of the planning document.

The crucial climate projection data were updated with high resolution 5x5km resulting in our project activity and the updated climate projection data will be utilized for the background study of the next RPJMN 2025-2029. JICA Indonesia office is preparing the background study of the next RPJMN by utilizing our results, in particular updating sectoral climate hazards assessment, analyzing potential economic loss, updating the priority locations for the climate resilience development, and developing the resilience actions at the national level.

In addition, the studies on strengthening the policy of mainstreaming climate change adaptation into spatial plans have utilized the phase 1 project's result. The current JICA project has conducted further analysis and support for developing the guideline and recommendations. These activities continued the JICA ICCS Phase 1's goal.

The project activities are highly relevant to international climate policy framework, especially Paris Agreement adopted in 2015. The project activities have enhanced planning and implementation of Paris Agreement in Indonesia / NDC through enhancing monitoring and evaluation of mitigation actions, identifying means of implementations of mitigation actions as well as advancing adaptation related policies and scientific base and analytical tools for adaptation in Indonesia.

(3) Effectiveness

The effectiveness of the Project is expected to be high. The project has achieved the Project Purpose. All the activities under Outputs 1 and 2 are completed/achieved and it contributed to the achievement of the project purpose.

The Project Purpose of the project is: "Capacities of the key ministries and local government for climate action cycle (policy assessment, development of framework, development of process and methods, plan, implementation, monitor and evaluation) are improved."

Three indicators are set for the Project Purpose as below.

"Indicator 1. RAN-GRK/RAD-GRK are revised based on the results of MER and

MRV; Number of potential financings for NDC are identified."

"Indicator 2. RAN-API and Integration of Adaptation into Spatial Planning are revised."

"Indicator 3. Climate change actions are implemented in national and local development planning."

Indicator 1. is considered achieved. RAN-GRK was upgraded into LCDI with improving AKSARA which is MER /MRV system for climate change mitigation and adaptation while financing options were being studied by the project activities. Some of RAD-GRK was done such as DKI Jakarta Province enacted a new mitigation action plan for 2030. The project worked together for capacity building for several provinces such as West Java and Central Java province for enhancing local mitigation strategies. The project conducted a variety of activities for improving MER/MRV (AKSARA) and enhancing financing options for climate change mitigation/LCDI.

Indicator 2. Is considered achieved. RAD-API was revised and upgraded into Climate Resilience Development Policy. The technical guideline to integrate adaptation into spatial planning by ATR was prepared and internally consulted with the law bureau at the Ministry. After the consultation, Surat Edaran is in preparation for sharing the guideline for integrating climate change adaptation into spatial planning at the national and local levels.

Indicator 3. is considered achieved. Climate change actions were included in development plans and implemented in Indonesia as climate change actions in RAD-API were included in RPJMD in Semarang city and the project analyzed gaps in its implementation and will produce recommendations by the end of the project.

Overall, the project has achieved all indicators and the logical sequence between the deliverables produced among Outputs and Project Purpose is appropriate, and all the deliverables under the outputs have significantly contributed to the achievement of the Project Purpose in a comprehensive aspect. Yet for indicator 1. the project intensively worked together with MER and MRV as well as financing for the NDC, but the project was not designed to assist RAN-GRK/RAD-GRK revision directly: no direct support activities for RAN-GRK/RAD-GRK revision. The project supported the revision indirectly by improving MER/MRV system.

(4) Efficiency

Efficiency refers to the productivity of the implementation process, examining if the inputs of the Project have been effectively converted into the outputs.

The efficiency of the Project is very high. Project inputs are adequately allocated against the plan.

1)Achievement of activities

The project was extended by 10 months mainly due to the pandemic COVID-19 which gave a negative impact on the progress of the project such as delay in the issuance of VISA for both long and short term experts, two-year absence of a chief advisor in Indonesia, face to face meeting with counterparts including those at the pilot site, a technical difficulty to conduct meetings and capacity building activities, especially at the pilot sites. However, the project has completed all the planned activities with some delays against the original plan including capacity development activity in all four counterparts, two pilot site training, upgrading system for vulnerability, updating guidelines for spatial planning, training for climate change projection and scientifically based development planning. The Project implemented the majority of the activities as planned in the revised PO (see ANNEX 1-1).

2)Achievement of input

• Input from the Japanese side is long and short term expert, equipment, and project-related costs. They were implemented as planned in their items and amount (See II. Results of the Project, 1. Results of the Project, 1-1 Input by the Japanese side (Planned and Actual)). Project inputs are considered adequately allocated against the plan. While the number of CPs is similar in the Phase I project and Phase 2 project, the Phase 2 had smaller number of long-term experts and managed project activities.

• Input from the Indonesian Government side is counterpart personnel and project-related cost. They were implemented based on R/D. (See II. Results of the Project, 1. Results of the Project, 1-2 Input by the Indonesia side (Planned and Actual)).

3)Efficiency of input

• Additional cost caused by the extension is by hiring local PBI analysts as well as approximately 10 MM for overhead costs such as renting office space, etc.

(5) Impact

The impact of the Project, considering that the Project is on the right track to achieve the overall goal, is expected high, considering development of policy/planning and its implementation at a national level and local levels pilot activities (West Java and Semarang) and foreseen synergies among outputs.

The overall goal of the project is “Climate change actions are properly promoted and mainstreamed in Indonesia's National Development Plan to support low carbon and green economic development.”

The indicator set to the Overall Goal is “1. Number, scale, the budget of mitigation and adaptation actions in development plans and spatial plans are increased

nationwide."

Climate change mitigation and adaptation actions have been promoted and mainstreamed in Indonesia through several strategic planning or policy: 1. mainstreaming through National Development Plan, 2. integrating into spatial planning, and 3. implementing the climate change actions (mitigation and adaptation) by MER / MRV with securing means of implementation at the national and local levels. Policy assessment, development of framework, process & methods, plan & implementation, and monitoring & evaluations were enhanced to support the overall goal of the project and the JICA project increased capacity on those key aspects of climate policies with collaboration with counterparts. Policy documents and regulations were also established as an umbrella or legal basis on how to implement climate change actions (mitigation and adaptation) in Indonesia whose areas the project has worked with. Besides, the climate data generated from this project has played a significant role in each process and activity of this project. Positive and visible impacts are listed below.

- LCDI framework under RPJMN strengthen through enhancing the M&E system (AKSARA system), which gives a basis for the next development plan and its implementation.
- Developed policy frameworks such as CRD(PBI) under RPJMN as well as other regulations, adaptation actions are expected to be better planned and implemented nationwide.
- With CRD/PBI approach, the ministries/ institutions / local governments will focus on implementing their actions and budget allocation in the priority locations to countermeasure the potential climate impact. It is then expected to reduce the potential economic loss in Indonesia significantly.
- Achieved progress, in particular at pilot sites, which could contribute to mainstreaming climate change into the next local development plans.
- "Pilots practiced at pilot sites" became a very good precedent to be disseminated to others (ministries/agencies, provinces, municipalities, etc.) though the project could not secure enough time for capacity building and dissemination.
- Increasing climate resilience through specific activities at the location of climate resilience action interventions can reduce vulnerability and strengthen the capacity of communities. Therefore, people can withstand the impacts of climate change.
- The guideline to integrate climate change adaptation into spatial planning was legalized by the Ministry of ATR.
- The SIDIK can be accessed successfully by the public regarding the information on climate vulnerability in Indonesia.
- Climate projection data and enhanced seasonal prediction by BMKG could enhance the quality of analysis on climate change impacts and

improve planning and policy making.
- Strengthened capacity is highly valued and brought changes to both the National and local levels.

(6) Sustainability

The sustainability of the project is expected to be high. The sustainability of the Project is expected by the following points:

1)Policy and System

LCDI and CRD have a legal basis under Presidential Regulation No. 18 2020 about the National Medium-term Development Plan (RPJMN 2020-2024) which mainstreams and promotes them. Moreover, the monitoring and evaluation from LCDI and CRD policy will be utilized for inputs for the national next mid-term development plan. At the local level, LCDI and CRD policies are utilized as guidance in Indonesia to implement low carbon and climate resilience development.

The JICA project assisted to design the comprehensive guidance for mainstreaming CCA into a spatial plan based on the Ministerial Decree of ATR 11/2021. The guideline will be disseminated first by the ATR circulation letter before the project ends. The remaining issue after the completion of the project is that ATR aims to legalize the guideline for further ensuring the utilization by local governments.

2)Institutional and Organizational aspects of the implementing agency

BAPPENAS has established and expanded an LCDI secretariat that maintains the AKSARA system and maintains the implementation of LCDI and CRD policy and programs including monitoring and evaluation.

KLHK started the operation of SIDIK in 2014 and has strong ownership to maintain and improve the SIDIK system as a core instrument for adaptation.

3)Technical Aspect of the implementing agency
The project contributed to the improvement of the system and platform for planning and monitoring and evaluation: 1) with BAPPENAS, AKSARA improvement (integration with other BAPPENAS systems (such as KRISNA) with AKSARA, improvement of AKSARA in terms of mangrove map development, 2) with BMKG, improved climate projection data with the establishment of climate change information system by BMKG to disseminate data, 3) with KLHK, SIDIK system improved. All of them enhance the sustainability of future climate change policy and actions by providing a scientific and robust base such as enhanced data, indicators, and analyzed and evaluation results from those systems.

The climate projection data produced in this project has enriched the BMKG data

set. The result of the downscaled climate projection will be utilized to make climate indices and climate risk analyses by central and local governments in Indonesia. Climate Change Information System has been developed under the project and will deliver climate change information to relevant stakeholders. After the project One-year forecast outlook will be issued regularly to fulfill GOI requirements to formulate planning documents.

The guidance for mainstreaming CCA into the spatial plan by ATR provides necessary steps and analysis consisting of the necessary data and information reference, mapping the related stakeholders, and integration procedures, which highly support the potential users to utilize it. On the capacity aspect, a series of training has been conducted for the Ministry of ATR staff and ATR can facilitate more training for users utilizing the guideline with their own resources.

KLHK has high ownership of SIDIK and enough capacity to operate and disseminate it and plans to continue the training or capacity building on enhanced SIDIK to other local governments.

4)Financial Aspect
LCDI secretariat under BAPPENAS has secured state budget allocation for some PBI secretariat staffs, whose salaries were previously covered by the project and other donors. Without donor support, BAPPENAS can operate the secretariat. It has enhanced the sustainability of the planning and implementation of LCDI and CRD policy.

The results of the financing-related studies are utilized for the GOI as technical inputs for GOI to mobilize and unlock private investment for climate mitigation actions and low-carbon development in Indonesia. Since the GOI state budget cannot cover all necessary mitigation actions, the GOI continues efforts to unlock private investment and international financing.

On BMKG, after the project ends, the state budget will be allocated to maintain the CCIS system.

BAPPENAS, BMKG, KLHK, and ATR are expected to continue the training or capacity building on enhanced SIDIK to other local governments.

2. Key Factors Affecting Implementation and Outcomes

The following are key factors to affect the implementation and outcomes of the project.
-Further mainstreaming climate change into the next national development plans building upon the project results could be crucial. BAPPENAS should continuously develop financing measures or matchmaking platforms to mobilize public, international, and private financing for climate actions in Indonesia.
-Sustainability of the deliverable of activity with BMKG, KLHK, and ATR depends on the budget allocation, further dissemination, and capacity building. On ATR, the legalization of the guideline to mainstream CCA into the spatial plan is crucial.

- for the local level, continuous dissemination, and capacity building on the project results such as PBI analysis with lessons at pilot activities, BMKG climate data, SIDIK improvement, and guidelines will enhance technical capacity to develop and enhance local level policy framework and actions.

3. Evaluation of the results of the Project Risk Management

The following are actions taken by JICA for risk management.

-JICA HQ has mobilized a series of Technical Advisory Missions to support SPI-NAMA Project to expedite its implementation and consolidate future direction (in Feb 2020, Jun. 2022).

-JICA Indonesia has provided support and facilitation to coordination with CPs and administrative due procedures through the issuance of letters.

-CPs (led by BAPPENAS) and the JICA project conducted coordination meetings as necessary such as mini-JCC meetings.

4. Lessons Learnt

Through project implementation, several challenges were encountered and addressed. Accumulated lessons learned from the implementation are as below.

a) Strong Ownership and close coordination
On coordination and facilitation among counterpart organizations of the JICA project, strong leadership by BAPPENAS is key and leads to smooth coordination among other CPs. Strong ownership and collaborative sense of CPs facilitated synergy and collaboration among CPs and other related organizations.

b) Flexibility, and communication
It is noted that changes in CP's needs should be flexibly addressed and managed by the JICA project due to changes in domestic and international policies and rules. Good relationships, cooperation, and communication among CP's personnel, Japanese experts, and other related stakeholders is key to addressing those issues.

IV. For the Achievement of Overall Goals after the Project Completion

1. Prospects to achieve Overall Goal

The overall goal of the project is "Climate change actions are properly promoted and mainstreamed in Indonesia's National Development Plan to support low carbon and green economic development." As mentioned earlier, it is deemed that climate change actions would be further promoted and mainstreamed in Indonesia's National Development Plan and other key policies by utilizing the results of the project. For the policy side, the Climate resilience development

policy (CRD) is a key policy instrument under Indonesia's National Development Plans and the project has assisted its development and implementation at national and local levels. LCDI policy is core for mitigation under the plans which were updated with partners and the project has supported its improvement of the system of monitoring and evaluation, mainly AKSARA. Other key project activities with BMKG, KLHK, ATR, and pilot sites have enhanced the capacity of key stakeholders and provided key tools and policies for initiating and implementing climate mitigation and adaptation actions in Indonesia. Therefore, achievement of the overall goals is expected.

An indicator set for the goal is “Number, scale, budget of mitigation and adaptation actions in development plans and spatial plans are increased nationwide.”

2. Plan of Operation and Implementation Structure of the Indonesia side to achieve Overall Goal

Toward achieving the overall goal of "Climate change actions are properly promoted and mainstreamed in Indonesia's National Development Plan to support low carbon and green economic development", the plan of operation and implementation structure and relevant key issues are as follows, with high priority in relation to the outcome and impact of the project.

2-1 Establishment, enhancement, and implementation of a climate policy framework and policy and measures

CRD policy was launched in 2021 and has started implementation with the development of the monitoring, evaluation, and reporting system at the central government in Indonesia. The project conducted dissemination of CRD policy and implemented analysis and exercise in West Java Province and Semarang City. It is expected that both local governments continue mainstreaming climate change into the next development plans by applying results from our project. In addition, further dissemination of CRD needed to be conducted for other local governments.

2-2 Implementation and capacity development of relevant policy tools

BMKG will play a central role in providing climate projection data for climate resilience development plans/adaptation plans to relevant stakeholders by continuing to develop CCIS and necessary capacity building for those stakeholders.

KLHK has established and improved the SIDIK system under the project cooperation. Further promotion and capacity building on SIDIK, a key tool for the stakeholders, is crucial for local governments to prepare adaptation planning.

ATR has been working hard to legalize the technical guideline to integrate CCA into Spatial Plans. The guideline is not mandatory for governments to use yet as

a key reference for preparing spatial plans by central and local governments in Indonesia. ATR needs to promote and disseminate the guideline with necessary capacity building for them to be able to use them. Furthermore, ATR would continue taking action to make the guideline mandatory for the stakeholders to be implemented widely and extensively, as planned.

3. Recommendations for the Indonesia side

Based on the above, we propose the following contents to the Government of Vietnam for the realization of its contents.

3-1 Further mainstreaming climate change into key development policies and other key policies in Indonesia

Next RPJMN and RPJMD should be further integrated with climate mitigation and adaptation by utilizing LCDI and CRD by BAPPENAS. BAPPENAS should utilize the results of the background study on climate change resilience with the JICA Indonesia office. The background study is crucial to know the current, gap, and future situation. Further, GOI will set the target for the 2025-2029 period in relation to climate resilience development policy. Then, BAPPENAS is expected to further support local governments to mainstream climate change into RPJMD with CRD and LCDI.

ATR should promote the guideline to local governments to integrate CCA into local spatial plans and complete the process of legalization of the guideline.

As further mainstreaming climate change into those development and spatial plans is necessary, the GOI should allocate the necessary budget for the implementation of climate programs and actions.

3-2 Improving and disseminating key policy tools to relevant stakeholders

The project worked together to improve key policy instruments and tools such as climate and seasonal projection, and SIDIK. BMKG should continue to improve relevant data and analytical skills on climate and seasonal prediction such as one-year prediction.

KLHK should continue to prepare key sectoral indicators and conduct capacity development of SIDIK for relevant central and local government offices to assist with strategy and planning on climate change adaptation.

Line ministries and local governments should develop sectoral and local development plans integrated with climate change and implement sectoral and local climate policies and programs by allocating more resources (staff and budgeting) and enhancing staff capacities. Development of local climate plans is stipulated by the presidential regulation No.98/2021 as well.

3-3 Synergy among activities by each counterpart

Under the project, synergy among counterparts was made. The project produced climate projection data in collaboration with BMKG and the data is utilized by all counterparts (BAPPENAS, BMKG, ATR, and KLHK). For BAPPENAS and ATR, the data is utilized for climate hazard analysis. Further, BAPPENAS utilized the sectoral climate hazard and vulnerability index from KLHK to determine the potential economic loss, priority locations, and climate resilience actions. While ATR, the climate hazard is then utilized to internalize the climate change into spatial planning. Both pilot sites utilized hazard assessment by utilizing BMKG data and the BAPPENAS approach (PBI) for the next development plans.

Further cooperation and evolution of collaboration among counterparts are expected. During the project period, climate projection data under the cooperation with BMKG were utilized for hazard and risk analysis at BAPPENAS, KLHK, ATR, and pilot sites. The sharing of such essential data will be crucial to the future implementation of policies and measures in central and local government: data sharing by BMKG for users is key; the promotion of data sharing with relevant agencies is essential to further enhance SIDIK. In addition, the developing standardized data management system under the One Data Policy promoted by the GOI should be further considered and implemented.

4. Monitoring Plan from the end of the Project to Ex-post Evaluation

N/A. It would be ideal that upon the completion of the project, JICA in cooperation with BAPPENAS will work and set up the content, duration, and methodology of the Ex-post evaluation and then monitor the status and process of climate change mitigation and adaptation and implementation in Indonesia.

Annex

Annex1: Inputs of the Project

Annex2: List of Deliverables / Products Produced by the Project

Annex3: PDM

Annex4: RD and JCC record

Annex5: Monitoring sheet

Separate volumes: Deliverables by the Project

（Annex 4 および 5 は非公開）

PM Form 4 Project Completion Report

ANNEX 1: Results of the Project

(List of Dispatched Experts, List of Counterparts, List of Trainings, etc.)

1-1 List of Dispatched Experts

Table 1. Long-term Experts

No.	Field	Name	Assignment Period
1	Chief Advisor	ENOMOTO Hiroshi	15May 2019 - 31 Dec 2019
2	Chief Advisor	ICHIHARA Jun	28 Oct 2021 - 31 March 2023
3	Project Coordinator	SUZUKI Kazushi	9 May 2019 - 31 March 2023

Table 2. Short-term Experts

No.	Field	Name	Assignment Period
1	Statistical Downscaling Expert, (Program Coordinator)	TONOUCHI Michihiko	1. 29 January 2022 - 5 March 2022 2. Feb 27, 2023, to Mar 8, 2023
2	Seasonal Prediction Expert	KURIHARA Koichi	1. 28 January 2021 - 4 March 2021 2. 13 July 2022 - 27 August 2022 3. Feb 26, 2023, to Mar 11, 2023
3	Dynamical Downscaling Expert	CHIBA Masaru	1. 13 July 2022 - 27 August 2022 2. Feb 26, 2023, to Mar 14, 2023
4	Dynamical Downscaling Expert	SATODA Hiroshi	1. 31 July 2022 - 21 August 2022

1-2 List of Counterparts

Counterpart Agencies:

National Development Planning Agency (BAPPENAS)

- Deputy Minister for Maritime and Natural Resources BAPPENAS, JCC Chairperson, Responsible Partner
- Director for Environmental Affairs BAPPENAS, Project Coordinator, Responsible Partner

Agency for Meteorology, Climatology and Geophysics (BMKG)

- Deputy Director General for Climatology BMKG, Responsible Partner
- Head of Center for Climate Change Information BMKG, Responsible Partner

Ministry of Environment and Forestry (KLHK)

- Director General of Climate Change KLHK, Responsible Partner
- Director for Climate Change Adaptation KLHK, Responsible Partner

Ministry of Agrarian and Spatial Planning (ATR)

- Director General of Spatial Planning ATR, Responsible Partner
- General Secretary of Directorate General of Spatial Planning ATR, Responsible Partner
- Director for Synchronization of Spatial Utilization ATR, Responsible Partner
- Director of National Spatial Planning ATR, Responsible Partner

Pilot sites:

West Java Province

- Head of Bappeda

Semarang City

- Head of Bappeda

1-3 List of Training

Implemented Training Course in Japan

Activity	Participants
Capacity Building for Climate Projection in Indonesia (4-17 December 2022)	Six (6) Participants

Implemented Training Course in Indonesia

Activity	Participants

Developing AKSARA and the System (30 December 2021)	Fifty (50) Participants
Climate Change and Climate Change Adaptation in Spatial Planning Process (25 January 2022)	Thirty-Five (35) Participants
Capacity Building and Trial Testing on Mainstreaming CCA into the Spatial Planning in West Java Province (23 August 2022)	Local Government of West Java Province: 141 participants (1 day hybrid)
Capacity Building and Trial Testing on Mainstreaming CCA into the Spatial Planning in Semarang City (13 September 2022)	Local Government of Semarang City: 39 participants (1 day hybrid)
Climate Projection and Seasonal Prediction sharing knowledge in Bandung (1-3 October 2022)	Local Government of West Java and Bandung City: 35 participants (1 day) BMKG local office: West Java and its surrounding area: 25 participants (2 days)
Climate Projection and Seasonal Prediction sharing knowledge in Semarang (15-17 November 2022)	Local Government of Central Java and Semarang City: 45 participants (1 day) BMKG local office: West Java and its surrounding area: 25 participants (2 days)
The New SIDIK Operationalization Capacity Improvement (6 February 2023)	Nineteen (19) Participants
Training on trial-utilization of the guideline for ATR Staff (15-16 February 2023)	Twenty-Five (25) Participants for both day 1 and day 2

1-4 Revised Plan of Operation

See Annex 5.

ANNEX 2: List of Products (Report, Manuals, Handbooks, etc.) Produced by the Project

Output1

Name/Title	Author/Consultant	Completion
1 Finalization of mangrove map and identification for gaps to improve the accuracy of mangrove data	Marlenny Sirait	February,2020
2 Development of Mangrove Map and Database for National Baseline and Carbon Stock Estimation	Safran Yusri (Yayasan Terumbu Karang Indonesia)	June 2021
3 Identification of Private Sector Monitoring System based on SDGs Activities to Support the AKSARA System Development	Yohanes Ariyanto	November 2021
4 Identification and Review of Investment for LCDI Development	Jannata Giwangkara	December 2021
5 Improvement of monitoring and evaluation in AKSARA system - Identification of Renja/RKA related to Goal 13 of SDGs	Yohanes Ariyanto	June 2022
6 Improvement of monitoring and evaluation in AKSARA system integration between AKSARA and related system in BAPPENAS	Tommy Krismanto	September 2022
7 Review of Challenges and Engagement Strategy in Mobilizing Further Investment for LCDI Development	Dicky Edwin Hindarto	November 2022
8 Mapping and Reviewing the Innovative Financing Schemes of the Domestic Private Sector and Foreign Investment under the LCDI Priority Sectors	Lalu Damanhuri	November 2022
9 Identifying Challenges and Barriers to Promote the Domestic Private Sector and Foreign	Devina Fitrika Dewi	March 2023

Investment under the LCDI Priority Sectors		
10 Comprehensive Study on Review of Challenges and Engagement Strategy in Mobilizing Further Investment for LCDI Development.	PT. Amythas	March 2023
11 Quick study Improvement of Monitoring and Evaluation in AKSARA System to Support the LCDI Development for the Non-state Actors (Private Sector)	Susy Marisi Simarangkir	March 2023

Output2

Name/Title	**Author/Consultant**	**Completion**
12 Study on Guideline of Mainstreaming Climate Change Adaptation (CCA) Into Spatial Planning.	Prof.Ir. Djoko Santoso Abi Suroso, Ph.D.	March 2020
13 Initial Study of Gap Analysis to Improve the Potential Economic Loss Analysis of RAN-API	Mr. Hendricus Andy Simarmata	October 2020
14 Formulation of Adaptation Policy and Strategy on Coastal-Marine and Health Sector (RANAPI)	Mr. Pradiphda Panduswanto	April 2021
15 Formulation of Adaptation Policy and Strategy on Water and Agriculture Sector (RANAPI)	Mr. Rahadian Febry Maulana	April 2021
16 Development of Calculation Methodologies for Adaptation Activities	Hendricus Andy Simarmata, Ph.D.	April 2021
17 Climate Resilience Development Policy Document	BAPPENAS	May 2021

(6 books, English version translation): • 17-1 Executive Summary; • 17-2 Book (1) List of Priority Locations & Climate Resilience Actions; • 17-3 Book (2) Institutional Arrangement for Climate Resilience; • 17-4 Book (3) The Roles of Non-State Actors in Climate Resilience; • 17-5 Book (4) Climate Resilience Funding; and Book • 17-6 Book (5) Monitoring, Evaluation, and Reporting of Climate Resilience Actions in The Framework of National Development Planning		
18 Study on Revision on Guideline of Mainstreaming CCA Into Spatial Plan.	Prof.Ir. Djoko Santoso Abi Suroso Ph.D.,	March 2021
19 Study on Data and Information Provision Mapping	M.S. Fitriyanto, M.Si.,	March 2021
20 Study on Information System for Vulnerability Index Data (SIDIK): Gap analysis	Centre for Climate Risk and Opportunity Management in Southeast Asia Pacific (CCROM - SEAP)	March 2020
21 Study for improvement of methodology for the assessment of vulnerability in the SIDIK system	Centre for Climate Risk and Opportunity Management in Southeast Asia Pacific (CCROM - SEAP)	May 2021

22 Comprehensive Study on Guideline of Mainstreaming CCA Into Spatial Plan	PT. LAPI ITB	March 2023
23 Study on Policy Review on Climate Resilience Development Strategy in Development Planning Document of West Java Province	Budhi Setiawan	September 2022
24 Study on Analyzing Climate Resilience Actions in Development Planning Documents of West Java Province	Budhi Setiawan	March 2023
25 Study on Hazard Assessment on Water Sector in West Java Province	Dr. Tri Wahyu Hadi	January 2023
26 Study on Hazard Assessment on Water Sector in Semarang City	Dr. Rusmawan Suwarman	January 2023
27 Study on Hazard Assessment on Agriculture Sector for Pilot Sites in West Java Province and Semarang City	Dr. Elza Surmaini	January 2023
28 Study on Hazard Assessment on Health Sector in Semarang City	Clarisa Dity Andari	January 2023
29 Study on Hazard Assessment on Health Sector in West Java Province	Dr. Lia Faridah., M.Si.,	January 2023
30 Study on Sectoral Hazard Assessment Data Management for Pilot Sites	Novi Puspitasari, ST., MPWK.	January 2023
31 Study on Supporting Analysis of Climate Resilience Actions in Development Planning Documents	Muchamad Muchtar	March 2023

of West Java Province		
32 Policy Review on Climate Resilience Development Strategy in Development Planning Document of Semarang City	Dr.-Ing. Wiwandari Handayani, S.T., M.T.,MPS.	November 2021
33 Study on the Baseline of Economic Loss Due to Climate Change Impact of West Java Province	Nugrahana Fitria Ruhyana	March 2023
34 Study on the Baseline of Economic Loss Due to Climate Change Impact of Semarang City	Dr. Agr. Deden Dinar Iskandar, S.E., M.A.	March 2023
35 Updating the Priority Location of Climate Resilience in West Java Province	Stevanus Nalendra Jati, S.T., M.T.	March 2023
36 Updating the Priority Location of Climate Resilience in Semarang City	Dr. Agr. Deden Dinar Iskandar, S.E., M.A.	March 2023
37 Assessment on Climate Resilient Policy Implementation in Semarang City	Dr.-Ing. Wiwandari Handayani, S.T., M.T.,MPS.	November 2022
38 Study on Enhancing Implementation of Climate Resilient Development Strategy in Semarang: Compiled Lesson Learn and Provide Recommendation	Dr.-Ing. Wiwandari Handayani, S.T., M.T.,MPS.	March 2023
39 Analyzing Climate Resilience Actions in Development Planning Documents of Semarang City	Dr.-Ing. Wiwandari Handayani, S.T., M.T.,MPS.	March 2023
Conducting Climate Projection with Dynamical Method	Japan Meteorological Business Support Center (JMBSC) Mr. Masaru Chiba	March 2023

	Mr. Hiroshi Satoda	
Conducting Climate Projection with Statistical Method	Japan Meteorological Business Support Center Mr. Michihiko Tonouchi Dr. Nishimori, National Agriculture and Food Research Organization (NARO)	March 2023
Experimental Downscaling	Tsukuba University Prof. Kusaka Mr. Asano	March 2023
Strengthening The Capacity of Long-Range Forecasting	Japan Meteorological Business Support Center Dr. Koichi Kurihara	March 2023