Audit Report

Performance Audit of Climate Change adaptation Actions (CCAA)

Audit of Climate Change Adaptation in Forestry and Land Use Sector

SAI Indonesia

Audit Topic:

Performance audit of climate change adaptation in forestry and land use sector.

Audit period:

From 2021 to 2023.

Audit team members:

- Team members:
    - Normas Andi Ahmad
    - Denny Wahdini
    - Vivi Nurmalia
    - Dhian Adhi Nugroho
- Team leader/coordinator: Fery Irawan
- Supervisor: Ari Kristiana

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1. Background

- Indonesia is highly susceptible to the adverse effects of climate change. Its geographical diversity, spanning thousands of islands, exposes it to a myriad of climate-related hazards including rising sea levels, landslides, and flooding. Tackling these challenges necessitates comprehensive strategies encompassing mitigation efforts to reduce greenhouse gas emissions, adaptation measures to cope with changing environmental conditions, and the promotion of resilience-building initiatives in vulnerable communities. One of the measures to overcome the condition is by implementing land and forest rehabilitation programs.

2. Audit objectives

- To assess the Government's effort in National Adaptation Plan (NAP) preparation process and to determine whether the NAP has identified and implemented actions to mitigate flooding and landslide hazards in the forestry and land use sector.

3. Audit Approach

- Combination of system and results-oriented approach

4. Audit Standards

- State Audit Standards of the Audit Board of the Republic of Indonesia, which was adopted from ISSAIs

5. Audit scope

- What to Audit: Policies, planning, financing, institutional arrangement, monitoring, and evaluation related to the National Adaptation Plan (NAP) preparation process and implementation of land rehabilitation programs aimed at mitigating flood and landslide hazards arising from climate change
- Who: Ministry of Environment and Forestry and related entities.
- Where: Jakarta capital area and four provinces.
- When: 2021 to 2023.

6. Audit questions (lower level)

To what extent the Government implemented climate change adaptation actions within the forestry and land use sector?

- Subquestion 1: Has climate change adaptation in forestry and land use sector (including NAP) been coherently and comprehensively planned?
- Subquestion 2: Has climate change adaptation in forestry and land use sector been supported by adequate resources?
- Subquestion 3: Has climate change adaptation in forestry and land use sector been adequately implemented?

7. Audit criteria

- Subquestion 1: Has climate change adaptation in forestry and land use sector (including NAP) been coherently and comprehensively planned?
  Criteria:
  o NAP has been prepared properly and has incorporated inputs from relevant stakeholders.
  o NAP has been communicated across all level of governments and sectors.
  o Allocation of responsibilities regarding climate change adaptation in forestry and land use sector has been clear.

- o Policies and regulations on climate change adaptation in forestry and land use sector including relevant target have been coherent vertically and horizontally.
- o Indicators and targets on climate change adaptation in forestry and land use sector have been supported by robust assumptions and analyses.
- Subquestion 2: Has climate change adaptation in forestry and land use sector been supported by adequate resources?
  Criteria:
  - o Climate change adaptation in forestry and land use sector has been supported by adequate financial resources.
  - o Climate change adaptation in forestry and land use sector has been supported by adequate human resources.
  - o Climate change adaptation in forestry and land use sector has been supported by adequate information system and early warning system for meteorological disaster.
  - o Climate change adaptation in forestry and land use sector has been supported by adequate data.
- Subquestion 3: Has climate change adaptation in forestry and land use sector been adequately implemented?
  Criteria:
  - o Implementation of forest and land rehabilitation has considered the disaster risk and vulnerability data.
  - o Achievement of forest and land rehabilitation program has been monitored, reported, and evaluated accordingly.

8. Methods/audit procedures to be used to gather evidence

- Document review: NAP draft, climate change adaptation plan in National Medium Term Development Plan and other relevant planning documents, communication and correspondences on NAP preparation, spatial data related to meteorological disasters and risk of climate change impact, program monitoring and evaluation reports, and other relevant documents.
- Interview: Relevant personnel in Ministry of Environment and Forestry; Ministry of Finance; Ministry of National Development Planning; National Disaster Management Agency; Meteorological, Climatological, and Geophysical Agency; local governments; and other relevant stakeholders.
- Site Inspection: Inspection to four provinces regarding forest and land rehabilitation program implementation and meteorological disaster risk management.
- Expert Consultation: Consulting several experts in climate change adaptation in forestry and land use sector.
- Walkthrough: Walkthrough on forest and land rehabilitation as well as disaster risk and vulnerability data.
- Spatial Analysis: Spatial analysis on forest and land rehabilitation implementation and disaster risk and vulnerability data.
- Focus Group Discussion: Focus group discussion with forest farmers and vulnerable groups.

9. Audit Design Matrix

Audit Question	Criteria	Source of Criteria	Information Required	Methodology	Limitations	Expected Result
Has climate change adaptation in forestry and land use sector (including NAP) been coherently and	- NAP has been prepared properly and has incorporated inputs from relevant stakeholders.	- Relevant laws and regulations - Best practices	- NAP Preparation process - Allocation of responsibilities regarding	- Document review - Interview - Walkthrough - Expert consultation	Working papers are not properly documented	- Analysis on NAP preparation - Analysis on NAP communication and socialization

comprehensively planned	- NAP has been communicated across all level of governments and sectors. - Allocation of responsibilities regarding climate change adaptation in forestry and land use sector has been clear. - Policies and regulations on climate change adaptation in forestry and land use sector including relevant target have been coherent vertically and horizontally. - Indicators and targets on climate change adaptation in forestry and land use sector have been supported by robust assumptions and analyses		climate change adaptation in forestry and land use sector - Indicators and targets on climate change adaptation in forestry and land use sector and their relevant supporting documents			- Analysis on allocation of responsibilities regarding climate change adaptation in forestry and land use sector - Analysis on policies and regulations on climate change adaptation in forestry and land use - Analysis on indicators and targets on climate change adaptation in forestry and land use sector
Has climate change adaptation in forestry and land use sector been supported by adequate resources?	- Climate change adaptation in forestry and land use sector has been supported by adequate financial resources. - Climate change adaptation in forestry and land use sector has been supported by adequate human resources. - Climate change adaptation in forestry and land use sector has been supported by adequate information system and early warning system for meteorological disaster. - Climate change adaptation in forestry and land use sector has been supported by adequate data	- Relevant laws and regulations - Best practices	- Financial resources regarding climate change adaptation in forestry and land use sector - Human resources regarding climate change adaptation in forestry and land use sector - Information system and data regarding climate change adaptation in forestry and land use sector	- Document review - Interview - Walkthrough - Expert consultation	Working papers are not properly documented	- Analysis on financial resources regarding climate change adaptation in forestry and land use sector - Analysis on human resources regarding climate change adaptation in forestry and land use sector - Analysis on information system and data regarding climate change adaptation in forestry and land use sector
Has climate change adaptation in forestry and land use sector been adequately implemented?	- Implementation of forest and land rehabilitation has considered the disaster risk and vulnerability data. - Achievement of forest and land rehabilitation program has been monitored,	- Relevant laws and regulations - Best practices	Forest and land rehabilitation monitoring and evaluation report	- Document review - Interview - Walkthrough - Expert consultation - Site inspection - Spatial analysis	Working papers are not properly documented	- Analysis on implementation of forest and land rehabilitation compared to the disaster risk and vulnerability data

			- Focus group discussion		- Analysis on implementation of forest and land rehabilitation effectiveness and efficiency
reported, and evaluated accordingly					

10. Audit Findings

a. Challenges in the Reforestation and Land Rehabilitation Program

The Reforestation and Land Rehabilitation (RLR) program aims not only to increase carbon reserves but also to enhance climate resilience, reducing the potential losses caused by climate change impacts such as floods, landslides, and droughts. However, an audit of RLR activities by the Directorate General of Watershed and Forest Rehabilitation (DG WFR) reveals several issues. After the fourth year of implementation, when management is handed over to provincial governments, maintenance and monitoring of RLR projects are not carried out effectively due to limited budgets, insufficient forest rangers, and unclear responsibilities between central and local authorities. This has impeded the ability to measure the program's contributions to climate adaptation in forestry and land sectors.

Furthermore, the planting outcomes of RLR have yet to be classified as forest areas under the national land cover standards. For RLR vegetation to be considered successful, it must meet criteria such as canopy cover exceeding 30%, tree height of at least 5 meters, and an area of at least 6.25 hectares. Between 2013 and 2017, the average success rate of RLR in achieving reforestation was only 8.64%. Spatial and physical analysis shows discrepancies, with many areas still classified as mixed dryland agriculture rather than forest. Differences in success criteria between directorates under the Ministry of Environment and Forestry further complicate the evaluation of RLR outcomes.

These challenges highlight the need for stronger collaboration between central and provincial authorities, better funding, and clearer success metrics to ensure the RHL program can meet its objectives. Enhanced monitoring and consistent criteria across agencies will enable more accurate measurement of reforestation and its contributions to carbon sequestration and disaster resilience. Without these improvements, the program's impact on mitigating and adapting to climate change will remain limited.

b. Disaster Vulnerability Information System Needs to be Enhanced

According to Law No. 16 of 2016, which ratifies the Paris Agreement, climate change increases the risk of hydrometeorological disasters such as floods and landslides. In response, Indonesia's Ministry of Environment and Forestry (MEF) needs to evaluate the impact of development policies on vulnerability to natural disasters through the Vulnerability Index Data Information System (SIDIK). SIDIK serves to measure disaster vulnerability by analyzing environmental biophysical indicators and socioeconomic data obtained from national surveys, assessing four components: hazard, exposure, sensitivity, and adaptive capacity.

Based on Regulation No. P.7/MENLHK/SETJEN/KUM.1/2/2018, SIDIK evaluates vulnerability using information on hazards (the potential harm caused by climate change), exposure (the presence of people or assets in high-risk areas), sensitivity (the susceptibility of systems to climate change), and adaptive capacity (the ability to mitigate or prevent damage). However, an audit of SIDIK found that its assessments rely solely on tabular data and fail to incorporate spatial data, limiting its ability to accurately evaluate disaster vulnerability.

Integrating spatial and landscape data could significantly improve SIDIK's effectiveness. For example, critical land maps, water infiltration maps, and disaster-prone maps from various sources—such as MEF, the National Disaster Management Agency (NDMA), and local governments—could enhance the evaluation of exposure. These maps would allow SIDIK to represent exposure variables beyond administrative boundaries, providing a more comprehensive and accurate vulnerability assessment for natural disasters.

c. Challenges and Opportunities in Funding Indonesia's FOLU Net Sink 2030 Goals

The Paris Agreement's Articles 2 and 9 highlight the critical role of funding in climate change mitigation and adaptation efforts. Indonesia's Third Biennial Update Report (BUR) to the UNFCCC in 2021 revealed that achieving emission reduction targets without international assistance (CM1) by 2030 requires USD 281 billion. In the forestry and land use (FOLU) sector alone, the financial need is USD 21.68 billion, primarily for activities like deforestation reduction, land rehabilitation, and peatland restoration. Indonesia also projects funding needs of IDR 204.02 trillion for its FOLU Net Sink 2030 plan, but identified financing sources until 2024 cover only IDR 19.61 trillion, leaving a significant funding gap to achieve the 2030 targets.

Carbon trading is one potential funding source, regulated by Indonesia's Presidential Regulation No. 98/2021 and subsequent Ministry of Environment and Forestry (KLHK) regulations. The launch of the Indonesian Carbon Exchange (IDXCarbon) in 2023 marks a step forward, but economic potential from carbon trading remains unclear due to pending revisions to related regulations and methodologies. Additionally, private sector contributions, such as those by ecosystem restoration companies, have yet to meet the additionality criteria required for achieving FOLU Net Sink 2030. Efforts like forest conservation and community empowerment by private entities are seen as maintaining existing carbon sequestration rather than reducing emissions beyond business-as-usual levels.

Performance-based payments (RBP) through schemes like REDD+ have shown mixed results in Indonesia. While initiatives like the Forest Carbon Partnership Facility in East Kalimantan and the BioCarbon Fund in Jambi have made progress, funding utilization remains suboptimal. For example, East Kalimantan has only spent a small portion of allocated RBP funds due to administrative challenges, and Jambi's BioCarbon Fund initiative is still in the pre-investment phase. Despite achieving verified emission reductions, payments for these results are delayed, limiting the effectiveness of RBP as a reliable funding source for Indonesia's climate change efforts.

d. Alignment and Coordination in Indonesia's National Adaptation Plan Development Needs to be Strengthened

The development of the National Adaptation Plan (NAP) is vital for aligning climate adaptation activities with budget allocations and ensuring compliance with the UNFCCC and the Paris Agreement. NAP integrates climate adaptation strategies into national, sectoral, and subnational policies and programs, focusing on adaptive capacity, resilience, and vulnerability reduction. However, an evaluation of NAP development revealed several shortcomings, including misalignment between the adaptation priorities in the Nationally Determined Contributions (NDC) and the Climate Resilient Development (PBI) program. While NDC focuses on basic needs, ecosystems, and disaster management, PBI prioritizes sectors like marine and coastal areas, water, agriculture, and health, leading to inconsistencies in budgeting and policy alignment.

The misalignment stems from differences in priority-setting approaches by the Ministry of Environment and Forestry (MEF) and the Ministry of National Development Planning (MNDP). MEF focuses on addressing basic needs during disasters, while MNDP

prioritizes economic contributions to climate resilience, using GDP impact as an indicator. This lack of coordination has hindered the harmonization of policy goals and budget allocations for climate adaptation efforts. Furthermore, subnational adaptation plans have yet to align with the national strategy due to the ongoing development of the NAP, leaving local governments unable to finalize their Regional Climate Change Adaptation Action Plans (RAP).

Despite progress in some regions, such as Central Java, South Kalimantan, and Bangka Belitung, local adaptation plans often lack comprehensive guidance from the national framework. Efforts to integrate existing regulations into a unified policy, such as the draft Ministerial Regulation on Nationally Determined Contributions, are underway to improve alignment. This integration is expected to strengthen the coordination of adaptation strategies across administrative levels, ensuring consistency in addressing climate risks and enhancing resilience nationwide.

11. Audit Recommendations

a. To coordinate with the Ministry of Home Affairs and Provincial Governments regarding the authority and responsibilities of Forest Management Units in the continued maintenance of Reforestation and Land Rehabilitation (RLR) program outcomes;

b. To develop and establish success measurement standards for RLR activities;

c. To accelerate the development process of SIDIK that incorporates spatial methodologies and analysis;

d. To coordinate with all stakeholders to identify and mobilize funding sources from both the state budget and non-state budgets for financing climate change mitigation and adaptation actions in the forestry and land use sectors;

e. To coordinate more intensively with the Ministry of National Development Planning and local governments to finalize the National Adaptation Plan in alignment across sectors.