XV WORLD FORESTRY CONGRESS
Building a Green, Healthy and Resilient Future with Forests
2–6 May 2022 | Coex, Seoul, Republic of Korea

Community Based Investment to Address Deforestation and Forest Degradation in West Kalimantan, Indonesia

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Abstract

West Kalimantan is the province with high forest cover but contributing high emission from high deforestation and forest degradation. FIP-1 project targets in reducing emission from deforestation and forest degradation (REDD+). Achievement on reducing emission will contribute the Indonesia's Nationally Determined Contribution (NDC). The project has two themes, forest management intervention and community investment to increase their income.

A log-frame and theory of change is applied to measure the impacts. Baseline data was setup through data collection and analysis. Stakeholder analysis was carried out to design institution arrangement and capacity building program. Economic benefit was measured at local community. Rate of deforestation and degradation was measured using a GIS tool.

During the period of 2018-2020, total project investment is US $6.5 million. FIP-1 project has invested a total amount of USD 4.1 million for the livelihood improvement program, and USD 2.4 million for the sustainable forest management. Total emission reduction during the period of 2018-2020 is 1.02 TCO2-e. FMU (Forest Management Unit) is the important party in this achievement and community involvement is a key success in this investment. Community income has increased by 50% in June 2021 (compare to the baseline in 2016).

A total 63% investment has been allocated for livelihood improvement program, while 36% of the investment was allocated for forest management intervention. From this investment, a total of 1.02 TCO2e of emission has been reduced. An effective REDD+ program will require involvement from FMU and community as active players.

Keywords: Forest Investment Program, West Kalimantan, climate change, forestry

Introduction, scope and main objectives

West Kalimantan is one of the top five provinces in Indonesia contributing to GHG emissions, with an average annual deforestation of 132,500 ha (PAM 2016). The key drivers of deforestation and forest degradation are: (i) commercial logging; (ii) conversion of forest to agriculture; (iii) mining (primarily coal and gold); and (iv) uncontrolled fires. The underlying causes include: (i) inconsistent and inadequate spatial planning (due to limited accurate data to inform regional spatial plans), (ii) unclear land ownership and land conflicts, and (iii) weak governance, including uncoordinated sectoral development planning, overlapping permits in forest areas, weak spatial planning capacity, limited site level forest management oversight, contradictory regulations and laws, and lack of inclusive and participatory processes (PAM 2016).

The Forest Investment Program-1 contributes to the objectives of the master plan for the acceleration and expansion of Indonesia's economic development 2011–2025, national action plan to reduce GHG emissions, national REDD+ strategy and West Kalimantan's provincial action plan to reduce emissions. The project's objectives are closely aligned with the National Medium Term Development Plan 2015-2019, Long-term Forest Management Plan 2015-2019, National REDD+ Strategy, West Kalimantan REDD+ Strategy, and Heart of Borneo National Strategic Plan of Action 2015-2019.

Scope of the Study

This study is based on the FIP-1 project implementation in two districts of Kapuas Hulu and Sintang, West Kalimantan Province. The FIP-1 project has three outputs: (i) Community-focused and gender responsive REDD+ pilots in Kapuas Hulu and Sintang districts implemented, (ii) Provincial REDD+ Strategy effectively implemented; and (iii) Sub-national Fiscal Policies on REDD+ Harmonized with National Policies. Six Implementing Agencies from the Ministry of Environment and Forestry and three FMUs from the provincial environmental and forestry agency have allocated their budget and commitment in a annual budget workplan.

Main Objective

The impact will be increased environmental and livelihood benefits. The outcome will be improved REDD+ implementation in project areas of West Kalimantan province.

Methodology/approach

1. Stakeholders Consultation and Engagement. Prior to implementation of the project activities, a stakeholder engagement plan was developed and it serves as the guideline to communicate and coordinate project plan with relevant stakeholders.
2. Baseline data collection for community income and emission. Baseline data for community income was collected for targeted villages through interview with local community as beneficiaries. Income was measured from community expenditure to predict community income on the monthly basis. For the emission, baseline for project was obtained from the land cover change analysis data for the period of 2015-2017. A stock different method was used to measure emission reduction during project period (Chave et al. 2005).
3. Measurement of emission has utilized a GIS spatial analysis method. Input for this emission measurement is the land cover data from the Government (MOEF 2015). Ground checking as also conducted as well as satellite image interpretation.
4. To measure changes on community, project stakeholders, and on the environmental quality, a theory of change approach was used. Steps for drawing the process of change consists of: definition of problems, project activities, project outputs, and project impact/outcomes.

Results

Project stakeholders and the result of stakeholders mapping analysis is presented in Table 1 below:

Table 1: Stakeholder's analysis for planning and implementation of the community focused investment**.**

Stakeholders	Interest	Capacity	Type of Engagement
Ministry of Environment and Forestry (Executing Agency and Implementing Agencies)	Use the grant from the donor to fill the gap on the development targets (i.e., achieving emission reduction, social forestry target area)	Adequate in term of policy and project management-administration, but limited on quantity of human resources.	As a leading part for project implementation, requires continuous engagement in project planning, monitoring on achieving development

			impacts, and reporting on project progress.
Sub National Government (provincial and districts)	Require supports to plan and implement REDD+ agenda.	Has already established the REDD+ working group related to climate change issues. Limited on financial capacity and safeguard to implement REDD+ agenda.	A Provincial Technical Steering Committee was established to facilitate continuous stakeholder engagement.
Forest Management Units	Support in the development of long-term forest management plan, provision of equipment and infrastructure for FMU operationalization.	Very limited on human resources and financial capacity.	A work agreement was established to facilitate FMU roles as field coordinator and supervision during project implementation.
Village Communities	Mostly remote villages with limited of basic infrastructure, economic skills and sustainable forest management (SFM).	Very limited capacity related to SFM and climate change. Village government has limited capacity on human resources and finance on REDD+.	Implementing agencies provide work cooperation agreement to farmer groups that were established prior to activity implementation.

It can be seen from Table 1, that sub-national stakeholders (province, district, and village) has limited capacity in the area of their management capacity and financial (especially for FMU and village government) to plan and implement REDD+ activities. Ongoing and continuous engagement process with specific methods based on its condition become one of the key successes to achieve the project impact, i.e., increased environmental and livelihood benefits.

Table 2: Baseline and latest status of impacts for community income and emission in the project area.

Project Investment	Baseline Condition	Expected Impacts	Status of Impact (Jun 2021)
Purchase of good (FMU infrastructure, office equipment, etc.): USD 1.67 M Works (village infrastructures, ecotourism facilities): USD 1.58 M Livelihood improvement: USD 7.44 M Workshop and training: USD 2.12 M	Community income: 2015 baseline: USD 2,300/year in Kapuas Hulu, USD 1,250/year in Sintang 2018 baseline: USD 1,858/year in Kapuas Hulu and USD 1,370/year in Sintang	Household income of local communities in three FMUs increased by 20% in real terms	Community income in Kapuas Hulu has become USD 2,796 (50% increase) and in Sintang has become USD 2,131 (56% increase)
	Emission reduction: Baseline net GHG emissions of 12.4 million tons CO2e	Cumulative GHG emissions in project area reduced by 3.7 million tons CO2e for the period of 2017-2026.	Deforestation has reduced from 1,425 Ha in 2018 to 197 ha in December 2020 Emission is reduced by 1.02 N tons CO2e

During the period of 2018-2020, from the total investment, the Project has disbursed a total of US $6.5 million for good purchasing, work, livelihood improvement and training. FIP-1 project has invested a total amount of USD 4.1 million for the livelihood improvement program, and USD 2.4 million for the sustainable forest management (livelihood improvement). Total emission reduction during the period of 2018-2020 is 1.02 TCO2-e. FMU (Forest Management Unit) is the important party in this achievement and community involvement is a key success in this investment. Community income has increased by at least 50% in December 2020 (compare to the baseline in 2016).

The project conducted the second baseline surveys in 2018 due to changes on the targeted villages (7 villages out of 17 villages have changed to accommodate request from sub-national stakeholder's request.

From the result of stakeholders mapping and the baseline data, project activities that drive the changes towards development impacts is illustrated in the schematic theory of change in Figure 1 below:

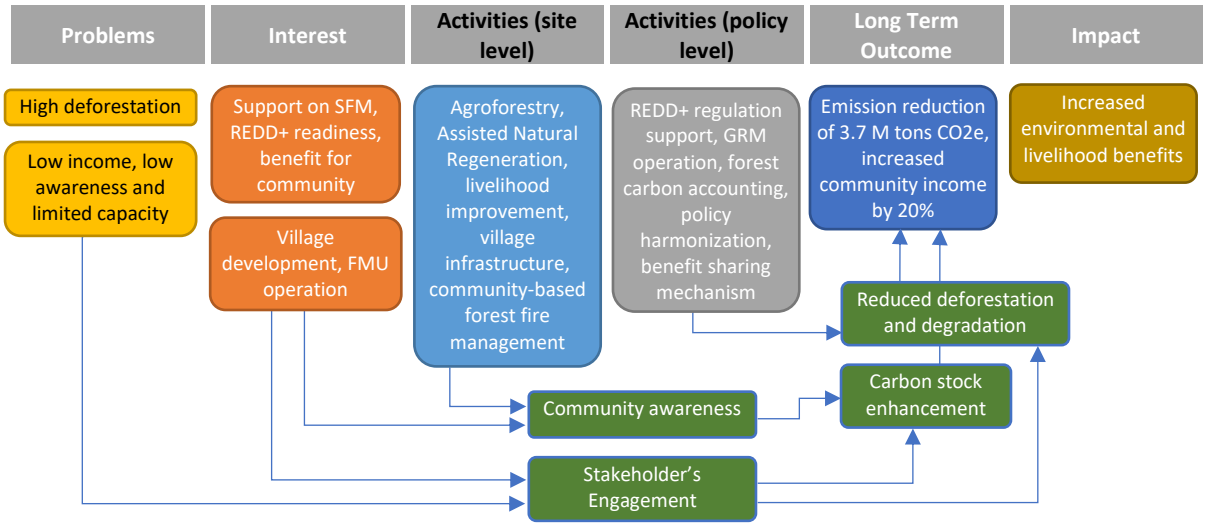

Fig. 1. Simplified theory of change in achieving project development impact**.**

The simplified diagram as presented in Figure 1 explains the main process of changes in both socio-economic condition (with the main indicator of increased income) and improved environmental quality (reduced emission).

Discussion

The REDD+ program is a long-term commitment of relevant stakeholders in a certain jurisdiction area (e.g., national, province, or district). It requires a certain level of readiness at all levels related to the awareness on sustainable forest management, alternative livelihood for community living within and around forest area, capacity of institution to ensure implementation of commitment in protecting forest to reduce deforestation and forest degradation, regulation support, establishment of benefit sharing mechanism among parties involve in reducing emission, and development and implementation of necessary safeguard measures.

Stakeholders Engagement for REDD+ Project

Larson and Petkova (2011) stated that REDD+ success depends on its legitimacy, which will, in turn, depend on its ability to gain broad support and engagement from indigenous groups, civil society, local governments and other stakeholders. The FIP-1 project has conducted intensive consultation with Indigenous Peoples (IP) group. Until December 2020, consultations were conducted participated by a total of 975 people (319 female and 656 male). Through these meaningful consultations, people opinion, concerns and perception were recorded and provided feedback to the project plan and design.

Emission Reduction from REDD+

Measuring development impacts on emission reduction for the FIP-1 project were conducted through several methods, consistent with the national guidelines in measuring forest carbon. FREL data from the government (MOEF 2015) was used as the main reference, although the Project has developed its own baseline (2012-2017) to improve data accuracy during REDD+ measurement, reporting and verification. Emission reduction within the 17 targeted villages during the period of 2018 to December 2020 is 660,491 tCO2-e and emission reduction within the implemented forest fire management area is 360,821 tCO2-e. Therefore, total emission is 1,021,312 tons CO2e (MOEF and ADB 2021).

REDD+ Benefit for Community

REDD+ programs can deliver benefits through multiple pathways, by creating material opportunities, enhancing a population's security, and facilitating the empowerment of communities to participate in decisions affecting local land use and development (Lawlor et al. *in* Madeira et al. 2013). The FIP-1 project, similarly also deliver multiple benefits for local community groups, among others: (i) legal access to forest area by establishing Social Forestry scheme, (ii) technical assistance in the land-based program such as agroforestry and assisted natural regeneration, (iii) livelihood improvement support, (iv) development of village infrastructure, (v) training program on various aspects of forest management, and (vi) future benefits from the country REDD+ program.

Conclusions

The community-based investment project (the FIP-1 Project) has successfully delivered multiple benefits to local community, as well as to the ecological quality in the project area. With the total of investment has been allocated for livelihood improvement program (63% from the total investment) and 36% that has been allocated for forest management intervention, the Project has developed a model for REDD+ implementation, that can be replicated in other jurisdiction area. From this investment, a total of 1.02 TCO2e of emission has been reduced, and community income has increased by 50% compare to the 2016 baseline condition.

Acknowledgements

This paper has received a great support from the Asian Development Bank, MOEF, and especially the West Kalimantan Province lead by the Office of Environment and Forestry. In particular, we thank to Mr. Srinivasan Ancha, Mr. Thierry Liabastre, Ms. Karen Chua and Ms. Helena Lawira of ADB, Ms. Catur Endah Prasetyani and Mr. Danang Kuncara Sakti who have provided the opportunity in this very interesting project. Special thank also for the Project Management Unit (PMU) and Project Implementation Supporting Unit (PISU) for the management support and facilitation during field implementation.

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