JCM Project Design Document Form for REDD-plus

A. Project description

A.1. Title of the JCM project

REDD+ project in Luang Prabang Province through controlling shifting cultivation

A.2. General description of the proposed project

"REDD+ project in Luang Prabang Province through controlling shifting cultivation" is a REDD+ project under the Joint Crediting Mechanism (JCM) (JCM-REDD+) aimed to reduce deforestation and forest degradation in the project area (31,289 ha) of Houaykhing village cluster (HK-VC), Phonxay district in Luang Prabang Province.

In the project area, the main driver of deforestation and forest degradation is an expansion of shifting cultivation. To reduce the human pressure on forests, this project implements a system developed by the Japan International Cooperation Agency (JICA) and Lao PDR through the technical cooperation "Participatory Land and Forest Management Project for Reducing Deforestation in Lao PDR (PAREDD)" as readiness activities. The system's operational procedures are designed to create harmonization among livelihood improvement, sustainable forest resources use, and enhancement of carbon stock, based on the experiences and lessons learned from the readiness activities of the PAREDD (*See* "Project activities" in Section A.7. and accumulated scientific experiences and knowledge in this field of Waseda University and collaborators).

The activities implemented under the JCM-REDD+ project are:

1. Improvement of the governance system of land and forest management at the village level based on JICA PAREDD's readiness up to the end of FY2014
2. Establishment of the REDD+ Technical Center and development of management procedures (guidelines) of the Center and activities conducted in HK-VC
3. Technical transfer and capacity building (e.g., fertilizer improvement, livestock raising, paddy introduction)

These activities and villagers' performance improvement contribute to reducing deforestation and forest degradation, which also leads to the mitigation of greenhouse gas (GHG) emissions. In addition, forest cover/forest carbon stock and safeguards are monitored according to the applied methodology and implementation plan.

It should be noted that the government of Lao PDR has REDD+ activities at different scales for the same period as the JCM-REDD+ project). Therefore, the JCM-REDD+ project implements a measure to avoid double claiming/payment with the programs below:

1. The Forest Carbon Partnership Facility (FCPF): Lao PDR implements the "Promoting

REDD+ through Governance, Forest Landscapes & Livelihoods in Northern Lao PDR Program" from 2019 to 2024(*). Therefore, the JCM-REDD+ project does not seek credit issuance from 2019 while the project continues its activities.

2. REDD-plus results based payments (RBP) by the Green Climate Fund (GCF): Lao PDR has been preparing "Lao People's Democratic Republic: REDD+ RBP" with the results period of 2015 to 2018(**). The volume of emission reductions from the JCM REDD+ project, either the ex-ante amount or the monitored amount depending on its progress, will be exempted from the GCF program. However, also note that such an arrangement also depends on the Terms of Reference for the 2nd phase GCF REDD+ RBP under preparation.

*https://www.forestcarbonpartnership.org/system/files/documents/FCPF%20Carbon%20Fund_ERPA_Tranche%20B_Lao%20PDR_FINAL%20Signed%20Dec%2030%202020.pdf

*https://www.forestcarbonpartnership.org/system/files/documents/FCPF%20Carbon%20Fund_ERPA_Tranche%20A_B%20Lao%20PDR%20Final%20Signed%20Dec%2030%202020.pdf

**https://www.greenclimate.fund/sites/default/files/document/25090-lao-people-s-democratic-republic-redd-rbp-results-period-2015-2018.pdf

A.3. Project location

Country	Lao PDR
Region, province, district, villages, etc.	Houaykhing village cluster (hereinafter HK-VC), Phonxay District, Luang Prabang Province
Geographical coordinates	HK-VC consists of six villages (Phakbong, Houayha, Sakuan, Longlath, Houaykhing, and Houaytho) and is located within latitude 19°52'30"N to 20°3'30"N and longitude 102°40'0"E to 102°55'0"E (Figure 1).

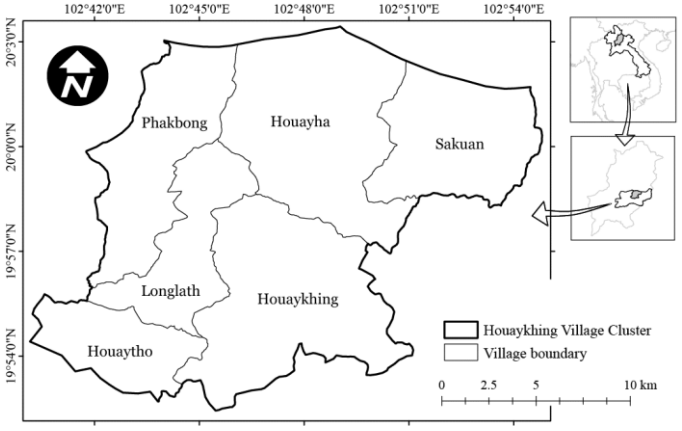

Figure 1. Location of the JCM-REDD+ project area (HK-VC).

A.4. Project area and activity area

Project area

<table>
<tr><td>Map</td><td>The location of the project area is shown in the above map (Figure 1 in Section A.3.). The project site is located in a mountainous area, about 105 km north of Luang Prabang city, approximately a three and half hour’s drive in the dry season. However, during the rainy season, especially from July to September, the villages are not always accessible by road; the accessibility depends on distance from main road.</td></tr>
<tr><td>Total size</td><td>The total size of the project area is 31,289 ha. The area is categorized into land and forest classes according to the Forest type map provided by the Government of Lao PDR in 2019.
<table>
<tr><th>Categorized land and forest classes</th><th>Area (ha)</th></tr>
<tr><td>Mixed deciduous forest</td><td>13,962</td></tr>
<tr><td>Bamboo</td><td>111</td></tr>
<tr><td>Regenerating vegetation</td><td>16,027</td></tr>
<tr><td>Grassland</td><td>7</td></tr>
<tr><td>Upland crop</td><td>438</td></tr>
<tr><td>Other agriculture</td><td>482</td></tr>
<tr><td>Agriculture plantation</td><td>31</td></tr>
<tr><td>RP/OA</td><td>113</td></tr>
<tr><td>Urban</td><td>65</td></tr>
<tr><td>Other land</td><td>51</td></tr>
<tr><td>Total</td><td>31,291</td></tr>
</table></td></tr>
<tr><td>Fulfillment of forest definition</td><td>The national forest definition of Lao PDR is applied;
1. Area ≧ 0.5 ha;
2. Crown density ≧ 20% of trees with DBH ≧ 10 cm (no threshold for height).</td></tr>
<tr><td>Forest type and conditions</td><td>The project area is covered by mixed forests between evergreen and deciduous trees. The most populous tree species are Lithocarpus spp., Quercus spp., Schima spp., and Ficus spp..</td></tr>
<tr><td>Environmental conditions</td><td>In general, the forests in the project area are covered by secondary forests affected by human activities such as shifting cultivation areas (i.e., slash-and-burn area and fallow area, which are degraded forests). The project meets the requirement of being 100% forested as of the project start date and for the period at least 4 years prior to the start date.
Climatic conditions:
The climate in Luang Prabang Province, including the project site HK-VC, is</td></tr>
</table>

	classified as tropical savanna under the Köppen climate classification. The mean monthly high temperature ranges from 26.5°C in December to 34.6°C in April. The mean monthly low ranges from 14.2°C in January to 24.3°C in July. Annual rainfall is 1,248.2 mm, with a monthly low of 13 mm in December and a monthly high of 226.5 mm in August. The project site enjoys a clear dry season from October to March and experiences a rainy season from June to September. Annual rainfall is 966.8 mm, with a monthly low of 0 mm in January and February and a monthly high of 264.5 mm in August. **Land use condition**: Current land use of the project area is significantly affected by human activities. Natural forest categorized as "Mixed deciduous forest" has been converted to a secondary forest (degraded forest) and fallow area (young forest) with the emergence of shifting cultivation. **Endangered species**: Lao PDR ratified the United Nations Convention on Biological Diversity (UN CBD) in 1996. Based on this treaty, the country established the National Biodiversity Strategy to 2020 and Action Plan to 2010 (NBSAP) in 2004. The goal of the NBSAP is to maintain biodiversity and fight poverty. Its main objectives are as follows: (1) to identify important biological diversity components and improve the knowledge base; (2) to manage biodiversity on a regional basis by using natural boundaries to facilitate the integration of conservation and user-oriented management; (3) plan and implement a biodiversity-specific human resource management program; (4) increase public awareness of and encourage participation in the sustainable management of biodiversity; (5) adjust and harmonize national legislation and regulations; (6) secure NBSAP implementation; and (7) promote international cooperation. Some of the issues addressed by the NBSAP include the diversity and productivity of cultivated areas, the richness of forested land, the state and abundance of water resources, and improvements in human settlements. While no endangered plants or animals have been known in our project area, the project will proceed accordingly if the project encounters endangered species in the future and if the importance of preserving such species is confirmed.
Rights of use for the project	All forests in Lao PDR are government-owned and managed by mainly the Provincial and District Governments (i.e., Provincial Agriculture and Forestry Office (PAFO) and District Agriculture and Forestry Office (DAFO)) with rural people. The Forestry Law (2007) defines natural forest land as the ultimate property of the national community, and managed by the

	State on its behalf. This includes village forest land. Plantation forests, however, are the property of individuals or organizations who have planted the trees." Our target site consists of a protection forest and a production forest, both managed by PAFO and DAFO. All of the forests are under the administration of the Department of Forestry (DOF) of the Ministry of Agriculture and Forestry (MAF), and the right of use is allocated to rural people in accordance with Forestry Law. The people of the HK-VC agreed to implement the JCM-REDD+ project in the area through a participatory consultation process before starting the project. There was no official scheme to have permission to implement a REDD+ project in Lao PDR. However, the implementation of project activities in the project area was agreed by the document by both the DOF (Lao side) and Waseda University and private companies (Japan side) .

Activity area

Activity area	All ground-based activities are implemented in HK-VC (31,289 ha), Phonxay District, Luang Prabang Province.

A.5. Project participants

Project participants

Country	Project participants
The Lao People's Democratic Republic	Provincial Agriculture and Forestry Office (PAFO) of Luang Prabang Province and District Agriculture and Forestry Office (DAFO) of Phonxay District
Japan	Waseda University and Marubeni Corporation

Project implementation structure

The JCM REDD+ project is conducted by Waseda University, Marubeni Corporation, PAFO, and DAFO with support from the National Agriculture and Forestry Research Institute (NAFRI) and financially supported by the Ministry of the Environment of Japan. In order to implement project activities, the project establishes REDD+ Technical Center in HK-VC and enhances activities of the Land and Forest Management Committee (LFMC) in each village, which was established by the PAREDD.

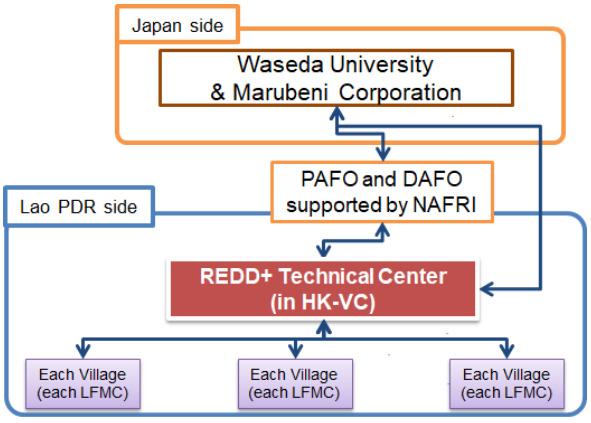

Figure 2. Implementation structure of the JCM-REDD+

The project participants are Waseda University, Marubeni Corporation, PAFO of Luang Prabang Province, and DAFO of Phonxay District, supported by NAFRI. Assigned roles and responsibilities are as follows:

Name of organization	Mandate	Explanation
Waseda University	Overall project management	Totally around 10 researchers and consultants from Waseda University, Japan, and other entities including private companies.
Marubeni Corporation	Management of documentation	Totally around 5 staff from Marubeni Corporation and other entities including private companies
NAFRI	Management of all village activities and support PAFO of the Luang Prabang Province and DAFO of Phonxay District	Many researchers and staff from the NAFRI and other organizations in Lao PDR.
PAFO and DAFO	Supports of all of village activities	The PAFO and DAFO manage the project and have the task of increasing awareness of the rural people on REDD+ and introducing participatory land and forest management and participatory forest monitoring. The PAFO and DAFO had been worked with JICA as a counterpart.

REDD+ Technical Center	Implementation of all village activities with villagers	REDD+ Technical Center is established in HK-VC. The REDD+ Technical Center has five main technical staff responsible for the management and enhancement of activities at the village level. They also have the responsibility on reporting all project activities to NAFRI as collaborators of the project proponent(s).
Land and Forest Management Committee (LFMC)	Implementation of all village activities with villagers	A LFMC is a rural people group established with the support of the JICA project (i.e., PAERDD). At the outset, this project must provide substitutes for shifting cultivation and secure livelihood for the rural people in the target site. To promote them, a LFMC is required to organize and manage the local communities and the rural people. In addition, continuous forest monitoring for 3- to 5-year intervals requires their participation. Therefore, the JCM-REDD+ project cooperates with LFMC having the task to implement project activities in the village.

A.6. Duration

Starting date of project operation	01 January, 2015
Expected operational lifetime of project	4 years (up to 31, December 2018) (*see* also A.2)

A.7. Description of drivers of deforestation and/or forest degradation and project activities

Drivers of deforestation and/or forest degradation	**<Identification of agents of deforestation and forest degradation>** The main group/agent of deforestation and forest degradation in the project area was the rural people who conduct shifting cultivation for livelihood. Most of the deforestation in the project area was caused by the rural people. **<Identification of drivers of deforestation and forest degradation>** Deforestation and forest degradation drivers are the expansion of shifting

	cultivation in the project area. From the results of satellite imagery analysis in the past, the area of slash-and-burn, i.e., slash-and-burn with short-term rotation (less than 3 years), was increased. This circumstance resulted from the total population growth in the project area, and they needed more area for slash and burn. Furthermore, according to the preliminary survey conducted before the start of the JCM-REDD+ project, which was based on an analysis of biophysical and socioeconomic constraints, the risk of deforestation and forest degradation was not different in the overall project site. **<Identification of underlying causes of deforestation and forest degradation>** Underlying causes of deforestation and forest degradation in the project area were identified from the expert opinions gathered through a background analysis commissioned by the JICA to local partner PAFO/DAFO and participatory rural appraisal (PRA). The survey included a review of existing socioeconomic studies and interviews with local experts (such as government officials and community leaders) and was completed by participatory workshops. In brief, the underlying causes of deforestation and forest degradation are a land and forest management system in the project area and the rural people's low capabilities to accept alternative livelihoods which do not heavily depend on forest resources.
Project activities	Over many years, deforestation and forest degradation have occurred in the target site due to pioneer shifting cultivation and forest resource use (*see* above "Drivers of deforestation and/or forest degradation"). This project seeks to restrict the expansion of pioneer shifting cultivation (by clearing primary and secondary forests) and to promote longer fallow periods than before. Project activities adopted in the project are as followings. **[Readiness activities up to 2015]** These are activities run-up to the start of the JCM-REDD+ project. Focusing on institutional arrangement for implementing ground-based activities of the JICA PAREDD, the followings had been achieved and maintained in the target site: 1. Establishing LFMCs, which have responsibility and the task of land and forest management in each village. 2. Developing revolving fund for supporting seed budged for starting alternative livelihoods against slash-and-burn agriculture (most of the

	poverty-ridden families had been supported by the fund until 2015). 3. Transferring agricultural technique (e.g., cultivation of wet paddy). 4. Training in forest monitoring. **[Activities during the JCM-REDD+ project period]** Based on the experiences and lessons learned through the PAREDD, the followings are the main activities of the JCM-REDD+ project: 1. Based on readiness up to 2015, the governance system of land and forest management at the village level is improved with the support of NAFRI. 2. The REDD+ Technical Center is newly established in HK-VC. The REDD+ Technical Center has five main technical staff responsible for the management and enhancement of activities at the village level. Also, they have the responsibility of reporting all project activities to NAFRI as a collaborator of the project participants. To implement activities smoothly, the NAFRI develops management procedures (guidelines) for the REDD+ Technical Center and each activity (fertilizer improvement, livestock raising, paddy introduction, and so on). Also, the NAFRI intensively checks and advises staff to use guidelines effectively and efficiently. 3. The project continues to develop capacity among rural people and facilitate technology transfers into local communities and LFMCs in the field of agriculture (fertilizer improvement, paddy introduction, and so on) and forest monitoring.

A.8. Contribution from Japan

The JCM-REDD+ project is supported by the financing programme for "JCM REDD+ model projects" of the Ministry of the Environment, Japan (MOEJ) to acquire JCM credits. In addition, forest monitoring and REDD+ activities are technically enhanced by the Forest Conservation Association of Waseda University. Project participants from Japan contribute to the capacity development of researchers and staff of PAFO and DAFO. Also, technical transfer related to forest monitoring (GIS technique and so on) and introduction of alternative livelihood are provided by Waseda University and Marubeni Corporation. Outcomes of such activities will bring good practices not only to HK-VC but also all over Luang Prabang Province, which is under severe deforestation and forest degradation. In addition, the outcomes are compiled as a scientific paper published in international journals. Finally, all of the experiences related to implementing the JCM-REDD+ project and accumulated knowledge on preparing the methodology and the PDD will contribute

to the policy approach of REDD+ and forest conservation in Lao PDR.

B. Application of the approved methodology(ies)

B.1. Methodology(ies) applied to the proposed JCM project

Approved methodology No.	LA_AM004
Version number	1.0
Approved methodology No.	None
Version number	None
Approved methodology No.	None
Version number	None

B.2. Explanation of how the project meets eligibility criteria of the approved methodology(ies)

Eligibility criteria	Descriptions specified in the methodology	Explanation of compliance with criterion
Criterion 1	Project participants receive official data from the Government of Lao PDR, such as the Forest Type Maps and carbon stock change emissions and removals in the project area which are consistent with the national FREL/FRL and the national forest monitoring system.	Project participants had received the data on land and forest cover and carbon stock change emissions and removals in the project area, which is consistent with the national FREL/FRL and the national forest monitoring system.
Criterion 2	The project is to reduce deforestation and forest degradation in Project activity in taking place within Phonxay District, Luang Prabang Province, Lao PDR, where major drivers of deforestation and forest degradation are shifting cultivation (i.e. slash-and-burn agriculture).	The project activities are implemented in the Phonxay district as shown in A.3. The main driver of deforestation and forest degradation is slash-and-burn agriculture, based on the analysis using remote sensing and GIS, and Rapid Rural Approval (RPA) as described in A.7.
Criterion 3	There is no peat land in the project area.	No peat soil has been mapped in a published scientific paper(s) and direct observation in the site.

Criterion 4	Project activities are implemented by collaboration among rural people and project participants(s) who have been trained for alternative livelihood, which is evidenced by participants list or activity records.	Activity records of training and other related activities in the project are all saved, including the name of the participants.
Criterion 5	Project activities do not include activities which directly increase the number of livestock.	The project does not directly introduce livestock raising.
Criterion 6	Project activities do not include any activities which cause displacement of deforestation and/or forest degradation outside of the project area. That is to be confirmed during the monitoring period by the PRA.	Participatory rural appraisal (PRA) is conducted to ensure the project does not cause displacement of deforestation and/or forest degradation outside of the project area. (*see* details in chapter "C.3. Estimation of project net emissions").

C. Calculation of emission reductions

C.1. Identification of all carbon pools and GHG sources relevant to the JCM project

Carbon pools and GHG sources listed in the applied methodology		Included / excluded (Y/N)	Justification of inclusion or exclusion
Project reference level			
Carbon pools	Above ground biomass	Y	Required by methodology.
	Below ground biomass	Y	Required by methodology.
	Dead wood	N	Not required by methodology.
	Litter	N	Not required by methodology.
	Soil organic carbon	N	Not estimated because soil organic carbon do not change in actual land use in project and reference area.
GHG sources	CH_4 in biomass burning	Y	Required by methodology.
	N_2O in biomass burning	Y	Required by methodology.

Project net emissions			
Carbon pools	Above ground biomass	Y	Required by methodology.
	Below ground biomass	Y	Required by methodology.
	Dead wood	N	Not required by methodology.
	Litter	N	Not required by methodology.
	Soil organic carbon	N	Not estimated because soil organic carbon do not change in actual land use in project and reference area.
GHG sources	CH_4 in biomass burning	Y	Required by methodology.
	N_2O in biomass burning	Y	Required by methodology.
	CH_4 from paddy (wet paddy)	Y	Required by methodology.
	CO_2 emissions from energy use for agricultural heavy machines	Y	Required by methodology.

C.2. Establishment of project reference level

Reference area and period

Map	The project reference area is as same as the project area.
Total size	31,289 ha
Justification	None
Period	2015-2018 (4 years)

Approach, procedure and data to establish the project reference level

Approach and procedure	The project reference level is obtained from the national Forest Reference Emission Level and Forest Reference Level and Forest type map provided by the Government of Lao PDR.
Data	All data are obtained from the national Forest Reference Emission Level and Forest Reference Level and Forest type map provided by the Government of Lao PDR.
Relationship	The project reference level is obtained from the national Forest Reference

with national or sub-national reference levels	Emission Level and Forest Reference Level and Forest type map provided by the Government of Lao PDR.

C.3. Estimation of project net emissions

Estimation of project net emissions (excluding displaced emissions)

The estimation of project net emissions is estimated by applied methodology. All equations and parameters in the methodology were used to estimate the project net emissions.

Estimation of displaced emissions

Reasons for including/excluding displaced emissions	From the results of the preliminary survey before the commencement of the project and mobility analysis by expert opinion and participatory rural appraisal (PRA) of the project, displacement of activities (emissions) was not identified. Therefore leakage or displaced emissions are thought to be not occurred.
Ways and means to estimate emissions displacement	None
Total size of displacement belt	None
Map of the displacement belt	None
Explanation for setting the boundaries of the displacement belt	None

C.4. Discount factor for the risk of reversals

Applied discount factor (%)	30
Approach for setting the discount factor	Default set by applied methodology.

C.5. Ex ante estimation of emission reductions

Year	Estimated Project Reference Level (tCO_2e)	Estimated Project Net Emissions (tCO_2e)	Estimated Emission Reductions (tCO_2e)	Estimated Emission Reductions to be Credited (tCO_2e)

	A	*B*	*C = A – B*	*D = C * (1-Discount factor)*
2015	28,500.76	14,789.85	13,710.91	9,597.64
2016	28,500.76	14,789.85	13,710.91	9,597.64
2017	28,500.76	14,789.85	13,710.91	9,597.64
2018	28,500.76	14,789.85	13,710.91	9,597.64
2019	-			
2020	-	-	-	-
2021	-	-	-	-
2022	-	-	-	-
2023	-	-	-	-
2024	-	-	-	-
2025	-	-	-	-
2026	-	-	-	-
2027	-	-	-	-
2028	-	-	-	-
2029	-	-	-	-
2030	-	-	-	-
Total (tCO2e)	114,003.06	59,159.40	54,843.65	38,390.56

*Note: The values in the table above are estimated for the period from 2015 to 2018.

D. Environmental impact assessment	
Legal requirement of environmental impact assessment for the proposed project	No.

E. Local stakeholder consultation

E.1. Solicitation of comments from local stakeholders

Before implementing this project, the project collected stakeholders' comments in the target site and neighboring villages. Followings are collected comments from village meetings in each village of HK-VC and other stakeholders;

The Rural People in HK-VC (held in 16th November 2015 and several times):

- In HK-VC, the area of shifting cultivation shows an upward trend along with the population growth. The shifting cultivation is being undertaken in the forests where, to date, the shifting cultivation has been avoided for protecting water sources; therefore, access to water sources, including drinking water, is a concern. In that situation, we have high expectations of the progress of forest conservation through the JCM-REDD+

implementation because it leads to maintaining and restoring the function of water source protection.

- Shifting cultivation is the only way to ensure sufficient livelihoods in HK-VC. It is highly expected to create opportunities to promote such as livestock management, nursery management, and weaving production. Particularly, alternative livelihoods (weaving production) are a big hope for women who have been overworking.
- We can learn methods of livestock management and techniques for raising seedlings through nursery management, so it is more than welcome that our techniques are improved through the JCM-REDD+.

Officials of PAFO/DAFO (mainly held in 12th December 2017 and several times):

- Among the activities which will be carried out by the JCM-REDD+, such as weaving production and market system are the additional activities that cannot be undertaken by only PAFO/DAFO. It is expected that those activities will lead to an improvement in the quality of life in HK-VC. However, there were unsuccessful cases, such as weaving production introduced to northern Lao PDF. For this reason, it is preferable if weaving production and so forth as the JCM-REDD+ activities are carried out carefully, taking into account rural people's capability.
- There was not sufficient incentive for forest conservation activities. However, the JCM-REDD+ activities are expected to provide a big incentive as it enables rural peoples to receive technical and financial support from overseas. In addition, it will be long-term activities over 20 years; therefore, the JCM-REDD+ activities are desirable also for local people's capability development.
- In HK-VC, electrification is underway, so there is a possibility that the way of utilizing forest resources will also be changed. In that situation, thinking about the land management plan and its activities through LFMCs is considered a contribution to developing an appropriate way of land use. Therefore, we expect that sustainable land use will be introduced by the JCM-REDD+.

E.2. Summary and consideration of comments received

Stakeholders	Comments received	Consideration of comments received
Rural People in HK-VC	REDD+ activities which are transferred were expected to build capability of rural people.	There was no negative comment on the project. Continuous technical supports for alternative livelihood are required.
Officials of PAFO/DAFO	Group activities established by the LFMC can be essential to improve livelihood and forest	There was no negative comment on the project. Continuous technical supports for alternative livelihood are

	conservation.	required.

F. References
1. Government of Lao PDR. 2018. Lao PDR's Forest Reference Emission Level and Forest Reference Level for REDD+ Results Payment under the UNFCCC (which had been technically assessed by the UNFCCC in 2019).

Annex

Revision history of PDD		
Version	Date	Contents revised