JCM Project Design Document Form for REDD-plus

A. Project description

A.1. Title of the JCM project

Prey Lang Wildlife Sanctuary - Stung Treng REDD+ project

A.2. General description of the proposed project

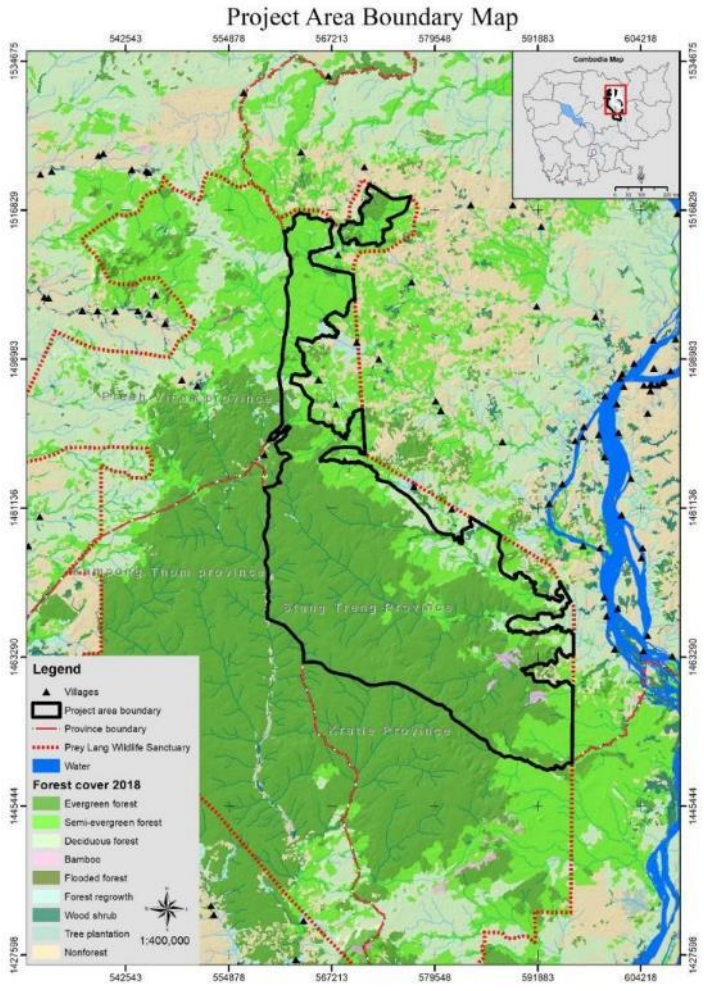
The Royal Government of Cambodia's Sub-decree No. 74 established the Prey Lang Wildlife Sanctuary (PLWS) in 2016. Prey Lang is situated on the western bank of the Mekong River in north-central Cambodia, provides habitats for numerous rare and threatened plant and animal species, and is a major watershed that feeds the Mekong River and the Tonle Sap Lake, which are crucial to the fisheries of local households and to the national economy and food security. It is 431,683 hectares and stretches over four Provinces: Kratie, Kampong Thom, Stung Treng and Preah Vihear. PLWS is currently under threat from accelerating rates of forest loss. Most of the forest loss is from conversion of forest to agricultural land, while unsustainable resource extraction (including hunting, logging, and firewood collection) is degrading the integrity of the forest. Currently, most agricultural land is converted by small-holders, but poor governance could allow for future threats from large-scale agriculture development. Threats to the forest are currently driven by multi-dimensional poverty, population growth, weak law enforcement and governance, insecure land tenure, and limited understanding of the value of biodiversity and environmental services. The project aims to reduce deforestation in the PLWS portion within Stung Treng Province; this will subsequently be expanded throughout the entire PLWS in a next phase which is beyond the scope of this document. The project will implement effective law enforcement to secure forest resources and guard against forest loss. At the same time, it will develop sustainable livelihoods of communities in and around PLWS Stung Treng so that communities can move away from economic activities resulting in deforestation.

A.3. Project location

Country	Kingdom of Cambodia
Region, province, district, villages, etc.	Siem Bouk and Thala Barivat districts, Stung Treng Province
Geographical coordinates	The project area is majority of forest area in Prey Lang Wildlife Sanctuary portion within Stung Treng province and the activity area comprises of the communes Siem Bouk, Anlong Chrey Anlong Phe and Kang Cham; these are located within latitude N13.108 to N13.752 and longitude E105.540 to E105.897

A.4. Project area and activity area

Project area

Map	
Total size	86,738 ha
Fulfillment of forest definition	The project accepts the forest definition adopted in Cambodia's initial Forest Reference Level (National FRL) submitted to the UNFCCC and defined in the Joint Crediting Mechanism Guidelines for Developing Proposed Methodology for Reducing Emissions from Deforestation and Forest Degradation and the Role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks in Developing Countries (REDD-plus). Under the National FRL, forests are defined as follows: *Forest under the REDD+ programme refers to a unit of an ecosystem in the form of wetland and dry land covered by natural or planted vegetation with a height from 5 meters on an area of at least 0.5 hectares, and canopy crown cover of more than 10%.* *Areas also included in the REDD+ programme are forest regrowth and*

	areas under afforestation or reforestation. Rubber, oil palm plantations and perennial crops are excluded from this definition.
Forest type and conditions	The PLWS portion within Stung Treng is mostly evergreen and semi-evergreen lowland tropical forest, with a few areas of deciduous dipterocarp forest. The entire landscape has experienced decades of selective logging with most of the high-value luxury species (e.g. *Afzelia xylocarpa*) extirpated. There is now significant logging pressure on the lower value species such as *Dipterocarpus sp*. and *Hopea sp*. Due to easy access throughout the forest, people are extremely active everywhere gathering firewood, hunting, logging, fishing and collecting non-timber forest products (NTFPs) such as wild foods and medicines. Since 2014, the annual deforestation rate has been increasing[1], with much of this area converted to agriculture. While there is a solid core of contiguous evergreen forest, areas near human settlements have become a patchwork of farmland and increasingly degraded forest fragments.
Environmental conditions	<u>Climate</u> The climate is warm tropical, with an average monthly temperature ranging from 24.7 °C in December and 29.8 °C in April; average annual temperature of 27.8 °C; average monthly rainfall ranging from almost 0.0 mm in January to 309.4 mm in September; and average annual rainfall of 1,822 mm (World Bank Climate Change Knowledge Portal[2]). <u>Geology</u> The greater Prey Lang region in northern Kampong Thom is formed primarily by an ancient riverbed that is tens of millions of years old (McDonald, 2004). Due to the currents of two river systems, the Mekong and Sen rivers, the region is covered by a random patchwork of varyingly sandy soils. Some areas of Prey Lang are covered with pure, silicaceous sands, while others are composed of sandy loams or sandy clay deposits (McDonald, 2004[3]). Environmental and Social Impact Assessment (ESIA) reports of local logging companies, based on soil surveys conducted by Crocker (1962[4]) indicate that the region as a whole is comprised approximately of 20% acid lithosols, 10% of recent

[1] Globalforestwatch.org; accessed August 2021.
[2] https://climateknowledgeportal.worldbank.org/
[3] McDonald J. A., 2004. Ecological Survey in Prey Long, Kampong Thom. A Proposal for the Conservation of Indochina's last Undisturbed lowland Forest
[4] Crocker C.D., 1062. The general soil map of the Kingdom of Cambodia and the exploratory survey of the soils of Cambodia. Joint publication. Phnom Penh (Cambodia): Royal Cambodian Government Soil Commission/USAiD

	alluvium, 60 % red-yellow podzols, with most of these substrates exhibiting relatively low water retention capacity and high degrees of leaching (McDonald, 2004). Legris & Blasco (1972[5]) note that the region is suitable for producing an abundance of economically important, fast-growing trees (i.e., various dipterocarps, sralaos, legumes and ebonies). Hydrology The PLWS lies within three watersheds: Stung Sen, Stung Chinit and Siem Bok. It traverses the hydrological divide between the Tonle Sap and Mekong Basins and is a significant watershed, regulating water and sediment flow to the Mekong River and the Tonle Sap Lake. Vegetation Most of the forest cover is composed by evergreen, deciduous dipterocarp and semi-evergreen forest; but mixed deciduous forest, mixed pine broadleaf forest, evergreen swamp forest, riparian forest and open grasslands are also found. The total botanical record for Prey Lang accounts for 530 species of flora, which eleven species are listed on the IUCN Red List as threatened species. Biodiversity The project area constitutes approximately 25% of Prey Lang Wildlife Sanctuary, one of the largest areas of lowland wet evergreen forest in Cambodia and forms part of the Indo-Burma Hotspot: one of the world's 34 biodiversity hotspots (Mittermeier, et al., 2004). Conservation International, in cooperation with the Forestry Administration of Cambodia, undertook biodiversity surveys of Prey Lang between June 2014 and February 2015[6]. A total of 266 species of birds were recorded during the survey, representing approximately 44% of the total bird species known in Cambodia. A total of 60 mammal species were identified by either direct observation, specimens, or by camera trap. Twenty-four of these species were bats. Eighteen (18) Key Species, which are species judged to be Globally Endangered, Globally Critically Endangered, Globally Vulnerable, Globally

[5] Legris, P. & Blasco, F. (1972) Carte internationale du tapis Végétal a 1/1,000,000, Cambodge. Notice explicative. Inst. Fr. Pondichéry, Trav. Sect. Scient. Techn. Hors série No. 11.

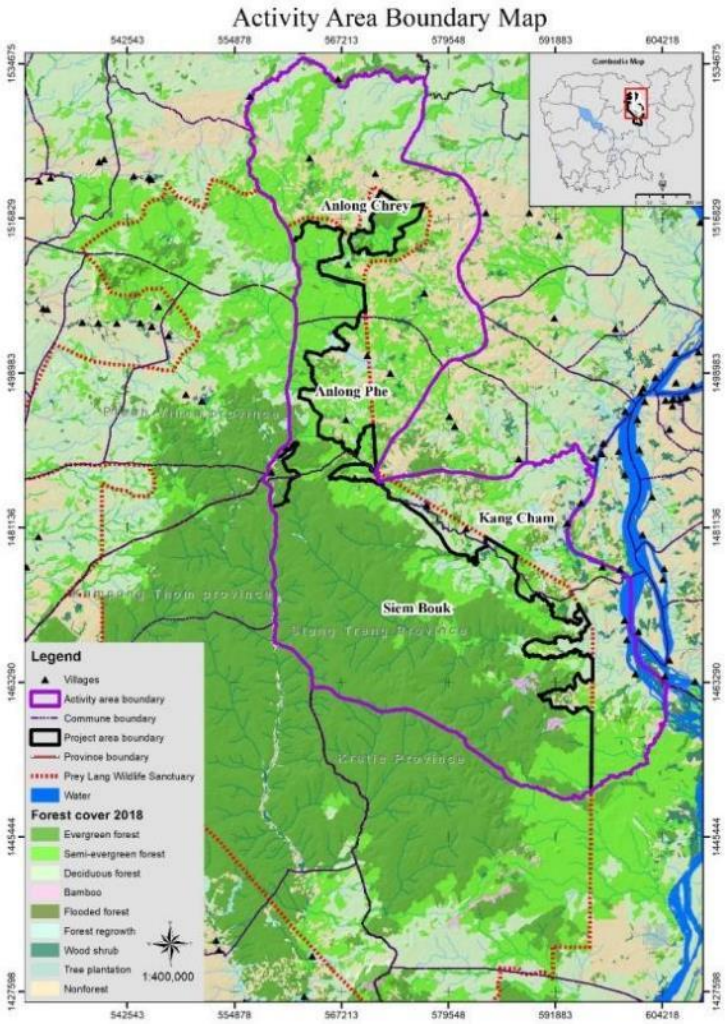
[6] Hayes, B., Khou, E.H., Thy, N., Furey, N., Sophea, C., Holden, J., Seiha, H., Sarith, P., Pengly, L. and Simpson, V. (2015) Biodiversity assessment of Prey Lang

	Near-Threatened or Data Deficient following the definitions of the IUCN, were confirmed for Prey Lang, the most significant of which are Pileated Gibbon (*Hylobates pileatus*), Banteng (*Bos javanicus*) and the Asian Elephant (*Elephas maximus*). A total of 67 species of herpetofauna, comprising 22 amphibians (arranged by five families and 14 genera), and 45 reptiles (arranged by 14 families and 35 genera) have been recorded here. In total, Prey Lang supports important populations of 55 species under the IUCN RED List of Threatened Species.
Rights of use for the project	In 2016, the Royal Government of Cambodia's Sub-decree No. 74 established Prey Lang Wildlife Sanctuary. Under Cambodia's Land Law of 2001, the entire Wildlife Sanctuary is considered State Public Property, thus the rights to the carbon are held by the government and are managed by the Ministry of Environment (one of the project participants). The Community Protected Areas within the project area is also considered State Public Property. The governance and management of PLWS falls under Cambodia's Protected Areas Law (2008). Resource use and access are dictated by the management zones of the protected area (PLWS has yet to be zoned). Article 11 of the Protected Areas Law: Each protected area shall be divided into four (4) management zoning systems as the following: 1. ***Core zone***: management area(s) of high conservation values containing threatened and critically endangered species, and fragile ecosystems. Access to the zone is prohibited except the Nature Conservation and Protection Administration's officials and researchers who, with prior permission from the Ministry of Environment, conduct nature and scientific studies for the purpose of preservation and protection of biological resources and natural environment with the exception of national security and defense sectors. 2. ***Conservation zone***: management area(s) of high conservation values containing natural resources, ecosystems, watershed areas, and natural landscape located adjacent to the core zone. Access to the zone is allowed only with prior consent of the Nature Conservation and Protection Administration at the area with the exception of national security and defense sectors.

	Small-scale community uses of non-timber forest products (NTFPs) to support local ethnic minorities' livelihood may be allowed under strict control, provided that they do not present serious adverse impacts on biodiversity within the zone. 3. ***Sustainable use zone***: management area(s) of high economic values for national economic development and management, and conservation of the protected area(s) itself thus contributing to the local community, and indigenous ethnic minorities' livelihood improvement. After consulting with relevant ministries and institutions, local authorities, and local communities in accordance with relevant laws and procedures, the Royal Government of Cambodia may permit development and investment activities in this zone in accordance with the request from the Ministry of Environment. 4. ***Community zone***: management area(s) for socio-economic development of the local communities and indigenous ethnic minorities and may contain existing residential lands, paddy field and field garden or swidden (Chamkar). Issuing land title or permission to use land in this zone shall have prior agreement from the Ministry of Environment in accordance with the Land Law.

Activity area

Activity area	According to the Joint Crediting Mechanism Guidelines for Developing Proposed Methodology for Reducing Emissions from Deforestation and Forest Degradation, and the Role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks in Developing Countries (REDD-plus), the activity area is the area where project activities are implemented to reduce net emissions in the project area and to reduce the risk of the displacement of emissions to other areas, and therefore comprises of the communes (administrative unit comprised of villages) Siem Bouk, Anlong Chrey Anlong Phe and Kang Cham where local villages which are expected to receive livelihood support during the project period are located. Prey Lang Wildlife Sanctuary (PLWS) is yet to be zoned due to funding constraints of the government. Therefore, carbon finance is required to do the zoning work, so we need to proceed with the project without official zoning. The potential community zone needs to be defined because land titles will be

	provided to the local communities according to the Protected Area Law and Land Law. The potential core area, conservation zones and community protected areas (CPA) are qualified as REDD+ project areas based on the 2018 national forest cover map and satellite imagery as well as biodiversity monitoring data. To define the community areas, the team used village locations set by the Ministry of Land Management Urban Planning and Construction (MLMUPC), agricultural land identified by 2018 land cover maps, roads, rivers and community protected area boundaries set by MoE. The draft project area was submitted to the government for their input and approval. 

A.5. Project participants

Project participants

Country	Project participants

Kingdom of Cambodia	Ministry of Environment, Cambodia
Japan	Mitsui & Co., Ltd.

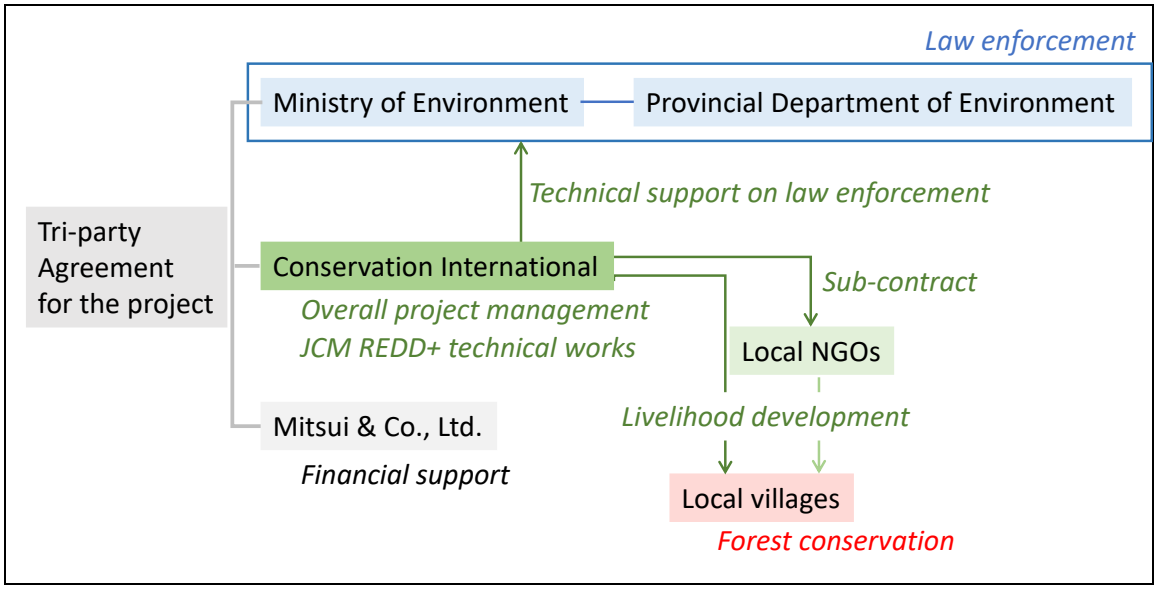
Project implementation structure

Project participants

- Ministry of Environment, Cambodia (MoE): law enforcement in collaboration with Stung Treng Provincial Department of Environment (PDOE), conducting activities related to the Joint Crediting Mechanism (JCM) registration of the project with Mitsui & Co., Ltd. and Conservation International.
- Mitsui & Co., Ltd. (Mitsui): providing financial support for implementing the project, conducting activities related to the JCM registration of the project with MoE and Conservation International.

Project partners

- Stung Treng Provincial Department of Environment (PDoE): law enforcement and protected area management.
- Conservation International (CI): overall project management, providing support to MoE and PDoE on law enforcement such as technical assistance, review of patrol plans, and monitoring and reporting of patrol activities, leading technical activities related to the JCM registration of the project, livelihood development in the villages in the project activity area in partnership with local NGOs.
- Sansom Mlup Prey (a local NGO): working with stakeholders to improve agricultural production and create high value market linkages to conservation compliance and to implement best practice for land use planning and zoning.
- Local communities: participating in livelihood development and forest conservation.



A.6. Duration

Starting date of project operation	12/Mar/2018
Expected operational lifetime of project	13 years

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

Drivers of deforestation and/or forest degradation	Conservation International lead four workshops following the Open Standards for the Practice of Conservation to identify the drivers and enabling factors of deforestation and degradation and develop mitigation strategies. The four consultative workshops (one in 2011 and three in 2019) involved experts and stakeholders from NGOs, local community representatives, and government representatives. The inputs and conclusions from these workshops were based on spatial analysis, field observations and assessments, government data, previous socio-economic surveys (2016, 2018) and other relevant reports. The most significant threat to forests was identified as deforestation for agriculture. This is largely due to small-holder community expansion as well as outside interests establishing plantations and farms. Illegal logging although quite pervasive, has less of an impact on forest loss as it is highly selective for valuable timber species that have a scattered distribution throughout the forest. Collection of wood for firewood and charcoal degrades the forest but is localized closer to community areas. Underlying causes and contributing factors were identified as: poverty, lack of

	livelihood options, lack of technical knowledge, in-migration, market demand, lack of access to education, population increase, corruption, lack of land tenure, land speculation, poor governance and weak law enforcement.
Project activities	<u>Objective 1: Effective law enforcement to secure forest resources and stop forest loss.</u> Activities include: - Continuous equipping of and support to (including regular training) rangers to patrol PLWS Stung Treng - Monitor ranger patrols through Spatial Monitoring and Reporting Tool (SMART) - Regular forest change monitoring to identify deforestation hotspots for law enforcement - Work with MoE/PDoE on protected area (PA) demarcation, zonation, and management plan development Main project actors: PDoE, MoE and CI <u>Objective 2: Improve the livelihoods of communities in activity area through the development of sustainable livelihoods.</u> Activities include: - Participatory community land-use planning and management - Support farmers to improve yield of rice and to certify rice as wildlife friendly and organic in the existing rice fields without expansion of the rice fields, enroll them in the IBIS Rice program. IBIS Rice has received certification from the Wildlife Friendly Enterprise Network as well as organic certification to EU and United States Department of Agriculture standards. Research suggested that farmers involved in the program made significant revenues and that the project reduced deforestation significantly (Clements and Milner Gulland, 2015[7]) - Development of additional sustainable livelihoods within the stakeholder communities will be supported once carbon credits are issued, and additional funding becomes available. Additional livelihood interventions will be identified through consultations with

[7] Clements, T. and Milner-Gulland, E.J. 2015, Impact of payments for environmental services and protected areas on local livelihoods and forest conservation in northern Cambodia. *Conservation Biology*, 29, 78-87.

	communities and additional field and market assessments. The overarching approach will be to work with local communities to define these activities and to ensure that anything agriculture related will be under a framework of conservation compliance. To satisfy the eligibility criterion 4 of the applied methodology, any activity that may lead to GHG emissions, except for the use of fuel and fertilizer including N-fixing crops, will not be added. Main actors: stakeholder communities, IBIS Rice Co., Samsom Mlup Prey, additional partners TBD, and CI.

A.8. Contribution from Japan

The project is implemented by financial support from a Japanese company, Mitsui & Co., Ltd.

B. Application of the approved methodology(ies)

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

Approved methodology No.	JCM_KH_AM004
Version number	ver01.1
Approved methodology No.	
Version number	
Approved methodology No.	
Version number	

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	The project is to reduce deforestation and forest degradation through project activities including forest management and community livelihood	The project aims to reduce forest loss through effective law enforcement and improvement of the livelihoods of communities in and around PLWS Stung Treng.

	development.	
Criterion 2	Cambodia's official forest reference (emission) level has been submitted to UNFCCC, completed technical assessment by UNFCCC, and is publicly available.	Cambodia's official forest reference level (National FRL) was submitted to UNFCCC in 2017 and the technical assessment by UNFCCC was completed in 2018. The National FRL and the report of the technical assessment are publicly available on the UNFCCC's web site (https://redd.unfccc.int/submissions.html?country=khm).
Criterion 3	Cambodia's official forest map for the project start year or less than or equal to two years old is available for the project participant.	CI received Cambodia's official forest map of 2018, which uses the Landsat images available on the period of November 2017 to April 2018, by Ministry of Environment, Cambodia for implementation of the project.
Criterion 4	Project activities do not include activities which lead to GHG emissions within the project area and the project activity area, except for the use of fuel or fertilizer including N-fixing crops.	The project activities which are described in A.7 do not include any activity that may lead to GHG emissions, except for the use of fuel and fertilizer including N-fixing crops.

C. Calculation of emission reductions

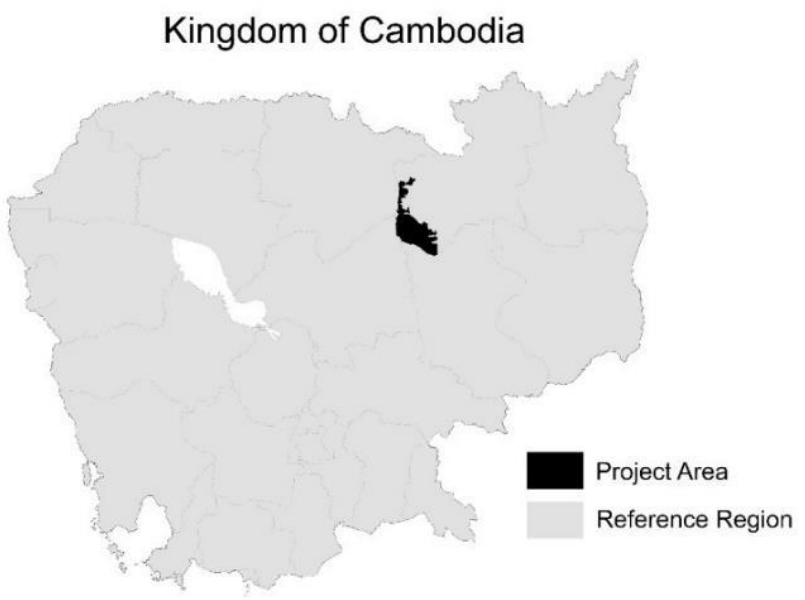
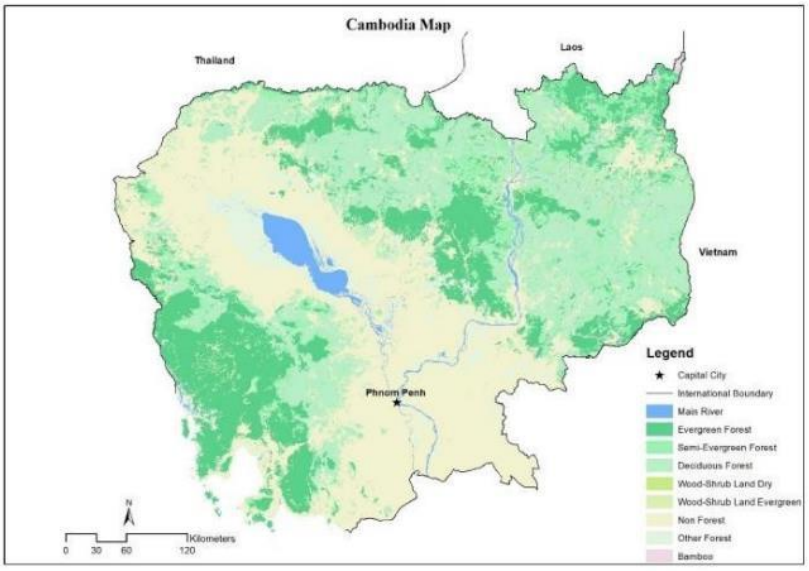
C.1. Identification of all carbon pools and GHG sources relevant to the JCM project

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 the methodology

	Below ground biomass	Y	Required by the methodology
	Dead wood	N	Not required by the methodology
	Litter	N	Not required by the methodology
	Soil organic carbon	N	Not required by the methodology
GHG sources			
Project net emissions			
Carbon pools	Above ground biomass	Y	Required by the methodology
	Below ground biomass	Y	Required by the methodology
	Dead wood	N	Not required by the methodology
	Litter	N	Not required by the methodology
	Soil organic carbon	N	Not required by the methodology
GHG sources	CO_2 emissions from combustion of fossil fuels	Y	Emissions are anticipated from use of fuel for patrolling and for community supports by motorbikes.
	N_2O and CO_2 emissions from fertilizer application	Y	The project plans to use organic fertilizer which is made from organic materials sourced from within the project and activity areas and N-fixing crops as green manure. According to the methodology, organic fertilizer which is made from organic materials sourced from inside the project area and the activity area are NOT accounted because the emissions from those organic materials occur in the areas regardless of the implementation of the project activities. This source is included because of utilization of N-fixing crops.

C.2. Establishment of project reference level

Reference area and period

Map	  The reference region follows limits observed in the Forest Emission Reference Level submitted and reviewed by UNFCCC.
Total size	18,160,674 ha
Justification	According to the methodology, the reference area is the same as the National FRL and therefore is the total of Cambodia's land area.
Period	According to the methodology, the reference period is the same as the National FRL and therefore is 2006-2014.

Approach, procedure and data to establish the project reference level

Approach	In this section, Equation numberings correspond to those described in the

and procedure	methodology. To determine the area of forest class *i* in the project area at the start of the project, $A_{i\,0}$, the most recent version of Cambodia's official forest map (2018), provided by the Cambodian government, was used. To quantify and account for the uncertainty of Cambodia's official forest map in the project area, a confusion matrix accuracy assessment was performed for the forest map of 2018 using (1) reference points received from MoE and (2) new reference points collected by Conservation International technical staff using visual interpretation of high-resolution satellite imagery, facilitated by the Collect Earth software platform. Reference points from MoE follow the 6 km National Forest Inventory grid with supplementary gridded points at shorter intervals to increase sample density in areas of change. The additional reference points collected by Conservation International used a stratified random sampling approach. This additional reference data was collected to ensure sufficient sample density within the project area. Following FAO guidance (Finegold Y. & Ortmann A. 2016), the validation data was used to calculate error-adjusted area estimates for each forest class (Olofsson et al. 2014). Table B shows $A_{i\,0}$ after error adjustment based on the accuracy assessment. Based on consultation with MoE, Cambodia, Option 1 provided in the methodology, which uses the National FRL transition probabilities from forest to non-forest class only, was selected. Option 1 captures only deforestation and excludes degradation from calculation of the project reference level. Area of land use category *i* in the project area in year *y*, $A_{i\,y}$, was calculated using annual deforestation rate for each forest class, P_i, area of land use category in *i* in the project area in the previous year, $A_{i\,y-1}$, and in case of the 1st year, the proportion of the number of operating days, d_y, to that total days in one year, $d_{0\,y}$. The project started on March 12th 2018, and therefore, d_y was 295 days $d_{0\,y}$ was 365 days. Equation 4 and Equation 5 were applied for the 1st year and for the subsequent years, respectively. Table C shows P_i, which is originally from the National FRL submitted in 2017 and is shown in the methodology as Table 4. Projected carbon stock change in the project area in year *y*, $\Delta CS_{ref\,y}$, was calculated using Equation 2 for the 1st year or Equation 3 for the subsequent years. As required in the methodology, emission factors were calculated by applying carbon stock data used in the National FRL submitted in 2017 and shown in Table 2 of the methodology, i.e., Table D below. Then, the project reference level in year *y*, RL_y, was calculated with Equation

<table>
<tr><td></td><td>1.</td></tr>
<tr><td>Data</td><td>Forest classes and their definitions used in the National FRL, submitted in 2017, are applied in this project, and Table A shows forest classes existing in the project area or the displacement belt.

Table A. Description of forest classes
<table>
<tr><th>Forest class, i</th><th>Description</th></tr>
<tr><td>Evergreen forest</td><td>Areas covered by trees maintaining their leaves during the whole year.</td></tr>
<tr><td>Semi-evergreen forest</td><td>Contain variable percentages of evergreen and deciduous trees.</td></tr>
<tr><td>Deciduous forest</td><td>Comprised of dry mixed deciduous forest and dry Dipterocarp forests.</td></tr>
<tr><td>Bamboo</td><td>Areas dominated by bamboo.</td></tr>
<tr><td>Forest regrowth</td><td>Areas of naturally regenerated forest where there are clearly visible indication of activities such as selective logging, areas regenerating following agricultural land use, areas recovering from human induced fire, etc.
- Include forest where it is not possible to distinguish whether planted or naturally regeneration.
- Include forests with mix of naturally regenerated trees and planted/seeded trees, and where the naturally regenerated trees are expected to constitute more than 50 percent of the growing stock at stand maturity.
- Include abandoned forest land and bare land which will regrow into forest within ten years.</td></tr>
</table>
Table B. Area of forest class i in the project area at the project start, $A_{i\,0}$
<table>
<tr><th>Forest class, i</th><th>Abbreviation</th><th>$A_{i\,0}$, ha</th></tr>
<tr><td>Evergreen forest</td><td>E</td><td>57,850</td></tr>
<tr><td>Semi-evergreen forest</td><td>SE</td><td>16,819</td></tr>
<tr><td>Deciduous forest</td><td>D</td><td>8,638</td></tr>
<tr><td>Bamboo</td><td>B</td><td>1,014</td></tr>
<tr><td>Forest regrowth</td><td>FR</td><td>2,418</td></tr>
</table></td></tr>
</table>

Table C. Annual deforestation rate applicable to forest class *i* in the reference area, P_i, calculated based on the data used in the National FRL submitted in 2017

Forest class, *i*	Abbreviation	P_i, dimentionless
Evergreen forest	E	0.0249
Semi-evergreen forest	SE	0.0309
Deciduous forest	D	0.0345
Bamboo	B	0.0141
Forest regrowth	FR	0.0972

Table D. Emission factors, EF_i, based on the National FRL submitted in 2017

Forest class, *i*	Abbreviation	EF_i, $tCha^{-1}$
Evergreen forest	E	91.30
Semi-evergreen forest	SE	135.11
Deciduous forest	D	48.21
Bamboo	B	0
Forest regrowth	FR	42.65

Relationship with national or sub-national reference levels

The methodology requires the application of EFs and deforestation rates used in the National FRL for the establishment of a project reference level, and therefore those parameters above listed are from the National FRL submitted in 2017.

C.3. Estimation of project net emissions

Estimation of project net emissions (excluding displaced emissions)

Project net emissions in year *y*, PE_y, consists of: (1) Carbon stock change in the project area in year *y*, $\Delta CS_{pj\ y}$, (2) CO_2 emissions from fossil fuel combustion in year *y* due to the project activities, $E_{fuel\ y}$, (3) GHG emissions from fertilizer application within the activity area as a part of the project activities in year *y*, $E_{fertilizer\ y}$, and (4) Displaced emissions in year *y*, DE_y.

The process of *ex post* estimation of (1), (2) and (3) are described below and please refer Annex 1 for *ex ante* estimation:

(1) Carbon stock change in the project area in year *y* ($\Delta CS_{pj\ y}$)

Area converted from forest class *i* to non-forest in the project area in year *y*, $CA_{pj\ i\ y}$, will be

determined using Cambodia's official forest maps provided by the government. If the monitoring interval is more than one year, the yearly average will be calculated and used. Accuracy assessment will be performed on the maps, and the results of the accuracy assessment will determine the error-adjusted area estimates for each forest class in the project area. However, the error adjustment will not be performed, if the government of Cambodia decides to require a project to use Cambodia's official forest map as it is.

Option 1, which uses the National FRL transition probabilities from forest to non-forest class only, will be applied for the calculation of the project net emissions, and $\Delta CS_{pj\ y}$ will be calculated using Equation 11 and the same emission factors used for the establishment of the project reference level, i.e., Table D. Because of this methodological approach, although forest degradation will be reduced through the project activities, any emission reduction from reducing degradation will not be accounted.

(2) CO_2 emissions from fossil fuel combustion in year *y* ($E_{fuel\ y}$)

Use of motorbikes for patrolling and for community supports is the only source of CO_2 Emissions from fossil fuel combustion due to project activities. The purchase receipts of fuel will be collected to calculate volume of fuel consumed annually, and volume will be converted to weight, $FC_{j\ y}$, by applying the highest density of motor gasoline allowed under Japanese Industrial Standard[8], i.e., 0.783 g/cm^3.

$E_{fuel\ y}$ will be estimated using Equation 14 and default values for net calorific value of motor gasoline, NCV_f, and CO_2 emission factor for motor gasoline combusted, $EF_{fuel\ f}$, provided by the methodology; $NCV_{motor\ gasoline}$ and $EF_{fuel\ motor\ gasoline}$ are 0.0443 GJ/kg and 0.0693 tCO_2/GJ, respectively.

(3) GHG emissions from fertilizer application within the activity area as a part of the project activities in year *y* ($E_{fertilizer\ y}$)

As a part of livelihood development, the project plans to use organic fertilizer which is made from organic materials sourced from within the project and activity areas and N-fixing crops as green manure for improving crop yield. According to the methodology, organic fertilizer which is made from organic materials sourced from inside the project area and the activity area are NOT accounted because the emissions from those organic materials occur in the areas regardless of the implementation of the project activities. The project will monitor emissions from utilization of N-fixing crops.

[8] https://www.jisc.go.jp/app/jis/general/GnrJISUseWordSearchList?toGnrJISStandardDetailList

Harvested annual dry matter yield for N-fixing crop *T*, introduced during implementation of the project activities in cropland type *c* in the activity area in year *y*, $Crop_{c\,T\,y}$ will be determined once a year by applying either direct measurement or published data for each of N-fixing crops.

- Direct measurement: 10% of farmers who introduce the N-fixing crop will be selected, dry yield of the N-fixing crop will be measured, and average dry yield will be calculated, or
- Published data: published average dry yield data for the N-fixing crop (e.g., FAOSTAT) can be used.

Ratio of above- and below-ground residues to harvested yield for N-fixing crop *T*, $R_{AG\,T}$ and $R_{BG\,T}$, respectively, will be calculated based on $Crop_{c\,T\,y}$ and equation and parameters in Table 11.2 of Ch. 11, Vol, 4 of 2006 IPCC Guidelines. The same Table 11.2 also provides N content of above- and below-ground residues for N-fixing crop T, $N_{AG\,T}$ and $N_{BG\,T}$, and crop type specific data will be selected for each of N-fixing crops.

For each of N-fixing crops, the project will record total annual area harvested of N-fixing crop *T*, introduced during the implementation of the project activities in cropland type *c* in the activity area in year *y*, $Area_{c\,T\,y}$, and total area under N-fixing crop *T* that is renewed annually, $Frac_{RenewT}$. If the N-fixing crop *T* is renewed every X year, $Frac_{Renew\,T}$ is calculated as 1/X. In case that the N-fixing crop is renewed multiple times a year, $Area_{c\,T\,y}$ is recorded as the sum of each of renewed areas. E.g., if Y ha is renewed twice a year, $Area_{c\,T\,y}$ is calculated as the product of Y and 2. In this example, $Frac_{Renew\,T}$ is 1.

Mass of nitrogen in crop residues (above-ground and below-ground) in N-fixing crops, introduced for implementation of the project activities in cropland type *c* in the project area and the activity area and returned to soils, in year *y*, $F_{CR\,c\,y}$, will be calculated by applying $Crop_{c\,T\,y}$, $Area_{c\,T\,y}$, $Frac_{Renew\,T}$, $R_{AG\,T}$, $R_{BG\,T}$, $N_{AG\,T}$ and $N_{BG\,T}$ to Equation 20.

Direct and Indirect N_2O emissions as a result of nitrogen application within the project area and the activity area for implementation of the project activities in year *y*, $E_{direct\text{-}N\,y}$ and $E_{indirect\text{-}N\,y}$, will be calculated by applying $F_{CR\,c\,y}$ to Equations 17 and 21, respectively. Table E summarizes default values provided by the methodology and used in Equations 17 and 21.

Table E. Default values used in Equations 15 and 19.

Parameter	Description of data	Source
$EF_{direct\text{-}N\,c}$	Emission factor for N_2O emissions from N inputs in cropland type c; $tN_2O\text{-}N\ (tN\text{-}input)^{-1}$ - Cropland in general: 0.01 $tN_2O\text{-}N\ (tN\text{-}input)^{-1}$ - Rice paddy (flooded rice field): 0.003 $tN_2O\text{-}N\ (tN\text{-}input)^{-1}$	Table 11.1 of Ch. 11 Vol. 4 of 2006 IPCC Guidelines

$EF_{indirect-N}$	Emission factor for N_2O emissions from atmospheric deposition of N on soils and water surfaces; tN_2O-N (t NH_3-N and NO_X-N volatilized)$^{-1}$ - 0.010 t N_2O-N (t NH_3-N and NO_X-N volatilized)	Table 11.3 of Ch. 11 Vol. 4 of 2006 IPCC Guidelines
$EF_{leach-N}$	Emission factor for N_2O emissions from N leaching and runoff; tN_2O-N (t leaching and runoff)$^{-1}$ - 0.0075 tN_2O-N (t N leaching and runoff)$^{-1}$	Table 11.3 of Ch. 11 Vol. 4 of 2006 IPCC Guidelines
GWP_{N2O}	Global Warming Potential for N_2O; tCO_2 $(tN_2O)^{-1}$ - GWP_{100} for N_2O: 298 tCO2 $(tN_2O)^{-1}$	Table 2.14 in Ch.2 of Working Group I contribution to the IPCC Forth Assessment Report
$Frac_{leach}$	Fraction of N that area lost through leaching and runoff; dimensionless, 0-1 - 0.30	Table 11.3 of Ch. 11 Vol. 4 of 2006 IPCC Guidelines

Estimation of displaced emissions

Reasons for including / excluding displaced emissions	Calculation of displacement of emissions is required in the methodology, and therefore displacement of emission is monitored and included.
Ways and means to estimate emissions displacement	Displaced emissions will be estimated through the following three steps: Step 1: Estimate reference emissions in the displacement belt, Step 2: Estimate project emissions in the displacement belt, and Step 3: Calculate displaced emissions to the displacement belt. Option 1, which uses the National FRL transition probabilities from forest to non-forest class only, was applied for Step 1 and will be applied for Step 2. <u>Step 1: Estimation of reference emissions in the displacement belt in year y (DR_y)</u> To determine the area of forest class i in the displacement belt in the project start, A_{di0}, the most recent version of Cambodia's official forestry map (2018),

provided by the Cambodian government was used. To quantify and account for the uncertainty of Cambodia's official forest map in the project area, a confusion matrix accuracy assessment was performed for the forest map of 2018 using (1) reference points received from MoE and (2) new reference points collected by Conservation International technical staff using visual interpretation of high-resolution satellite imagery, facilitated by the Collect Earth software platform. Reference points from MoE follow the 6 km National Forest Inventory grid with supplementary gridded points at shorter intervals to increase sample density in areas of change. The additional reference points collected by Conservation International used a stratified random sampling approach. This additional reference data was collected to ensure sufficient sample density within the displacement belt. Following FAO guidance (Finegold Y. & Ortmann A. 2016), the validation data was used to calculate error-adjusted area estimates for each forest class (Olofsson et al. 2014). Table F shows $A_{d\,i\,0}$ after error adjustment based on the accuracy assessment.

Table F. Area of forest class *i* in the displacement belt in the project start, $A_{d\,i\,0}$

Forest class, *i*	$A_{d\,i\,0}$
Evergreen forest	6,241
Semi-evergreen forest	5,161
Deciduous forest	4,396
Bamboo	184
Forest regrowth	621
Total	16,603

In estimating reference emissions in the displacement belt, the project applied transition probabilities at the national level to the displacement belt.

Table E. $P_{d\,i}$

Forest class, *i*	$P_{d\,i,}$ dimentionless
Evergreen forest	0.0249
Semi-evergreen forest	0.0309
Deciduous forest	0.0345
Bamboo	0.0141
Forest regrowth	0.0972

Area of land use category *i*, $A_{d\,i\,y}$, is assumed to decrease every year due to deforestation, and was calculated using Equation 32 for the 1st year and Equation 33 for the subsequent years. The project started on March 12th 2018, therefore, the number of operating days, d_y, was 295 days and the number of total days, $d_{0\,y}$, was 365 days.

Projected carbon stock change in the displacement belt in year *y*, $\Delta CS_{d\,y}$, was calculated using Equation 30 and the same emission factors used for establishing the project reference level (Table D).

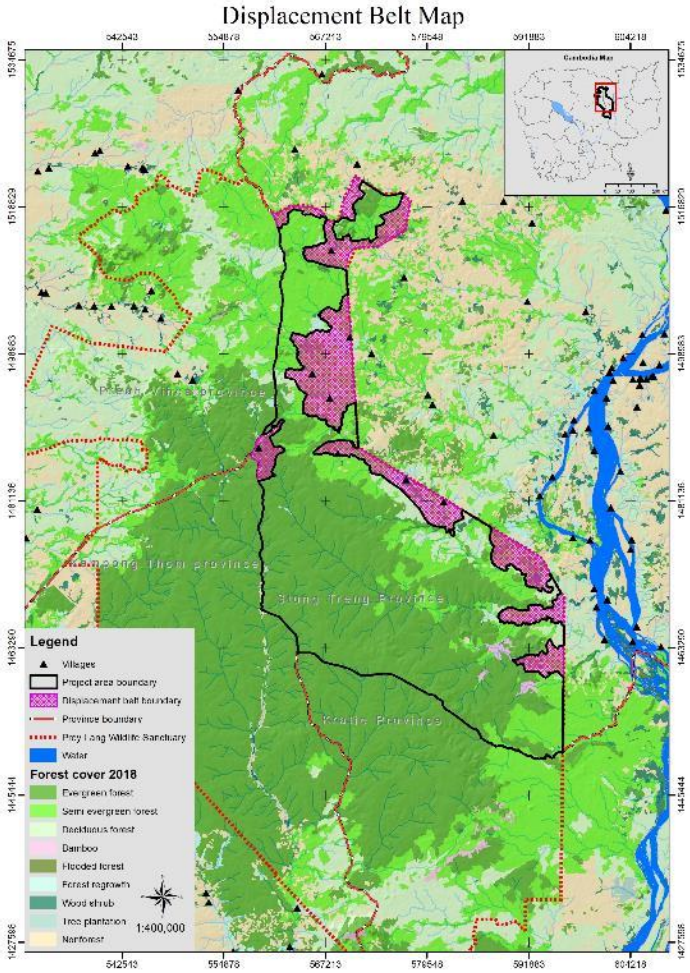
DR_y was calculated using Equation 28 and the results are summarized in Table F.

Table F. $\Delta CS_{d\,y}$ and DR_y

Year	$\Delta CS_{d\,y}$, tC	DR_y, tCO_2
2018	36,870.5	135,191.8
2019	44,389.7	162,762.3
2020	42,918.6	157,368.4
2021	41,507.1	152,192.8
2022	40,151.8	147,223.4
2023	38,849.7	142,449.0
2024	37,598.0	137,859.3
2025	36,394.0	133,444.5
2026	35,235.2	129,195.8
2027	34,119.5	125,104.8
2028	33,044.6	121,163.7
2029	32,008.7	117,365.4
Total	453,087.6	1,661,321.3

Step 2: Estimation of project emissions in the displacement belt, DP_y

Area converted from forest class *i* to non-forest in the displacement belt in year *y*, $CA_{d\,pj\,i\,y}$, will be determined using Cambodia's official forest maps provided by the government. If the monitoring interval is more than one year, the yearly average will be calculated and used. Accuracy assessment will be performed on the maps, and the results of the accuracy assessment will determine the error-adjusted area estimates for each forest class in the displacement belt. However, the error adjustment will not be performed, if the government of Cambodia decides to require a project to use Cambodia's official forest map

	as it is. Actual carbon stock change in the displacement belt in year y ($\Delta CS_{d\,pj\,y}$) will be calculated with Equation 34 and the same emission factors used for the establishment of the project reference level (Table C). DP_y will be calculated using Equation 29. <u>Step 3: Calculate displaced emissions to the displacement belt.</u> Displacement emissions will be calculated using Equation 27.
Total size of displacement belt	16,567 ha (forest area)
Map of the displacement belt	
Explanation for setting the boundaries of	The most significant driver of deforestation in the project area is agriculture. The project will implement activities to reduce the risk of deforestation in and around the project area, but conversion could be displaced from the project area.

the displacement belt	The displacement belt includes all of the Stung Treng portion of the PLWS that is not included within the project area. This area is readily accessible by the communities in and around the project area. Forest area outside of the PLWS boundary is not under MoE jurisdiction and most this forest is subject to legal removal per management of the Forestry Administration, within Economic Land Concessions, or under private title. The exception is a few Community Forest (CF) areas, also under Forestry Administration jurisdiction, that are co-managed with adjacent communities. The Forestry Administration has signaled their intent to register these CF areas as a grouped REDD+ project as an expansion of their Tumring CF REDD+ project located on the southwest corner of PLWS in the Kampong Thom province. As such, CF areas are not suitable for displacement monitoring. The only other large contiguous block of forest is located within the concession granted to a private company. Prior to the start of the project, the majority of forest area outside of PLWS and within Stung Treng Province has already been converted to agriculture. The remaining small forest fragments are under extreme pressure of conversion irrespective of project activities. Forest area within PLWS but outside of Stung Treng will be included within a second phase of carbon development and therefore not suitable to be included within a displacement belt. All remaining forest outside of the project area but within the Stung Treng portion of PLWS falls within area designated as future community zone area once the zonation process for PLWS has been completed. The size of the displacement belt is based on the entirety of suitable forest inside PLWS and outside the project area and therefore has the maximum area possible within these criteria.

C.4. Discount factor for the risk of reversals

Applied discount factor (%)	20%
Approach for setting the discount factor	Default value set by the methodology

C.5. Ex ante estimation of emission reductions

Year	Estimated Project Reference Level (tCO_2e) *A*	Estimated Project Net Emissions (tCO_2e) *B*	Estimated Emission Reductions (tCO_2e) *C = A – B*	Estimated Emission Reductions to be Credited (tCO_2e) *D = C * (1-Discount factor)*

2013				
2014				
2015				
2016				
2017				
2018	670,101.5	164,154.5	505,947.0	404,757
2019	808,618.4	552,964.1	255,654.3	204,523
2020	784,037.8	486,790.0	297,247.8	237,798
2021	760,370.7	427,572.9	332,797.8	266,238
2022	737,569.2	374,569.6	362,999.6	290,399
2023	715,588.9	327,190.4	388,398.5	310,718
2024	694,388.7	284,822.3	409,566.4	327,653
2025	673,930.3	204,734.8	469,195.5	375,356
2026	654,178.0	141,364.2	512,813.8	410,251
2027	635,098.6	91,359.7	543,738.9	434,991
2028	616,661.3	59,601.3	557,060.0	445,647
2029	598,837.1	47,697.6	551,139.5	440,911
2030				
Total (tCO_2e)				4,149,242

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

CI received a grant from USAID's Supporting Forests and Biodiversity Project from 2015 to 2016 and worked with 9 villages (Spong, Toal, Kaes, Doung, Kang Kngaok, Kampong Pang, Tonsaong, Siem Bouk, Ou Lang) in Stung Treng portion of PLWS supporting the conduction of community patrols for protection of resin trees and developing livelihood. During that period, CI team built relationships with these communities and their local authorities. They were regularly consulted about their concerns during this period.

In 2018, shortly after the JCM project was started, assessment for livelihood planning was conducted in the same 9 villages to understand up-to-date situation in the villages to develop

intervention plans under the project. The report of the assessment is available for a validator upon a request.

On March 15th, 2018, an inception workshop of the project was held at Department of Environment of Stung Treng Province. The workshop was attended by officials from relevant departments in Stung Treng Province, and the participants were divided into four groups to discuss law enforcement, eco-tourism, non-timber forest product and agroforestry.

The REDD+ project was presented to government and community representatives from the four provinces covering PLWS (Kratie, Kampong Thom, Preah Vihear, and Stung Treng) in February 2019. No specific comments were made during this workshop. In May 2019, representatives from project communities in Stung Treng were brought to the REDD+ project in Keo Seima Wildlife Sanctuary in Mondulkiri Province. The goal was to give the communities a better understanding of REDD+ and the impact that REDD+ can have in the community.

From 12th October to 7th November 2021 consultations were held to solicit public comment on the project in the nine villages (Dung, Kesh, Toal, Siembok, Kang Cham, Kang Kagnouk, Alung Phe, Phave, and Spong) impacted and engaged by the project primarily. The objective of the consultation meetings was to update the communities on the project progress, explain the upcoming validation and verification process, explain the Grievance Redress Mechanism, and gather feedback and comments from the community members and other stakeholders. Locked boxes were placed in every village to provide a place to deposit comments and grievances. The boxes were checked at the end of the public input period (6th November 2021).

Communities engaged:

Stung Treng Province

Thala Baravat District

Anlong Chrey Commune

Anlong Chrey Village

Anlong Phe Commune

Anlong Phe Village, Phave Village, Spong Village, Toal Village, Prey Sloak Village, Krabey Mouy Village

Kang Cham Commune

Doung Village, Kes Village, Kampong Pang Village, Kang Cham Village, Kang Kngaok Village

Siem Bouk District

Siem Bouk Commune

Siem Bouk Village, Tonsaong Village, Ou Lang Village

E.2. Summary and consideration of comments received

Stakeholders	Comments received	Consideration of comments received
Community Forest (CF) committee representatives - Samaki CF (Oulang, Siembok, Tonsaong villages) - Prey Tamoa CF (Kang Kangoak, Kompong Pang Kang Cham villages) - Ouchay CF now Toal Community Protected Area (Toal, Prey Sloek, Kraby Mouy villages)	CF committee representatives expressed support his project during regular ongoing engagements and meetings. They are committed to protecting the forests in the CF. They welcome any support including support from rangers.	Samaki and Prey Tamoa are outside the project area and outside the jurisdiction of the PDOE as they are under the management of the Forestry Administration. Therefore law enforcement support for these areas may not be feasible for the project. Toal Community Protected Area is within the project area and will be incorporated into law enforcement and patrol activity. Support for community patrols may be considered as part of community support if widely considered a priority within the community during further consultations and if shown to be an effective mechanism for preserving the forest.
Resin liquid collectors (mostly from Kompong Pang, Doung, Kes, and Spong villages)	Resin collection is a major source of cash generation for most of the villagers particularly those who live in the forest. Losing resin trees which was seen to happen in nearby communities like ones in Kampong Thom and Preah Vihear, and resin tree owners had suffered loss of income source and turned as loggers. So, forest protection is fully supported by those who depend on	Direct involvement of these people in forest protection through resin group establishment and/or join park ranger patrols when and where possible.

	resin collection for livelihoods. This was communicated numerous times during several engagements with the communities.	
Representative from the nine villages during the livelihood assessments (May 2018 – February 2019) [Doung 48 (25 females), Kes 29 (14 females), Kang Kangoak 13 (1 female), Kompong Pang 20 (9 females), Olang 14 (2 females), Seim Bouk 11 (3 females), Toal 13, Tonsoang 14 (6 females), Spoung 10 (4 females)]	Suggested livelihood interventions are: - Agricultural techniques - Sustainable bee harvest and market linkage - Veterinary - Rice production - Saving group - Rice bank - Skill training for youth and veterinary	Agriculture support was selected as the main livelihood intervention needed by the communities, this will the target intervention to develop during the project as we develop livelihood work and the benefit sharing.
Representatives from villages	**Summary of comments from Oct/Nov 2021 and comment box**	
Siembok (26 people/9 females)	Requested to have clear boundary between community areas and PLWS, especially requested to have demarcation. They are willing to join patrol to protect natural resources and requested to have support from NGO to purchase patrol equipment.	Boundary demarcation is important but requires final zonation to be in place. We will work with MoE to support the zonation process that they are leading. When complete, given funding availability, we will work with these communities to demark the boundaries of the protected area zones. The project is working to establish an effective way that communities can join in joint

		patrol efforts in PLWS. Patrol equipment for community patrols of community areas will be considered if the broader community determines it is a priority during establishment of benefit sharing.
Kang Cham (14 people/5 females)	Requested to have clear boundary between community areas and PLWS, especially requested to have demarcation. They are willing to join patrol to protect natural resources and requested to have support from NGO to purchase patrol equipment.	Same as above.
Anlung Phe (16 people/4 females)	No comments	
Phave (10 people/3 females)	Requested rangers from DoE join patrol with CPAs and requested financial support to conduct patrols as well as patrol equipment.	The project team is working closely with PDOE ranger, management and the CPA community to provide more patrol support in this CPA. Patrol equipment for community patrols of community areas will be considered if the broader community determines it is a priority during establishment of benefit sharing. Financial support for community patrols is currently being supplied, and can continue under the benefit sharing if determined to be an effective tool to protect forests.
Toal (13 people/2	No comments	

females)		
Kes (13 people/8 females)	- Requested to have more meetings/explanation/awareness, as communities are confused between selling carbon and selling the actual forest. The community is interested to join activities to protect forests. - If project support livelihood development, they are interested in cow banks. - Requested to have signboard around the boundary of PLWS. - GRM should include detail information, phone number - They want to request rangers and CI to help them to stop the illegal activities in their village, in particular: - Home-made guns that are available in the village - Villagers using illegal fishing gear - Illegal wood being transported at night.	- Consultations and outreach meetings with the communities will be regularly conducted during this project. - The project is working to establish an effective way that communities can join in - Joint patrol efforts in PLWS. - Cow banks will be considered for community livelihood support through the benefit sharing. - See above comment on boundary demarcation. - GRM outreach materials have been supplied with telephone number, e-mail, and detail of overall process. - CI will continue to work with the ranger team to address these law enforcement issues.
Dung (26 people/9 females)	- They want to know more about process of selling carbon credits. - If the project supports livelihood development, all participants requested to have water systems in the village, as their village has water shortages. - Put up box and have a phone number so it is easy to call file complaints and comments	- Consultations and outreach meetings with the communities will be regularly conducted during this project, these will include additional and refresher information on REDD+. - The GRM box has been set up in this village. The

	- Communities have old farms inside PLWS, unclear whether they can use their old farms. - Can they use tractors for clearing old farms in PLWS - Lots of long-tailed macaques hunting and illegal logging of resin trees. - Request CI to support young people to participate in patrol activities inside PLWS-STR province, to protect resin trees and forests. - Ibis rice is a good project, market is available, but would like to have this project as a long-term. - Villagers are happy with CI supports, and brought them to understand the benefit of the forests. - Water shortage is an issue, so if the project can support irrigation or small- scale water supplies. - Law enforcement is weak currently, so if the project can improve law enforcement would be good. Especially crackdown illegal transport wood at night. Rangers should not get money from loggers. - Request small-scale infrastructure, bridge across O'Siem Bok and road. - Divide lands between forest protection areas and communities.	GRM has a telephone number which has been supplied in outreach materials. - Further community meetings and outreach with PDOE and community members will occur to help clarify land-use questions and concerns within the protected area. - CI will continue to work with the ranger and management team to address these law enforcement issues. - The project is working to establish an effective way that communities can join in joint patrol efforts in PLWS. - Ibis Rice is intended to be a long-term project. - Water is understood to be a critical issue and this sort of infrastructure work will be considered for support given adequate funding from benefit sharing. - See above comments about demarcation and zonation.
Kang Kagnouk (19	- Local communities requested to	- Consultations and

people/4 females)	conduct more of this type of awareness directly, it is easy to understand. - Resin trees were logged, but not sure who to report to. Requested to have a box and phone number so that communities can call directly to report.	outreach meetings with the communities will be regularly conducted during this project. - The GRM has a contact phone number and box set up in the village. But contact information for the PDOE law enforcement team will also be provided to communities, as well as team contacts to help facilitate communication and reporting of law enforcement issues.
Spong (26 people/10 females)	- Communities requested to establish CPA in their village so that they can use resources and protect those resources. - Provide monthly salary to communities.	- The CPA creation process is usually quite onerous, but if the community as a whole considers this to be a high priority during subsequent consultations, then this is something the project team can help support. - There will likely not be enough financial resources available to provide monthly salary support to the entire community.

F. References

Clements, T. and Milner-Gulland, E.J. 2015, Impact of payments for environmental services and protected areas on local livelihoods and forest conservation in northern Cambodia. Conservation Biology, 29, 78-87.

Crocker C.D., 1062. The general soil map of the Kingdom of Cambodia and the exploratory survey of the soils of Cambodia. Joint publication. Phnom Penh (Cambodia): Royal Cambodian

Government Soil Commission/USAID
Finegold Y. & Ortmann A. (2016) Map Accuracy Assessment and Area Estimation: A Practical Guide. FAO. http://www.fao.org/3/i5601e/i5601e.pdf
Hayes, B., Khou, E.H., Thy, N., Furey, N., Sophea, C., Holden, J., Seiha, H., Sarith, P., Pengly, L. and Simpson, V. (2015) Biodiversity assessment of Prey Lang.
Legris, P. & Blasco, F. (1972) Carte internationale du tapis Végétal a 1/1,000,000, Cambodge. Notice explicative. Inst. Fr. Pondichéry, Trav. Sect. Scient. Techn. Hors série No. 11
McDonald J. A., 2004. Ecological Survey in Prey Long, Kampong Thom. A Proposal for the Conservation of Indochina's last Undisturbed lowland Forest
Olofsson P, et al (2014) Good practices for estimating area and assessing accuracy of land change. Remote Sensing of Environment, 148, 42-57
World Bank Climate Change Knowledge Portal https://climateknowledgeportal.worldbank.org/

Annex
Annex 1: Ex ante estimation of the project net emissions

Revision history of PDD		
Version	Date	Contents revised
ver01.0	29/09/2021	Initial version
ver02.0	23/08/2022	Revised based on the findings from the validation.
ver03.0	19/12/2022	Revised based on the findings from the validation
Ver04.0	10/1/2023 09/06/2023	Revised based on the findings from the validation Initial registration by the Joint Committee through electronic decision