Rimba Raya Biodiversity Reserve REDD Project

Distinctive features

The Rimba Raya Biodiversity Reserve Project, an initiative by InfiniteEARTH, aims to reduce Indonesia's emissions by preserving 91,215 hectares of tropical peat swamp forest on the southern coast of Borneo in the province of Central Kalimantan, Indonesia. In the absence of the project, the project area would be converted to palm oil plantations by logging, burning to clear unused felled trees and remaining forest, and systematic draining of the peatland area. As a result, millions of tons of GHG emissions would be released into the atmosphere over the lifetime of the plantations. This project will avoid the loss of forest through the conversion to palm oil and is therefore classified as Reducing Emissions from Deforestation and Degradation (REDD) through Avoided Planned Deforestation (APD).

The Project is designed to protect the integrity of the adjacent world-renowned Tanjung Puting National Park (TPNP) by creating a physical buffer zone on the full extent of the ~90km eastern border of the park. This area, rich in biodiversity including the endangered Bornean orangutan, was slated by the Provincial government to be converted into four palm oil estates. In the business as usual (BAU) scenario, increasingly scarce forest habitat supporting orangutans and more than 50 other endangered species would disappear completely. The 14 local forest communities along the eastern edge of the reserve would face the threat of their land being appropriated by palm oil companies.

The project will diverge from the baseline emissions scenario by obtaining and holding legal land tenure rights to the area for the sole purpose of ecosystem restoration. The integrity of existing aboveground and belowground carbon will be maintained through a combination of fire prevention, forest conservation, and community development interventions to reduce remaining local level demands on forest resources.

Rimba Raya peat-swamp forests and the threats it faces are not unique, rather representative of environmental degradation of increasingly scarce forest and peatland resources in Indonesia. With the Rimba Raya Project, InfiniteEARTH aims to create an operational, voluntary market and community involvement model that can be replicated in peat swamp forest ecosystems across Indonesia.

	Heading	Explanation
Locational factors		
	**Location**	Southern coast of Borneo in the Seruyan District in Central Kalimantan province, Indonesia
	Spatial boundaries	Project area: 47,237 ha (managed for carbon offsets; total project area = 91,215 ha) Reference area: 78,193 ha (area under active oil palm plantations managed by PT BEST) Leakage monitoring area: Defined in terms of PT BEST existing concessions, future concessions and unpermitted plantation expansion by PT BEST Leakage management area: None specified
	Land cover	mangrove and tidal/brackish water swamps; marshy, grass-dominated wetlands; riparian and freshwater swamp forest; peat swamp forest; heath vegetation; lowland mixed dipterocarp forest
	Agents and drivers of forest cover change	Agents: Oil palm companies, local farmers Underlying drivers: Proximate causes: Forest conversion to oil palm (major deforestation driver), low intensity selective logging, intensive logging, fires, small-scale agriculture (by subsistence farmers)
Basic project features		
	**Objectives**	Climate ▪ Stop encroachment by palm oil plantations ▪ Create a physical barrier between the palm oil plantations and Tanjung Puting National Park (TPNP) Biodiversity ▪ Expand the contiguous habitat of the national park eastward ▪ Extend Orangutan Foundation International's (OFI) conservation, rehabilitation, and environmental education programs General ▪ Disseminate information about the project model globally
	Proponent/s	▪ Infinite-EARTH, Ltd. (IE)
	Actors involved in project design and implementation and their roles	▪ IE – responsible for project development ▪ PT Rimba Raya Conservation – project owner and local operational entity of IE ▪ Orangutan Foundation International – community facilitator raising awareness on conservation and protecting and rehabilitating orang-utans ▪ Forest Carbon, provides technical and development

		services for carbon baseline measurement, project design, implementation, and monitoring ▪ Others – includes NGO partners responsible for designing / implementing community-development activities
	Tenure and Carbon rights holder/s	Tenure: Project proponent holds ecosystems restoration license Carbon rights: Project proponents
	Upfront financing	IE has executed a binding contract with a large European bank in an option premium structure for 2 million VERs.
	Start date	01 July 2009
	Crediting period	30 years
	Baseline emissions	
	**Methodology**	VM0004 Methodology for Conservation Projects that Avoid Planned Land Use Conversion in Peat Swamp Forests, v1.0
	Reference data (unplanned deforestation/degradation)	Not applicable
	Reference data (planned deforestation/degradation)	Reference period: 2002-2009 Types of data used: Reference area was 11 other concessions managed by oil palm company (PT. BEST). A single Landsat ETM+ scene for April 2003, August 2004, March 2005, May 2007, January 2008, and February 2009 for historical baseline. Stratification was performed based on available land cover mapping (e.g. Ministry of Forestry and Orangutan Foundation International) and satellite imagery (e.g. Landsat and ALOS 2008). Ancillary data including aerial photos, survey data and other GIS data to improve classification.
	Stratification of project area	Peat Swamp Forest (lightly degraded), Peat Swamp Forest Degraded (highly), Peat Shrubland (<20% Tree Cover), Kerangas Forest, Kerangas Open Scrub, Low, sparse vegetation cover, Seasonally Inundated Wetlands, Open Water
	Deforestation rate and location	**Historical** 7.8% **Projected** 5.9% **Likely baseline scenario** Forest will be totally cleared and replaced by oil palm plantations **Modelling procedure**

		Land cover mapping done through automated image classification followed by manual image interpretation in GIS. Annual rate of conversion expected for Rimba Raya estimated through spatial study of historical (2003-2009) deforestation rates at 11 other concessions managed by oil palm company (PT. BEST).
	Carbon pools	**Carbon pools included** ▪Aboveground tree biomass ✓ ▪Belowground tree biomass ▪Non-tree woody biomass × ▪Litter × ▪Dead wood × ▪Soil ✓ (peat) ▪Wood products ✓ **Estimation method** ▪ 28 250m x 10m biomass plots (systematically positioned); small diameter trees measured in smaller 50 x 10m nested plots. Peat depth measured at 131 sample locations and tree volume at 262 sample locations. Tree volume estimated using 3,382 aerial photos with tree crowns identified and measured in imaginary 1 ha plots in centre of each.
	Carbon stock changes	Emissions from timber and sequestration from growth of oil palm included
	GHG emissions	▪CH_4 and N_2O from biomass burning included ▪ CH_4 and N_2O from peat burning included
	Net emissions without project	▪ 104,886,254 tCO_2e
Project GHG emissions reduction strategy		
	**Scope**	Avoid planned deforestation
	Activities	▪ Establishment of project area as a reserve (Rimba Raya Reserve) by the proponent securing land tenure rights for ecosystem restoration and thereby avoid planned conversion to oil palm plantations ▪ Construction of guard plans ▪ Create a fire response system, including training and equipping a fire brigade and developing a fire response plan ▪ Carry out enrichment and rehabilitation activities by planting indigenous and other appropriate species and damning canals constructed for past logging operations ▪ Launch a community-based, cash crop agro-forestry project

	▪ Fund OFI's ongoing activities such as rescuing orangutans orphaned by deforestation, rehabilitating them, and releasing them back into the wild ▪ Provide funds for the management and conservation activities in TPNP ▪Provide materials and training for early childhood education programs ▪Provide each child with a laptop and each households with solar lighting ▪Construct community centres ▪Support community food security and reduce malnutrition through agriculture on land already under cultivation, aquaculture and aquaponic initiatives ▪Improve water supply by training communities how to make inexpensive ceramic water filtration devices ▪ Provide fuel-efficient stoves to reduce fuelwood demand and improve health ▪Provide micro-finance ▪Provide a sustainable health program, including floating clinics ▪ Finance a "sister city" program between the communities bordering the Rimba Raya Reserve and the Seminole Indian Tribe of the Florida Everglades to gain knowledge on successful ecotourism industries around swamplands ▪ Support Indonesian and outside scientists and students in conducting biodiversity, ecology and conservation studies in Rimba Raya
Leakage mitigation strategy	▪ Plantation investments of oil palm company that held the concessions in the project area will be monitored.
Non-permanence risk mitigation strategy	▪ Best practices in forest and peat fire management will be taken to mitigate the incidence and spread of peat fires. ▪ Employing local community members to help manage and protect the project area, thereby gaining their support for the project. ▪ Building community support through targeted community development program. ▪ An endowment of ~ 25 million USD will be created from carbon sales and invested in low risk government bonds to provide a revenue stream for permanent management of the reserve.
Additionality	▪Alternative Land Use Scenarios: Six potential land use scenarios were identified in addition to the proposed project activity. All six scenarios are feasible under the relevant Indonesian laws and regulations. ▪Investment analysis / Barrier analysis: Conducted barrier analysis. Identifies if barriers are in place and type of

		barrier for each alternative scenario. Scenario #1: Conversion to oil palm plantations, found to be only plausible land use scenario. ▪Common practice analysis: No project activity of this type is currently operational in the region.
With-project emissions		
	**Effectiveness of measures**	Assumption: Strategies 100% effective (development of oil palm plantations in project area stopped)
	Carbon stock changes	No additional calculations
	GHG emissions	▪ None (emissions within project area from burning of peat, tree felling, etc. are not anticipated but will be monitored annually)
	Leakage	**Types:** Activity shifting: Will be monitored. Market effects: Leakage associated with logging assumed as deduction one - time, up front over a five - year period coinciding with estimated clearing rates and time periods **Deduction** 4,836,855 tCo2e (3.6%)
	Non-permanence risk	**Buffer** 20%
	Ex-ante estimated net greenhouse gas emissions reductions	**Total over crediting period:** 104,886,254 tCO2e **Annual average:** 349,620 tCO2e. **Annual average per ha:** 7.4 tCO2e/ha
	Monitoring of carbon stock changes and emissions	**Data and parameters** ▪i. Project boundary and stratification ▪ii. Forest protection ▪iii. Land change ▪iv. Logging ▪v. Fire **Methods** ▪ i. ALOS 50m or Landsat 30m + high res aerial or satellite imagery; Field survey ▪ii. ALOS 50m or Landsat 30m + SPOT and high resolution imagery; Field patrol ▪iii. Landsat 30m for detection plus targeted high resolution imagery; Field survey iv. High resolution imagery; Field survey ▪v. MODIS imagery; Field survey **Frequency**

		▪i. Annually ▪ii. Quarterly ▪iii., iv., v. 2-3 field surveys annually
Stakeholder identification and engagement		
	**Stakeholders identified**	Communities, government at all levels
	Identification process	Independent and formal community stakeholder sozialisation meetings in each village. Date, purpose and facilitator of each stakeholder meeting are documented.
Full and effective participation		
	**Access to information and consultation**	▪ Village heads in Project Zone communities were consulted during several social surveys and presentations, and all gave their approval. ▪ Project uses a process framework to disseminate information about project development and implementation. ▪ InfiniteEARTH has created partnerships with the government at all levels including the village, district, and provincial level. ▪ At the village level, approval from village heads has been obtained in the form of letters encouraging the further development of the Rimba Raya Reserve.
	Participation in design and implementation	▪ Baseline survey findings related to development needs have been incorporated into the development strategy of the Rimba Raya project. ▪ Programs that Rimba Raya communities have expressed interest in helping to develop and implement, include: water filtration devices, distribution of clean stove technology, solar lighting, increased access to healthcare, early childhood development materials and tools including the one laptop per child program, training in project and reserve management, and environmental conservation education.
	Feedback and grievance redress procedures	A formal grievance/conflict resolution process has been instituted and publicized, with all elements needed in the process to make sure it meets with standard conflict resolution protocols.
	Worker relations and safety	At the international level, the project will follow environmental and labor conventions ratified by Indonesia. With the employment of local community members, the project will follow Indonesian law UU No. 13/2003 which governs the relations between workers and employers.
Communities		
	**Without-project**	Independent and formal community stakeholder

	scenario	sozialisation meetings organised in each village. World Education Daemeter Consulting conducted an initial baseline survey. The survey assessed community land use, dependence on natural forests and rivers, and impacts of agriculture on forests. Description: 14 local forest communities along eastern edge of reserve would face threat of their land being appropriated by palm oil companies
	With-project scenario	**Expected net benefits** ▪ Participatory mapping of community land and resources and establishment of formal land ownership for communities **Possible negative impacts on other stakeholders and mitigation strategy** Loss of employment in oil palm plantation. This will partly be offset by employment by the project, creating of jobs through social investments, etc.
	Impact monitoring	**Indicators** Principles, criterion, and indicators developed from the 5 capital asset types set out in the sustainable livelihoods framework (full monitoring plan to be developed) **Methodologies** Full monitoring plan to be developed **Frequency** Full monitoring plan to be developed
Biodiversity and ecosystem services		
	Without–project scenario	An environmental assessment conducted by independent consultants in March, 2010. Variables discussed include bird, mammal and tree species, and high conservation values. Description: Conversion of most or all remaining forests in the Project Area to oil palm plantations, currently the greatest threat to biodiversity in the Project Zone and throughout Borneo more generally.
	With-project scenario	**Expected net benefits** ▪ Regional biodiversity levels will be maintained and species populations will increase as important natural habitat is preserved. ▪ Forest cover will maintain the proper functionality of the local watershed. **Possible negative offsite impacts and mitigation strategy** Project will lead to retirement of 4 oil palm development licenses. If these companies are offered new licenses as swaps, then there would be offsite biodiversity impacts in the areas of the new licenses. The project will track this. Project proponents will also attempt to cooperate

	with displaced companies via leakage contracts to shift their operations to non-peatland that has already been deforested.
Impact monitoring	**Indicators** (i) change in forest cover and condition; (ii) plant and wildlife population; (iii) quality and condition of aquatic habitats – including rivers and lakes – and of terrestrial wetland ecosystems such as marshes and inundated grasslands; and (iv) fires. (in preliminary monitoring plan) **Methodologies** Remote sensing methods and field observation; Taxon - specific approaches to sampling; Sampling of water quality Phase II of the Biodiversity Assessment – to be conducted by Daemeter Consulting – will focus on four main tasks: (i) the refinement of ecosystem mapping in the Project Zone through a combination of remote sensing (preferably using high resolution imagery) and field surveys; (ii) confirmation of species considered potentially or likely present, in particular species of concern under HCV 1.2 and 1.3; (iii) a systematic avifaunal survey of nearby Lake Sebuluh; and (iv) follow - up work for any other HCVs requiring more detailed study to determine condition, spatial extent, and proper long - term management. **Frequency** (Preliminary plan) Forest cover – 6 months, 1 year Populations: At least once annually

Progress

Validation	VCS validation report issue date: 07 Sept. 2011 CCBA validation report issue date: 14 Oct 2011 (Gold Level)
Verification	VCS verification period and report issue date: 1 July 2009 – 30 June 2010; 22 May 2013 01 July 2010 to 30 June 2013; 10 December 2013 01 July 2013 to 30 June 2014; 24 August 2015 CCBA verification period and report issue date: July 1, 2010 - June 30, 2013; 9 Jan. 2014 (Gold level) 01 July 2013 to 30 June 2014; 10 Aug. 2015 (Gold level)
Credits issued	Number: 9,225,515 As of: 29 Feb. 2016

Further information

- VCS Project Database:
  https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=Projects&a=2&i=674&lat=-2%2E78051067417254&lon=112%2E170133504944&bp=1
- CCBA Projects
  http://www.climate-standards.org/?s=Rimba

Documents reviewed

From VCS and CCBA websites: PD, PDD, Monitoring, Validation and Verification reports