Is it Feasible?

REDD/REALU Site-level Feasibility Appraisal (RESFA) in Lamandau wildlife reserve, Indonesia

Janudianto, L Joshi, E Mulyoutami, M Sofiyudin, S Budidarsono, G Galudra, S Dewi, A Ekadinata, M Thoha Z, S Rahayu, R Mulia, N Khasanah, and M van Noordwijk

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Background

While the international rules and (financial) incentives for REDD+ (reducing emission from deforestation and degradation plus) at a national scale are still being negotiated, a large number of sub-national and site-specific demonstration projects have been designed and many more are planned.

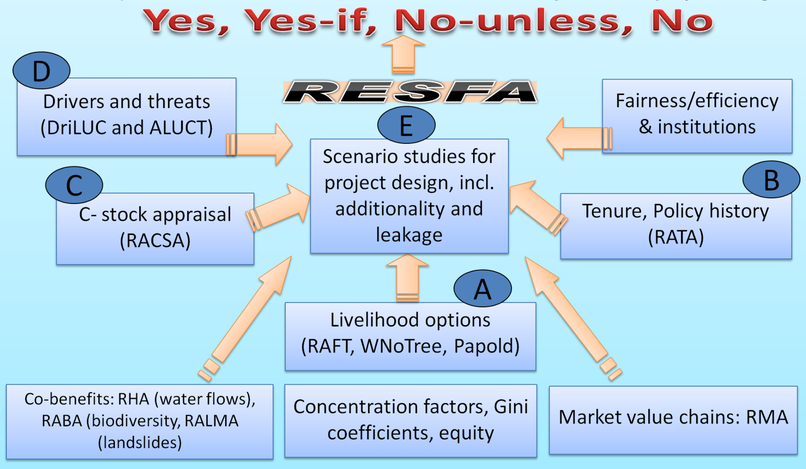
The Lamandau River Wildlife Reserve (LRWR or 'the reserve') forest conservation and community development project is one of a portfolio of four REDD+ projects being supported by the Clinton Climate Initiative–Forestry program, "Addressing the challenges of scaling-pp REDD+ activities in Indonesia".

REDD/REALU Site-level Feasibility Appraisal (RESFA) were used as the framework for studying the key livelihoods, land-use change, carbon stock and tenure issues to develop prospective scenarios and impact predictions for the eastern buffer area of the reserve (23 600 ha).

RESFA framework

Key point: 1) Is it worthwhile to pursue a project to reduce net emissions from land use (incl. forest) for this area, or will it be too complex, too costly or low in co benefit returns?
2) If it is worthwhile, what directions can best be pursued in project design?

Yes, Yes-if, No-unless, No



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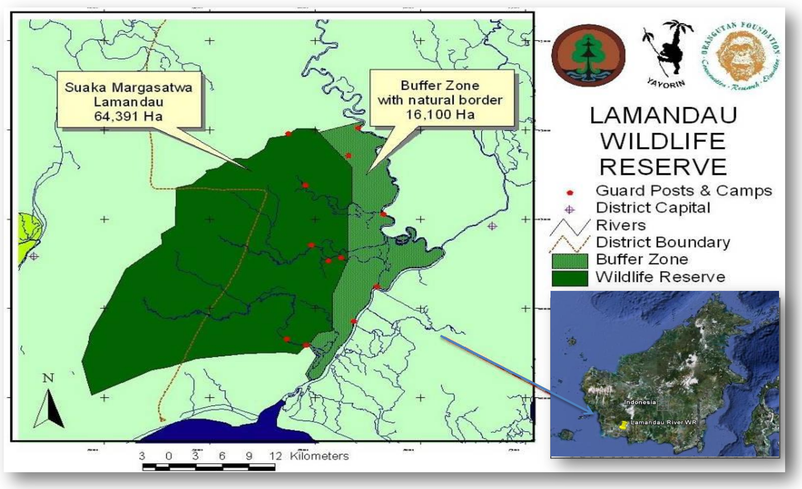
Site information

Lamandau River Wildlife Reserve is located in two districts of Central Kalimantan province: Sukamara and Kotawaringin Barat. It was created by Ministry of Forestry Decree No. 162/1998 of 26 February 1996.

Lamandau is of considerable conservation significanceas pockets of endangered orangutan (*Pongo pygmaeus*); and habitat for endangered fauna such as *bekantan* (*Nasalis larvatus*), honey bear (*Helarctos alayanus*) and flora as *ramin* (*Gonystylus bancanus*) and *ulin* (*Eusidexroxylon zwageri*). Many of these species are nearly extinct following the forest logging of the 1980s–1990s.



Methods applied in this study

A. Participatory Analysis of Poverty, Livelihoods and Environment Dynamics (PAPOLD) explore current land-use options within a livelihood perspective
B. Rapid Land Tenure Assessment (RaTA) analyzes tenure claims and policies that gave rise to them and subsequent conflicts
C. Rapid Carbon Stock Appraisal (RaCSA) provides protocols for carbon stock assessment
D. Analysis of land use/land cover trajectories (ALUCT)
E. Scenario models using the Forest, Agroforest, Low-value Landscape or Wasteland (FALLOW) model

Summary of Findings

A.Socio-economics

- *Jelutung* (Dyera costulata) latex is the raw material of gum, electric cable, and the timber is used for blackboards, art carving, frames, and packing cases.
- *Jelutung* tappers are dominant activities inside the buffer area. Majority are the landless from other sub-districts.
- Low interest in farming; while fishing and extracting submerged logs remain important source of livelihood.
- Diversification of crops and active management, and planting of *jelutung* trees in and around the reserve may offer viable options.

Taking peat soil sample in carbon stock assessment

B. Tenure assessment

- Different status of area given by local government and forestry department, but both are legal for plantation concession or crop estates. Community control may improve land security.
- 'Community Forestry' arrangement might offer better tenure security as many communities outside the villages also use the area.

C. Carbon stock assessment

- The area is dominated by peat of up to 4.5 m depth (average 1.3 m) and contain 841 t/ha of carbon.
- Aboveground carbon stock average in logged-over forests is about 50 t/ha.
- The current protection of the reserve and buffer area (existing guard posts), are useful in reducing further degradation of forest resources and the carbon stock is increasing by 1.3 t/ha of carbon per year.

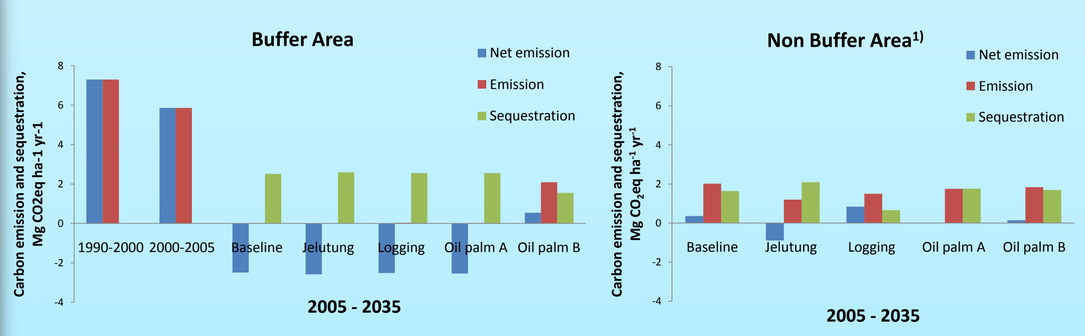
Jelutung (*Dyera costulata*) latex

D. Consequences of land use change for C emission

- The land use – land use change data indicate no significant change in land-cover types; and recovery in logged-over forests is gradually taking place.
- In the 1990 to 2000, 30% (3.5%/year) of the swamp forest on peat was degraded into logged over swamp forest and shrub. It is appeared to be the highest source of emission (3.04 Mg CO_2-eq ha^{-1} yr^{-1} and 1.90 Mg CO_2-eq yr^{-1}).
- From 2000 to 2005 forest conversion was a rate of 2%/year. By 2005 16% of the buffer area remained as intact forest and 67% as logged over forest, with the remainder in more open vegetation types.

E. Land-cover change scenarios at landscape level

- Reserve area and buffer zone protection since 2005 has effectively helped forest restoration, biodiversity conservation and carbon storage.
- The baseline scenario, with full protection of remaining forest, predicted that the gross emissions would come to a halt in the 2005–2035 periods and that the gross sequestration of 2.5 Mg CO_2-eq yr^{-1} would be approximately the net sequestration rate.
- Additional planting of trees, with locally useful trees such as *jelutung* in the buffer zone can enhance both carbon stock and the income benefits of forest-dependent community.
- Introducing oil palm plantations both inside buffer area and at smallholder scale as one of the livelihood options attracts farmers. This may lead to large emissions of carbon.
- Illegal logging remains a very attractive option from a short-term local livelihood perspective. This also accompanied by a great decrease of carbon stock.
- Protecting the buffer area significantly raised sequestration rate in this area in any scenarios. In contrast, permitting planting oil palm inside buffer area significantly increased net emission rate. Promoting *jelutung* trees significantly increases the sequestration rate, not only in the buffer area, but also outside the buffer area.



1) The rest of the area in two sub districts, not including LRWR.

Scenarios:
- Baseline
- Increased use of Jelutung (promoting *Jelutung* trees in young secondary forest)
- Logging (in all forestry plots except the forest reserve)
- Oil Palm A (smallholder oil palm outside the LRWR and its buffer area)
- Oil Palm B (establish inside LRWR and its buffer area)

Conclusion

Credible and potentially creditable emission reduction through a REDD+ pilot project will be feasible if the project includes activities to strictly control logging, land clearing and burning inside protected areas, in combination with enhancement of *jelutung* (for controlled tapping) and other valuable trees in and outside the forests and allowing local community to continue fishing and extracting submerged logs.

Community control will secured the tenure status and reduce threat of conversion to plantation. This will increase the likelihood of success of any project for reducing carbon emissions while protecting local livelihoods of the forest-dependent community.

National and international rules (NAMA-GAMA) allow for the multifunctionality and additionality conundrum. Various sectors of the forestry and agriculture agencies can agree on local action leading to the national aim of reducing carbon emissions (LAMA-NAMA links).

References

Joshi L, Janudianto, Van Noordwijk M, Pradhan U (Eds). 2010. *Investment in carbon stocks in the eastern buffer zone of Lamandau River Wildlife Reserve, Central Kalimantan province, Indonesia: a REDD+ feasibility study. Project Report.* Bogor, Indonesia: World Agroforestry Centre (ICRAF) Southeast Asia Program, the Clinton Climate Initiative–Forestry, Yayasan Orangutan Indonesia (Yayorin), Orangutan Foundation (UK), and Rare Conservation.

Van Noordwijk M, Leimona B. 2010. *CES/COS/CIS paradigms for compensation and rewards to enhance environmental services.* ICRAF working paper 100. Bogor, Indonesia: World Agroforestry Centre (ICRAF) Southeast Asia Program.

More Info: **Janudianto** (janudianto@cgiar.org)
World Agroforestry Centre
Southeast Asia Regional Office