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TRANSFORMING LIVES AND LANDSCAPES

Are conditional and realistic REDD+ mechanisms feasible? A case of a rich forested district in Indonesia

III. Opportunity Cost Analysis Of REDD+ at The District Level

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Introduction

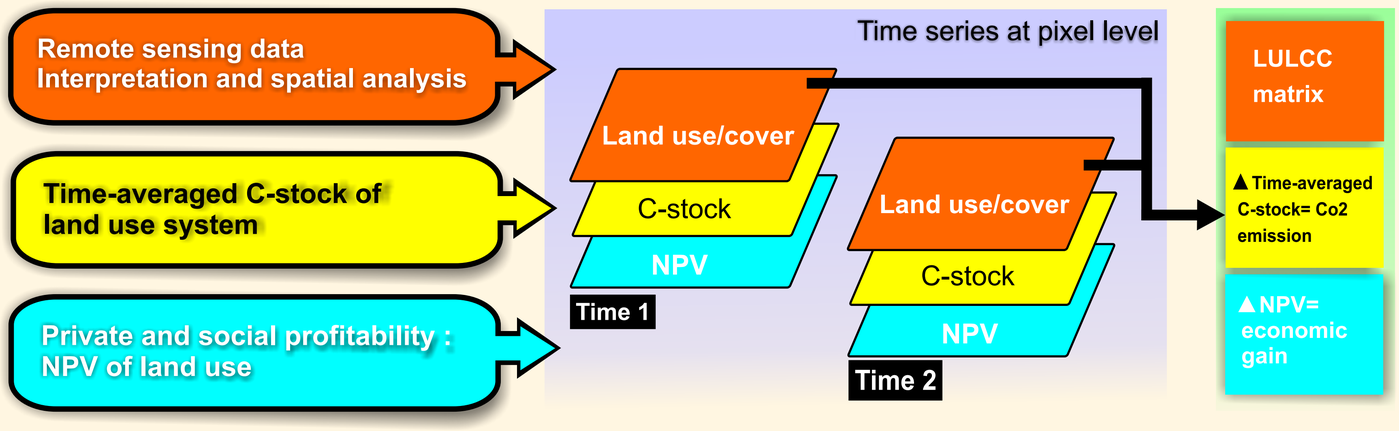
- Opportunities to reduce emissions from deforestation and degradation are substantial if effective and efficient mechanisms can be established to offset real and legitimate opportunity costs
- A pilot area for REDD implementation can help address the last issue and is very attractive, not only for gaining in-situ project experience, but also for the potential lessons learned and resultant multiplier effects
- The scoping study for REDD pilot area should test the feasibility of REDD from all three criteria: conditionality, realistic and voluntary criteria

Objectives

- To calculate opportunity cost for reducing emissions from deforestation and degradation at district level
- To identify policy and intervention options using estimated opportunity cost

Methodology

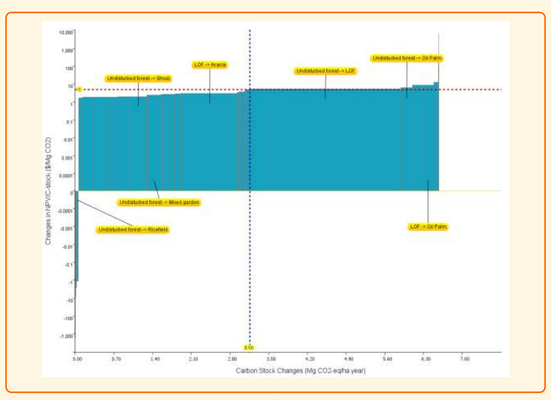
Incorporating the results of estimation of land use, land use change and forestry (LULUCF) carbon emission with the result of profitability analysis, opportunity cost is calculated by dividing up change in NPV with change in C-stock. REDD Abacus, a tools developed by ICRAF, used to present the calculation result into opportunity cost curve.



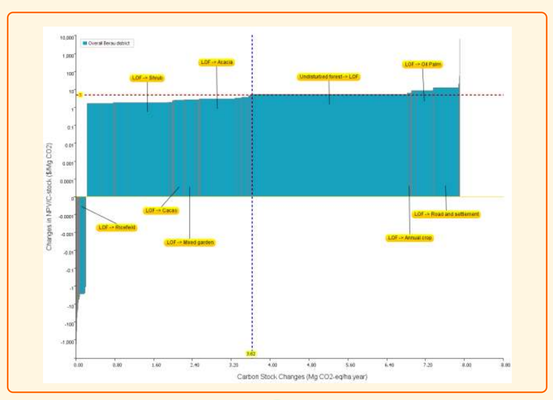
The above schematic diagram showing steps of opportunity cost estimation. Three parallel analysis on spatial analysis, c-stock and NPV of each land use were done before it plotted at time series at pixel level of the period of the study (1990-2008). This process yields a matrix of land use and land cover change (LULCC), values of time averaged c-stock and time-averaged NPV

Result & Discussion

- Proportion of emission from land use and cover changes that are associated with increase in NPV less than $ 5 steadily increases overtime, from 44% in period of 1990-2000 to 59% in the most recent period (2005-2008)
- The opportunity cost analysis in tandem with driver analysis and existing regulation and plans, can be used as a tool in identifying policy and intervention options across district



A



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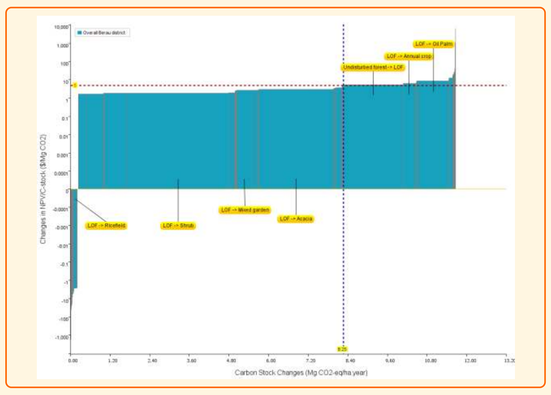

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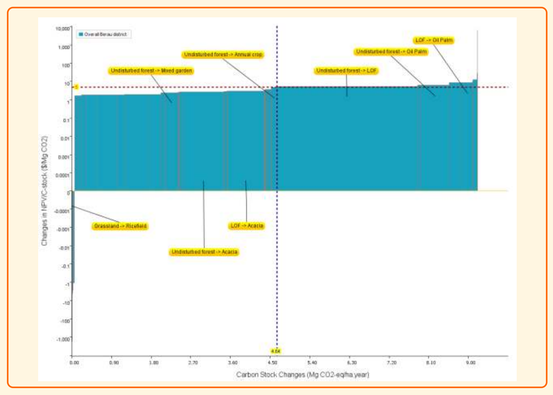
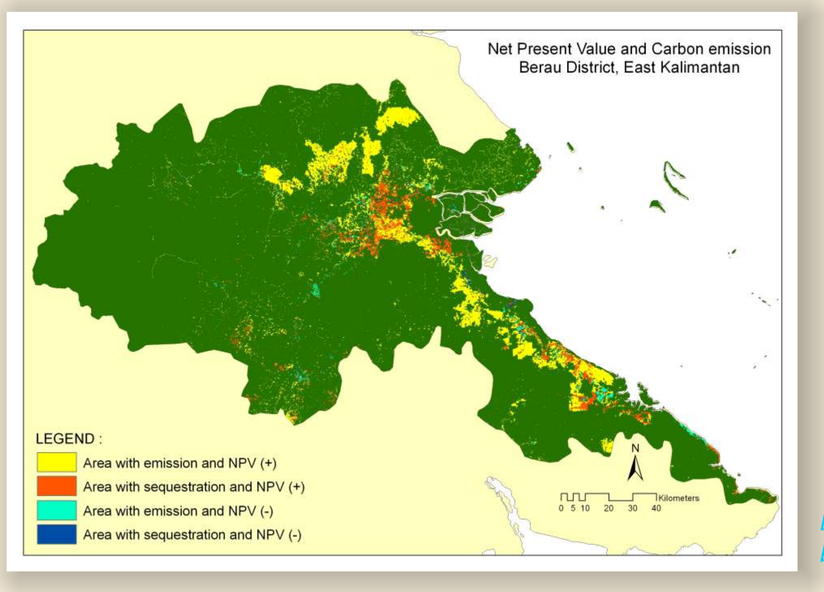


D

Opportunity cost curve of Berau district emission in 1990-2000 (A), 2000-2005 (B), 2005-2008 (C) and 1990-2008 (D). The curves show that conversion to oil palm is highest in term of economic gain, compared to other land-use. Logging activity is source of the highest proportion of emission. Thus, converting logged over forest (LOF) to oil palm lead to highest emission with highest economic gain (above 5$ threshold) at the district from 1990 to 2008. Paddy rice cultivation established from high c-stock land uses as primary forest lead to high emission which is associated with negative profitability. In case of paddy rice cultivation, the purely economical consideration isn't enough even it is associated with economic loss. People are managing paddy cultivation for the food security reason.

Policy Recomendation



Berau situation by NPV and C-emission

The relationship between NPV and C-emission showing four key areas that can be considered as basis of policy and intervention options under existing regulation

Loss in stock associated with gain in profitability	**Production forest**: Applying reduced impact logging; **Protected forest:** Effective management of protected forest; law enforcement; **Non-forest area** (APL): Support low carbon-emission activity within high-economic land-use agriculture practice. Others: re-arrange new permits of forest conversion; incentives/ reward for forest protection efforts;
Gain in stock associated with gain in profitability	New incentives to utilize marginal lands for high-carbon stock land uses; Tree-based farming; People plantation forest (HTR); Oil palm swap program.
Loss in stock associated with loss in profitability	Reducing practice of shifting cultivation on high carbon stock land-use; incentives and reward to prevent forest fires; improvement of food security for people surrounding forests
Gain in stock associated with loss in profitability	Reforestation & rehabilitation programs; voluntary tree planting programs on non-forest areas

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