### Financial Analysis of REDD & Alternate Land Uses

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#### New Forests

- Investment management and advisory services company
- Specializing in maximizing the commercial value of natural assets: timber, carbon, biodiversity, water, biomass energy
- Landscape level investment theses
- Led us to a question:

# How might the emergence of carbon finance for conservation change land use investment at the forest frontier?

#### Forestry in Global Carbon Markets

- Timely question as REDD is firmly on agenda
- Role of private sector being debated
- Private investment plays a major role in the process of deforestation
- Agribusiness ventures, forestry companies & investors are driven by the profit motive & will react quickly to carbon markets that create an asset that has potentially more value than the commodity markets driving deforestation activities
- Full study paper available

#### Framework to Address the Questions

- Assumed international system for REDD credits
- Methodology: discounted cash flow analysis comparing net present value (NPV) of future cashflows from baseline activities to those from carbon revenue
- Framework for assessment
  - 1. Scope study areas
  - 2. Define baseline activities
  - 3. Define value of baseline activities cashflows & NPV
  - 4. Quantify avoided emissions
  - 5. Value avoided emissions



#### 1. Scope Study Areas



Map Source: Mongabay.com http://rainforests.mongabay.com/0102.htm

## 2. Define Baseline Activities

- Amazon: cattle ranching
  - 88% of deforested land occupied by ranching
- Papua, Indonesia: logging and oil palm plantations
  - Over exploitation of timber resources & degradation in logged concession areas
  - Potential for rapid oil palm expansion
- Congo: logging
  - Commercial logging concessions over huge tracts of land
  - Increased political stability & opening to global markets

### 3. Determine Baseline Value

- Assumed a hypothetical area and conversion rate
  - 250,000 hectare area
  - 12,500 hectares degraded or converted annually (5% deforestation rate)
- Derive cumulative future cashflows as hectares come into production (literature, industry sources and operational experience)
- Determine the NPV of cashflows applying a 20% real discount rate



#### 4. Quantify Avoided Emissions

- Model carbon stock loss from baseline activities
- Assume carbon stock of standing forest is 549 tCO2/ha reduced to minimum of 50 tCO2/ha
- Assume different rates of change based on land use type
- Volume of 125-145 million tCO2 credits over project life

### 5. Determine Carbon Value

- Needed to define reasonable crediting scenarios & prices but no defined market standard for crediting REDD
- Some transactions for avoided deforestation projects provided guidance on structure & price points

Scenario	Volume	Value
1	all credits sold into voluntary market before 2012	US\$2.95
2	credits sold in 2-year tranches for emissions avoided over the baseline, i.e. emissions assumed to have been avoided in 2007-2008 are sold in 2009	US\$10/tCO2 to 2012 US\$18/tCO2thereafter
3	credits sold in 5-year tranches for emissions avoided over the baseline starting in 2017 for 2012-2017 stock	US\$18/tCO2

## Results

NPV per hectare of baseline and carbon scenarios \*

	Brazil - cattle	Papua - logging	Papua - palm	Congo - logging
Baseline	\$343	\$350	\$757	\$633
Carbon 1	\$660	\$649	\$550	\$649
Carbon 2	\$1168	\$756	\$981	\$756
Carbon 3	\$521	\$402	\$386	\$402

\* Figures in red indicate a lower NPV than the baseline scenario

### Discussion

- Higher discount rate "tested" (35%) to consider impacts
  of remaining policy uncertainty
  - Key point is project risk within a national baseline accounting system
  - Carbon became mostly uncompetitive
- Useful to consider what risk factors will have biggest impact on carbon investments and address this in policy debates
- Costs of carbon projects
  - 10% of revenues removed for accreditation, management, etc.
  - Government fees, community funds, etc.
  - Internal Rate of Return (IRR) analysis makes carbon appear even more competitive than NPV analysis

# Conclusions

- Conservation can generally deliver returns that are competitive with current land uses driving deforestation
- If it is accepted that private investment plays a major role in land use change, then fostering an attractive conservation investment should be a policy objective
- Developing frameworks for assessing the financial implications of policy options (i.e. national baseline accounting, etc.) can help inform decision making







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