



19th June 2013

REDD+ & a Green Economy

Jakarta

The True Value of Tropical Forests

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and Nuclear Safety



Rijksverheid



NORWEGIAN MINISTRY
OF FOREIGN AFFAIRS





Orage sur la forêt amazonienne près de Téfé, État d'Amazonas, Brésil (3°32' S - 64°53' O).

www.yannarthusbertrand2.org

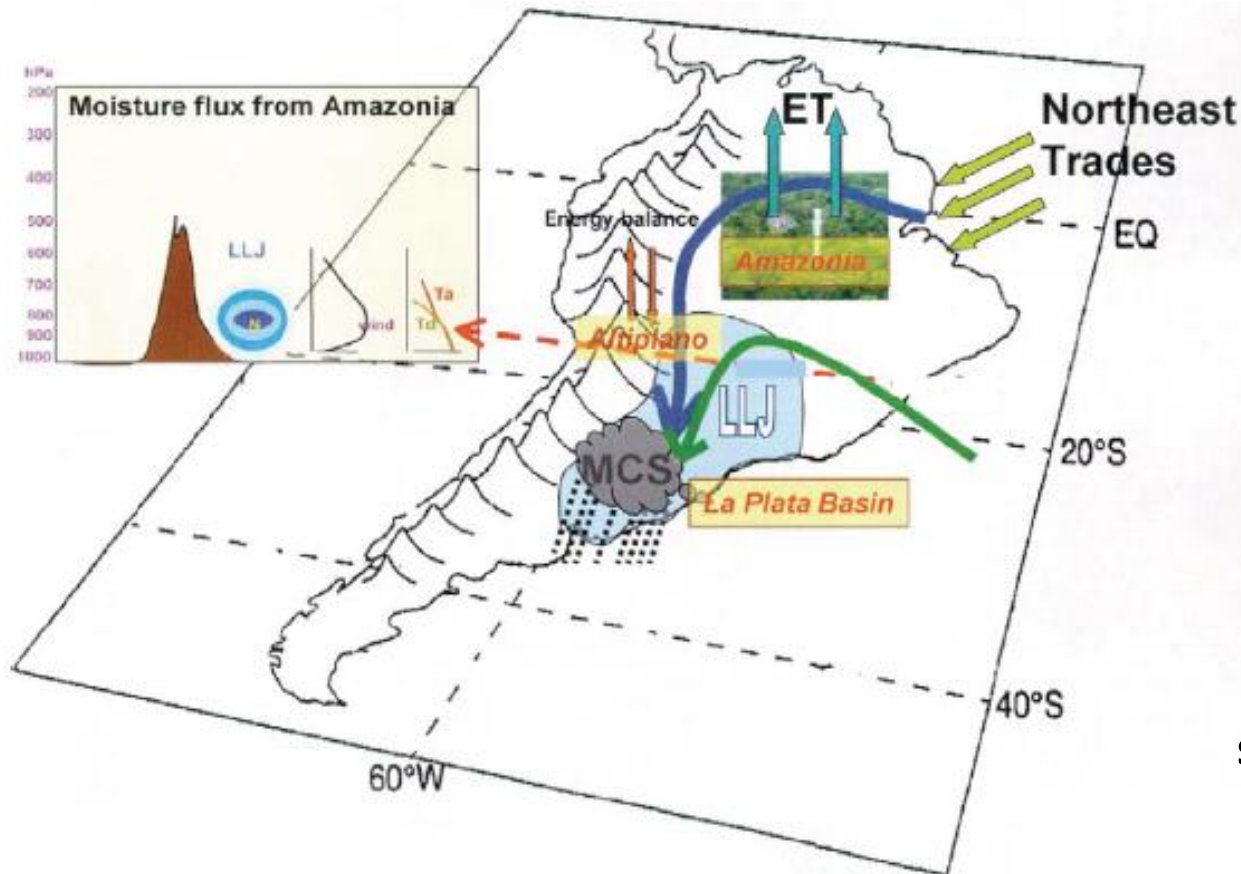


Rainfall Factories of the Planet...

(NOAA - Satellite Film)



Amazonia: Economic Invisibility of Freshwater



Amazon Rainforest “Water Pump”

Evapo-transpiration puts 20 billion tonnes of water into the atmosphere daily, some of which falls as rain in the Rio Plata Basin... supporting a US\$ 240 billion agricultural economy



Tropical Forests and Rural Poverty

Ecosystem services dependency

Indonesia

99 million

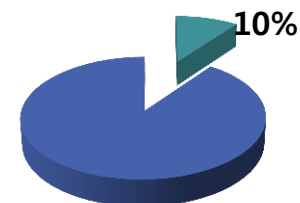
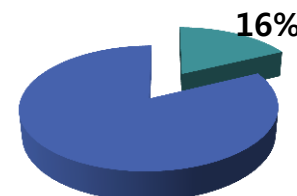
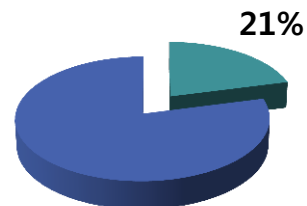
India

352 million

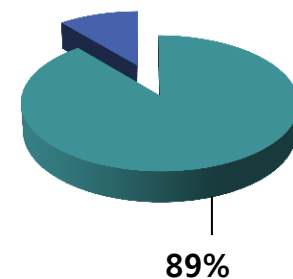
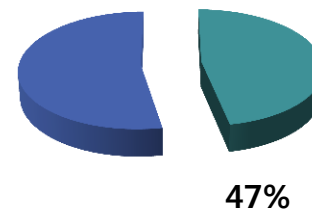
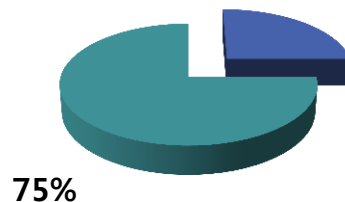
Brazil

20 million

Ecosystem services as a % of classical GDP



Ecosystem services as a % of "GDP of the Poor"



 **Ecosystem services**



Tropical Forest Mitigation : Ecological & Economic Rationale at a “Global” Scale ...



- Tropical forests store a fourth of all terrestrial carbon
 - 547 gigatonnes (Gt) out 2,052 Gt (Trumper et al., 2009)
- Tropical forest capture
 - up to 4.8 Gt CO₂ annually (Lewis & White, 2009)
(total emissions p.a. ~32Gt)
- Stopping deforestation holds an excellent cost-benefit ratio
 - Halving deforestation generates net benefits of about \$ 3.7 trillion (NPV) including only the avoided damage costs of climate change (Eliasch Review, 2008)



...with Significant Challenges at a “Local” Scale

- **Recognizing Community Rights**
- **Integrating Climate Mitigation with Biodiversity, Freshwater, Community Livelihood Benefits.... i.e. “All Other Ecosystem Services” (*lets not call them “co-benefits” ?*)**
- **Recognizing the Mitigation role of areas (including farms) and stakeholders (including local communities) adjacent to tropical forests**
- **Laying foundations bottom-up for a landscape-based “Terrestrial Carbon Market”**



Two Important Data Points on Private Sector

Size of Solutions...

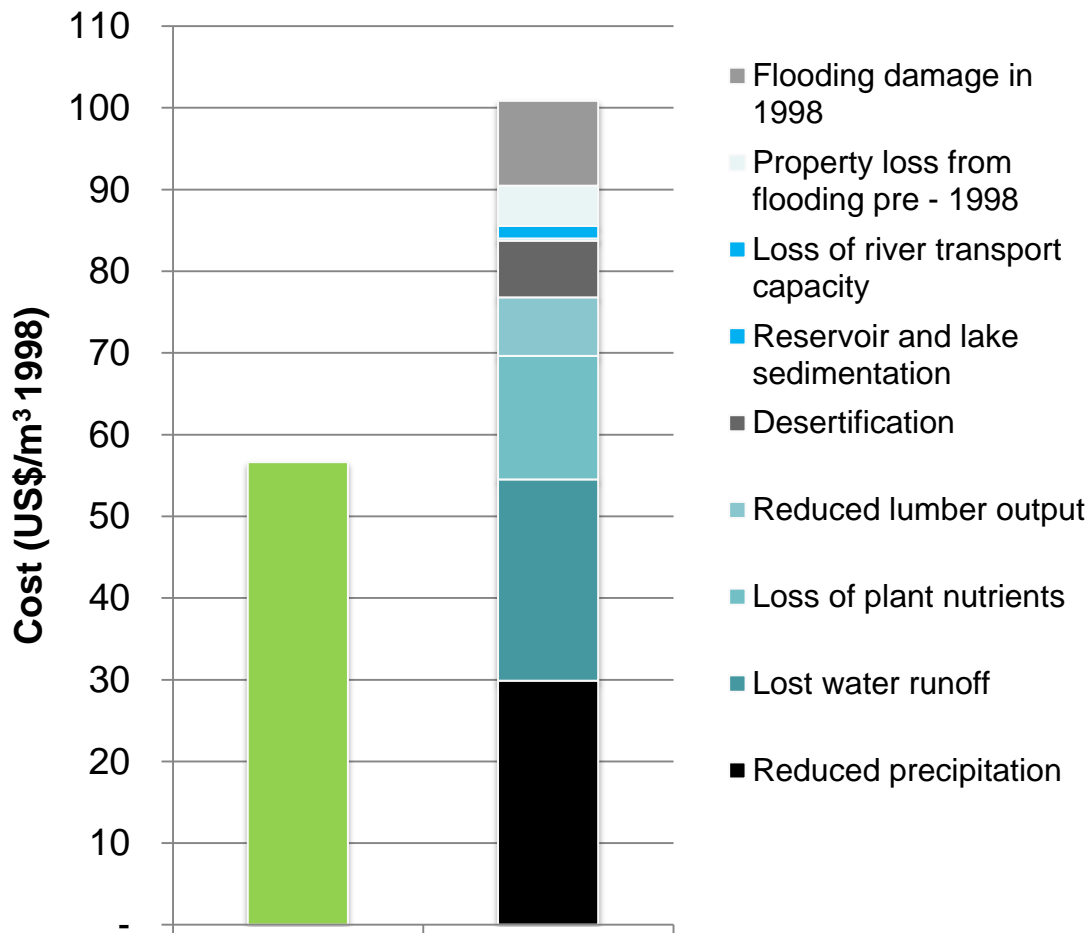
- VER transactions (2011) totalled US\$237 million linked to the reduction of 26 MtCO₂e
- These VERs came from a variety of afforestation/reforestation (Clean Development Mechanism A/R), REDD+, improved forestry management and agro-forestry projects

Size of Damages...

- Of private sector actors driving deforestation and forest degradation, the single largest is the production and supply chains of agri- commodities
- Actors in this category include producers of raw materials, suppliers, manufacturers, traders, retailers, consumers, financiers and technical service providers.
- estimated annual production of palm oil, beef and soy were US\$31 billion, 14 billion and 47 billion, respectively (2011)



TEEB for Business: Valuing Externalities For a Business Sector: Forestry, China



- US\$12.2 billion estimated ecological cost of deforestation in China (1950-88)
- 60% of this cost is attributed to logging
- 64% of logging was for construction and materials sectors
- External costs = 178% of the market price of timber (1998)



TEEB for Biz Coalition: Valuing Externalities For Business Sectors / Regions



NATURAL CAPITAL AT RISK:

THE TOP 100 EXTERNALITIES OF BUSINESS

RANKING OF THE 5 REGION-SECTORS WITH THE GREATEST OVERALL NATURAL CAPITAL IMPACT

RANK	SECTOR	REGION	NATURAL CAPITAL COST, \$BN	REVENUE, \$BN	IMPACT RATIO
1	COAL POWER GENERATION	EASTERN ASIA	452.8	443.1	1.0
2	CATTLE RANCHING AND FARMING	SOUTH AMERICA	353.8	16.6	18.8
3	COAL POWER GENERATION	NORTHERN AMERICA	316.8	246.7	1.3
4	WHEAT FARMING	SOUTHERN ASIA	266.6	31.8	8.4
5	RICE FARMING	SOUTHERN ASIA	235.6	65.8	3.6

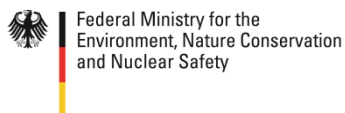
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Definitions : “Deforestation & Degradation”

- UNFCCC Decision 11/CP.7 (defining deforestation)

“...the direct, human-induced conversion of forested land to non-forested land.”

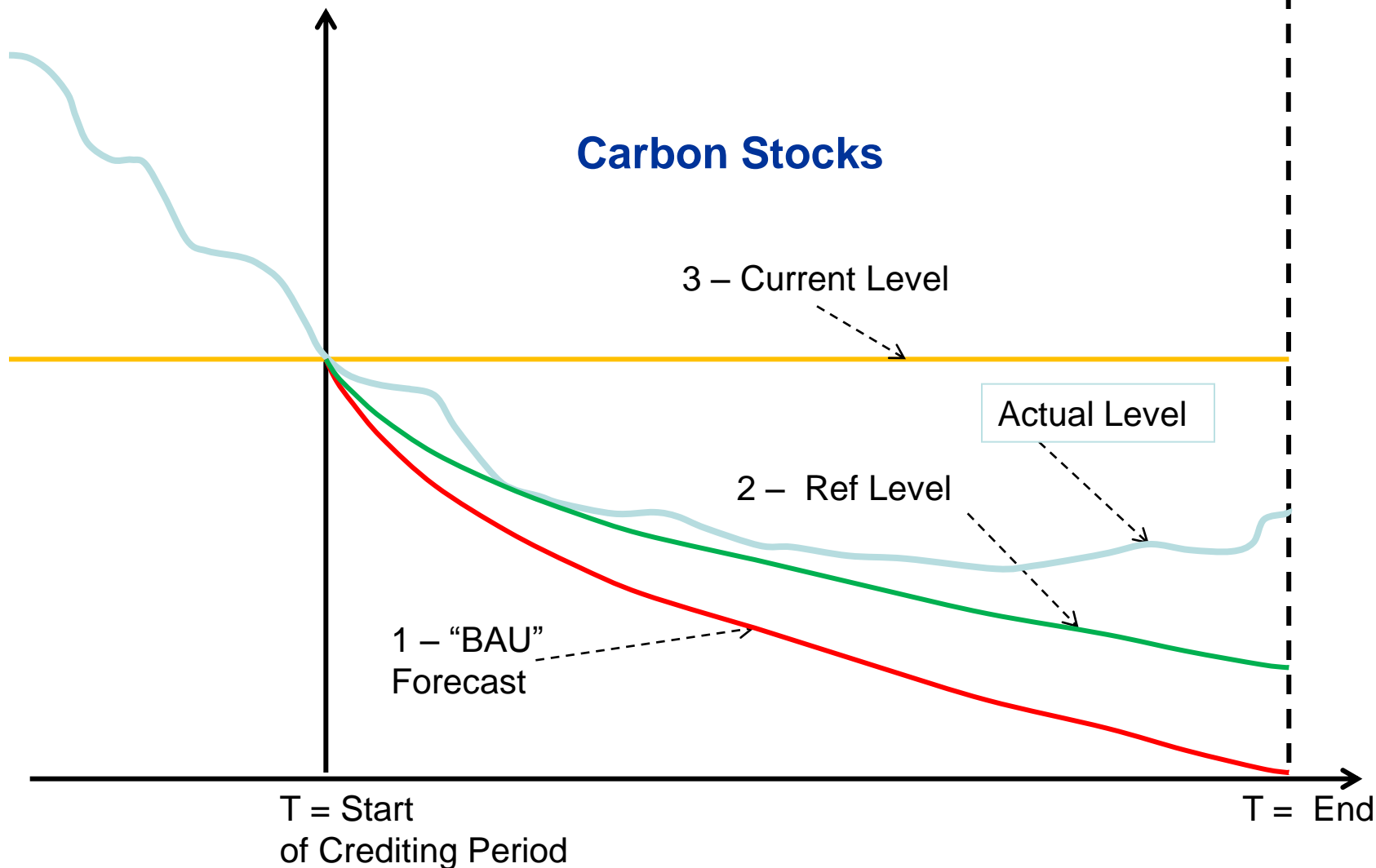
- Degradation is usually a long-term decrease in canopy cover, carbon stocks, or other forest values **NOT** definable as deforestation.... & many other definitions in the literature

Eg : IPCC Special Report on Definitions and Methodological Options (2003) gave the following for Kyoto Protocol :-

- *“ A direct, human-induced, long-term loss (persisting for X years or more) or at least $Y\%$ of forest carbon stocks since time T and not qualifying as deforestation” ... however, X , $Y\%$ and T all need to be **specified** to operationalize this definition*



Measuring Mitigation “Baselines” or Reference Levels can make big differences in performance...





REDD+ : Opportunities/ Problems with a National Crediting Approach

- **Funding** : \$ 7 billion public funding available for capacity building & fund phases- but international donors unlikely beyond these phases...
- **Country risk and Regulatory risk** : Considerable risks in developing countries, may deter entrepreneurs, financiers and investors to facilitate REDD+ implementation projects on the ground
- **Nesting** : Successful REDD+ activity at sub-national or project level (vs sub-national baseline / project baseline) not rewarded unless the entire national REDD+ scheme is successful (against national baseline). This deters private investment
- **Price Discovery** : Drivers of deforestation will not be addressed if there is no shift in price/market signals, & land-use behaviour of private sector will remain unaltered



REDD+ : Opportunities/ Problems with a Sub-National or 'Project' Crediting Approach

- **Inclusion** : Performance-based remuneration contracts are entered with sub-national entities - including private bodies (municipalities, cooperatives, forest concessionaries – private & local community) i.e. less political risk, better enforcement mechanisms, governance in LDC's does not affect activity directly, i.e. investments less risky.
- **Price Discovery** : Price signals for private actors can make forest protection financially competitive with conversion land-use options
- **Leakage** : Environmental integrity of REDD+ efforts weakened as leakage cannot effectively be managed, impacting marketability of & demand for REDD+ credits on *international* carbon markets.



Forest Carbon : Performance Measurement

- **Approach** : Estimate actual emissions reductions from a reference level
- **Methodology** : Use IPCC "Tiers" (1,2,3) for successively better estimation
- **Data** : Area of Land Use Change and associated estimated C-Stocks
 - Errors in Land Use Change due to quality of remote sensing, image processing & interpretation, technical issues, lack of reference data
 - Errors in C-Stocks due to wrong stratification/ classification, poor sampling design, measurement errors, un recognized "degradation"
- **Technology** : Remote Sensing, together with ground-based systems
- **Quality Control** : a robust MRV system, engaging both local stakeholders and independent assessors



Forest Carbon : What is being Traded ?

The Importance of "Contract Specification"

Credits available for any given hectare would be a function of changes in six adjacent carbon pools :-

1. **living above-ground biomass,**
2. **living below-ground biomass,**
3. dead organic matter in wood,
4. dead organic matter in litter,
5. soil organic matter, and
6. Harvested Wood Products (HWP)

Decisions on which carbon pools should be included are largely dependent on the availability of existing data, costs of measurement and the level of conservativeness required



The Importance of Clearing

(Source : Munden Project, A Market Intermediary Response)

- ***A Trade is a promise. Clearing ensures that promise is kept.***
- A classical trading model sees two counterparties agree to trade one good for another, then delivering the actual exchange of objects later in time. Eg: A agrees to pay B in return for delivery of n bushels of corn at x date ("settlement date")
- A and B's mutual promise raises some important questions :
 - What exactly constitutes "**corn**" and "**money**"? This sounds like a silly question, but it is quite important to have clear definitions of each.
 - Can each of the counterparties deliver on its commitments? Do they have the assets?
 - Eg : can A be trusted to deliver the money promised on settlement date?
 - What happens if B fails to perform? What if there's a drought & B can only deliver 50% of the promised amount. How does A get made whole?
- Clearing is the process markets use to answer these questions



The Importance of Contract Specification

(Source : Munden Project, A Market Intermediary Response)

Defining “corn” requires examining the standards offered by the United States government and the exchange (in this case, CBOT) through which the corn is traded. First, CBOT rules dictate that only Yellow corn is permissible for delivery. Yellow corn is defined by the United States government as “*corn that is yellow-kerneled and contains not more than 5.0 percent of corn of other colors. Yellow kernels of corn with a slight tinge of red are considered Yellow corn.*”¹⁶ This corn is then judged and adjusted for price according to the following chart:

Grade	Minimum test weight per bushel	Max heat damaged kernels	Max total damaged kernels	Max broken and foreign material	Price
#1	56.0	0.1 %	3.0 %	2.0 %	Contract + \$0.015/bushel
#2	54.0	0.2 %	5.0 %	3.0 %	Contract
#3	52.0	0.5 %	7.0 %	4.0 %	Contract - \$0.015/bushel

The differences between Grades 1, 2 and 3 are quite narrow, but there is a standardized price adjustment



Some Parameters to Set...

- **UNFCCC Decision 16/CMP.1 (thresholds for what qualifies as "Forest Land")**
 - **Minimum forest area 0.05 to 1 Hectare**
 - **Minimum height at maturity *in situ* of 2 to 5 metres**
 - **Minimum tree crown cover (or equivalent stocking level) 10% to 30%**



Munden Project – Forest Carbon

(Source : Munden Project, A Market Intermediary Response)

“One final note: we also found the process of explaining the IPCC’s methods to market participants to be a very difficult task. Our examination showed that they were almost impossible to summarize in a comprehensive way that would be acceptable to financial market participants, largely due to their length and scientific content”

– *The Munden Project, 2011*



REDD+ Challenges...

- Initial Funding Consensus : “Slicing the \$ 7 Billion Cake”
- Integration of “Prong 2” Initiatives : UNREDD, the World Bank’s WB-FCPF, and Interim REDD+ Partnership..... Towards effective use of scarce political capital and seed financial capital during a short time-frame without dissipating either.
- Capacity Building : rapid, in-country, capacity building - technological and skills development / acquisition, legal capacity, MRV capacity, project originations capacity, political capacity ...
- Mechanism Structuring for REDD+ : What kind of mechanism gets devised for REDD+ and by *whom* will determine whether the scheme is robust, durable, equitable, and effective



Mechanism Structuring for REDD+ ..

- Mechanism Structuring for REDD+ : What kind of mechanism gets devised for REDD+ and by *whom* will determine whether the scheme is robust, durable, equitable, and effective
- closely tied with the challenge of Kyoto redesign ... global scale
- involves both the 'buy side' & the 'sell side' ... global scale
- 'buy side' involves businesses... national scale, international scale
- 'sell side' involves local communities, provincial governments, national governments... local, provincial, national scale
- Recognizing Rights of forest dwellers and dependents
- politically difficult and administratively complex challenges



Mechanism Structuring for REDD+ .. Key Challenges

- agreeing the regime and framework for eligible forest carbon offsets,
- structuring a framework and mechanism to ensure sustainable financing for REDD+
- providing for other ecosystem services (so-called “co-benefits”)
- agreeing the tiers of beneficiaries on the sell-side
- agreeing eligibility criteria both on the buy-side and sell-side
- agreeing how to proceed during ‘capacity-building’, ‘fund’ and ‘market’ phases
- agreeing ‘fund’ phase financing (‘open architecture’+ ‘register’)
- agreeing ‘nesting’ as a financing mechanism
- agreeing to throw out 4 chimera which still pose as “challenges” (fungibility, offsets, flooding, negotiated baselines)



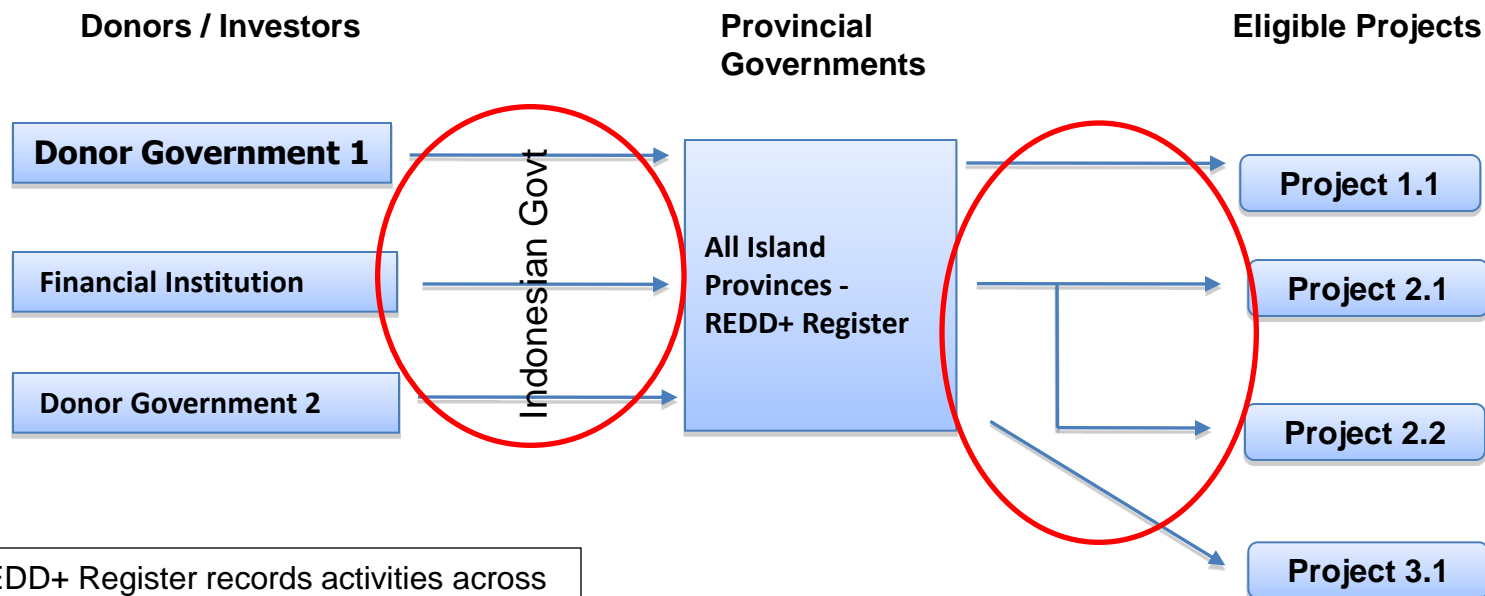
REDD+ Register Roles and Responsibilities

1. Records all REDD+ projects that are on going in the provinces. Register analyzes, approves or rejects proposed projects and develops a portfolio of REDD+ projects to be available for investors / donors.
2. Projects are categorized in the Register based on the quantity of 'Plus' benefits generated. A rating system (CCB?) assigns a higher value to projects beyond carbon.
3. Provincial level monitoring institution set up community level institutions to receive compensation, conduct annual "MRV" of project activities, and deliver periodic information to the Register



Indonesian Island for REDD+ Biodiv Premium ?

Need for a REDD+ framework that incorporates ALL provinces on the island, adequately prevents leakage and enables access to the Premium Market



REDD+ Register records activities across 10 provinces and creates a portfolio of approved projects that are available for donors to invest in.

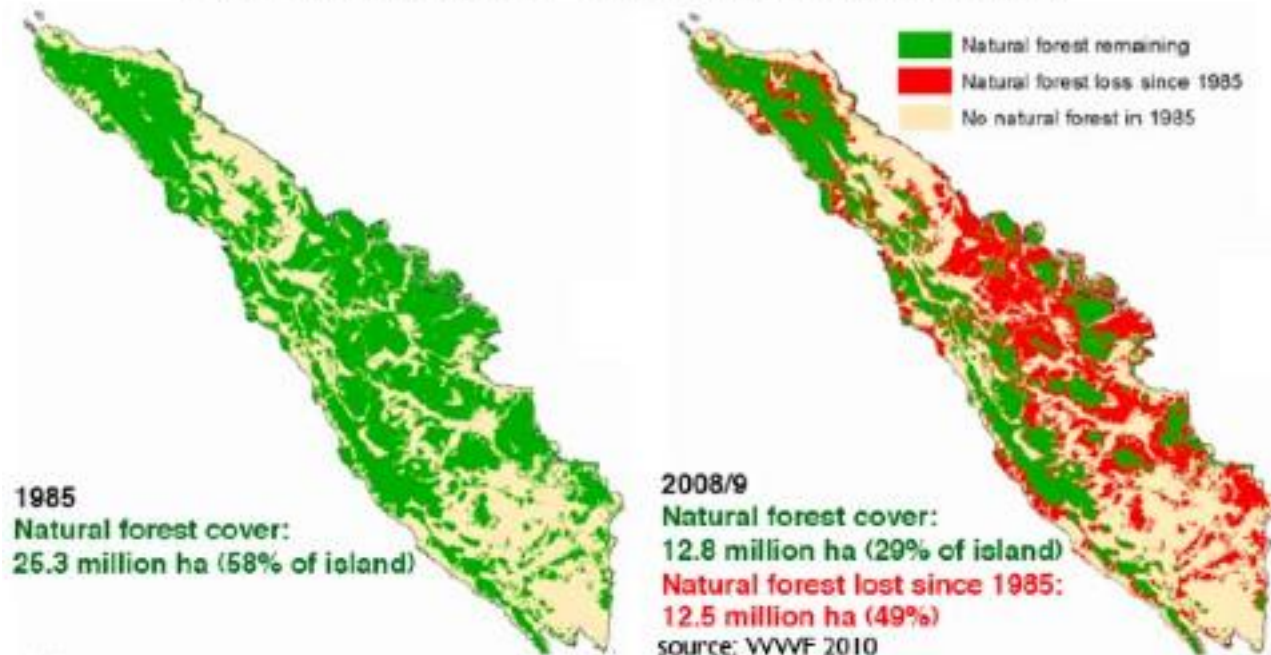
The Register sets criteria for project developers (based on IPAM and CCBA standards) that promote co-benefits oriented projects. Provincial level monitoring ensures annual MRV of project activities and submits periodic information to the Register to measure state status against the reference level.



High Deforestation Levels

- Sumatra experiences the most rapid deforestation rates in Indonesia.
- The island has lost 6.7 million ha of forest, representing 29 percent of forest cover, between 1991 and 2003 (Kinnaird et al, Conservation Biology, 2003).

Natural forest cover in Sumatra, 1985 and 2009



Source: WWF 2010

- It is estimated that 85 percent of Sumatra's forests have been destroyed by commercial logging and conversion to agriculture.

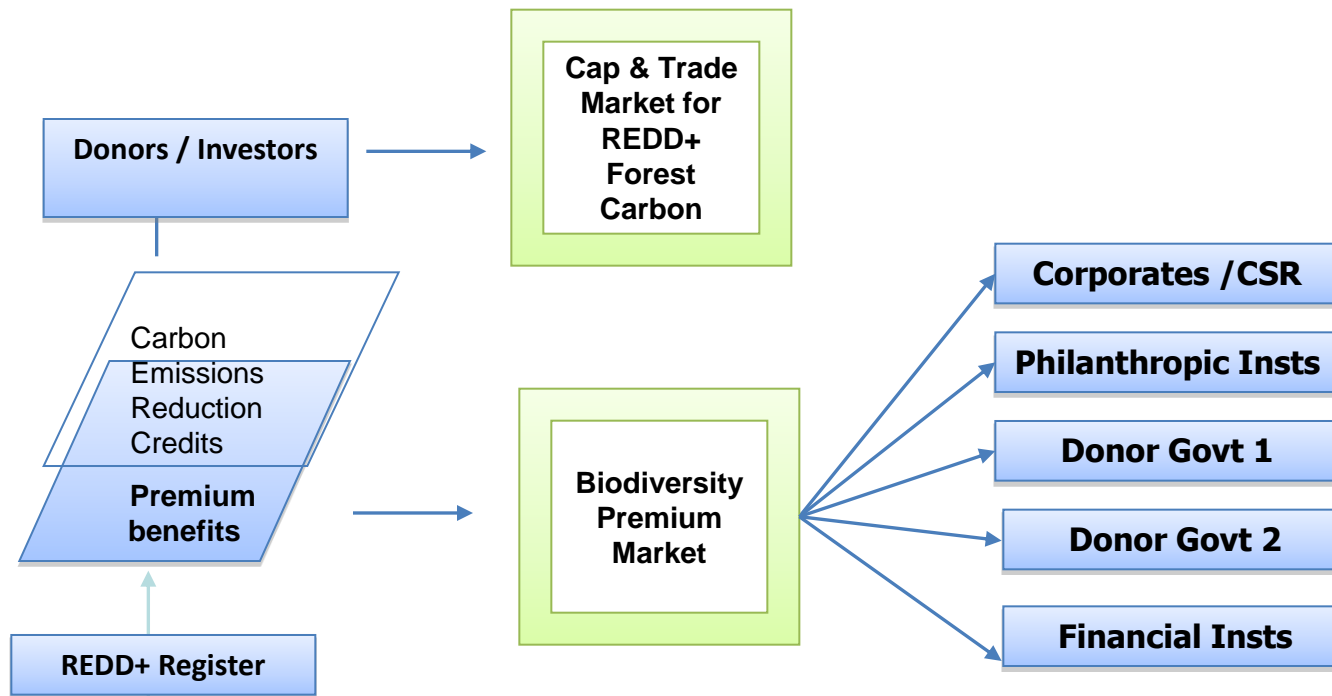


Sumatra's Rich Species Diversity

- More mammal species than any other Indonesian island.
- Significant populations of most Asian large mammals, including endemic Sumatran Tiger.
- Several of these species occur in very small numbers outside Indonesia or have been driven to extinction elsewhere in Indonesia (eg. tigers on Java and Bali).
- Continued deforestation and loss of habitats has led to an 84 percent decline in elephant populations and a 70 percent reduction in the number of Sumatran tigers since 1982.



Biodiversity Premium Market



The stripped "Premium" of projects in the form of Premium Certificates receives additional compensation through submission into the World Bank Premium Market, which makes available endangered species focused, etc, projects for govts., philanthropic insts. and CSR, investments.

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Map 11_1 Sumatra Orangutan Distribution



Mitigation : Exploring the Boundaries for REDD+

Example: ECUADOR'S Conservation Proposal (Yasuni Preserved, ITT Oil stays in ground ?)



Yasuni National Park –
“the most biodiverse
wilderness on Earth”



YASUNI Funds to be Invested in

1. The effective protection of **39 Natural Areas (4.8 million hectares)** that hold the largest biological diversity in the world and **5 million hectares** that belong to Indian and Afro-Ecuadorian communities. (38% of Ecuadorian territory)
2. **Reforestation, natural vegetation regrowth and management of 2.3 million hectares** incorporating small landowners to the program, respecting their land, avoiding large monoculture.



- 3. Changing the energy supply matrix of Ecuador:**
reducing fossil fuels for electric generation, replacing them with renewable forms of energy production: hydraulic, geothermal, wind, tide, and solar.
- 4. Changing the energy demand matrix of Ecuador :** offering subsidies for home and industry sustainable energy appliances.



5. **Financing initiatives for sustainable development**

To allow the population to change their sources of income from exploitation of renewable resources to sustainable production of goods and services.



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