Federal Agency for Nature Conservation (BfN)

REDD – Opportunities and Challenges for Biodiversity Conservation and Poverty Reduction

Dr. Susanne Lehmann
Division International Nature Conservation

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Presentation overview

- What is the problem?
- Actual forest area and changes
- Forests and climate change
- What is REDD and how it has developed?
- What does action cost?
- Possible financing mechanisms
- Potential risks of REDD
- How to design pilot schemes?
- Other forest activities
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- Desirable way forward
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What is the problem?

- Deforestation rate about 11 million ha/yr (1 % of global forest area)
- Deforestation is a major contributor to anthropogenic climate change, accounting for approx. 20 % of global annual anthropogenic greenhouse gas emissions (1.6 Gt C/yr)
- Forest degradation is an additional source for emissions
- The carbon presently locked up in forest ecosystems alone is greater than the amount of carbon in the atmosphere (1.037 Gt)
- Causes of deforestation are complex and vary between and within countries
- Forests provide various environmental services and products
Actual Forest Area and Changes

Global Forest Area

Forest Area (2007)
- Latinamerica: 25%
- Russia: 23%
- Asia: 19%
- Africa: 17%
- Northamerika: 12%
- Europe: 5%

- Forest Area 3.9 Billion ha (2007)
- 1/3 of terrestrial surface
- Greatest connected Primary Forests:
  - boreal: Russia, Canada, USA
  - tropisch: Brasil, Congobasin

Source: FAO (2005)
DCs with high deforestation rate

Numbers above the bars represent the years needed to reach zero forest cover with present rate of deforestation (from 2005)

Source: FRA 2005 (FAO 2005)
Consequences of deforestation

- Soil degradation
- Erosion
- Changes in water regimes and deliveries
- Loss of species
- Loss of habitats and livelihood
- Changes in microclimate
- Emission of greenhouse gases
Forests and Climate Change

Source: Stern Review 2006

ENERGY EMISSIONS

- Power (24%)
- Industry (14%)
- Other energy related (5%)
- Waste (3%)
- Transport (14%)
- Agriculture (14%)
- Buildings (8%)
- Land use (18%)

Total emissions in 2000: 42 GtCO2e.

Energy emissions are mostly CO₂ (some non-CO₂ in industry and other energy related).
Non-energy emissions are CO₂ (land use) and non-CO₂ (agriculture and waste).
Forests and Climate Change

Figure 25.1 Sources of emissions from global land use change 2000

Source: Reproduced from Baumert et al (2005)

Use change within the range equivalent to 2.2 to 9.9 GtCO₂, with a central estimate of 5.2 GtCO₂. A fuller discussion setting out the range of estimates can be found in Baumert KA et al. (2005).

Source: Stern Review 2006
What is REDD?

• REDD – Reduction of Emissions from Deforestation and Forest Degradation in Developing Countries

• Developing countries willing and able to reduce their deforestation rate keyed to a reference time period will receive financial compensation

• Transfers will be based either on foregone opportunity costs or on the value of carbon emissions saved
History of REDD?

- Developed under the auspices of the UNFCCC in the year 2006 in Montreal
- The Bali Action Plan from December 2007 highlights the importance of REDD and established indicative guidance for a demonstration (pilot) phase in the period to 2012
- Accra (August 2008) most countries supported the inclusion of the whole range of forest activities: conservation and stabilization of large existing forests, reducing deforestation emissions, sustainable forest management, enhancing carbon stocks, and afforestation/reforestation; previously seen as competing alternatives
- It is widely anticipated that negotiations for the next emissions reduction agreement will be completed at COP 15 in December 2009
- Most prominent on the agenda is the question of how to finance REDD
What does action cost?

- **Stern report**: ”prevent further deforestation would be relatively cheap compared with other types of mitigation, if the right policies and institutional structures are put in place”
- **Stern report**: “Research carried out for this report indicates that the opportunity cost of forest protection in 8 countries responsible for 70 per cent of emissions from land use could be around $5 bill. per annum initially, although over time marginal costs would rise.”
- 1.6 Gt C /yr * USD 50 / tn C  = USD 80 billion /yr (other estimated need for financing from USD 2 – 25 billion / yr / comparing:total protected area expenditure was estimated at US $695 million / yr)
- Additional **compensation of the opportunity costs** of alternative uses of the land (approx. US $ 5-10 billion) (comparing: forestry export were worth US $39 billion in 2006!)
- **Additional costs** of administering and enforcing protection
Possible REDD mechanisms

• **Traditional grant funding mechanism**
  ➢ allows DC’s to sell carbon credits on the basis of successful reductions in emissions from REDD to help developed countries achieve stringent emission targets
  ➢ Such credits would probably relate to national-scale emissions rather than being attached to individual sites
  ➢ Discussions on the price details

• **Eventual market-based mechanism**
  ➢ carbon as one of the more easily marketable ecosystem service
Congo Basin – Stabilization Fund

• A stabilization fund would support developing countries which have very low rates of deforestation and want to maintain their forest cover.

• This fund could be supported through contributions by Non Annex I countries through a share of proceeds from REDD credits combined with additional funds provided by Annex I countries through Official Development Aid or similar instruments, such as taxes on products and services with a high carbon footprint.
Drivers of Deforestation

Loss of approx. 13 Million ha annually through deforestation

CAUSES:

- Consumption patterns in Industrial Countries and countries in transition / international trade (timber, cellulose, biomass, animal food, meat)
- Landuse (Change into agricultural and pasture land, unsustainable forestry, plantations etc.)
- Pressure through poverty and population growth
- Industrialization (land-demanding infrastructure, waste etc.)
- Impact of climate change (Changes in vegetation processes, regional shifts, kind of species etc.)
Potential risks with REDD

- Leakage and displacement of deforestation areas (intra-national and international)
- Permanence: need for long-term reliable source of funding (finances), risk of natural or anthropogenic influenced fires, floods etc. (carbon sequestration)
- Uncertainties in measurement and counting of carbonstock
- Stability of market is in question
- Payment goes to whom?
Potential risks with REDD

- **Destabilising** the crucial process of strengthening **existing strong carbon markets** if deforestation is integrated without agreements that strongly increase demand for emissions reductions.
- The role of developing **countries that have a low recent rate of deforestation** is unclear.
- According to lot of international experts it is unlikely that an international mechanism under UNFCCC will explicitly support **no forest ecosystem services other than carbon storage**.
- Its implementation may generate pressures that adversely **affect other ecosystems**.
- REDD will **not benefit all forests equally**.
- Selected REDD-“areas“ will **not always reflect other forest values** (biodiversity conservation, livelihood support, food, medicine, building material, delivery of freshwater etc.)
Potential risks with REDD

- Need for additional resources to prevent deforestation at sites with a "low-carbonstock-forest" will vary upon the carbon price, the carbon content of the ecosystem and the cost of avoiding deforestation

Source: Miles, Kapos
(Science 13, 2008)
Biodiversity value and carbon value are distributed differently among tropical ecosystems. Therefore funding from REDD would protect only some biodiversity values and could increase pressures on other ecosystems. Funds for other purposes such as sustainable forest management (SFM) and conservation will need to be targeted to fill the gap.

Source: Miles, Kapos (Science 13, 2008)
How to design pilot schemes

1. Development of a forest inventory
2. Mapping
   a) *Hot Spots* of deforestation
   b) Regions with the highest opportunity costs
   c) Protected Areas with the lowest opportunity costs
3. Development of a cost curve for forest protection
4. Assessment of the density of carbon stocks locked up in the different vegetation classes
5. Provide a baseline for deforestation (reference scenario)
6. Design a plan for land use, identifying agricultural and protected areas
7. Distinction between proprietories (Government, community, private) for the differentiation of specific deforestation rates
8. Addressing specific and regional drivers
9. Identify possible conservation activities
10. Development of compensation schemes (trade of ecosystem services)
How to design pilote schemes

• defining **property rights to forestland** and determining the rights and responsibilities of landowners, communities and loggers, is key to effective forest management. Involve local communities, respect informal rights and social structures.

• Use a **transparent national consultation process** to develop and submit a national REDD-strategy to fit each DC’s deforestation profile and circumstances

• Administratvie and political support on all levels of **governanace**

• Support **exisiting approaches** to adress deforestation and forest degradation

• Establish **technical readiness**

• Adress the **complex underlying causes** of deforestation Setting indicators for measuring success

• Establish an **international steering commitee** to approve national REDD-strategies

**DURING ALL THESE PROCESSES**
integrate biodiversity and poverty issues
Other forest activities

- Bali Action Plan and Accra further calls for consideration of other forest activities: sustainable forest management (can supress 1/3 of forestry emissions), and enhancement of carbon stocks with afforestation and reforestation
  - **Afforestation**: “Establishment of forest plantations on land that, until then, was not classified as forest. Implies a transformation from non-forest to forest.” (FAO 2001) / » that has not been forested for a period of at least 50 years (CDM)
  - **Reforestation**: “Establishment of forest plantations on temporarily unstocked lands that are considered as forest” (FAO 2001) / » that did not contain forest on 31 December 1989” (CDM)
DCs with increasing forest cover

[Bar chart showing Forest area (Million ha) for different countries over years 1990, 1995, and 2005. Countries include China, India, Vietnam, Chile, Cuba, Uruguay, Algeria, Tunisia, Cote D'Ivoire, and Morocco. Source: FRA 2005 (FAO 2005).]
REDDucing forests to sinks?

- **Southafrica**: Afforestation with Eucalyptus: work as carbon sinks, but have enormous consequences for the water management and delivery (drought of sources and rivers due to the sinking ground-water)
- **Canada**: Northamerican Lodgepole Pine-Afforestation: vermins and forests are destroying wide forest areas of the monocultures in the hot summers: canadian forest probably have changed from a carbon sink to carbon source for the next decades
- **Boreal forests in the northern atmosphere**: plantations could even heat the climate more due to the lower albedo
REDDucing forests to sinks?

- **Trees take decades to absorb** the equivalent amount of carbon to that which is instantaneously released into the atmosphere when mature trees are cut down and burnt.

- Depending on the species, a tree may take 100 years to reach maturity, and much **more land would have to be allocated** for new forests to obtain the same amount of carbon absorption as would be released from burning an existing forest of mature trees.

- The biodiversity and other **co-benefits of new forests are** also likely to be **much lower** than those for natural forests.

- The **demand for timber from temperate and boreal forests** may also increase.

- **For these reasons, international support for action to protect existing forests should be kept distinct from the creation of new forest**
Desirable way forward

- What has originally been developed to reduce carbon emissions could also deliver enormous co-benefits in terms of biodiversity conservation, poverty alleviation through sustainable rural development, improved natural resource management and adaptation to climate change.

- To deliver as many of these benefits as possible, REDD must be designed in an integrated manner.
The concept of 50:50:50:50

- Until the year 2050 deforestation rate should be reduced to 50% and 50% of the actual forest cover should be conserved – then the emission of 50 billion tons of CO2 could be avoided.
- This would cost about US $10 billion, which is 0.02% of global GDP or 13% of global ODA.
Last (?) questions

- What are the policy implications of including different forestry activity / poverty alleviation activity categories?
- How might a system for comprehensive net carbon accounting be designed to address these issues at the national level?
- What broad, big-picture issues would need to be addressed to make such a system viable at the global level?
Combine national action and international support!