REDD-PAC and Biodiversity

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REDD-PAC (Policy Assessment Center)
Who is doing what?

- Partner Institutions: IIASA (coordinator)
  - UNEP-WCMC
  - INPE/IPEA
  - COMIFAC

- Duration: 4 years (Nov 2011-Nov 2015)

- Funding: German Ministry for the Environment (BMU)
  - International Climate Initiative (ICI)
REDD-PAC
Why do we need it?

- REDD+ has the potential to deliver substantial multiple benefits
  - reductions in deforestation and forest degradation
  - increased forest conservation
  - sustainable management of forests
  - enhancement of forest carbon stocks

- Currently, there is a lack of technical know-how and capacity on issues that will ensure
  - efficiency, effectiveness and environmental integrity of the REDD+ mechanism
  - ranging from implementing reference level methodologies to basic planning for multiple benefits and the operationalization of safeguards

- There is a pressing need to support countries at different stages of their planning process for multiple benefits from REDD+. This includes
  - assisting countries in undertaking initial spatial analyses on multiple benefits and using the resulting products
  - assisting with the computation of high quality, globally consistent national reference scenarios
  - REDD+ policy impact assessments consistent with the safe-guards and wider sustainability principles negotiated under the UNFCCC and the Convention on Biological Diversity (CBD).
REDD-PAC
What will we do?

- Support 8 countries
  - Brazil, Democratic Republic of Congo, Vietnam, China, Uganda, Peru, Ecuador and the Philippines
    - capacity building on multiple benefits from REDD+
    - being responsive to national needs
    - focusing on spatial analysis

- This research project aims to help initiate
  - national REDD+ action planning in line with the objectives of the CBD
  - design and support a fair, efficient and effective international REDD+ architecture.

- Support
  - high resolution REDD+/CBD planning in the member countries of the Central African Forests Commission
  - focus on South – South learning between the DRC and Brazil.
  - integrated land-use modeling will support the design of globally consistent national and regional REDD+ policies that safeguard and enhance other ecosystem values, in particular those distinguished by the CBD.

- REDD-PAC will act as a global forum for sharing and improving global data on
  - forests and deforestation drivers
  - developing best practices for national REDD+ modeling.
  - thereby support bilateral and multilateral efforts to ensure transparency, as well as environmental and financial integrity, of REDD+ efforts.

- The project will have a broader impact by helping to generate national capacity for improved and integrated land use planning, design policies for the agriculture, forestry, nature conservation and bio-energy sectors in an economy-wide and globally consistent way.
REDD-PAC
How will we do?
GLOBIOM-Central Model in REDD-PAC

**AGRICULTURE**
- Wheat
- Rice
- Maize
- Soybean
- Barley
- Sorghum
- Millet
- Cotton
- Dry beans
- Rapeseed
- Groundnut
- Sugarcane
- Potatoes
- Cassava
- Sunflower
- Chickpeas
- Oil Palm
- Sweet potatoes

**FORESTRY**
- Buffalo
- Cattle
- Sheep
- Goat
- Pig
- Poultry
- Biomass for log production
  - Fuel wood
  - Other wood
  - Pulp wood
  - Logs

**BIOENERGY**
- Ethanol
- FAME
- Methanol
- Heat
- Electricity
- Biogas

**Agriculture Products**
- Buffalo
- Cattle
- Sheep
- Goat
- Pig
- Poultry

**Forestry Products**
- Biomass for log production
  - Fuel wood
  - Other wood
  - Pulp wood
  - Logs

**Bioenergy Products**
- Ethanol
- FAME
- Methanol
- Heat
- Electricity
- Biogas
Land use modeling - process

World split up in 30 sub-regions

30 regions represented on the map
+ Sub-saharan Africa split in Western Africa, Eastern Africa and Southern Africa
(Congo Basin and South Africa already separated)
Geographic explicit input data

**Agriculture Data from EPIC**
E.g. crop type, distribution and management

**Forest parameters are taken from G4M**
- Forest Carbon stock
- Annual harvestable wood
- Harvesting costs
- Afforestation
- Deforestation
G4M: Spatially explicit information
REDD in the Congo Basin

CONGOBIOM

- 1550 simulation units
- Internal transportation costs
- Spatial representation of fuelwood demand
- Cocoa and coffee included
- Delineation of forest concessions and protected areas
REDD in the Congo Basin

Transport time with existing infrastructures (Circa 2000)

Transport time with new infrastructures

Source: National Ministries, World Bank
WWF Living Forest Report – aiming at ZNDD – Zero Net Deforestation

- Released in April 2011
- Underlying GLOBIOM and G4M runs to assess drivers of deforestation
- http://wwf.panda.org/
Land Cover Change Effects – Forests & Plantations

- Natural Forests Taken Under Management (MHa)
  - 14.5
  - 15.7
  - 17.1

- New Plantations (MHa)
  - 7.7
  - 10.7

- Due to Bioenergy
  - 24.3
  - 11.7

- Target & Bioenergy+
  - 10.1
  - 9.3

- Target & Pro-Nature & Bioenergy+
  - 8.6
  - 9.3

- Target & Pro-Nature & Diet Shift & Bioenergy+
  - 11

- Total Natural Forest Taken Under Management (MHa)
  - 27.9

- Due to Bioenergy
  - 3.4

- Total New Plantations (MHa)
  - 3.7

DO NOTHING

BIOENERGY+

TARGET & BIOENERGY+

TARGET & PRO-NATURE & BIOENERGY+

TARGET & PRO-NATURE & DIET SHIFT & BIOENERGY+

TARGET & PRO-NATURE+ & DIET SHIFT & BIOENERGY+
Land Cover Change Effects – Other Habitats

Diagram showing the effects of forest loss and other habitat loss excluding grasslands under different conditions:
- **Do Nothing**: 10.4 MHa
- **Bioenergy+**: 9.4 MHa
- **Target & Bioenergy+**: 8.5 MHa
- **Target & Pro-Nature & Bioenergy+**: 8.0 MHa
- **Target & Pro-Nature & Diet Shift & Bioenergy+**: 7.3 MHa
- **Target & Pro-Nature+ & Diet Shift & Bioenergy+**: 6.6 MHa

Legend:
- Total forest loss (MHa)
- Loss due to bioenergy
- Total habitat loss (MHa)
- Due to bioenergy
Saving more biodiversity requires more productive farms, which means more inputs per hectare, yet fewer total inputs because less land is cultivated.

Relative change in projected water, nitrogen and phosphorous use in 2030 compared to Do Nothing Scenario
Combined Map: Pro Nature AND Pro Nature Plus Scenario

Legend

<table>
<thead>
<tr>
<th>WWF Scenario</th>
<th>Potential Afforestation Area</th>
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<tbody>
<tr>
<td>Pro Nature Area</td>
<td>MAI (tC/ha/year)</td>
</tr>
<tr>
<td>Pro Nature Plus Area</td>
<td>12</td>
</tr>
<tr>
<td>Pro Nature Area</td>
<td>0</td>
</tr>
</tbody>
</table>
Questions and Contact

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