Forest-based Adaptation to Climate Change
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Who we are
One of 15 CG Centers; one of 14 CPF members
CIFOR and the CGIAR

As a member of CPF family

Sub-plenary:
- Mitigation
- Adaptation
- DD and SFM

Sunday, 13 December 2009
Radisson SAS Copenhagen Hotel
Copenhagen, Denmark
Coping with the UNFCCC COP 15
Hosted by the Collaborative Partnership on Forests, the Government of Denmark and CIFOR
How we work

- 200 staff globally
- A ‘centre without walls’, working in partnership with:
  - governments
  - non-governmental organisations
  - international organisations
  - development agencies
  - civil society
  - foresters
  - media
  - private sector

Where we work

- Headquarters: Bogor, Indonesia
- Regional offices: Burkina Faso, Cameroon, Ethiopia, Guinea, Zambia, Brazil, Bolivia, Laos, Vietnam
- Project offices: 37
- Research sites: Vietnam
### Our strategic research agenda

1. Enhancing the role of forests in **mitigating** climate change
2. Enhancing the role of forests in **adapting** to climate change
3. Improving livelihoods through **smallholder** and **community** forestry
4. Managing trade-offs between **conservation** and **development** at the landscape scale
5. Managing impacts of globalised **trade** and **investment** on forests and forest communities
6. Sustainably managing tropical **production forests**

### Research themes

- Developing procedures and best practices for estimating and managing carbon stocks in tropical forest landscapes
- Identifying policies, governance conditions and payment mechanisms that lead to effective implementation of REDD schemes
- Understanding the political economy and barriers to adoption of policies for efficient, effective and equitable REDD regimes
Research domain 2: Enhancing the role of forests in adapting to climate change

Research themes

- Bringing climate change adaptation into forest management
- Mainstreaming forestry into climate change adaptation

Outline

- Introduction
- Forests and adaptation to CC
- Reducing ecosystem vulnerability
- Adaptation measures
- Lessons learned
- Financing adaptation
- Ecosystem-based adaptation
Adaptation – a growing issue

Source: Janssen (2007)

Forests and adaptation
(in the literature)

Forest and climate change in 4 journals
- Global Environmental Change
- Climatic Change
- Climate Policy
- Mitigation and Adaptation Strategies for Climate Change

296 articles

Less work on forests and adaptation, especially in the tropics

Adaptation and forests: Not growing
Forests and adaptation
(the scope)

- Adaptation for forests
  - Impacts of climate change on forests
  - How should forests and forest management adapt to CC?

- Forests for adaptation
  (= Forest-based adaptation)
  - How forests have been playing their roles as “buffer”
  - How the community benefit from forest to adapt to CC
  - This presentation

Forests for adaptation

- Through the provision of ecosystem services provided by forests
- Through reducing ecosystem vulnerability
  - reducing exposure of the ecosystems to extreme events
  - reducing ecological sensitivity (e.g. flood, drought)
  - enhancing adaptive capacity of the society
Forests: Providers of ecosystem services

Direct benefits to societies

Reducing ecosystem vulnerability (2)

Vulnerability: $= f (E, S, AC)$

- Exposure
- Sensitivity
- Adaptive capacity

(Locatelli et al. 2008)
Reducing ecosystem vulnerability (2)

Examples
- Habitat provision for reducing species vulnerability
- Watershed protection for reducing landslides
- NTFPs as safety nets for local communities
- Strengthening social cohesion

Adaptation measures: Cameroon (1/2)

- CoFCCA project (Congo Basin Forests and Climate Change Adaptation) in Cameroon, DRC, CAR
  - Participatory Action Research with communities in the forest-savanna transition zone
- Communities analyzing their vulnerability to climatic variability:
  - Agriculture and livestock activities = very sensitive
  - NTFP (non timber forest products) = less sensitive = safety net
Adaptation measures: Cameroon (2/2)

- Technical options for agriculture and livestock
  - Crop selection, livestock management
- Management options for forests and NTFPs
  - Access, control, marketing… with measures at provincial or national level
  - As a way to reduce their vulnerability

Adaptation measures: Costa Rica (1/2)

- TroFCCA project (Tropical Forests and Climate Change Adaptation) in 8 countries of Asia, West Africa, and Central America
  - Vulnerability of forests and forest-dependent sectors
  - Central America: emphasis on drinking water and hydropower
- Hydroelectric companies analyzing their vulnerability:
  - Trends: increasing intensity of precipitation
  - Siltation in dams: very high costs
  - Importance of upstream soil conservation is increasing
Adaptation measures: Costa Rica (2/2)

- Better watershed management linked with forest management
- Payment for Ecosystem Services
  - Forest conservation
  - Forest restoration
  - Soil conservation in agriculture and agroforestry

Adaptation measures: Indonesia and Philippines (1/2)

- Vulnerability of sloping areas from landslides
- Mapping of landslide risks
  - Human concentration
  - Land stability (geological characteristics)
  - Climatic patterns (extreme events)
- Documenting and enhancing local knowledge
Adaptation measures: Indonesia (2/2)

- Mangroves = protective roles (> 80,000 km coastlines)
  - Species and rooting system
  - Depending on the coastal topography
- Sequester and store large amount of carbon
- Adaptation to CC-related sea level rise

Lessons learned

- Need to link scales/levels
  - Upstream-downstream (policy – implementation)
  - Communities-provinces-countries
- Need to include ecosystem services in adaptation
  - Often more effective, efficient, and sustainable than infrastructure or technological options of adaptation
- Use innovative mechanisms for financing, including PES
Financing adaptation

- Adaptation Fund Board
  - Guidelines to access the fund
  - Established accreditation panel
- Adaptation fund – available for LDCs
- Levy from CDM – 2%
- To date
  - Registered projects: 1699
  - Issued CERs: 308 million
  - Sale of CERs generate $ 18.7 million
- Expected CERs until 2012: 1111 million
- Expected AF generated until 2012: Euro 300 million

Ecosystem-Based Adaptation: a tentative definition

- EBA: Adaptation measures or policies that harness ecosystem services for adapting society to climate change
- EBA considers:
  - The vulnerability of ecosystems (to land-use change, over-harvesting, climate change, etc.).
  - The links between ecosystem services and societal vulnerability
  - The need to involve stakeholders and decision makers beyond the forestry sector in managing or protecting forest ecosystem services
- EBA is necessarily:
  - Multi sectoral (forest managers + forest communities + sectors beyond the forest sector)
  - Multi scale (local, meso/watershed, national, regional, international)
Policies for Ecosystem-Based Adaptation

Ecosystem-Based Adaptation = Bridging Forest and Adaptation Policy arenas

Adaptation policies

Forest policies

Mainstreaming forests into adaptation policies

Mainstreaming adaptation into forest policies
Policies for Ecosystem-Based Adaptation

Mainstreaming adaptation into forest policies

Adaptation policies

Forest policies

Bringing adaptation into forest arena:
• Adaptation in NFP’s
• Fire management

Bringing forests into adaptation arena:
• Forests in NAPA’s
• Adaptation Fund etc. financing schemes

Mainstreaming forests into adaptation policies

EBA – Regional opportunities

Overlap of biologically-rich areas with carbon stores for Southeast Asia

Thank you

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