Forests and Economic Development

UNFF10 Background Papers

CPF Organization Led Initiative

Rome, September 20, 2012

Lele, Agarwal, Shepherd, Benson, Miller, Festiveu, Karsenty, Goswami
Context: 3 background papers for UNFF10
Theme: Forests and Economic Development

• UNFF Secretariat commissioned 3 background papers (BPs) to facilitate concrete conclusions and actions at UNFF10 (8-19 Apr 2013, Istanbul, Turkey)
• UNFF10 theme: forests and economic development
  ➢ BP1: Economic contributions of forests
    – Agrawal, Shepherd, Cashore
  ➢ BP2: Forests and cross-sectoral linkages
    – Lele, Karsenty
  ➢ BP3: The role of forests in a future world
    – Agrawal, Lele, Hudson
BP#1: Economic Contributions of Forests

Agrawal, Benson, Cashore, Hardin, Miller, Shepherd
Why Do We care About Forests?
Many Values – But Some Key Values Are Non-Quantifiable with Externalities & Absent Markets

• Existence Value
• Timber
• Biodiversity
• Climate -Carbon
• Ecosystem functions: watersheds, soils and water
• Cultural values
• Forest dependent communities including Indigenous Peoples
• Recreational Values
• Health
  ▪ Medicinal products
  ▪ Containment of epidemics
  ▪ Pharmaceuticals
Economic Contributions of Forests (estimated by Agarwal)

**Formal, cash contributions**

- > $200B per year for the developing world (FAO data)
- Nearly double the total ODA
- Nearly equivalent to annual gold and silver production worldwide

**Non cash contributions**

- 3-6 times the cash contribution for the countries with research data are available.
“Forest Values Far Exceed Current Economic contributions to their conservation” -- Arun Agrawal

- Carbon stocks worth $2 - 20T depending on carbon price
- Ecosystem services > $4.5T annually
- But investments in protection & conservation stunningly low


- Even the formal economic benefits forests in developing countries provide to households and governments are more than 300 times the flows of available finance
- But finance can play a crucial investment role
Large Number of People Depend on Forests

• Employed in forest sector: 13 - 30M (formally and informally)
• Indigenous people with high forest dependence: up to 300M
• People living near to forests and directly reliant (20-25%) for their livelihoods: 1.2 - 1.6B
• Strong correlation between location of poor people and forests.
• Urban dwellers dependent on fuelwood, charcoal, herbal medicine, furniture etc.
Poverty and Forests – Arun Agrawal

Little to no association between poverty and high levels of deforestation
BP#2: Forests and Cross-Sectoral Developments

Lele, Karsenty, Benson, Festiveu, Goswami
A Different Future Due to Greater Uncertainty

- Draws on experience of the last two decades
- Yet future may not be the same as the past because of Greater Uncertainty driven by…
  - Bio-fuels, food security, poverty nexus
  - Weaker multilateralism
  - Slower growth in OECD countries
  - Rapid growth in demand from emerging countries
  - Uncertainties caused by global market integration, e.g. land grab
  - Climate change
  - Global collective action challenges
What Causes Deforestation & Reforestation?

**Long-term Trends**
- Population Growth
- Income Growth
- Urbanization
- Shift in Consumption Patterns
- Biofuels and other Technological and Policy Driven Factors

**Their Impacts on**
- Agriculture
- Transport
- Trade
- Energy:
  - Hydro, bioenergy, nuclear, wind
- Mining
- Tourism
- Health
- Urbanization
Landscape approach, incl. watersheds

- **PES** has gained huge popularity for watershed management e.g. China
- But the **science, project impact measurement, and economics** (reliable valuation of the benefits of these impacts) remain a big question
- Natural variability of watersheds adds to complexity -- impossible to unequivocally link all causes and effects
- Debate on scientific evidence on impact of agricultural intensification and PES on deforestation, e.g. limit “rebound effect” while fostering investment in agricultural technologies, cross-sectoral approaches at the multifunctional level of landscapes, etc.
Transportation Infrastructure

• Roads: Trigger of deforestation & market driver for timber
  • NTFP, fuelwood, or agriculture products.. & people (migrants)
  • modulated by local factors, e.g. soil characteristics, land tenure status

• But no consensus on their quantitative impact
  • how far from the road do conversion effects extend (5-50 km)? What kind of conversion is induced (specific patterns)? Road intensification or extensification?

• Roads the most under policy control... and heavy political pressure (whom does it benefit?)

• Roads-to-railroads substitution option
  • Brazilian Amazon, India, Us
Energy Demand and Supply Mix

- High income elasticity of demand for energy
- Energy consumption growth
  - 0.9% in developed countries v.s 3% in low- & middle-income economies
- But elasticity of energy demand with respect to GDP growth declining rapidly in East Asia

Supply breakdown (FAO 2008)

- Oil, 34%
- Coal, 24%
- Gas, 21%
- Biofuels, 11%
- Nuclear, 7%
- Other renewable energy, 3%

Changing global energy mix:

- 2010: fossil fuel stable ~ 81%
- 2035: falling to 75%, due to renewable energies

* WEO 2011 estimate
Wood fuel: Unreliable & Incomplete Data

• Fuel Wood primary source of energy for poor and good indicator of poverty?
  ▪ 90% of fuel wood and charcoal consumption and 2.7 billion people relying on this traditional biomass (IEA, 2006)
  ▪ Consumption increasing in Africa, and declining in Asia.
  ▪ Lack of access to cleaner fuels or technologies.

• Increased information needed on the origin of firewood collection and charcoal production
  ▪ e.g. from plantation, as a by product of wood industry, as a by-product of shifting cultivation, trees outside forests

• In marginal lands (not under water stress), there is a potential to assess to develop agricultural technologies such in agroforestry systems with fast-growing trees combining fuelwood production and soil fertilisation
Renewable Energy including Biofuels

• The up-front cost of renewable energy technologies
• Role of Govt Policies in Renewable Energy Growth*
• Contradiction between biofuels and climate change mitigation and food security?

Refer to Uma Lele’s Keynote Presentation at OLI 19 Sept 2012 for details

* IPCC 2011
Increasing hydropower investment in countries with large forests, e.g. Brazil

**PROS**
- Hydropower: Cheapest and cleanest option
- **16-20%** of the global electricity production, and **80%** of renewable *
- Only **19%** of hydropower potential developed *
- Climate change
  - CC mitigation benefit is recognized under the KP CDM.. **27%** of total projects. 75% of these in Brazil, China, India and Mexico (IPCC 2011)
  - CC adaptation, offering long-term storage capacity missing to other renewables

**CONS**
- **Negative impacts on forests, river ecology, settlements**
- Brazil illustrates trade-offs between energy needs (+56% within a decade and areas to be flooded)
- Good hydropower practices (incl. safeguards)
- But capacity to implement hydropower projects is still lacking

(Oil &) Mining

• Mining contributes to deforestation but is still poorly assessed
• Occurs in areas with high conservation value (or watershed stressed areas)
  ▪ 75% of active mines and exploration and 25% are located in or within a 10 km radius of a strictly protected area (WRI)
• The extent, intensity and irreversibility of impacts differ based on:
  ▪ Extractive mode (industrial vs. artisanal) and methods
  ▪ Forest type
• Artisanal mining poses particularly greater threats to forests
• The WB developed impact assessment methodologies
REDD’s Implications for Forest Financing

• REDD+ architecture not decided yet
• Basic idea: compensating the opportunity cost of keeping forests
  ▪ Insufficient financial resources for tackling deforestation driven by high-value industrial cash crops
  ▪ Cost of REDD+ under-estimated

• Numerous REDD+ projects, but....
  ▪ Too small and diverting attention from larger issues (policy reforms, cross-sectoral decision processes....)
  ▪ Agriculture and other structural issues (transport etc.) not addressed
  ▪ Carbon leakage (displacement of deforestation) unavoidable
  ▪ Additionality, difficult to prove especially those who target high-carbon but low-pressure areas
Payments for Environmental Services

- Where opportunity costs are high, the sums required are not enough
- Where the opportunity cost is low, the risk of paying for environmental services that are not endangered (lack of additionality)
- For PES programs to achieve REDD+ objectives they must expand from the traditional view of PES as compensation for opportunity costs, to provision of new resources to change agricultural or agroforestry practices
New deforestation drivers highlight the importance of forests & cross-sectoral developments

- Biofuels
- Global Food Prices, Poverty and Food Security
- Land Purchase
- Climate Change
- Impacts of global growth… uncertain

Cross-sectoral issues remain challenging & complex

An integrated approach and cross-sectoral & cross-institutional collaboration are required for the future of forests
Thank You