

# REDD+, Bioenergy & CCS: Options & Actions to Achieve Negative Emissions

COP 18 Side Event, Tuesday 4 December 2012, 10:00 – 11:30am

-- Breakfast served as of 9:30am --

Sahara Forest Project / Bellona Room GREEN AREA Hall 3, QNCC, next to EU Pavilion

*Aspirations to reduce emissions from deforestation and degradation in emerging economies such as Brazil and Indonesia are closely linked through synergies and opportunities in the context of developing bioenergy potentials thus creating a win-win strategy for energy security, economic development and climate change mitigation. Combining bioenergy with carbon capture and storage (BECCS) can on top of this lead to negative emissions thus improving the bargaining situation of tropical forest countries in climate negotiations, generating early mover advantages in terms of technology and producing important co-benefits for e.g. the conservation of biodiversity when powered by REDD+ schemes. In this side event, we will shed more light on the REDD+/BECCS nexus and identify funding synergies enabling a full exploitation of these opportunities.*

## Panel Speakers – chaired by Agung Wicaksono, Indonesian National Committee for IIASA

**Kuntoro Mangkusubroto**, Head of Indonesia REDD+ Task Force  
*Indonesia's REDD experiences and aspiration*

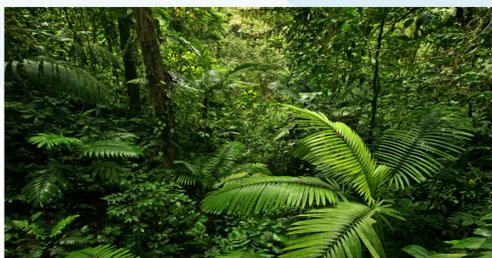
**Philippe Benoit**, Head of Energy Efficiency and Environment, IEA  
*The importance of bioenergy with Carbon Capture for Climate Change Mitigation*

**John Ward**, Director, Vivid Economics  
*Incentivizing BECCS - Implications for REDD*

**Sabine Fuss**, Resources Economist, Ecosystems Services and Management Program, IIASA  
*BECCS: challenges, opportunities, co-benefits*

**Florian Kraxner**, Deputy Leader, Ecosystems Services and Management Program, IIASA  
*Global and regional REDD+: implications for ecosystems services and bioenergy*

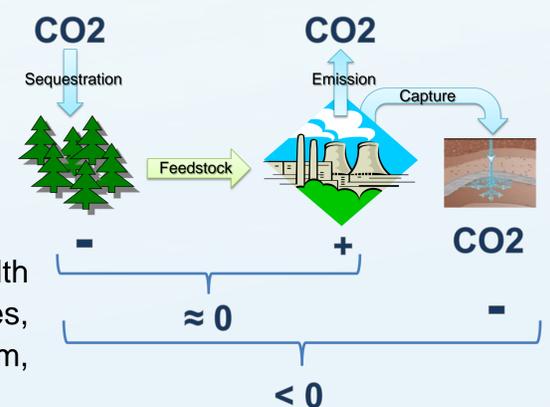
## REDD+ Opportunities



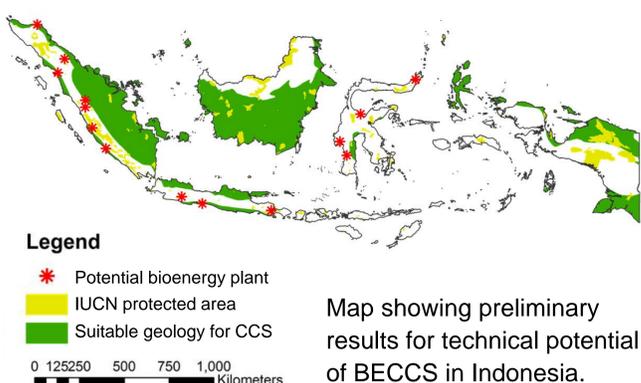
- Global forest loss (1990-2009): 130 million hectares (FAO 2010)
- Carbon emissions from deforestation: 12% of total GHG (Van der Werf et al. 2009).
- REDD-PAC project: understand land use change (LUC) processes and REDD+ policy impact on LUC
- REDD+ policy synergies: economic development, safeguarding and enhancing ecosystem services (e.g. biodiversity)

## Unlocking the Power of REDD+BECCS

- Combining bioenergy with carbon capture and storage (BECCS): negative emission potential to reach low stabilization targets
- REDD+BECCS to unlock sustainable bioenergy potentials and exploit funding synergies
- Co-benefits:** rural development and strengthening of local forest industry, energy security, health impacts through e.g. reduced air pollution, positioning in international negotiation processes, conservation of biodiversity and other ecosystems services with further implications for e.g. tourism, early mover advantages in terms of technology development, stable of weather patterns, etc.



**Integrating REDD+BECCS: leapfrog industrialized countries' development path & establish economic growth & well-being without sacrificing forests & biodiversity representing directly and indirectly the livelihood of a large part of population in tropical countries**



## Country-specific Experiences: Indonesia

- Large expansion in biofuel production (IEA, 2011), though energy mix currently largely reliant on oil (43%), coal (34.5%) and gas (18.5%) with less than 5% in non-fossil energy
- 7% annual growth of energy consumption; more than 30% of households still to be electrified
- Large offshore sequestration sites providing opportunities for CCS in EOR and EGR activities (Lemigas, UK, Shell 2008) in conjunction with significant industrial bioenergy plantations.
- Further BECCS research: need for integrated analysis with focus on socio-economic and ecological co-benefits such as rural development and implications for conservation of biodiversity and synergies with REDD+ and support for sustainable forest management.