Session 3: Sustainability of Biofuels

Chair: Johan Bouma (KNAW)

1. Joaquim Seabra (CTBE)
2. Pushpito K. Ghosh (CSMCRI)
3. Heitor Cantarella (IAC)
4. Leila Harfuch (ICONE)
    - Reporter: Fabio Manzini-Poli (CIE-UNAM)

In this session the speakers were to discuss the sustainability of biofuels, considering aspects on:

- GHG emissions,
- Land use change
- Carbon sequestration.
- Sustainable production.
- Fertilization practices.
- Economic and trade aspects.

Joaquim Seabra (CTBE)

Explored future prospects towards 2020 for policymakers

- Based on a reference for 2006 (269 kgCO2eq/m3 ethanol) -409 kgCO2eq/m3 ethanol could be achieved in 2020 by focusing on electricity generation or 107 kgCO2eq/m3 ethanol when focusing on ethanol.
- International comparisons based on LCA, showed that sugar cane ethanol in Brazil scored highly in terms of its mitigation effect
- N20 release associated with growing sugarcane still poorly understood needing field studies.

Pushpito K. Ghosh (CSMCRI)

Sustainability by adapting to local conditions. “Small is beautiful”

No arable land available in India leads to innovation:

- Biofuels from waste, wasteland and sea
- Integral use of Jatropha: oil for biodiesel, shells for briquettes, glycerine for plastics, ashes as fertilizers and soil conservation. Combining people-planet-profit.
- Use of seaweed to fix carbon, phytocolloid, sap and act as source for small scale ethanol production.

Heitor Cantarella (IAC)

- Sugarcane need little NPK fertilizer and produces more biomass than corn. K supply may be a problem
- Nutrient recycling is an important process because only O, C and H is harvested and the rest can go back to the field as filter cake, vinassa and trash.
- Soil C is reduced when LUC from forest to sugarcane, but increases when changing from meadow to sugarcane.

Leila Harfuch (ICONE)

- The state of the art on Land Use Change (LUC) methodologies direct and indirect effects.
- Projection Models: General and partial equilibrium models. Establishing patterns of cause-effect relations by gathering accurate data.
- Original methodology for data colection.
- BLUM: a an original LU model partial general equilibrium model by regions.
- Results show percentages of pastures and crops substitution by sugarcane, not forest land obtained by allocation coefficients.