The role of the carbon market in transformation of agriculture towards organic and sustainability

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1. Setting the stage: responding to a carbon constrained world.

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3. Example for short term action: linking up to biomass energy/power
1. Bali Road Map, Carbon footprint and sustainable development

Growing awareness: Climate change is a serious issue
1. Bali Road Map, Carbon footprint and sustainable development

Precautionary principle: 2 degrees warming is the upper limit

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Carbon offsets – organic agriculture BIOFACH | 21 February 2008 | Othmar Schwank | page 4
1. Bali Road Map, Carbon footprint and sustainable development

**Key challenge on the road from Bali to Copenhagen 2009:**

› To reach convergence in per capita emission around 2tCO2/person by 2050
› To move from Kyoto flexible mechanisms to cap and trade on basis of per capita entitlements (around 4.5t CO2/cap by 2015/2020)

![Graph showing carbon emissions per capita](image)

*Switzerland 6.3 t CO2/person/Year*

*IPCC target for 2050: 2tCO2/Cap*
Oil and gas supply (peak oil) likely to enhance short term pressure for change

Source: Ludwig Bölkow Systemtechnik/Energy Watch Group (2007): *global oil supply report*
2. Carbon market development

For transition to low carbon agriculture, the EU ETS and the CDM have the required volumes for CDM and JI volume (MtCO2) as well as all vintages of voluntary offsets. The volumes of voluntary offsets are still marginal - CDM includes both primary and secondary transactions. Source: Point Carbon (2007). World Bank (2006a, 2007)
SUMMING UP: Road from Bali, carbon market and organic farming

› Along with Power (30%), industry and transport sector agriculture/land use (approx 20% each) are the top 4 sectors contributing to emissions of 35 GtCO2e/a (2005)

› 3-fold pressure to move out of conventional farming:
  a) climate impact of agriculture to be reduced (factor 2)
  b) readjusting the rural/urban balance: fossil fuel prices, enhancing rural value generation
  c) Need for composite action mitigation/adaptation

› Despite warnings from scientists that farming is a growing contributor to manmade climate change, few ideas for projects to cut emissions from the agriculture sector are being developed through the Kyoto protocol’s clean development mechanism (CDM)

-> composite action mitigation/adaptation biomass
Carbon market: offset prices

Transaction cost for small scale projects! -> voluntary market and Gold Standard surplus offers a leverage for catalyzing pilot actions sustainable land use.
3. Example from MALVALLI, INDIA: Integrating organic farming into Gold Standard CDM Biomass power
## Renewable Energy Contribution to World Energy

*International Policy Scenario developed by EREC*

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<th></th>
<th>2001</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
<th>2040</th>
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<td>Biomass</td>
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<tr>
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<td>266</td>
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<td>333</td>
<td>493</td>
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<tr>
<td>Marine (tidal/wave/ocean)</td>
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<td>0.1</td>
<td>0.4</td>
<td>3</td>
<td>20</td>
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<tr>
<td><strong>TOTAL RES</strong></td>
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<td>1745.5</td>
<td>2694.4</td>
<td>4289</td>
<td>6351</td>
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<td><strong>RES Contribution</strong></td>
<td>13.6%</td>
<td>16.6%</td>
<td>23.6%</td>
<td>34.7%</td>
<td>47.7%</td>
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Biomass Power & solar power has each the potential to grow to > 1000 GW installed capacity.
For Biomass Energy-CDM projects sustainable supply of biomass source/NPK cycle is key: prevent carbon leakage

Biomass surplus water and soils++: CDM power yes (Karnataka)

Biomass deficits: CDM power no (Rajasthan)
MPPL’s 4.5 MW (Rankine Cycle) BIOMASS POWER PLANT

52,500 MT Agri Residues/Cane trash/Coconut (Av. 25% moisture)

190,400 MT Steam

4.20 million KWH Auxiliary Power Consumption

37.80 mill KWH Electricity Export

Ash 3150 MT → Org. Fertilizer

Boiler Plant

Generator

Plant Electrical Efficiency > 25%

Registered as Gold Standard CDM Project
Conclusions

› CDM is a complex mechanism. Already difficult to handle in controlled technical systems, too complex for ecosystem interventions (incl. stop deforestations), no viable solution for longterm

› Carbon market = suitable vehicle for promoting pilot action and ideas. Gold standard offers opportunities for promoting sustainable development

› Key challenge is to impact awareness.

› Large scale market transformation toward organic will be catalyzed by significantly higher input prices and fundamental policy changes