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Biofach – 2008

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

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1. Bali Road Map, Carbon footprint and sustainable development

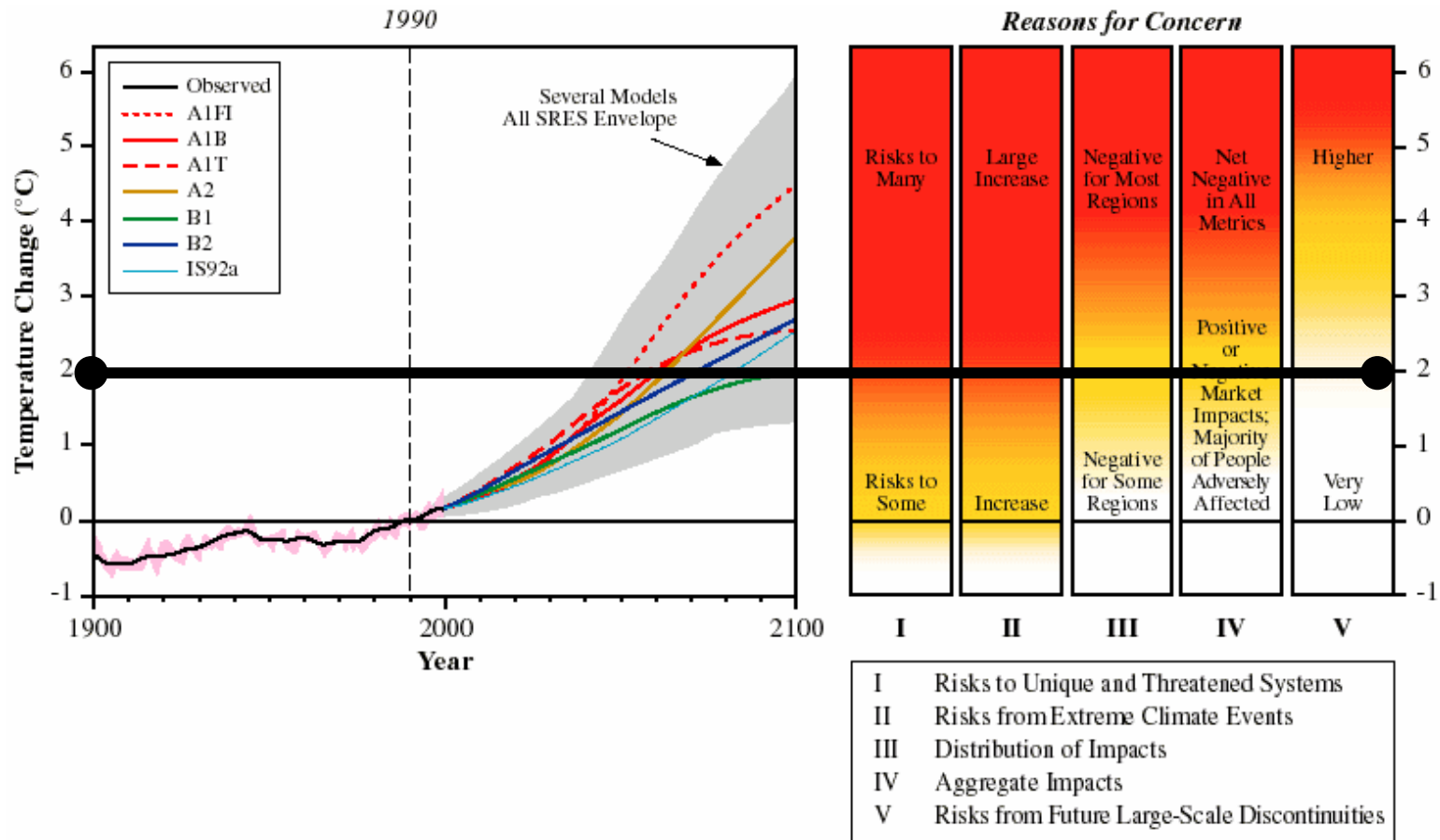
Growing awareness: Climate change is a serious issue

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1. Bali Road Map, Carbon footprint and sustainable development

Precautionary principle: 2 degrees warming is the upper limit

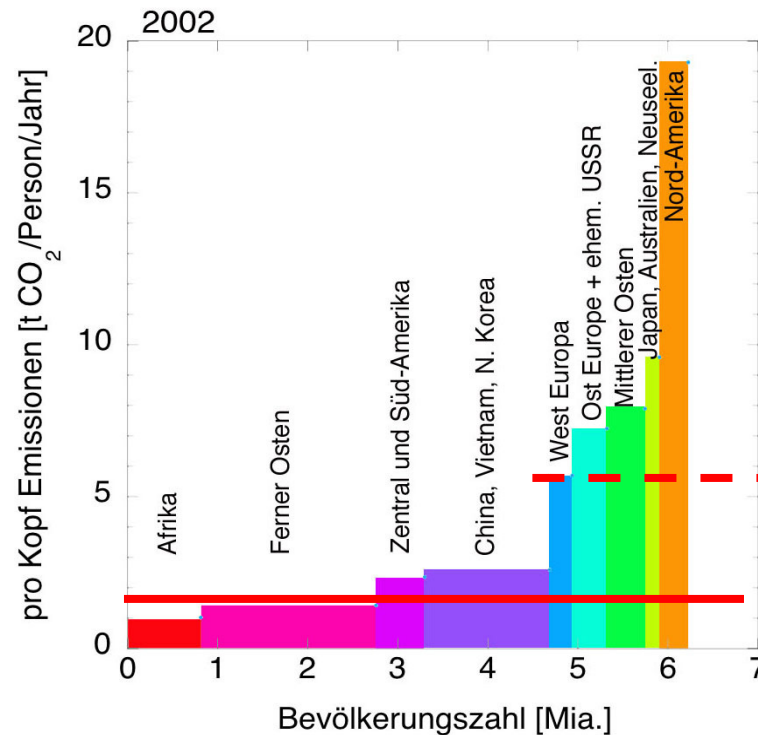


1. Bali Road Map, Carbon footprint and sustainable development

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)

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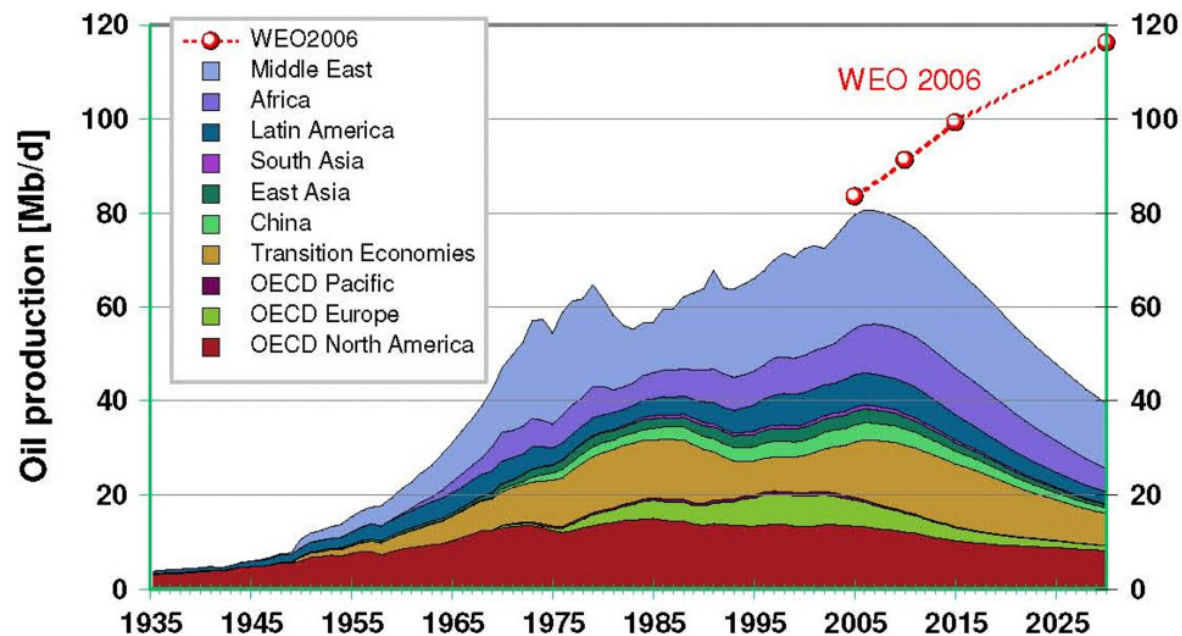


Switzerland 6.3 t
CO₂/person/Year

IPCC target for 2050: 2tCO₂/Cap

Oil and gas supply (peak oil) likely to enhance short term pressure for change

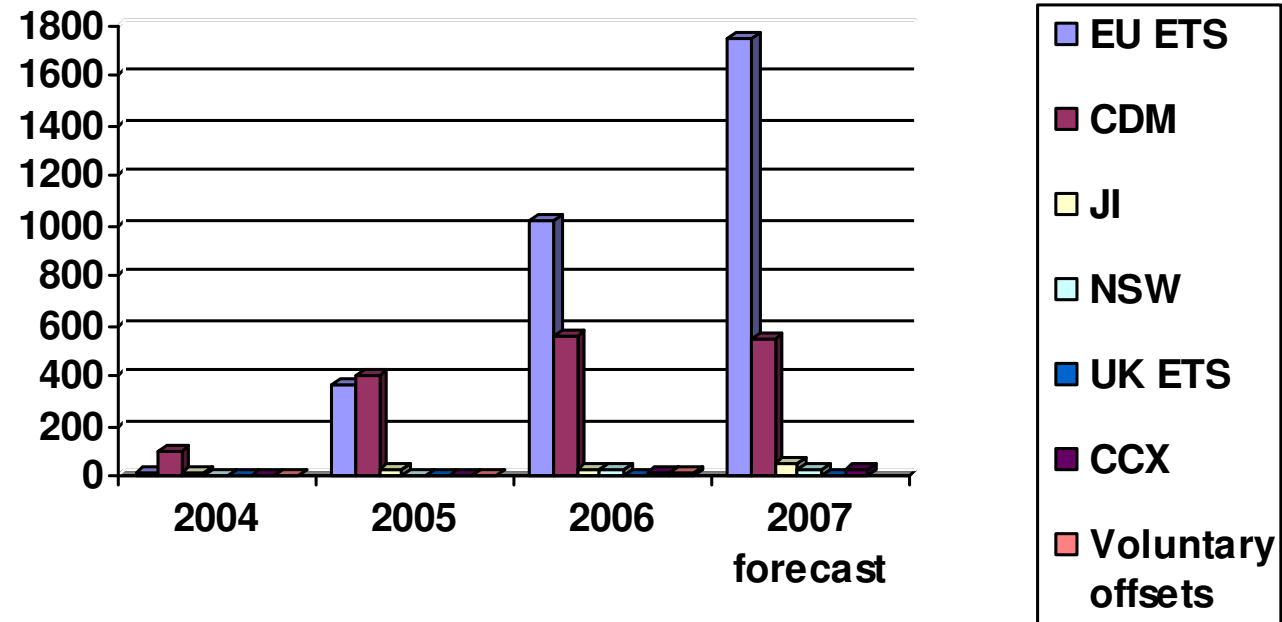
Figure 7: Oil production world summary



Source: Ludwig Bolkow 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



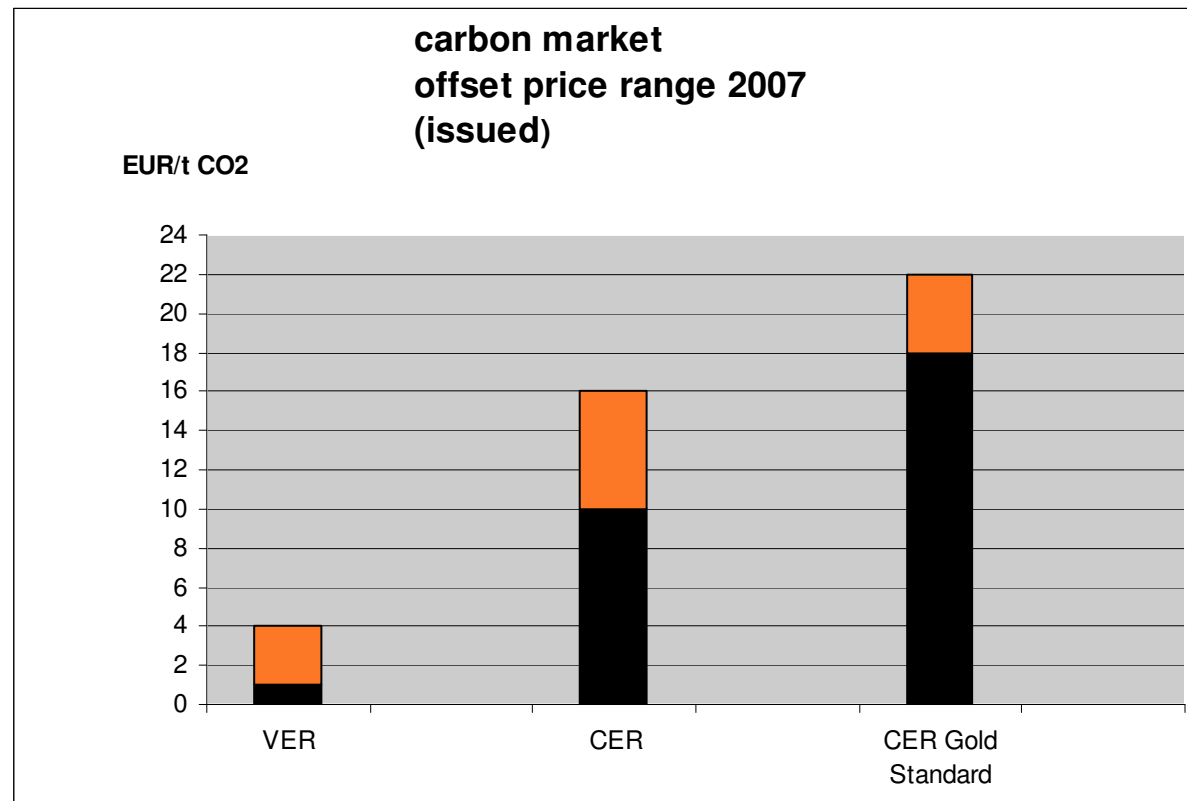
CDM and JI volume (MtCO₂) as well as all vintages of voluntary offsets. The volumes of voluntary offsets are still marginal- CDM includes both primary and secondary transactions Source: Point Carbon (2007). World Bank (2006a, 2007)

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**

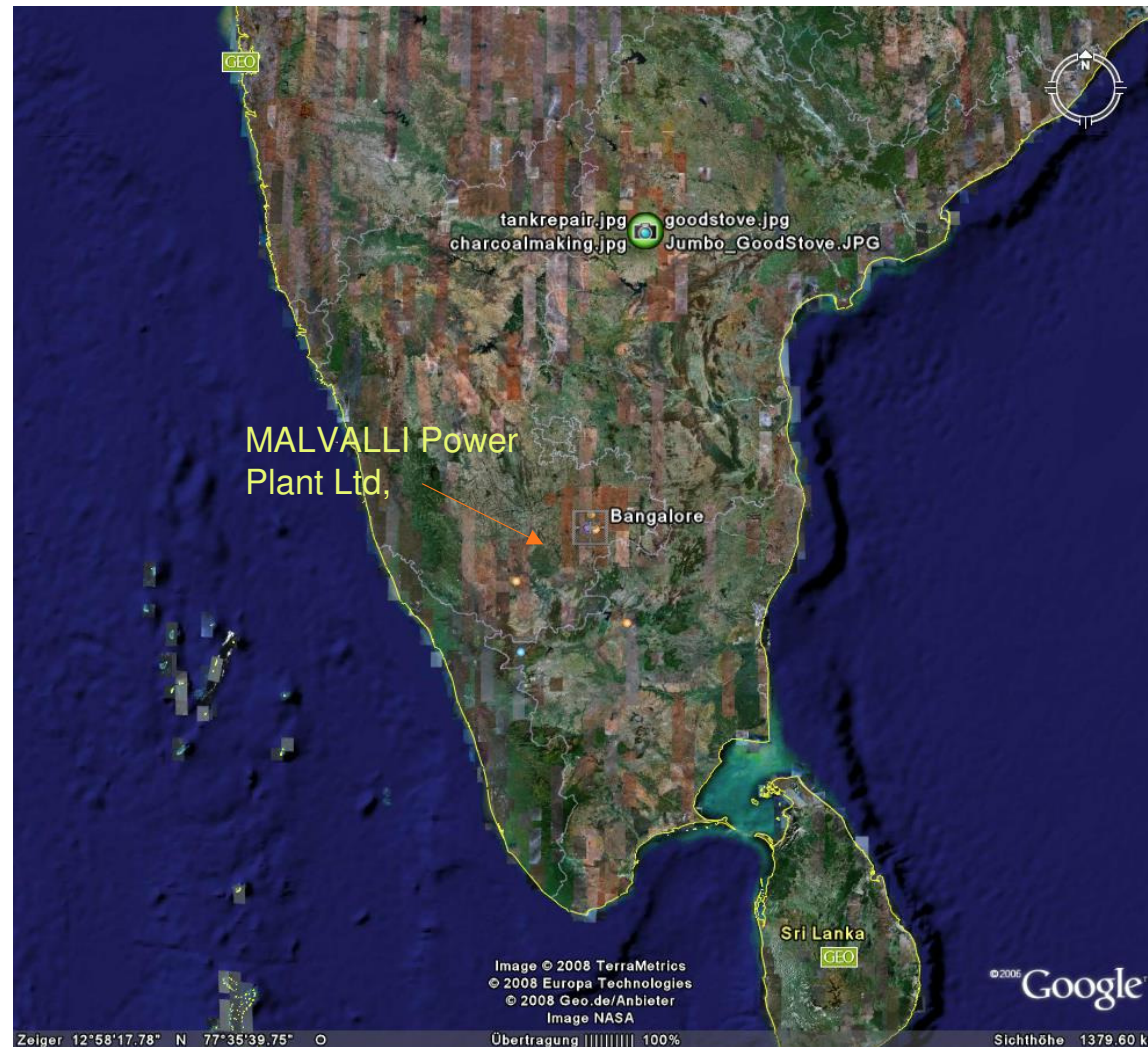
Carbon market: offset prices

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

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Renewable Energy Contribution to World Energy

International Policy Scenario developed by EREC)

(in million TOE)

	2001	2010	2020	2030	2040
World Primary Energy Consumption (IIASA)	10038.3	10549	11425	12352	13310
Biomass	1080	1313	1791	2483	3271
Large Hydro	222.7	266	309	341	358
Small Hydro	9.5	19	49	106	189
Wind	4.7	44	266	542	688
PV	0.2	2	24	221	784
Solar Thermal	4.1	15	66	244	480
Solar Thermal Electricity	0.1	0.4	3	16	68
Geothermal	43.2	86	186	333	493
Marine (tidal/wave/ocean)	0.05	0.1	0.4	3	20
TOTAL RES	1364.5	1745.5	2694.4	4289	6351
RES Contribution	13.6%	16.6%	23.6%	34.7%	47.7%

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

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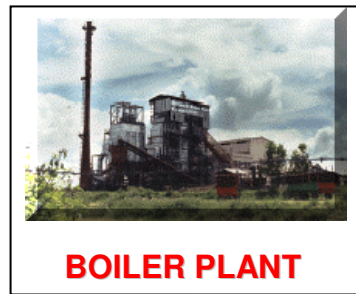
Biomass surplus
water and soils++:
CDM power yes
(Karnataka)

Biomass
deficits: CDM
power no
(Rajasthan)



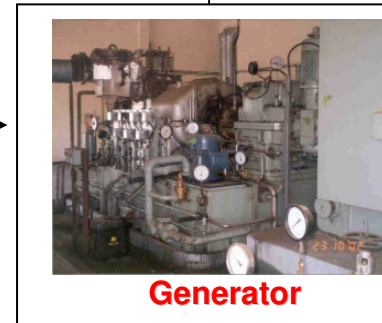
MPPL's 4.5 MW (Rankine Cycle) BIOMASS POWER PLANT

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



BOILER PLANT

190,400 MT Steam



Generator

4.20 million KWH
Auxiliary Power Consumption

37.80 mill KWH
Electricity Export

Ash 3150 MT -> Org. Fertilizer



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

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