

**“UNCCD: Sustainable land
management for adaptation to
climate change”**

13th December 2007, from 13:00 –15:00

Grand Hyatt Nusa Dua.

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Structure of the Side Event

- Overview of the potential role of charcoal (biochar) as soil amendment to enhance SLM, as well as its potential for carbon sequestration; why not in LULUCF?; how to redress this omission.
- Importance of SOM for sustaining soil fertility and its implications for biochar utilization.
- Current work worldwide and potential of biochar as a tool to combat soil degradation and mitigate climate change.

The Challenges Facing Mankind:

- 1. Undisturbed soils are usually rich in organic carbon. Only due to human influence, SOC stocks drastically decrease, causing loss of fertility.
- 2. Extreme food shortages causing *hunger and land use pressure*;
- 3. Over the last decades the emissions of GHG drastically increased, causing *global warming*;
- 4. Land use change contributes significantly to these emissions.

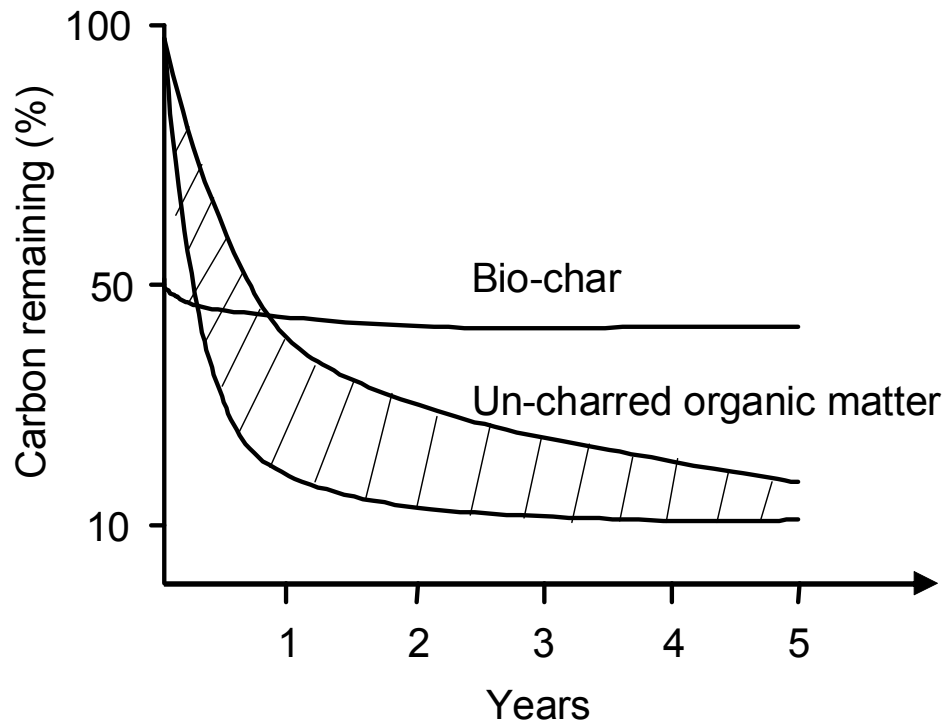
Redressing this through the use of Biochar (with CDM implications)

- Increases the water holding capacity of the soil;
- Results in the formation of stable humus, which then provides a high and sustainable nutrient holding capacity, thereby increasing crop yield as well as encouraging permanent cropping. This in turn helps decrease the pressure on forests that are being extensively cleared for agricultural use;
- Charcoal absorbs pesticides, thereby neutralizing farm chemical run-off before it enters the hydro- and atmosphere;

Redressing this through the use of Biochar (with CDM implications) Cont'd

- Mitigates climate change, as charcoal formation during biomass burning is considered the only way that biomass carbon is transferred to long-term OC pools.
- Charcoal as a soil amendment is capable of reducing GHG emissions from soil (CH₄, N₂O)

CDM: transfer of carbon from an inactive C pool



⇒ *Charcoal is a long-term carbon sink*

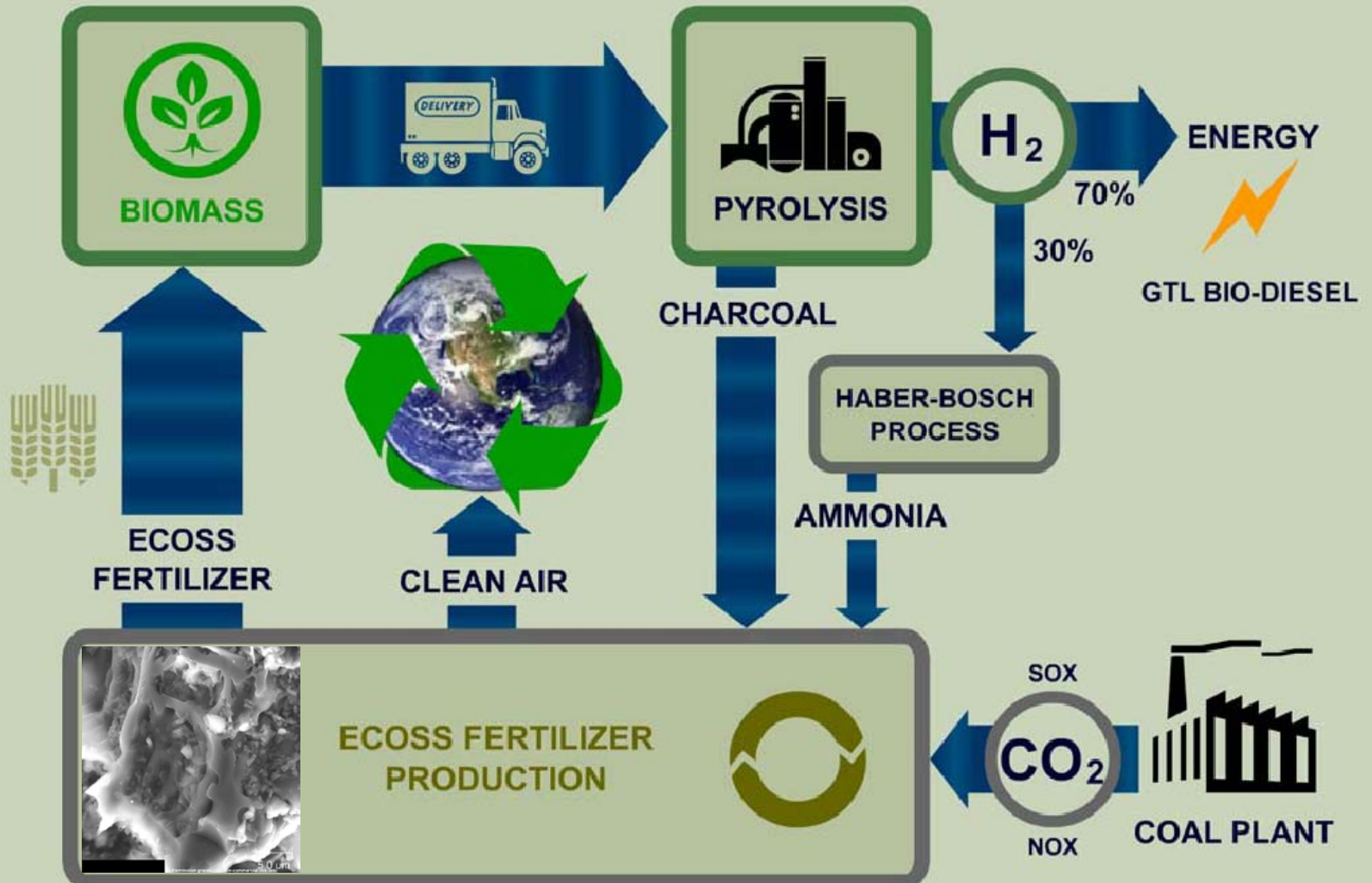
Ease of Use

- At the lowest end, it can be easily produced at small scale even by the smallest rural communities.
- While there are incredible possibilities for the high tech end.

Smallholder version



„High-Tech“ version



Carbon balance of energy from different systems

carbon positive



energy from fossil fuels

Effect on climate



slightly carbon positive



fossil fuels with carbon capture and storage



carbon neutral



solar, wind, nuclear, tidal geothermal,...



carbon negative



bio-energy with CCS / biochar



Source: Biopact

Advantage of NH_4HCO_3 + Char



Therefore, the Advantages of Bio Char As a Carbon Sink under CDM are:

- Biochar is always additional
- Permanently transfers carbon to the inactive pool
- Reduces nitrous oxides (GHGs) from fields
- No problems of permanence of sequestration as is the case with A/F CDM projects!
- Simple baseline!

Why then is Bio Char not recognized in the CDM?

- Transfer from the active to the inactive pool was not considered in designing the CDM additionality test
- Biochar was not recognized as carbon sink under the LULUCF

What Needs To Be Done To Include Biochar Under CDM?

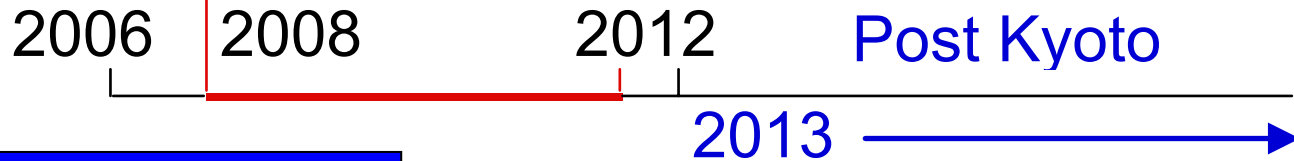
- The additionality test needs to be revised
- The LULUCF rules need to be revised to include biochar
- All stakeholders need to engage in the dialogue that is being launched right here in Bali, for the post 2012 climate regime.

How do we proceed and propose biochar as an carbon sink agent for GHG credits ?

Okimori, et al. KANSO Technos, Japan

1) Current sink agent : Afforestation & Reforestation

1st Commitment Period



2) Biomass After Harvesting

Wood products : Furniture, Houses, etc.

Biochar

Political impact

Scientific rationality

Public atmosphere

Governments

IPCC (The Intergovernmental Panel on Climate Change)

UNFCCC

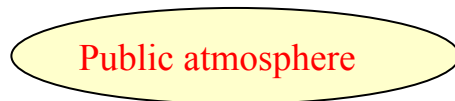
Kyoto Protocol for 2008-2012

COP/MOP

EB (CDM Executive Board)

Working Group

SBSTA (Subsidiary Body for Scientific & Technological Advice)



Thank you