

**Bali side event proposal**  
13 December 2007, (13:00 – 15:00)

Theme                **UNCCD: Sustainable Land Management for Adaptation to Climate Change**

The interactions between poverty, environment and natural resource exploitation are typically complex, but can be understood at the local level. Local economic pressures can result in the overexploitation of land, resulting in the further marginalization of the rural poor, already referred to as the “poorest amongst the poor”. Forced to extract as much as they can from the land for food, energy, housing, and income, the most vulnerable populations can be forced into a vicious circle, which can transform them into the very source and casualty of desertification.

Land conservation may indeed constitute an enabling platform through which an extensive range of sustainable development issues could be successfully addressed. To more effectively tackle desertification, greater emphasis among governments officials, farmers and other stakeholders should be placed on land improvement and conservation strategies (short and long-term). Such strategies could ensure food security and overall improvement of living conditions by further focusing on: erosion control; afforestation; reclamation of salt-affected land; and the creation of positive nutrient balances through efforts to maintain land cover, soil structure and soil organic matter.

Furthermore, carbon sequestration in drylands can play a major role in mitigating climate change and providing sustainable livelihoods for drylands people – while effectively combating desertification.

Building upon the Madrid Declaration, which focussed on “Desertification and adaptation to climate change”, encouraging integrated drylands management to foster initiatives for alternative means of livelihoods in vulnerable areas and sustainable farming and livestock programmes that provide incomes, and guarantee the right to food security, the next challenge is how to effectively relate the outcome of major policy frameworks such as the Millennium Ecosystem Assessment to development issues.

In order to reach successful results in this context, the Madrid Declaration put forward, among others, the following specific recommendations:

- Activities related to carbon sinks and increased land productivity to be carried out in drylands worldwide should be proposed without delay. Likewise, a target for effective afforestation and reforestation activities in drylands worldwide over the 10-year period should be proposed;
- Reinforce linkages through increased cooperation among the three Rio Conventions, optimizing the use of existing instruments.
- Promotion of scientific and technological links through joint work on vulnerability, degradation and carbon sinks.

In this regard, pro-active, cross-linked environmental management is called for as a way to directly engage in broader problem solving.

The current side event intends therefore to address the issue of an enhanced coverage of SLM issue by emerging mechanism and innovative funding, chiefly market-based tools. To do so, several, several options might be explored, particularly those encompassing an important potential for success on the short and medium run. In this context, the present side event is geared towards presenting a revolutionary method aiming at restoring carbon in soil, where it belongs. Recent discoveries have revealed an ancient soil management technique from the Amazon basin, practiced for thousands of years by the original inhabitants of the region before the advent of European explorers. Civilizations there had buried charcoal in tropical soils to make them productive and these soils, known as *Terra Preta*, or “black earth” first erroneously attributed to volcanic eruptions, still remain bountiful five hundred years later.

It has now been amply proven, on sound scientific ground, that simple charcoal burying (also known as “agri-char” or “Bio char”) in soil is beneficial. The advantages of bio char in agricultural soils are numerous:

1. Increases the water holding capacity of the soil;
2. 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;
3. Charcoal accelerates pollutant degradation, thereby neutralizing farm chemical run-off before it enters the hydrosphere, causing POPs;
4. Reduces erosion by increasing aggregate stability of the soil; and  
Mitigates climate change, as charcoal formation during biomass burning is considered the only way that biomass carbon is transferred to long-term pools over geological time scales. Indeed, and more than five hundred years later, biomass carbon is still sequestered in these ancient man-made *Terra Preta* soils.

Accordingly, such a technology carries a tremendous potential and could represent a suitable alternative for twenty-first century agriculture, which is expected to produce food for billions of people.

By demonstrating that simple interventions to reverse soil degradation may bear an immense potential for short and medium term return, the present side event would underline the capital importance of soil as a common denominator for the successful implementation of key Multilateral Environmental Agreements. It would further lead could lead to attaining three Millennium Development Goals: (i) to combat desertification, (ii) to sequester atmospheric CO<sub>2</sub> in the long term, and (iii) to maintain biodiversity hotspots such as tropical rainforests. These global benefits would greatly reinforce linkages through increased cooperation among the three Rio Conventions, thereby optimizing the use of existing instruments as well as furthering the UNCCD 10-year strategy, particularly in its quest to increase the net primary production of drylands.

It would therefore, and certainly, represents one innovative way to collectively tackle the interrelated facets of the problems and effectively assist in further rationalizing the application of sustainable land management approaches.

Finally, and within a prospective approach, the side event also brings about the debate on the inclusion of soil carbon sequestration in the post 2012 Kyoto Protocol climate change regime (e.g. CDM), which would be a significant source of funding for sustainable land management.

## **Format of the side event**

Welcome Statement: Executive secretary of the UNCCD

Keynote Statement: President of the UNCCD COP

Presenters: Prof. Dr. Wolfgang Zech  
Institute of Soil Science and Soil Geography  
University of Bayreuth  
D-95440 Bayreuth  
Germany

An overview of naturally occurring soil carbon, its depletion and how to redress this trend. The origin of Terra Preta soils and how their replication could have the most significant impact on the achievement of the targets of the World Food Summit.

Dr. Christoph Steiner  
Biorefining and Carbon Cycling Program  
Department of Biological and Agricultural Engineering  
University of Georgia  
USA

Soil charcoal amendments: maintaining soil fertility, reducing soil vulnerability, and establishing a carbon sink

Goodspeed Kopolu,  
Senior Programme Officer  
UNCCD

Harnessing the results in a sustainable loop that enhances adaptation to and mitigation of climate change effort in synergistic ways that also help achieve the Millennium Development Goals.

Alejandro Kilpatrick (tbc)  
Global Mechanism

Possible Funding sources for soil charcoal amendment programmes, and for mitigation of land degradation in general.

Discussion