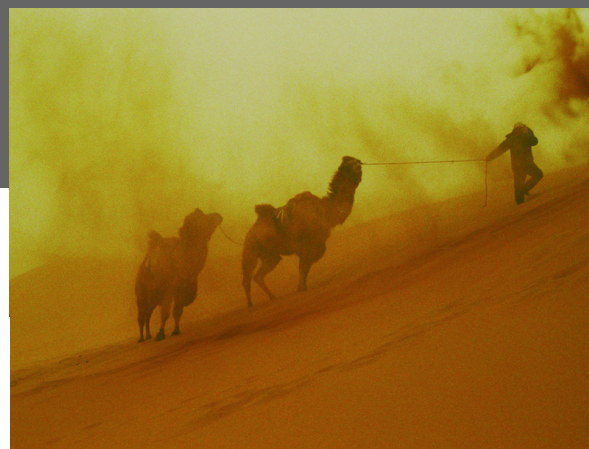


# Climate change and desertification



Desertification, exacerbated by climate change, represents one of the greatest environmental challenges of our times.<sup>1</sup>

The message in this short, yet stark sentence highlights a phenomenon that farmers, particularly in marginalized dryland areas, have been experiencing for years – the threat of desertification and climate change to their lives. Carbon sequestration, however, serves a dual purpose to remedy this threat. Firstly, global warming can be mitigated significantly by removing atmospheric carbon dioxide and sequestering it in soil. Secondly, increased carbon in the soil has great value as a food-producing asset.

## Carbon sinks mean lower atmospheric CO<sub>2</sub>, more fertile land

For decades now mankind has been at the fore in creating a vicious cycle with critical environmental consequences as a result. By degrading the atmosphere with greenhouse gas emissions, land degradation has risen. This in turn is worsening the degradation of the atmosphere.

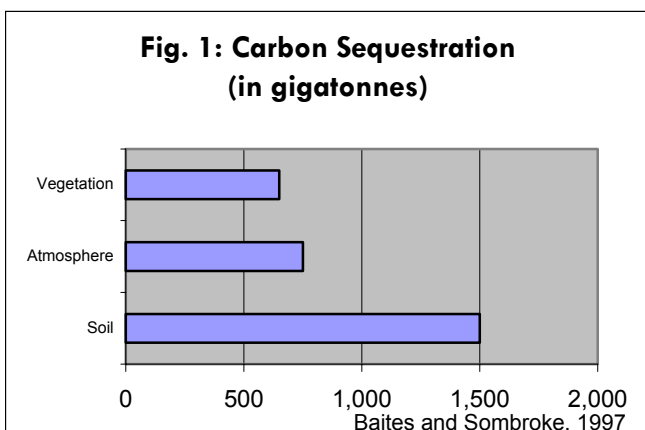
Atmospheric greenhouse gas concentrations have been increasing for some two centuries, mostly a result of human activities, spearheaded primarily by the rapid rise of industrialization. The degradation of land, however, through unviable agricultural practices also has resulted in emissions of greenhouse gases. As

governments, NGOs and corporations around the globe set limits on the amount of carbon dioxide emitted by automobiles, factories and power plants into the atmosphere, a way to “recycle” CO<sub>2</sub> into the ground, carbon sequestration, has received less attention and international support. Little recognized is the fact that the world’s soils hold more organic carbon than that held by the atmosphere as CO<sub>2</sub> and vegetation combined (see Fig. 1).

Carbon sequestration is the process by which CO<sub>2</sub> sinks (both natural and artificial) remove carbon dioxide from the atmosphere, primarily as plant organic matter in soils. Soil carbon sequestration is an important and immediate sink for removing atmospheric carbon dioxide and mitigating global warming and climate change. Organically managed soils can convert carbon dioxide from a greenhouse gas into a food-producing asset. Combined with sequestration in non-agricultural soil, the potential for land to hold carbon and act as a sink for greenhouse gases is unparalleled.

This should help put a new value on land, the value of its capability to sequester and to literally “breathe in” the excess blanket of CO<sub>2</sub> and help cool the planet. And when mixed with water and sun, CO<sub>2</sub> enriches the soil, giving life to trees and vegetation, which then can generate more carbon sinks.

Anywhere, though, where soil is depleted, soil carbon sequestration is switched OFF. Recognizing the



<sup>1</sup> UNU-INWEH, June 2007



problem of soil depletion is the first step. Doing something about it and switching it back ON is the next step. With this in mind, it becomes imperative to make concerted efforts to put land and soil as major themes in the climate change negotiations, something that has so far been hardly considered by expert negotiations.

### Environmental crises to impact world's poorest and most vulnerable the most

Desertification is land degradation in drylands, resulting from various factors, including climatic variations and human activities. While climate change affects the whole world, the poorest suffer the most. According to the Millennium Ecosystem Assessment (2005), populations in drylands live under the worst economic conditions. Drylands have the lowest GDP per capita and the highest infant mortality rates. Soil degradation in drylands exacerbates the problem even more. The decline in the fertility of land reduces crop production and additional income sources.

Land degradation can also trigger a cycle of environmental degradation, impoverishment, migration and conflicts, often also putting the political stability of affected countries and regions at risk.

Despite the grave problems of drylands, UNCCD recognizes such regions as areas of great potential for development. They already provide many resources and are home to 50 percent of the world's livestock. A new paradigm of sustainable land management can support land users to respond to changing market demand with adapted and traditional technologies to generate income, improve livelihoods and protect ecosystems.

### Soil can make a difference in the fight against climate change

Increased attention to the linkage of land and soil to climate change would not only enrich the substantive and conceptual debates on effective means for carbon sequestration. It would also provide a new and a highly interesting platform for developing countries to enter into the adaptation and mitigation agendas, considering that for many of them soil is the single most important natural resource.

One concrete way forward could be to expand the coverage of the Clean Development Mechanism towards agricultural land use, to include projects focusing on carbon sequestration in soil.

Such projects could create considerable added value through their simultaneous impact on land fertility.

The challenge ahead is not to tackle climate change alone by reducing greenhouse gas emissions. UNCCD, as the sole multilateral environment agreement on land and soil, has the capabilities to make a significant contribution to fight against climate change. Its Committee on Science and Technology is leading by introducing a set of harmonized indicators so that analysis at the national, sub-regional, regional and global levels is feasible. The 193 Parties provide the global framework needed to support policies and measures to prevent, control and reverse land degradation, and with this, play a potentially critical role.

The Rio Conventions – CBD, UNCCD and UNFCCC – through the Joint Liaison Group (JLG) established in 1991 - are working together to enhance synergies, coordination and cooperation between the three conventions, by linking elements of climate change adaptation, combating desertification, biodiversity conservation and sustainable use of resources. The Rio Conventions have the ability to act as catalysts for adaptation action in a synergistic manner in order to widen the impact of individually undertaken measures.

Studies show that the global costs of effective climate and land protection are far lower than the cost of inaction. Integrated international coordination is required in order to assure the financial resources needed for efficient adaptation and mitigation measures in climate and land protection.

### The Convention works as a multilateral soil framework for adaptation, mitigation and resilience in combating the challenge/effects of climate change

