

Integrating the combat against desertification and land degradation into negotiations on climate change: a winning strategy

CSFD, November 2008

1 – Some definitions

The process of desertification is defined by the United Nations Convention to Combat Desertification (1994), as “land degradation¹ in arid, semi-arid and dry sub-humid areas resulting from the various factors, including climate variation and human activities”. This terminology emerged during the major droughts at the end of the 1970s: it is therefore associated with extreme climate events.

Arid zones account for 40% of the Earth’s surface: over two-thirds of our planet’s surface is affected by desertification, among this three-quarters are pasture lands. Desertification affects over 2 billion people and around 100 countries across all 5 continents. Because it concerns the poorest population groups, essentially living off threatened natural resources, the desertification process is a challenge for achieving the Millennium Development Goals.

Whilst arid zones are the most vulnerable to desertification and land degradation processes – their eco-systems, including the soil, are indeed more fragile and suffer more quickly the combined effects of human activity and extreme climate conditions – it is important to note that they are not alone in facing these phenomena: indeed, the so-called “countries of the North” (temperate regions in the northern hemisphere) are also experiencing land degradation and emitting more carbon as a result.

Nevertheless, land degradation today affects most African countries from the Maghreb and sub-Saharan Africa. Considering the forecasted loss of two-thirds of Africa’s arable land by 2025, land degradation will be responsible for an annual average loss of over 3% of their GDP. If arable land erosion were to continue at current levels, crop production is predicted to halve over the next 40 years, thus dangerously worsening poverty and the incidence of malnutrition.

2 – Interactions between climate change and desertification / land degradation

Arid and semi-arid regions threatened with desertification are characterised by natural climatic variability with shorter wet seasons: it accelerates the degradation of vegetation cover and promotes erosion and therefore desertification. At the same time, modifications of vegetation and land conditions have an impact on the climate:

¹ The notion of land degradation refers to the loss of physico-chemical properties in soil, whatever the isohyet.

indeed, soil denudation increases evaporation and reduces water storage. Additionally, increase of barren land areas has also an impact on the production/suspension of aerosols, contributing to climate mechanisms alterations. Finally, the reduction in biomass and organic matter in degraded land diminishes the carbon storage in soil.

In all these regions, land degradation worsens the frequency and impact of natural disasters and therefore the effects of extreme events linked to climate change.

The major difference between climate and desertification concerns the time scale: climate change occurs over longer periods than desertification does.

Climate change is likely to accentuate natural climate variability and therefore worsen the process of desertification and land degradation and affect the ability to resist changes and the resilience of economic and social systems in rural areas.

3 – Sustainable land management for adaptation and attenuation of climate change

Benefiting from the contributions of the UNCCD for adaptation to climate change in rural areas.

The notion of adaptation to climate change implies the response of a natural or human system to current or forecasted impacts of climate change: it is a response to the increase in climatic vulnerability.

The United Nations Convention to Combat Desertification has, since its inception, supported the development of measures to reduce and forecast drought and reduce the vulnerability of societies and natural systems. In Africa, the capacity of systems to reduce vulnerability seems limited: economic and social indicators are the lowest in the world and the natural environment has become fragile. 80% of the population of Africa lives in rural areas: what is the adaptation capacity of rain-fed family farms of most of these regions? What will happen to animal breeding systems depending on pasture land, which are less and less productive?

In rural regions of arid zones, promotion of sustainable management of land and rehabilitation of natural capital – soil in particular –, allow improving the resistance of agricultural, economic and social systems to climate change: in this sense, these actions are dealing with adaptation to climate change. Practical examples of this are measures developed within the framework of the UNCCD over the past 15 years and which should be promoted as part of climate change adaptation:

- Implementation of drought early-warning systems and risk prevention;
- Integration of desertification risk and the effects of drought into local and national policies;

- Development of farming practices improving soil fertility, water retention and therefore guaranteeing crop returns and availability;
- Diversification of income sources: use of natural resources through appropriate channels, eco-tourism, etc.

Nevertheless, we have to better assess the impact of sustainable land management on reducing vulnerability of populations and economic sectors to current and future climate-related risks. Furthermore, the effects of climate change – which have still not been assessed with a great degree of precision, particularly for the Sahel – could require the adoption of alternative practices to traditional techniques of adaptation, which could prove to be insufficient in the case of major climate change (short-cycle crops which resist drought, conservation agriculture, additional irrigation).

The logical and operational frameworks of the two conventions are similar for rural areas in arid zones: NAPs on desertification can usefully be promoted for the development and implementation of some NAPAs. Discussions concerning adaptation to climate change should include the solutions found by the UNCCD relating to actors, approaches and methodologies.

Taking into account the potential for carbon storage in soil

Considering the Earth globally, soils hold more carbon than the atmosphere and the green biomass, in particular in natural forests.

Forms of management of farming land affect soil structure and fertility and conditions its role as carbon sink or carbon source. Land degradation linked to over-farming, hydric erosion, wind erosion and reduced organic fertility reduces its carbon storage potential.

The soil's carbon storage potential concerns temperate northern regions as much as arid zones. Thus, some European countries experience soil erosion due to the impact of "harmful" practices (clear cutting, peat extraction, etc...) and forecast a substantial increase in their greenhouse gas emissions.

Research work has demonstrated that there is a real potential for carbon storage in agricultural land. The fourth assessment report of the IPCC (Workgroup III on Attenuation) explicitly refers to the benefits of improving farming practices and more particularly, combating land degradation in terms of attenuating climate change. It claims that 90% of the potential for attenuating climate change in farming appears to be made up of carbon sequestration in soil and the potential for carbon sequestration linked to better soil management appears to be twice as great as the potential for

carbon sequestration linked to deforestation and avoided forestry degradation (REDD)².

However, models of carbon storage in soils are still few and provide unreliable results as input data is very limited. But the benefit of rehabilitation of degraded land, can only be positive in terms of carbon balance, since the initial state is a net emitter of carbon.

Like the combat against deforestation, the combat against desertification and the sustainable management of land are low-cost methods for reducing greenhouse gas emissions and for attenuating climate change. The UNFCCC should promote carbon storage capacity assessments in farming land and via degraded land restoration as well as their inclusion in carbon trading mechanisms, and should recommend investments for the restoration of natural capital of arid and semi-arid areas and for the development of conservation agriculture.

² http://arch.rivm.nl/env/int/ipcc/pages_media/AR4-chapters.html