Executive Summary

The conference on "Climate change – can soil make a difference?" took place in Brussels on 12 June 2008. It was organised by the Environment Directorate-General of the European Commission with the aim of highlighting the link between soil and climate change, and therefore the transboundary dimension of soil degradation phenomena such as erosion, loss of soil organic matter and desertification.

Approximately 300 people attended the conference, making up a varied audience composed of policy-makers, civil servants from national and regional administrations, researchers, lobbyists, and officials from the European Commission. Most notably, the President of the Environment Council, the Environment Minister of Iceland, the Portuguese Secretary of State for Environment, the Vice-President of the Temporary Committee on Climate Change of the European Parliament and the Rapporteur on the Soil Thematic Strategy in the European Economic and Social Committee were also in attendance.

Mr Luc Gnacadja (Executive Secretary of the United Nations Convention to Combat Desertification) was in the Chair. He reminded the audience that very low **soil organic matter levels are one of the key factors that contribute to desertification**, and that the consequences of desertification are devastating for the lives of so many of the world's poorest people.

The conference was opened by Mr Stavros Dimas (Commissioner for the Environment, European Commission), who underlined that **soil organic matter is a major contributor to soil fertility, the elixir of life in fact**, particularly plant life – a concept that was echoed and taken up by many other speakers during the day. Equally important was the fact that it is the second biggest carbon pool on the planet after the oceans. In the EU alone there are more than 70 billion tonnes of organic carbon in our soils. This is a huge amount bearing in mind that the EU emits approximately 2 billion tonnes of carbon a year. He went on to say that there was a need to protect and enhance this carbon pool. Thus, the Council needed to move forward on the proposal for a Soil Framework Directive, as **the European Union could not afford to waste time and allow more and more soil organic matter to be lost from the soil**. According to Mr Dimas, this was a problem with at least a European if not a worldwide dimension, which needed a European solution.

Despite coming from different countries and backgrounds, with varied scientific interests and convictions, the overall message that the conference heard from the invited leading scientists was quite unanimous: **soil is part of the climate change problem, but can – and must – also be part of the solution**. To what extent soil emitted greenhouse gases and to what extent the processes leading to these emissions could be reduced would need further work before it can be better understood and quantified. But the general picture was clear – **by adopting sound soil management practices, maintaining and – if at all possible – increasing carbon in soil can help to offset fossil fuel emissions** (according to Professor Lal, the potential carbon sink capacity of terrestrial ecosystems is equivalent to offsetting about 50 parts per million of atmospheric carbon dioxide, which is currently in the region of 380 parts per million).

While reminding the audience that the soil carbon pool was limited in terms of capacity and was not necessarily permanent, Professor Smith presented a strong argument in favour of soil sequestration, and soil sequestration now. This was because emissions or reduced emissions over the next 10 to 20 years will **determine** the kind of temperature increase – from +2 to +6°C or more – that the world will experience by 2100. He stressed that all sectors of human activities – LULUCF (land use, land use change, forestry) and agriculture included – have to make a contribution, hence the importance of sound soil management practices to keep or increase soil organic matter.

Dr Liski and Dr Freibauer underlined the importance of natural peatlands as both a repository of carbon but also as a potential source of methane and nitrous oxide – not to mention their role in terms of water filtration and their rich biodiversity. In their views, protecting peatlands and helping to restore them where they are already drained is the most urgent action that needs to be undertaken to reduce the huge greenhouse gas emissions from peat soils. Along the same lines, Dr Arrouays pointed out that **preserving existing carbon stocks might be more important than trying to create new ones**.

It was remarked during the discussions that **there was an urgent need to quantify where and how much European soils are losing organic matter**. Albeit with significant uncertainty, it was known that soils are losing carbon and – to a certain extent – it was possible to estimate the amount of this loss. However, the European Union was far from being in the situation of the United Kingdom presented by Mrs Bellamy, where a soil monitoring system had been in place for decades. Identifying and quantifying soil organic matter losses were fundamental preconditions for effective implementation of soil protection measures.

The **panel discussion**, moderated by Mr Grant Lawrence (former Director in the Environment Directorate-General of the European Commission), was introduced by a statement recorded on 4 June 2008 by Mrs Nathalie Kosciusko-Morizet (French Secretary of State for Ecology). She was of the opinion that soil should be included as a mandatory accounting category for industrialised countries in any post-Kyoto agreement and that the CAP should address climate change aspects further and enable farmers to take climate change considerations fully into account. She added that the proposal for a Soil Framework Directive would be on the agenda of the French Presidency, since the Directive would contribute to carbon storage in soils.

Mr Janez Podobnik (Minister of the Environment and Spatial Planning of Slovenia and President of the Environment Council) wondered whether Community measures to reduce the impact of climate change should not include permanent monitoring of reference areas and measures for sound soil management in an effort to preserve and increase the capacity of soil to capture carbon dioxide. He also reiterated Slovenia's support for the Soil Framework Directive and agreed with Mrs Kosciusko-Morizet on the need to restart the stalled negotiations.

Mrs Þórunn Sveinbjarnardóttir (Minister for the Environment of Iceland) stressed the link between the Convention to Combat Desertification, the Framework Convention on Climate Change, the Convention on Biodiversity, and food security, especially in less developed countries. A common thread of all these conventions is the importance of soils and ecosystem services. Carbon in soils is the fundamental ingredient of soil fertility and is a vital part in the role of soils in ecosystem services, such as water retention.

Mr Humberto Rosa (Secretary of State for Environment of Portugal) made a passionate plea in favour of soil protection, the importance of soil organic matter and the need to adopt the Soil Framework Directive as soon as possible, since European legislation was necessary in this field.

Mr Vittorio Prodi (Vice-President of the Temporary Committee on Climate Change of the European Parliament) echoed Mr Rosa's views and assured the audience of his personal support in making every possible effort to arrive at a positive outcome on this legislative proposal.

Mr Staffan Nilsson (European Economic and Social Committee) recalled the opinion adopted by his Institution in favour of European legislation on soil protection, despite the intense lobbying by farmer organisations. He mentioned the importance of organic improvers and sewage sludge for maintaining sufficient soil organic matter levels. He called on the Commission to revise the Sewage Sludge Directive, because sewage sludge should be used only if the levels of contaminants (heavy metals and organic compounds) were to be lowered.

In his concluding remarks, Mr Jos Delbeke, Deputy Director-General of the Environment Directorate-General of the European Commission, summarised the key points to emerge from the presentations and the discussions:

- **Soil was both part of the problem and of the solution for climate change**. It was imperative to support land use practices that help to maintain and – if at all possible – increase soil organic matter.

- Soil degradation had transboundary effects, and thus **there was a need for a common European legislative framework** to tackle this phenomenon and, in particular, to find out where soil organic matter losses were happening, and to quantify those losses.

- It was clear that the European Union (and the world) had to adapt to climate change and that **soil had a crucial role to play to secure food and services against negative climatic conditions**.

The conference was concluded by Mr Luc Gnacadja, who underlined the importance of continuing the debate on the relationship between climate change, loss of soil organic matter and desertification, in a bid to reverse unsustainable trends.