

## **2<sup>nd</sup> Forum for the Future of Agriculture** **Financing and governing food and environmental security.**

Session: Protecting and enhancing the environment  
Issue: Using our soil and water efficiently

Environmentalists are sometimes accused of being unclear in their requirements and economists like clear figures. So, the key indicators in relation to climate change are temperature rise and greenhouse gas levels in the atmosphere. Currently, all efforts are aimed at keeping the temperature rise to less than 2°C below pre-industrial levels and below 450ppm CO<sub>2</sub> in the atmosphere. They are clear indicators, they leave no place to hide and no possibility to fudge. In this city of Brussels it is important to recall that the atmosphere is not in the business of compromise!

What are the scientists saying? Continuing and worsening predictions regarding the speed and effects of climate change. The international scientific conference in Copenhagen in March 2009 said that high rates of emissions suggest the worst case IPCC scenarios are being confirmed. A paper by D. Battisti in Science January 2009 suggests that the highest temperatures on record will be the summer norm by mid to late century with serious challenges for food production and daily life and extreme temperatures in some summers causing particular difficulties for food production. In other words, we are in danger of going far beyond the indicators rather than staying well below them.

It is imperative now that we protect land so that it can contribute to resist and adapt to climate change but in the EU we currently lose about 1500 ha per day of mainly agricultural land to infrastructure and urbanisation. This is a major concern to several Member States including Netherlands which organised a conference on the protection of prime agricultural land in Brussels last November. It is no wonder as the rate of loss of agricultural land in the EU is the equivalent of losing the entire agricultural land area of the Netherlands every three to four years. And this pattern is repeated across the globe. At the same time, according to the FAO, the amount of land for agriculture will need to expand by 13% by 2030.

Scientific consensus recognises the fragile state of the world's soils – the challenges faced by European soils are echoed in terms of many areas worldwide subject to low organic matter, erosion and increased salinisation. Soil is the biggest terrestrial carbon pool, containing around twice the amount of carbon in the atmosphere and three times the amount to be found in vegetation, and has the potential to be a bigger pool. In reality, it is probably a carbon source! A tiny loss of 0.1% of carbon emitted to the atmosphere from the around 75 billion tonnes currently stored in European soils is the equivalent to the emissions of a hundred million cars. The recent UN paper on agriculture mitigation suggests that worldwide soils could account for more than 85% of agriculture's mitigation potential. Professor Rattan Lal of Ohio State University estimates that properly managed soils worldwide could sequester up to 50ppm CO<sub>2</sub> equivalent. Others stress that urgent attention is required to retain carbon levels in peat soils. According to the CLIMSOIL report<sup>1</sup> (carried out as a follow up to the Commission conference on soil and climate change<sup>2</sup>, June 2008), continued peat drainage in the EU from agriculture could result in potential losses of up to 30 million tonnes of carbon equivalent per year, which is about the tailpipe emissions of 40 million cars.

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<sup>1</sup> [http://ec.europa.eu/environment/soil/review\\_en.htm](http://ec.europa.eu/environment/soil/review_en.htm).

<sup>2</sup> [http://ec.europa.eu/environment/soil/conf\\_en.htm](http://ec.europa.eu/environment/soil/conf_en.htm).

In reality, the very many changes in soil management over the past 50 years – reduced mixed farming, continuous arable, winter in place of spring cereals, greater dependence on inorganic rather than organic fertiliser, as well as disturbing information on trends in soil organic matter – make clear the need to monitor soil and strengthen its protection. That is what the Commission is proposing in the soil framework directive. It is encouraging that this proposal has helped inspire a resolution on soil protection in the US Senate even if the proposal has not yet been adopted in the EU.

What size of tasks can soil take on? Clearly – and regardless of technological improvement – the task of doubling agricultural production as we move to mid century – with some reduced land availability, though other land may come into use, increased climate variation and very probably reduced water availability – is immense. Added to this we need to keep an eye on inorganic fertilisers – the supply of economically minable phosphorus is not inexhaustible - so recycling must move up the agenda. If soil's major tasks are for agriculture, forestry, carbon sequestration and water filtration and protection, then the very interesting and progressive work of Mark Jacobson of Stanford University on wind, solar and wave renewables and their long term place with respect to global warming, air pollution and energy security is well worth reading because it points a path to providing more space to land to perform these functions. It gives extra meaning to President Obama's inaugural speech although historians might also remember John F. Kennedy's recall in the Irish Parliament in 1963 of George Bernard Shaw's words "I dream things that never were...and I say why not?" We need to.

The EU has a large volume of water legislation in place. The nitrates and urban waste water directives are key building blocks of the water framework directive. In more recent years we have seen major advances in the implementation of the nitrates directive – better manure storage and management, more rational fertiliser use - leading to benefits for the environment and farmers' pockets. Farm output is not down despite the 50% reduction in inorganic N and P use over the past two decades, which suggests that environmental legislation brings benefits, even economic benefits! And it brings innovation – the Netherlands is working on making manure a source of energy, more usable N and P while returning water of sufficient and acceptable quality to surface water. In 2010 the Commission will report on the implementation of the nitrates directive for the period 2004-2007 and that will indicate the extent to which water quality is changing in response to practice although it is important to stress that water quality improvement does take time.

We now face challenges to implement the water framework directive through river basin management plans. Work since adoption in 2000 has prepared for this implementation, which begins next year with the aim of achieving good water status by 2015. This approach is of great interest to developing countries.

But we also now face challenges notably on scarcity and droughts and we enter a period where we have to move to a water efficient and water saving economy. This represents a huge challenge for agriculture. Those present at the rural development conference organised by DG AGRI in Cyprus in October 2008 saw at first hand the reality of climate change and water scarcity and the difficulties they bring for farmers and society alike. It opened many eyes! The Council has invited the Commission to review and develop the evolving strategy for scarcity and droughts by 2012. We have of course already put the floods directive in place.

Climate change is real and adaptation is essential now. The Commission expects to adopt a communication in April so we must wait to see the detail but it is clear that awareness, preparedness and resilience are central to adaptation and that soil and water will figure prominently.

Given the nature of EU funding, it is inevitable that we need to look outside environmental policy and legislation to provide the tools to ensure greater water and soil protection and therefore the CAP and, in particular, rural development have had and likely will continue to have great importance. The delivery of the environmental benefits via these means is part of a process which should ensure that farmers remain viable and contribute to produce sufficient food for the population. Environment and agriculture are inextricably linked!

So, it is important to recall the key environmental indicators related to climate change which I indicated at the outset. We have to give much greater prominence to ensuring that we stay as far under those figures as possible for the benefit of the environment but also because the economic future and welfare of mankind and the planet has never been so dependent on getting the environment right.