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**Betreff:** Erosion target in EU Strategy for the Danube Region

Dear Professor Wenzel, Dear Dr Kutzenberger,

Thank you for your messages on the erosion target in the EU Strategy for the Danube Region (EUSDR).

As this target concerns an environmental aspect of the EUSDR, we have been asked by our colleagues in the Regional Policy Directorate-General of the Commission to reply directly to you.

The EU's Soil Thematic Strategy (COM(2006) 231, 22.9.2006, [http://ec.europa.eu/environment/soil/index\\_en.htm](http://ec.europa.eu/environment/soil/index_en.htm)) has the objective to define a common and comprehensive approach to soil protection, focusing on the preservation of soil functions. It is based on the principles of 1) preventing further soil degradation and preserving its functions, and 2) restoring degraded soils to a level of functionality consistent at least with current and intended use. The Soil Thematic Strategy considers a number of soil degradation processes, including erosion, that should be identified and for which appropriate measures should be put in place to preserve soil function.

The entire territory of the EU is subject to soil erosion, exacerbated by inappropriate agricultural and forestry practices. It is estimated that 115 million hectares or 12% of Europe's total land area are subject to water erosion, and a further 42 million hectares by wind erosion.

As natural soil formation is extremely slow (it takes hundreds of years to produce a few centimetres of soil), in the Impact Assessment (SEC(2006) 620, 22.9.2006) accompanying the Soil Thematic Strategy, the Commission considers that soil losses over 1 or 2 tonnes per hectare and year are in practice irreversible. In addition, soil degradation in one Member State can have transboundary effects and increase environmental pressure and economic burdens on neighbouring states. Erosion is a clear example of this.

In the Danube Region, according to recent estimates by Cerdan *et al.* (2010), many areas are subject to actual erosion rates higher than 10 tonnes per hectare and year. Such high rates are a cause of concern as they threaten the long term viability of the soils in the Region to carry out their environmental, economic and social functions. In addition, erosion is identified as a pressure on water quality (diffuse pollution by phosphorus) in the River Basin Management Plan adopted by all Danube States in 2009. Reducing overall erosion will therefore also contribute to the achievements of the objective of the Water Framework Directive. The proposed indicative objective of reducing by 25% the area subject to erosion higher than 10 tonnes per hectare and year by 2020 should be seen in this wider context.

In operational terms, reaching such a target could be articulated as follows:

**1) Evaluation of erosion risk across the Danube Region.** This is a precondition for having a factual understanding at the appropriate geographical scale of the areas where erosion can exceed 10 t/ha/y. While this evaluation could ideally require the development of a customised model for soil erosion risk which is tailor-made to the characteristics of the Danube Region, one could also consider the fine-tuning of existing pan-European models, such as PESERA (Pan-European Soil Erosion Risk Assessment) or the erosion map based on RUSLE (Revised Universal Soil Loss Equation) that the JRC is about to validate at the EU scale. Given the transboundary nature of this exercise, it is crucial that the competent authorities and the leading scientific institute active on soil erosion in the Region are part of this task, which should ideally be completed by 2013-2014.

**2) Identification of best practices.** This task can be carried out in parallel with the previous one. It requires the identification of the most adapted practices to the Danube Region for reducing erosion,

taking into account economic and social aspects as well as the primary environmental goal. A vast literature exist on this, and includes measures such as using catch and interim crops, introducing winter cover and buffer strips, appropriate choice of crop rotations, restricting uncontrolled burning, adjusting stocking rates, promoting the use of organic soil improvers (e.g. compost), conservation tillage, conversion of arable land to grassland etc. Authorities and scientific institutes will need to identify which measures are best adapted to the constraints present in the Region, possibly adopting a flexible approach on the basis of national or local conditions. This task should be completed by 2013-2014.

**3) Implementation of adapted and cost-effective measures.** This task involves the implementation, at a national, regional and local level, of the most adapted measures identified in the previous task. As this will be the responsibility of the competent authorities in the different States part of the Danube Region, it will be important to ensure a sufficient level of exchange of information and coordination of measures. This task should be implemented as soon as the evaluation of erosion risk is completed, so that the competent authorities can identify the areas where there is a risk to erosion rates exceeding 10 t/ha/y. Half-way through the implementing period (i.e. around 2017), there should be an evaluation of progress towards the achievement of the target by 2020.

We are ready to participate to the work necessary to achieve the erosion target by 2020 in cooperation with all partners concerned, including Bavaria (and Croatia), which are the Priority Area Coordinators for biodiversity, landscapes and the quality of air and soil.

I hope the above answers your query.

Best regards,

Luca Marmo

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#### References:

Cerdan *et al.* (2010): Olivier Cerdan; Gerard Govers; Yves Le Bissonnais; Kristof Van Oost; Jean Poesen; Nicolas Saby; Anne Gobin; Andrea Vacca; John Quinton; Karl Auerswald ; Andreas Klik; Frans Kwaad; Damien Raclot; Ion Ionita; Jerzy Rejman; Svetla Rousseva; Tatiana Muxart; Maria J Roxo; Tomas Dostal (2010) , Rates and spatial variations of soil erosion in Europe: A study based on erosion plot data, *Geomorphology*, **122**, 167-177.

PESERA and RUSLE: <http://eusoils.jrc.ec.europa.eu/library/Themes/Erosion/PeseraRusle/Index.html>

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