



## **Soil and water conservation for sustainable land management: where do we stand ?**

Gerard Govers

K.U.Leuven, Earth and Environmental Sciences, Heverlee, Belgium (gerard.govers@ees.kuleuven.be)

Although soil and water conservation efforts date back to the 1930's in the USA, the implementation of appropriate conservation measures and land management strategies is still lagging in many areas in the world. The reasons for this are, without any doubt, manifold and range from an inadequate understanding of the problem, over the insufficient understanding of the effectiveness of measures and a lack of insight into the benefits of sustainable strategies, to an lack of sensitivity for the impact of certain strategies on local social and economic systems.

In this paper we will not attempt to present a general overview of the state of knowledge in this wide domain, but rather focus on the identification of major bottlenecks that impede or slow down the application of sustainable conservation technology, whereby we will focus on soil degradation as a main problem. Moving towards more sustainable soil conservation and land management strategies requires progress on the following issues:

- We need accurate data on the extent of problems of land degradation. It may sound surprising that several decades of research have not delivered those data, but recent research conclusively shows that, for many areas, our estimates of erosion rates are far off and sometimes our perception is plain wrong. This has detrimental consequences as funds are inefficiently used and, on the long term, stakeholders will invariably lose interest. Various strategies may be used to improve the quality of the data that we used.

- We need good insight in the effectiveness of different measures. A major issue here is the scale of assessment: the classical tools used to assess the effectiveness of measures are sometimes not suitable and may lead to both underestimation and overestimation of effectiveness. Furthermore, perceptions of effectiveness may have been shaped by experiences that are decades old, while agricultural technology has moved on.

- We need a correct assessments of the co-benefits we generate. Very often conservation strategies do indeed generate co-benefits. It is of utmost importance that such cobenefits are correctly quantified: realistic goals for carbon sequestration may sound less attractive in the short term but will prevent stakeholders losing interest in the long term.

- We need a systems approach. All too often conservation strategies are considered in isolation, not accounting for their effects out of the local field that is studied. That may well lead to a situation where negative externalities surpass the internal benefits. Farmland improvement through manure application may be a great idea, but we need to assess where the manure is coming from.

- We need, as scientists, to engage ourselves more explicitly in the political debate. There are no general rules for this, but scientists should weigh stronger on the development of strategies towards more sustainable land management.

Finally, we need to take an optimistic view: available data indicated that it is indeed very well possible to feed an ever growing world population ever better and maintain a healthy environment through sustainable intensification, provided that we do base decisions on sound scientific information rather than ill-conceived ideas about what should work.