

### Financed research

Project title:	Elaboration of the Soil Degradation Subsystem (TDR) of the National Environmental Information System (OKIR)
Leader of the consortium:	Research Institute for Soil Science and Agricultural Chemistry, Hungarian Academy of Sciences
Partners:	
Objectives of the project	<p>The project aims at:</p> <ul style="list-style-type: none"> <li>- the production of soil data required for soil protection,</li> <li>- monitoring both soil state and environmental impact of agriculture,</li> <li>- in addition, the creation of an IT background in order to facilitate the implementation of directives specified in the EU soil protection strategy.</li> <li>- Furthermore, the project aims at publishing soil data and information in order to support the implementation of related public services and information to the public.</li> </ul> <p>During this IT development project a Soil Degradation Information System (TDR) will be created as a part of the Hungarian Environmental Information System (OKIR).</p> <p>The participants of the consortium will carry out the following tasks:</p> <ul style="list-style-type: none"> <li>-representative selection of agricultural holdings,</li> <li>-environmental load data collection at the selected holdings,</li> <li>-indication modeling,</li> <li>-soil data collection based on field sampling in representative sampling design,</li> <li>-soil state indication.</li> </ul>
Results in 2011	<p>After the preparatory phase of the project, we completed the preliminary survey of the examined farms.</p> <p>We developed protocols for the spring and autumn soil sampling campaigns, and evaluation models at the farm and parcel level.</p> <p>After the theoretical and practical training of the field experts the spring sampling campaign took place in May 2011.</p> <p>Sampling related to the assessment of soil physical and biological degradation took place on 200 parcels of 100 farms. Sampling for the assessment of erosion was completed on one parcel of each 60 farms specifically chosen for this task.</p> <p>A client program that provides data transfer between IT tools used on the field and the operating system (<a href="http://terradegra.helion.hu">http://terradegra.helion.hu</a>) used by project participants has been developed.</p> <p>We created a specification for the Oracle-based backend database, for the webservers of the Ministry of Rural Development and RISSAC, for the web interfaces to be developed and for the range of associated client programs.</p> <p>While developing the system for the collection of the project's real-life data, the IT infrastructure for educational purposes had been constructed at the same time.</p> <p>Based on consultations with regional representatives, we created a</p>

	<p>field guide and a logbook for the implementation of the autumn sampling campaign, as well as a form for collecting data from farmers, which is necessary to assess environmental load. These documents regulate the way of sampling planning, the details of implementation and related data collection.</p> <p>The autumn sampling campaign took place in two rounds between July and October 2011, on 1 802 parcels that belonged to 285 TDR farms. It consisted of general environmental assessment as well as sampling of nitrate- and and pesticide residues.</p> <p>We completed the soil ecological laboratory examinations of the soil biological activity samples from the spring sampling campaign. We extracted the specimens of mesofauna from the soil. By morphometric analysis of these animals assessment of the ecological status of soil can be carried out.</p>
<p>Economic and social benefits:</p>	<p>By the analysis of the data provided by the OKIR-compatible soil degradation database (TDR), the soil-degradation effect of typical Hungarian agricultural practices will be demonstratable.</p> <p>The project will provide information on the type and extent of the soil degradation effect of agricultural use on different habitats, by the segregation of different types of agricultural holdings, and within them, different types of agricultural practices.</p> <p>Due to the project's results, the detected and quantified soil degradation effect of loads on different habitats will become generalizable and summarizable. Based on these results and the demonstrated connections, estimates on the geographical coverages may also be given.</p> <p>The TDR system will provide an opportunity to link selected data content from it with other OKIR services for the purpose of joined analysis. It will support data supply towards EU and national-level databases. Furthermore, it will serve as a web-based information service for the users involved.</p>
<p>Entrepreneurs taking part in application:</p>	<p>Szent István University  Helion Mérnöki Tanácsadó és Szolgáltató Ltd.  Central Agricultural Office</p>