



Developing an integration tool for soil contamination assessment

Maria Anaya-Romero (1), Felix Zingg (2), José Miguel Pérez-Álvarez (3), Paula Madejón (3), and Sameh Kotb Abd-Elmabod (4)

(1) Evenor-Tech, S.L.U. (Solutions for soil use and protection), Seville, Spain, (2) Alterra Wageningen University, Wageningen, Netherlands, (3) Instituto de Recursos Naturales y Agrobiología de Sevilla (IRNAS-CSIC), Seville, Spain, (4) Soil & Water Use Department, Agricultural and Biological Research Division, National Research Centre (NRC), Dokki, Cairo, Egypt.

In the last decades, huge soil areas have been negatively influenced or altered in multiples forms. Soils and, consequently, underground water, have been contaminated by accumulation of contaminants from agricultural activities (fertilizers and pesticides) industrial activities (harmful material dumping, sludge, flying ashes) and urban activities (hydrocarbon, metals from vehicle traffic, urban waste dumping). In the framework of the RECARE project, local partners across Europe are focusing on a wide range of soil threats, as soil contamination, and aiming to develop effective prevention, remediation and restoration measures by designing and applying targeted land management strategies (van Lynden et al., 2013). In this context, the Guadiamar Green Corridor (Southern Spain) was used as a case study, aiming to obtain soil data and new information in order to assess soil contamination. The main threat in the Guadiamar valley is soil contamination after a mine spill occurred on April 1998. About four hm³ of acid waters and two hm³ of mud, rich in heavy metals, were released into the Agrio and Guadiamar rivers affecting more than 4,600 ha of agricultural and pasture land. Main trace elements contaminating soil and water were As, Cd, Cu, Pb, Tl and Zn. The objective of the present research is to develop informatics tools that integrate soil database, models and interactive platforms for soil contamination assessment. Preliminary results were obtained related to the compilation of harmonized databases including geographical, hydro-meteorological, soil and socio-economic variables based on spatial analysis and stakeholder's consultation. Further research will be modellization and upscaling at the European level, in order to obtain a scientifically-technical predictive tool for the assessment of soil contamination.