Geophysical Research Abstracts,
Vol. 10, EGU2008-A-03011, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-03011
EGU General Assembly 2008

Sustainable management of trace element contaminated soils - Development of a decision tool system and its evaluation for practical application - the SUMATECS project

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The development of “gentle”, in-situ remediation technologies (i.e. phytoremediation, in situ immobilisation, etc.) has been under intensive research over the last few decades (see Figure 1). A great deal of progress has been achieved at the experimental level, but the application of these technologies as practical solutions is still at its early stage. On the one hand, methods for determination of the trace element (metals and non-metals) fractions relevant for their ecotoxicology (i.e., the bioavailable fraction) still have their limitations since they may insufficiently reflect the potential risks. On the other hand, a number of in-situ remediation options are available and thus a decision tool system has to be developed allowing to choose the most suitable technique. TECS (trace element contaminated soils) management moved into a new century where environmental decisions must be ‘socially-robust’ within a context of sustainable development & is a part of the conceptual framework “Risk-based land management”. All efforts need to ensure management and/or remediation is affordable, feasible, effective & sustainable. Additionally, further aspects that are closely related to the remediation process were previously only partly covered by research projects. These aspects include the potential impacts on the local environment (soil processes and functioning, socio-economic impacts on the local population, etc.), but also the principal question on the sustainability of the remediation process and its target. The aim of this project is to make a literature and project-based review (including

country specific state of the art and current procedures) to identify the current status of research and application in Europe and to (i) derive decision tool systems, remediation scenarios including the potential impacts on the local environment and (ii) define further research needs. This project was launched under the umbrella of SNOWMAN, which is a network of national funding organisations and administrations providing the research funding platform for soil and groundwater bridging the gap between knowledge demand and supply. SNOWMAN is one amongst more than 70 ERA-Nets (European Research Area - Networks) being funded by the European Commission's 6th Framework Programme for Research and Technological development. Further information is available at http://www.snowman-era.net and http://www.rhizo.at/Sumatecs.