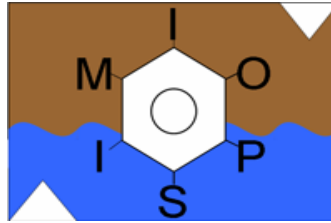


The IOPSIM project:

(Im)mobilization of organic pollutants by soil constituents in the soil/groundwater system -

Strategies for innovative management



Aims and objectives

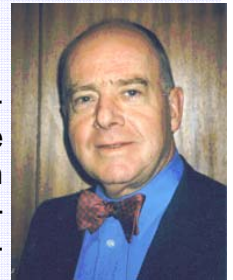
The **general goal** of this proposal is the prevention and the risk-based management of organic pollutants in the soil and groundwater system with special focus on mobilization and immobilization processes and related risks. In a first step the state-of-the-art in this area will be identified, based on literature review focusing on the main mechanisms and processes governing the transport and the fate of organic contaminants. Of special importance is the question how land use and climate change are influencing the natural attenuation and mobilization processes. Based on the outcome of this review process, innovative strategies will be elaborated on the basis of additional research information and methodological knowledge, thus contributing to the long-term risk-based management of organic soil and ground water pollution. Results will be formulated in such a way that they are applicable by end-users.

Special focus will be directed towards pollutant retention processes by different soil constituents, looking at the strength of binding forces and the long-term stability of such compounds. The question involved is the definition of risks, which remain after the removal of non-bound or less-bound pollutants. Moreover, the release of OM-colloids loaded with pollutants is specifically judged under the aspect of their contribution to organic pollutant mobilization and leaching. This includes the colloidal transport on long distances in the soil and groundwater system and the spreading of pollutants caused by these transport processes. Of special interest will be the time scale and the risks caused by these fractions. Knowledge on how the binding of pollutants to colloids interferes with natural attenuation processes is still limited and is therefore subject of this investigation. On this base, the limits of natural attenuation for mitigating risks will be assessed.

The results of these investigations will be published in different forms but with clear focus on end- users. M.Sc. and PhD. students will be invited to participate in this project.

About IOPSIM

Dear readers,



bridging between science and decision making becomes increasingly important, especially concerning environmental issues. This project aims at contributing to the management of the soil-groundwater system with regard to organic pollutants deriving from diverse sources. We are convinced that we will find soil parameters which can be adapted or changed in order to protect the groundwater system against organic pollutants, thus supporting stakeholders / end users in their endeavours to keep the groundwater free of contamination.

Yours sincerely,
Prof. Dr. W. Blum,
project coordinator

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IOPSIM facts

IOPSIM is a research project trans-nationally funded under the SNOWMAN umbrella by:

Austria, Germany, and the Netherlands.

The project partners are:

- **BOKU:** University of Natural Resources and Applied Life Sciences, Vienna/Austria
- **TNO:** TNO Built Environment and Geosciences, Subsurfaces and Groundwater, Utrecht/Netherlands
- **IfBk:** Leibniz University Hannover, Hannover/Germany
- **UBA-A:** Federal Environment Agency GmbH, Vienna/Austria

Project duration: 12 months

Project start: 13.11.2007

SNOWMAN facts

SNOWMAN 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.

The consortium is funded by the European Commission's 6th Framework Programme for Research and Technological Development (RTD) and includes 7 partners from seven different EU countries representing national activities in the field of SNOWMAN.

Project duration:

January 2004 - June 2009

Coordinator:

Dr. Stefan Vetter, BMLFUW/Austria

Basis and Cooperation

The project is based on literature research about anionic organic pollutants, their fate in soil under environmental changes through climate or land use, and the definition of gaps for risk management and for more innovative strategies for better risk assessment in future.

Therefore the main target of the project are processes of immobilization and mobilization in order to define the limits in space and time of natural attenuation processes of organic pollutants, depending on different soil constituents, especially soil organic matter (SOM). Also the influence of environmental changes, caused by land use or climate change will be assessed.

All partners will cooperate in all steps of the project by the preparation of specific literature reviews. During two workshops the results of own research and literature studies will be discussed and systematically ordered, defining the state of the art and the knowledge gaps, which hinder the understanding of the system.

Based on this, research approaches for closing these gaps and indicators based on available knowledge will be defined, helping end-users, e.g. managers and/or stakeholders to take decisions. Furthermore, the outcome of these endeavours will be discussed together with end-users and finally formulated in a document. Also, new methodological approaches and their applicability for end-users will be elaborated, especially new and innovative concepts and methods for end-users.

A central role of the co-ordinator will be the establishment of a website on a pre-registered domain. Part of this web-site will be password protected and devoted to internal dissemination of project objectives, schedules, methods and results. The public part of the web-site will contain a summary of results of the project and the participating institutions, and will allow public dissemination of project objectives, methods and scientific progress.

Perspectives

The participation of end-users will help to focus efforts for the generation of outputs (e.g. reports, papers in scientific journals, master works, PhD-works, manuals of methods for end-users and other research institutions, presentation of the results in specific national or international conventions, etc.) which should be scientifically sound but also applicable in practice.

Based on the general project results and conclusions, concepts will be developed for further national and international research projects.