PERSENVIR

INTEGRATED STUDIES ON THE BEHAVIOUR OF PERSISTENT POLLUTANTS AND RISKS ASSOCIATED WITH THEIR PRESENCE IN THE ENVIRONMENT

Research Grant no. 132 / 2007 of Idei Programe PNCDI-II, Project ID _595

The research project is conceived within the PNCDI-Ideas Program, being an exploratory research project oriented through generation of knowledge for enhancing the contribution of Romanian scientific research to establishment of a solid base of applicative research and technological development by innovatory ideas and by formation of highly qualified researcher. At the same time, the international excellence and visibility are considered by approaching some advanced researches that are interdisciplinary and complex in a field where Romania has a research potential and where o series of results that are comparable to that from European Union were achieved.

Project objectives:

Main objective:

The project aims to contribute to a deep understanding of the environmental behaviour and effects of persistent pollutants (PCs), through elaboration and performing of experiments in the view of development of quantitative relationships and models on their fate, transport and behaviour and on the remediation alternatives of environmental components affected by pollution. The research as well as information on the ways to evaluate the risks associated with the impacts induced in the environment by PCs presence in various environmental matrices will combine both analytical methods and multivariate modeling. Based on experimental and calculated data, methods for various pollutants characterization and ranking will be developed, which facilitate the risk assessment process as well as the decisional process for risk management and remediation of the environmental components affected by the contamination with persistent pollutants.

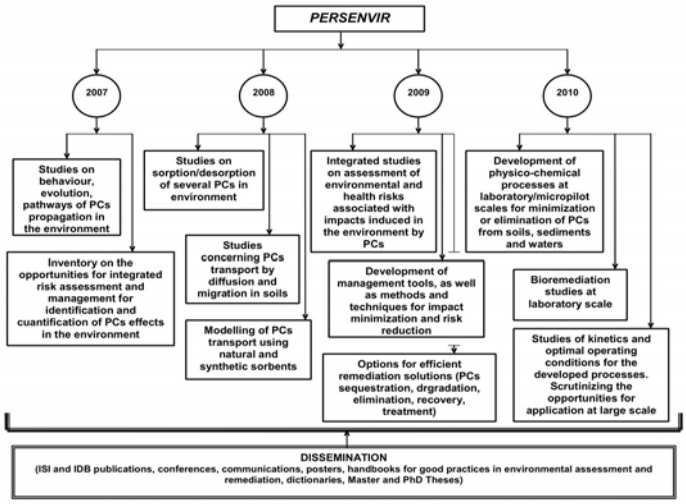
Specific objectives:

- examine physical, chemical, and biological processes resulting in the migration of persistent pollutants through the individual environmental compartments
- describe chemical, physical, and biological parameters affecting the mobility of PCs in the environment,
- describe and possibly explain observed spatial patterns and temporal trends in the fluxes, concentrations, and relative compositions of various persistent contaminants
- evaluate the relative importance of degradation, sediment burial, export in the atmosphere and outflow to various environmental matrices, bioavailability of PCs in soils and waters and implications for risk assessment
- assess environmental impacts and risks that gather, integrate, and evaluate site-specific information regarding:
    1. environmental fate and transport of contaminants
    2. modes of action of each contaminant under evaluation (effects information)
    3. contaminant uptake by biota from the environment and subsequent movement through food webs
    4. responses of the ecological resources under evaluation to the contaminant exposure

Under this context, the project proposes a coherent, conceptual framework for integrated environmental risk assessment and management, generated by the presence of persistent pollutants (persistent contaminants, PCs) able to compare, evaluate and develop a set of methods and indicators to represent the links between source and exposure, for use in the assessment procedure, based on scientific concepts and methods. They are devoted to improve the use made of the data and knowledge that is already in force in order to obtain more integrated assessments of risks and impacts. These advances will be brought together, in order to identify and fill key gaps in the existing knowledge and methodologies, and develop the tools needed to make them operational. In this context, three key gaps are addressed:

- data and knowledge are spread across disciplines, through different networks and in different databases – tools, methods and collaborative research are needed to bring together and link these different areas of data and knowledge more effectively to inform integrated assessments;
- in many areas, a large gap between science and policy remains – methods are needed to bridge this gap by translating the science that exists into information that is of direct relevance to policy;
- in specific contexts, there are key gaps in data or knowledge that break the continuity of current understanding.

Project description/activities



For more information on the *PERSENVIR* Project, please visit: http://persenvir.xhost.ro

Project Director,
Prof.dr.ing. Maria Gavrilescu
Department of Environmental Engineering and Management
"Gheorghe Asachi" Technical University of Iasi, Romania
mgav@ch.tuiasi.ro