Institute for Ecology of Industrial Areas by implementing innovative ICT tools and building a team of IT developers has strengthened its research infrastructure to fully exploit the development potential of digital technologies in research and services related to environmental management. The combination of achievements and experience gained during 40 years of IETU’s activity with the ICT possibilities is the basis for creation and implementation of innovative solutions in the field of environmental protection and management.

Identification System of Air Pollution Inflow (SIN2Pa2) and Health Risk Management System (HRA2) are IETU’s own solutions to support the decision-making processes aimed at air quality improvement, remediation and taking other remedial actions in chemically degraded areas at a local level.

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Development of IT Infrastructure for Collection, Processing and Analyses of Environmental Data

Implementation of the project contributed to the implementation of an innovative ICT toolkit for generation of knowledge and development of tools for environmental resources management, communication and education in the field of sustainable development.

IETU has strengthened its infrastructural potential and competence of its employees in conducting scientific research and rendering specialised services for public administration and economic entities.

We implement and create innovations
Identification System of Air Pollution Inflow
Health Risk Management System

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**Identification System of Air Pollution Inflow**

SINZaP2 is an IT system which enables:

- collection of data on air pollution sources and emissions in the monitored area and modelling the emissions from these sources,
- determining levels of air pollutants coming to a given receptor,
- identifying the direction of an air pollutant influx,
- modelling of air pollutant concentrations in a receptor network,
- verification of the modelled air pollutant concentrations based on the performed observations.

SINZaP2 was developed for the Silesian Voivodeship. The system may be implemented on a local and regional scale for other areas, based on a statistical and dynamic data set describing emission and meteorological conditions.

Modelling results for selected receptors may serve as a basis for determining the directions of remedial actions aimed at air quality improvement.

**Health Risk Management System**

Health risk assessment is an analysis of the potential adverse health effects resulting from the exposure to harmful substances occurring in environmental media in a given area.

According to new provisions of the Environmental Protection Act the obligation to carry out an assessment of the potential significant risk to human health or the environment will be an important factor determining the necessity and extent of remediation. Identifying no such risk will result in the exclusion or limitation of the remediation obligation.

The Health Risk Management System – HRA2 is used to get a quick access to information on health risk level and its spatial distribution, depending on a current or planned land use pattern.

The health risk assessment is based on information concerning physico-chemical and toxicological properties of the chemical substances included in a database, which constitutes an integral part of the HRA2 system.

IETU offers brownfields managers the health risk assessment based on HRA2 to support decision-making processes related to remediation of chemically degraded areas or planning other remedial actions in the environment.

The system enables the user to:

- carry out health risk analyses for three typical urban land use patterns: residential, industrial and recreational,
- perform analyses of health risk for certain groups of receptors (e.g. children, adults), taking local environmental and exposure conditions into account,
- calculate local, safe for health soil pollutant levels serving as soil remediation criteria,
- determine remediation sub-areas to facilitate preliminary assessment of the scope of work and exposure reduction level.