

## FOKS Final Conference - we know how to defuse the eco-bombs

Jaworzno located in Upper Silesia, Poland has found the way of getting rid of dangerous landfills as well as soil and groundwater pollution located on the grounds of former chemical plant. The method of defusing this ecological bomb has been proposed by Central Mining Institute and it consists of a so-called 'three steps approach', and it has been created during the INTERREG project FOKS. 125 experts in dealing with environmental risks recently met in Jaworzno 26th/27th March 2012 for the final conference of the FOKS project.



Seven hundred and fifty thousand barrels is only a small amount of post-production chemical waste, dating back to the period of time between 1923 – 1990. If we placed those barrels one by one on a football pitch, the obtained area would cover the surface of 68 football pitches. - explains Mr Paweł Silbert, the Mayor of Jaworzno at the opening of the conference.

A huge ecological bomb was created in Jaworzno during the period of regular work of state-owned Chemical Plant, named 'Organika-Azot'. With no regulations, control or supervision, post-production waste products were simply buried in the ground, and among others there are most dangerous poisonous substances that have ever been produced, such as DDT and lindane. Soil as well as ground and surface waters of the area of fifty hectares are contaminated threatening and the main Polish river- the Vistula river via its tributaries as well as the Baltic Sea. FOKS prepared a comprehensive mitigation strategy comprising of 3 steps

Isolation of the key sources - Cut-off the pathways - Final elimination of the sources

Currently, Poland is the only country in the central Europe region lacking appropriate legal procedures to deal with historical contaminations. With this conference this fact will be now on the political agenda in Poland, as it was stated by MEP J. Buzek in his welcome address to the conference attendees.

Besides this impact reached in Poland with the conference, also in the partner areas significant results have been achieved. These are e.g. securing full financing of a groundwater remediation project in Novy Bydzov (CZ) via the operational programme or the identification of the top 4 polluters (out of 193 potential) in Stuttgart-Feuerbach (D), liable for ca. 90% of the pollution in this area.

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## FOKS Project in Milan (Italy) – an integrated way to prioritize sources of contamination

The FOKS project: focus on key sources of environmental risks



One of the general objectives of the FOKS project is to provide a new approach to the local administrations to the management of the pollution of the groundwater, in accordance with the Water Framework Directive (2000/60/EC) and the Groundwater Directive (2006/118/EC).

This new tools focus the remediation efforts in degraded areas on the key sources of pollution that represent a priority for implementation of treatment measures.

Milan case study area: the Gorla pumping station



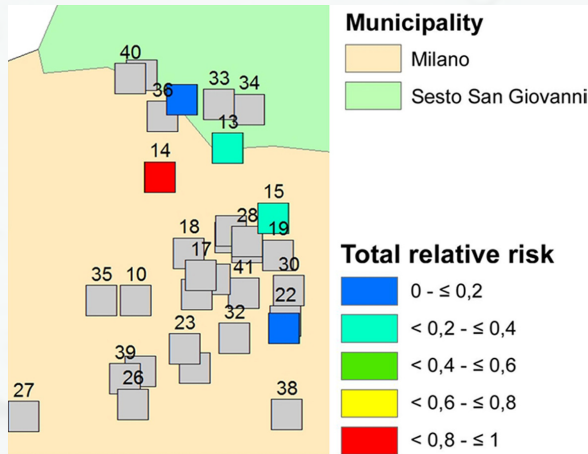
Gorla is one of the 31 pumping stations in the City of Milan and assures the drinking water supply to the whole Municipality.

Gorla is exposed to the incoming pollutants from the north-eastern districts of the city and the hinterland, where a broad industrial and brownfield area is located. Physical pollution containment measures are active downstream the monitored sources of pollution and water treatment plants are active into the pumping station to protect drinking water quality.

The assessed area of the FOKS project in order to identify the potential sources of pollution extends above Gorla to a wider area located upstream the pumping station itself.



## Application of the relative risk methodology to the Gorla case study

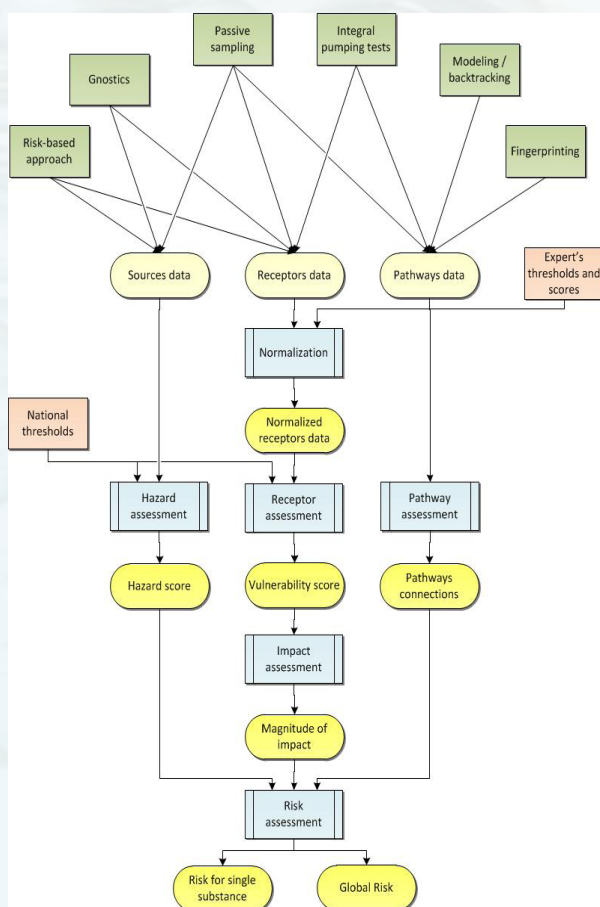


According to the Source-Pathway-Receptor paradigm, the proposed risk assessment methodology encompasses the following general steps:

- 1) hazard analysis;
- 2) pathway analysis;
- 3) receptor vulnerability analysis;
- 4) relative risk estimation.

The application of the relative risk procedure to the Gorla area demonstrated that many sources of contamination are not supposed to be impairing the pumping wells. The aggregation of the relative risk results, related to each substance into a total relative risk which comprehends the influence of all substances, presented expected results, leading to well known sites that undergo a remediation procedure.

## The FOKS project's Decision Support System



In order to put into practice the contents of the proposed groundwater assessment framework a Decision Support System can be implemented on the basis of the guidelines produced. The FOKS DSS can be characterized as a passive, data and knowledge driven DSS. It is not intended to supply any kind of solution or decision concerning the assessed case study but rather to elaborate huge amounts of data by knowledge based rational and supply clear and reliable relative risk evaluations which can aid decision makers in their decision duty.

The decision making actor identifies the practical executor of the assessment which is not necessarily an expert in groundwater contamination. This implies that the actions which can be undertaken by this type of actors cannot include specific complex environmental evaluations.

Conversely the expert actor represents an expert in groundwater management which is able to supply correct information related to technical aspects of the assessment.

In order to collect the data needed to perform the software assessments, the different results of the site characterisation phase can be utilized. The FOKS tools are supposed to be utilized in a prior stage in respect to the application of the FOKS DSS in order to collect all the information required which leads to a correct interpretation of risk.



## FOKS Main Results and Documents

### **Toolbox:** FOKS Handbook for Integral Groundwater Investigation - Toolbox for the identification of key sources of groundwater contamination

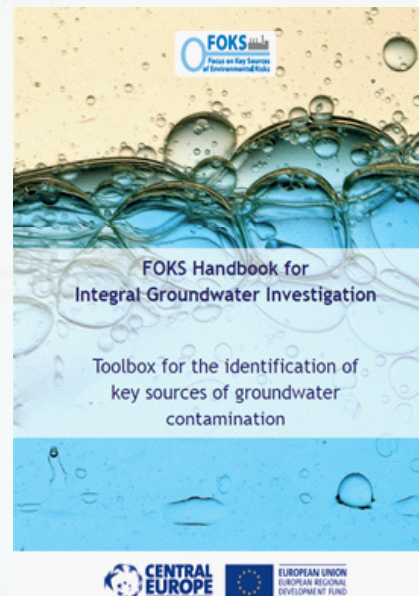
The Toolbox describes in detail a set of innovative site characterisation and risk assessment tools facilitating well targeted and comprehensive processes in groundwater risk management.

### **Decision support:** Draft guidance for the creation of a Decision Support System for local and regional bodies

On the basis of a strategic framework for the groundwater risk assessment and management, the architecture and the contents of a FOKS Decision Support System (DSS) have been defined.

### **Best practise:** Transnational Guideline for Implementing Innovative Tools for Remediation

This report describes how the tools were used at FOKS sites and how they contributed solving the specific contamination problem.



## The FOKS project in brief

Programme:	CENTRAL EUROPE
Priority:	Environment
Area of intervention:	3.1 Developing a High Quality Environment by Managing and Protecting Natural Resources and Heritage
Duration:	November 2008 - April 2012 (42 months)
Total budget:	€ 3.319.050,00
ERDF contribution:	€ 2.662.292,50
7 partners from 4 countries:	<ul style="list-style-type: none"> <li>• Central Mining Institute (PL)</li> <li>• Institute for Ecology of Industrial Areas (PL)</li> <li>• City of Jaworzno (PL)</li> <li>• City of Stuttgart, Department for Environmental Protection (DE)</li> <li>• Municipality of Milan - Executive Plan and Programs for Buildings Department - Office for Reclamation Plans, Environmental Politics department Office for public Water Management (IT)</li> <li>• Province of Treviso (IT)</li> <li>• Institute of Public Health Ostrava (CZ)</li> </ul>

## Project objectives

FOKS deals with management of groundwater pollution by priority industrial pollutants. It is the project's general approach to take up innovative tools and strategies developed by recent research and to transfer them to daily practice in groundwater risk management. This strategy facilitates fast implementation and optimal use of research results and it allows the water authorities to build their practical work on a sound scientific basis.

The FOKS project general objective is to focus the remediation efforts in degraded areas on the key sources of contamination. This concept perfectly fits to the European strategy laid down in the Groundwater Directive. FOKS therefore provides required technical strategies and decision tools for the local implementation of the Groundwater Directive.