

## REGARDING ROMANIA-UKRAINE CROSS-BORDER MANAGEMENT OF THE CONTAMINATED SITES WITH OIL PRODUCTS

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### **Abstract**

*Nowadays, we assist to an intensification cooperation in an economically, socially and environmentally between Ivano-Frankovsk Region of Ukraine and Maramures region from Romania. So, in this actual context the management of the cross border area is a necessity and benefice for the whole region. The paper presents some results of the project from ENPI Cross-border Cooperation Programme 2007-2013, "RoUaSoil: Romania-Ukraine cross border area-The Management of the Contaminated Sites with Oil Products", applicant Technical University Cluj-Napoca, North University Centre Baia Mare. The specific objectives of the project are to inventory, study and analysis the sites polluted with oil products within the cross-border area and to plan the cleanup by developing solutions using depollution and fertilization technologies.*

*Partial results obtained during the project concludes that it can create modern databases with electronic processing, with common denominator for different states but sharing the same natural resources and it can prepare information materials useful for various domains, from the environmental impact assessment studies to ecological education activities.*

**Keywords:** cross-border area, sites polluted with oil, depollution

### **INTRODUCTION**

The soil, a dynamic and extremely complex system, which is permanently evolving in time and space. The soil characteristics have been changed by anthropic pollution. Monitoring the polluted areas reveals the dynamics migration of the pollutant, the accumulative and regenerative soil capacity and also its historical-genetics evolution (Florea, 2009).

Nowadays, we are justified to conclude that soil degradation has an impact on several areas of common interest such as groundwater, surface water, biodiversity, food security and health. Protection measures relating to soil must therefore be taken into account, both the characteristics of the pollutant and soil's ones, the conditions under which it "lives", and soil protection policies must be integrated in environmental policies.

In their turn, environmental policies should have as a final term ecosystem protection and strengthening cooperation between resource users from different domains of activity (Coman, 2009).

We are currently witnessing an enchanted cooperation in economic, socio-cultural and

environmental protection from Ivano-Frankivsk region from Ukraine and Maramures region from Romania. In this context, integrated border area becomes a necessity and benefits all Euro-regions (Raport Proiect RoUaSoil, 2012).

### **RESEARCH PURPOSE**

For future actions on ecological restoration of polluted sites, in accordance with EU Directives and laws of the Member States, it is very important to establish what the polluted areas are, and of course, their geographically, physically and chemically characteristics (Rusu et al., 2009)

The regeneration plans, set according to the specific situation of contamination, should provide to regional and local public authorities detailed information on which they can develop strategies for the purpose of ecological reconstruction and development. Intensifying and deepening cooperation on environmental, social and economic domain between Ivano-Frankivsk region from Ukraine and some regions from EU border like as Maramures, from Romania and Szabolcs-Szatmár-Bereg,

Borsod-Abaúj-Zemplén, from Hungary wants to be strengthened through concrete activities starting from academia.

## RESEARCH AREA

Establishment of polluted areas with oil products in adjacent cross-border region

Maramures from Romania and region Ivano-Frankivsk from Ukraine, as we can see in Figure 1.

The project RoUaSoil also develops "CBC Regional Network" by extending the 3th previously mentioned regions of Hungary.

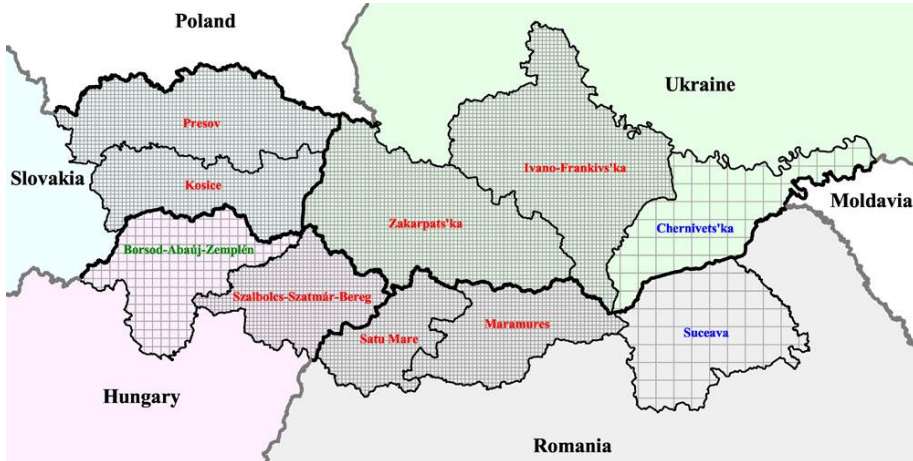


Figure 1. The cross-border region Maramures (RO) - Ivano-Frankivsk (UA)  
 (source: www.infocooperare.ro)

## MATERIALS AND METHOD

Inventory, monitoring and analysis of sites contaminated with petroleum products from cross-border area between Maramures and Ivano-Frankivsk is a complex activity that respects traditional research protocols from environmental sciences including the following:

- theoretical documentation- with mapping phase,
- field phase- especially sampling and adaptation to specific conditions,
- data processing stage using the environmental informatics system.

Briefly, these stages can be managed using specific elements of optimal environmental informational systems (Figure 2).

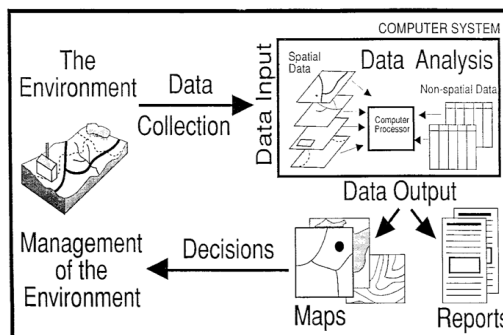


Figure 2. A specific way for getting information and knowledge using common environmental info-interactive applications or EISs(source: Cioruța B. & all, 2012)

In the documentaries phase information from the responsible authorities have been used, polluted sites were estimated close by train stations, oil stations from socialist period,

closed military bases, overground and underground deposits, companies with registered polluted areas and lands affected by technical accidents.



Figure 3. The perspective of getting multidisciplinary information and knowledge using as EISs the GIS products (source: Cioruța B. & all, 2012)

By collecting information from the field with the help of the local authorities, owners, managers and direct observation, other polluted sites have been tracked down, but non-inventoried yet. (Rusu et al., 2009; Cioruta et al., 2012). For polluted sites is envisaged, in the first phase, setting their geometric characteristics and in final stage, based on physico-chemical analyses, to determine the intensity of their pollution. Based on the estimated boundaries, it is important to follow the limits of the polluted areas which, as we know, varies with geomorphologic conditions, lithology and drainage; the form of the area, including degree of compaction or sifting; smooth contour polluted, altitude and exposition for relief of these sites; site boundaries and distance to the nearest sensitive use area, or household / farm.

All these cartography indicators are needed to be evaluate from full environmental impact of

people communities. Also, they are required in the monitoring and evaluation of financial remediation costs (Florea, 2009).

## RESULTS AND DISCUSSIONS

Database of contaminated sites with petroleum products from Maramures and Ivano-Frankivsk will be supported from regional governments, regional authorities to design studies for remediation and their reinstatement in business. Estimated results are to develop two maps of contaminated sites, one for Maramures County and one for Ivano-Frankivsk region. For the Romanian side, this map is presented as follows (Raport Proiect RoUaSoil, 2012).

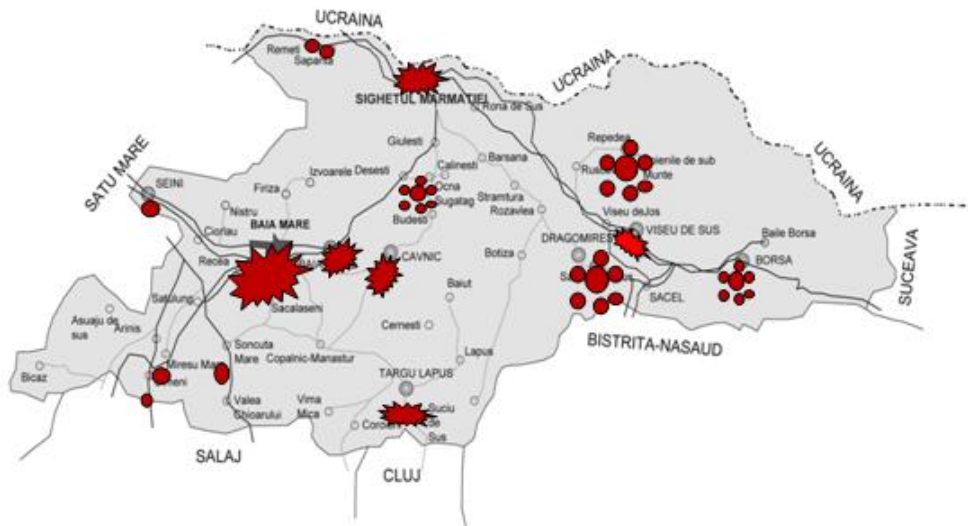


Figure 4. Estimated results for the Maramures County contaminated sites

## CONCLUSIONS

Partial results obtained during the project –RoUaSoil: Romania-Ukraine cross border - The Management of the Contaminated Sites with Oil Products”, concludes that:

- this type of projects may intensify and deepen cooperation between institutions from different fields of activity, the aim being a healthier living environment;
- it can create modern databases with electronic processing, with common denominator for different states but sharing the same natural resources;
- it can extend networking cross-border cooperation with other regions like Szabolcs Szatmár-Bereg, Borsod-Abaúj-Zemplén (Hungary) and Košice (Slovakia);

- it can prepare information materials useful for various domains, from the environmental impact assessment studies to ecological education activities.

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