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**Fifteenth OSCE Economic and Environmental Forum - Part 2:
“Key challenges to ensure environmental security and sustainable development in the
OSCE area: Land degradation, soil contamination and water management”
Prague, 21 - 23 May 2007**

**Session V
Land degradation and soil contamination**

Please find attached the presentation by Mr. Robert Raschman, Managing Director, Dekonta Company, Czech Republic.

Remediation of Contaminated Sites - Experience from East European, Balkan and Former Soviet Union Countries

Robert Raschman, Managing Director, DEKONTA Company, Czech Republic

Introduction

Dear Ladies and Gentleman,

I would like to share with you practical experience gathered by DEKONTA experts in the framework of site remediation projects realized in East European, Balkan and former Soviet Union countries. When preparing this contribution, I kept in my mind some of the conclusions from your previous meetings:

- Land degradation and soil contamination is no longer a matter of academic studies - it is a security concern;
- Soil degradation and contamination is a challenge that is aggravated by lack of cooperation, non-integrated approaches, and insufficient knowledge dissemination - the OSCE can play a role in filling these gaps;

as well as the guiding questions raised in the provided Tentative Outcome of the Forum:

- Could the OSCE play an active role in contributing in the set-up of regional cooperation mechanisms to combat land degradation and soil contamination?
- Should the OSCE continue or even enhance its work on “melange” projects?
- How could OCSE assist in setting up legal frameworks for the mining industry?

Remediation Projects and Learned Experience

1. Remediation of Petrochemical Plant in Pančevo / Serbia

In connection with the Kosovo conflict, the petrochemical complex of Pančevo (HIP PetroHemija) was bombed in 1999. The storage tanks containing EDC (1,2 Dichloroethane) were hit and 2,100 tons of EDC were spilled. About the half of the volume infiltrated into the soil. Probably worldwide largest contamination with chlorinated solvents was incurred there. Significant negative consequences were expected at both local (potential contamination of Pancevo municipal groundwater sources) and international (long-term contamination of Danube river) levels.

In 2000, DEKONTA carried out investigation activities at the site and identified the extent of pollution. Subsequently Swiss Agency for Development and Cooperation financed elaboration of a Risk Assessment study. In 2002, the Czech Government provided financial sources for installation of emergency remediation system, which allowed extraction of nearly 400 tons of spilled EDC in one-year operation. In 2003, UNEP / UNDP Belgrade office overtook operation of the system and financed its extension. Additional approx. 200 tons of EDC have been extracted to date. Free phase of EDC was removed and contamination situation was stabilized at the site.

Learned experience:

- Urgent action is sometimes a crucial aspect of successful remediation. Application of simple technology may be very effective if applied in time and properly.
- Cooperation of various donors is necessary (not their competition).
- In developing countries, some problems might be caused by the fact that there does not exist any applicable legislation and local authorities have very limited experience regarding site remediation activities.

2. Bioremediation of Sediments and Sludge Contaminated with Crude Oil - Baku / Azerbaijan

World Bank financed project to demonstrate possibility of biotechnological treatment of soils and sediments contaminated in consequence of long-term operation of crude-oil extraction activities.

Learned experience:

- Reasonable approach to contamination problems at a national level comprises the following activities:
 - Elaboration of a register of contaminated sites
 - Screening evaluation of contaminated sites to identify the most significant problems (hotspots) - implementation of the software developed at the Czech Environmental Ministry might be considered
 - Detailed investigation of hotspot sites (contamination data are very often not available!)
 - Elaboration of Environmental / Public Health Risk Assessment Study at hotspot sites to define the acceptable level of residual contamination at the sites
 - Elaboration of Feasibility Study (including pilot scale tests) and Detailed Remediation Design. The design should reflect environmental, social and economic reality (maximum improvement for available sources - not construction of roads and buildings)
 - Identification of suitable financial sources for land remediation activities
 - Tendering and implementation of clean-up project
- In countries, where the infrastructure for disposal of waste generated during site remediation activities (incinerators, controlled landfills etc.) is not available utilization of alternative disposal techniques (e.g. waste incineration in cement kilns) or remediation methods (e.g. in situ stabilization, on site bioremediation) should be considered.

3. Feasibility Study for Lojane Mine Site / Macedonia (on-going project)

The Feasibility Study for Lojane Mine, represents a first step within the targeted program of the Environment and Security Initiative (UNDP, UNEP, OSCE and NATO), “Reducing Environment and Security Risks from Mining in South-Eastern Europe”, to decrease trans-boundary environmental and safety risk posed by sub-standard mining and mineral processing operations in the past, as well as to reduce the significant risk associated with non-operational, abandoned site where large quantities of physically and chemically unstable mine wastes are stored.

Learned experience:

- Implementation of high-tech remediation approaches, standards and methods may not be always the most beneficial solution. Application of less expensive but technically sufficient alternatives should be considered.
- Collection of reliable contamination data and verification of proposed remediation techniques in pilot-scale (or at least laboratory scale) conditions is very important for preparation of an effective remediation design.
- Complex approach to remediation of former mining sites is necessary as these sites are usually extensive and affected not only by mining but also other activities carried out there in the past (mineral processing, smelting, transportation etc.). The most significant environmental problems should be identified at the mining site and solved in preference.

Recommendations

Re: Land degradation and soil contamination is no longer a matter of academic studies - it is a security concern.

Unfortunately still elaboration of “academic” studies is a subject of many contamination-related tenders and programs financed by international organizations in developing countries. It is suggested that OSCE plays active role in concentration of available financial sources on elaboration of useful studies (with well defined outputs) and realization of remediation projects (it is more beneficial to dispose one ton of contaminated soil than to generate 1 ton of useless reports).

Re: Soil degradation and contamination is a challenge that is aggravated by lack of cooperation, non-integrated approaches, and insufficient knowledge dissemination - the OSCE can play a role in filling these gaps.

Could the OSCE play an active role in contributing in the set-up of regional cooperation mechanisms to combat land degradation and soil contamination?

Co-ordination of existing activities focusing on land contamination problems would be very beneficial. Elaboration of registers of contaminated sites in particular member countries and identification of hotspots is suggested as the first step. Subsequently - based on these registers - the OSCE may identify contamination problems with trans-boundary consequences (sources of potential conflicts) and focus on their solution.

As far as knowledge dissemination is concerned, the problem is not availability of such information (there are a lot of free internet sources providing comprehensive information on evaluation and remediation of contaminated sites - e.g. www.epa.gov/epahome/topics.html, www.frtr.gov/matrix2/, www.eurodemo.info etc.) but probably understanding of such information. Maybe elaboration of an essential methodological guideline providing introduction to site contamination problems and methodology of their solution might be considered.

Re: Should the OSCE continue or even enhance its work on “melange” projects?

How could OCSE assist in setting up legal frameworks for the mining industry?

Real environmental and public health risks issuing from existing contamination (regardless of the origin of the contamination - melange, mining or other) should be the crucial criterion for selection of problematic sites for prior remediation. The risks should be specified based on elaborated Risk Assessment Studies.

Prague / May 13, 2007

Robert Raschman