An overview of Polish activities on obsolete pesticides problems

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Introduction

As the result of the centrally planned economy during the past 40 years, masses of unwanted pesticides of no value have been accumulated. At the beginning of the 1970's, an attempt was made to solve this problem through the building of tombs. About 200 tombs have been officially registered with a capacity of 60,000 tonnes but according to unofficial data the number of tombs is considerably higher and is estimated at about 300, containing about 90,000 tonnes of pesticides. On the dumps belonging to manufactures of plant protection chemicals, there has been an accumulation of significant amounts of waste and empty containers. Distributors also store a certain quantity of unwanted pesticides and empty containers.

The problem of tombs is so important and dangerous from the ecological point of view that it demands rapid and fundamental actions requiring expert knowledge and skills to be able to solve this problem safely.

The problem

The problem of obsolete pesticides stored in underground wells called tombs and other places, like old warehouses, military bunkers and even in unsecured ground pits is an important issue in Poland. This is due to the threats it poses for drinking water intakes, groundwater and generally for human and animal health. The amount, estimated at around 60 thousand tonnes indicated how significant the problem is. The estimated amounts can be even higher, if we add waste stored at landfills by industrial plants.

The waste has accumulated throughout years of inappropriate storage practices, got mixed up and resulted in large amounts of toxic pesticide mixtures that belong to different chemical groups. Polish pesticide tombs contain the whole history of plant protection, from mercuric and arsenic preparations, through nitrophenols and phosphates to triazines and more modern agrochemicals. Contaminated soil is also a big problem, as it constitutes the secondary source of contamination for a number of landfills.

Possibilities of disposal

Plant Protection Institute has participated in these efforts since 1992. Methodological studies, partial inventory of the storage places and a number of environmental impact studies were performed in order to establish a priority list and select the most urgent cases for cleanup. Many sites around the country have already been cleaned up and remediated. Thanks to the European Union support we managed to prepare, train and equip a Special Team for Pesticide Emergencies. The team can work under chemically dangerous conditions and has several years of experience at a number of sites.

There is a pressing need for more preliminary studies involving establishing the location of contaminated sites, completing the inventory, performing environmental impact assessments for selected sites and setting up and constantly updating the Emergency List.

Cleanup of old hazardous waste sites, including those containing pesticides, is among the country's ecological policy priorities. Poland allocates substantial funds for the cleanup of contaminated sites. In 1999 two Polish companies acquired licenses for exporting pesticide waste abroad and, following the Basel Convention guidelines, of which Poland is a signatory, 1,000 tonnes of obsolete pesticides were exported to special incinerators in Germany and Holland. Currently, exporting to a foreign incinerator and interim on-site securing are the only two available pesticide disposal technologies in Poland. The National Fund for Environmental Protection and Water Management has initiated studies to make other disposal methods available. The construction of a small semi-mobile pesticide incinerator, with the capacity of 250-300 kg/hour, is now in an advanced stage. The construction of the incinerator is financed under the PHARE program and will be in operation by the end of 2001. Plant Protection Institute is the beneficiary of the installation and it will be used for cleanup of the sites posing the highest environmental danger.

In parallel is the program of disposal of obsolete pesticides as additives to the so-called alternative fuels fed to cement kilns. The project will produce a pilot batch of fuel containing pesticides to be fed to a cement kiln and the incineration process will be recorded and measured in detail, including the analyses of furans and dioxins. The project is to provide its authors with a proof that the proposed method is safe and can be considered as an alternative disposal method under preparation.

If this is successful, by the end of 2001, three alternative technologies will be available for the disposal of pesticide waste. This would allow for a rational organisation of the process of cleanup and disposal of contaminated sites throughout the country.

Present activities

During 1999 and 2000, practical activities sped up. One of companies that were licensed to export pesticide waste is the IOR-LOBBE Consortium. Establishing in summer 1999, the consortium consists of the Waste Disposal Company in Dąbrowa Górnicza, Lobbe Płock (Central Poland) and Plant Protection Institute as a leader of the consortium. From 09.10.2000 the new consortium consists of two companies: Waste Disposal Company and Plant Protection Institute. Another new consortium was created near the end of 2000: Plant Protection Institute, Arcadis Ekokonrem from Wrocław, PROTE from Poznań and Waste Disposal Company from Dąbrowa Górnicza. The last organisation is going to play an important role on a Polish market of obsolete pesticide disposal and investigations. Other Polish companies: SEGI from Warsaw, Polish Geological Institute from Warsaw, Exbud from Kielce, and EKOKRAK from Kraków are also very active and did a successful works on that field.

Needs

Still needed are systematic preliminary activities like locating facilities, completing a comprehensive inventory, conducting studies of contamination around selected tombs in the form of environmental impact assessments and constantly updating the national priority list.

Disposal of old landfills containing hazardous waste, including pesticides is one of the priorities within the ecological agenda of our country. Poland appropriates large own financial resources for the disposal of tombs.

Disposal and remediation activities proceed very slowly. Less than 5% out of 300 tombs were disposed of. Many old warehouses were emptied and the problem was resolved for the stores of the National Forest Preserve, where the issue had been pressing for several years. In some regions the National Forest Preserve was able to eradicate the problem of pesticide waste completely.

The pace of disposal is not satisfactory. Activities undertaken by local officials (village managers) for the protection of the environment, especially protection of soil and groundwater against biologically active toxic substances are insufficient. Procedures that allow obtaining funds and financing environmental projects are long and hard. There is a need for solid management and coordination of activities with respect to this field.

It is important that we have already been through a very difficult start and commenced some programs that by the end of this year should provide us with practical opportunities for the disposal of waste around the country. In order to start and follow a logical and economically justified cleanup program for the whole country we need a national strategy. Unfortunately, we have none. If established, the strategy should take into account the following:

- completion of inventory
- establishing a system for studying sites - environmental impact assessments
- priority list
- emergency list
- securing financial resources
- availability of technologies
- "manual" for site owners

The problem of obsolete pesticides and the resulting soil and water contamination around the storage sites is part of the broader issue of hazardous wastes. However, due to high toxicity, biological activity and particular physical and chemical properties it should be considered separately and given special attention.

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