

## EXECUTIVE SUMMARY

The following report is the Final Report of the study “Development of a Preparatory Methodology for the Implementation of a National Registry of contaminated sites with POP’s”. The development of a methodology for the identification and evaluation of potentially contaminated sites with POP’s in the country is described. In addition, a preliminary methodology of risk assessment to identify suspicious contaminated sites with POP’s is also described. This methodology was implemented in four municipalities of the country.

The national survey of potentially contaminated sites with POP’s was made on the basis of theoretical studies establishing a relation between economical (industrial) activities and the potential for pollution generation with POP’s. Several bibliographical sources were consulted<sup>2</sup>. Additionally the survey incorporated the results of three other studies carried out simultaneously, named: National Inventory of sources of Dioxines and Furans, National Inventory of PCB’s and the National Inventory of Existence of Expired Pesticides. From these projects, additional potentially contaminated sites with POP’s were identified and incorporated to the national survey.

The development of this study allowed the identification of 906 Potentially Contaminated Sites (PCS) with POP’s at national level, which were included in a specially designed data base. Also three mechanisms for site prioritizing were developed, all of them under the scheme of risk evaluation. These mechanisms allowed a ranking system that establishes which sites have to be considered in the first place (this prioritizing process is a function of the risk to the human health and the environment).

The first prioritizing mechanism was used to select four pilot municipalities in which more detailed studies would be carry out (field inspections and samplings). The criteria employed at this level included: quantity of PCS existing in each municipality, quantity of receptors (number of inhabitants in the municipality) and the national variability, that is, municipalities of different geographical zones of the country. According to this, the municipalities in order to carry out field inspections were: Antofagasta, Quilicura, Talcahuano y Temuco.

The second prioritizing mechanism was applied to choose five priority sites to be visited within each municipality. To select the top five sites, an environmental vulnerability analysis (resources to protect) based on Geographical Information System (GIS) was conducted. This analysis was combined with specific information obtained from local environmental authorities.

Finally, the third prioritizing mechanism was for the selection of sites in which a preliminary sampling would be carry out in order to detect the presence of POP’s. Thus, based on the potential risk identified during field inspections, ten sites were defined as suspicious of containing POP’s. From this, six sites were selected to carry out the sampling by the “Screening” method. The results allowed to confirm the presence of POP’s in two sites:

1. A house backyard located next to a company were a fire took place, with 16 ng/Kg de 2,3,7,8-TCDF y 1.7 ng/Kg de 2,3,7,8-TCDD in surface ground.
2. A Foundry with 260 ng/Kg de 2,3,7,8-TCDF in dust filter and 8.2 ng/Kg 2,3,7,8-TCDF on the surface ground.

The study also showed that in most PCS with POP’s the potential pollutants that may be present correspond to dioxines and furans. In addition, three “Hot Spots” have being identified: (i) Illegal Landfills of Solid Waste, (ii) informal economic activities such as brick factories, small sawmills, waste recycling factories, etc. and (iii) incineration of hospital wastes (specially the old ones) with old facilities in which high temperatures cannot be reached and do not have safety measures in place.

It is also worth to mention that during the study practical tools were developed aimed to identify, prioritize and evaluate contaminated sites with POP’s. Together with this, key concepts for the management of contaminated sites were also defined. Finally, a study and compilation of remediation technologies for contaminated sites with POP’s was carried out, in order to provide an overview of this aspect which will be of major importance in the near future.

<sup>2</sup> Standardized toolkit for the Identification and Quantification of Dioxin and Furan releases (UNEP, 2003).