

Information on these sites is published by CETESB in its web portal and can be accessed in <http://areascontaminadas.cetesb.sp.gov.br/>

As a Stockholm Convention Regional Centre on POPs, in regard to contaminated areas, CETESB can share its knowledge with Latin America and the Caribbean countries that are starting the program of contaminated sites management, or exchange experiences with countries that are already running their program.

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CONTAMINATED SITES MANAGEMENT

Assessment of Soil and Groundwater Contamination

SÃO PAULO
 GOVERNO DO ESTADO
 Secretaria de Meio Ambiente, Infraestrutura e Logística

www.cetesb.sp.gov.br

CONTAMINATED SITES

CONTAMINATED SITES MANAGEMENT

The contaminated sites in Sao Paulo State had started to be identified in the years 80s. Most of those sites were contaminated by inadequate environmental practices, resulting in the contamination of soil and groundwater. Thus, CETESB's expertise were acquired by dealing with those cases and also with the interchange of knowledge with institutions and professionals from Germany, Netherlands, the USA and the UK, lead to the establishment of procedures for the management of contaminated areas. Nowadays CETESB has multidisciplinary team dealing with the management of contaminated sites that also include fieldwork, which includes environmental drilling, soil sampling, monitoring well installation, ground-water sampling, and non-invasive site investigation with geophysical equipment.

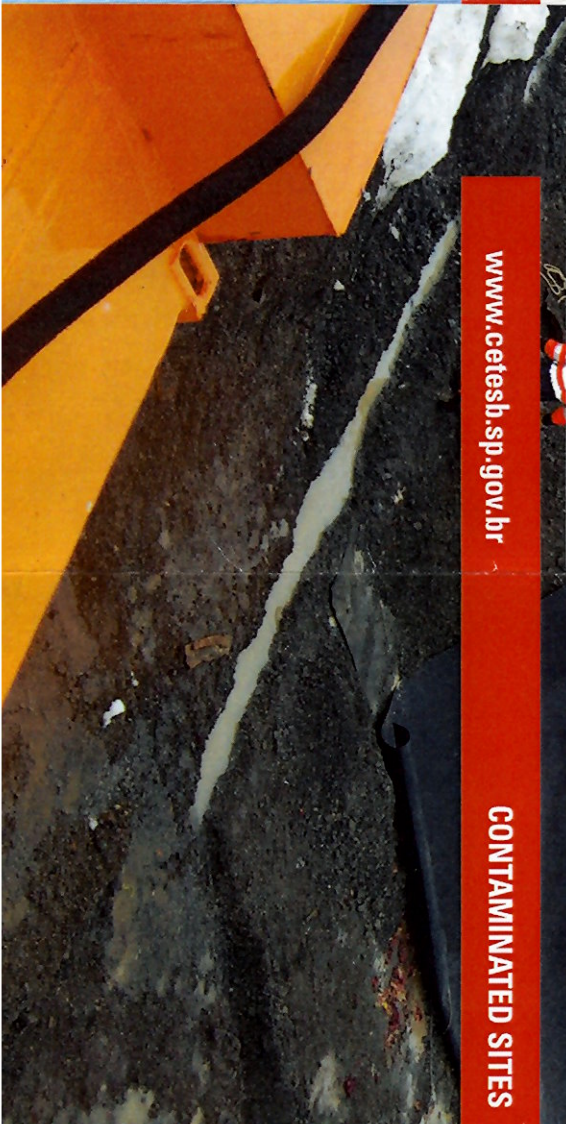
Soil Excavation for a underground tank removal in Pinheiros Incineration Plant



Soil Sampling in Pinheiros Incineration Plant



Incremental Sampling in Pinheiros Incineration Plant



Soil Gas Monitoring in Pinheiros Incineration Plant



Drilling Equipment of CETESB



Groundwater Monitoring Sampling



Biopile Treatment of Contaminated Soil in the Antarctic Base Comandante Ferraz



Drilling Equipment of CETESB



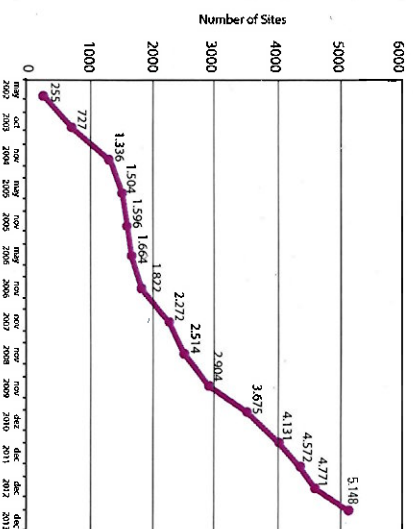
2001 and updated in 2005 and 2014. It shows the reference concentrations in soil and groundwater for chemicals compounds that are used to determine the quality or the existence of contamination of these compartments.

It is also important to point out the procedures established in the Simplified Corrective Action Based on Risk (ACBR) Applied to Contaminated Areas with Hydrocarbons Derived from Oil and Other Liquids Fuels (DD 263/2009), published in 2009, that presents a decision making methodology based on human health risk for fuel contaminated sites, where were established some default values.

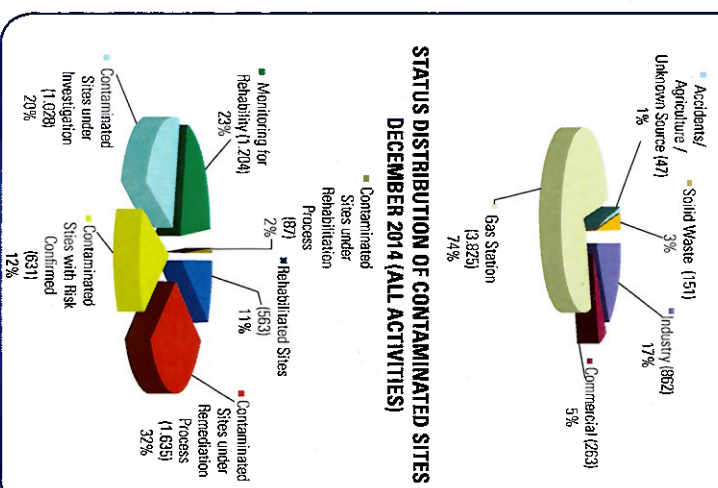
It also should be mentioned the Guideline for Assessment of the Potential of Contamination of Real Estates, published in 2003 that was developed to help the ones involved with real estate transactions to evaluate them in terms of contamination and also the precautions that should be taken to avoid further problems related to contaminated sites.

Due to the management of contaminated sites, 5,148 contaminated sites have been identified in the State of Sao Paulo, among them 74% were contaminated by leaking of underground tanks in gas stations. Nevertheless, the most critical cases of contamination are associated with industrial activities, within the production process or the final destination of their waste.

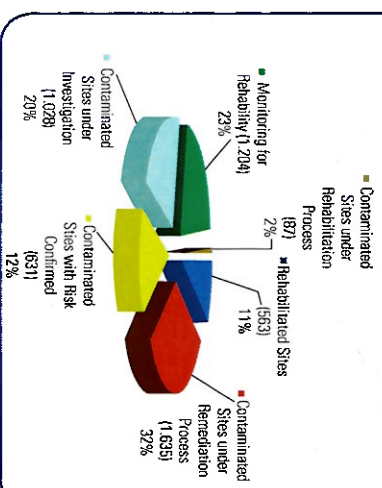
Evolution of the Number of Contaminated Sites



Source of Contamination Distribution - December 2014

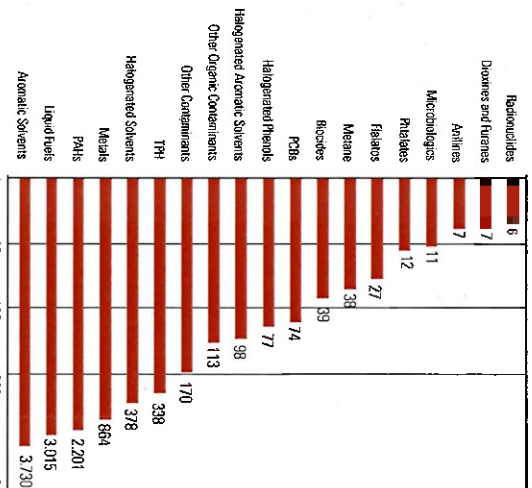


STATUS DISTRIBUTION OF CONTAMINATED SITES DECEMBER 2014 (ALL ACTIVITIES)



The main groups of contaminants that have been identified per sites are showing in Figures below presents the remediation technics that have been implemented in the sites that have been remediated.

Contaminant Groups - December 2014



Furthermore, this team can give also a support to other activities carried out by CETESB with respect to soil and groundwater contamination. As an example of cooperation program, it can be mentioned the partnership between the Ministry of Environmental Protection of Brazil and CETESB with respect to the management of the contamination in the Antarctic Base Comandante Ferraz. Thus, CETESB has conducted the site investigation and proposed the conception of the remediation system based on the best available techniques and also the provision guidance on best environmental practices for the coming groups to the Base.

The management of contaminated sites in the State of Sao Paulo is conducted by following the São Paulo State Act Nr 13577, from 09.07.2009, concerning to the Soil Protection and Contaminated Sites and the Decree Nr 59.263, from 05.06.2013, that rules on the Act Nr 13.577. These pieces of law establish the rules for protecting the soil quality and the management of contaminated sites. It also sets the bases for the calculation of human health risk assessment and the goals for remediation of contaminated sites. Besides, the procedure named Rules for Management of Contaminated Sites, published in 2007, presents the procedures for the management of contaminated sites in the State, including measures for the identification, characterization and rehabilitation of these sites and the definition of responsibilities, a part from some other technical guidelines.

It should be noted that one of CETESB main tool, the Guideline of Contaminated Sites Management, was published in 1999 and since that has been used for identification, investigation and remediation of contaminated sites, a part from some other technical guidelines.

It is important to mention that the Guideline Values for Soils and Groundwater were established in