

METHODOLOGY FOR EXPOSURE AND RISK ASSESSMENT IN COMPLEX ENVIRONMENTAL POLLUTION SITUATIONS

MARIA DE LURDES DINIS* AND ANTÓNIO FIÚZA
*Geo-Environment and Resources Research Center (CIGAR)
Engineering Faculty, University of Porto, Rua Dr. Roberto Frias
4465-024, Porto, Portugal*

Abstract. Frequently environmental pollution results from different hazardous substances released in the environment, meaning that contaminated sites may have many different chemical sources and transport pathways. Problems concerning environmental pollution affect mainly physical, chemical and biological properties of air, water and soil. The relationships between the sources, exposure and effects of contaminants to human and ecological receptors are complex and many times are specific to a particular site, to certain environmental conditions and to a particular receptor. Often the methodology for exposure and risk assessment to environmental pollution is translated into sets of assessment questions. These questions are used to meet the needs of assessment, particular important in focusing the assessment during the problem formulation. Risk assessments vary widely in scope and application. Some look at single risks in a range of exposure scenarios, others are site-specific and look at the range of risks posed by a facility. In general, risk assessments are carried out to examine the effects of an agent on humans (Health Risk Assessment) and ecosystems (Ecological Risk Assessment). Environmental Risk Assessment (ERA) is the examination of risks resulting from technology that threaten ecosystems, animals and people. It includes human health risk assessments, ecological risk assessments and specific industrial applications of risk assessment that analyze identified end-points in people, biota or ecosystems.

Keywords: risk assessment, exposure, hazard and environment

* To whom correspondence should be addressed. e-mail: mldinis@fe.up.pt