



Contents lists available at ScienceDirect

Environmental Science and Policy

journal homepage: www.elsevier.com/locate/envsci

Review

Strengths and weaknesses of European soil legislations: The case study of Portugal



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ARTICLE INFO

Keywords:

Soil legislation
European union
Portugal
Case study

ABSTRACT

Nowadays contaminated soil has become a major and priority problem, and therefore, during the last four decades many countries have been introducing policies and practices for the management of contaminated soil. In Portugal the water and air pollution have always deserved a greater attention and therefore the regulatory system for contaminated soil remains largely undeveloped, leading to a lack of a framework in terms of policy,

Abbreviations: APA, Portuguese Environment Agency (Agência Portuguesa do Ambiente); CAP, Common Agricultural Policy; CCDR, Commission for Regional Coordination and Development (Comissão de Coordenação e Desenvolvimento Regional); CERCLA, Comprehensive Environmental Response, Compensation, and Liability Act; CLC, CORINE Land Cover (Coordination of Information on the Environment Land Cover); CORINE, Co-ordination of Information on the Environment; CPA, Code of Administrative Procedure (Código do Procedimento Administrativo); CRP, Constitution of the Portuguese Republic (Constituição da República Portuguesa); DDT, Dichlorodiphenyltrichloroethane; DG ENV, Directorate General for the Environment; DPSIR, Drivers, Pressures, States, Impacts and Responses; EAN, National Agronomic Station (Estação Agronómica Nacional); EAP, Environmental Action Programme; EC, European Commission; ECOS, Environmental Citizens Organization for Standardization; ECSC, European Coal and Steel Community; EEA, European Environmental Agency; EEC, European Economic Community; EIA, Environmental Impact Assessment; EIF, Environmental Investment Fund; EIONET, European Environmental Information and Observation Network; EPA, United States Environmental Protection Agency; ESA, European Space Agency; ESDAC, European Soil Data Centre; ESPON, The European Observation Network for Territorial Development and Cohesion; ETCs, European Topic Centres; EU, European Union; EUROSTAT, Statistical Office of the European Communities; EUSIS, European Soil Information System; FAO, Food and Agriculture Organization of the United Nations; FC, Cohesion Fund (Fundo de Coesão); FEADER, European Agricultural Fund for Rural Development (Fundo Europeu Agrícola de Desenvolvimento Rural); FEAMP, European Maritime and Fisheries Fund (Fundo Europeu dos Assuntos Marítimos e das Pescas); FEDER, European Regional Development Fund (Fundo Europeu de Desenvolvimento Regional); FSE, European Social Fund (Fundo Social Europeu); GEF, Global Environmental Fund; GLASOD, Global Assessment of Soil Deterioration; GMES, Global Monitoring for Environment and Safety; GSP, Global Soil Partnership; GUSCO, Guideline for Use at Contaminated Sites in Ontario; HWSD, Harmonized World Soil Database; HYPRES, Hydraulic Properties of European Soils Database; ICSU, International Council for Science; IEEP, International Environmental Education Programme; IIASA, International Institute for Applied Systems Analysis; IPPC, Integrated Pollution Prevention and Control; ISRIC, World Soil Information Database; ISSCAS, International Soil Reference and Information Centre Institute of Soil Science – Chinese Academy of Sciences; ISSS, International Society of Soil Science; ITPS, Intergovernmental Technical Panel on Soils; JNICT, National Board of Scientific and Technological Research (Junta Nacional de Investigação Científica e Tecnológica); JRC, Joint Research Centre of the European Commission; LADA, Land Degradation Assessment; LUA, Single Environment Licensing (Licenciamento Único de Ambiente); MAOTDR, Ministry of Environment, Spatial Planning and Regional Development (Ministério do Ambiente, do Ordenamento do Território e do Desenvolvimento Regional); NEPA, National Environmental Policy Act; NFPs, National Focal Points; NRCs, National Reference Centres; PDM, Municipal Master Plan (Plano Diretor Municipal); PEAASAR, Strategic Plan for Water Supply and Sanitation of Residual Waters (Plano Estratégico de Abastecimento de Água e de Saneamento de Águas Residuais); PF, Foment Plan (Plano de Fomento); PIN, Projects of Potential National Interest (Projetos de Potencial Interesse Nacional); PNUMA, United Nations Environment Program (Programa das Nações Unidas para o Meio Ambiente); POLIS, Programme for Urban Rehabilitation and Environmental Enhancement of Cities (Programa Nacional de Requalificação Urbana e Valorização Ambiental das Cidades); POSEUR, Operational Programme Sustainability and Efficiency in the Use of Resources (Programa Operacional Sustentabilidade e Eficiência no Uso de Recursos); POVT, - Operational Programme for Territorial Enhancement (Programa Operacional de Valorização do Território); PTR, Pedo-Transfer Rule; PTRDB, Pedo-transfer Rules Database; QM, Qualified Majority; QMV, Qualified Majority Voting; QREN, National Strategic Reference Framework (Quadro de Referência Estratégica Nacional); RAN, National Agricultural Reserve (Reserva Agrícola Nacional); REN, National Ecological Reserve (Reserva Ecológica Nacional); RGGR, General Regime of Waste Management (Regime Geral da Gestão de Resíduos); RJGT, Legal Regime of Territorial Management Instruments (Regime Jurídico dos Instrumentos de Gestão Territorial); RJUE, Legal Regime of Urbanization and Construction (Regime Jurídico de Urbanização e Edificação); SAAL, Local Support Ambulatory Service (Serviço Ambulatório de Apoio Local); SAPARD, Special Accession Programme for Agriculture and Rural Development; SEA, Single European Act; SGDB, Geographical Database of the European Community; SGDBE, Soil Geographic Database of Eurasia; SIRER, Integrated System of Electronic Registration of Waste (Sistema Integrado de Registro Eletrónico de Resíduos); SOTER, Soil Terrain Database; SOVEUR, Soil Vulnerability in Europe; SPADE/M, The Soil Profile Analytical Database of Europe of Measured Parameters; SQ, Soil quality; SSV, Soil Screening Values; SWSR, Status of the World's Soil Resources; TGR, Waste Management Fee (Taxa de Gestão de Resíduos); TUA, Single Environmental Registry (Título Único Ambiental); UN, United Nations; UNCCUR, United Nations Conference on the Conservation and Utilization of Resources; UNCED, United Nations Conference on Environment and Development; UNEP, United Nations Environment Program; UNESCO, United Nations Educational, Scientific and Cultural Organization; UNSODA, Unsaturated Soil Hydraulic Database; USA, United States of America; WISE, World Inventory of Soil Emission Potentials; WRB, World Reference Base for Soil Resources

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<https://doi.org/10.1016/j.envsci.2017.10.010>

Received 3 August 2017; Received in revised form 10 October 2017; Accepted 11 October 2017

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Soil contamination
Environment

including incentives, administrative infrastructures and capacity, as well as the development and implementation of techniques for soil remediation. Since the 1970's Portugal possesses a law for soil regulation, which is completely outdated and does not focus the main issues concerning soil contamination and preservation, and its environmental importance. The Decree Law No. 178/2006 constituted a first attempt to fill the lack on existing legislation concerning soil contamination, creating a general waste management regime ("RGR"), and setting up the legal framework required to give pursuit to decontamination actions and defining waste management taxation ("TGR"). Unfortunately, it seems that Portugal is still far away from having a "real" legislative regulation for soil protection. It was recently published Law No. 31/2014 that is mainly concerned with soil management, planning, and urbanism. The Legal Regime of Territorial Management Tools ("RJGT") approved by Decree-Law No. 80/2015, which undertook a profound reform in what concerns the land classification model, eliminating the operative category of urbanizable land, and being mainly concerned with soil management, planning, and urbanism. The Legal Regime for Urbanization and Edification (established by Decree-Law No. 555/99) was amended by Decree-Law No. 214-G/2015 developing the bases for the Legal System of Territorial Management Instruments ("RJUE"). This Decree-Law also introduces a substantial revision of the Code of Administrative Procedure ("CPA") and introduces changes to various separate pieces of legislation that regulate or are connected with administrative procedures in order to bring them into line with the amendments to the CPA. It is crucial for any country the development of a harmonious, cohesive, integrated and sustainable territorial urban plan, but it should never be forgotten the soil environmental importance for sustainability and human welfare. The main aspects of soil quality are pointed out in this work, as well as possible parameters to measures this quality, and a general overview of the development process of environmental legislation is also presented. This work also makes a brief description of the evolution of the Portuguese environmental legislation in what concerns contaminated soil.

1. Introduction

Soil is a complex environmental matrix with a high heterogeneity where solid, liquid and gaseous components interact in multiple physical, chemical and biological processes. The soil is not only a source of food, biomass and raw materials, serving as a platform for human activities (Schulte et al., 2014), but is also our heritage and plays a central role as a habitat and gene pool (Doula and Sarris, 2016).

The soil has a key importance in our life, however, the growing problem of soil degradation is increasingly affecting its life supporting ability (Planta et al., 2001; Oldeman et al., 1991), which justifies the recent concerns of the European Commission in developing a soil legislation framework (European Commission, 2006).

Soil can be considered a non-renewable resource (Hakeem et al.,

2014), since its degradation rate is potentially much higher than its rates of formation and regeneration, which are very slow (Castelo-Grande et al., 2010, 2005; Gobat et al., 2004; Häberli, 1991; Corbett, 1969; Phillips and Lorz, 2008). Nevertheless, soil is being increasingly deteriorated by human activities (Neiva et al., 2016), natural erosion (Evans, 1995; Panagos et al., 2015), compaction and degradation (Coylea et al., 2016). The potential risks of soil contamination to human health and to ecosystems has been demonstrated by several studies (Abrahams, 2002; Alama et al., 2002; Colborn et al., 1993; Herrick et al., 2007; Kah et al., 2012a,b; Khan et al., 2008; Pocchiari et al., 1979; Tóth et al., 2016; Zornoza et al., 2015). Thus, the recovery and preservation of soil quality is of the upmost importance for the preservation of life on earth, including mankind.

There is an intrinsic association between soil and economy, as there

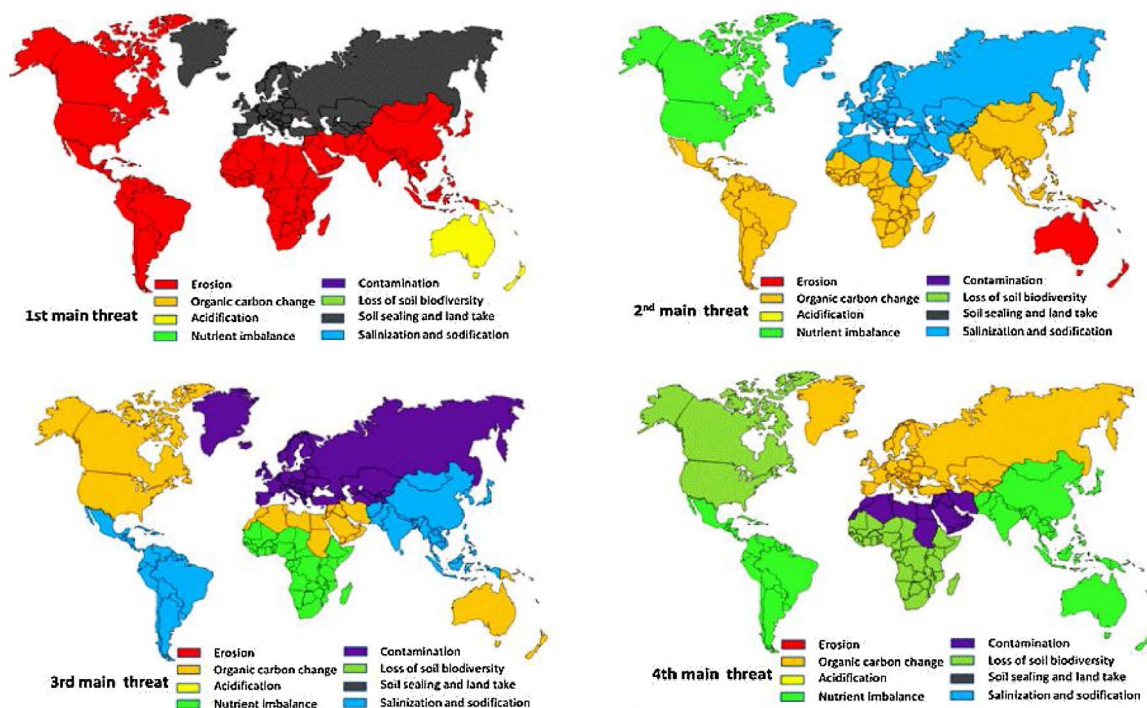


Fig. 1. Global assessment of the four main threats to soil by FAO regions (Montanarella et al., 2016).

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