



# The legal environmental risk analysis (LERA) sample of mining and the environment in Turkish legislation



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## ABSTRACT

As advancing technology and increasing demands for natural resources continue to mount pressure on the environment, environmental conservation and sustainable management have become ever more important. Individual countries have been increasingly taking action to reduce environmental destruction caused by human activities in an attempt to find a balance in between the necessary exploitation of resources and environmental conservation. In Turkey, the struggle between environmental conservation and mining activities is set within the legal context, with the requisite legal regulations (which describe various procedures) in the midst of being updated or renewed. The legal environmental risk analysis (LERA), beginning by discussing the main legal regulations of environmental conservation in relation to mining activities, defines basic environmental components which form the basis of environmental conservation in relation to mining, and analyzes the impact of mining on each component. The analysis (LERA) finishes with an evaluation of the components as they currently stand and makes some suggestions for the improvement of insufficient regulations.

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## Introduction

Synthesizing, characterizing, and communicating the risk science information used in environmental decision-making depend in the first instance on the nature and quality of the technical analysis. At the same time, other important features of the risk analysis, features that require special attention to provide context for the analysis as a whole, are frequently overlooked in practice or in presentation (Pattona, 1998).

The reform in environmental regulations being considered at both federal and state levels is intended to enhance the value and effectiveness of a rule by incorporating risk assessment and cost benefit analysis in the rule making process or regulatory implementation. Although a risk based approach may not provide a panacea to all environmental problem solving, it offers some obvious advantages over the status quo (Pavloua et al., 1998). A regulation is legally enforceable rule. A regulation must be developed promulgated, and enforced by those agencies and agents authorized by law (Johnson, 2012).

As the ever expanding human population's insatiable demand for natural resources continues to advance at an alarming rate, environmental conservation becomes ever more important. In an

attempt to mitigate the adverse effects such a demand has on the environment, countries are increasingly turning towards the implementation of legal policies for the protection of their natural environment. Turkey, for example, which supplies 50% of their energy demands from coal may find, without such policies, that they have no choice but to compromise their environmental principles to meet the demand, and such compromise can only lead to environmental destruction and resultant pollution (Yaylaci, 2006). Turkey is not alone in struggling to draw the right balance between environmental protection and necessary mining activities; examples are evident throughout Europe—in fact, 29% of European waste is mining related.<sup>1</sup> With this in mind, Turkey is currently going through a restructuring period regarding its mining activities and is issuing new legal regulations to aid in developing a balance between conservation and exploitation, as well as updating existing regulations; with changes being made on all levels, from the Constitution to regulations of the lowest order (Ulusoy, 2011).

The purpose of this study is an analysis of Turkey's mining regulations as they relate to the protection of the environment. Regulations were chosen as they are definitive and therefore provide clearer guidance for practical implementation, especially when it comes to enforcement.

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<sup>1</sup> Hamor (2004).

In Turkey, mining legislation has been subject to significant changes within the past few years as a result of developing technology and increasing resource demands; and even though such change affects a broad range of legal regulations and various sectors, the greatest impact has been on forestry legislation due to the majority of mining taking place on forested land.

Previously, regulations had been increasing in reach and scope to encompass areas that were previously protected, and had also broadened the definition of minable products to include sand, gravel, and brick-tile clay. Such extension object to resulted in numerous cases, which eventually gave rise to greater emphasis being placed on the need for protection of the environment. However, during this period, significant damage had already been caused as a result of surface mining on forested land.<sup>2</sup>

The experiences of the past emphasized the interconnected relationship between legislative change for commercial and economic benefit and environmental impact, and close attention needs to be paid when determining where to strike the right balance—a balance which should strive to achieve sustainable management of natural resources and minimal adverse consequences on the environment.

### Methodology<sup>3</sup>

The legal environmental risk analysis (LERA) methodology used in this study is an assessment of the existence, varying degrees and effectiveness of “criteria” within selected regulations. “Criteria” is discussed below, and follows a discussion on the various regulations identified as the subject of this study.

### Legislation

The main laws that regulate mining and the environment are identified as being mining, forest, environmental, land hunting, and geothermal resources and natural mineral water laws, with particular regulations being emphasized to show how laws are enforced. The regulations evaluated are those that are the most frequently referred to documents in environmental and mining activities. The identified laws and regulations can be summarized briefly as follows:

*Turkish Mining Law No. 3213* came into force 4 June 1985 and regulated the procedures and principles for the classification, exploration and operation of mines, and for acquiring and surrendering mining rights. Significant changes were made in 2004 and 2010, the most important of which changed the types of rock that were included in the definition of a mine. The 2004 amendments, which affected exploration and the operation of mining, were rescinded by the Constitutional Court in 2010. New regulations made after this decision re-enacted *Forest Law No. 6831* (and thus the administration of forests), which altered the process for the exploration and operation of mines on forested land.

*Environment Law* came into force in 1983. *Law No. 2872* has as its objective sustainability of the environment, which is a common asset of all living things. This law emphasizes the importance of ensuring a healthy environment for present and future generations, and the importance of finding that delicate balance. The *Environmental Law* is the foundation of various regulations relating to mining, especially waste and noise regulations.

*The Forest Law* came into force in 1956. *Law No. 6831* determines the forest areas and types, precautions, forest cadastre and limits, support for villagers inside forest areas, permits that can be given within forested lands in the public interest, and consequences of crimes committed in forested land. *Article 16* of this law regulates mine exploration and operation on forested land and appoints forest administrations for the execution of these rules.

*The Geothermal Resources and Natural Mineral Waters Law* came into force in 2007. *Law No. 5686* has as its objective the identification and protection of geothermal and natural mineral water resources, and for the issue of rights for economic benefit without adversely impacting on the environment.

*The Land Hunting Law* came into force in 2003. *Law No. 4915* has as its objective the conservation and improvement of the natural life spaces of game and wild animals. This law also regulates the hunting process, establishment of hunting areas, production and trade of wild animals, and the training of hunters.

Regulations, aims and acronyms are presented in [Table 1](#).

### Criteria

“Criteria” in the context of environmental components are identified based on definitions of “the environment”, with both national and international documents and resources used for this process. However, unfortunately, “the environment” is a concept with varying definitions and interpretations.

UNEP (United Nations Environment Programme) preferred to determine the components of “the environment” in accordance with the Aarhus Convention and EU (European Union) Council Directive No 90/313/EEC,<sup>4</sup> and in harmony with the provisions of the Aarhus Convention, the EU Directive, and the UNEP definition, Turkish Environmental Law and international agreements that Turkey signed — such as the Biological Diversity Contract, the Bern Agreement, the Barcelona Treaty, the Ramsar Agreement, the Bucharest Treaty, the CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) Agreement, the European Landscape Agreement and European Forestry Agreement (which is currently being prepared) — have adopted a definition which encompasses the components of air, water, soil, landscape, natural structures, and flora and fauna.

Therefore, the criteria of the environmental components and their scopes are:

*Protection of Soil Structure*<sup>5</sup> covers the existence of direct or indirect provisions regarding the conservation of soil structure and quality.

*Protection of Underground and Surface Water*<sup>6</sup> covers the existence of direct or indirect provisions regarding the protection of underground or surface water from pollution, and their quality or flow system from any type of harm.

*Protection of Tree and Other Botanical Elements*<sup>7</sup> covers the existence of direct or indirect provisions regarding the prevention of existing flora from being damaged in areas of mining activity, especially forests.

*Protection of Animal Health*<sup>8</sup> covers the existence of direct or indirect provisions regarding the protection of human health against threatening practices.

*Protection of Clean Air*<sup>9</sup> covers the existence of direct or indirect provisions regarding the protection of clean air, and not permitting activities that will impair air quality.

<sup>2</sup> For example, only two mining permits were issued for 14 ha of forested land in Istanbul between 2001 and 2004 (before legislative amendments on 26 May 2004); however, 209 mining permits were issued between 2004 and 2010.

<sup>3</sup> The name, format, and evaluation of LERA method belong to the author, and no publication of this subject with this name and format was found in the literature.

<sup>4</sup> Brett (2000); Karatzas and Moussiopoulos (2000).

<sup>5</sup> Referred to as “Soil” in the table and graph.

<sup>6</sup> Referred to as “Water” in the table and graph.

<sup>7</sup> Referred to as “Plant” in the table and graph.

<sup>8</sup> Referred to as “Animal” in the table and graph.

<sup>9</sup> Referred to as “Air” in the table and graph.

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