

Sustainable Development Threats, Inter-Sector Conflicts and Environmental Policy Requirements in the Arid, Mining Rich, Northern Chile Territory

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ABSTRACT

Northern Chile has been an N–S arid to semiarid belt for more than 100 million years. Also, it is one of the world's most richly endowed territories in terms of Cu(Mo) porphyric deposits. Its mining output has steadily grown since the 1980s and has recently benefited from increased Asian demand and high Cu prices. The scarce water resources are allocated according to the 1981 act that emphasizes economic efficiency based on free transference between water-right owners. As a result, water rights have attained peak market prices, at the US\$200 000 level per l/s. Besides the consequences of the uneven mining–agricultural competition for water rights and the environmental effects of accelerated groundwater withdrawal, social unrest has locally attained serious levels, in particular in the Atacama Region. Therefore, the central government is considering significant changes to the present legislation, allowing a stronger participation of the state in water management issues. Copyright © 2009 John Wiley & Sons, Ltd and ERP Environment.

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Introduction

COPPER MINING IS THE MAIN ECONOMIC ACTIVITY IN CHILE, WITH SALES OVER US\$30 000 MILLION (2007), WHICH represent 55% of the country exports and about 37% of the total copper mined in the world. Besides, several ventures worth US\$14 300 million are pending final approval, and will be probably carried out in the coming years despite current copper price fluctuations. These projects are supported by *ca.* 38% of the World reserves, that is, about 250 Mt (million tons) of metallic Cu (Minería Chilena, 2006a). However, the geological evolution of the Chilean territory determined that an overwhelming proportion of its metallic ore deposits, including the Cu(Mo) porphyries, are located in the arid to extremely arid northern part of the country. The scarcity of water resources in this region hampers the feasibility of new projects and expansions, and menaces the sustainability of ongoing operations responsible for 67% of the current Chilean copper production (Minería Chilena, 2005a). In turn, the pressure for water resources reaches the farmers community in the form of high

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