

WHITE PAPER

Chile Confronts its Environmental Health Future After 25 Years of Accelerated Growth

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Abstract

BACKGROUND Chile has recently been reclassified by the World Bank from an upper-middle-income country to a high-income country. There has been great progress in the last 20 to 30 years in relation to air and water pollution in Chile. Yet after 25 years of unrestrained growth, there remain clear challenges posed by air and water pollution, as well as climate change.

OBJECTIVE The aim of this study was to review environmental health in Chile.

METHODS In late 2013, a 3-day workshop on environmental health was held in Santiago, Chile, bringing together researchers and government policymakers. As a follow-up to that workshop, here we review the progress made in environmental health in the past 20 to 30 years and discuss the challenges of the future. We focus on air and water pollution and climate change, which we believe are among the most important areas of environmental health in Chile.

RESULTS Air pollution in some cities remains among the highest in the continent. Potable water is generally available, but weak state supervision has led to serious outbreaks of infectious disease and ongoing issues with arsenic exposure in some regions. Climate change modeling in Chile is quite sophisticated, and a number of the impacts of climate change can be reasonably predicted in terms of which areas of the country are most likely to be affected by increased temperature and decreased availability of water, as well as expansion of vector territory. Some health effects, including changes in vector-borne diseases and excess heat mortality, can be predicted. However, there has yet to be an integration of such research with government planning.

CONCLUSIONS Although great progress has been made, currently there are a number of problems. We suspect that the Chilean experience in environmental health may be of some use for other Latin American countries with rapid economic development.

KEY WORDS air pollution, Chile, climate change, water pollution, policy

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INTRODUCTION

In 2013, the World Bank reclassified Chile from an upper-middle-income country to a high-income country, based on its having a per capita gross national product exceeding \$12,600. The World Bank does not take economic inequality into account in determining a country's status; Chile's 2011 Gini index (an index of inequality with higher scores indicating more inequality) rating was 51, among the highest in Latin America and 10 points higher than the Gini index for the United States in 2010.¹ In 2010, Chile became a member of the Organization for Economic Cooperation and Development (OECD), a grouping of 36 developed countries; among these countries, which include Turkey and Mexico, Chile has the highest Gini index.

Although a good indicator of overall disparity, the Gini index does not reflect inequalities within regions. In terms of economic activity, the north is dominated by mining. The center (the capital city of Santiago, main ports and agrarian valleys) concentrates political and financial power, as well as agricultural and industrial activity. Cattle, forestry, and fishing occur mainly in the south. Population and production are both concentrated in Santiago (49.3% GDP) and Antofagasta, the main mining region in the north (10.4% of GDP), respectively.² Poverty (defined as <\$7085/y income for a family of 4), varies among regions from 4% in Antofagasta, up to 28% in the IX Region of Araucanía, where the population of Mapuche ethnic origin is mostly settled (Fig. 1). Furthermore, inequality varies distinctly within the country; data from 2003 indicated that county-level Gini coefficients (then 55 for the whole country) varied widely across the country, ranging from 41 to 62.³

Compared with most countries in Latin America, Chile had a long history of democracy before the military coup in 1973. The period since 1939 laid the foundations for a successful industrial development under the state patronage, so that by mid-century the state owned or had interests in more than 100 strategic enterprises, such as transport, energy, and water. Later, the exacerbation of historical political struggles for more structural changes ended in the 1973 military coup, which interrupted the democratic trail and drastically changed the state-oriented policy to an extreme open market-oriented system.⁴ Though the military regime was characterized by strong business

development, it sharpened the extreme poverty and vulnerability of the poor. The return to democracy in 1990 began with 42% of the population under poverty and with public social protection systems dismantled.⁵

Between 1990 and 2015, Chile experienced unprecedented growth and managed to lower poverty to 14.4% (2013)⁶; however, this growth was mostly based on raw materials. The OECD, in a 2009 report, highlighted the impact of the accelerated growth on natural resources and the environmental burden generated by mining, agricultural and forest overexploitation, as well as overcrowding in Santiago, which was pointed to as among the most polluted the cities in the world.⁷

Here we describe the state of environmental health in Chile, which may be seen as a model for the future of other Latin American countries as they become more developed. After the re-establishment of democracy and a period of rapid economic growth, during which environmental concerns were somewhat on the back burner, now is a good time to assess the overall picture of environmental health in Chile and consider how to move forward. We focus on air and water pollution and on climate change, which are among the most important environmental issues in Chile.

This article reflects the findings of a workshop held in Santiago, Chile, in October 2013, called "Planning for a Global Environmental Health Hub Based in Chile," which brought together researchers from around the country, as well as government personnel working in environmental health. The workshop was funded by the US National Institutes of Health Fogarty International Program, as part of a new initiative to support a multinational network of regional hubs for Global Environmental and Occupational Health Sciences (GeoHealth).⁸ For details of the workshop, see <http://geohealthchile.blogspot.com/p/environmental-and-occupational-health.html>. Chile, with a strong group of environmental health researchers and a nucleus of technicians in government agencies devoted to environmental health, was considered as a possible area for a future GeoHealth Hub; our team was awarded a Fogarty Planning Grant for a GeoHealth Hub in Chile. However, when Chile was reclassified as a rich country in 2013, it became ineligible for Fogarty funding. We now plan that Chile will play an important role in south-south collaboration in environmental health training for a new GeoHealth Hub to be centered in Peru.

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