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Bolivia en un Mundo 4 Grados Más Caliente: Escenarios Sociopolíticos Ante el Cambio Climático para los Años 2030 y 2060 en el Altiplano Norte

[Bolivia in a World Four Degrees Warmer: Sociopolitical Scenarios Under Climate Change for the Northern Altiplano in the Years 2030 and 2060]

By Dirk Hoffmann and Cecilia Requena. La Paz, Bolivia: Instituto Boliviano de la Montaña and Fundación PIEB, 2012. 168 pp. Free download at www.cambioclimatico-bolivia.org; hardcopy available at cost of postage from info@bolivian-mountains.org. ISBN 978-99954-57-57-0.

Every now and then, surprises arrive by mail that propel our curiosity to find out more about what we just received. This engagement with the task of discovering details about a book is precisely what makes reading gratifying, stimulating further inquiry—and all of this in Spanish! Like a fine perfume in a small bottle, this book on prospective scenarios of climate change for 2030 and 2060 in the northern Altiplano of Bolivia brought to me the essence of why we do science in mountain studies. Not only does the size of the book allow one to read it expeditiously, but the full color photograph on the cover inspires the sense of wonder and the intense urge to dig into its pages.

In an attempt to guide readers into this delight, the back cover alerts us that the study is a report-like rendition of a project implemented by the Bolivian Mountain Institute and the Bolivian Strategic Research Program Foundation, two nongovernmental organizations working on key issues related to the mountain environment in the central Andes. Readers will also discover that funding for the report was provided by a variety of institutions from Germany and the United Kingdom, in a collaborative approach that reflects close cooperation between German and British efforts on the topic of climate change, as noted in the preface by the German ambassador to Bolivia, Dr. Philipp Schauer. This cooperation is also highlighted in the introductory section, in which Hoffmann, a mountain ecologist working as director of the Bolivian Mountain Institute and editor of *Klimablog*, and Requena, an environmental communicator for public policy and administration working as lead consultant for decentralization and sustainable development, tailored a specific patch for Bolivia within the larger tapestry of climate change research and applications for the larger interconnected planet. Despite being gray literature, the book includes more than 70 sources in its bibliography and lists over 20 URLs that were consulted; color graphs aid the interpretation of maps and models included in the text.

The reader will move easily between the 8 different sections enriched with 4 tables, 10 line graphs, 8 infographics, and 8 maps. It is easy to see why this collaboration has resulted in a highly practical manual that not only presents scientific results in relation to climate modeling applied to the highlands of South America, but also compels an understanding of the human–environment relationship required to improve the current trend at the local level, if avoidance of global warming is to be possible at a larger scale. However, the authors are also keen to point out that the book does not pretend to draw catastrophic scenarios. Shifting the focus from the scientific foundations of global environmental change to the reality of warming in Bolivia, the authors then situate the analysis in the northern Altiplano and its unique natural, ethnic, demographic, and socioeconomic characteristics. Then, with a clear description of the methodology—including explanations of climate modeling, geographic information systems, geoecology, and traditional social science research—they present scenarios for the short term (2030, ie a generation from now), and for the long term (2060, ie more than two generations from now). They argue that the environmental change envisaged for the short term is related to incremental impacts that mainly affect quantity, whereas the change envisaged for the long term is linked to qualitative breaks as a result of reaching the tipping points of the Altiplano ecosystem.

These 2 scenarios are presented for 3 different pathways: *the optimistic* (implementing everything in the right place and time with contextual support); *the inertial* (maintaining social attitudes and public policies); and *the pessimistic* (lacking implementation and no contextual support). By defining these scenarios, the authors analyze, among other topics, the following direct climate signals: increasing temperatures, rainfall regimes, glacial retreats, El Niño and La Niña effects, and the frequency of extreme events. They also analyze direct social signals, such as water supply and energy capture, agricultural productivity and livestock losses, food security, health risks, and regional infrastructure (road network). Based on these indicators, the scenarios for the short and long term are constructed with regard to population dynamics and its impact on public services, economic dynamics and social equity, the "governmentality" of public policy (such as in governance and governability), and social resilience.

Hoffmann and Requena (rightfully) hypothesize that, in order to cope with the demands of a changing world under warmer conditions, society as a whole needs to be more sensitive to issues of climate change. This is particularly important for leaders and youth in mountain areas, because they will be prompted to opt for radical solutions in a crisis management approach, instead of using environmental planning for incremental conflict resolution. It has been

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agreed that the most heavily impacted systems on Earth will be those of the high tropical mountains, such as the Andes, where young Bolivians and their leaders will be prompted to increase environmental agency. The authors conclude their argument by analyzing the prospect of a lack of social cohesion—due to insufficient efforts to reduce poverty, precarious social programs, pollution, crime, and other factors—and suggest short-term measures to reorient the pathways towards substantive gains in social awareness of climate change that will lead to progressive, sustainable livelihoods. The authors argue that using the variable "climate change" in the political discourse and the technical management of government policy will advance climate change adaptation in Bolivia in terms of migration and population dynamics in the highlands, water abstraction and distribution to an increasingly thirsty landscape, introduction of agricultural and livestock species that are adapted to local conditions, and above all, increasing resilience through risk management programs in the Northern Altiplano that reflect participatory governance and development planning as a social investment rather than a social trap fed by uncertainty.

The fragrance is gratifying. I am glad to have received this book, which is small in size but large in potential use—not only in terms of its practical implications for environmental policy and call for social action, but also in terms of its contribution to the Spanish literature on climate change and to the availability of these materials for environmental communications in South America. ¡Me huele bien! The aroma left from this gift brings hope for the future of mountain people of the Altiplano. The late ecologist Eugene P. Odum said it best: "We shall be neither optimistic nor pessimistic, but hopeful."

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