

# Introduction

## Climate Change in Latin America

### Inequality, Conflict, and Social Movements of Adaptation

by

*Andrea Santelices Spikin and Jorge Rojas Hernández*

Translated by

*Richard Stoller and Luis Alberto Hernández*

Climate change is the gravest and most complex problem impacting the planet and its people in the twenty-first century. For thousands of years the Earth's temperature has remained within a range that makes human life possible in a biodiverse ecosystem of interdependent species. Since the dawn of the industrial era we have seen increasing alteration in temperatures as a consequence of global warming, provoked by increasing carbon dioxide emissions from the fossil energy usage that has characterized the so-called Anthropocene Era. We have gone from an atmospheric carbon dioxide concentration of 280 parts per million in the preindustrial era (reference year 1750) to around 400 parts per million in 2015, and that has produced an increase in mean temperature.

Life is produced and reproduced in a system, to a large extent self-regulated, composed of interdependent interrelations of living and dynamic ecosystems that are permanently being transformed, especially when they reach points or moments of saturation at a certain stage of tension due to contradictory development. The human being is only one of the Earth's inhabitants, but its exercise of rationality (especially in the modern age) permits it to alter the reproductive movements of the biosphere (the layer extending from 10 kilometers above the Earth's surface to the depths of the oceans in which all life is concentrated [Ripa, 2011: 50–51]), sometimes violently and eventually beyond the biosphere's ability to cope.

James Lovelock (2006: 5–6) points out that scientists did not acknowledge the Earth as a self-regulating entity until the Amsterdam Declaration of 2001 and that many of them "still . . . cling to their nineteenth- and twentieth-century view . . . of a planet made of dead inert rock with abundant life aboard, passengers on its journey through space and time." He continues:

Andrea Santelices Spikin is an environmental sociologist and regional coordinator of citizen participation in the Servicio de Evaluación Ambiental for Chile's Bío Bío Region. Jorge Rojas Hernández is a professor in the Department of Sociology and vice chancellor of institutional relations at the Universidad de Concepción and a researcher at the Centro de Recursos Hídricos para la Agricultura y Minería. The collective thanks them for organizing this issue. Richard Stoller is coordinator of academic advising and international programs at Scheyer Honors College, Pennsylvania State University. Luis Alberto Hernández is a translator in the Philadelphia area.

LATIN AMERICAN PERSPECTIVES, Issue 209, Vol. 43 No. 4, July 2016, 4–11

DOI: 10.1177/0094582X16644916

© 2016 Latin American Perspectives

Even if we stopped immediately all further seizing of Gaia's land and water for food and fuel production and stopped poisoning the air, it would take the Earth more than a thousand years to recover from the damage we have already done, and it may be too late even for this drastic step to save us. To recover, even to lessen the consequences of our past errors, will take an extraordinary degree of international effort and a carefully planned sequence for replacing fossil carbon with safer energy sources.

Scientific research in the past decade, especially the reports of the Intergovernmental Panel on Climate Change (IPCC), which organizes and interprets thousands of studies, has made alarming predictions about greenhouse gas emissions and their impact on global temperatures, sea levels, and an increase in extreme weather such as drought, hot and cold spells, torrential rains and landslides, floods, wildfires, and more frequent and more intense hurricanes.

### THE PARIS AGREEMENT

In this context it is cause for hope that representatives of 195 nations came together in Paris in 2015 under the United Nations Framework Convention on Climate Change to produce a binding agreement to slow the irreversible march of global climate change. The Paris Agreement of December 2015, responding to the warnings of scientists, promotes renewable energy, recognizes the necessity of strengthening the resiliency of developing nations through environmental education and technology transfer, and requires developed nations to support mitigation and adaptation policies in the most affected less-developed countries. It also calls for the protection of the most vulnerable sectors, of the poor, and of the planet's ecosystems.

The agreement, while recognizing that climate change represents an urgent and potentially irreversible threat to human societies and the planet and that sharp reductions in emissions worldwide will be required, in an important sense comes too late. For decades governments have ignored the clear warnings of scientists seriously concerned about climate change and its consequences for economic activity, the quality of life, and the protection of the planet. For instance, Article 2 sets the target increase in average global temperatures at well below 2°C in relation to preindustrial levels (a goal that has been proposed over the years by such sources as the Stern Review, the IPCC reports, and the Potsdam Institute on Climate Change) but, in response to the concerns of the developing countries that are the most affected by and the least prepared for the consequences of climate change, includes "pursuing efforts to limit the temperature increase to 1.5°C, recognizing that this would significantly reduce the risks and impacts of climate change" (UNFCCC, 2015: 22).

One of the most contentious topics not only in Paris but at prior conferences was funding for mitigation and adaptation, especially for the most vulnerable developing countries. The Paris Agreement sets a collective goal of at least US\$100 billion in annual spending, "taking into account the needs and priorities of developing countries." Significantly, in its declaration of principles, the agreement emphasizes the global nature of the problem while noting that a wide

range of groups in global society require special consideration as adaptation and remediation measures are considered and implemented. According to Article 9, “Developed country Parties shall provide financial resources to assist developing country Parties with respect to both mitigation and adaptation” (UNFCCC, 2015: 26). The conference participants agreed to pursue an increase in the ability to adapt to the adverse impacts of climate change to safeguard food production (Article 2). Finally, they emphasized the universal character of the problem and the need for the adaptive measures undertaken to respect human rights, the right to health, the rights of indigenous communities, local communities, migrants, children, and the disabled and vulnerable, the right to development, and gender and generational equality.

### CLIMATE CHANGE IN LATIN AMERICA: INEQUALITY AND CONFLICTS

In recent years, many Latin American countries have been subjected to extreme climatic events such as floods, droughts, drastic declines in precipitation, and extreme changes in temperature. That is the case of the countries analyzed in this issue (Chile, Argentina, Peru, and Bolivia) and, in general, of the Andean region. The majority of Latin American countries have social problems that are closely linked to inequality and vulnerability. This situation creates obstacles for addressing the challenges of climate change. Many of these countries have drafted policies for dealing with the impact of climate change, but in most cases these measures have turned out to be infeasible because of the poverty and marginality of millions of people and their environmentally ravaged and geographically isolated lands. In many cases, this situation is compounded by the scarcity of economic resources for implementing mitigation and adaptation measures and by the institutional deficiencies of the state and the inconsistencies of the successive governments when addressing this issue.

Welzer’s (2010) bleak vision of potential climate-related conflicts is reflected in the subtitle of his *Climate Wars: What People Will Be Killed For in the 21st Century*. He recognizes that the consequences of climate change constitute a significant threat of causing mass migrations, civil wars, genocides, and even wars between nation-states. His analysis of violent environmental conflicts around the world reveals that, generally, they are conflicts over natural resources such as water, land, soils, fish stocks, forests, air, and biodiversity. Conflicts over land (46 cases) and water (35 cases) are at the top of his list. In the Western Hemisphere, the most serious environmental conflicts are classified as follows: United States, water, land, soils; Canada, fish stocks; Mexico, water, forests, land, soils; El Salvador, land, soils; Honduras, land, soils; Belize, forests, lumber, water; Guatemala, land; Haiti, land; Brazil, land; Chile, water, land; Ecuador, land; Peru, land; Bolivia, water; Uruguay, land; and Colombia, biodiversity (Welzer, 2010: 180–182). These conflicts have increased significantly since Welzer first wrote about them in 2010. A highly symbolic example of these new conflicts is the fight over the exploitation of the rich biodiversity

of the Amazon Basin, which includes parts of the territories of Brazil, Peru, Bolivia, Ecuador, Colombia, Venezuela, Guyana, and Surinam.

Many regions and entire countries have been touched by prolonged and intense droughts. Marcelo Cardoso of the Alianza para el Agua (Alliance for Water), in response to drought in São Paulo and other states in Brazil, describes the effect of water scarcity on urban families: "Water is intimately tied to human dignity. When you can't bathe, or go to the bathroom, or take care of your children, you start to panic" (quoted in Vigna, 2015: 31). Water scarcity is a consequence of climate change, which in Brazil has been exacerbated by the destruction of the Amazon jungle to make way for soybeans and cattle. Agribusiness, an important part of Brazil's economy, consumes almost 70 percent of its water, in effect transferring 112 trillion liters of fresh water abroad each year. The Amazon region, which makes Brazil's relative abundance of water possible, is now 18 percent deforested, with another 29 percent degraded (Vigna, 2015: 32). Other Latin American countries are facing extreme weather events, including Chile, Argentina, and the Andean countries discussed in this issue.

Although Latin America and the Caribbean represent only 9 percent of global carbon dioxide emissions, the social and economic impact of those emissions is significantly greater than in the developed and emergent countries that are responsible for the bulk of those emissions because of the region's socio-territorial vulnerabilities and weak political institutions. Climate change in Latin America entails a reduction in economic growth (especially in sensitive sectors like agriculture and fishing) and an increase in poverty. The Economic Commission for Latin America and the Caribbean has estimated that, assuming an annual decline of 0.8 percent in the gross domestic product, by 2025 approximately 597,000 additional Latin Americans will be living in extreme poverty and 1.08 million more in poverty, although these projections are subject to a high degree of uncertainty. This outcome reflects the "well-known double inequity" whereby "the impact of climate change is felt most intensely by children, the elderly, and the poor even though these socioeconomic groups are not the main emitters of greenhouse gases" (Galindo et al., 2015: 16).

Mexico, for example, contributes only 1.5 percent of global carbon dioxide emissions, but its huge economic and social inequalities aggravate the impact of climate change. The country's Instituto Nacional de Ecología (National Institute of Ecology) reports that more than half of Mexican states experience significant marginality, which is very high in Chiapas, Oaxaca, and Guerrero, high in Veracruz, Michoacán, Hidalgo, Puebla, Tabasco, Yucatán, and San Luis Potosí, and moderate in seven additional states (INE/PNUD, 2008: 14). In addition, the country has environmental vulnerabilities, among them water shortages that adversely affect industry, agriculture, and fishing in semiarid zones. Scarcity of water also affects the population of those areas, and marginality and lack of services aggravate its negative impact. Marginal populations are also particularly vulnerable to floods and landslides caused by intense rainfall. Mexico's mountainous zones have a troubled history of the construction of housing on steep slopes that are susceptible to landslides. Coastal zones are extremely vulnerable to hurricanes among other natural forces (INE/PNUD, 2008: 23). The Red Mexicana de Modelación Climática (Mexican Network for

Climate Modeling) has produced a risk assessment report revealing that 1,385 of the country's 2,456 municipalities are at high risk for climatic disasters. This puts 27 million people at risk (SEMARNAT, 2015: 34). This vulnerability to climate-related risks has already resulted in enormous losses in Mexico. The increase in extreme hydrometeorological phenomena in recent years has caused significant loss of life, and "the economic damages related to these events have increased from an annual average of 730 million pesos in 1980–1999 to 21.9 billion in 2000–2012" (32).

The Mexican state has adopted a number of policies for dealing with the challenges posed by climate change. In 2007 a national climate change strategy was developed, and the national development plan for 2007–2012 proposed the development of regional climate scenarios, evaluation of the impact, vulnerability, and adaptation on different socioeconomic sectors and ecological systems, and the dissemination of information about climate change (INE/PNUD, 2008: 22–26). The current development plan (2013–2018) includes the objective of strengthening national policy on climate change and protecting the environment in order to facilitate the transition toward a more competitive, sustainable, resilient, and low-carbon economy. The country has a general law on climate change, a national climate change system that brings together various institutions and public authorities, a national climate change strategy, a council on climate change, and a national institute on climate change. Social awareness is promoted by the creation of a map of municipalities vulnerable to climate change. Despite all these institutional efforts, however, the vulnerability and poverty that prevail in the country make it exceedingly difficult to tackle the challenges of climate change.

The majority of Latin American countries have made progress—at different rates—in developing policies for addressing the impact of climate change on the population and the land. Unfortunately, these policies—in most cases symbolic in nature—are often in conflict with prevailing economic policies and practices such as the overexploitation of natural resources, mining extractivism, deforestation, monocropping, dependence on fossil energy, rapid and unregulated urbanization, and the lack of public participation in policy making and decision making about private investments that affect the environment. To these factors we can add the high levels of socio-environmental vulnerability present in practically all Latin American societies.

Only the emergence of higher levels of public awareness, as manifested in citizens' environmental initiatives and environmental social movements, can change this state of affairs in the medium to long term. Young people, women, and indigenous communities, in particular, are increasingly aware of the problems and challenges of climate change and how they will transform society and the planet in the twenty-first century.

The history of humankind has been constructed by social and political movements that have fostered reforms and revolutions: abolitionism, anticolonial liberation struggles, and the defense of human rights, women's rights, the rights of indigenous peoples, and sexual rights, among others. These social movements, as Klein (2014) points out, have achieved some victories, but the majority were partial victories and often accompanied by major economic

losses. Envisioning how to build social movements to combat climate change, Klein (2014: 459) concludes that

climate change does not need some shiny new movement that will magically succeed where others failed. Rather, as the furthest-reaching crisis created by the extractivist worldview, and one that puts humanity on a firm and unyielding deadline, climate change can be the force—the grand push—that will bring together all of these still living movements. A rushing river fed by countless streams, gathering collective force to finally reach the sea.

Writing of the crisis of civilization, Morin (2011: 311) asks whether we are heading for a metamorphosis: “When a system cannot resolve its vital problems, either it degrades or disintegrates or it reveals itself as capable of generating a metasystem that knows how to handle those problems: it *metamorphoses*.” He suggests that the origin of life can be conceived of as the metamorphosis of a physico-chemical organization that, having arrived at the saturation point, creates a meta-organization whose physico-chemical constituents are exactly the same but are associated with qualities such as self-reproduction, self-repair, a diet of external energy, and the capacity for cognition (Morin, 2011: 32). The environmental and climatic crisis is a global one, economic, political, human, and ecological in nature. It has reached a saturation point and requires a deep and global solution. However, this saturation is a long-term process. The system never gives up and is always inventing new adjustment strategies. Metamorphosis is a highly complex sociopolitical and cultural process that takes place over time amid many uncertainties. We hope that it will be a peaceful process—free, democratic and respectful of diversity.

### THE ARTICLES IN THIS ISSUE

The significance of the articles in this issue resides in their counterpoint to the global and diplomatic drama of the Paris negotiations; they represent a territorialized, bottom-up approach that breaks with the asymmetrical “North-South” logic of (developed) winners and (less developed) losers in an age of climate change. They describe local governance strategies, based on effective responses rather than victimhood, that suggest a paradigm shift in the way we see citizen participation, indigenous understanding of the world, and even climate science itself.

All of the articles value everyday narratives as an important learning input for the social sciences and public policy making regarding the collective strategies of adaptation adopted by communities in vulnerable places throughout Latin America, from its chaotic cities to the highlands. In all of these spaces we witness the same dynamic, in which the victims of climate change become protagonists, taking into their own hands (usually with some success) the daily and collective readaptations that define their relationship with the physical environment. What are the elements of these experiences? In many instances there is a prior history of collective political action—experience with organization and conflict resolution—that makes current mobilization possible. These groups must oversee the scarce resources impacted

by climate change—water, land, and the ecosystem in general—and change their power dynamics in order to forge adaptation strategies that are effective and meaningful.

Each of this issue's contributors brings to the table key elements for a decolonized and territorialized understanding of this phenomenon. Beatriz Cid-Aguayo ("People, Nature, and Climate: Heterogeneous Networks in Narratives and Practices about Climate Change") makes use of Bruno Latour's framework, challenging "green sociology" by focusing her analysis on the concept of social-technological-natural networks through which actors modify their social relations and their "objects/resources" in order to adapt. She highlights the importance of local knowledge and perceptions in permitting local action to address a phenomenon that threatens the subsistence and quality of life of communities.

Jorge Rojas ("Society, Environment, Vulnerability, and Climate Change in Latin America: Challenges of the 21st Century") brings us a macro-level examination of the historical relationship between society and nature in Latin America. He argues that the short-term perspectives that characterize public policy making are incompatible with long carbon dioxide cycles, and he emphasizes the vulnerable situation of Latin American societies facing climate change—a vulnerability perceived by their members. He argues for a new embrace of the practices of native peoples and the need to change the values and attitudes of the dominant culture in the direction of greater solidarity as a basic strategy for adaptation and survival. Gabriela Merlinsky ("Mists of the Riachuelo: River Basins and Climate Change in Buenos Aires") poses a similar problem in a specific setting, in which an empowered citizenry has managed to turn a local conflict based on the failure of short-term thinking into an institutional change that marks a new era in Argentine legal and environmental history.

Four contributors focus on the Andean regions of Peru and Bolivia, in particular the indigenous communities that, beyond the "vulnerable population" label, are protagonists in their relation to the climate, appropriating resources and developing strategies for adaptation and, of course, for the exercise of local power. Astrid Stensrud ("Harvesting Water for the Future: Reciprocity and Environmental Justice in the Politics of Climate Change in Peru") examines the construction of water sovereignty in highland communities and the understanding of water as a right and a value as well as a resource through water sowing and harvesting projects and the demand that large companies in the region pay for their water use. Mattias Borg Rasmussen ("Unsettling Times: Living with the Changing Horizons of the Peruvian Andes") examines how Andean communities coexist with climate uncertainty in their everyday experience, while Kathryn Hicks and Nicole Fabricant ("The Bolivian Climate Justice Movement: Mobilizing Indigeneity in Climate Change Negotiations") examine how indigenous communities' paradigm-changing concept of "good living" can generate climate activism both locally and internationally.

These articles constitute an important contribution to the discussion of an emerging and vital theme and to understanding the changes that will impact human and natural life on our planet in the coming decades.

## REFERENCES

- Galindo, Luis Miguel, Joseluis Samaniego, José Eduardo Alatorre, Jimmy Ferrer, Orlando Reyes, and Luis Sánchez  
 2015 *Ocho tesis sobre el cambio climático y desarrollo sostenible en América Latina*. Santiago: CEPAL. [http://repositorio.cepal.org/bitstream/handle/11362/39840/S1501211\\_es.pdf?sequence=1](http://repositorio.cepal.org/bitstream/handle/11362/39840/S1501211_es.pdf?sequence=1) (accessed March 10, 2016).
- INE/PNUD (Instituto Nacional de Ecología/Programa de las Naciones Unidas para el Desarrollo)  
 2008 *Impactos sociales del cambio climático en México*. Mexico City: INE/PNUD.
- Klein, Naomi  
 2014 *This Changes Everything: Capitalism vs. the Climate*. New York: Simon and Schuster Paperbacks.
- Lovelock, James  
 2006 *The Revenge of Gaia: Earth's Climate in Crisis and the Fate of Humanity*. New York: Basic Books.
- Morin, Edgar  
 2011 *La vía para el futuro de la humanidad*. Barcelona: Paidós.
- Ripa, Isabel  
 2011 *El cambio climático: Una realidad*. Barcelona: Viceversa.
- SEMARNAT (Secretaría Nacional de Medio Ambiente y Recursos Naturales)  
 2015 *Estrategia Nacional de Cambio Climático, Visión 10-20.40*. Mexico City: Gobierno de la República/Comisión Intersecretarial del Cambio Climático/SEMARNAT.
- UNFCCC (United Nations Framework Convention on Climate Change)  
 2015 *Conference of the Parties, Twenty-first session, 30 November to 11 December 2015, Adoption of the Paris Agreement*. Paris: UNFCCC.
- Vigna, Anne  
 2015 "Los efectos de la deforestación de la Amazonía: San Pablo Seco." <http://www.lemondediplomatique.cl/San-Pablo-seco.html> (accessed March 10, 2016).
- Welzer, Harald  
 2010 *Guerras climáticas: Por qué mataremos (y nos matarán) en el siglo XXI*. Buenos Aires: Editorial Katz.