BUILDING RESILIENCE THROUGH ITERATIVE PROCESSES

Mainstreaming ancestral knowledge, social movements, and the making of sustainable programming in Bolivia

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This case study takes a retrospective look at the 2010–11 Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG-ECHO) Small-Scale Disaster Project in La Paz and the context within which it took place. Our research found that absorptive, adaptive, and transformative capacities can be fostered by iterative development processes. It also demonstrated that disaster risk reduction and climate change adaptation are strongly tied to resilient, sustainable, long-term development. Resilience, however, is not an a priori conceptual framework of development programming; rather it is a life process engendered within specific communities. Consequently, development practitioners must construct programs based on rigorous, ethical, and sound research integrating scientific with local and ancestral knowledge. This is the only approach that can generate environmentally healthy and productive, sustainable, and equitable life systems.

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ACRONYMS AND KEY TERMS

ACRONYMS

CCA Climate change adaptation  
COE Center for Emergency Operations  
COEB Comité de Emergencia Barrial  
CONARADE National Council for Risk Reduction and Attention to Disaster  
DRR Disaster risk reduction  
DEGIR Dirección Especial de Gestión Integral de Riesgos (Special Directorate of Integrated Risk Management)  
DG-ECHO Directorate-General for European Civil Protection and Humanitarian Aid Operations  
DIPECHO Disaster Preparedness European Community Humanitarian Office  
FEJUVE Federación de Juntas Vecinales (Federation of Neighborhood Committees)  
FUNDEPCO Fundación para el Desarrollo Participativo Comunitario (Foundation for Community Participatory Development)  
GAMLP Gobierno Autónomo Municipal de La Paz (La Paz Autonomous Municipal Government)  
ICRC International Committee of the Red Cross  
SISRADE Sistema Nacional para la Reducción de Riesgos y Atención de Desastres y/o Emergencias (National System for Risk Reduction and Attention to Disasters and/or Emergencies)  
SSD Small-scale disaster

KEY TERMS

Aymara: the second largest indigenous, ethno-linguistic group in Bolivia.

Buen vivir (living well; Sumak Kawsay in Quechua and Suma Qamaña in Aymara): an Andean indigenous concept of sustainable development, participatory democracy, respect for Mother Nature, and spirituality; it has been incorporated into the constitutions of Bolivia (2009) and Ecuador (2008).

Cosmology: refers, in the context of this paper, to the worldviews and the belief systems of indigenous people.

El Niño (El Niño Southern Oscillation, ENSO): cyclic warming in sea temperatures in the east-central equatorial Pacific. ENSO-related temperature fluctuations can have large-scale impacts on weather and climatic patterns. Meteorologists believe that ENSO-related phenomena contributed to the devastating hailstorm of February 2002 and the heavy rains responsible for the mega-landslide of 2011 in La Paz.

Macro-district: La Paz is subdivided into nine zones called macro-districts; each macro-district is governed by a decentralized local branch of the municipality (sub-alcaldía) headed by a sub-mayor (sub-alcalde). (See Appendix 2, Figure 1)
**Mega-landslide**: the devastating landslide that occurred in La Paz on February 26, 2011, during the implementation of the DG-ECHO Small-Scale Disaster Project. No casualties were reported, possibly because the landslide was very slow, giving people time to evacuate, and because of the efficient early warning and information systems set up by the municipality of La Paz.

**Quechua**: the largest ethno-linguistic group in Bolivia, followed by the Aymara.
EXECUTIVE SUMMARY

On the morning of Saturday, February 26, 2011, La Paz was hit by a mega-landslide that, astonishingly, produced no fatalities. Almost as astonishing was the extremely timely intervention of municipal authorities and aid agencies. In fact, the “response” to the landslide began even before the event occurred, with the efficient activation of the early warning systems of the municipality of La Paz.

The significant vulnerability of the city of La Paz to landslides reflects human-caused circumstances that are both historical and contemporary:

- Early social stratification relegated poorer segments of the growing urban population into less safe areas on steep slopes.
- The demise of mining activities in the mid-1980s prompted massive rural-urban immigration that gave rise to unsafe, unplanned urban settlements.
- Heavy rains related to climate change phenomena such as El Niño augmented the risks faced by people living in unplanned, unsafe settlements.
- Forty percent of the metropolitan area of La Paz rests on unsafe land. More than 100,000 housing units in La Paz are located in unsafe settlements and are built on or near at least one of the city's 364 underground rivers.

The Directorate-General for European Civil Protection and Humanitarian Aid Operations (DG-ECHO) Small-Scale Disaster Project of 2010–11 was the biggest coordinated humanitarian operation in Bolivia’s history. The experience set an important precedent that helped shape the outlook and the work of national and municipal government institutions, NGOs, and humanitarian agencies in the following years.

Analysis of the 2010–11 Small-Scale Disaster (SSD) Project—and the Disaster Preparedness European Community Humanitarian Office (DIPECHO) projects on resilient disaster risk reduction (DRR) and climate change adaptation (CCA) that followed—show that effective, sustainable programming is not the product of punctual or sporadic interventions. It is an ongoing building process. Solid background research carried out before the 2010–11 Small-Scale Disaster Project allowed Oxfam, the Foundation for Community Participatory Development (FUNDEPCO), and the La Paz municipal government (GAMLP) to intervene quickly and efficiently following the landslide. The background studies warned of the high risk of such a disaster, and alert systems were in place and activated when it occurred.

This work is a study of the 2010–11 Small-Scale Disaster Project from the point of view of Oxfam’s resilience framework (Oxfam, 2016). Although the project was not conceived within a resilience conceptual framework, we tried to generate assumptions about manifestations of absorptive, adaptive, and transformative capacities related to the SSD and the context within which it was implemented.

Primarily, the study shows that capacities were built upon other capacities in iterative processes. This, for example, is the case of the Special Directorate of Integrated Risk Management (DEGIR) of El Alto, which is adjacent to La Paz and the second largest city in Bolivia. Operators at the DEGIR improved their skills and expertise thanks to a series of consecutive DIPECHO projects that began with DIPECHO-VII in the aftermath of the mega-landslide. Most important, they capitalized on the acquired capacities, applying the knowledge in community talks, simulations, and workshops with youngsters, adults, and elderly people. The transference of knowledge, according to informants interviewed during the research, empowered students, adults, and elderly people of El Alto, who acquired new information about their environment and potential hazards and consequently adopted new, safer behaviors.

Preparedness programs, however, can go only so far to reduce the risks faced by urban populations living in unsafe areas. Permanent solutions and structural changes require integrated green, blue, and grey infrastructure interventions together with a comprehensive resilience approach. These are the types of permanent, sustainable solutions advocated by citizens’ groups such as the Federation of Neighborhood Committees (FEJUVE) in La Paz and El Alto.
The 2010–11 project took place in Bolivia’s particular legal, economic, and social context. At the April 2010 World People’s Conference on Climate Change and Rights of Mother Earth in Tiquipaya, Bolivia, social movements and civil society from across Latin America and beyond made a significant step forward. The message that emerged from this event prompted the Bolivian government to effectively mainstream indigenous ancestral and spiritual knowledge. The result was the ratification of Law 300 of 2012: the Law on Mother Earth and Integral Development Law for Living Well. This unique and unprecedented law defines Mother Earth as a living, spiritual being in accordance with concepts derived from various indigenous Latin American cosmologies.

Law 300 is consistent with the view expressed by indigenous spokespeople in Bolivia and other Latin American countries that sustainable, resilient development can be achieved only by integrating ancestral indigenous knowledge with scientific notions. No real changes will occur until this basic precondition, requiring true social egalitarianism, is established. The tenets of Law 300, emphasizing the interconnectedness of all ecological systems, show significant analogies with the resilience framework of the Stockholm Resilience Centre. It is within this judicial, ethical, and theoretical scenario that both the processes contemplated by Oxfam’s resilience framework as well as the philosophy of living well advanced by indigenous movements can occur and thrive. This is the space, theoretical and de facto, within which communities and development programmers should build sustainable, resilient development projects “in order to realize their rights, improve their well-being” and live well (Oxfam, 2016, p. 6; Plurinational State of Bolivia, 2012).

Yet while Bolivian social movements have greatly affected national and international environmental discourse, the reality on the ground is complex and rife with contradictions. The Bolivian economy depends on commodities, with a primary focus on the extraction of resources such as natural gas, iron, lithium, tin, and copper. This pattern not only is unsustainable in the medium or long term, but also creates high social and environmental costs (Patzy, 2015; Fuentes, 2010).

Moreover, research carried out by Oxfam in Bolivia shows that poverty and vulnerability affecting rural women have increased owing to climatic changes that disrupt agricultural activities (Oxfam International, 2009). Other studies have shown that the feminization of poverty is on the increase in urban settings, in part because of recent rural-urban migration (Salamanca, 2012). These studies also reported that indigenous women are more exposed to hazards than men. The Oxfam reports showed that although DRR policies in Bolivia do acknowledge gender differences, ethnic and gender discrimination have not been addressed at the structural level. The statement holds true in the case of the 2010–2011 DG-ECHO Small-Scale Disaster Project and DIPECHO-VII, which acknowledged gender and ethnic differences but were not structured within a gender or an ethnic framework. Oxfam field research also documented trends in resilient adaptation, whereby women adopted ancestral agricultural techniques in response to climatic variations (Oxfam 2009; Salamanca, 2012).

Diverse and politically dynamic, Bolivia has strong and combative social movements following different and at times conflicting agendas. This reality has been documented in recent political history and became evident during the fieldwork for this research. DRR and CCA programs must therefore take into account, and be informed by, the social and political processes which shape the terrain where they are implemented. Programs should be conceived, designed, and implemented in ways that incorporate the point of view of the target communities.

Bolivian Law 2140 of 2000 provided the first significant step to integrate risk management with sustainable development actions in Bolivia. The law created the National System for Risk Reduction and Attention to Disaster (SISRADE). This instrument allowed departmental and municipal governing bodies to coordinate with one another and work toward sustainable DRR and CCA programs. This is fundamental in a country where climatic changes are dramatically altering ecosystems, as in the case of the severe droughts that afflicted Bolivia throughout 2016.

Development programmers and the government should continue on the path of integrating civil society, indigenous movements, and the rights of Mother Earth in the development agenda. This course of action would greatly increase our chances to learn important lessons that could
strengthen our knowledge of resilient adaptations, thus helping development operators and government institutions deliver more sustainable and equitable programs and policies.

**Other papers in this series**

- *Addressing Water Shortages: A catalyst for more resilient development in Fiji*
- *“Disaster is Nature Telling Us How to Live Resiliently”: Indigenous disaster risk reduction, organizing, and spirituality in Tierradentro, Colombia*
- *Learning from Hindsight: Synthesis report on Oxfam resilience research*
1 INTRODUCTION

PURPOSE OF THIS REPORT

This research project is part of a larger resilience program funded by the Margaret A. Cargill Philanthropies focused on building resilience and capacities for disaster risk reduction (DRR) in vulnerable communities in Latin America and the Pacific Islands. The three-year project, launched in late 2014, took place in four countries: El Salvador, Guatemala, Solomon Islands, and Vanuatu. The project focuses on the following key outcomes:

- Reduced vulnerability to natural hazards through DRR and climate change adaptation (CCA);
- Greater absorptive capacity for increased resilience to natural hazards; and
- Greater capacity to adapt to hazards, create change, and ensure basic rights.

As part of this program, Oxfam has produced three case studies examining completed resilience, DRR, preparedness, or CCA projects in Latin America and the Pacific that were thought to have created resilience to multiple hazards:

- A 2007–09 preparedness project funded by DIPECHO and implemented by the French Red Cross and Colombian Red Cross around the Nevado del Huila volcano in Colombia;
- A resilience project implemented by the Secretariat of the Pacific Regional Environment Programme (SPREP) in Fiji in 2002–05; and
- An Oxfam landslide preparedness project implemented in La Paz, Bolivia, in 2010–11.

Examining these projects with the benefit of hindsight, we have sought to gather evidence about the impact of such projects on households and communities; what elements of such projects make them more likely to succeed; how we define and measure "success" in resilience projects; and the timeline, timing, and duration of resilience projects. The research is not an evaluation of the specific projects by any means, but a comparative research exercise to learn as much as we can from them about resilience, in order to inform future programming by Oxfam and other implementers. A synthesis report presents the common findings across the three case studies, together with relevant findings from a related Oxfam research project that evaluates a concluded CCA program implemented by CARE in Vanuatu.

OXFAM ON RESILIENCE

Oxfam’s work toward a just world without poverty must address risk and its causes as well as the inequality in social relations that unfairly expose poor people and make them acutely vulnerable to shocks, stress, and uncertainty. According to the Oxfam Resilience Framework, resilience is not the ultimate desired goal or outcome; rather, it constitutes a quality of the pursuit of sustainable development. We cannot achieve Oxfam’s vision if we do not integrate a resilience approach into our thinking, ways of working, and all our interventions.

Oxfam defines resilience as “the ability of women and men to realize their rights and improve their well-being despite shocks, stresses, and uncertainty.” Oxfam’s approach to resilience is rights-based, long-term, process-oriented, a gender-justice approach, and a systems approach.

Rights-based: Oxfam believes that risk and its impacts on people living in poverty is “no accident,” (Oxfam International, 2013) but the result of inequitable and unsustainable development that fails to address poverty, creates vulnerability, and lets the burden of risk unfairly fall on the poorest and most vulnerable people. Growing inequality, unprecedented climate conditions, faster change, and greater uncertainty are new realities that require new knowledge and ways of working. The existing capacities of people living in poverty to prepare, cope, and adapt are stretched, and some existing strategies may increase vulnerabilities in the medium and long term. Therefore, existing absorptive, adaptive, and transformative capacities need to be recognized, supported, and enhanced.
• Absorptive capacity is the capacity to take intentional protective action and to cope with known shocks and stress. It is needed because shocks and stress will continue to happen owing to, for example, extreme weather events, protracted conflict, and natural disasters.

• Adaptive capacity is the capacity to make intentional adjustments and incremental changes in anticipation of or in response to change, in ways that create more flexibility in the future. It is needed because change is ongoing and uncertain and because intentional transformation can take time and sustained engagement.

• Transformative capacity is the capacity to make intentional change to systems that create risk, vulnerability, and inequality. It is needed to influence the drivers of risk, vulnerability, and inequality and because social and natural systems are themselves being transformed by, for example, globalization and climate change (Béné et al., 2012).

Our approach affirms people’s right to determine their own futures by enhancing the capacities of people and institutions to address the causes of risk, fragility, vulnerability, and inequality.

**Long-term:** Resilience needs to be built continuously over time. It is not a fixed or end state but an ongoing process of social change.

**Process-oriented:** Oxfam considers six closely linked social change processes that, when integrated into our interventions, will enhance absorptive, adaptive, and transformative capacities at different levels of society and across multiple sectors:

1. *Empowerment* includes processes for promoting gender justice and enhancing voice, empowerment and participation, conflict resolution, and psychological resilience.

2. *Securing and enhancing livelihoods* refers to processes for securing and building human, social, natural, physical, and financial capital and household assets based on the sustainable livelihoods framework.

3. *Informing* encompasses processes that develop information and knowledge to support decision-making and action.

4. *Flexible and forward-looking planning* refers to processes that enable and enhance collective, forward-looking, and flexible decision-making.

5. *Accountable governing* encompasses processes that secure accountable and enabling states and institutions.

6. *Learning* includes processes that enable people to learn together, support experimentation, and increase the potential for social and technological innovation.

**A gender-justice approach:** Oxfam puts women’s rights at the center of all of its programming, recognizing that promoting women’s rights is necessary to achieve gender justice. This is also critical if we want to achieve resilient development outcomes. Women and girls face daily and regular hazards in their life cycle as well as structural inequality through discriminatory gender norms and gender stereotypes based on patriarchal societies. These increase the exposure and vulnerability of women and girls and limit their ability to participate and exercise their agency and leadership capacity. We need to understand both the existing capacities of women and men and their specific and different vulnerabilities. And we need to understand how vulnerabilities are caused by inequality and exacerbated by risks.

**A systems approach:** A systems approach recognizes and works with the relationships between the complex causes of risk and poverty and avoids approaches that are siloed by sector, discipline, or organizational structures, which are likely to increase vulnerability. It recognizes the limitations of short-term, technical fixes and requires teams to adjust strategies based on feedback from monitoring, evaluation, and learning. Such an approach is necessary to address the causes of multiple risks, fragility, and vulnerability without causing new risks and vulnerabilities.
METHODOLOGY

Case Study Selection

The geographic focus of this research is based on the focus of the larger Oxfam resilience program funded by the Margaret A. Cargill Philanthropies on the Pacific and Latin America. We decided to conduct three case studies—two in Latin America and one in the Pacific—supplemented with findings from a recently completed climate change adaptation project in Vanuatu. We chose projects that were framed as either (1) resilience projects or (2) DRR, preparedness, or CCA projects thought to have created increased resilience within the beneficiary communities—that is, projects that were considered successful by the relevant Oxfam staff, external experts, and existing evaluations. They needed to have been completed at least three to five years ago (i.e., by the end of 2013) to allow sufficient time for reflection on the enduring impact. We also sought a mix of Oxfam and non-Oxfam projects.

We identified potential case studies through a literature review and scoping interviews with Oxfam staff working on resilience in country and regional offices in the two regions and with external experts. We then used the above criteria to narrow down the list to the three selected.

Research Methods

To address this report’s objectives, the researcher used a mix of qualitative methods, including a literature review, key informant interviews, and focus group discussions. The research was organized around case study analysis. The three case studies followed a common methodology that was adapted to their particular context.

The literature review included a review of project documents, including needs assessments, project design and supporting documentation, MEAL (monitoring, evaluation, and learning) plan, interim and final reports, evaluations, findings of listening exercises and learning events; materials written about the projects, including journal articles, research reports, news articles, blog posts, and newsletter articles; any related materials produced by the Autonomous Municipal Government of La Paz (GAMLP), Oxfam, and the Foundation for Community Participatory Development (FUNDEPCO), including resilience frameworks, news articles, and interviews; documents from related projects; assessments of the resilience of the broader region and country, including peer-reviewed articles, gray literature, white papers, government assessments, reports of donors, and reports of local, national, and international nongovernmental organizations (NGOs); and documents regarding Oxfam’s framework for resilience.

The researchers engaged a broad range of stakeholders, through semi-structured interviews. They consulted project staff from the projects; project participants (i.e., primary change agents); government officials (relevant ministries and agencies, across all levels of government); local and national NGO representatives and community-based organization representatives; local civic leaders; members of communities, including men and women and members of social groups that might be impacted differently and informal groups; academics and researchers working in the communities or with national expertise; and multilateral organizations and international NGOs, at headquarters and in the field.

In October 2016 we interviewed 22 informants and participated in 4 group meetings with officials from the GAMLP, teachers, and neighborhood representatives in La Paz and El Alto. Moreover, the researcher met with neighborhood representatives and visited the areas of Callapa, Cerveceria, and Pampahasi within the San Antonio macro-district of La Paz.

The research was conducted according to Oxfam’s ethical guidelines; in terms of research subjects, we adhered to the standards of voluntary participation, informed consent, avoidance of risk of harm, and the practice of offering (and abiding by requests of) confidentiality.
Limitations

The projects selected as case studies are not intended to be representative of projects conducted in the respective countries, but rather “success stories” offering lessons that could be applicable in other contexts within each country and ideally in other countries. The findings compiled in the synthesis report are those that occurred in multiple case studies; they are thus more likely to be applicable in some, but not all, instances globally.

Because time has passed since the projects in question ended, the researchers have had to rely on people’s memory recall when seeking to pinpoint the facts, timing, and impact of the projects. Also, community-initiated or external programming in the relevant communities before or after the projects in question may have catalyzed resilience. Consequently, the researchers have been as careful as possible to pinpoint the immediate and longer-term impact of the projects, while acknowledging the potential impact of such developments and programs on the resilient development of the community.

Finally, because Oxfam is known as a provider of humanitarian, DRR, and resilience programming and funding to local partners, there is a risk of aid recipient bias—i.e., interlocutors may have told the interviewer what they thought he or she wanted to hear and what would best position them for future assistance, funding, or both. The researchers explained that they were independent of Oxfam and that responses were not tied in any way to assistance. But these practices only partly mitigate this risk. As a result, the triangulation of information—conducted through multiple interviews with various stakeholders and desk research—was critical.

STRUCTURE OF THIS REPORT

The report begins with an overview of Bolivia's socioeconomic indicators, showing how in a few years the country managed to generate and, even more important, sustain major improvements in GDP and standards of living. These improvements were related to prudent and efficient economic management that succeeded in buffering the effects of the collapse of commodity prices.

The next section discusses the importance of understanding the relationships between social movements, DRR/CCA, and sustainable development. Understanding how local social movements inform and transform the sociopolitical milieu where programming takes place is fundamental to any effective intervention. Social movements, which gained strength during the Evo Morales presidential administration, managed to mainstream culturally specific notions related to indigenous ancestral and spiritual knowledge. An example is Bolivian Law 300 of 2012, or the Law on Mother Earth and Integral Development for Living Well, which recognizes the rights of Mother Earth as a living, organic, and spiritual being. Bolivian social movements have criticized the so-called green economy and the development paradigm that seeks to monetize and commodify all relationships between humans and the environment. The following section presents an overview of the effects in Bolivia of climate change, social vulnerability, and the historical lack of urban planning in the city of La Paz.

The report continues with a discussion about Law 2140 of 2000 and the emergence of the National System of Risk Reduction and Attention to Disaster (SISRADE). It goes on to describe the role played by the February 2002 hailstorm in shaping the municipal and national risk management agendas.

The next section looks at the DG-ECHO Small-Scale Disaster Project, the mega-landslide, and the timing and impact of the project. The report argues that background research carried out by the GAMLP as well as by Oxfam and FUNDEPCO was fundamental to ensuring the effectiveness of the 2010–11 DG-ECHO Small-Scale Disaster Project. The final section analyzes the project and its impact through a resilience lens. Here we argue that the DIPECHO programs that followed the Small-Scale Disaster Project show that successful resilient programming is not a one-project experience. In fact, this case study shows that a culture of resilience is generated and consolidated by interrelated, evolving, coherent programs over time.
2 CASE STUDY CONTEXT

BOLIVIA IN CONTEXT

Socioeconomic Indicators

Even though Bolivia remains one of the poorest countries in Latin America in terms of per capita GDP, the Bolivian economy performed impressively between 2004 and 2014, growing approximately 4.9 percent annually (see Figure 1). As a consequence, between 2005 and 2014 moderate poverty went from 59 percent to 39 percent, reducing the Gini coefficient of income inequality from 0.60 to 0.47 (World Bank, 2016a; Patzy, 2015). Similarly, extreme poverty dropped by 43 percent. During this period the average income of Bolivian citizens rose 45 percent in all nine departments. The income jump reached 182 percent in the case of rural people living in extreme poverty (WPR, 2015).

Figure 1: GDP growth in Bolivia and its neighbors, 2013–2020

Source: Adapted from Financial Times (2016).
Note: E = estimate.

The remarkable growth that characterized President Evo Morales’s administration is largely attributable to exports of natural gas and minerals, accounting for 82 percent of Bolivian international trade revenues. According to the World Bank (2016a), Bolivia was able to take full advantage of high commodity prices during the past decade, coupling this with prudent macroeconomic management.

During an interview for the research, a DRR consultant for the Autonomous Municipal Government of La Paz (GAMLP) commented:

[U]ndoubtedly, since Evo Morales took power in 2006, due to the policies of 21st Century Socialism, Bolivia has undergone significant changes. Peasants and indigenous people have achieved ethnic, cultural, and political recognition. At the same time, the private sector has not blossomed and the country depends on an extractive economy to survive. And, while we have kept US-based multinationals away from our national resources, we are very open to Chinese and Spanish capital and companies…. It is incongruent (personal interview, La Paz, October 2016).

The extent to which the Bolivian government has established mechanisms to protect national resources from foreign economic powerhouses is noteworthy. In 2007 Bolivia opted out of the International Center for the Settlement of Investment Disputes (ICSID). Moreover, in 2009, in line with its new Constitution, Bolivia abrogated all bilateral investment treaties (BITs) signed by previous administrations with various trade partners. The US Department of State (2014) warned that Bolivian laws privilege national investments over foreign investment and that
companies operating in Bolivia will have no access to third-country or international arbitration forums. However, the same 2014 report suggested that Bolivia offers profitable investment opportunities to foreign companies with knowledge of the terrain, noting that the 2013 GDP growth of 6.7 percent generated a 30 percent increase in imports from the United States (US Department of State, 2014). Bolivia is the second-largest producer of natural gas in South America, after Venezuela. In the wake of collapsing commodity prices, Bolivian GDP growth dropped from 6.8 percent in 2013 to 4.8 percent in 2015. Nevertheless, possibly because of efficient management in the preceding years and a diversified economy, the Bolivian government succeeded in avoiding the economic downturn, massive cutbacks, and financial chaos afflicting the rest of the region. To date, Bolivia remains a commodity-dependent economy with foreign investment directed primarily toward hydrocarbons, mining, and industrial manufacturing. These sectors account for 89.6 percent of the total foreign direct investment (FDI) (Financial Times, 2016).

Social and Political Dynamics of Civil Society

Bolivia’s past and present is full of complex political dynamics and political turmoil involving social movements, and making sense of this context is key to resilient and sustainable development. Three major political events in modern Bolivian history are particularly influential: the Gas War of 2003, the Water War of 2000 (see Appendix 1), and the election in 2006 of former cocalero Evo Morales, the first Aymara indigenous president.4

In the course of the fieldwork for this case study, informants referenced these events, as well as multiple other current political and social controversies: the August 2016 murder of a vice minister who was brutally lynched by a mob of angry protesters as he tried to negotiate a way out of a miners strike (Montero, 2016); the rejection of a massive hydroelectric project by indigenous people (Jordan Lora, 2016; Telma Jemio, 2016); and the blockades in El Alto city by the Federation of Neighborhood Committees (FEJUVE) demanding the resignation of the mayor. During the 12 days we spent in La Paz in October 2016, the city was twice paralyzed by large demonstrations.5 Our research also uncovered severe antagonism and even foul play in the relationship between the FEJUVEs and the municipal authorities in El Alto.6

A neighborhood representative interviewed for the research pointed out that:

La Paz is a complex city. Here civil society can live in apathy for many years or erupt in violent protests for seemingly trivial reasons. Social leaders and politicians often handle conflicting but also clear and partisan political agendas. This makes it difficult for project implementers to intervene and operate outside of local political interests and factions…

The evacuation and sheltering of people from Callapa, Pampahasi, and Cerveceria in 2011 in the aftermath of the mega-landslide was something exceptional. The severity of the situation brought people together and, although not everyone was happy about how the municipality and the NGOs managed the crisis, people had no other option but to trust and comply with the emergency measures.…

The problems surfaced later. When the mega-landslide emergency was over and permanent solutions had to be implemented, it became evident that many families were unhappy about what the local government was planning for them. For example, many people refused to relocate to the city of El Alto. This is partly the reason why several families who lived in places that were devastated by the mega-landslide eventually decided to go back and are now demanding permanent solutions such as reinforcement of the soils, drainage, and underground water channels… (personal interview, La Paz, 2016).

During the 12 days we spent in La Paz in October 2016, the city was twice paralyzed by large demonstrations. On October 16 public transport workers blocked all major roads and brought La Paz to a standstill for a whole day. They were demanding a better deal on an upcoming reform regarding bus fares and vehicle standards. Similarly, on October 19 and 20, thousands of Aymara women set up roadblocks throughout the center of La Paz to protest the municipal council’s proposal to require informal street vendors to pay for mandatory permits (Cuiza, 2016b).
To operate in such a complex environment, development practitioners must continually ask, What makes people react to specific historical, cultural, and geographical circumstances? How do specific social movements work? What are their purposes, aims, and demands? And how can development programming learn from social movements and complement social transformations in a sustainable fashion?

The Law of Mother Earth and Integral Development for Living Well

The genealogy of the Law of Mother Earth and Integral Development for Living Well provides an important example of how social movements influence policies and instigate legal changes. Instruments such as this one can significantly contribute to resilient and sustainable programming.

The World People's Conference on Climate Change and Rights of Mother Earth took place in April 2010 in Tiquipaya, Bolivia, just outside Cochabamba. Thirty thousand people from around the world attended this important event. The Bolivian People’s Conference was a follow-up to the 2009 Copenhagen Climate Change Conference, which, as many observers pointed out, represented a huge step backward in terms of generating consistent policies aimed at reducing greenhouse gas emissions and promoting sustainable adaptation to climate change for developing countries (Vidal, Stratton, and Goldenberg, 2009). In Tiquipaya representatives of indigenous ethnic groups, scientists, economists, and government officials, among others, worked on a series of sustainable development axioms. Discussing the implications of development models fixated on growth and extractive economy, the Bolivian People’s Conference unanimously embraced the notion that Planet Earth is not an inert entity. Four years later the Bolivian government turned these concepts into the first law ratified by any national congress describing the rights of Mother Earth as a living being.

Mother Earth is a living and sacred being, formed of multiple interdependent and coexisting life-systems (Plurinational State of Bolivia, 2014).

The People’s Conference took into account indigenous ancestral knowledge as well as modern science and called on countries to consider social and environmental sustainability as they design and implement economic policies. Participants emphasized a critique of the so-called green economy on the basis that this approach generates and perpetuates an exploitative, commodifying relationship between people and Mother Earth (Table 1). They argue that it relies blindly on a scientific method that regards the whole planet as a potential commodity or market (Plurinational State of Bolivia, 2014).

The paradigm of the Green Economy instigated [by] developed countries, prioritizes the economic vision and commodification of nature relegating [to a secondary role] the importance of non-monetary values considered to be of marginal interest to society…. The main objective of the Bolivian position in international negotiations…is to advance [toward] a more plural view of the world, broadening the monocentric thinking…by which the world must follow a single anthropocentric and market-oriented model. Bolivia has assumed the position that there are different views and approaches in the world beyond the achievement of well-being and sustainable development, such as the vision of the ‘Living-well in balance and harmony with Mother Earth’… (Plurinational State of Bolivia, 2014, p. 11).
Table 1: The foundations of the green economy versus the economy of living well

<table>
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<tr>
<th>Foundations</th>
<th>Green economy</th>
<th>Economy of living well: Toward sustainable development</th>
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| **Economics** | • Private property as main value.  
• Selling and buying.  
• Nature is an inert and exploitable resource. | • No private ownership of land, water, minerals, and vegetable life forms.  
• Collective ownership is the norm.  
• Humans are an integral part of Mother Earth. All living beings are codependent. |
| **Politics** | • Hierarchical political systems.  
• Representation is through democratic mechanisms. | • Politics is part of everyday life.  
• Decisions are based on consensus and participation of the community. |
| **Environment** | • Conquering nature; overconsumption.  
• Divide between subject and object. Dualism informs social values.  
• Humans are the superior life form.  
• Nature is a dead system.  
• Anthropocentrism. | • All forms of life are equals.  
• The planet is a holistic living system.  
• The biosphere is a continuum.  
• Mother Earth is a self-regulating living being. |
| **Culture** | • Time is linear.  
• Notions of primitive and modern systems.  
• No relationship with the past. | • The past and the future coexist; linearity does not apply.  
• Societies learn from practice, experience, and observation of nature. |

Source: Adapted from Plurinational State of Bolivia (2014).

As an alternative, the conference proposed a model based on the worldview in which human societies are part of a larger spiritual and living system that does not necessarily conform to market laws, metrics, and regulations. The Bolivian approach distances itself from studies such as The Economics of Ecosystems and Biodiversity (TEEB). The TEEB, sponsored by the European Commission, the German Federal Ministry for the Environment, and the Group of Eight Plus Five (G8+5) establishes parameters for calculating the costs of damage to biodiversity and ecosystems. The study proposes a paradigm that attempts to monetize the relationship between humans and Mother Earth, as well as commodifying Mother Earth’s environmental functions (Plurinational State of Bolivia, 2014). Andrea Rivas, Colombian intercultural educator and indigenous activist who spent time in Bolivia studying the relationship between linguistics and ecology, puts it bluntly: “From the point of view of most indigenous cosmologies, assigning a price to natural resources and the environment is equivalent to putting a price tag on your mother’s head; it is morally reproachable and ethically wrong” (Personal interview, Belalcázar, August 2016).

To promote the transition from an anthropocentric system to sustainable and resilient systems based on living well, societies must recognize the rights of Mother Earth. Mother Earth is not a detached commodity; it is a “collective subject of public interest” (Plurinational State of Bolivia, 2014, p. 28). Part of the effort consists of integrating ancestral indigenous knowledge and
notions about the interdependence and complementarity of all life forms and rights into integral and sustainable development models. Informed by an ongoing dialogue between traditional and modern knowledge, sustainable development—based on living well and Mother Earth’s rights—manifests itself as a process where mechanisms of adaptation to climate change are the primary drivers (Appendix 2, Figure 2). These mechanisms, ancestral and scientific, are agents of both conservation and restoration of ecosystems, as well as promoters of efficient and sustainable land use.

This pluralistic approach to sustainable development shows important analogies with the transdisciplinary models proposed by the Stockholm Resilience Centre and based on the primary notion that all socioecological systems are interconnected and interdependent. Moreover, the approach corroborates arguments that view resilient programming as bottom-up empowerment processes, entailing communities’ equal access to programming from conception to design to implementation.

As a result of the 2010 World People’s Conference, the Bolivian government passed Law No. 300 of Mother Earth and Integral Development for Living Well in October 2012. This legislation essentially mainstreams indigenous ancestral thought, providing a legal framework for the rights of Mother Earth as a “collective subject of public interest.” The law connects with the individual and collective rights of indigenous people as laid out in Covenant 169 of the International Labour Organization (ILO) and the 2007 United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), which call for the implementation of sustainable, integral development models based on respect for all systems of life and based on the right of people to live in a society that is equitable and free from injustice (Plurinational State of Bolivia, 2012).

Incorporating the rights of Mother Earth in the country’s juridical framework is a significant, unprecedented step by a state, as is the introduction of the notion of Mother Earth as a living organism into the mainstream sociopolitical discourse. These steps, however, generate an interesting paradox considering that Bolivia’s economy is based on extracting earth’s resources, at significant environmental cost (BHRRC, 2010; UCS, 2013).

Economic diversification, including stimulation of the agricultural sector, is an important challenge upon which the future of the Bolivian people depends (Patzy, 2015). Development practitioners can play a determinative role in this process. This entails learning from local civil society and indigenous, environmental movements and promoting the integration of local cosmologies into all the stages of development programming.

UNDERSTANDING RISK: NATURAL HAZARDS IN LA PAZ AND EL ALTO

As early as the 1970s, theorists began considering “natural disasters” socially constructed events (IDS, 2011; McCurley-Stafford, 2012). A wide range of case studies have established that exposure to hazards, vulnerability, and the type of impact are determined by the social context. This is one of the central notions of disaster risk reduction and prevention behind the Hyogo and Sendai frameworks (2005–2015 and 2015–2030).

Disasters, rather than being inherent in natural phenomena, are development failures that can be substantially mitigated or prevented with adequate programming. Consequently, effective DRR and CCA can be achieved only within the paradigm of sustainable social and economic development (Oxfam, 2016; UNISDR, 2005; UNISDR, 2017).

Beyond adopting the Hyogo and Sendai frameworks, the Bolivian government added an unprecedented de jure spiritual and theoretical dimension to DRR, CCA, and development programming. This notion is based on the axiom that sustainable development is not only a series of goals but a condicio sine qua non for the future of the human species on Planet Earth, intended as a comprehensive spiritual and biophysical living system (Plurinational State of Bolivia, 2012; Personal communication with member of indigenous organization Nasa Çxhaçxha, Belalcázar, August 2016).
Vulnerability and Adaptation to Climate Change

In 2009 a team of Oxfam researchers set out to study adaptation to climate change and poverty in Bolivia. Their report identified a number of factors that make this country particularly exposed to the impacts of climatic change (Oxfam, 2009):

1. a high degree of poverty and social inequality;
2. the continent's largest indigenous population, a demographic group that is highly vulnerable to and affected by poverty;
3. one of the world’s largest varieties of climatic zones and ecosystems, which are highly susceptible to climatic changes;
4. an Amazonian area that makes up more than half of the country and is highly affected by the consequences of deforestation, such as flooding, drought, soil erosion, increases in greenhouse gases, and disruption of the life systems of indigenous tribes;
5. Bolivia’s situation as one of the countries most affected by disasters related to natural phenomena; and
6. rapidly retreating tropical glaciers.

Ethnicity and gender

In addition, the Oxfam study found alarming trends of increased poverty and vulnerability affecting rural indigenous women. These trends, according to the research, are related to climatic changes that disrupt agricultural activities. In 2009 about half of the Bolivian indigenous population lived in extreme poverty and 28 percent of indigenous children faced chronic malnutrition (Oxfam, 2009).
This scenario improved between 2006 and 2015, as the country's Gini coefficient fell from 0.62 to 0.49 (IMF, 2016). Despite some encouraging trends, however, the Bolivian indigenous population continues to face great challenges, with indigenous women, predominately Quechua and Aymara, more likely to be affected by poverty, illiteracy, lack of education, and social discrimination than men (Heins, 2011; World Bank, 2016b). In 2013 a productive Bolivian indigenous woman working in the informal sector would earn about $97 a month compared with $395 for a non-indigenous man employed in the formal sector.

A different study carried out by Oxfam between 2005 and 2011 found that urban indigenous women are more exposed to hazards than men because of social roles and responsibilities as well as trends in rural-urban migration and the feminization of poverty. The study concluded that whereas DRR policies and interventions in Bolivia acknowledge gender differences, they do not address ethnic and gender discrimination and marginalization at the structural level (Salamanca, 2012).

A study by the Konrad Adenauer Stiftung pointed out that although indigenous migration is a documented historical phenomenon in Bolivia, recent trends show increased rural-urban movements of people related to loss of livelihoods in the departments of Oruro, Potosi, and Chuquisaca (Heins, 2011).

Adaptations

At the same time, Oxfam research found promising examples of resilient adaptation in various areas of the country. In these instances, indigenous communities, and specifically women, responded to climate change using ancestral agricultural techniques. The same report warned about water scarcity due to climatic changes and recommended that steps should be taken to improve conservation, storage, and management. It argued that DRR and CCA must be integrated in all development models if resilience is to be fostered (Oxfam, 2009).

Moreover, the 2009 report concluded that Bolivia was setting constructive precedents in terms of mainstreaming CCA strategies, an example that more countries should follow. This change occurred due in part to a paradigm shift related to Evo Morales’s policies and government efforts to give participation, dignity, and voice to the country’s indigenous majorities (Oxfam, 2009).

Although observers have noted Bolivia’s advances in fostering DRR/CCA strategies and community resilience, the consequences of climate change have been dramatic and continue to be so. In November 2016, the central government was forced to declare a state of emergency owing to unprecedented severe droughts. These affected more than 100,000 families, putting 360,000 head of cattle and 290,000 hectares of agricultural land in serious danger. The water shortage was related in part to increased temperatures that caused Andean glaciers to shrink (Rocha, 2016). This highly worrying effect of climate change poses a serious threat to cities like La Paz and El Alto that depend on glaciers to meet the water needs of their population.

Urban Planning (or Lack of It) in La Paz and El Alto

La Paz

Nuestra Señora de La Paz (La Paz) was founded in 1548 along the Choqueyapu and Orkojahuira Rivers. Like other Latin American cities, La Paz grew demographically because of rural-urban migration. This growth intensified in the 1950s in the aftermath of the national revolution, when peasants were freed from debt peonage and began migrating to the cities (Borsdorf and Stadel, 2015). By the 1970s rural migrants had started colonizing the slopes around the city, owing to both demographic pressures and socioeconomic factors. Land lots in flat areas at a lower altitude were expensive and only accessible to more affluent sectors of the population (Boano et al., 2013; Borsdorf and Stadel, 2015; Salamanca-Mazuelo, 2012). Salamanca-Mazuelo (2012) and Boano et al. (2013) emphasize that as early as the 1950s ethnic and income segregation played a significant role in the urban evolution of La Paz.
The geomorphology of La Paz is extremely complex and unstable. The city, which covers an area of about 183,180 hectares, sits in a large depression of Quaternary origins. It is scattered with moderate and steep slopes of badlands that are the product of erosion (Table 2). The city center lies at an altitude of 3,600 meters, but other parts of the city range from 2,800 meters to 4,000 meters above sea level. About half of the city’s population of 793,293 lives on the western, eastern, and northern slopes (Salamanca-Mazuelo, 2012; INE, 2012). Out of a total of 225,000 properties in La Paz, 100,000—44 percent—are located on slopes (Salamanca-Mazuelo 2012).

Table 2: La Paz population living on low-, medium-, and high-gradient slopes

<table>
<thead>
<tr>
<th>Slope gradient</th>
<th>Percentage of the slopes</th>
<th>Percentage of the settled population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low (up to 15%)</td>
<td>30</td>
<td>37</td>
</tr>
<tr>
<td>Medium-low (15–30%)</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Medium (30–45%)</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>More than 45%</td>
<td>20</td>
<td>15</td>
</tr>
</tbody>
</table>

Source: Adapted from Salamanca-Mazuelo (2012).

La Paz also sits on a massive basin made up of six subbasins. These are drained by six main rivers and multiple tributaries originating in the surrounding cordilleras, or mountain ranges. The main rivers are Choqueyapu, Orkojahuiria, Irpavi, Achumani, and the smaller Jillusaya and Huayñajahuira (Appendix 2, Figure 3). As many as 364 rivers run through the city, most of them underground. This intricate hydrological landscape comes alive during the rainy season between October and April. Coupled with thousands of unplanned, informal houses built on slopes with gradients as steep as 45 percent, this situation makes most of La Paz’s neighborhoods highly vulnerable to floods and mudslides (Salamanca-Mazuelo, 2012; Boano et al., 2013).

Thirty-six high-risk areas had been identified in La Paz by 2016 (Personal interview with officials of the COE—Center for Emergency Operations—of the GAMLP, La Paz, October 2016; Bolivia, Ministerio de Medio Ambiente y Agua, 2012). Of these 36 areas, three have been singled out as zones of extremely high risk: Inmaculada Concepción, Huantaqui-Huancollo, and Cota Cota (Personal interview, La Paz, October 2016; El Diario, 2016; Cuevas, 2013; Bolivia, Ministerio de Medio Ambiente y Agua, 2012).
Professionals in the COE of La Paz interviewed for this research emphasized that the city’s main risk is related to haphazard urban dwellings and hydro-meteorological phenomena that trigger inundation and mudslides.

*Every year as the rainy season approaches, we are reminded of the situation of high vulnerability most of the paceños [residents of La Paz] live in, and of the need to continue building better disaster risk reduction and risk management tools* (personal interviews, COE, La Paz, October, 2016).

**El Alto**

El Alto was not directly affected by the mega-landslide, and it was not included in the 2010-2011 DG-ECHO Small Scale Disaster project. Nevertheless, its municipal institutions have been the recipients of a series of consecutive risk reduction DIPECHO projects, motivated by the existence of several neighborhoods in high-risk slope areas. For this reason, and for comparative purposes, the fieldwork for this research included a series of interviews and visits to La Paz’s sister city.

The city of El Alto, sitting above La Paz on a plateau that reaches 4,100 meters above sea level, is considered the highest city in the world. In the 1940s only about 11,000 people populated the area, living in settlements denominated *villa*. Demographically, each villa reflected the regional and cultural makeup of the areas of the country where its inhabitants, mainly indigenous peasants, originated. Migrations occurred primarily from the departments of La Paz, Oruro, and Potosí (Poupeau, 2010; Garfias and Mazurek, 2005). The population of El Alto grew significantly between 1976 and 1986, owing mainly to the collapse of mining in the departments of La Paz and Potosí and the droughts and floods produced by El Niño in 1982. On March 6, 1985, El Alto was registered as an independent municipality (Appendix 2, Figure 4).

At present, with 848,840 inhabitants, El Alto is more densely populated than La Paz (INE, 2012). Most of the population consists of indigenous Aymara and other rural migrants (Poupeau, 2010). Although most of El Alto sits on a plateau, the districts that are part of La Paz’s western slope are considered highly vulnerable. This area of El Alto includes the neighborhoods facing the Alpacoma Valley (Cuenca Alpacoma)—Tejada Alpacoma, Villa Exaltación, and Alpacoma Bajo—which are gravely affected by mudslides and erosion (Personal conversation with members of the DEGIR, El Alto, October 2016).

*We have been with the FEJUVE for over 25 years, and we are aware of the risks that the lack of urban planning implies for El Alto around the Cuenca Alpacoma and neighborhoods like Tejada Alpacoma, Villa Exaltación, and Alpacoma Bajo. Since the*
French studies in the 1970s, municipal authorities in El Alto and La Paz have been aware that most of the city is at risk. Heavy rains cause landslides and the overflowing of subterranean rivers.…

Educational projects and other activities by the NGOs are useful, but really what’s missing here are solutions that eradicate problems from their roots: transparent investments in public infrastructure like drainage wells and retaining walls (personal interview with members of the FEJUVE, El Alto, October 2016).15

**DISASTERS AND DISASTER RISK REDUCTION (DDR)**


Starting in the early 1980s Bolivian institutions and authorities became conscious of the high degree of vulnerability and risk threatening the country’s social and economic development. The response, however, remained limited to distribution of emergency aid to affected areas when disaster struck. The following events caught Bolivians in a context of weakness and unpreparedness vis-à-vis hazards and risks, underlining the absence of a culture of disaster risk reduction (PREDECAN, 2007):

- In 1982–83 El Niño inflicted significant damage across most of Bolivia. Droughts and floods destroyed agricultural crops and triggered massive rural-urban migration.
- In 1997–1998 El Niño again caused losses in the range of $527 million, equal to seven percent of Bolivian GDP. Enormous damage was caused to potable water, sewage, electrical, and communication systems.
- On May 22, 1998, a 6.5 magnitude earthquake struck the south of the Department of Cochabamba, killing 65 people and injuring hundreds. The towns of Aiquile and Totora reported severe damage to irrigation systems, schools, hospitals, roads, and public buildings.
- In 1999 devastating fires occurred in Tarija, Guarayos, Moxos, and Canadoa.

**Law 2140 and the National System for Risk Reduction and Attention to Disaster (SISRADE)**

Throughout the 1980s and 1990s, government institutions had no notion of risk management and how it could be integrated with strategies for sustainable development. This situation began to change in 2000, with the ratification of Law 2140 for Risk Reduction and Attention to Disaster and Emergencies, and its 2002 amendment, Law 2335 (See diagram of essential legal instruments governing DRR and CCA, Appendix 2, Figure 5). Law 2140 created the National System for Risk Reduction and Attention to Disaster (SISRADE); established the Fund for Risk Reduction and Economic Recuperation, with annual access to 0.15 percent of the national budget; and ordered the establishment of an integrated information system (Bolivia, 2012; Personal communication, La Paz, August, 2016).

The SISRADE is a system that allows national, departmental, and municipal institutions as well as technical, financial, and scientific private and citizens’ organizations to work in coordination with one another. Its main objectives include preventing the loss of human life; protecting the integrity of the nation’s financial, cultural, and environmental patrimony in the context of disasters and emergencies; and reconstructing areas affected by disaster, including social and economic rehabilitation through public and private resources. The SISRADE is also the main organism for decision making and coordination through the National Council for Risk Reduction and Attention to Disaster (CONARADE), which includes the Ministry of National Defense, the Ministry of Planning and Sustainable Development, and the Ministry of Government, as well as national, departmental, and municipal institutions and private, public, and citizens’ organizations concerned with DRR, emergency response, and development.
Informants interviewed for this research unanimously agreed that these developments constituted an important step forward for DRR in Bolivia (Box 1). Law 2140 and its 2002 amendment marked the first step toward a new institutional paradigm in which risk management is understood in relation to development. Nonetheless, in the early 2000s Bolivia, like most countries, lacked a resilience framework, solid and specific DRR and CCA public policies, and government institutions with the long-term strategic vision needed to effect real change (personal interviews, GAMLP, 2016).

**Box 1: Law 2140 provides the skeleton of DRR and emergency response in Bolivia**

Law 2140 established a number of principles that have become the basis of DRR and emergency response in Bolivia:

- It noted that disaster risk reduction, disaster response, and emergencies are matters of national interest. No government institution at any level can ignore policies aimed at DRR and response to emergencies.
- Moreover, protection from hazards is a right of all Bolivian citizens. Human-made risks that lead to disasters generate legal responsibilities. This is true for private citizens and companies as well as for public and governmental entities.
- The law called for decentralizing intervention where possible. Municipal governments are the primary institutions responsible for DRR and emergency response at the local level. Departmental and national authorities have a duty to intervene and/or to complement local interventions when municipal institutions do not have the needed budget or technical skills.
- More broadly, DRR and response to disaster are an integral part of territorial development plans as well as public and private investment within the framework of sustainable development models.

**The Hailstorm of February 12, 2002**

The wake-up call that put notions of vulnerability, DRR/CCA, and development policies on Bolivia’s agenda was the tragic hailstorm of February 2002 (Personal communication, GAMLP, 2016). On the afternoon of February 17, while most of Bolivia was plagued by severe droughts, a cloud 10 kilometers long formed over the northern part of the city of La Paz. The temperature dropped suddenly from 13.3º to 8.2º C.\(^{16}\) Darkness descended over the city. The temperature inside the enormous cumulonimbus fell as low as -20ºC (-4ºF), freezing all the water inside the cloud. The hailstorm began at 2:20 p.m. and continued uninterruptedly for 1 hour and 30 minutes, until 3:50 p.m. It was the biggest hailstorm ever recorded in Bolivia. Total precipitation was recorded at more than 39 millimeters.

Most of the 364 rivers that descend over the slopes of La Paz, including the main Choqueyapu River, swelled and overflowed their banks. The violence of the water caused heavy damage to homes, shops and businesses, public transport, private vehicles, street commerce (kiosks and other informal vending units), and people. Sixty-eight people lost their lives, 14 went missing, and more than 300 were injured; 342 homes were damaged, as were 945 economic units—formal and informal points of commerce (ISDR, 2002; Peralta, 2016). Authorities and emergency institutions were caught unprepared.

> We were all affected by the events of February 2002—citizens, emergency workers, and government officials alike. For the first time we had to deal with an emergency on our doorstep. Possibly, this was nature’s way of saying, ‘slow down, think, plan, care for your surroundings’ (personal interviews, GAMLP, 2016).

Although response personnel worked with dedication and generosity, a lack of communication and coordination mechanisms characterized the emergency response. It also became obvious that the SISRARE was not performing, and there was no clarity among institutions about allocations of resources, roles, responsibilities, and jurisdictions (Personal communication, GMALP, 2016).
The Strategic Agenda to Strengthen Risk Management in Bolivia, 2007

A year after President Evo Morales came to power in 2006, the Bolivian government set out to find ways to improve DRR/CCA and risk management. Efforts and attention were aimed at meeting the following goals:

• creating better DRR decision-making, coordination, and communication mechanisms;
• mainstreaming DRR at the national level as well as with local institutions; and
• generating forums and opportunities for discussion about DRR/CCA and risk management.

With these objectives in mind, in 2006, people from more than 50 institutions and organizations came together to plan the Strategic Agenda to Strengthen Risk Management in Bolivia (PREDECAN, 2007; Personal conversation, La Paz, October 2016). The panels worked on a five-year plan based on four main thematic components:

• **Politics and policies.** This component looked at the Bolivian DRR framework in relation to public policies. The panelists concluded that public policies must integrate localized understanding of risk management, based on diverse cultural experiences and existing knowledge. The panelists also looked at responsibilities and jurisdictions of DRR at the national, departmental, and municipal levels and emphasized the need to incorporate DRR strategies within the National Development Plan, always placing sustainability as a cross-cutting notion.

• **Information, monitoring, investigation, and knowledge.** This part of the agenda focused on the lack of academic research about threats, risk prevention, and the generation of new risks. It also looked at what technical capacity and instrumentation are needed to improve data collection, communication, and analysis.

• **Education and communication.** For this part of the agenda, the panelists emphasized the need to focus on ancestral indigenous knowledge as a way to learn sustainable forms of land use and management. They recommended looking at existing patterns of sustainable agricultural life systems as ways to mitigate threats related to climate change. They recommended the creation of large information and knowledge networks within the parameter of the post-2006 Bolivian Education Laws concerned with the relationship between communication and education. Finally, the panel reiterated the importance of knowledge, education, and communication as instruments for promoting resilience in all societies so they can thrive in a changing environment through learning and adaptation.

• **Disaster prevention and response.** This part of the agenda focused on prevention of emergencies, response mechanisms, and capacities. According to the panelists, efficacious DRR, risk management, prevention, and response demand well-defined policies, as well as efficient methodological tools and response protocols (PREDECAN, 2007).
3 PROJECT AND IMPACT

BACKGROUND

In 2010 as many as 300,000 people lived on the slopes of La Paz, in areas where the threat of landslides is high or very high. During particularly wet periods, landslides can make entire zones uninhabitable and pose a serious threat to people as well as physical structures. By December 2010, the GAMLP, after a geodynamic hazard and risk assessment, had identified 39 high-risk areas. Among these, four areas in Pampahasi Bajo, Metropolitana, Cervecería, and Suipacha (Villa Armonia) had to be evacuated immediately because of very high threat levels.

For this purpose the GAMLP had declared an orange alert, which implied a de facto state of emergency. The GAMLP intended to relocate the inhabitants into temporary camps, demolish their precarious homes, and stabilize the area. The evacuations were to take place before the height of the rainy season, which runs from October to April (European Commission, 2010). The shelters chosen for the temporary camps were lightweight and easy to set up and handle. Each unit was made with thermally insulated plywood suited to both wet and cold conditions. The roofs were made of corrugated iron sheets. A local La Paz manufacturer was identified as the primary supplier.

DG-ECHO SMALL-SCALE DISASTER PROJECT

As one of the few organizations in the country with experience managing temporary shelters according to Sphere standards, Oxfam was an appropriate candidate for executing a relocation DG-ECHO Small Scale Disaster project. The Bolivian development and humanitarian NGO Foundation for Community Participatory Development (FUNDEPCO) was Oxfam’s chosen partner and local project implementer.

The project started on December 15, 2010. An assessment was carried out from which Oxfam drew the following conclusions:

- The municipality had declared a situation of emergency (orange alert), and during the next few days approximately 100 families from four high-risk areas would need to be evacuated and given shelter.
- Of 100 families facing immediate risk, 37 had already left their homes for temporary refuge in neighboring houses. This was a short-term solution, and these people would soon have nowhere to go.
- Unless an immediate solution was found, 100 families would have to be housed in tents that did not meet minimum Sphere standards. Also, there was a risk that the families would lose all of their belongings.
- The municipal institutions did not have the necessary DRR capacities to shelter and manage a temporary humanitarian camp. The project would serve to strengthen technical knowledge of municipal staff and institutions about Sphere standards and administration of shelters. In particular, the project would improve the capacities of staff at the Special Directorate for Integrated Risk Management (DEGIR).
- The local government could not cope with the needs of people living in six proposed temporary shelters. The project would strengthen the government’s capacity to set up and administer the camps.
- The imminent arrival of La Niña would worsen conditions in all high-risk areas, increasing the probability of severe landslides and thereby exacerbating structural and social vulnerabilities.
- GAMLP vulnerability and risk maps had not been properly disseminated, so knowledge of risk was limited to small circles. The project would help raise awareness about risk among the population and civic organizations in high-risk areas.
The project would help the GAMLNP finalize new legislation on temporary shelters, and the implementers of the project would disseminate and publicize the new regulations (European Commission, 2010).

Consequently, in its original formulation, the DG-ECHO/Oxfam Small-Scale Disaster Project of 2010–11 was intended to relocate 100 families living in zones under high threat and provide them with Sphere-standard shelters. The target areas were Cervenería, Metropolitana, Pampahasi Bajo, and Suipacha.

The project was expected to benefit 500 people, approximately half men and half women. In addition, an associated DRR awareness campaign was supposed to reach approximately 10,000 more citizens of La Paz. Because of work carried out by the GAMLNP in the affected communities, the families participating in the project had been informed and educated about the risks (European Commission, 2010).

THE FEBRUARY 26, 2011 MEGA-LANDSLIDE AND RESPONSE

On February 26, 2011, a mega-landslide hit the San Antonio district of La Paz. While 42 houses had been already been built and made available to the beneficiaries, the landslide affected five of the six areas selected for relocation (see Box 2). This new reality naturally put more pressure on the GAMLNP and the project implementers.

According to a study commissioned by the Ministry of Water and Environment, the mega-landslide was the product of a combination of human-induced and natural causes (Bolivia, Ministerio de Medio Ambiente y Agua, 2012). On the one hand, heavy rains in the weeks prior to the event significantly weakened the eroded soil of the eastern part of the city. Further, erosion caused by the Irpavi and Chujlluncani Rivers and subterranean waters coming from the Cordillera Real and from the Chuquiaguillo River helped saturate the already fragile soil.
Box 2: Areas of east La Paz affected by the landslide of 2011

- Pampahasi Bajo Central
- Kupini
- Valle de las Flores
- Santa Rosa de Callapa
- Santa Rosa de Azata
- Callapa
- Las Dalias
- Alto Villa Salomé
- Jokoni
- 20 de Octubre
- 23 de Marzo
- Cervecería
- Irpavi II
- Metropolitana

In terms of anthropic factors, the report also mentioned that urbanized Pampahasi lies in an area previously used for agriculture, where a natural irrigation system relied on water channels descending from higher elevations. In addition, the study pointed out that most of the affected areas lacked a sewage system and that the cesspits used by the inhabitants had exceeded their capacity, exerting strong structural pressure on the soil. The report also noted that the road system channeled water onto the slopes, increasing the fragility of the soil, and that multi-story housing built in Pampahasi-Callapa placed excessive weight on the weak uppermost parts of the slopes.

The landslide affected districts 16, 17, and 18 and a total of 14 areas and 148 hectares. It rendered 1,467 land parcels useless; 1,353 people lost their houses or had to abandon them, and 5,446 people had to be evacuated. Damage was estimated at $93 million (Salamanca, 2012).
Although the structural damage was severe, the landslide moved relatively slowly, giving people time to evacuate high-risk areas. This factor, combined with an effective information campaign, may have contributed to the fact that there were no reported casualties.

The emergency generated by the mega-landslide prompted greater collaboration between the GAMLP and the NGOs implementing the Small-Scale Disaster Project. Both ECHO and Oxfam assigned more funds to the project. The GAMLP initiated a census of the number of families that had to be relocated. It also asked Bolivian development and humanitarian NGO FUNDEPCO to join the *Una La Paz* initiative to prepare a comprehensive strategy for delivering humanitarian assistance to the families affected by the disaster. FUNDEPCO also continued to operate as a partner for Oxfam and the GAMLP.
The emergency response primarily addressed the following areas:

1. organizing an emergency census of damaged properties and infrastructure;
2. counting the number of families to be relocated to emergency shelters;
3. providing emergency shelters that met Sphere standards;
4. improving water and sanitation conditions for the affected families and installation of sanitary modules; and
5. producing and distributing educational materials about risk management and prevention to sensitize the population.

The Bolivian Humanitarian Consortium

In addition to channeling more funds into the Small-Scale Disaster Project in the immediate aftermath of the February 2011 mega-landslide, Oxfam reached an agreement with DG-ECHO to increase the project’s budget. At the same time all the agencies within the Bolivian Humanitarian Consortium joined the effort to assist the more than 5,000 people affected by the disaster. In 2011 the Bolivian Humanitarian Consortium included Action Against Hunger, CARE, Catholic International Development Charity (CAFOD), Catholic Relief Services, Christian Aid, HelpAge International, Oxfam, Plan International, Save the Children, and World Vision.

The activities of the Consortium were coordinated with the Bolivian Vice Ministry of Housing. In addition, the Consortium sought coordination with the GAMLP as well as the United Nations humanitarian agencies, the city’s COE, and the Bolivian charity Carla Ortiz Foundation. Activities were also coordinated with the Bolivian and Spanish chapters of the International Federation of Red Cross and Red Crescent Societies (IFRC).

When asked about the efficacy of the interventions, people interviewed for this research unanimously reported that having such a diverse group of organizations participating in post-disaster response operations resulted in more fundraising to cover all aspects of the emergency. The Consortium, for example, provided essential expertise related to water and sanitation, temporary camps, Sphere-standard shelters, and camp administration.

Informants also agreed that the Bolivian Humanitarian Consortium set an important precedent in coordinated humanitarian interventions in Bolivia. Agencies learned from each other and expanded their expertise and scope of action (Personal communication, La Paz, October, 2016). The Final Narrative Report of the European Commission (2010-2011) claimed:

From the perspective of GAMLP and project implementers (Oxfam and FUNDEPCO), the opportunities provided by the Small-Scale Disaster Project gave birth to one of the most important humanitarian interventions in the city of La Paz and in the country as a whole… (European Commission, 2010–2011, p. 32).

Objectives, Indicators, and Results

Within the DG-ECHO Small-Scale Disaster Project, Oxfam and its Bolivian partner FUNDEPCO carried on or participated in the following activities:

- planning and designing six temporary camps;
- preparing the campsites;
- acquiring shelters and sanitary modules that met Sphere standards;
- organizing camps’ security protocols;
- performing electrical work;
- collecting data;
- creating and placing signs in all six camps that provided information on camp norms, instructions, and general information;
• managing camp staff and establishing teams, including teams focused on protection, gender, psychological care, education, and WASH (water, sanitation, and hygiene);
• designing a media campaign to be disseminated by news organizations (print, Internet, TV, and radio);
• producing DRR banners and brochures;
• widely disseminating DRR and hazards maps; and
• phasing people out of the camp and closing it.

Zenobio Lopez, Camp B. The colors on the temporary shelters vary according to the organization sponsoring the units.  

According to the official project documentation, the DG-ECHO Small-Scale Disaster Project surpassed the predicted results:
• Technical support was delivered to GAMLP institutions and personnel, and particular emphasis was given to training members of the Special Directorate of Integrated Risk Management (DEGIR).
• Municipal staff received training in management of temporary shelters, Sphere standards, security, water and sanitation, and camp norms and regulations.
• By the end of the project, 300 families had been provided with Sphere-standard shelters in temporary camps.
• At least 1,500 people were given access to adequate water and sanitation conditions.
• More than 1,000 families were evacuated in an organized manner.
• A disaster prevention campaign was designed and received the approval of the GAMLP. By month four, the public campaign had reached approximately 100,000 citizens in the municipality of La Paz.

Informants interviewed for this research recalled that European Commission ambassadors, regional directors of NGOs, and other stakeholders visited La Paz in the aftermath of the February landslide. All these parties recognized the achievements of the response efforts. In particular, observers were positively impressed by the articulation and coordination between the DEGIR and the COE of the GAMLP as well as the work of the NGOs that were part of the Bolivian Humanitarian Consortium (Personal communication, La Paz, October 2016). The coordinated humanitarian interventions of 2011 in urban La Paz set a regional precedent that could certainly be replicated by other South American cities facing similar threats.
As stated by its implementers, the DG-ECHO Small-Scale Disaster project ended up benefiting approximately 300 families and at least 1,500 citizens evenly made up of women and men.

Even though the project did not have a specific gender or age focus, it addressed the needs of specific segments of the population in a disaggregated fashion, particularly in areas related to management of security in the temporary camps, educational activities, and WASH access.

According to the president of an organization representing various neighborhoods in the San Antonio district of La Paz:

*The mega-landslide affected a section of the population that was already very weak economically. A lot of the people who lost or had to abandon their homes worked as construction workers on large sites in other areas of La Paz, and they used their empirical skills to build their own homes. Unfortunately, most of the time, these builders don’t have access to geological notions, and the structures they make turn out to be weak and unstable because of the precariousness of the soil in the slopes…*

*Today, many of the families that had to be evacuated from Callapa in 2011 have gone back to their old places. They have built new dwellings approximating the location of their old houses. Of course the area should still be off limits and remains unsafe, but what can people do? The alternatives proposed by the national and municipal governments have been received with skepticism and considered inadequate… (Personal conversation with member of a citizens’ organization, La Paz, San Antonio, October 2016).*

When asked about whether the interventions by government and aid agencies had an effect beyond the February crisis, this informant said:

*In the days that followed the mega-landslide, various governmental and municipal institutions as well as different aid agencies collaborated and worked hard evacuating and relocating victims in temporary shelters. Surely, at the institutional level staff learned a lot about camp management, administration of supplies, security, and water and sanitation standards. However, we cannot say the same about the families who had to abandon their homes or that were affected by the landslide in other ways…*

*For a couple of years after the February events, the presidents of the Federation of Neighborhood Committees (FEJUVES) participated in DRR meetings and interacted with their constituencies about these themes. Eventually, the interest receded. People care more about permanent solutions than risk reduction. The FEJUVES demand investments and public works: land stabilization, sewage systems, canalization of water coming from higher grounds… (Personal conversation, La Paz, San Antonio, October 2016).*

Interviews with FEJUVE representatives support this informant’s claims that communities are more interested in permanent solutions than prevention. It is also true, however, that all of the neighborhood representatives interviewed for this research:

- possessed at least some basic knowledge of themes related to DRR;
- had participated in workshops or other preparedness events; and
- approved of ongoing DIPECHO and other preparedness and educational programs carried out by the GAMLP and the Autonomous Municipal Government of El Alto (GAMEA) with youth and elderly citizens (white brigades).

However, the extent to which acquired knowledge about DRR translates into resilient practices and CCAs is difficult to assess and quantify. Neighborhood representatives interviewed in El Alto, where safe building areas are available, talked emphatically and knowledgeably about proper building practices and regulations, safe locations, and the type of infrastructure required to strengthen existing populated risky areas. The situation is different in La Paz, where space is extremely limited, and some people who lost everything to the mega-landslide have built houses
in the same areas they had previously been forced to abandon. Several families from the Callapa area, for example, decided to rebuild their homes right where their old houses stood before the mega-landslide.

Why families rebuilt their homes in the same location is a complex question that must be addressed in order to design better DRR and CCA policies and resilient programs. A representative of a civil society organization that works closely with the FEJUVEs in the San Antonio district, which includes the Callapa area, provided some possible explanations for why people went back to high-risk locations:

• The new accommodations were considered inadequate for family living.
• Families did not appreciate being offered housing in El Alto, which they thought was too far from their original neighborhoods in central La Paz.
• The risk of new landslides seemed remote and negligible.
• Families thought that eventually the government would buy their parcels or exchange them for new housing in central La Paz.
4 ANALYSIS

TIMING

As mentioned, in the immediate aftermath of the disaster, Oxfam committed more funds to the emergency operations. It also decided to renegotiate the terms of the project, increasing the budget and extending the time to include more beneficiaries. Originally intended to last three months, from December 2010 to February 2011, the DG-ECHO Small-Scale Disaster Project was extended for about three more months, ending in June 2011. According to informants from government institutions and international NGOs, the timing of the project was crucial to minimize the impact of the mega-landslide.

The project’s activities preparing for the evacuations; training staff on Sphere-standard management of camps; and coordinating with governments, NGOs, and agencies three months before the landslide occurred helped save lives and ensured a more efficient and coordinated response to the crisis (Personal communication, La Paz, October, 2016). Thanks to previous experiences implementing three humanitarian response DG-ECHO projects and two ECHO-financed DIPECHO projects, including the production in 2008 of the Atlas of Risks Threats and Vulnerability in Bolivia, Oxfam and FUNDEPCO were able to assess the urgency of the situation and adopt timely and appropriate preventive and response actions. Also important was the synergy between the project implementers and the GAMLP, which guaranteed that the urgency conveyed by the 2010 vulnerability study identifying 36 high-risk areas was taken into account. This synergy assured that humanitarian actors in La Paz were not caught unprepared.

ABSORPTIVE, ADAPTIVE, AND TRANSFORMATIVE CAPACITIES

Conclusions about the types and extent of the capacities installed by the DG-ECHO Small-Scale Disaster Project and the DIPECHO projects that followed are not easy to extrapolate. The ethnographic material points to a diversity of responses. An informant interviewed in El Alto, for example, said,

*The neighbors attend workshops and talks and have a good understanding of risk; this is true especially for people who have lived through previous emergencies…. The educational activities carried out in the schools by the DEGIR are very helpful as the students are good at transmitting what they learn to other family members…* (Personal interview with member of civil society, El Alto, 2016).

Informants interviewed in El Alto, both from municipal institutions and from civil society, agreed that acquisition of new knowledge followed by adaptive behaviors had indeed empowered the constituency.

More complex, however, is the issue of social transformation. On this subject most of the people interviewed from civil society expressed frustration. The national and municipal government, they felt, lacked the political will and possibly the funds to implement policies that would give rise to real structural changes in their neighborhoods.

The situation is more serious in La Paz, where informants from civil society claimed that when absorptive and adaptive capacities had improved, the improvements lasted only a limited amount of time. This view is corroborated by the fact that several families who had been evacuated before and after the mega-mudslide have returned to their original parcels in high-risk areas and built new houses.

*The evacuations and relocations of people in 2010 and 2011 had a profound impact on people in the neighborhood. They changed the way people related to the environment. However, neither this nor the educational campaigns that followed have been enough to modify people’s habits and old established trends*...
We have a saying here: ‘It doesn’t matter how steep the hill as long as you own the house.’ Paceños [inhabitants of La Paz], both recent rural immigrants and old city dwellers, all want their own property to live in…. People work and save money and slowly build their houses, working on it themselves or hiring friends and neighbors, people who often only posses empirical skills.…

Because of this mindset, less than five years after the major landslides some families started going back to their old unsafe areas and building new houses in places near where their old properties used to stand (Personal communication, August 2016, La Paz).

The mindset at the institutional level appears to be somewhat different. Informants from the municipality of La Paz, for example, adopted a discourse that incorporated the three stages of resilience. According to one municipal official interviewed:

Risk is transversal; we are talking about a structural condition that affects society in all of its dimensions together with the territory we live in. This is why development planning in the municipality of La Paz, in urban and rural areas, requires a multi-dimensional, long-term approach and outlook. This type of territorial planning must be based on carefully designed methodologies encompassing notions from all aspects of life and existence: production, ecology, work, leisure, rural life forms, urban life forms, security, interculturality, mental and physical health, happiness.…

Development in order to be sustainable must be planned integrally. Cultural diversity and ecology both play a key role in building an equilibrated system.

The La Paz Integral 2040 Plan integrates environmental management with a sustainable approach to the use of resources to build a municipality that is livable, egalitarian, and oriented toward harmony between people and nature (Personal communication, August 2016, La Paz).

This ongoing approach began taking shape in Bolivia starting with the creation of the Strategic Agenda to Strengthen Risk Management in 2007. It improved with new legislation, the lessons learned during the 2010–11 landslides, and the risk management and prevention projects that ensued. It finally became an explicit multidimensional development agenda in the La Paz Integral 2040 Plan. The material gathered for this report points to some important characteristics of Bolivia’s approach:

1. Communities, aid agencies, NGOs and international NGOs, and municipal and national government institutions in La Paz have shown the ability to collaborate.
2. Research is produced to understand the drivers of risk, fragility, and vulnerability and their impacts on rural and urban communities.
3. Municipal institutions and the national government have adopted a discourse of sustainable development, which implies medium- and long-term planning.
4. There seems to be a divide or a discursive fracture between civil society and municipal and national government institutions. This conflict may be conducive to a democratization of the development process.

Even though indicators have shown some positive trends, it is too soon to tell whether this ongoing process will become a pathway to transformative and resilient long-term development outcomes in the municipality of La Paz. It will depend on a vast array of local and regional macroeconomic, social, political, and cultural factors.

RESILIENCE IS A PROCESS, NOT A PROJECT

Official GAMLP documents and material derived from field interviews speak of a conceptual and discursive shift at the institutional level from DRR programming to resilient and sustainable programming. Resilience, sustainability, and eco-efficiency are also at the heart of the
municipality of La Paz Integral Development Plan 2040 (GAMLPI, 2015). This is visible in the work of the various branches of the municipality, notably:

- the reforestation and river recuperation programs and the research being carried out on renewable sources of energy at the Secretariat for Environmental Management;
- the Happiness Program of the Directorate of Citizenship and Culture together with the Zebra initiative (see below); and
- the risk-preparedness activities; neighborhood, school, and elderly committees; and brigades organized by the DEGIR and the COE.

Resilience has also been adopted as the conceptual framework of a series of DIPECHO programs executed in Bolivia and La Paz since the end of the DG-ECHO project in 2011. These programs were designed and implemented to complement and strengthen the capacities and actions of municipal bodies dealing with citizens’ risk preparedness, prevention, and risk management in La Paz and El Alto.

When I started working with the municipality of El Alto, at the Directorate for Risk Prevention and Emergencies (DIPRE), the DIPECHO programs had already begun. I think we were on DIPECHO VIII.…

The collaboration with the Humanitarian Consortium and the DIPECHO projects provided us with the tools to further our knowledge in various areas of risk preparedness and response.…

As a leader of my branch, I intended the DIPECHO workshops to be a blueprint that could be replicated and amplified, a seed that had to be cared for and made to grow. Everything we learned we put to use organizing activities with the schools, the elderly, and the neighborhood committees. DIPECHO gave us tools that we transformed and put to use in autonomous and independent ways; this, I think, is resilient thinking (Personal communication, El Alto, 2016).

DIPECHO-VII

In 2011, as the six-month-long DG-ECHO Small-Scale Disaster Project was coming to an end, Oxfam started planning DIPECHO-VII. According to documentation reviewed for this project as well as interviews with people who took part in the design and implementation of DIPECHO-VII, the timing of this second project played an important role.

As we carried out our work within the framework of the DG-ECHO 2010–11 project, we had the opportunity to interact closely with the beneficiaries and to observe what strengths and weaknesses they (we) faced during the interventions.

What capacities were needed, what type of training, and what teams and specific institutions had to be strengthened—all of this became evident as we developed the Small-Scale Disaster Project.… Most of all, what became evident were the strategic/coordination and inter-institutional communication failures that needed to be addressed (Personal communication, La Paz, October, 2016).

Soon after the 2011 landslide, the GAMLP commissioned a post-disaster assessment of the work carried out by municipal authorities during the crisis. This assessment identified opportunities for change and improvement, potentialities, institutional weaknesses (such as a lack of financial autonomy and weak coordination), and lack of capacities. The scope of DIPECHO-VII was then adjusted to provide technical intervention in all such areas.

The logical framework and the budget of DIPECHO-VII were designed in the context of a series of workshops with the DEGIR, the Secretariat of Citizenship and Culture, the Secretariat of Planning, the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), the United Nations Development Programme (UNDP), HelpAge, Oxfam, and FUNDEPCO. The results of these discussions were subsequently relayed to the Vice Ministry of Civil Defense and received the approval of national authorities.

Among the areas identified for intervention by DIPECHO-VII were the following:
• educating citizens about risk and DRR: This point was deemed of outmost importance as during the mega-landslide municipal authorities became alarmed by the public’s misconceptions and high levels of indifference about existing threats (Personal communication, La Paz, October 2016);
• training GAMLSP staff and emergency operators;
• strengthening the Neighborhood Emergency Committees and the Seniors Brigades known in La Paz as “White Brigades” (COEBs and Brigadas Blancas);
• strengthening the Center for Emergency Operations (COEs); and
• designing decentralized strategies to empower local authorities at the municipal, macro-district, district, and neighborhood level.

During the emergency operations that followed the mega-landslide, it became evident that most decision-making and financial responsibilities fell on the DEGIR. Hence, the strategy designed within DIPCHO-VII sought to increase the financial and political autonomy of municipal DRR actors as well as strengthen their specific capacities. For this purpose the implementers of DIPCHO-VII, working closely with the GAMLSP, generated a Multi-Sectoral and Decentralized Municipal Administration Model for Preparedness and Response. The model will eventually be approved and integrated into legislation by the La Paz municipal council.

The model was developed within the framework of Article 100 of Law No. 31 of 2010 (Framework for Autonomy and Decentralization) and that of Municipal Autonomous Law No. 005/2010 (Municipal Autonomous Law for Integral Disaster and Risk Management). This body of legislation, among other things, establishes that local governments (municipalities and macro-districts) must:
• inform and educate the public about threats and DRR;
• design and implement DRR policies;
• integrate DRR into development planning; and
• promote the establishment of Municipal Committees for Risk Reduction and Attention to Disaster.

As stated by informants interviewed at the GAMLSP, the Multi-Sectoral and Decentralized Municipal Administration Model for Preparedness and Response sets the standards for DRR municipal policies in La Paz for the current political administration (Personal interviews, La Paz, 2016).

Citizens’ Culture and the Zebra

The zebra is the main character of a TV mini-series conceived within the framework of DIPCHO-VII, Building Resilience to Natural Disaster in La Paz. The TV show aimed to educate the public using entertainment to convey notions of risk prevention, preparedness, solidarity, urban resilience, risk management, and response to calamities (Personal interview, La Paz, 2016). The zebra TV series received an excellent public response, becoming widely known in La Paz and beyond. This reception by the public prompted the Directorate of Citizenship and Culture to follow up on the initiative. Youths, known as urban educators, received training to perform civic pedagogical duties. Urban educators wearing zebra costumes interacted with the public in strategic central locations in La Paz and performed street theater to impart civic norms. The zebra was also rendered as a comic book character and used in a wide variety of risk management, prevention, and response materials produced by various GAMLSP bodies.
Educational material encouraging citizens to practice breathing techniques and dress colorfully to prevent stress and promote well-being. Photo courtesy of the Happiness Program, Directorate of Citizenship and Culture, GAML, 2016.


The extent to which the zebra's character positively affected both municipal institutions and the public was pointed out on various occasions in the course of this research.

_With the zebra character and TV series we found a phenomenal communication tool to deliver crucial risk-related information to the citizens of La Paz. This unique education process fomented solidarity and social responsibility, which are fundamentals of resilience-oriented urban planning and public policies_ (Personal communication, La Paz, Directorate of Citizenship and Culture, 2016).

**A Bolivian Pathway to Resilient Development?**

The DG-ECHO Small-Scale Disaster Project of 2010–11 and the follow-up DIPECHO-VII projects lacked a gender framework. Dynamics of empowerment or disempowerment of specific sectors of the population as a consequence of the projects cannot be ascertained.

Nevertheless, NGOs and municipal institutions operating in La Paz have been adopting and constructing a culturally specific, resilience discourse. This is informed by localized, culturally diverse experiences as well as global trends. For example, the legacy of indigenous political and spiritual tenets, which also appear in national legislation, permeates the institutional discourse informing the meaning of notions such as ecology, sustainability, conservation, resilience, and social and environmental equilibrium (GAML, 2015. These, among other concepts, are the building blocks of the theoretical framework within which municipal officials...
designed the La Paz Integral Plan 2040—the official development roadmap for urban and rural La Paz.

It is not possible to ascertain the degree of effectiveness of a large-scale, ongoing, yet incipient approach, nor can we generalize about pathways to resilience from a single project’s inputs and outcomes. However, the ethnographic material gathered for this research pointed toward several interesting findings:

1. Neither the DG-ECHO Small-Scale Disaster Project nor the DIPECHO-VII projects were equipped with a gender focus.

2. We cannot ascertain or speculate whether the projects provided building blocks to generate better livelihoods for the beneficiaries.

3. The projects, at least temporarily, succeeded in educating and informing the beneficiaries and the general public about risk. Hence, they enhanced the potential of paceños and paceñas to make adaptations that promote resilience and rational decision-making.

4. Planning for the medium and long term within a resilience framework and discourse is a characteristic of the work of the La Paz municipal institutions. Municipal officials interviewed for this research believe that the collaboration between authorities and aid operators has helped shape their resilience discourse.

5. The DG-ECHO Small-Scale Disaster Project and the DIPECHO projects that followed have significantly nurtured learning processes at the institutional and civil society level.
5 CONCLUSIONS

The DG-ECHO Small-Scale Disaster Project of 2010–11 took place in the context of the largest coordinated humanitarian intervention in the history of Bolivia. The project set an important precedent, and the lessons learned from this experience helped shape the outlook and the work of national and municipal government institutions, NGOs, and humanitarian agencies in the following years.

The timing of the project was crucial to minimize the impact of the mega-landslide. Preparing for the evacuation, adopting Sphere-standard management of camps, and coordinating with governments, NGOs, and agencies three months before the events of February 2011 helped save lives and ensure a better response to the crisis.

The background research carried out by the GAMLP, Oxfam, and FUNDEPCO was crucial. This work included the Atlas of Risks Threats and Vulnerability in Bolivia published jointly by Oxfam and FUNDEPCO. These studies established the urgency of the situation in La Paz and provided the government and humanitarian agencies with the necessary theoretical knowledge to prepare efficiently. Because of this background research, national authorities, the municipal government, and the humanitarian actors were not caught unprepared.

In the immediate aftermath of the disaster, Oxfam directed more funds to the emergency operations. Oxfam also renegotiated the terms of the DG-ECHO Small-Scale Disaster Project, increasing the budget and extending the time to include more beneficiaries than originally planned.

According to members of municipal institutions and aid workers interviewed for this research, coordination of the 2010–11 DG-ECHO Small-Scale Disaster Project with successive DIPECHO projects helped construct a culture of resilient programming. The medium- and long-term programs of the Municipal Secretary of Planning, the Secretary of Culture, and the Secretary of Planning made sure that capacities are not lost and ensured temporal and political continuity in DRR/CCA policies and programming.

Representatives of citizens' organizations from various FEJUVEs agree that educational programs and DRR campaigns have helped generate hazard awareness and install capacities that can help mitigate disasters. Still, these informants strongly argued that grey, green, and blue engineering infrastructural interventions are needed in most of the neighborhoods they represent. These informants insisted that investments should prioritize water channeling and stabilization of fragile soil. They also underlined that there can be no real development in La Paz until their basic right to live in safety is guaranteed by the government.

Pertinent legislation ratified under the current administration (as well as during earlier governments) provides a context for government institutions, national and international organizations, humanitarian agencies, and civil society to develop sustainable DRR and CCA initiatives and projects. This legal framework, while it can be still improved, provides the tools to foster resilient programming.

In particular, Law 300, which establishes the rights of Mother Earth, sets an important precedent and provides the background for sustainable and resilient programming. This law is an unprecedented effort to mainstream indigenous ancestral and spiritual ontologies and integrate them into the country’s development models. The law combines indigenous, ancestral, and modern scientific thought and states that Mother Earth is a living, organic, and sacred being defined as a “collective subject of public interest.”

In spite of legislation such as Law 300 and the influence of environmentally conscious indigenous social movements on national politics, Bolivia relies on a commodity-driven economy. The country is largely dependent on extraction of minerals and natural gas with high social and environmental costs. This modus operandi based on extractivism cannot be maintained in the medium and long term, and development professionals should work together with social movements, civil society, and the government to research and implement viable, sustainable, environmentally sound alternatives.
APPENDIX 1: BOLIVIA’S WATER WAR AND GAS WAR

The Water War took place during the presidency of General Hugo Banzer Suárez, who, as dictator in the 1970s, received backing from US President Nixon. In 1999, the departmental government of Cochabamba privatized all water services. This move was part of a series of structural adjustments driven by the World Bank and the International Monetary Fund (Public Citizen, 2001). The contract went to a joint venture including local businessmen and the multinational corporations Bechtel and International Waters, among others. In Bolivia the consortium took the name Aguas del Tunari. As Aguas del Tunari began operations, users started reacting to increasing monthly water bills. Higher costs, together with attempts by the government to legislate and control the use of pluvial waters and agricultural wells, triggered massive social protests. Thousands of peasants, students, and civic organizations represented by the broad Coalition in Defense of Water and Life and the Civic Committee demanded an end to water privatization. After weeks of social unrest, Aguas del Tunari decided to reimburse users who had been billed excessively. By February 2000, demonstrations and roadblocks against the privatization of water spread to other locations around the country. Six protestors were killed and hundreds wounded (Bechtel, 2005). President Banzer declared martial law. In Cochabamba, as the departmental governor resigned, personnel of Aguas del Tunari were forced to abandon their offices for security reasons. After weeks of social unrest, President Banzer rescinded the contract with Aguas del Tunari and turned over control of the water system to the Coalition in Defense of Water and Life (Public Citizen, 2001).

Not long after these events the Gas War caused Bolivian president Gonzalo Sánchez de Lozada (known as “El Gony”) to resign and flee to the United States. In 2003 the Bolivian government, applying a 1997 law that permitted complete privatization of hydrocarbons, signed a deal turning over control of the national gas reserves. The contract went to Pacific LNG, a consortium of multinational companies that included British Gas, British Petroleum, and Repsol/YPF. According to the agreement, Bolivian gas would be exported to Chile through a gas-ducting system and then shipped to other international markets (Gavalda, 2003; Iamamoto, 2013). As in the case of the Water War, demonstrations started in La Paz and El Alto and soon reached the rest of the country. Social organizations demanded a halt to gas exports until a clear policy for internal supply was in place. Simultaneously, the protesters requested the formation of a new Constitutional Assembly. Bolivia again descended into social chaos. Military interventions and arrests, instead of pacifying the country, strengthened the determination of the participants and fueled the protests. In El Alto and La Paz, Aymara students and workers, among others, put up fierce resistance that left 58 people dead and more than 400 wounded during confrontations with the military (Gavalda, 2003; Iamamoto, 2013).
Figure A.1: The macro-districts of La Paz

I Mallasa
(District: 20)

II Zona Sur
(District: 18, 19, 21)

III San Antonio
(Districts: 14, 15, 16, 17)

IV Periferica
(Districts: 11, 12, 13)

V Max Paredes
(Districts: 7, 8, 9, 10)

VI Zona Centro
(Districts: 1, 2)

VII Cotahuma
(Districts: 3, 4, 5, 6)

XXII Zongo (Rural)

XXIII Hampaturi (Rural)
Figure A.2: Contrast between the green economy and economy of Mother Earth

Source: Adapted from Plurinational State of Bolivia (2014).
Figure A.3: The six basins and sub-basins of La Paz

Source: Adapted from Barrera Uria (2012).
Figure A.4: The 14 districts of El Alto

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Fuente: INE / GAMEA
Elaboración: Reynaldo Quispe Ch.

Source: Adapted from Autonomous Municipal Government of El Alto (GAMEA).
Figure A.5: Essential legal instruments for Bolivian DRR and CCA

Source: Compiled by the author.
BIBLIOGRAPHY


NOTES

1 Gray infrastructure includes conventional civil engineering with materials such as concrete and steel; green infrastructure refers to low-impact, sustainable land- and plant-based ecological systems; and blue infrastructure is linked to water and has a small footprint and high efficiency.

2 This section is adapted from Oxfam International (2016).

3 The GINI coefficient is a measurement of income distribution and inequality within a country. A coefficient of 0 would indicate absolute equality while a coefficient of 1 indicates absolute inequality.

4 Cocalero is Spanish for “coca grower.” The coca plant is used widely and in various forms by indigenous communities in the Andean region. Indigenous people regard the coca plant as sacred and use it extensively in religious rituals and practices. President Evo Morales appeared on the political scene in the early 1990s as a union activist protesting against US-funded fumigations of coca plants within the framework of Plan Colombia, the controversial US program initiated by President Clinton to aggressively tackle cocaine’s production and traffickers.

5 On October 16 public transport workers blocked all major roads and brought La Paz to a standstill for a whole day. They were demanding a better deal on an upcoming reform regarding bus fares and vehicle standards. Similarly, on October 19 and 20, thousands of Aymara women set up roadblocks throughout the center of La Paz to protest the municipal council’s proposal to require informal street vendors to pay for mandatory permits (Cuiza, 2016b).

6 While performing fieldwork for this case study, the researcher faced some interesting challenges. Trying to compile a list of people to be interviewed, we realized that the contact information for neighborhood representatives of the municipality of El Alto differed depending on the source of the information. For instance, the list supplied by a local submayor’s office gave different names from a list we had drafted with the help of the principal of an educational institution. The reasons for this discrepancy became clear when we began interviewing neighborhood representatives from both lists. As it turned out, municipal officials refused to recognize the legitimacy of existing neighborhood committees controlled by opposition groups and appointed parallel ad hoc representatives drawn from their own constituencies. This created a peculiar situation in which neighborhood committees were simultaneously led by different sets of political representatives who did not cooperate with one another.

They are naming fake, parallel leaders. The sub-mayorship office has decided it cannot run the city, we are putting up too fierce an opposition, we come from a culture of protest!… This is why they are naming substitute neighborhood leaders (Personal interview with an informant from a neighborhood with a long history of hazards and DRR interventions, El Alto, 2016).

This intricate scenario, emblematic of the complexity of social and political dynamics, is a reminder of the importance for development programmers of solid contextual ethnographic knowledge.

7 In the aftermath of the Copenhagen Conference, the executive director of Greenpeace UK made the following statement: “The city of Copenhagen is a crime scene tonight, with the guilty men and women fleeing to the airport. Ed Miliband [UK climate change secretary] is among the very few that come out of this summit with any credit.” Even more alarmingly, Lydia Baker of Save the Children, who also attended the conference, commented, “World leaders have effectively signed a death warrant for many of the world’s poorest children. Up to 250,000 children from poor communities could die before the next major meeting in Mexico at the end of next year” (Vidal, Stratton, and Goldenberg, 2009).

8 The Economics of Ecosystems and Biodiversity (TEEB) was led by renowned international banker Pavan Sukhdev. The study evaluated worldwide biodiversity loss and ecosystem degradation from the point of view of human welfare and economics. From its office in Geneva, within the United Nations Environment Programme (Economics and Trade Branch, Division of Technology, Industry and Economics), the TEEB team issues recommendations aimed at businesses, policy makers, administrators, and citizens. More information is available at http://www.teebweb.org.

9 G8+5 refers to the heads of governments of the G8 nations plus the heads of government of the five leading emerging economies and thus includes Brazil, Canada, China, France, Germany, India, Italy, Japan, Mexico, Russia, South Africa, the United Kingdom, and the United States. Russia was kicked out of the G8 in 2014.

10 Feminization of poverty refers to a trend by which poverty levels in women-headed households increase in disproportionate fashion compared to other sectors of the population.

11 According to informants from the Center for Emergency Operations (COE) in La Paz, between 20 and 30 percent of the water supply of La Paz and El Alto come from surrounding glaciers (Personal communication, La Paz, October 2016).
12 Geomorphology refers to the topographic features of the city.

13 Villas: Bolivian Spanish for neighborhoods. In some Latin American countries (e.g., Argentina), the term villas refers to impoverished and pauperized parts of a city. This is not the case in El Alto, where the word villas simply refers to urban sectors.

14 The figures used for the population of La Paz and El Alto are from the 2012 National Statistics Institute (INE) census. This numbers are considered somewhat conservative, and other authors have opted to use different statistics. For example, Salamanca-Mazuelo (2012) puts the population of La Paz at 852,438. Other sources use projections that place the population of EL Alto at 974,754 or greater. See, for example, BoliviaSol (2012).

15 These informants are referring to a study commissioned by the municipality of La Paz and carried out by a French consultancy (Salamanca-Mazuelo, 2012; Boano et al., 2013). It was 1978, and the municipal government was about to implement its first urban development plan for La Paz. The French research team warned politicians that 40 percent of La Paz’s land was unsuitable for construction. A 2002 study found that only three percent of La Paz’s territory is in fact suitable for any type of construction (Salamanca-Mazuelo, 2012; Boano et al., 2013).

16 Some sources claim that the temperature dropped to 3.5º C. (ISDR, 2002).

17 The Sphere Project produces the Humanitarian Charter and Minimum Standards in Humanitarian Response (known as the Sphere standards), the most widely known and recognized set of common principles and universal minimum standards for humanitarian response. See http://www.sphereproject.org.

18 Oxfam and FUNDEPCO started collaborating in 2008 when they produced the Atlas of Risks Threats and Vulnerability in Bolivia. In 2009 they worked together on a project on DRR and territorial management and planning. The same year they also implemented a DIPECHO project financed by DG-ECHO aimed at strengthening DRR and preparedness strategies for municipalities along the Mamoré and Iténez river basins.
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