



SUSTAINABLE DEVELOPMENT UNIT ■ LATIN AMERICA AND THE CARIBBEAN

Disaster Risk Management in Latin America and the Caribbean Region: GFDRR Country Notes

Bolivia



THE WORLD BANK



GFDRR

Global Facility for Disaster Reduction and Recovery



COUNTRIES AT HIGH ECONOMIC RISK FROM MULTIPLE HAZARDS

(Top 33 based on GDP with 3 or more hazards)^a

1. Taiwan, China
2. Dominican Republic
3. Jamaica
4. El Salvador
5. Guatemala
8. Costa Rica
10. Colombia
12. Chile
15. Barbados
18. Ecuador
20. Peru
24. Honduras
27. Mexico
- 32. BOLIVIA**
33. United States

^a Dilley et al. (2005). Table 7.2.

Bolivia is exposed to a particular set of climatological characteristics that include specific rain, hail, frost, humidity, wind, and pressure patterns.

Natural Disasters from 1980 - 2008^b

Affected People

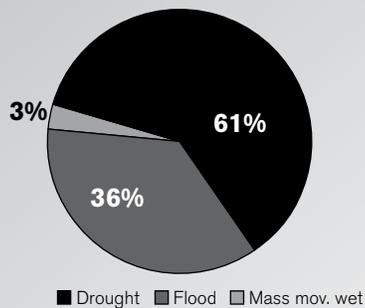
Disaster	Date	Affected (Number of People)
Drought	1983	1,583,049
Drought	1983	1,500,000
Flood	2007	485,000
Flood	2001	357,250
Flood	2007	339,495
Flood	1986	310,000
Drought	1990	283,160
Flood	1997	190,000
Mass mov. wet	1994	165,000
Flood	2006	126,096

Economic Damages

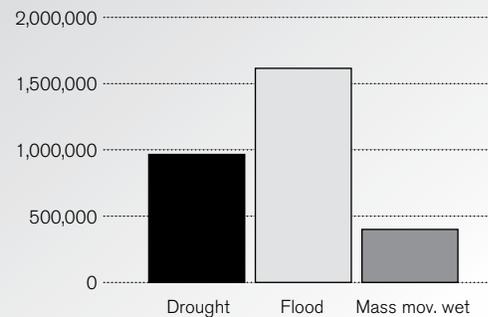
Disaster	Date	Cost (US\$ x 1,000)
Drought	1983	500,000
Flood	2007	500,000
Drought	1983	417,200
Flood	1982	400,000
Mass mov. wet	1992	400,000
Flood	2001	121,000
Flood	1992	100,000
Flood	1992	100,000
Flood	2002	100,000
Flood	2007	90,000

Statistics by Disaster Type^b

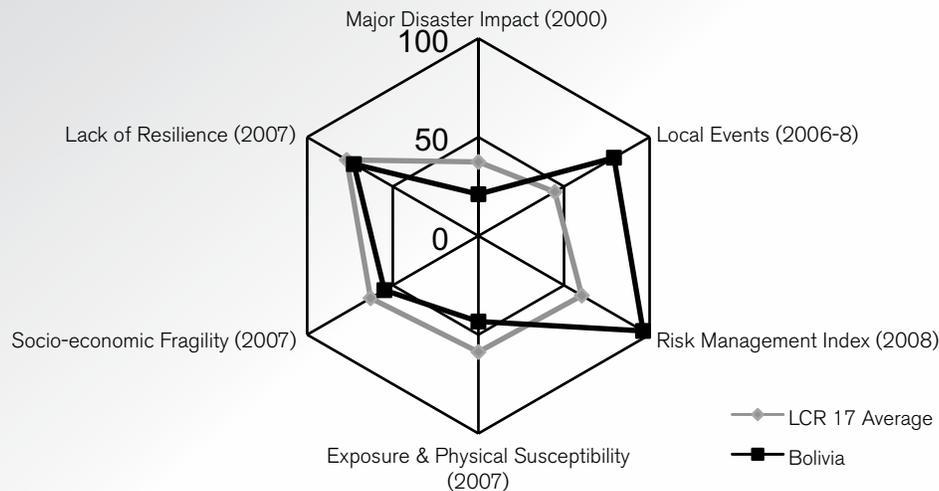
Population Affected by Disaster Type



Economic Damages / Disaster Type (1000s US\$)



Relative Vulnerability and Risk Indicators^c



^b UN (2009). <http://www.preventionweb.net/english/countries/statistics/?cid=21>. Source data from EM-DAT. Data displayed does not imply national endorsement.

^c Relative Vulnerability and risk Indicators are adapted from IADB-IDEA-ERN (2009). Values are normalized on scale of 0 – 100 and presented against the average for 17 LCR countries. Major disaster Impact taken from disaster deficit Index: the ratio of economic losses which a country could suffer during a Maximum Considered event and its economic resilience. Local events taken from Local disaster Index: the propensity of a country to experience recurrent, small-scale disasters and their cumulative impact on local development. risk Management Index is presented as the negative (i.e. 0 = optimal, 100 = incipient) of IADB's risk Management Index: measures a country's risk management capability in (i) risk identification, (ii) risk reduction, (iii) disaster management, and (iv) financial protection. resilience, Fragility and exposure are taken from the component indices of Prevalent Vulnerability Index. Date for local event data depends on information available for each country. Data, and the respective LCR 17 average, from 2000 is used for Dominican Republic, El Salvador, Guatemala, Jamaica and Nicaragua. Data, and the respective LCR 17 average, from 2006-08 is used for Bolivia, Colombia, Costa Rica, Ecuador, Panama and Peru. All LCR 17 averages are calculated based on available data.

DISASTER RISK PROFILE

Bolivia has the 32nd highest economic risk exposure to three or more hazards, according to the Natural Disaster Hotspot study² by the World Bank. Bolivia is exposed to significant hazards due to its geographic and hydrometeorological characteristics combined with the vulnerability of its population and infrastructure. During the past three years, the country has experienced a series of emergencies caused by floods, frosts, hail storms, droughts, landslides, and mudslides.

Geological Hazards

Bolivia is geographically diverse, with high plateau (altiplano) zones of altitudes reaching more than 3,000 meters above sea level, middle-elevation valleys, and tropical plains. These geological conditions offer a diversity of temperatures and microclimates throughout the country's 1,158,742 square kilometers. This geographic mix has given rise to the formation of basins that cover most of Bolivia's territory, with some of the basins shaping and feeding into important regional basins.

Major Natural Hazards

Bolivia is exposed to a particular set of climatological characteristics that include specific rain, hail, frost, humidity, wind, and pressure patterns. This is because Bolivia is located in the inter-tropical zone, influenced by warm and cold winds coming from the west and the cold masses from the altiplano and the Andes range.

Extreme rainfall in certain parts of Bolivia causes the consistent overflow of river basins

while other regions of the country experience scarcity of rain that causes prolonged drought.

Due to the mountainous nature of these high areas in Bolivia, intense rains are associated with mass movements, including landslides and river floods. During the dry season, controlled burning is done; however, due to the lack of appropriate measures and protocols and because of climatic conditions, controlled burning often creates forest fires that reach large areas and pose a risk to local populations. Regional events like El Niño and La Niña also contribute to such floods and droughts in Bolivia. In recent years, the intensified frequency and impact of these events have shown signs of climate change and longer-term repercussions.

The geographic configuration of the territory shows a long history of seismic movements associated with major faults and the consequences of important events in other countries, such as Chile and Peru. The geomorphologic configuration of certain areas increases the risk conditions for liquefactions³ due to possible seismic movements.

Exposure and Vulnerability

The levels of vulnerability in Bolivia have substantially increased as a result of deepening poverty factors combined with the repeated succession of adverse natural events in the same regions. Estimated losses in these lower-income regions range between 4-6% of the country's gross domestic product. Due to the level of poverty, the associated vulnerability of the population, and inadequate basic infrastructure, Bolivia is highly vulnerable to potential hazards. According to an Inter-American Development Bank (IADB) study, "Bolivia presents a high risk,

² Dilley et al. (2005). Table 7.2.

³ Liquefaction: "The behavior of soils that, when loaded, suddenly go from a solid state to a liquefied state, or having the consistency of a heavy liquid. Liquefaction is more likely to occur in loose to moderate saturated granular soils with poor drainage." (Wikipedia 2010).

particularly in cases of events of low probability and high consequences.”⁴

Industries and the general population are deeply affected by adverse natural events, with 40% of the population working in agriculture, 12% in industry, and 49% in the service sector.⁵ The estimated population of Bolivia in 2009 was 10,227,299, of which 66% lived in urban areas and 34% lived in rural areas. 62% of the indigenous population lives in urban areas and 38% lives in rural areas. In 2006, the extreme poverty rate was 23% in urban areas and 62% in rural areas.⁶

The rural sector remains the most vulnerable, especially in its productive activities (agriculture and livestock) and transportation.

Subsistence agricultural activities are most exposed to risk, endangering food security and nutritional levels of most of the rural population (ECLAC 2008⁷). Due to the high rates of extreme poverty in rural areas, the capacity of resilience among the rural population is minimal, increasing the possibility that each emergency will deepen poverty levels and migration to urban areas will continue to increase. It is important to note that urban areas also lack regulations related to the quality of construction and formal mechanisms to enforce building codes, especially in housing and infrastructure for basic services.

The consequences of climate variability and climate change are evident in events such as rainfall and droughts, which have significantly increased in frequency and intensity. Combined with high levels of vulnerability, these occurrences cause costly damage and losses. These new parameters, such as the amount of precipitation

and the duration of the rainy or dry seasons, are not being included in planning processes in Bolivia, resulting in increased limitations of the population's food security, health conditions, and access to basic services.

Recent Disasters and Tendencies

In the past few years, Bolivia has suffered the consequences of adverse natural events such as El Niño and La Niña and has consequently experienced significant losses. As calculated by the Economic Commission for Latin America and the Caribbean (ECLAC), the losses amounted to US\$379.9 million in 2006–2007 (3.28% of GDP for 2006) and US\$757.5 million for the events registered in 2007–08 (5.72% of GDP for 2007). ECLAC also maintains that the La Niña event of 2007–08 deepened residential vulnerability, especially in families with income sources dependent on natural conditions (such as agriculture).⁷

The events of 2005, 2006, and 2007 affected an average of 45 municipalities, approximately 14% of the country, and a total of 34 municipalities were affected repeatedly during the same three consecutive years. The average number of people affected repeatedly by adverse natural events was close to 500,000. Because of the magnitude of these events, the national government sought international assistance that mobilized around US\$40 million in cash, in addition to in-kind support and humanitarian aid. From October 2009 to July 2010, the government had to declare a national emergency due to floods, drought and river contaminations five times.

⁴ Cardona (2008:34).

⁵ Ibid.

⁶ Ibid.

⁷ ECLAC (2008).

DISASTER RISK MANAGEMENT FRAMEWORK

Progress in the implementation of the Hyogo Framework for Action in Bolivia is generally limited, with scant coordination and action toward comprehensive disaster risk management.⁸ As indicated in the conclusions of a regional study by the IADB that calculated the evolution of the Risk Management Indicators in different countries in the region between 1980 and 2000, “Bolivia shows very little progress on the topic of risk management, which is illustrated in the IGR [Risk Management Index]”. Bolivia was described as the lowest among the 12 countries of Central and South America; in 2008, there was a small shift to the 11th position.

The government structures at the national and subnational levels do not have risk reduction policies, strategies, or the institutional capacity to implement them. While there is a participatory and concurrent system of planning, the lack of guidelines, methodologies, and supervision for the inclusion of items associated with disaster risk limits the possibility for prevention and mitigation actions. The levels of exposure to risk are deepened by factors such as the lack of territorial planning and urban settlement policies, manifested through inappropriate land use and overexploitation of environmental resources.

The specific legal framework provided by the Law for Risk Reduction and Response to Disasters or Emergencies enacted in 2000 (Law No. 2140, 2000) has implementation and coordination problems among the different executive branch agencies responsible for DRM activities (that is, the presidency and ministries), creating conflicts of responsibility and function

between the Ministries of Development Planning and of Defense. The Ministry of Planning is responsible for prevention, mitigation, and reconstruction, while the Ministry of Defense is responsible for response and rehabilitation. This situation has limited the possibility of comprehensive action at the national level.

The entry into effect of the new National Political Constitution presents an opportunity to improve upon the legal framework and mainstream DRM into the development planning process by clarifying requirements and enforcing additional rules. By incorporating DRM into the sectoral and territorial planning processes, Bolivia can greatly advance DRM efforts and long-term development impact. Although there has been some progress at the departmental and municipal levels, this progress was achieved through technical assistance projects supported by non-governmental organizations in response to recent emergencies. Efforts need to be made to overcome the coordination and communication issues among the national government’s agencies responsible for DRM and the central government and its subnational counterparts. The Autonomies Law (No. 031, July 2010) defines risk management responsibilities at the Departmental and Municipal level (including the Native Indigenous Autonomies). It assigns responsibilities to authorities and the allocation of resources. This framework will contribute to reducing the vulnerability and impact of disasters.

Climate change has not been considered in the current planning models in Bolivia, although some climate change initiatives and relevant funding mechanisms could be applied to maximize synergies with DRM activities. Climatic factors and subsequent consequences must be considered in the context of DRM and Bolivia’s sustainable development.

⁸ National Report about the Progress in the Implementation of the Hyogo Framework for Action, Bolivia, 2008.

International donor organizations and other non-governmental organizations continue to play a critical role in DRM and emergency response in Bolivia. This set of experts and resources has been instrumental in reducing the loss of human life due to natural catastrophes and man-made disasters; however, it is a fundamental role of the government to provide strong leadership within its legal and institutional framework and to commit the necessary human and financial resources to remove the causes of risk, minimize exposure of the population as a whole, and protect vulnerable groups. Since October 2009, the donors and international cooperation started organizing the DRM Subgroup under the group of Environment, depending on the Group of Partners for Development of Bolivia (GruS or *Grupo de Socios para el Desarrollo de Bolivia*).

ACTIVITIES UNDER THE HYOGO FRAMEWORK FOR ACTION

Hyogo Framework for Action (HFA) Priority #1: Policy, institutional capacity and consensus building for disaster risk management

The National System of Risk Reduction and Disaster Response (SISRADE) was created based on the Law for Risk Reduction and Response to Disasters or Emergencies enacted in 2000 (Law No. 2140, 2000). The SISRADE is composed of the National Council of Risk Reduction and Disaster Response (CONARADE), headed by the President of the Republic. Over the years, different sectoral ministries have joined the system and, at present, 11 ministries are represented.⁹ The Technical Secretariat of CONARADE is run by the Vice-Ministry of Civil Defense (VIDECI), under the Ministry of Defense.

The current rules state that the Ministry of Development Planning is responsible for the tasks of risk reduction (prevention, mitigation, and reconstruction), and the Ministry of Defense is responsible for the response (response and recovery). The different rules for these executive powers and the definition of the functions and responsibilities among the two ministries have created confusion and contradictions that have substantially complicated compliance with the rules and have thereby hindered DRM activities.

The new regulatory framework strengthens the disaster risk management at the national level. The organization of the Executive Power (Decreto Supremo 29894, February 2009) defines risk management responsibilities for five ministries: Development Planning, Environment and Water, Rural Development and Land, Health, and Public Services, besides the Ministry of Defense in coordination with the Vice-Ministry of Civil Defense (VIDECI). This new regulation will support institutional development with a sectoral vision.

To date, the country has lacked policy and specific risk management strategies at the national, subnational, and sectoral levels.

In specific circumstances and in response to the possibility of the impact of El Niño and La Niña, the government approved contingency plans with specific protocols for each emergency. Although the current government presented the National Development Plan in 2006, "To Live Well 2006–2010," which included specific guidelines for risk reduction and emergency response, much work remains to be done to effectively implement DRM activities in Bolivia. Because of the need to update the legal framework, several initiatives were carried out within the executive and legislative powers in 2008. The Defense Committee of the Congress conducted a study of municipalities and prefectures affected by disasters to identify the strengths and weaknesses of the current rules. This

⁹ Ministries of Agriculture and Rural Development; Finance; Interior (Ministerio de Gobierno); Development Planning; National Defense; Water; Education and Culture; the Presidency; Ministry of Works, Services and Housing; Health and Sports; and Production and Micro-Enterprise.



Titicaca Lake, Bolivia

committee then presented a proposal for consideration to the executive authorities that needs to be acted upon.

At the subnational (departmental and municipal) levels, the responsibility for risk reduction and response are the responsibility of the gubernators (formerly prefectos) and mayors, respectively. At these levels, the implementation of some actions and strengthening of programs have been possible; however, the coordination among these three levels continues to be very limited and inadequate resources minimize the possibility of effectively managing DRM activities. International cooperation has strengthened programs by providing equipment and building capacity at various national-, departmental-, and municipal-level institutions. The intended impact has not yet been achieved due to high staff turnover in public institutions and a lack of compliance to organizational responsibilities for risk management activities.

A Fund for Risk Reduction and Disaster and Emergency Services was created to complement the rules established by Law No. 2140, but the Fund has not yet been implemented. This has limited risk reduction efforts and disaster response at the national, departmental, and municipal levels. The lack of capitalization has forced the government to assign special, and generally limited, amounts to the financing of disaster response, while creating ad hoc recovery funds that have had limited implementation.

In the Andean region, the implementation of an initiative called ‘Disaster Prevention in the Andean Community’, referred to as PREDECAN¹⁰, has made important strides in the development of coordination mechanisms and platforms of agreement on the definition of national risk management policies and strategies. This initiative also includes the creation of the virtual disaster library (BiVa-Pad) that compiles the institutional memory of

¹⁰ <http://www.comunidadandina.org/predecant/>.

documents on specific topics and the implementation of DesInventar as a historical registry of minor and medium disasters.

HFA Priority #2: Disaster risk assessment and monitoring

The monitoring and tracking of seismic, meteorological, and hydrometeorological hazards have been strengthened in the past year, as has the implementation of the early warning systems for local and regional floods. Important efforts have been made in the implementation of the National Information System for Risk Management (SINAGER). These initial efforts resulted in the creation of a virtual library and event database, DesInventar.¹¹

The identification and monitoring of the different hazards in Bolivia is carried out by national agencies. The National Meteorology and Hydrology Service (SENAMHI)¹² is responsible for monitoring meteorological and hydrological conditions throughout the country. SENAMHI, with its network of monitoring stations, is the agency responsible for collecting and analyzing information, forecasting, and issuing warnings. Starting in 2008, SENAMHI has received funding to expand its network and improve its technical capacity for analysis and dissemination of hydrometeorological information. SENAMHI is part of a network of agencies that provide information to the International Center for Research on the El Niño Phenomenon (CIIFEN)¹³ in Ecuador.

Based on departmental initiatives, systems have been formed to monitor watersheds and rivers, primarily in the country's eastern region. Examples of services that stand out include the Piraí River Water Channeling and Regulation Service (SEARPI) and the

Amazon Navigation Improvement Service (SEMENA) in Santa Cruz de la Sierra and Beni, respectively. These systems provide information about the water levels of major rivers and issue relevant warnings.

The Municipality of La Paz is currently implementing an early warning system for floods and landslides for three river basins. Using state-of-the-art technology (telemetry), the municipality is trying to establish a monitoring system of the major rivers in the city and any changes in the conditions of the landslide-prone areas. The project is still in its infancy.

HFA Priority #3: Use of knowledge, innovation, and education to build a culture of safety and resilience at all levels

The initiatives to create risk management information systems in Bolivia have been promoted by programs and projects since the enactment of Law No. 2140. Currently, PREDECAN is strengthening the National Information System for Risk Management (SINAGER) through VIDECL. The most important initiative and information source is the Andean virtual library for disaster prevention and response¹⁴ that forms a nationwide network of information centers and libraries in each of the five Andean countries. Also, the San Calixto Observatory monitors and disseminates reports on seismic activity in Bolivia.

The inclusion of risk management topics in school curricula at the national level is in its infancy. However, at the local level, and in light of the different hazards, some education systems have included topics such as contingency plans and preventive measures. These initiatives are partly projects and programs implemented by NGOs or programs with international financing. At the post-

¹¹ <http://www.desinventar.org/>.

¹² <http://www.senamhi.gov.bo/>.

¹³ <http://www.ciifen-int.org/>.

¹⁴ <http://www.bivapad.org.bo/>.

secondary level, disaster risk management topics have not been included as part of graduate-level training. At the post-graduate level, the *Universidad Andina Simón Bolívar* has been implementing an academic program in Management for Risk Reduction and Disaster Response since 2002.

HFA Priority #4: Reduction of the underlying risk factors (reduction of exposure and vulnerability and increase of resilience)

Little progress has been noted in the structural, comprehensive, and sustainable reduction of the existing vulnerabilities. Most of the actions were developed in response to actual emergencies, and in some cases for the recovery or reconstruction of damaged infrastructure. In the absence of a national policy and strategy for risk management, in some instances, key sectors have taken isolated, unsustainable actions to reduce existing vulnerability.

Public investment related to risk and disasters is oriented toward mitigation of events like floods or droughts. Resources are directed to containment or diversion of river elevations and the drilling or rehabilitation of wells in case of droughts. In relation to protection and retrofitting of civil works, the investment has been minimal and insufficient to confront the level of vulnerability and exposure.

Following from emergency response, some projects have been implemented to compile cultural knowledge of risk reduction. In this way, a number of ancient practices were recovered, such as those of the Suka-Kollus around Lake Titicaca, and the combination of community practices with technical knowledge on hydrological risk management at the headwaters of the Río Grande basin in northern Potosí. These initiatives have helped reduce vulnerability by protecting watersheds

and by managing water resources, while improving agricultural and livestock production.

Given the continuous emergencies occurring in the eastern region, early warning systems and contingency plans have been strengthened and improved. These systems are located around the basins of the main tributaries of the Amazon. The development of contingency plans has an institutional perspective, loosely integrated among the different sectors and even less so among the national, departmental, and municipal levels.

Although the legislation mandates the inclusion of budget line items for risk reduction and emergency response activities, the Bolivian Government has no policy in place for the management of financial resources designated for risk management. Compliance is not monitored by the responsible agency even though directives established that national resources shall be used to support departmental, local, and sectoral initiatives. Diversification strategies or the transfer of contingent liabilities have not yet been considered.

In Bolivia, municipalities lack the capacity to enforce urban development regulations, hindering effective and sound land use management. The norms concerning planning and land use management have been in place for several years, but only few departments and municipalities have completed their zoning plans. As a result, in rural areas, settlements and productive activities are being developed near river banks; meanwhile, in the cities, unplanned settlements become legalized over time when municipalities start providing utility services. With regard to specific norms for risk reduction, the country does not have building codes aimed to increase resistance to earthquakes or any other hazards. Such efforts have proven very effective in DRM and need to be applied and adequately enforced in Bolivia.

HFA Priority #5: Disaster preparedness, recovery and reconstruction at national, regional, and local levels

The VIDECI is the agency responsible for national-level preparedness and response actions. As a result of the controversy created between the Ministries of Defense and Planning over the distribution of respective responsibilities for recovery and reconstruction activities, there are still a number of programs and allocated resources that need to be activated in response to emergencies that occurred more than two years ago.

According to the principle of subsidiarity established in the legal framework, mayors and gubernators are responsible for the initial response actions, to the extent of their capabilities. Given the prevalence of limited local capacity, intervention by the national level is frequently required, resulting in the slow coordination process for the distribution of humanitarian assistance and duplicated coordination mechanisms. Bolivia's "existing capabilities, in terms of equipment and supplies needed for response to a disaster, are highly inadequate and in urgent need of being strengthened," as indicated by the United Nations Disaster Assessment and Coordination/ Office of Coordination of Humanitarian Affairs (UNDAC/ OCHA)¹⁵ team, which conducted an evaluation of the country's capacity for disaster response in March 2007. The limited availability of resources allocated by the government to disaster response leads to dependency on international cooperation agencies for resources and technical support. That being said, Law No. 2140 stipulates the implementation of financial mechanisms (FORADE) that will allow for reversing this situation, and that must be activated as soon as possible.¹⁶

Emergency response is repeatedly faced with the lack of protocols and standards for sectoral actions and for territorial coordination (at the national, departmental, and municipal levels). This results in problems of information management and slow identification of effective and efficient humanitarian response actions. The mere establishment of Emergency Operation Centers does not effectively contribute to the development of information exchange and circulation mechanisms, nor does this ensure the coordination of actions. However, the coordination mechanisms for international cooperation have been strengthened through the United Nations System in recent years, in particular through the expanded United Nations Emergency Team. At the national level, there have been efforts to implement sectoral coordination with the establishment of coordination commissions and information management to provide humanitarian assistance.

Although the legislation mandates the inclusion of budget line items for risk reduction and emergency response activities, the Bolivian Government has no policy in place for the management of financial resources designated for risk management.

¹⁵ Coordination and Evaluation Team of the Office of Coordination of Humanitarian Matters.

¹⁶ Report of the UNDAC Mission to Bolivia, p. 6.

KEY DONOR ENGAGEMENTS

Existing Projects with Donors and International Financial Institutions	Funding Agency / International Partners	Allocated Budget and Period (US\$)	HFA Activity Area(s)
Emergency Recovery and Disaster Management Project (including additional financing of US\$4.4 million that is yet to become effective)	World Bank	16.9 million 2008-2012	1, 4
Technical assistance to strengthen Bolivia's Disaster Risk Reduction Framework	World Bank	360,000 2007-2011	1, 3, 4, 5
Mainstreaming Adaptive River Defense for Huayhuasi & El Palomar Settlements	World Bank	427,000 2007-2010	1, 2, 4
Hazard Risk Management	CAF	75 million	1, 2, 3, 4, 5
Technical assistance to the Ministry of Development Planning for the formulation of policies and strategies for risk reduction and post-disaster recovery	UNDP (Crisis Prevention Recovery Disaster Reduction Unit) Spanish Agency for International Cooperation	1,388,923 2007-2011	1, 2, 3, 4
Assistance to the food security	Italian Cooperation	2.6 million 2009-2010	5
Program of Risk Reduction (PRRD) - Phase III	COSUDE	5 million 2010-2014	1, 2, 3, 4, 5
Program of Agriculture Development Sustainable (PROAGR)	GTZ	3.3 million 2008-2010	4
Food Assistance	WFP	12 million 2009-2011	5
Disaster Preparedness Program (DIPECHO), Version #6 – Support to prepare disaster response	European Commission	not available	5

The Bolivia Emergency Recovery and Disaster Management Project (ERDM) includes a rehabilitation, reconstruction, and small mitigation works component. In support of the implementation of the National Plan for Sustainable Rehabilitation and Reconstruction (PRRES), the A Credit (P106449, 4377BO) for the Bolivia Emergency Recovery and Disaster Management Project (ERDM) project will contribute to restoring access to basic infrastructure for a portion of the affected population in five target regions, and to strengthening the Government's ability at the national, sectoral, and municipal levels throughout the country to respond

to future disasters. As of May 2010, 110 subprojects have been completed with the estimated number of beneficiaries at 121,008.

Given Bolivia's disaster risk profile and its existing framework for disaster risk management, the key priority in Bolivia is to institutionalize disaster risk management at the sectoral and territorial levels. Strategic actions are needed in the following areas to enhance disaster risk management in Bolivia: (i) strengthen institutional capacity for strategic planning and coordination at sectoral and territorial levels, (ii)

reduce vulnerability to adverse natural events at the local level, and (iii) develop a comprehensive risk assessment and monitoring capacity. The GFDRR is strengthening the SISRADE according to the current norm and supports them to fulfill their roles and responsibilities, supporting the country Strategic Agenda and institutional coordination. The support is provided to SENAMHI, OSC and the Ministries of Rural Development and Land, Health and Sports, Environment and Water, and Civil Defense in order to improve their knowledge of natural hazards and prepare the National Program of DRM for the next ten years.

Under the leadership of VIDECI, the GFDRR and ECLAC have provided support to prepare

the Damage and Loss Assessment of El Niño 2009/2010 and the Reconstruction and Recovery Program. The assistance included training of around 40 people in the ECLAC's methodology and validated the national version for future use.

The opportunity to develop a Risk Assessment Platform will be revisited with the Bolivian authorities. This approach will be similar to the ongoing effort in Central America under the Probabilistic Risk Assessment initiative referred to as CAPRA.¹⁷ This initiative to help countries identify and assess risk in a comprehensive manner would raise disaster risk awareness and contribute to increased resilience in Bolivia.

¹⁷ <http://ecapra.org>.



Global Facility for Disaster Reduction and Recovery

1818 H Street, NW
Washington, DC 20433, USA

Telephone: 202-458-0268
E-mail: drm@worldbank.org
Facsimile: 202-522-3227



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