

Acronyms

ANI	National Infrastructure Agency
Cat DDO	Development Policy Loan with Catastrophe Deferred Drawdown Option
CCE	National Procurement Agency
CEPAL	The United Nations Economic Commission for Latin America and the Caribbean
CONPES	National Council for Economic and Social Policy
FNGRD	National Fund for Disaster Risk Management
GDP	Gross Domestic Product
GFDRR	Global Facility for Disaster Reduction and Recovery
GoC	Government of Colombia
IADB	Inter-American Development Bank
MHCP	Ministry of Finance and Public Credit
PND	National Development Plan
PPP	Public-Private Partnership
SECO	Swiss State Secretariat for Economic Affairs
SGC	Colombian Geological Service
UNGRD	National Disaster Risk Management Unit

Introduction

Disasters resulting from natural hazards represent an important challenge for Colombia's fiscal sustainability and stability. Colombia is one of the countries with the highest recurrence rate of disasters caused by natural hazards in Latin America (see the Annex)¹. As the country's population and economy continue to grow, so will the economic losses resulting from such events – an average of 600 disaster events are reported each year². Colombia's rate of economic growth is increasing the base of assets exposed to disaster risks, which may lead to significant increases in losses, particularly if investments in new assets are not accompanied by plans for mitigating disaster risk³.

The Government of Colombia recognizes the importance of mitigating these events and has taken several steps to mainstream disaster risk management into its policy and programs, as evinced by the National Development Plan, "Prosperity for All 2010-2014" and the Ministry of Finance and Public Credit's (MHCP) Strategic Plan for the same period. The MHCP is committed to developing strategies for reducing its contingent liabilities in relation to disasters and to managing the fiscal risk resulting from these events.

This document presents the priority policy objectives that have been established to assess, reduce, and manage fiscal risk due to natural disasters. It also describes the MHCP's efforts to progress its policy objectives in the long term. These policy objectives represent the MHCP's ex-ante policy framework regarding management of financial and fiscal disaster risk.

The MHCP identifies three priority policy objectives in order to strengthen management of the Government's contingent liabilities and thus support the goal of achieving macroeconomic stability and fiscal balance. The policy objectives include: (i) Identification and understanding of fiscal risk due to disasters; (ii) financial management of natural disaster risk, including the implementation of innovative financial instruments; and (iii) catastrophe risk insurance for public assets.

Several government agencies, with the support of various international organizations, collaborate on the implementation of these policy objectives. The MHCP works with the National Procurement Agency: Colombia Compra Eficiente (CCE), the National Infrastructure Agency (ANI), the Colombian Geological Service (SGC), and the National Disaster Risk Management Unit (UNGRD), among others, to implement these policy objectives. The MHCP has a strong ongoing partnership on financial management of disaster risks with the World Bank's Disaster Risk Financing and Insurance Program (DRFIP), supported by the Swiss State Secretariat for Economic Affairs (SECO) and the Global Facility for Disaster Reduction and Recovery (GFDRR). These policy objectives were developed with the active support and advice from a team of multidisciplinary experts who have helped to foster major advances in their design and implementation.

¹ The annex includes detailed information on the impact of natural disasters on Colombia.

² Independent Evaluation Group-World Bank. *Natural Hazards, Risks to Development: An Evaluation of World Bank Assistance for Natural Disaster Events* (Washington, DC). 2006.

³ World Bank (2012). Campos A.; Holm-Nielsen N.; Díaz C.; Rubiano D.; Costa C.; Ramírez F.; Dickson E. (Coordinators and Editors). *Analysis of Disaster Risk Management in Colombia: A Contribution to the Creation of Public Policies*. Bogota, Colombia: World Bank – GFDRR, 2012.

Legal mandate for financial management of natural disaster risks in Colombia

The Government of Colombia (GoC) is designing a financial strategy for covering contingent liabilities generated by disasters caused by natural hazards. This initiative falls within the government’s regulatory and institutional framework for managing explicit contingent liabilities generated through public credit operations, legal actions, and administrative contracts (including public-private partnerships). The origin of this comprehensive approach to fiscal risk assessment and management can be found in Law 448 of 1998, which requires entities to include resources in their budgets for covering contingent liabilities. Law 819 of 2003, which establishes requirements for the

development of a Medium-Term Fiscal Framework, stipulates that the valuation of explicit contingent liabilities must be included in this Framework. In addition, the identification and assessment of fiscal risk sources, including implicit and explicit contingent liabilities, are in line with recommendations in the International Monetary Fund’s Code of Good Practices in Fiscal Transparency (2007).

Within this context, the Ministry of Finance and Public Credit (*Ministerio de Hacienda y Crédito Público*—MHCP) promotes the government’s efforts in assessing, reducing, and managing fiscal risk associated with natural disasters.

Policy Objectives

This document describes the three priority policy objectives established by the MHCP for assessing, reducing, and managing the fiscal risk resulting from natural disasters. It aims to strengthen the management of its contingent liabilities and to support macroeconomic stability and fiscal balance. The MHCP has identified these policy objectives in order to present the prioritized actions for reducing fiscal vulnerability to disasters. These areas have been established based on the role of financial management of natural disaster risks in three important agendas in Colombia: first, as a component of the fiscal management strategy headed by the MHCP; second, within the government's approach to disaster risk management, which includes financial management of natural disaster risks as a component of the National Law on Disaster Risk Management of April 2012 (Law 1523); and finally, as part of the MHCP's efforts to manage public debt sustainability and transparency.

The above-mentioned priorities are reflected in the National Development Plan (PND) for 2010-2014 (Law 1450 of 2011), "Prosperity for All," which establishes that the MHCP will support the management of fiscal risk resulting from natural disasters, within the broader context of macroeconomic stability and fiscal balance. Article 220 of the PND establishes that the MHCP will design a strategy for reducing the State's fiscal vulnerability to natural disasters.

The MHCP has identified three priority policy areas for assessing, reducing, and managing fiscal risk arising from natural disasters:

- I. Identification and understanding of fiscal risk due to natural disasters;
- II. Financial management of disaster risk, including the implementation of innovative financial instruments; and
- III. Catastrophe risk insurance for public assets.

Through the advancement of parallel activities in these three areas, the GoC will improve its financial response

capacity in the case of a disaster and will mitigate the long-term fiscal impacts from such an event.

It is important to note that financial management of disaster risk requires long-term commitment. The MHCP has made progress in this area for several years and is committed to further strengthening its approach.

Policy objective 1

Identification and understanding of fiscal risk due to natural disasters

The identification and understanding of fiscal risk due to natural disasters is the first step in managing natural disaster risks. Using a probabilistic catastrophe risk model developed for Colombia⁴, the MHCP has assessed that a 1-in-250 year earthquake event would cause fiscal losses related to its contingent liabilities estimated at approximately 1.4% of the GDP⁵ (Table 1).

Table 1. Estimated contingent liabilities

Contingent Liabilities	% of GDP
Legal actions	14.04
Infrastructure projects	0.26
Public Credit operations	0.22
Natural Disasters*	
Fiscal portfolio	1.40

Source: MHCP (2011).

*Contingent liability related to natural disasters is calculated from the 1-in-250 year probable maximum loss (PML) for earthquake for public assets, US\$4.417 billion, as estimated in UNISDR (2011).

⁴ Probabilistic catastrophe risk models assess the expected losses and probable maximum losses of disaster risks using information on hazard, exposure, and vulnerability.

⁵ *Contingent Liability Management in Colombia and the Financial Strategy Associated with Natural Disasters*, Government of Colombia, in *Improving the Assessment of Disaster Risks to Strengthen Financial Resilience* (World Bank, 2012).

Although the GoC has made progress in the assessment of its contingent liability related to natural disasters, further analysis is required to refine this assessment. The GoC has only partial information, and the available information is scattered throughout various government entities. In order to improve the understanding of the fiscal risk generated by disasters, the MHCP will prioritize the following activities:

- **Improve information on the exposure of public buildings and infrastructure to natural disasters, as well as historical information on disaster losses to the public sector.** In particular, the MHCP seeks to better understand the potential losses in the case of disasters, to inform decision-making on investment in disaster risk mitigation and in new assets, and to improve insurance coverage for its portfolio of assets. In this context, the MHCP developed databases of physical characteristics of public assets and of insurance policies for public assets. In alignment with the National System for Disaster Risk Management (Law 1523 of 2012), an entity will be established to maintain the databases.

In addition, the MHCP improves its understanding of its fiscal risk profile by collecting further information on the government’s historical losses from disasters. In particular, it improves its understanding of risks generated by less severe but recurrent events that accumulate over time. These efforts are being coordinated with the entities with relevant respective responsibilities.

- **Use and promote the use of financial and actuarial decision making tools.** These tools help the MHCP assess its financial response capacity post-disaster and to improve decision making on its disaster risk financing. They go beyond assessment of physical damages to buildings and determination of replacement costs estimated by catastrophe risk models to provide financial information that enables the MHCP to design an optimal combination of financial instruments through cost-benefit and dynamic financial analysis.

- **Evaluate and adopt tools to assess possible increases in natural disaster risk generated by new public works and public-private partnerships (PPPs).** The GoC has already initiated this effort, and the MHCP has started to collaborate with other national entities (e.g., ANI) on this activity, as reflected in recent regulations. Law 1508 of 2012, for example, requires the analysis of hazards and vulnerability in relation to each infrastructure project and all the sectoral projects that may be

exposed to the risk of disasters, and CONPES 3714 of 2011 requires the inclusion of disaster risk analysis in public procurement processes.

The MHCP applies risk assessment tools to evaluate the contributions of proposed new investments to fiscal risk, including those made through PPPs. One important aspect of this work is the MHCP’s improvement of insurance requirements for concessionaires. The MHCP and ANI, with technical support from the World Bank, have jointly established standard terms and conditions and minimum requirements that meet international insurance market practice and must be included in new concessions contracts. These represent one recent key outcome of the GoC’s efforts to reduce the contingent liability of the State to natural disasters.

Policy objective 2

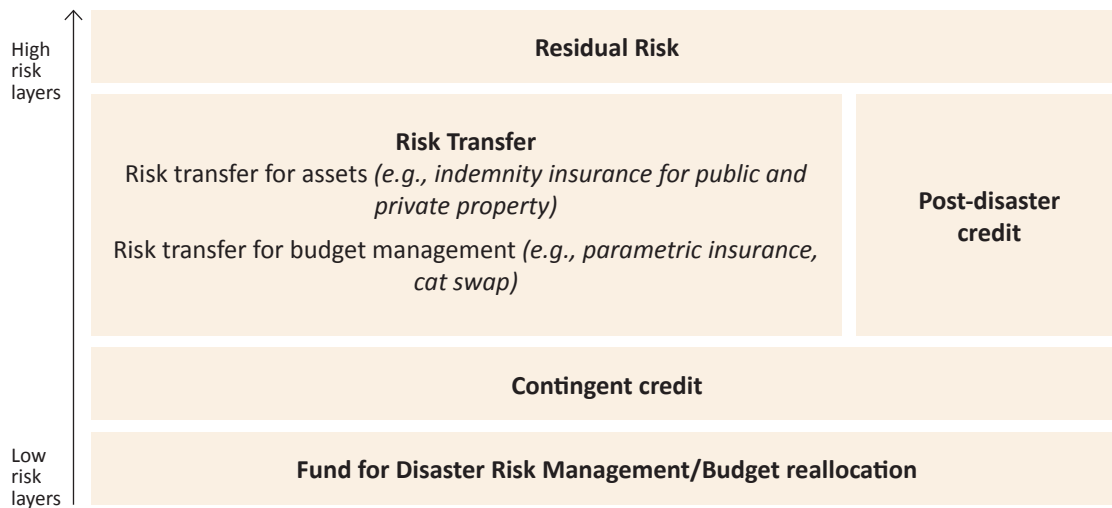
Financial management of natural disasters

Natural disasters can generate fiscal volatility as a result of the sudden, unexpected expenditures required during and after a disaster. In the aftermath of a disaster, the government requires timely access to financial resources in order to finance an effective emergency and recovery response.

The MHCP initiated the design of its financial management strategy for disaster risks in 2004. The National Council for Economic and Social Policy’s (CONPES) document 3305 of 2004 allowed the GoC to access financial resources for a project designed to reduce fiscal vulnerability associated with natural disasters. A US\$260 million World Bank project included the development of a financial strategy for reducing fiscal vulnerability and a US\$150 million pre-approved line of credit in the case of a disaster. In 2008 the GoC signed its first Development Policy Loan with Catastrophe Deferred Drawdown Option (Cat DDO)⁶, for US\$150 million — the first World Bank product designed specifically to provide contingent financing for natural disasters. The GoC fully drew down this Cat DDO in 2010 due to flooding throughout the country during the La Niña phenomenon. In 2012, the GoC signed a new US\$250 million Cat DDO.

In 2012 and 2013, the MHCP has made significant progress in designing a comprehensive strategy for the financial management of disasters. The MHCP strategy

⁶ Following a declaration of a national disaster, the GoC can immediately withdraw funds from the Cat DDO.

Figure 1: Multi-layer financial strategy for disasters resulting from natural hazards

Source: Adapted from the *Financial Strategy for diminishing the State's fiscal vulnerability to natural disasters* (MHCP-DGCPTN) and from the World Bank Disaster Risk Financing and Insurance Program (2012).

considers ex-ante and ex-post instruments, such as a contingent credit line and insurance, in order to complement ex-post financial resources that will be accessed after a disaster. The MHCP promotes a multi risk layering strategy for financial management of disaster risk, based on the assessment of its contingent liabilities, as illustrated in **Figure 1**. Less severe but more recurrent losses are retained and financed through reserves and contingent credit, while losses that exceed the retention capacity of GoC are transferred through market-based financial instruments. Finally, post-disaster credit is used to finance long-term reconstruction.

The MHCP is enhancing its use of and designing additional financial protection instruments in order to establish a solid, robust strategy for financial management of disaster risks. The financial management strategy is being built on the foundations of the National Fund for Disaster Risk Management (FNDR), created by Law 1523 of 2012, and on the Cat DDO. Historically, the MHCP has retained losses from natural disasters. The MHCP recognizes, however, that there are benefits from using risk transfer instruments for high risk layers. Thus, the MHCP is analyzing market-based catastrophe risk transfer instruments offered by the international reinsurance and capital markets to complement its risk retention instruments.

In particular, the MHCP is implementing and/or evaluating the following instruments:

- **National Fund for Disaster Risk Management:** The GoC will determine its level of risk retention through the FNDR. The budget allocations to the FNDR will be the first source of financial resources to be used in the case of a disaster. The FNDR must first be operationalized and strengthened. When the FNDR resources are exhausted, and additional budgetary resources are not available or a more severe disaster occurs, the government will access its second layer of risk retention, contingent credit.
- **Contingent credit:** In light of the benefits the Government realized from access to its first Cat DDO during the 2010 La Niña phenomenon, the MHCP secured a second Cat DDO for US\$250 million in 2012. In the case of a severe natural disaster triggering a national disaster, the MHCP can immediately draw down part or all of the Cat DDO to fund emergency relief and recovery efforts. Beyond the benefit of immediate access to liquidity, a notable benefit of the Cat DDO is that it is currently offered at a lower interest rate than conventional loans.
- **Evaluation of risk transfer instruments:** The MHCP is evaluating market-based catastrophe risk transfer instruments, such as catastrophe (cat) swaps, cat bonds, and weather derivatives, to improve its financial management of high disaster risk layers. These instruments aim to improve the government's disaster response capacity in case of infrequent but potentially devas-

tating and costly natural disasters by providing access to immediate liquidity post-disaster. The MHCP is analyzing these instruments in terms of their coverage, costs, and legal dimensions. If an instrument can improve the MHCP's financial management strategy for disaster risks in terms of (i) cost-efficiency, (ii) access to liquidity, and (iii) reduction of post-disaster fiscal pressure, the MHCP will integrate the instrument into its comprehensive strategy.

In particular, the MHCP is considering a catastrophe risk derivative. The instrument under consideration would allow the MHCP to transfer a portion of the financial risk from a severe earthquake affecting major urban centers in Colombia to the World Bank; the World Bank would then transfer the risk to the international reinsurance market through a mirror transaction. The catastrophe derivative would temporarily cover a portion of the GoC's debt obligation to the World Bank⁷ upon the occurrence of a severe earthquake in certain areas of the country. This would open up fiscal space for the GoC to finance an earthquake recovery and reconstruction effort.

The instrument would be parametric in nature⁸, and its coverage would be designed to cover certain urban centers with significant exposure to earthquake hazard, large populations, and significant GDP-at-risk. The MHCP has partnered with the Colombian Geological Service (SGC) for its technical advice on earthquake hazard in Colombia, performing probabilistic modeling of expected earthquake losses to urban centers, and analyzing potential product structures. The World Bank Disaster Risk Financing and Insurance Program and SECO are providing technical advisory services to this process including the design of financial risk analytics tools for decision making.

⁷ The GoC's debt portfolio's maturity profile with the World Bank is concentrated over 2013-2016, with U.S. \$850 million due per year.

⁸ Parametric risk transfer instruments rely on the occurrence of an objective, measurable parameter, such as the intensity of an event (for example, an earthquake's magnitude), used to proxy financial losses, in order to trigger a payout.

Policy objective 3

Catastrophe risk insurance for public assets

In the longer term, the MHCP aims to reduce the government's contingent liabilities related to natural disasters through a combination of risk mitigation investments and the provision of catastrophe insurance for public assets. Currently, government entities purchase catastrophe insurance for their own assets⁹. An analysis carried out in 2012 on the current insurance policies covering the buildings of the central government, however, determined that this coverage could be enhanced; for example, assets are currently insured by each entity, which does not allow the GoC to take advantage of risk pooling benefits across public entities. Consequently, the priority policy objective in this area is to enhance the insurance for public assets.

The MHCP will partner with other public entities to improve the coverage and cost of catastrophe insurance of public assets. The strategy aims to improve the coverage and price of catastrophe insurance for public assets and road infrastructure (particularly priority transportation infrastructure, one of the sectors that have been most severely affected by disasters). The risk of fire and allied lines (including earthquake, among others) will be considered initially.

The GoC will implement a dual approach to improve the strategy of insurance of public assets:

- **Information system on public buildings:** The MHCP is gathering additional information on the GoC's portfolio of assets as well as insurance policies-in-force. More detailed information on public assets will allow the private insurance industry to offer better coverage and prices, based on improved quantification of risk.
- **Collective approach to insuring public buildings:** The GoC is evaluating the implementation of a collective approach to insurance of public buildings, starting with those of the health and education sectors. This approach will allow the GoC to take advantage of risk diversification benefits. The recently created National Procurement Agency, *Colombia Compra Eficiente* (CCE) and the MHCP are collaborating to define and analyze

⁹ Colombian law mandates catastrophe insurance purchase for public assets: Law 42 of 1993 requires financial protection of state assets, and Law 734 of 2002 makes further stipulations requiring public entities to insure their assets.

the technical, legal, and financial requirements for implementing a collective scheme and to propose guidelines for enhancing insurance coverage of non-central government entities.

- **Improvement of insurance of road infrastructure through PPP scheme:** As discussed under Policy Objective 1, the MHCP and ANI have developed enhanced insurance requirements for PPPs. With technical support from the World Bank, the government has developed a document of technical guidelines for infrastructure insurance based on international market standards. The document has been used to develop the technical requirements for concessionaires for the latest generation of infrastructure investment and is currently being implemented.

- **“Best Practice” insurance guidelines for subnational entities:** The MHCP is building on its recent experience with developing the collective insurance scheme and PPPs insurance requirements to develop guidelines on strengthening insurance of public assets for subnational government entities. With the support of the National Disaster Risk Management Unit (UNGRD), the MHCP plans to conduct capacity building workshops and other activities for subnational entities. The primary objective of these activities will be to encourage ex-ante financial protection against natural disasters.

Conclusions

Each year, natural disasters adversely impact the Colombian people and economy; in addition, the country is exposed to the risk of rare but severe natural events, such as earthquakes, that could affect the State's fiscal balance. For these reasons, it is essential that the MCHP devise a financial protection strategy for natural disasters, with the objective to reduce the State's fiscal vulnerability to these events and to improve its post-disaster financial response capacity.

The MHCP has identified three priority policy objectives for public financial management of disaster risk. These policy objectives are reflected in this document, which describes those areas that have been identified as essential for assessing, reducing, and managing the fiscal risk related to natural disasters.

The MHCP's primary goal is to improve the capacity of the Government of Colombia to effectively manage natural disasters and their associated fiscal risks.

The MHCP is currently working on three priority policy objectives to achieve this goal: (i) Identification and understanding of fiscal risk due to disasters; (ii) financial management of disaster risk, including the implementation of innovative financial instruments; and (iii) catastrophe risk insurance for public assets. To achieve these objectives, the MHCP is collaborating with entities from across the government and with international partners such as the World Bank, Swiss State Secretariat for Economic Affairs (SECO) and the Global Facility for Disaster Reduction and Recovery (GFDRR).

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Annex 1. Disaster impacts in Colombia

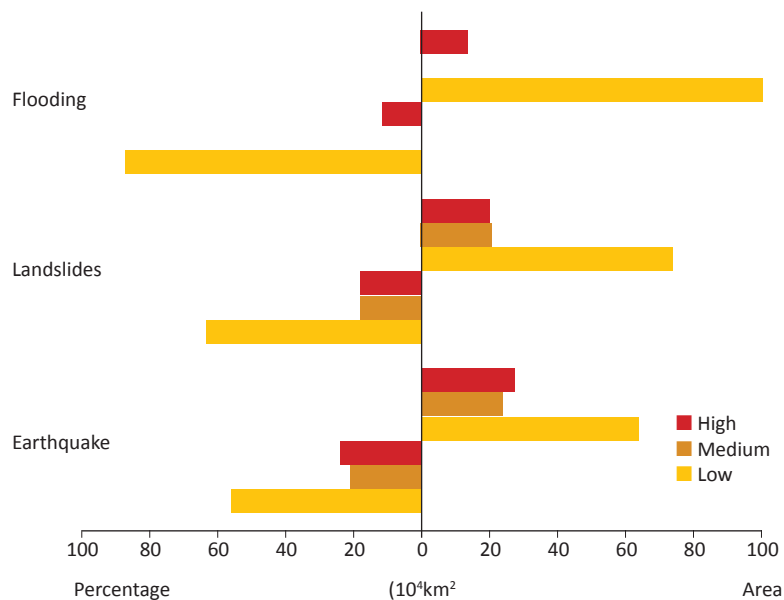
According to the World Bank (2012), disasters in Colombia over the last 40 years have caused accumulated losses amounting to US\$7.1 billion. Between 1970 and 2011, over 28,000 disaster events were registered, with approximately 60 percent reported since the 1990s.

According to the same report, 44 percent of Colombia’s territory is exposed to high and medium seismic hazard, mostly in the Pacific and Andean Regions (departments of Huila, Choco, Valle del Cauca, Nariño, Risaralda, Cauca, and Quindio), which means that 960 municipalities, including those with the largest populations, are exposed. Some 12 percent of the national territory is located in ar-

eas with increased vulnerability to floods, affecting 79 municipalities mainly in the departments of Valle del Cauca, Atlantico, Cundinamarca, Magdalena, Antioquia, Cordoba, Cesar, Cauca, and Meta. Additionally, 18 percent of the national territory is located in areas that have high and very high landslide risk, especially in the departments of Quindio, Risaralda, Caldas, Nariño, Cauca, Arauca, Meta, Huila, Cundinamarca, Boyaca, Tolima, and Santander.

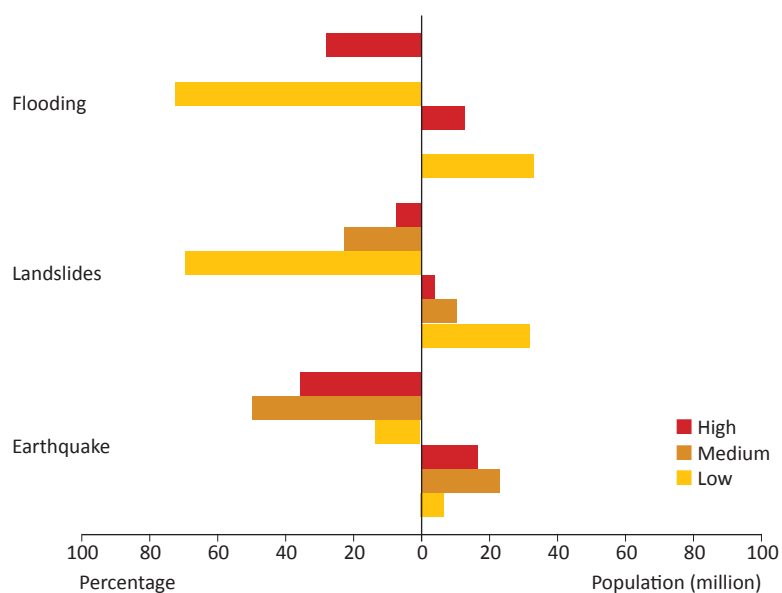
The distribution of the exposure of the population to natural hazards such as flooding, earthquakes, and landslides is illustrated in figures A.1. and A.2.

Figure A.1. Area exposed to floods, landslides, and earthquakes in Colombia



Source: World Bank (2012). Campos A.; Holm-Nielsen N.; Díaz C.; Rubiano D.; Costa C.; Ramírez F.; Dickson E. (Ed). Análisis de la gestión del riesgo de desastres en Colombia: un aporte para la construcción de políticas públicas. Bogotá, Colombia: Banco Mundial - GFDRR. 2012.

Figure A.2. Population exposed to floods, landslides, and earthquakes in Colombia



Source: World Bank (2012). Campos A.; Holm-Nielsen N.; Díaz C.; Rubiano D.; Costa C.; Ramírez F.; Dickson E. (Ed). Análisis de la gestión del riesgo de desastres en Colombia: un aporte para la construcción de políticas públicas. Bogotá, Colombia: Banco Mundial - GFDRR. 2012.

Looking ahead, the events with the potential to produce the most critical scenarios, in terms of their financial impact and the loss of life, are a major earthquake, a volcanic eruption, and a severe La Niña episode (World Bank 2012).

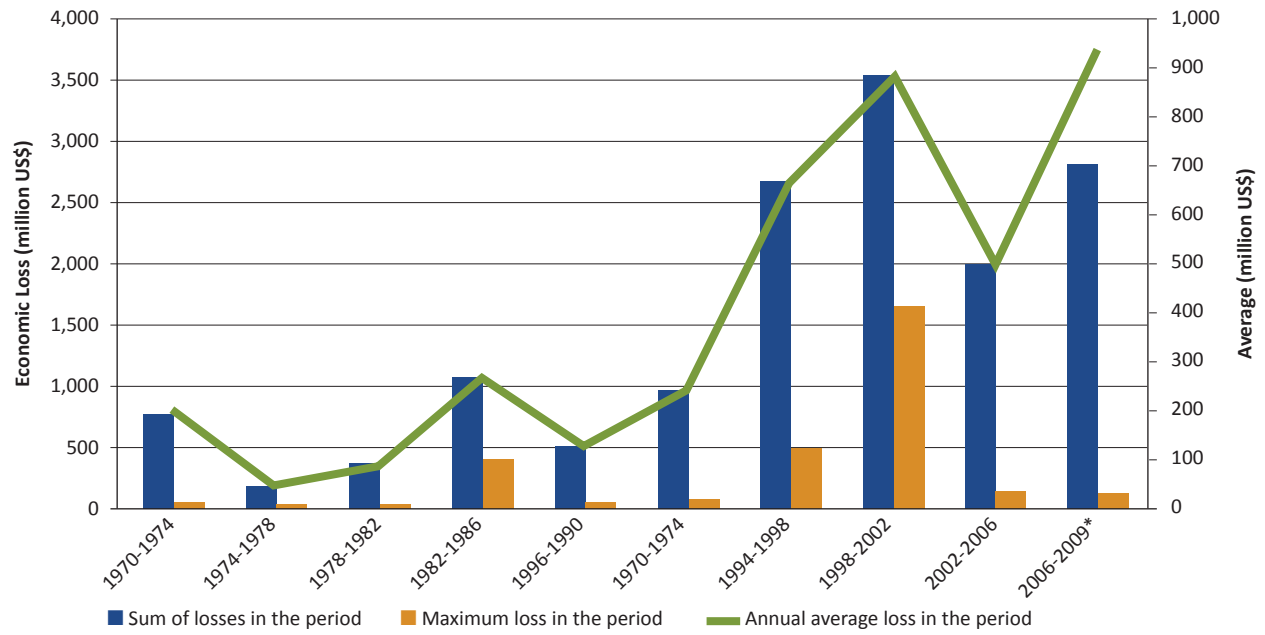
Earthquakes and volcanic eruptions cause tremendous losses concentrated in a particular area and in a relatively short period of time, while hydrometeorological hazards generate high-frequency impacts that sometimes cause even greater losses. For example, according to various studies¹⁰, the 1999 earthquake that occurred in the area of Colombia known as the Coffee Area directly affected 1 percent of the country's population and indirectly af-

ected 4 percent. According to Cardona et al. (2004), the damage caused by this earthquake amounted to 1.84 percent of GDP, with housing and infrastructure sectors the most seriously affected. However, according to studies conducted by the IADB and CEPAL¹¹, the 2010-2011 La Niña phenomenon affected 7 percent of the national population, inflicting economic losses of 11.2 trillion pesos, equivalent to approximately US\$6 billion (Figure A.3.). The sectors suffering the most damages were housing (44 percent) and infrastructure (38 percent). Also, according to the 2012 World Bank study, in the period 1970-2011, major disasters caused housing losses of approximately US\$2 billion, while small to intermediate disasters generated housing losses of approximately US\$5 billion.

¹⁰ For example, Cardona et al. (2004).

¹¹ "Appraisal of Damages and Losses – Winter Wave in Colombia 2010-2011," IADB – CEPAL, January 2012.

Figure A.3. Economic Losses per Presidential Period for Colombia



Source: UNISDR (2011).



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