

**PROJECT INFORMATION DOCUMENT (PID)
APPRAISAL STAGE (UPDATE)**

Report No.: AB908

Project Name	Disaster Vulnerability Reduction Phase 2
Region	LATIN AMERICA AND CARIBBEAN
Sector	Flood protection (34%);Non-compulsory pensions, insurance and contractual savings (33%);Sub-national government administration (33%)
Project ID	P085727
Borrower(s)	SUBNATIONAL,BOGOTA,
Implementing Agency	
Environment Category	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> FI <input type="checkbox"/> TBD (to be determined)
Safeguard Classification	<input type="checkbox"/> S ₁ <input checked="" type="checkbox"/> S ₂ <input type="checkbox"/> S ₃ <input type="checkbox"/> S _F <input type="checkbox"/> TBD (to be determined)
Date PID Prepared	September 1, 2005
Date of Appraisal Authorization	July 6, 2005
Date of Board Approval	November 29, 2005

1. Country and Sector Background

National Overview. Due to its location, Colombia is highly prone to natural disasters. The country strides the Andean mountain region and Pacific “belt of fire,” where high seismic potential combines with volcanic activity. In the last 25 years, the country has suffered six major earthquakes, three volcanic eruptions, major landslides, avalanches, petroleum and chemical explosions/leaks, and extensive flooding. With major cities located in areas of elevated risk, combined by the high rate of urbanization, Colombia is extremely vulnerable to adverse natural events. This vulnerability is further aggravated by continued population growth and a subsequent ever increasing concentration of settlements. Recent trends in global climate change followed by rising climatic variability will likely exacerbate the country’s exposure to floods, erosion, landslide and drought.

The need for a more comprehensive disaster risk management approach became clear following the devastating earthquake in Popayan in 1983. At that time Government established the Sistema Nacional para la Atención y Prevención de Desastres (National System for Disaster Response and Prevention, SNPAD), shifting emphasis to a broader disaster risk management approach and a strategy focused on risk identification, risk reduction and risk transfer. At the same time, the Government started to shift the National Overview. Due to its location, Colombia is highly prone to natural disasters. The country strides the Andean mountain region and Pacific “belt of fire,” where high seismic potential combines with volcanic activity. In the last 25 years, the country has suffered six major earthquakes, three volcanic eruptions, major landslides, avalanches, petroleum and chemical explosions/leaks, and extensive flooding. With major cities located in areas of elevated risk, combined by the high rate of urbanization, Colombia is extremely vulnerable to adverse natural events. This vulnerability is further aggravated by continued population growth and a subsequent ever increasing concentration of settlements.

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The World Bank has been involved in disaster risk management issues in Colombia for more than two decades, and recently approved a three-phased Adaptable Program Loan¹ (APL). The project aims to reduce the State's fiscal vulnerability to adverse natural events by strengthening national capacity to manage disaster risk and by reducing vulnerability in key municipalities. Municipalities selected are highly exposed to disasters, and are also significant contributors to national income and productivity. The proposed project is the second phase of this APL.

The Case of Bogotá. With about seven million inhabitants, and 26% of national GDP, the Capital District of Bogotá has by far the largest concentration of economic activity, yet it is also located in a region of Colombia prone to earthquakes, floods and landslides. The city sits on the oriental branch of the Andean chain and is exposed to a variety of hazards ranging from floods to forest fires, with medium to high exposure to seismic activity. Recent modeling exercises financed during project preparation estimate that a major earthquake occurring in Bogotá could result in losses in excess of US\$10 billion², with serious social and economic repercussions on both human welfare and the national economy.

Bogotá already has many important elements of a disaster management system. The decree that established the *Sistema Nacional de Prevención y Atención a Emergencias* (SNPAE) at the national level was modified in October 2004 to provide for a *Sistema Distrital para la Prevención y Respuesta a Emergencias* (System for Prevention and Response to Emergencies, SDPAE) in the Bogotá Capital District. The system is coordinated by the *Dirección de Prevención y Atención de Emergencias* (Directorate for the Prevention of and Attention to Emergencies, DPAE), which brings together diverse public, private and community actors involved in risk management under the leadership of the new Mayor.

Decree 723 of October 15, 1999, recently updated and completed through Decree 332 of October 11, 2004, establishes the regime and System for the Prevention and Attention to Emergencies of

¹ The Colombia – Disaster Vulnerability Reduction Project was approved by the Board on May 10, 2005.

² *Exposición del Estado Colombiano ante Desastres Naturales*, PHRD Study, Omar Dario Cardona, 2005.

Bogotá District (Sistema para la Prevención y Atención de Emergencias de Bogotá Distrito Capital). This legislation defines the organizational aspects of the system, the mandate and responsibilities of each entity that participates in the system, and the mechanisms for interaction and coordination among those entities to ensure a coherent and comprehensive management of disaster risks in the City. The same legislation establishes the District's obligation to formulate a city Plan for the Prevention and Attention to Emergencias (Sistema para la Prevención y Atención de Emergencias), implemented over a period of ten years, following its presentation scheduled for October 2005.

2. Objectives

The purpose of this Phase 2 project under the APL is to reduce the vulnerability of the Capital District of Bogotá to adverse natural events, by strengthening its capacity to manage disaster risks, and by reducing vulnerability in key sectors.

As such, the project will contribute to the long-term program to save lives and reduce social, economic and financial losses resulting from adverse natural events, including earthquakes, floods and landslides. By program completion, physical and financial vulnerability to adverse natural events should be measurably reduced in Bogotá. The number of families living in risk prone areas should have been reduced. Risk management and emergency response capacity should have improved and the district government should be better capable of responding to a catastrophic event occurring in the city.

The following are key intermediate indicators of these expected outcomes:

- Proportion of risk area with hazard and vulnerability studies completed;
- Proportion of key infrastructure with improved structural integrity;
- Improved skills and technical capacity of relevant emergency response agencies;
- Proportion of schools with emergency management plans;
- Reduced number of families living in risk prone area;
- Improved financial resilience of the district of Bogotá.

3. Rationale for Bank Involvement

The Bank has a long history of financing hazard-response, emergency rehabilitation projects, not only in Colombia, but also throughout the globe. Recently, however, more attention has been given to mitigation programs aimed at enhancing governmental capacity to respond to disasters and reduce their risk to exposure. Mitigation activities generally involve strengthening organizational frameworks, emergency response management systems, risk reduction investments, risk transfer, and so on.

The LCR Region has recently expanded its disaster mitigation agenda to include risk financing and insurance. Supported by network staff, in particular by the Hazard Management Unit and by the Finance Vice Presidency, the region has already contributed significantly to the policy dialogue concerning the use of risk transfer instruments to protect fiscal resources and to smooth

reconstruction expenditures generated by catastrophic losses. The Bank has also organized numerous international workshops and information exchanges. For example, representatives of Colombia's SNAPD met last year with counterparts involved in disaster management in Honduras, Nicaragua, Mexico, and St. Lucia at a Bank sponsored workshop. Other Colombian officials participated in a workshop on Managing the Financial Risk of Natural Disasters, also sponsored by the Bank. With this background, the Bank has a unique ability to meet not only physical construction needs but also economic, institutional, and social aspects of hazard risk management. The Bank can provide effective assistance as the Government of Colombia shifts from a reactive to a more proactive approach to risk management.

Recent Bank-assisted projects in Turkey, Honduras, and Nicaragua have pioneered methodologies for integrating risk analysis into urban and regional development planning, and for evaluating risk reduction measures as economic investments in urban and regional investment programs. This experience is already being integrated into Colombian Territorial Planning and Municipal Development Plans under the first phase of this APL. These programs, in the context of Bank involvement throughout project implementation, will bring "value-added" to the risk reduction efforts of the Colombian government.

4. Description

As with the other phases under the APL, this Bogotá DVRP (APL2) addresses five lines of action outlined in Colombia's National Plan for Disaster Prevention and Management: (a) risk identification; (b) risk reduction; (c) institutional strengthening; (d) risk prevention & awareness; and (e) financial coverage (more details are presented in Annex 4).

Component A: Risk Identification (Total US\$ 10.5 million, US\$ 0 million from IBRD)

The objective of this component is to enhance the capacity of the District of Bogotá to identify and monitor risks. The component will help the District to better target its investments and identify potential calamities before they occur.

Activities to be financed will include:

- *Risk Identification:* This involves studies for hazard identification (e.g. floods, geotechnical and seismic risks), vulnerability assessments (e.g. assessment of substandard housing and public buildings) and risk management (e.g. probability of loss of life when vulnerability is not addressed), to be implemented by a variety of agencies, including the *Fondo Nacional para la Prevención y Atención a las Emergencias* (FOPAE), the *Departamento Administrativo de Bienestar Social* (DABS), the *Caja de Vivienda Popular* (CVP) and the *Secretaría de Salud* (SDS).
- *Risk Monitoring:* This includes studies for hazard mapping to be implemented by FOPAE, and which involves equipment identification to gather information on earthquakes, floods and landslides.

Component B: Risk Reduction (Total US\$104.3 million, US\$ 78.6 million from IBRD)

The objective of this component is to complement the city government's existing risk reduction efforts to critical facilities and lifeline infrastructure in the event of a disaster. The purpose of this component is to save lives by ensuring the continued functioning of such facilities, in the event of adverse natural or technological catastrophe. The component will also support the implementation of non-structural and functional mitigation measures for the continuity of service during and after emergencies.

Activities to be financed under this component include:

- *Seismic Mitigation*: This involves the development of engineering designs and retrofitting or construction works for public buildings, to meet the latest seismic standards as defined in Law 400, including hospitals (SDS), schools (SED), fire stations (Secretaría de Gobierno) and kindergartens/day care centers (DABS).
- *Landslides Mitigation*: This includes small mitigation works such as the construction/erection of retaining walls or gabions, drainage systems, anchorages, and nets to protect the population from landslides, falling rocks, and mudslides. These small works will be implemented by FOPAE.

Component C: Institutional Strengthening (Total US\$ 7.5 million, US\$ 1.1 million from IBRD)

The objective of this component is to enhance the effectiveness and capacity of the District Administration to prepare for, respond to, and recover from significant emergencies. In this context, the component will also support the strengthening of the District's capacity to implement the project.

Activities to be financed under this component include:

- *Project Administration (UPC)*: This includes the provision of consulting services, office equipment and supplies, and covers operating expenses for the coordinating unit of the proposed project. The subcomponent will also finance the training of participating agencies' staff in safeguard, fiduciary and technical aspects of the project.
- *Capacity Building (Secretaría de Gobernación)*: This involves the training for agencies from the District System for Prevention and Response to Emergencies. The purpose of this subcomponent is to enhance the capacity of these agencies to carry out their mandate in disaster prevention, response and rehabilitation. The subcomponent will also include the construction and equipment of two fire stations in the district.
- *Environmental Management (DAMA)*: This subcomponent includes the implementation of an environmental management strategy to strengthen compliance of district public works with environmental requirements.

Component D: Risk Prevention and Awareness (Total US\$ 20.9 million, US\$ 0 million from IBRD)

The objective of this component is to increase awareness at all levels of society, and in particular, at community level in order to convey the importance of risk mitigation and disaster preparedness.

Activities to be financed under this component include:

- *Risk Education (FOPAE & SED)*: The importance of risk mitigation and disaster preparedness will be introduced at various levels of the educational system. The component will support the development of emergency plans in over 1,000 educational institutions. It will also finance research programs on risk management, the design of curricula on disaster awareness and training of professionals in the education sector.
- *Information Campaign (DPAE)*: This will involve the development and implementation of a multi-faceted public information campaign on disaster risk. The subcomponent will also finance the preparation of multimedia material, including the publishing of one book and about one hundred audio-visual and radio announcements.
- *Socio-environmental Action for Risk Reduction (DAMA)*: This includes the connection and galvanization of social networks, linking over 40 organizations engaged in environmental activities, to encourage and coordinate prevention activities in hazard prone areas. The subcomponent will also finance the administration of protected land through community participation schemes.
- *Integrated Resettlements*: The subcomponent will support the resettlement of approximately 2,300 families living in high risk areas. This will include studies for the development of integrated strategies to ensure that the previously occupied high-risk areas remain closed to future human settlement and interventions (CVP, DAMA, DPAD). To make this an integrated effort this component will also include activities to impede new human settlements in risk-prone areas where a population has been removed and resettled.

Component E: Financial Coverage for Risk Management (Total US\$ 0.5 million, US\$ 0.3 million from IBRD)

The main objective of this component is to develop a risk financing strategy for losses arising from natural disasters. It aims to provide the Municipality of Bogotá DC with a financial strategy that guarantees the appropriation of resources needed for disaster reconstruction or rehabilitation. This strategy will be based on the most advanced catastrophe risk modeling techniques (e.g., probabilistic earthquake risk models) and financial instruments (e.g., parametric insurance, contingent debt, catastrophe bonds). It also aims to facilitate the development of a private catastrophe insurance market, based on recent experiences in Colombia.

The following are the primary short term objectives of this component:

- Develop a probabilistic earthquake risk model to assess losses on public and private buildings;
- Review and optimize the current portfolio of insured public assets that are under the direct responsibility of the Municipality of Bogotá DC;
- Strengthen the resilience of the District budget to ensure that liquidity is available in the aftermath of a catastrophic event;
- Promote the development of a private catastrophe insurance market.
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5. Financing

Source:	(\$m.)
BORROWER	64
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT	80
Total	144

6. Implementation

Project implementation would be placed under the responsibility of the *Secretaria de Hacienda de Bogotá (SHD)*, which acts as the Ministry of Finance for the District. All activities under the project will be executed by relevant line agencies in the district, including the *Secretaría Distrital de Salud* (District Health Secretariat, or SDS), the *Secretaría Distrital de Educación* (District Education Secretariat, or SED), the *Departamento Administrativo de Bienestar Social* (Department of Social Welfare, or DABS), the *Caja de Vivienda Popular* (Social Housing Fund, or CVP), the *Secretaría de Gobierno* (Government Secretariat, SG), the *Departamento de Prevención y Atención a Emergencias* (Department for Prevention and Emergency Assistance, or DPAE) and SHD.

As established in Decree 11 of 1996, the DPAE is responsible for the coordination of all activities related to disaster risk management. The DPAE will also provide technical support for various executing agencies to implement their respective activities. It will do so by organizing technical working groups and providing support and advice to various executing agencies involved in the project.

The *Unidad Coordinadora de Proyecto (UCP)*, part of the SHD will play a supervisory role on fiduciary aspects providing training and technical assistance to implementation agencies on Bank procurement, financial management and safeguards aspects. The UCP has a small, well-trained staff, and is responsible for supervising legal covenants on donor funded projects implemented by the District.

Aside from the implementation of various activities under component C and D, the DAMA will be responsible for the enforcement of environmental safeguards established for the project. This will include compliance with regulation pertaining to cultural properties.

7. Sustainability

Commitment to the development objective. The commitment to the project objectives, a good indicator of project sustainability achievement, is shown by the large counterpart contribution to the project (45% of the proposed investments) and the work already advanced on comprehensive disaster preparedness, initiated and financed from the Government's own resources. The entire program has been approved as part of the District's four year investment plan, and fiscal space has been created in the program for future budget appropriations.

Institutional sustainability. All activities under the project have been included of the District's long-term plan for vulnerability reduction. The program is strongly anchored in the long-term objectives of the District Finance Secretariat. Ownership from the participating agencies has been made clear during project preparation, where responsible entities have worked together to support the project and provide all necessary input with great efficiency.

Technical sustainability. The maintenance of retrofitted assets after project implementation will follow normal procedures used by the District. Given the level of commitment demonstrated by the District Financial Secretariat there is good reason to believe that the initiatives undertaken under the project will continue to be supported.

8. Lessons Learned from Past Operations in the Country/Sector

Lessons can be taken from recent experiences implementing disaster management projects that incorporated risk analysis, local risk reduction investments, and more recently, risk transfer elements. These include the Honduras and Nicaragua Disaster Mitigation Projects, the Mexico Disaster Management Loan, the Colombia Earthquake Recovery Project, the Turkey Earthquake Reconstruction Project, and the Organization of Eastern Caribbean States (OECS) Catastrophe Risk Management and Insurance Reform project presently under preparation.

Vulnerability Reduction: The primary lesson learned from the Bank's role in disaster risk management is that vulnerability reduction requires the establishment of an effective disaster risk management system. These tend to evolve from emergency preparedness and response, to a more comprehensive approach including risk identification, risk reduction and risk transfer. The proposed project builds on the experience of the DPAAE, which is in charge of coordinating the overall program in collaboration with *Secretaría de Hacienda Distrital* (SHD).

Projects in Honduras, Nicaragua, and the OECS have demonstrated that risk identification and mitigation planning must be followed in the same project by risk mitigation measures so that plans are not shelved and forgotten. The proposed project focuses on implementation of mitigation activities.

Division of Responsibilities: A key lessons learned from the Colombia Earthquake Recovery Project was the need to clearly identify and clarify the responsibilities of the State in disaster mitigation. It is also necessary to have a strong coordinating agency (FOREC, in the case of the earlier project) with a clear understanding of its relation to sectoral/line agencies involved. The proposed project will strengthen the capacity of both DPAAE and the SHD in understanding risk and managing emergencies. Much stronger links between the two agencies should result from the project.

Management of mitigation investments: There is a need to establish a comprehensive risk management strategy or result matrix that first defines the types of risk mitigation works that will be undertaken, and prioritizes them, then later sets the completion of such works to a clear timeline, and lists agencies responsible for both implementation and coordination. All works proposed for financing under the project have been prioritized based on a variety of criteria.

Documentation of disbursement requests for mitigation investments must be simple and readily available (e.g., the Mexico loan). If documentation requires expenditure records from a number of sectors, implementation becomes difficult and delays may follow. The proposed project will finance clearly identified activities, following a well established fiduciary framework.

Risk Transfer: In assessing the responsibilities of the State, it is important to identify all risks in order to quantify the universe of exposure hazards in the country. With these findings, the Government must attend to its obligations, and articulate a policy on the State's responsibility in protecting vulnerable areas, and funding post disaster reconstruction. The combination of technical assistance for designing risk transfer schemes and investments in risk mitigation measures (for present *and* future risks) improves the chances of success and sustainability. Results from risk modeling studies undertaken during project preparation will be used to improve the district emergency response capacity, to prioritize mitigation investment and to design risk transfer and risk financing schemes.

9. Safeguard Policies (including public consultation)

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment (OP/BP/GP 4.01)	[X]	[]
Natural Habitats (OP/BP 4.04)	[]	[]
Pest Management (OP 4.09)	[]	[]
Cultural Property (OPN 11.03 , being revised as OP 4.11)	[X]	[]
Involuntary Resettlement (OP/BP 4.12)	[X]	[]
Indigenous Peoples (OD 4.20 , being revised as OP 4.10)	[]	[]
Forests (OP/BP 4.36)	[]	[]
Safety of Dams (OP/BP 4.37)	[]	[]
Projects in Disputed Areas (OP/BP/GP 7.60)*	[]	[]
Projects on International Waterways (OP/BP/GP 7.50)	[]	[]

10. List of Factual Technical Documents

- Assessment on the need for contingent financing in Colombia, October 2004.
- Departamento Nacional de Planeación (DNP). 2001. Bogotá, D.C. Documento CONPES 3146, Estrategia para Consolidar la Ejecución del Plan Nacional para la Prevención y Atención de Desastres (PNPAD) en el Corto y Mediano Plazo.
- Dirección General para la Prevención y Atención de Desastres (DPAD). Ministerio del Interior. 2001. Bogotá, D.C. Plan Nacional para la Prevención y Atención de Desastres.
- District Decree 723 from 1999. Organization of District's Prevention and Emergency Response System.

* By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas

- District Decree 619 from 2000. Land Use Planning
- Inter-American Development Bank (IDB). 2002. Innovative Financial Instruments for Natural Disasters Risk Management. Washington, D.C., December.
- Japan International Cooperation Agency (JICA). 2002. “The Study on Disaster Prevention in the Bogotá Metropolitan Area in the Republic of Colombia,” March.
- Stochastic cost of benefits analysis of contingent financing for Colombia, September 2004.
- Universidad de los Andes, Departamento de Ingeniería Civil y Ambiental, Centro de Estudios sobre Desastres y Riesgos (CEDERI). 2002. Bogotá D.C. Seismic Retention and Risk Transfer in Colombia. Evaluation of a Possible Financial and Market Strategy.
- World Bank. 2003. Country Assistance Strategy (CAS). Washington, D.C.
- World Bank. 2001. “Doing More for those Made Homeless by Natural Disasters.” Washington, D.C.

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