



Evaluation of Inter-American Development Bank's Operational Policy on Natural and Unexpected Disasters (OP-704 and Action Plan)

This document is the result of a collaborative effort coordinated by the World Institute for Disaster Risk Management (DRM) at the Swiss Federal Institute for Snow and Avalanche Research (SLF) in Davos, Switzerland with direct participation from the Office of Evaluation and Oversight (OVE).

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Acronyms

AMIS	Mexican Association of Insurance Institutions
APELL	Awareness and Preparedness for Emergencies on a Local Level
ACS	Association of Caribbean States
CAF	Corporación Andina de Fomento (Andean Development Corporation)
CAPRADE	The Andean Committee for Disaster Prevention and Care
CARIBANK	Caribbean Development Bank
CDERA	Caribbean Disaster Emergency Response Agency
CDMHA	Center for Disaster Management and Humanitarian Assistance
CEPREDENAC	Centro de Coordinación para la Prevención de los Desastres Naturales en América Central (Coordination Center for the Prevention of Natural Disasters in Central America)
CERESIS	Centro Regional de Sismología para America del Sur (Regional Center for Seismology in South America)
CHAMP	Caribbean Hazard Mitigation Capacity Building Program
CONPES	Nacional de Planificación Económica y Social
CP	Country Paper
CRED	Centre for Research on the Epidemiology of Disasters
CTPT	Trinational Commission of the Trifinio Plan (El Salvador, Guatemala, Honduras)
DEZA	Direktion für Entwicklung und Zusammenarbeit (Swiss Agency for Development and Cooperation)
DIPECHO	Disaster Preparedness ECHO
DRM	World Institute for Disaster Risk Management
ECHO	European Community Humanitarian Office
ECLAC/ CEPAL	Economic Commission for Latin America and the Caribbean
EDC	Efficiency Delivery Curve
EM-DAT	Emergency Events Database
ERF	Emergency Reconstruction Facility
FEMICA	Federación de Municipios del Istmo Centroamericano
FIDES	Inter-American Federation of Insurance Companies
FISDL	Fondo de Inversión Social para el Desarrollo Local
FONDEN	Mexico's Fund for Natural Disasters - Fondo de Desastres Naturales
FOPREDEN	FONdo para la PREvención de DEsastres Naturales
FSO	Fund for Special Operations
G3-GAN	Grupo de Los Tres, Grupo de Alto Nivel (Group of Three, Group of High Level)
GDP	Gross Domestic Product
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (German Technical Cooperation)
IACNDR	Inter-American Committee for Reduction of Natural Disasters

IDB	Inter-American Development Bank
IFTA	Inter-Agency Task Force
IMTA	Instituto Mexicano de Tecnología del Agua
INADE	Instituto Nacional de Desarrollo
INETER	Instituto Nicaragüense de Estudios Territoriales
ISDR	United Nations International Strategy for Disaster Reduction
LAC	Latin America & the Caribbean
La Red	Red de estudios sociales en Prevención de desastres en América Latina (Latin American Network for Social Studies in Disaster Prevention)
MAP:GAC	Multi-Andean Project: Geoscience for Andean Communities
MARENA	Ministerio Del Ambiente Y Los Recursos Naturales (Nicaragua)
MIF	Multilateral Investment Fund
Munich Re	Munich Reinsurance Company
NatCAT	Munich Re's natural events database
NEMO	National Emergency Management Organization
NGO	Non-governmental organization
NHVI	Natural Hazard Vulnerability Indicator
OAS	Organization of American States
OC	Ordinary Capital
OFDA	Office of United States Foreign Disaster Assistance
OP	Operational Policies
OVE	Office of Evaluation and Oversight
PAHO	Pan-American Health Organization
PDP	Policy Dialogue Paper
PEAE	Proyecto Estudios Automatizados Especializados
PNODT	Plan Nacional de Ordenamiento y Desarrollo Territorial
PPMRs	Project Performance Monitoring Reports
PPP	Plan Puebla-Panama
PREANDINO	Programa Regional Andino para la Prevención y Mitigación de Riesgos (Andean Regional Program for the Prevention and Mitigation of Disaster Risk)
PROPEF	Project Preparation and Execution Facility
RELSAT	Proyecto Reforzar Estructuras Locales y Sistemas de Alerta Temprana
SIDA	Swedish International Development Cooperation Agency
SINSAAT	Sistema Nacional de Seguimiento a la Seguridad Alimentaria y Alerta Temprana
SLF	Swiss Federal Institute for Snow and Avalanche Research, Davos
SNPMAD	Sistema Nacional para la Prevención, Mitigación y Atención de Desastres
SwissRe	Swiss Reinsurance Company
TCs	Technical Cooperations
UNDP/ PNUD	United Nations Development Program

Executive Summary

UNEP United Nations Environment Program
USAID United States Agency for International Development

Executive Summary

Natural disasters pose a significant threat to a country's development and to its poverty reduction efforts. They pose a real challenge to international organizations and affected countries to design policy and practical implementation measures to effectively manage these disasters. The Inter-American Development Bank (IDB) supports its borrowing member countries with a policy (OP-704) and a strategy respectively an Action Plan to cope with natural disasters. This report takes an in-depth look at the policy and practice of disaster management by the Inter-American Development Bank (IDB) and its borrowing member countries in Latin America and the Caribbean for the period 1995 - 2002. The Bank provides a broad set of instruments and incentives. This study has evaluated all relevant programming documents, the loan portfolio, TC's and non-financial instruments since 1995. Field trips to seven LAC countries gave a close insight into the current status of policy and project implementation and revealed the degree of awareness for disaster risk management issues.

IDB has made great efforts to design tools, which support pre-disaster activities. Consensus exists that disaster risk management has to span the entire cycle of pre-disaster, disaster, and post-disaster activities to reduce the negative impacts of disasters. In 1998, the IDB defined a disaster management policy (OP-704) followed by Action Plan in 2000, both providing the basis for disaster risk management within the context of sustainable development and poverty reduction. The IDB's OP-704 and the Action Plan largely correspond with the "state of the art" in international standards and findings about an overall natural disaster management; however, significant gaps exist between OP-704/Action Plan and their actual implementation, including:

- Imbalance of IDB instruments across the disaster risk cycle. Even prevention is strongly emphasized in several documents; emergency and post-disaster activities still receive much broader attention.
- Imbalance between IDB programs and activities and actual country priorities, incentive structures, and implementation capacities.
- Imbalance of countries' priorities concentrating on sustainable development and on poverty reduction and neglecting prevention even in severely prone regions
- Insufficient awareness of OP-704 and the Action Plan at IDB and in borrowing member countries.

The occurrence of a natural disaster could pose an important obstacle to the development goals of a country and could have a decisive impact on the implementation of the strategy agreed by the Bank with the national authorities. The seriousness of this matter has been expressly recognized by the Bank through different initiatives adopted and by the operational instruments that have been designed. However, the rush to support the country could have a negative developmental impact if current operations are modified to provide fast relief and to initiate the reconstruction and rehabilitation. The impacts of the suspension of the execution of those current operations are not put in the context of the mission of the Bank. The culture of rehabilitation and reconstruction that has prevailed in the countries affected by natural disasters, as well as in the institutions that finance those activities and in the bilateral aid, should shift to facilitate preparation and execution of prevention and mitigation programs. The development costs and human suffering that could be avoided are substantial and the Bank should revise its policies to make sure that the borrowing countries are well served. In this regard, it is clear that the Bank has provided substantial support for natural disaster prevention and mitigation through the approval of numerous loans and technical

cooperation approved during the period 1995-2002. Unfortunately, in many cases during the execution of the projects, the borrowing member countries request the transfer of prevention and mitigation resources to reconstruction. These matters should be discussed in more detail by the management before approving those transfers.

Policy and Action Plan implementation miss opportunities for effective risk reduction and combined sustainable development activities:

- Country programs and projects related to disasters continue to have an *ad hoc*, emergency-response focused nature.
- Reactive approach to disaster risk management prevents accelerated movement towards sustainable development
- To cope with an unexpected emergency situation often needs reallocation of loans leading to potential mission and credit risks.
- However, projects under development and not yet fully implemented indicate a shift towards activities more consistent with OP-704 and the Action Plan.

A series of recommendations aim to narrow the gap between OP-704, the Action Plan and the actual practice, both within the Bank and in the borrowing member countries.

It is obvious that a natural disaster will have an impact on the national priorities that were in place before the disaster. However, it is also expected that the multilateral institutions will be able to provide a balanced support package including objective advice and financing to overcome the immediate needs, while not displacing the medium and long-term financial objectives. The operational policies regarding unexpected and natural disasters (OP-704) should provide a set of guiding principles that could facilitate the Management of the Bank to adequately comply with its responsibility. Together with this guide, Management should emphasize to the countries that the implementation of prevention and mitigation programs will be a pre-condition for future financing through any of the operational instruments available in the Bank. It is clearly a limitation for the Bank that most countries lack the priority of financing prevention activities; nevertheless, there are several mechanisms that the IDB could implement to facilitate the internal discussions in the countries and to obtain the indispensable political support that the national authorities require to implement those programs. One aspect that could be implemented immediately is the incorporation of a natural disasters discussion in the guidelines for the preparation of the country paper, especially in those countries that have had these events in the past.

The reformulation of loans, as a component of a natural disaster support package, is one of the most important problems that the Bank confronts. Most of the time, the set of documents that gave origin to the strategy adopted by the Bank in agreement with the borrowing government are not reviewed or modified as a result of the reformulation. Through the review performed in this study, it was concluded that the analysis of the costs associated with the suspension of the execution of a project and the reassignment of the available resources are not discussed in terms of the mission of the Bank or in terms of an evaluation of the new strategy that should serve better the developmental goals of the IDB. In fact, the Reformulation Memorandum is based on internal discussions of the Management and is focused on; the amount that the Bank will be able to facilitate with reformulations, the interest of the staff not to modify the original objectives of the loans and therefore to avoid the need to present the documentation to the Board approval, the opportunity to disburse loans that have had a poor operational performance, the ability to reassigned resources that otherwise would have been cancelled, and to use procurement procedures that could expedite the commitment of the resources.

The practice of loan reformulation could eventually increase the exposure of the Bank without due internal review and adjustment of the strategy towards the country. As a result, this could be an additional burden to the borrowing member country that will have to accept the reallocation of resources according to objectives that are not necessarily the highest priority during the emergency period. Also, the financing from the Bank is authorized in absence of the minimum requirements that are established for the Emergency Reconstruction Facility (ERF), even though normally the amounts involved are much higher than the maximum loan amount allowed with the ERF. In addition, after reviewing the information provided by the staff, it is not clear if there is any follow-up with those projects and programs that are suspended due to the reallocation of funds. This is important to determine if it would have been better for the country and the Bank to cancel those resources and provide new financing, in spite of the conveniences of the process of reformulation.

From the institutional point of view, it was evident that the majority of natural disaster events with high economic and human losses are in countries assigned to the Regional Department II. Also, this Department has adopted measures to have a specialized group of professionals that are involved not only with the emergency aspects of the natural disaster, but also has a critical role, in close coordination with the Sustainable Development Department, in the analysis of the conceptual framework that the Bank develops regarding its operational and non-operational activities. The operational experience accumulated by the other regional departments is less intensive, even though the magnitude of economic losses in terms of total losses in the Latin America and Caribbean region is enormous. They rely mainly on the emergency response by the Bank and in the reformulation of existing loans. The interviews made to prepare this study showed that the working relationship between the regional departments in this matter is limited at best. However, Region II could provide not only good technical advice at the time of an emergency or to prepare prevention and mitigation programs, but they are also in a position to facilitate access to specialized agencies, to recommend better practices and to disseminate information that could be critical for the countries in the process of deciding on natural disaster programs. This group could also perform an important role in the internal dissemination and training programs in the headquarters and the country offices of the Bank. To better serve these purposes, it seems that the natural disasters group of Region II could have the responsibility on this matter for the three regional departments, with substantial economies of scale, concentration of responsibilities in a very technical and operational staff, and to profit from coordination with other financial and technical agencies. Also, the non-financial initiatives of the Bank could be benefited with their expanded role in the region. All these activities would help to establish or increase missing awareness for disaster risk management at all levels and institutions.

In summary, during the course of the study it was clear that the Bank should review the impacts that natural disasters could have in the achievement of its developmental role. The major issue seems to be in the reformulation of loans, which are not reviewed in the context of the mission risk. The set of documents related to the programming process should be more explicit on the natural disaster matters, and the Bank should have incentives and adequate dissemination to the borrowing countries for them to provide the high priority that this topic warrants in relation to economic and social development. Finally, from the institutional point of view, the reformulation of the policy OP-704 and the adjustments to the Action Plan should be carried out as soon as possible, with the adjustments in the operational organization to have staff that will be responsible for the adequate approach to prevention, mitigation and reconstruction and rehabilitation, thus forming the base for an effective and efficient implementation of an overall disaster risk management.

1. Introduction

“More effective prevention strategies would save not only tens of billions of dollars, but save tens of thousands of lives. Funds currently spent on intervention and relief could be devoted to enhancing equitable and sustainable development instead, which would further reduce the risk for war and disaster. Building a culture of prevention is not easy. While the costs of prevention have to be paid in the present, its benefits lie in a distant future. Moreover, the benefits are not tangible; they are the disasters that did NOT happen.”

Kofi Annan, “Facing the Humanitarian Challenge: Towards a Culture of Prevention”, UNGA, A/54/1

1.1. Introduction to the evaluation project

The Inter-American Development Bank (referred throughout the report as “IDB” or “the Bank”) recognizes natural disasters and unexpected disasters as a threat to the optimal economic and social development of its member countries and to a range of operational and non-operational activities. Natural disasters include disasters such as earthquakes, floods, windstorms (hurricanes and tropical windstorms), landslides, tidal waves (tsunamis), volcanic eruptions, droughts, forest fires, and erosion, or a combination thereof. Unexpected disasters are mainly due to technological hazards originating from technological or industrial accidents, dangerous procedures, infrastructure failures or specific human activities. Some examples for unexpected disasters are industrial pollution, nuclear activities and radioactivity, toxic wastes, explosions, oil and chemical spills or terrorist attacks. The combination of hazard exposure and human activities, settlements and assets often leads to loss of life or injury, property damage, social and economic disruption or environmental degradation.

Every year there are between 500 and 700 major disasters worldwide, which cause up to 80'000 deaths and damage totaling some US\$ 100 billion. 200 million people are affected by these catastrophes. The trend is rising. The contributing factors include denser population in hazardous areas, especially along coastlines and rivers, the constantly increasing value of buildings and infrastructure, rising levels of traffic, people's rising expectations in respect of mobility, logistics, and communications, and the ever more complex economic interdependencies, which accompany globalization. Reducing these risks to a tolerable level poses a serious challenge to civil society, its welfare and its sustainable development.

In Latin America and the Caribbean (LAC) natural disasters have always been a part of the physical and human landscape causing 5'000 deaths per year, annually affecting 4 million people and US\$ 3.2 billion in physical damage per year. Natural disasters will continue to have a significant impact on the development of the region. In addition, major catastrophes have impacts that go beyond these direct damages, having negative consequences for the GDP, the balance of payments, the level of indebtedness, the fiscal balance and on investments.

In recent years, the Bank has devoted resources to the articulation and implementation of policy guidelines and programs¹ to help member countries better address the natural hazards they face. The Bank's Operational Policy on Natural and Unexpected Disasters (OP-704)² and the related IDB Action Plan³ represent the current policy guidelines to Bank operations and to member countries for disaster risk management.

As part of an ongoing effort to improve disaster-related policy and programs, the IDB's Office of Evaluation and Oversight (OVE) has conducted a series of reviews to help the Bank meet borrowing member country needs in disaster risk management.⁴ These activities highlighted the complexity of the issues and suggested the need for deeper and more detailed analysis. With IDB Board authorization, OVE contracted the World Institute for Disaster Risk Management (DRM)⁵ to evaluate the Bank's Operational Policy on Natural and Unexpected Disasters (OP-704). Resources from the IDB–Swiss Consultant Trust Fund⁶ were used to fund this evaluation.

The evaluation carried out by DRM addressed the following objectives:

Evaluation Objectives:
Relevance and effectiveness of
OP-704 and Action Plan

- The *relevance* of OP-704 and of the Action Plan as a framework and an effective operational guideline for investment in prevention, preparedness, emergency recovery, and reconstruction and rehabilitation;
- The *relevance, efficiency* and *effectiveness-impact* of the operational actions undertaken by the Bank in the application of OP-704 and the Action Plan;
- The *relevance* and, to the extent possible, the *effectiveness* of non-operational actions.

At the Bank's request, the DRM evaluation team specifically addresses the following issues in this report:

- Risk reduction strategies and risk financing solutions as currently practiced;
- The range of incentives that affect the willingness to take effective risk reduction measures;
- The political-institutional-legal arrangements to deal with different aspects of disaster risk management;
- The insurance market for disaster-related losses and the market and institutional failures that limit its growth; and

¹ The IDB uses Operational Policies (OP) to provide consistent guidelines for Bank activities in a range of areas. These policies include chapters on: objectives; fields of activities and related priorities; and basic guidelines.

² *OP-704 Natural and Unexpected Disasters, IDB Operational Policies*, Approved by the Board of Executive Directors of the Inter-American Development Bank in November 1998, revised in 2000 (cf. document GP-92-15).

³ *IDB Action Plan: Facing the Challenge of Natural Disasters in Latin America and the Caribbean*, IDB Sustainable Development Department, March 2000.

⁴ OVE's evaluation of the Emergency Reconstruction Facility (ERF) last year was a contribution to this larger effort, as is on-going work under the Regional Policy Dialogue (Natural Disasters Network), (cf. RE-264, May 1, 2002). OVE has consulted closely with the management on these aspects of the evaluation so that its product can contribute most effectively to the re-design of the OP-704 and the Action Plan.

⁵ DRM, the World Institute for Disaster Risk Management, is an independent disaster research institute located in Alexandria, Virginia. The contract between DRM and OVE, HRD.3.059.00-C, was signed on April 22, 2003.

⁶ The Swiss Fund was established pursuant to an Agreement "Establishing a Technical Cooperation Trust Fund for Consulting Services and Training Activities" dated December 22, 1994. The Agreement was signed by the President of the Bank pursuant to Resolution DE-51/91, which delegated to the President the authority to enter into agreements to establish trust funds for technical cooperation activities consistent with the guidelines of Document GN-1708. The Agreement contemplates using the Swiss Fund for evaluations in the context of Bank technical cooperation, among other purposes.

- The Bank's approach to dealing with credit risk and mission risk in the context of natural disasters, the latter arising from the post-disaster reallocation of loans.

1.2. Methodology and products

Methodology

A team of experts participated in the evaluation process. DRM selected these individuals based on their expertise and participation in a network for applied research, implementation and dissemination. The team members represent diverse regional and professional backgrounds and with significant representation from IDB borrowing countries. Under OVE's direction, the DRM conducted the evaluation process based on:

- A review of relevant IDB activities (Annex II-IV: evaluated Loan Portfolio, TCs, Country Papers, Programming Mission Reports, Operation Programs, Country Portfolio Review Mission Report, Project Performance Monitoring Reports)
- A review of relevant IDB reports and literature
- Field missions and interviews to 7 countries (Annex V: Activity Report and Annex VI: Questionnaire) in May and June of 2003
- Interviews with key IDB personnel in Washington, DC
- Administration and evaluation of questionnaires

Review of loan portfolio and relevant IDB activities and reports

The entire evaluation process was supported by information gathered from a review of relevant IDB documentation. These sources included the whole loan portfolio of the years 1995-2002, IDB Country Papers, Programming Mission Reports, Operation Programs, Country Portfolio Review Mission Report, Loan Documents, Technical Cooperations (Annex III), and Project Performance Monitoring Reports (Annex IV). In addition, a review of relevant literature published by IDB and many others to the evaluation subject has been performed.

Field missions

Field missions were carried out to collect data for a series of tasks, outlined below. The selection of the countries was based on the investigation found in chapter two and in discussion with OVE. Main criteria for the selection of the countries were: hazard pattern, actual damage pattern, regional representatively, IDB loan activities. The country case studies covered Bolivia, Peru, Jamaica, Nicaragua, El Salvador, Mexico and Honduras. A detailed report from the Dominican Republic was provided by the IDB's field office in Santo Domingo.

Questionnaire

A questionnaire was developed covering all main questions raised in the tasks. Full results of this questionnaire are summarized in Annex VI. The questionnaire was distributed to all people interviewed during seven country fieldtrips, in addition to selected IDB personnel and IDB mission offices. The sampling procedure was purposive, that is, every opportunity was seized to gather questionnaire responses in the field. The data were not gathered in a way that would allow for statistically rigorous analysis. Random sampling, pilot surveys, or creating control and non-control samples were not performed. Neither were biases accounted for which might have been created by non-response. The purpose of the questionnaire was to offer a general feedback mechanism about disaster risk management in borrowing member countries and the degree to which IDB disaster risk management activities in LAC fit with the policy guidelines of the OP-704 and Action Plan. The sample size for questionnaire responses is 35, or about a 40% response rate.

Steps and tasks

The evaluation was divided into three major steps, and sub-divided into specific tasks within each step.

Three steps and seven tasks

The **first step** was to identify and describe the development issues and the public policy challenges posed by intermittent natural disasters. This step was needed to generate the benchmark against which to evaluate the relevance of OP-704 and Bank action. It included the following interdependent tasks:

- *Task 1*: Conceptual and empirical analysis of public sector risk management in the Region for natural disaster losses. The purpose of this Task was to generate an understanding of the issues involved and to report on practical experience in LAC.
- *Task 2*: Analysis of the insurance market for disaster-related losses in the Region and the market and institutional failures that limit its growth.
- *Task 3*: Risk management from the point of view of the Bank (credit risk and mission risk, loan re-formulation and re-programming).

The **second step** was to evaluate OP-704, the Action Plan, and the Bank's operational and non-operational action. The tasks were as follows:

- *Task 4*: Relevance assessment (consisting of: analysis of the "implicit model" and the degree to which OP-704 and the Action Plan respond to the needs and policy challenges identified under the preceding Tasks)
- *Task 5*: Ex-ante evaluability and efficiency of implementation, using the OVE "completeness" methodology, assess the evaluability of the loan portfolio and of non-operational action.
- *Task 6*: Effectiveness-impact. The portfolio as a whole was analyzed based on the information to which access can be obtained by working in desk-study mode. In addition, fieldwork was carried out for a detailed assessment of a small sample of projects.

The **third step** was to draw lessons, conclusions and recommendations:

- *Task 7*: Development of conclusions and recommendations drawn from each component of each of the above Tasks. The recommendations will be written with a view to guiding the revision of OP-704 and addressed the quality of diagnostic analyses, strategic selectivity, the organization of Bank resources and instruments for an optimal response to the challenges posed by natural and unexpected disasters (special reference to credit risk and mission risk).

Report

The organization of the report follows indirectly this structure without referring explicitly to the tasks. Chapter 1 as introduction sets the framework. Chapter 2 discusses the importance of natural disaster losses and the role of natural disaster policy in LAC. Chapter 3 examines issues related to financing the risks posed by natural disasters. Chapter 4 evaluates the effectiveness of OP-704 and the Action Plan relative to country needs. Chapter 5 presents an evaluation of the IDB's loan portfolio related to natural disasters. Chapter 6 synthesizes the main conclusions from the evaluation exercise, and Chapter 7 closes the report with a series of recommendations.

2. Relevance of natural disasters and strategic framework for a disaster risk management policy in Latin America and the Caribbean

“Disasters do not warn. They destroy. They kill. Disasters do not discriminate or differentiate between men or nations, whether young or old, poor or rich. They do not negotiate. They do not listen. They do not wait. They simply come.”

Unknown

2.1. Overview of natural disaster damage

Natural disasters in Latin America and the Caribbean (LAC)

This section sets the stage by providing background and contextual information for the evaluation process in the LAC region. A discussion on the associated human and economic losses in the different sub-regions is followed by an overview on the relevant natural hazards.

Concise data on human losses, damages and their impact on national economy are important

Loss and damage assessments are usually undertaken to support decisions about disaster risk reduction. The use of economic principles provides a base for such assessments and is a condition of financing disaster risk management measures. Overall cost-benefit analysis for disaster risk management measures only makes sense, if they rely on consistent data. The same is true for an overall looking of the Bank on the consistency of its loan policy. A lack of data often comes along with insufficient preventive endeavors. However, the fundamental underlying assumption that all loss and damage data and information on their impact on national economy are correct and comparable must be treated with caution. Therefore, when undertaking an international comparison study one has to keep in mind that both the quality and completeness of relevant databases may be lower than generally acknowledged. Data entry terms may vary in their definition, while absolute figures, sources, and methods of compilation may show inconsistencies and differ correspondingly.

Data for this study merged from EM-DAT, La Red, CEPREDENAC records

Although several institutions maintain databases on natural disasters, this variety is counterbalanced by the lack of a centralized comprehensive and standardized data archive. This poses a major weakness to any disaster risk assessment or cost-benefit analysis of disaster risk reduction measures. For events that had occurred after 1975, data quality and availability have improved considerably (Guha-Sapir and Below, 2002). Increases in the absolute number of disasters, however, do not necessarily state a growing disaster frequency, but may simply reflect more thorough reporting.

Inconsistencies in databases reduced since 1990 but serious under-reporting of small- to medium scale events

One of the major tasks of this part of the study was to critically analyze and compile figures from three existing databases, i.e. EM-DAT², La Red³, and CEPREDENAC⁴. Therefore all data on natural disasters between 1975-2002 have been merged from and checked for consistency with records from (CEPAL, 2002), SwissRe (Sigma, 2002a; Sigma, 2003), and Munich Re (Topics, 2002). Generally, information on a given disaster listed in different databases was found to be of agreeable consistency. Comparison with records of EM-DAT, NatCAT (MunichRe), and Sigma (SwissRe) natural hazard databases (Guha-Sapir and Below, 2002) yielded similar findings. Inconsistencies between entries in these databases are significantly reduced after 1990. The ISDR Inter-Agency Task Force Working Group 3 on “Risk, Vulnerability & Disaster Impact Assessment” compared various disaster databases and pointed out the serious under-reporting of small- to medium-scale events in individual countries (ISDR/IATF WG3, 2002).

Short observation windows preclude coverage of high-magnitude/low-frequency events

The short temporal observation window (i.e. only a few decades) favors the censoring of low-frequency events such as high-magnitude earthquakes, catastrophic floods, or major volcanic eruptions. Hence, the use of short-term data limits the predictive value and reliability of return period needed for standard probability-based models, e.g. in earthquake engineering or regional flood hydrology. This degree of uncertainty strongly affects decision-making on future investments in disaster preparedness, response, and long-term risk management. The current data situation only allows with limitations broad order-of-magnitude extrapolation of potential trends, or qualitative formulation of characteristic types of disaster scenarios most likely to affect a specific sub-region or country. As a conclusion, the general data situation regarding natural disaster losses is far from optimal; there are definite gaps in quantifying reported or actual damage or risk from natural disasters on several scales. Further interdisciplinary research will be indispensable to fill those gaps and build a more firm and reliable data architecture. Therefore, estimation of future disaster losses cannot be based solely on this type of databases but also on estimation of hazards posed by extreme events, combined with the assessment of the exposed assets and of their vulnerability.

Relative to the U.S. or Europe natural disasters in LAC cause higher fatality rates

Natural disasters are important disruptive events to life, welfare, and economy in LAC, causing fatality rates, which are more than ten times higher than in the U.S. and several times higher than in Europe. Disaster losses vary significantly among sub-regions and countries (Table 1). Compared to the U.S., the total loss per capita for the LAC is about four times lower. But seeing the total loss relative to the GDP, it becomes clear that the economy of the LAC countries gets affected very strongly. A recent IDB report estimates average annual economic losses relative to GDP of 43% for the Caribbean, 32% for Central America (excluding Mexico), and 4% for South America between 1970-1999 (Charvériat, 2000). These relative economic losses are an order of magnitude higher than those in the U.S or Europe. Differences are due not only to the type of natural hazards, but also and mostly to the level of development in each country (Table 1).

² EM-DAT is a world-wide database maintained by the Université Catholique de Louvain, Brussels, Belgium. A natural catastrophic event is listed in this database when (i) >10 people are killed; (ii) >100 people are affected/injured/homeless; (iii) state of emergency has been declared; and/or (iv) international assistance has been requested (EM-DAT, 2003).

³ La Red includes all data of natural and non-natural disasters, i.e. events with negative impact on lives, goods and infrastructure. The countries listed in this database are Argentina, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Peru, Trinidad & Tobago, and Venezuela (LaRed, 2003).

⁴ CEPREDENAC contains data only for Central America between 1960-1999, resulting from a rapid collection of loss history (“el resultado de una búsqueda somera y rápida”). Since no special criteria have been developed for data selection, we have been particularly critical with this source. In cases of discrepancy with other sources, data from EM-DAT and La Red have been preferred (CEPREDENAC, 2001).

Table 1. Worldwide overview of natural disaster-induced direct losses (1975-2002) in relation to total population in 2001.

LAC countries are characterized by a high Total Loss/GDP ratio and high disaster-related fatality rate, both of which are one order of magnitude higher than in the U.S. or Europe. Loss numbers are normalized to the US consumer price index 2002 (CPI). Source: (EM-DAT, 2003), (WorldBank, 2002).

Region	GDP per capita 2001 (US\$)	Total Loss (share of 2001 GDP)	Total loss per capita 2001 (US\$)	Fatalities per year	Population 2001
Latin America & Caribbean	3'764	5.32%	200	4'915	524'003'400
North America	34'000	2.61%	887	327	316'459'900
Asia	2'075	7.25%	150	35'315	3'623'672'070
Africa	644	5.44%	35	23'275	814'046'470
Australia & Oceania	13'601	8.83%	1'200	145	31'257'810
Europe	11'660	3.17%	369	2'665	795'907'560

Between 1975-2002, the average annual loss amounted to some US\$ 3.2 billion in the LAC (Figure 1 and Figure 2, Table 2).

The years of most severe losses during this period, according to EM-DAT data, included 1983 (accumulation of events, including floods in Argentina, Bolivia, Brazil and Peru and earthquakes in Chile and Colombia), 1985 (earthquake in Mexico City), and 1998 (floods and landslides following Hurricanes George and Mitch, which accounted for close to 40% of total 1975-2002 losses in the Caribbean, with Hurricane George inflicting particularly massive damage on Jamaica). Although total losses from natural disasters between 1975-2002 were highest in South America in absolute values, countries in the Caribbean suffered by far the highest per capita losses (Table 2).

Table 2. Total loss history for the LAC sub-regions (1975-2002).

Loss numbers are normalized to the US consumer price index 2002 (CPI); * = incl. Panama. Although the highest total losses have been recorded in South America, countries in the Caribbean have suffered by far the highest per capita total loss from natural disasters. Source: (EM-DAT, 2003).

Sub-region	Total loss US\$ (bn)	Highest Annual Loss US\$ (bn)	Annual average loss US\$ (bn)	Total loss per capita in 2001 US\$ (bn)
Caribbean	7.07	2.54 (1998)	0.47	322
Central America*	15.43	3.30 (1998)	0.77	268
Mexico	15.69	6.67 (1985)	0.92	158
South America	53.84	8.56 (1983)	1.92	65
Total	92.03		3.2	

A close inspection of Figure 1 and Figure 2 illustrates some major divergence in terms of total disaster losses recorded. In the case of Jamaica, the merged database (EM-DAT, La Red, and CEPREDENAC) states a total loss of US\$ 20.65 billion (Figure 1) while the figures stated in EM-DAT only attribute US\$ 3.04 billion (Figure 2). The reason for this lies in the above-mentioned under-reporting of small- and medium-scale events in the EM-DAT records. Clearly, the intensity (and inherent frequency) of natural disasters is a major issue of data quality and completeness in many archives (see discussion in Annex I).

2. Relevance of natural disaster policy and strategic framework

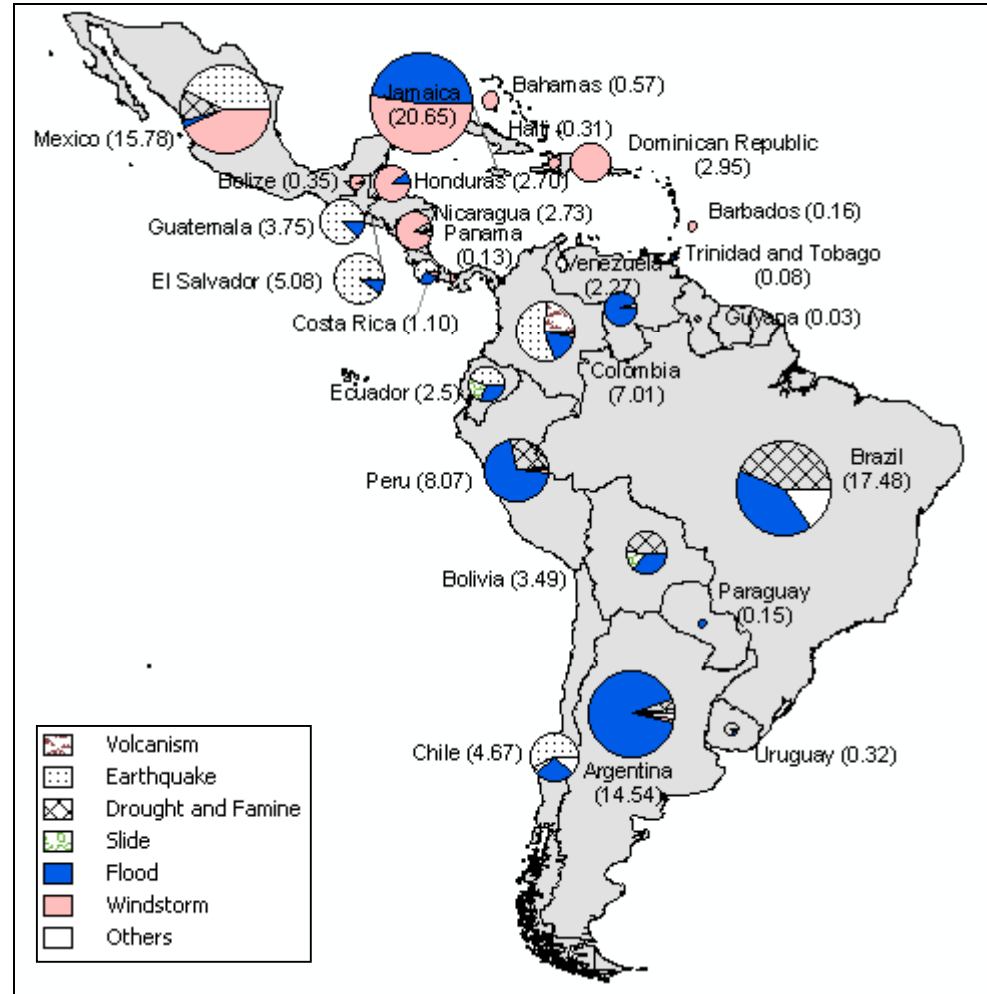


Figure 1. Total reported losses in US\$ (billion) for LAC countries (1975-2002).

Data are not corrected for censoring effects due to event intensity (skewness, see Annex I) and illustrate the regional impact pattern of natural disaster types (e.g. windstorms in Central America, floods in South America). No distinction has been made between hurricanes and tropical windstorms, which are summarized under the term "windstorm". The country with the highest economic losses is Jamaica, followed by Brazil and Argentina. Source: Data merged from (CEPRENAC, 2001; EM-DAT, 2003; LaRed, 2003).

2. Relevance of natural disaster policy and strategic framework

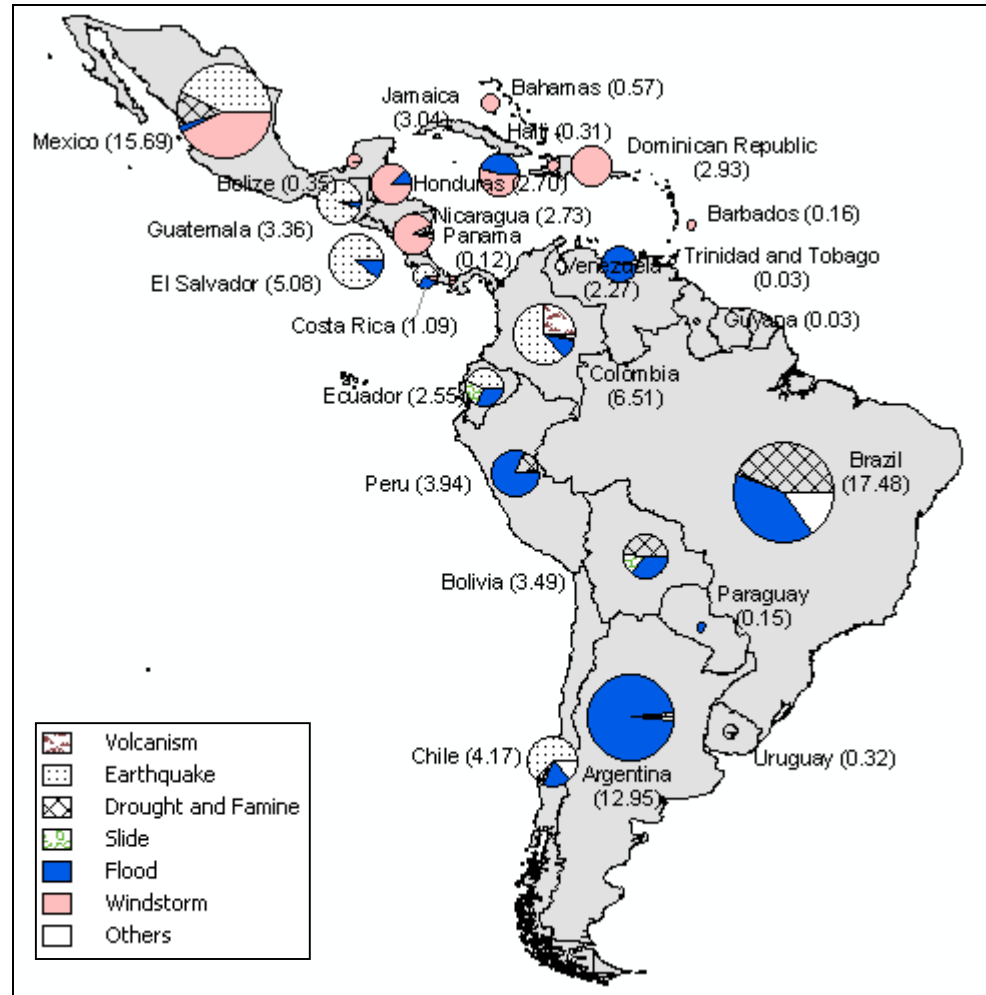


Figure 2. Total reported losses in US\$ (billion) for LAC countries (1975-2002) based only on EM-DAT Database.

The map employs EM-DAT records exclusively to highlight effects of under-reporting of small- and medium-scale losses from natural disasters. When comparing with Figure 1, the high divergence in total loss e.g. in Jamaica or Peru becomes particularly evident. According to this database, Brazil ranks highest in terms of total losses, followed by Argentina and Mexico. Source: (EM-DAT, 2003).

Caribbean: windstorm
Central America: windstorm & earthquake
South America: earthquakes, floods & droughts

In terms of natural disaster types the Caribbean was mostly affected by windstorms (including associated floods and landslides), whereas in Central America windstorms, floods, and earthquakes were the dominant events. The trajectories of tropical cyclones are generally limited to low-latitude oceans due to high sea surface temperatures, since latent heat is a prerequisite for the initiation of this type of windstorm. These are the sources of the greatest disaster losses in Central America and the Caribbean. In South America floods and droughts, mainly linked to the El Niño-Southern Oscillation (ENSO), play a major role in disrupting the normal pattern of human life. Earthquake epicenters and volcanic hazards are preferably concentrated along the active tectonic plate boundaries, roughly bordering the Pacific coast from southern Chile to central Mexico, thus endangering a broad coastal strip along the whole of South America (Figure 3).

2. Relevance of natural disaster policy and strategic framework

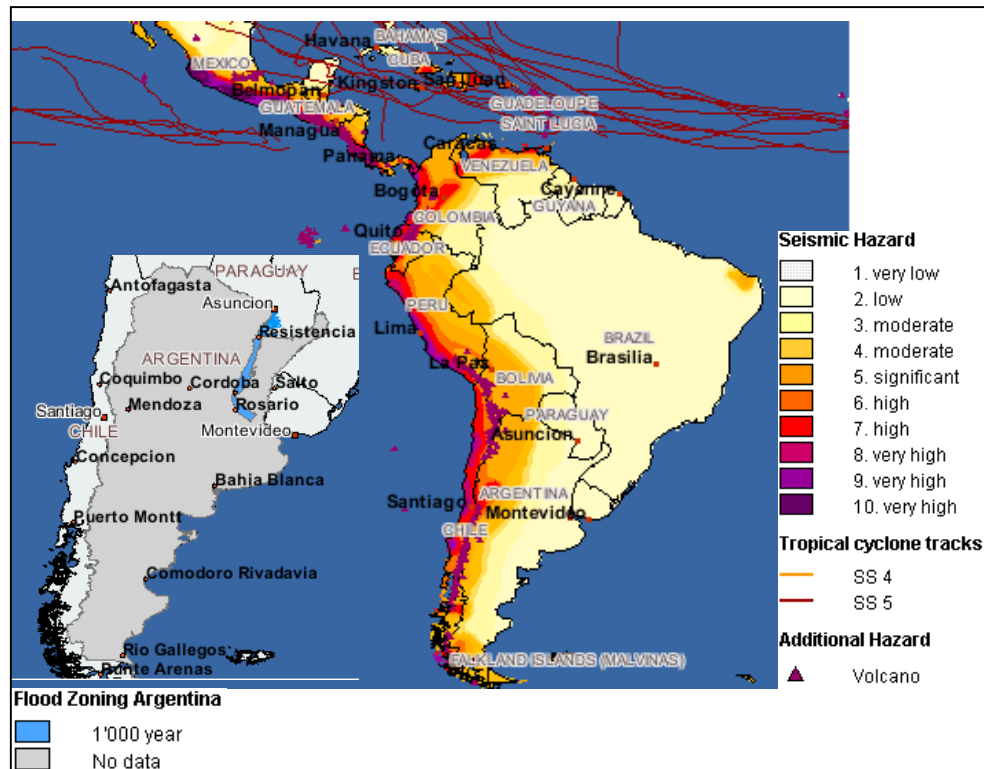


Figure 3. Generalized overview of natural hazard types in the LAC region.

Both the qualitative earthquake hazard zonation and location of active volcanoes mirror the general plate tectonic setting with active subduction dynamics along the Cordillera. Tropical cyclone tracks are limited to Central America and the Caribbean mainly due to the occurrence of high sea surface temperatures. Regional-scale flood data are scarce and limited to parts of northern Argentina. Note that both large earthquakes and windstorms may be associated with a series of subsequent hazards such as floods or landslides, which may convey additional damaging potential.

The seismic hazard on the above map represents intervals of the Peak Ground Acceleration (PGA). PGA is a measure for the damage causing shaking impact of a specific earthquake at the location of a building, measured in m/s^2 . The classes reach from $<0.40 m/s^2$ to $\geq 6.00 m/s^2$. The tropical cyclone tracks refer to the Saffir-Simpson scale. It was developed to estimate the possible damage of winds and storm surges of a hurricane to a coastal area. SS4 and SS5 are the two highest classes, bringing winds from 131 mi/hr up to over 155 mi/hr and storm surges with more than 5.5 m of water above normal. Source: (SwissRe, 2003), (Ahrens, 1994).

Economic impact of natural disasters

The economic impacts documented for the LAC sub-regions illustrate the truly catastrophic nature of disasters on economic development (CEPAL, 1999; Charvériat, 2000; Izquierdo, 1999). For example, (CEPAL, 2002) observes a high correlation between the evolution of GDP and the annual number of disasters. Disasters have a negative impact on the short-term economic performance (measured in GDP), and can reduce the output of the individual sectors affected. For example, Hurricane Mitch caused losses of US\$ 2 billion to the Honduran agricultural sector, while small-scale farmers in Nicaragua suffered US\$ 76 million in direct damages (see Table 3). Guatemala lost 5% of its cultivated area, while the storm gained the nickname “hurricane of the poor” among low-income sectors (Holt-Giménez, 2001).

2. Relevance of natural disaster policy and strategic framework

Table 3. The ten worst natural disasters in LAC (1900-2002)*.

*Ranked according to fatalities and economic losses (2002 US\$ CPI). **Events may comprise multiple disaster types. In general, earthquakes and their subsequent hazards (landslides) rank highest among total damage in terms of both fatalities and financial losses. Source: (Charvériat, 2000; EM-DAT, 2003; UNEP/APELL, 2003).

Country	Type of natural disaster**	Year	Fatalities	Note
Peru	Earthquake	1970	66'794	Mount Huascaran (7.8 Richter)
Guatemala	Flood	1949	40'000	East Guatemala
Martinique	Volcano	1902	30'000	Mt Pelée
Chile	Earthquake	1939	30'000	South Central Chile (8.3 Richter)
Venezuela	Flood	1999	30'000	Vargas state (350km2)
Guatemala	Earthquake	1976	23'000	Guatemala City (7.5 Richter)
Colombia	Volcano	1985	22'800	Nevado del Ruiz
Honduras	Windstorm	1998	14'600	Hurricane Mitch
Nicaragua	Earthquake	1972	10'000	Managua (80% of the capital's buildings destroyed, 6.2 Richter)
Argentina	Earthquake	1944	10'000	San Juan (7.8 Richter)

Country	Type of natural disaster	Year	Damage US\$ (million)	Note
Chile	Earthquake	1939	11'881	South Central Chile (8.3 Richter)
Mexico	Earthquake	1985	6'673	Mexico City (8.1 Richter)
Brazil	Drought	1978	6'332	Central and Southern
Caribbean	Windstorm	1989	5'181	Hurricane Flora
Nicaragua	Earthquake	1972	3'629	Managua (80% of the capital's buildings had been destroyed, 6.2 Richter)
Chile	Earthquake	1953	3'361	Central (7.6 Richter)
Chile	Earthquake	1960	3'335	The world's strongest recorded earthquake (9.5); tsunami 30ft (10m) high
Guatemala	Earthquake	1976	3'155	See up
Colombia	Earthquake	1999	3'125	El Quindio (6 Richter)
Cuba	Windstorm	1963	2'933	Hurricane Hugo

Disasters have a significant effect on the short-term economic performance of a country and may heavily compromise development in the longer term (ECLAC, 1999; ECLAC, 2002), respectively the development goals like poverty reduction. (Charvériat, 2000) reports on a decrease of the real GDP by almost 2% as an average in the year of the disaster and a subsequent increase by almost 3% during the next two years. The vulnerability of the impacted economy depends mainly on the degree of diversification of the economy and its macroeconomic performance before the disaster hits. Smaller countries such as the Caribbean islands are particularly vulnerable because island economies are often dependent on tourism and agricultural export of cash crops. The duration and geographical size of the disaster is another important factor. Localized disasters tend to produce limited impacts, unlike countrywide events such as Hurricane Mitch.

2.2. Risk indices

Risk indices allow quantitative comparison between countries

Quantitative risk indices are simplified measures for ranking vulnerability and the likely socioeconomic impact of natural disasters on a national and sub-regional scale. The Natural Hazard Vulnerability Indicator (NHVI), developed by (Wagner, 2001), suggests a method of relating the vulnerability of a country to natural disasters. It is defined as the product of the disaster affected population rate and the disaster-related economic loss rate in each country (see Box 1).

Box 1. The Natural Hazard Vulnerability Indicator NHVI (Wagner et al., 2001)

In order to provide a ranking mechanism for international comparison of vulnerability to natural disasters, quantitative indices are needed. One such method is the Natural Hazard Vulnerability Indicator NHVI, developed by Wagner et al. (2001). It is defined as the product of the *disaster affected population rate* (DAPR) and the *disaster-related economic loss rate* (DELR) in each country.

$$DAPR = \frac{total_affected_people}{total_population} * 1000 \quad (\text{Equation 1})$$

where

total_affected_people = Mean annual affected persons by natural disasters

total_population = Total population in a given year

$$DELR = \frac{total_economic_loss}{GNP} * 1000 \quad (\text{Equation 2})$$

where

total_economic_loss = Mean annual economic losses from natural disasters

GNP = Gross National Product in a given year

$$NHVI = 6.5 + 0.9167 * \text{LOG} (DAPR * DELR) \quad (\text{Equation 3})$$

Wagner et al. (2001) suggest that multiplying the DAPR and DELR yields a fair and balanced indication on how population and economy are affected in case of a natural disaster from a global perspective. They also note however that the NHVI may vary for a specific type of natural hazard in a given country.

Although most of the figures required for the NHVI are readily available, uncertainties may arise from potential inaccuracies regarding the total number of affected people and total economic loss. Especially the precise quantification of both direct and indirect damage arising from natural disasters is fraught with error and may distort NHVI values (Mechler, 2003). Nonetheless the NHVI provides a rapid method of enabling international comparison. 2.7 Following Wagner, NHVI threshold values can be defined to classify countries according to their degree of vulnerability. Thus, countries with a $NHVI \geq 9$ are considered to be highly vulnerable, whereas $9 \leq NHVI < 5$ and $NHVI < 5$ would denote medium and low vulnerability, respectively.

2. Relevance of natural disaster policy and strategic framework

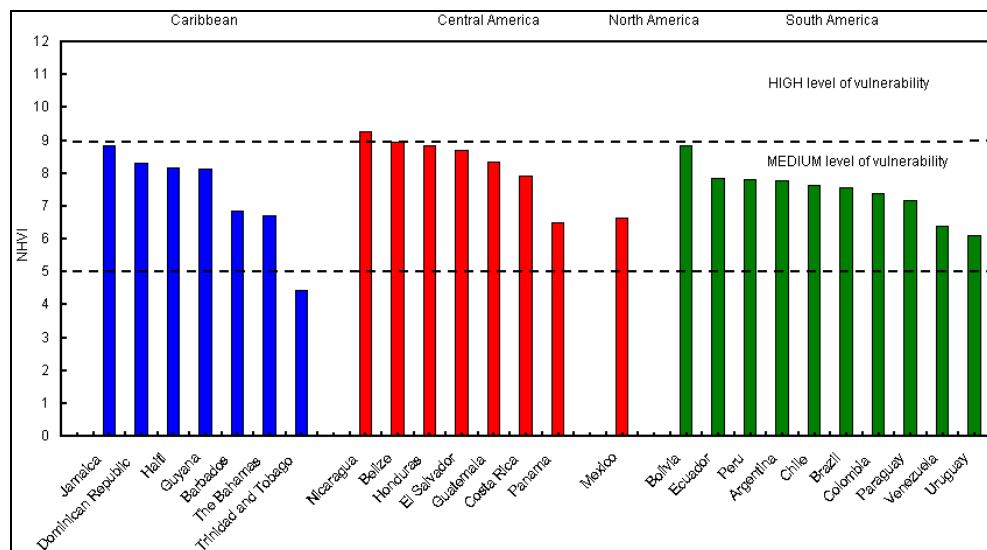


Figure 4. Natural Hazard Vulnerability Indicator NHVI for the LAC countries

The NHVI is defined as the product of the disaster affected population rate and the national disaster economic loss rate (according to Wagner et al., 2001, see Box 1) and can be used to quantify a nation’s vulnerability to natural disasters in global comparison. Countries that are highly vulnerable to natural disaster have a NHVI ≥ 9 (i.e. Nicaragua). Medium and low level of vulnerability is $9 \leq \text{NHVI} < 5$, and $\text{NHVI} < 5$, respectively. *Central America includes Panama. For Suriname, no information is available. Source: (CEPRENAC, 2001; EM-DAT, 2003; LaRed, 2003).

Using this rough classification and keeping the data inconsistencies, discussed in Chap. 2.1, in mind, the situation of LAC countries can be summarized as follows:

The situation in LAC based on the above classification is depicted in Figure 4, which places the majority of countries in the upper half of the medium vulnerability category, with differences between countries. Sensitivity analysis based on alternative methods of calculating the NHVI or comparable indices did not significantly alter the country rankings conveyed in Figure 4.⁵ It is seen from these rankings that natural disasters are particularly damaging in some Caribbean countries (with Jamaica and the Dominican Republic strongly affected), Central America (with Nicaragua, Belize, Honduras and El Salvador particularly vulnerable), the Andean Region (with Bolivia, closely followed by other countries, the most vulnerable), and other parts of South America displaying high exposure.

⁵ IDB, in association with the Universidad Nacional de Manizales’s Institute for Environmental Studies, is working on the development of an assessment methodology that will measure key elements of countries’ vulnerability to disasters and the performance of different risk management tools in reducing that vulnerability. These “indicators for disaster risk management” are intended to be policy-sensitive, transparent and relatively easy to collect and calculate on a regular basis and to be easily understood by policy-makers. Indicators will be grouped to reflect the main elements of a country’s risk reduction and management performance. It is expected that through this work a key tool for the Bank to promote comprehensive and integrated risk management in the Region will be developed. See September 2003 IDB progress report on the technical cooperation project ATN/JF-7907-RG.

2.3. Risk, human security and disaster risk management

Risk reduction addresses any or all of the components that make up risk (Box 2). For example, a country may manage a disaster risk by reducing the exposure of human settlements to hazard, by reducing the value-at-risk to a hazard, or by reducing the vulnerability to the hazards. As the values-at-risk are increasing generally, the vulnerability has to decrease to keep the risk at level. This definition of risk also highlights that the frequency and intensity of catastrophic events make up only part of the overall risk. According to the mathematical definition of risk, multiple small losses represent the same risk as a single rare but major event. The latter, however, is perceived by the public to be far more significant, especially when it involves loss of life (risk aversion). In the public perception risks due to natural hazards should always be seen in the context of technological, social or ecological risks. Disaster risk management thus is an integral part of a wider country strategy for poverty reduction (UnitedNations, 1996). As part of an overall development strategy, initial evidence suggests that both the timing of risk management activities and the quality of resources are crucial to recovery from natural disasters (Freeman *et al.*, 2001), making an understanding of phases in the risk management cycle important.

Box 2 Definition of Risk

The following definition alludes to the range of issues susceptible to being addressed in disaster risk management. Risk is defined as a combination of:

HAZARD

Defined by the frequency or probability and the intensity of a disaster event occurring within specified time and space (magnitude and location);

VALUE AT RISK

Defined by the total number of people, settlements, and economic values exposed to hazard (exposed assets);

VULNERABILITY

The number of deaths and hurt or homeless people relative to the total population affected and the damage caused by the event relative to total value-at-risk (definition adopted for the calculation of the NHVI).

A more general definition holds that vulnerability is the susceptibility of a community to be affected by, or suffer adverse effects, in the context of natural or unexpected disasters. Vulnerability also is about resilience—or the lack of it, which limits a community's capacity to recover (Cardona, 2003).

Disaster risk management, as the term is used in the context of this report, covers the whole spectrum of activities, actions and possible measures across the risk management cycle (Figure 5) leading to a decrease of the resulting risk or to an increase in human security, respectively. There are four possible ways to deal with risks from natural hazards (Ammann, 2003):

Four possible ways to deal with risks

Risk prevention with land-use planning measures

Risk reduction with preventive, emergency and recovery/rehabilitation measures

Risk transfer with insurance

Risk acceptance as remaining risk

- Risk Prevention: Measures that attempt to predict new risks and prevent their occurrence. Examples: abstaining from particular activities; land-use planning to separate hazardous zones from safe ones, although densely populated areas clearly offer limited scope. Risk prevention refers to prospective risk management, whilst mitigation (below) refers to corrective action.
- Risk reduction: (i) Measures that attempt to reduce existing risk and (ii) measures to reduce the consequential damage and loss occasioned by a dangerous event once it occurs. Mitigation assumes that it is not feasible to avoid or control risk completely but that risk can be reduced to levels that are acceptable or feasible.⁶
- Risk transfer: before any damage occurs it has been agreed that any financial consequences can be passed on and spread. Here the insurance market plays an important role by covering unspecified residual risk.
- Risk acceptance: Individual responsibilities, as well as the responsibilities of communities and countries, play a significant role in relation to treatment of natural disasters.

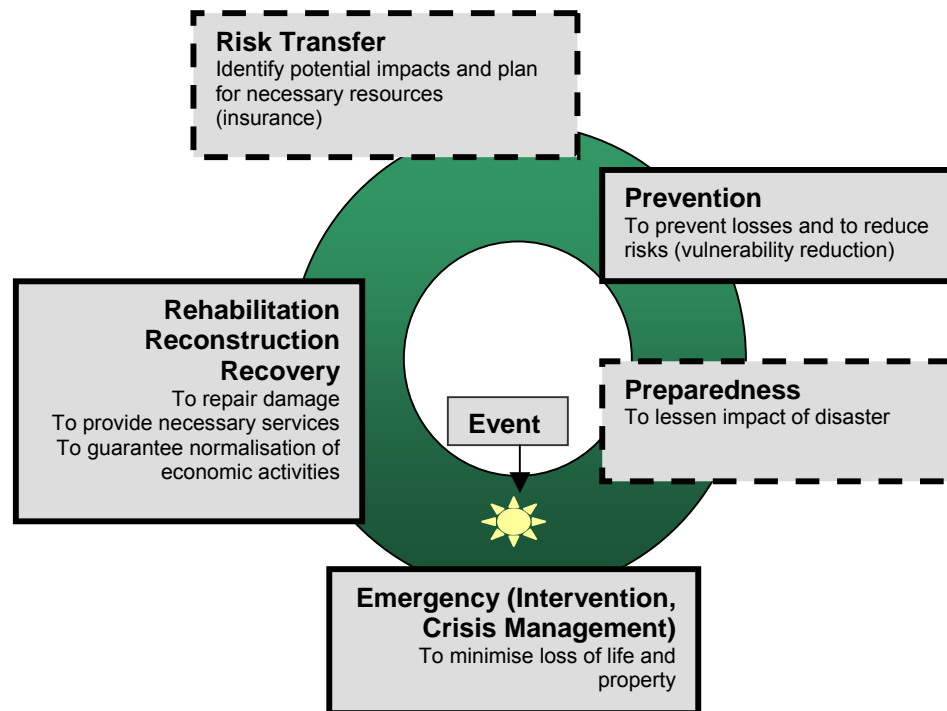


Figure 5. Risk management cycle and terminology used in this report. (Ammann, 2001)

⁶ On risk acceptance note that individual and community-level responsibilities and absorption of damages play a significant role in the treatment of natural disasters. Full security is not feasible economically. Society therefore needs to clarify the level of risk it is prepared to accept.

Besides ex-ante and ex-post measures, also crisis management is of vital importance for risk reduction

Ideally, decision makers would base their choice of measures on (i) clearly pre-defined security levels, (ii) risk scenarios or models (analysis of the range of plausible causes and dimensions of risk affecting specific parts of the country and population groups), and (iii) risk assessments covering hazard assessments, value-at-risk evaluation, exposure and vulnerability analysis, loss frequencies, evaluation of safety gaps, and comparison between desired security levels and existing risk. After analyzing and quantifying the probability of losses under reasonable scenarios, decision makers would proceed to implement adequate measures ex-ante, during events, and ex-post. They would note that effective crisis management presupposes detailed emergency planning and the ability to be operational even as a hazardous situation is developing. Catastrophes keep driving home the lesson that rapid and appropriate exchange of information between different levels of affected people and institutions is critical. Timing and coordination of disaster risk management activities are important for sustainable development.

Timing of risk management activities

Well-timed disaster risk management can capitalize on a series of no-regret solutions that both reduce the risk of natural hazards and complement other development goals. For example, appropriate pre-event activities such as the effective management of water, soil, forestry, and land resources can lower the impact of disasters. Conversely, poorly timed disaster risk management can miss such opportunities and exacerbate the negative impacts of natural disasters. For example, delays in appropriate mitigation activities such as clearing waterways of garbage or debris can lead to greater flood damage later.

2.4. Current risk reduction strategies in LAC countries

LAC countries are in various stages of developing risk reduction strategies

At present, LAC countries are in various stages of developing risk reduction strategies. This section points out some examples and highlights the increasing attention that risk reduction has gained in recent years. However, as one disaster management authority in El Salvador noted,

“[...] vision precedes action”;

Yet a vision or actual implementation of disaster risk reduction measures appears to be largely absent in most LAC countries (Poncelet, 1997).

The listing in Box 3 demonstrates some substantial efforts in various countries and sub-regions to cope with natural disasters. Most of these initiatives have been started only recently. The incentives to apply proactive risk reduction policies are in general rather weak for a number of reasons: information problems that cloud the prospect for consensus on what to do; the politics of emergencies where rapid response activity enjoys public visibility while pre-disaster risk reduction does not; institutional constraints; and the presence of significant amounts of post-disaster relief and reconstruction money from external sources that may act as a disincentive to investment in risk reduction.⁷

⁷ A point already made in OVE's evaluation of the ERF, Document RE-264.

2. Relevance of natural disaster policy and strategic framework

Box 3. A selection of current disaster risk reduction strategies in LAC countries.

Source: (ISDR, 2002; Novelo, 2002).

Sub-region	Strategy	Year	Major aims and initiatives
Caribbean	Caribbean Disaster Emergency Response Agency (CDERA)	1991	Inter-governmental regional disaster risk management for immediate and coordinated disaster response; national mitigation councils for directing and coordinating policies and programs.
	CDERA Caribbean Hazard Mitigation Capacity Building Program (CHAMP)	2003 - 2005	Develop comprehensive vulnerability reduction initiatives through the creation of national hazards mitigation policies (education on building codes, certification programs, etc.).
	Association of Caribbean States (ACS)	1994	Regional cooperation in natural disaster preparedness and response.
Central America	Coordination Center for the Prevention of Natural Disasters in Central America (CEPRENAC)	1993	Promote and coordinate cooperation and knowledge exchange in disaster risk reduction and prevention with international loaning organizations (SIDA, GTZ, La Red, World Bank, DEZA, DIPECHO, RELSAT), sectoral planning with local participation, augment local-level input for disaster risk management capabilities (e.g. FEMICA).
	Grupo de Los Tres & Grupo de Alto Nivel (G3-GAN)	1995 & 2002	Inventory of experience on natural disaster prevention and response, knowledge exchange and training, promote a culture of prevention.
	OAS Inter-American Committee for Reduction of Natural Disasters (IACNDR)	1999	OAS leading forum for natural disaster-related strategies, recommendations, and initiatives.
	IDB Plan Puebla-Panama (PPP)	2001	Mesoamerican Initiative for disaster mitigation and prevention as part of regional development strategy, develop insurance markets for disasters.
South America	Regional Andean Program for Risk Reduction and Disaster Prevention (PREANDINO)	2000	National and sector-based disaster risk prevention and mitigation, incorporate disaster risk reduction into regional development plans, investment projects, and information systems.
	Multi-Andean Project: Geoscience for Andean Communities (MAP:GAC)	2002	Reduce the negative impact of natural hazards in Andean countries; provide geospatial information on natural hazards for land use planning and natural hazard mitigation.
	The Andean Committee for Disaster Prevention and Care (CAPRADE)	2002	Combine and coordinate efforts to incorporate disaster risk prevention and management into development planning.
	Regional Center for Seismology in South America (CERESIS)	1966	Interregional seismological studies (e.g. regional seismic catalogue, probabilistic seismic hazard maps, earthquake engineering).
(LAC)	Center for Disaster Management and Humanitarian Assistance (CDMHA)	1998	Eliminate redundancy, improve information flow, education, and readiness in disaster risk management.

Low priority for Disaster risk management in LAC countries

Disaster risk management in general ranks as a low priority for LAC countries, and is likely to be even more so in non-disaster periods when awareness is low. Whereas emergency response often enjoys public visibility, pre-disaster activities for risk reduction do not. Questionnaire responses indicated that the lack of public visibility of pre-disaster activities reduced the attractiveness of such measures. Natural disasters often command a short attention span among the public, especially investment in pre-disaster measures. The World Bank notes

“[...] in the immediate aftermath of a natural disaster...mitigation investment is a very high priority in both the eyes of communities at risk and also local and central governments. As time goes by and memories fade, so too does the priority for mitigation diminish” (Gilbert and Kreimer, 1999).

Conversely, the high public visibility of post-disaster activities, particularly emergency response, motivates decision-makers to favor post-disaster activities and to neglect preventative risk reduction. On the reality of conflicting priorities, the following quote from a field interview conducted in La Paz, Bolivia, for the present report is self-explanatory (May 2003):

“We don’t have electricity or running water for many of the people living in our district. We have inadequate roads, and many people live in temporary housing from the last disaster. How can we attempt to make investments in lowering risk when faced with these and other priorities? Where do we start?”

A single source covering all of the Bank’s borrowing countries on the status of the arrangements and achievements with respect to the above four ways to deal with risk does not seem to exist, implying that the information has to be pieced together. This is done below for the Andean Region, Central America and the Caribbean, from which exercise it is concluded, first, that awareness of the merits of disaster risk management is growing in LAC, and second, that many of the more vulnerable countries still fail to live up to the challenges of risk management posed by intermittent disasters.

Risk reduction activities in South America

Governmental awareness in the Andean countries is evolving in the direction of more proactive risk management. International cooperation to foster the regional public good of an enhanced shared understanding of the available policy options stands out among the efforts underway. Thus, following the 1997-98 sequence of El Niño-related events, the regional Andean program for the prevention and mitigation of risks (PREANDINO) was created at the behest of the Presidents of the five countries, followed by the establishment in 2002 of CAPRADE, the Andean committee for the prevention and response to disasters. In addition, institutions to address disasters in both an ex-ante and an ex-post sense are being created at the national and local levels. Also, an innovation that can be observed in some countries is the growing involvement of Planning Ministries or their equivalent in disaster risk management, thus broadening the focus from the response-centered approach traditionally brought to bear by Civil Defense.

Risk Reduction activities in Central America and the Caribbean

The story in Central America and the Caribbean is similar to the Andean experience: as in the latter case, risk reduction efforts and disaster preparedness have begun to gain some ground. However, the most advanced work aimed at risk avoidance and risk reduction is being done at the supra-national/sub-regional level through CEPREDENAC, the Central American coordination center for the prevention of natural disasters, and CDERA, the Caribbean disaster emergency response agency. In both sub-regions it can be said (i) that awareness regarding

the need for a more comprehensive approach to risk management with a stronger focus on the ex-ante dimension has grown in the aftermath of recent events, and (ii) that the actual state of public policy at the national level is not yet on a par with the good practice pronouncements that tend to be aired at international conferences.

In Central America, CEPREDENAC was formed in 1995 as a regional intergovernmental organization under the Central American Integration System (SICA). It proactively influenced sectoral programs under SICA with a view to promoting the incorporation of disaster mitigation projects. Of note in this context is the 1999 Guatemala Declaration and Strategic Framework for the Reduction of Vulnerability and Disasters in Central America that clearly emphasized risk reduction over response, laying out a multi-sectoral approach with goals for incorporating risk reduction into development planning. The key challenge since then has been for national policies to rise to the level achieved supra-nationally, applying the knowledge and good practice implied in the Guatemala Declaration. Important efforts are underway in this respect in every country, but it cannot be said today that Central America has been effectively mobilized for comprehensive national-level approaches to the management of disaster risk.

Obstacles to disaster risk reduction and current organization of disaster risk management

Several factors limit implementation of disaster risk reduction activities

Despite existing knowledge of natural disasters and numerous (inter-)national collaborations, both, the implementation process and organizational structures of disaster risk reduction and management are far from firmly established. The discrepancy between existing or proposed plans and actions results from a complex set of socioeconomic, political, and environmental factors. Among these, several obstacles account for the scarcity of disaster risk reduction activities and explain the current pattern of disaster risk management (Mechler, 2003):

- Economic and political disincentives for both structural and non-structural mitigation and prevention;
- Fiscal constraints and inappropriate distribution of resources;
- Weak institutional capacity and short planning horizons;
- Inertia of national decision-making processes (e.g. approval of loans);
- Strong reliance on international post-disaster assistance and granting;
- Low awareness of risk transfer concepts such as (re-)insurance;
- Decentralized structures with lack of proper organization and knowledge of disaster risk management and mitigation measures at local/municipal level;
- Lack of disaster-related expertise and trained personnel;
- Highly vulnerable and unplanned (urban) settlement growth; and
- Natural system variability (e.g. climate change, El Niño).

Public sector in the LAC region has experienced serious financial stress

The public sector in the LAC region has been confronted with serious financial stress during the last 25 years. The “Reform of the State” programs were focused on the incorporation of private sector investments and the provision of services that were previously the exclusive responsibility of the governments. In addition, a decentralization program, which transfers financial and technical responsibilities from the central governments to the provinces (states) and municipalities, has been executed. As a result of these decisions, there has been a reduction in the availability of public financial resources, which impact the public sectors’ capacity to invest. At the same time the institutional strength of the central governments has been weakened by this transfer, since the sub-sovereign entities have not yet acquired the technical capacity and financial stability to carry-on the new tasks.

Unplanned urban settlement growth increases vulnerability and impedes disaster risk reduction

The implementation of disaster risk management programs by LAC governments has also been hindered by the prevailing urban development patterns (Lavell, 2001). Interviews indicated that a large part of damage from disasters was due to unplanned urbanization, which e.g. in La Paz and Buenos Aires (and most other large cities in Central and South America) has led to increased vulnerability of a large number of people and their settlements. In La Paz, rural-urban migration has forced many poor families to settle in areas prone to flash floods and landslides. Some post-disaster rehabilitation efforts have relocated entire neighborhoods to areas on the outskirts where families continue to live in temporary housing. In Buenos Aires flooding has been exacerbated by deficient public water works and insufficient planning of public infrastructure for the enormous 700% increase in urban population since 1947 (Herzer and Clichevsky, 1999). Problems of pollution also increase disaster risk: officials in El Salvador and Nicaragua noted that

“[...] waste disposal is a significant cause of urban flooding as waterways become clogged with garbage.”

DRM consultants had a up front impression on a flooding situation caused by garbage clogging the drainage system in Tegucigalpa, Honduras, on May 29, 2003 (Irrías, 2003; Maduro, 2003; Zelaya, 2003). However, scattered progress has been made in improving local participation in solutions like road maintenance and garbage collection (Leiva *et al.*, 1999).

Weak institutional capacity hinders disaster risk reduction

Interviewees noted that lack of environmental laws relevant to disaster risk reduction would be the norm due to limited institutional capacity, i.e. high turnovers in personnel, and lack of coordination and sufficient technical expertise for disaster risk management. Others agreed that this also prevented effective enforcement of building codes and sufficient maintenance of critical infrastructure. Thus establishing a comprehensive disaster risk management as envisioned in the Action Plan is a slow process. The development of the necessary legal framework in e.g. Bolivia, Nicaragua, or El Salvador is at initial stages only. In Bolivia, a law requires the Vice Ministers of Sustainable Development and Public Investment and Planning to closely cooperate to identify and allocate resources for disaster risk reduction. According to interviewees, political difficulties and interference prevent implementation of this law. Recent administrative changes eliminated analytical capabilities of the Ministry of Public Investment and External Finance, preventing accurate assessment of disaster-related finance needs.

Fiscal constraints, inappropriate resource distribution, and post-disaster reliance on external loans

Given fiscal constraints and inappropriate distribution of resources in many LAC countries, investments for disaster risk reduction are not deemed a priority. The availability of external resources provides little incentive for preventive measures, and reinforces the current strategy of focusing on emergency and post-disaster activities. Interviewees indicated that domestic resources are easier to obtain after rather than before a disaster. Thus domestic disaster finance is limited to emergency response and, to the degree that resources and political will are available, to rehabilitation and reconstruction. This is mirrored by the history of international post-event donations with high priority on emergency and reconstruction: Disaster risk prevention programs only receive regular loan terms and conditions or are not eligible for bilateral grants. Consequently, LAC countries remain caught in a reactive cycle, without the knowledge or resources to reduce risks and impacts of future disasters. Pre-disaster activities, i.e. preventive measures, however, must be processed as new loans and receive only a fraction of resources generated by external post-disaster donations. The lack of economic and political incentives for structural and non-structural disaster risk mitigation renders political decision-making extremely difficult, especially when compared to immediate social and economic needs.

3. Risk Financing

3.1. Basics of risk financing

From theory and with reference to Chap. 2.3, risk financing has to cover not only all direct and subsequent indirect losses, but has also to stand for the investment cost for all phases of the risk cycle (Figure 5). Figure 6 sketches schematically the increasing investment cost for any kind of measures with increasing security level achieved. It is obvious that the damage cost decrease with increasing security level achieved. The total cost comprising damage losses and investments shows a minimum at a given security level. This level is called to be the optimum security level. A simplified analysis shows, that countries on the left side of the optimum have to spend too much money to cover losses, whereas countries on the right side spend too much money in preventive measures.

It is important to note, that an optimal disaster risk management has to consider all phases of the risk cycle with all possibilities for measures and also include the potential losses. Cost-benefit analysis has to show the most efficient solution. It may happen, that not in all cases preventive measures are the most effective ones. Economic losses due to a disaster occur in any case, depending on the degree of preventive measures taken. Solutions to handle these losses are insurances, described in Chap. 3.3, respectively called risk transfer measure in Chap. 2.3. The risk is transferred to an external financial system, which has the possibility to cover losses through a broad number of insured people and taking into account that losses only occur with a certain probability, thus also having the chance to split the risk over time.

Risk financing mechanism, which use the whole spectrum of possibilities only have a chance to work, if an adequate legal framework exists, not favoring one or the other of possible measures, if comprehensive and reliable data are available to adequately estimate damage potentials, if political and commercial risks lay within reasonable boundaries and if a set of indicators is known, defining the desired level of security respectively the level of acceptable risk.

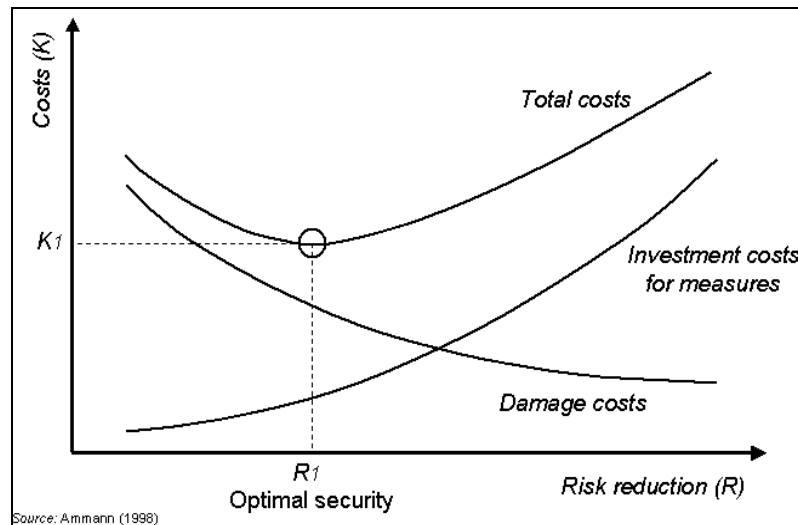


Figure 6. The optimal level of security at the minimum of the sum of expenditures for measures and damage costs (Ammann, 1998).

3.2. Sources and actual practice for risk financing

In recent years, disaster risk financing solutions in LAC countries have gained greater attention as losses from natural disasters and an awareness of the need for more active disaster risk management have grown (Blaikie *et al.*, 1996; Froot, 1999; Gilbert and Kreimer, 1999; IDB, 2000a; Keipi and Tyson, 2002). This section discusses possible sources for the financing of disaster losses, e.g. from a public (government) and a private sector perspective. The focus on *public* financing resources reflects findings that governments currently finance approximately 50% of total disaster losses (Freeman *et al.*, 2003).⁸ Sources for public risk finance and possible gaps in meeting finance needs in Latin American countries will be explored, and evidence from LAC to assess the current state of public risk finance examined.⁹

When a country experiences losses from a natural disaster, several possible sources exist for the financing of those losses. Public risk financing sources include domestic resources (including governmental budget reallocation, new taxes, domestic credit, and insurance payments) and external resources (aid, loans and grants from international organizations and private credit markets). However, the degree varies to which countries can actually access these resources.

Public risk financing: Domestic Sources

Domestic resources for disaster finance are likely insufficient

Domestic risk financing sources include governmental budget reallocation, new taxes, domestic credit, and insurance payments, but not providing sufficient resources to finance natural disaster losses (Freeman *et al.*, 2003). Empirical analysis of government budgetary commitments suggests that no more than 5-10% of current governmental budget could be reallocated in the case of a natural disaster in four LAC countries (Freeman *et al.*, 2003). An evaluation of public taxation ability revealed that increasing tax revenue is politically and economically difficult. For example, El Salvador and Colombia were able to increase tax revenue following disasters through a mix of improved tax collection. However, restructuring and a 0.2% increase in tax rates in Colombia, Bolivia, and the Dominican Republic appear unable to raise tax revenue after a potential disaster (Freeman *et al.*, 2003). Given constraints on domestic credit in many Latin American countries, estimates of domestic borrowing were low. Following a catastrophe, according to (Freeman *et al.*, 2003), Bolivia might raise US\$ 100 million and the Dominican Republic US\$ 150 million in domestic credit, while Colombia and El Salvador would likely not be able to access any domestic credit

Public risk financing: External Sources

External resources for disaster finance are highly variable and potentially insufficient

External sources for public risk financing include grants and loans from international organizations and credit markets (risk transfer mechanisms such as insurance is part of the private risk financing). External resources provide a highly variable, and potentially insufficient source, for disaster finance (Freeman *et al.*, 2003). Official post-disaster inflows from abroad include private and public donations from private institutions, government agencies, and intergovernmental agencies in the form of relief, technical assistance, grants, commodities, and money. There is considerable uncertainty as regards the amount of official transfer available in the wake of a natural disaster. Freeman *et al.* (2001) estimate that on average approximately 10% of direct disaster losses can be expected to be covered by international assistance, most of which is official transfer by means of emergency response. In the time period between 1995-2002, an estimated US\$ 33'269 million of natural

⁸ These estimates are based on government responsibility for reconstruction of public property as well as the assumption of risk of others in the economy: primarily private housing, agriculture losses, and programs targeted at the poor in the post-disaster period.

⁹ The findings reported here include the results of the questionnaires collected in Bolivia, El Salvador, Jamaica, Nicaragua, and Peru.

disaster losses occurred in LAC. At the same time, a total loan sum of US\$ 3'157 million has been allocated by IDB to disaster risk management projects (regular loan projects of IDB, see Table 11 Chapter 5.2). Only 5-10% of international support received is in cash (Freeman *et al.*, 2003), whereas the remainder comprises e.g. medical supplies, heavy equipment, and volunteer work. Affected countries usually express reluctance to incur additional debt from international organizations such as the IDB or World Bank, or from international credit markets—although funds may be available, new loans mean new debt. A common practice discussed in Chapter 4 is the reallocation of resources from current loans. Such reallocation, especially from infrastructure projects, is a primary source of short-term liquidity for LAC countries. But reallocation also carries a price tag, in terms of interrupted development projects with higher returns.

Natural hazard resource gaps

If domestic and external resources are insufficient to cover disaster losses, and a country is unable to finance its disaster risk management needs, it is referred to a *natural hazard resource gap* (Freeman *et al.*, 2003). This gap is calculated by comparing a government's potential or contingent need for reconstruction funds in the current year with its anticipated access to internal and external funds. The measurement of the country's potential disaster loss is determined by combining hazard and vulnerability estimates for each country.

Estimating disaster losses, finance needs, and potential resource supplies that could follow a natural disaster, the additional debt for El Salvador for a 20-year event could come to about US\$ 80 million, based on the assumption that the direct damages would amount to US\$ 900 million. If the same country happened to suffer from a 50-year event, the additional debt would already reach over US\$ 950 million. In that case, the natural hazard resource gap without an external credit from IDB or the World Bank would reach nearly US\$ 170 million. The highest natural hazard resource gap in case of a 100-year event would emerge in the Dominican Republic, with estimated figures near US\$ 1'500 million, thus causing an additional debt of more than US\$ 1'100 million (according to (Freeman *et al.*, 2003).

The natural hazard resource gap depends on critical assumptions about the ability to access internal and external resources both at present and in the future. A closer analytical outlook shows that Bolivia can anticipate no natural hazard resource gap over the range of 20, 50, and 100-year events. Although it is the poorest country in South America, the low level of hazard exposure means that it should have sufficient resources to finance its natural disaster needs. This is also helped by the fact that Bolivia has access to subsidized loans from multilateral financial institutions. Colombia has a high level of natural disaster risk, but per capita incomes are quite high and the risk is geographically diverse, so the government could theoretically expand its tax revenues in response to a catastrophic event, although in practice this financial redistribution is limited (see above). Depending on assumptions governing how much Colombia can raise, it could potentially have a natural hazard resource gap associated with a 1-in-100 year event. Alternatively, El Salvador and the Dominican Republic need to anticipate natural hazard resource gaps in the future. Both countries have a high vulnerability to large-scale natural disasters and limited financial resources. For each country, there is an annual exceedance probability of 0.01 that they will suffer a natural disaster that outpaces the ability to cover the natural hazard resource gap.

Public risk financing: Actual practice

The estimates in Figure 7 highlight the question of how countries finance their potential losses from natural hazards. Public decision-making about natural disaster finance relies in theory on identifying the appropriate risk finance strategy by examining possible gaps between a country’s expected disaster losses defined as finance needs and its ability to pay for these losses defined by finance sources. In practice, however, LAC countries pursue a different public risk-financing pattern.

In practice, decision makers do not consider or plan for possible natural hazard resource gaps

Actual practice in public risk finance revealed that decision-makers do not currently consider the concept of a natural hazard resource gap in their disaster finance strategies. In fact, only the interviews in Mexico indicated that an explicit strategy for disaster risk finance was present (e.g. FONDEN). Instead, most countries pursue an almost purely post-disaster payment strategy (Figure 7).

Countries rely on community solidarity, official transfer, and lending to pay for losses

Most countries might prefer to access external resources, particularly official transfer and reallocation of existing loans, to pay for immediate emergency response and rehabilitation (Hoogeveen, 2000). Restricted fiscal potential increases the pressure on the reallocation of loans. When asked how countries pay for disaster losses, questionnaire respondents overwhelmingly pointed to community solidarity (the use of public resources or private absorption of losses without compensation), external grants, or external loans as the most common sources of disaster finance (Figure 7).

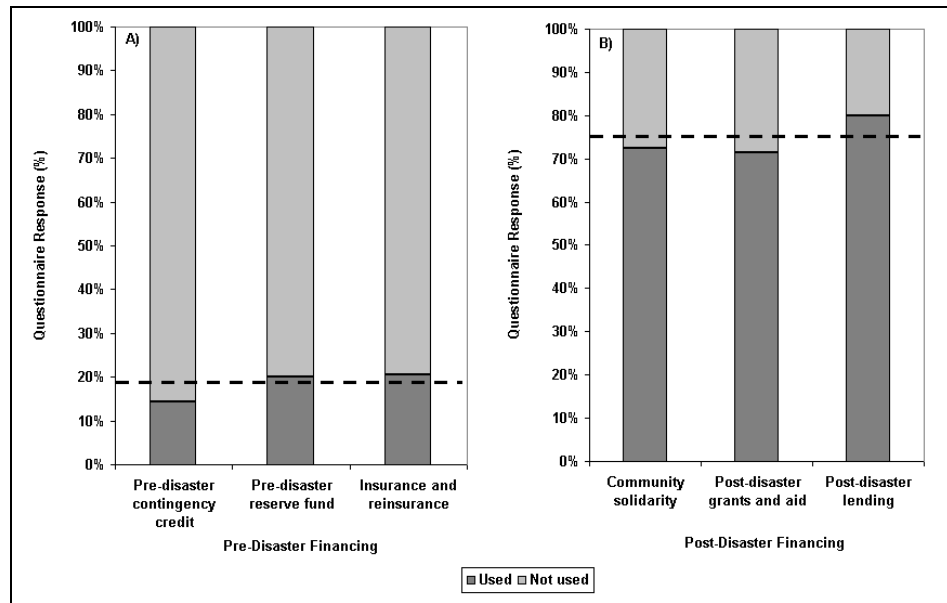


Figure 7. How countries pay for disaster-related losses and activities.

On average, 19% of the returned questionnaires indicated that there were means of pre-disaster financing in their countries (A). However, 75% of the interviewees stated that post-disaster financing was commonly used (B). Source: SLF questionnaire evaluation.

Post-disaster lending considered most expensive means to pay for losses

Interestingly, when asked about their perception of the costliness of these measures, respondents indicated that they considered grants and official transfer, and community solidarity the least-costly resources for disaster finance. Yet, post-disaster lending was considered the most expensive source by the interviewees, without having any further explanations for this assumption. This implies that LAC countries may experience acute disaster financing problems if low-cost resources are not available. Failing to plan for pre-disaster resources and following the current strategy to rely on traditional sources for disaster finance needs can imply costly debt or foregone development opportunities for countries pursuing implicit post-

3. Risk Financing

disaster financing strategies. The assumption of availability of low-cost resources such as external official transfer may be imprudent.

Socioeconomic development
high-priority, disaster risk
management low-priority

Interviews and questionnaire responses indicated that economic and social development priorities were considered highest, whereas disaster risk management (including disaster finance) was considered least. Several interviewees noted that the discrepancy between (particularly financial) impact and priority given to managing these impacts, contributed to a negative cycle of development.

3.3. Private risk financing: Insurance

Private risk financing covers own losses, expenditures for own reconstruction and mitigation measures. Self-responsibility is a key issue to get people committed for their own disaster risk management. Part of the losses might be covered by insurance. Insurance can be seen as more as a loss transfer cover than a risk transfer since it mainly handles natural disaster losses and does not include for example prevention measures. At least for developed countries the use of insurance to finance natural disasters is the preferred solution. IDB and the World Bank have great interest to bring this type of financing aspect to developing countries. In the past couple of years plenty of ideas and information about various insurance aspects and product features have already been gathered and exchanged within IDB and the World Bank (Andersen, 2002; Freeman *et al.*, 2003; WorldBank, 2003). Therefore, this section, which has been established with tight collaboration of Swiss Re's Catastrophe Perils Unit, Zurich, uses all information at hand and focuses on proposing potential solutions. In order to improve the current insurance situation in the LAC countries, it is important that insurance companies agree upon a defined set of insurance criteria.

8.5% of damages covered by
insurance in 2002

Damages due to natural disasters in LAC had been covered by 8.5% with insurance in 2002 (Sigma, 2003). Only 1.3% of the gross domestic product (GDP) is spent for premiums on non-life insurance in Latin America (Sigma, 2002a), compared to a 3.0% world average. This low coverage could be attributed to the lower per capita income in the region (Sigma, 2002b).

The thinness of the market is illustrated by the data in Figure 8: non-life insurance premiums amount to only 1.5% of GDP in LAC, with premium expenditure per capita reaching US\$ 54 in 2001. LAC accounts for 2.8% of the 2001 world market for non-life insurance direct premiums with some notable between-country differences in premiums/GDP as seen in Table 4. An aspect to note in the table is the high inflation-adjusted growth in premium between 2000 and 2001 in some countries: El Salvador, which was struck by two earthquakes in early 2001 (23%), Chile (22%), Venezuela (15%) and Colombia (12%). The trend noted for El Salvador is assumed to reflect a post-disaster increase in the cost of or the demand for insurance, or both.

3. Risk Financing

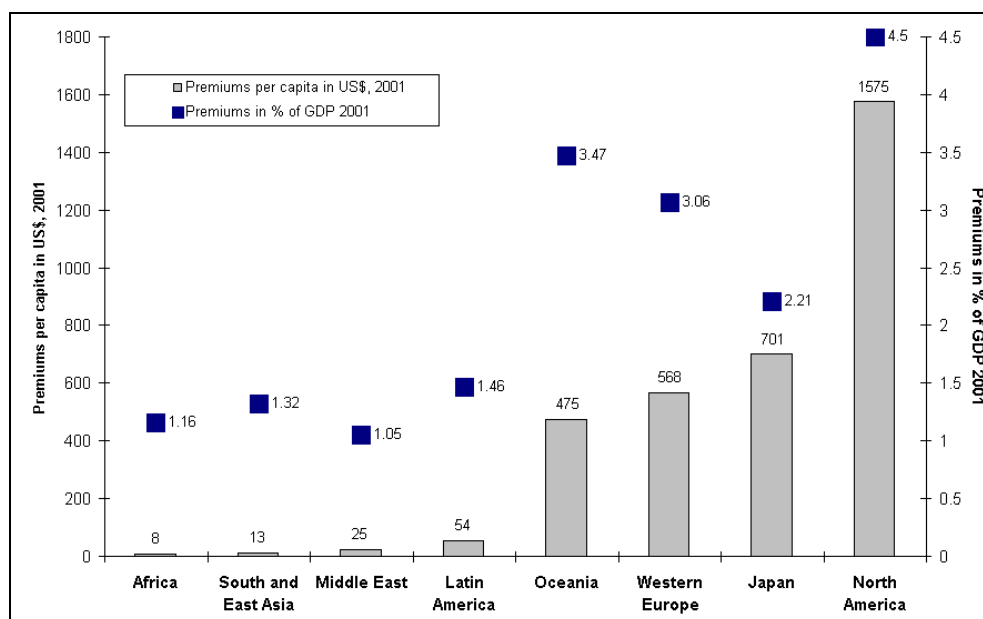


Figure 8. Per-capita spending on non-life insurance and premiums in % of GDP.

Source: SwissRe, Economic Research & Consultancy, Sigma No 6/2002 (Sigma, 2002c).

Table 4. Non-life insurance direct premium volume in LAC (2001).

Source: SwissRe, Economic Research & Consultancy, Sigma No 6/2002 (Sigma, 2002c)

Country	Premiums (US\$ million)	Change relative to 2000 (% inflation-adjusted)	Share of world market (%) 2001	Premiums in % of GDP 2001	Premiums per capita (in US\$) 2001
Brazil	8'953	2.7	0.92	1.78	53.2
Mexico	5'893	9.6	0.61	0.95	59.4
Argentina	4'418	7.4	0.46	1.64	118.3
Venezuela	2'639	15.5	0.27	2.12	107.2
Colombia	1'465	11.9	0.15	1.78	34.0
Chile	837	22.9	0.09	1.3	54.3
Dominican Republic	442	14.1	0.05	1.98	48.3
Peru	363	1.8	0.04	0.67	13.9
Uruguay	314	-3.9	0.03	1.54	93.6
Costa Rica	304	-2	0.03	1.82	81.4
Ecuador	287	8.5	0.03	1.6	22.3
Panama	246	-0.6	0.03	2.44	84.4
El Salvador	190	23.1	0.02	1.38	29.6
Jamaica	188		0.02	2.4	70.3
Guatemala	170	5.7	0.02	0.82	14.6
Barbados	141		0.01	5.67	528.6
Trinidad and Tobago	133		0.01	1.5	92.4
Bahamas	132		0.01	4.3	440.0
Honduras	121	2.3	0.01	1.89	18.2
Other countries	391		0.04		
Total	27'627	7.1	2.85	1.46	53.5

Considerable differences between insured and economical losses

Considering the natural hazards insurance environment of countries with a mature insurance sector, it is evident that there are no perfect solutions and a lot of issues will still have to be addressed. For instance, flood insurance is not widely available due to many reasons, and its absence creates big financial distress to victims and governments. But also in case of other natural hazards there are considerable differences between the insured and the economical losses from any event. Payouts from government emergency funds to close this gap are quite common.

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Bearing this in mind, it cannot be expected that the scope of traditional insurance cover will be any wider in countries with a less developed insurance industry, and it will be a challenge to find appropriate solutions.

Crop insurance is often only provided for hail and fire

Natural hazards up to now are often only included in the insurance in conjunction with a fire policy and refer to assets such as buildings and contents or offer business interruption protection. Infrastructure such as roads, railway tracks, pipes, transmission lines, bridges, tunnels, dikes, harbors or similar structures are often only partly insured and the losses that go beyond the insured sum have to be absorbed by the government. Equally incomplete are the possibilities for crop insurance (see Box 4). Normally insurance companies only provide hail and fire coverage, while for any other hazard the government has to step in. Typical for any natural hazard insurance is that the coverage shows a lot of gaps and uncertainties. To start with, the major natural hazards of any country should be identified and covered as a minimum. Then, one hazard after the other should be addressed to keep the package manageable.

Solutions

Pools

Natural hazards pools have operated successfully in many countries around the world

Pools in this context are associations of insurance or reinsurance companies for the purpose of underwriting a specific type of risk, where premiums, losses and expenses are shared in agreed ratios by all members of the pool. Natural hazards pools have operated successfully in many countries around the world for several years (e.g. California Earthquake Authority, Swiss Elementary Damage Pool, Japan Earthquake Reinsurance Company). They need a clear regulatory framework and have to be compulsory for everyone to achieve the desired risk spreading effect. Often they heavily rely on insurance companies (distribution, administration, and loss adjusting) in order to identify and quantify the risks to be insured. Pools can be structured very flexibly to consider any special requirements or situations. By using original deductibles, co-insurance, and first loss limits, the total loss amount from a given event can be substantially reduced, thus improving insurability. The scope of cover normally includes physical damage to buildings, contents, and sometimes business interruption. The peak loss potentials of pools are typically reinsured in the international market.

Financial Market Solutions: Cat Bonds

The most common form of financial market transactions for the risk of natural perils is a catastrophe (cat) bond. Current cat bond investors seek a spread of about 3%-6% above the London InterBank Offered Rate (with expected losses being 1% or less), nearly irrespective of the covered scenario. Depending on the reinsurance cycle, the traditional reinsurance market charges a spread between 0.5%-1.5% above expected losses for the relevant IDB scenarios. The Caribbean Islands are an exception, where loadings are higher due to the correlation with the U.S. mainland in case of a tropical cyclone (Kusakabe, 2003).

Cat Bonds only cap peak losses

To attract investors, also most cat bonds are structured in a way that only a 100-year event triggers a pay out, thus only capping peak losses while not providing cover for the entire range of loss scenarios. So far reinsurers have mainly used cat bonds as a complementary tool to lay off some of their peak exposures (e.g. Earthquake California, Tropical Cyclone Atlantic). Many cat bonds have parametric triggers leaving the basis risk with the issuer.

Cat Bonds have limited attractiveness for IDB countries

At this stage this form of cover/retrocession is perceived of having only a limited attractiveness for the countries/risks within the IDB's focus. Their main benefit lies in the extra capacity they can generate to absorb worst case events, if traditional reinsurance is scarce, too expensive, or simply, if someone wants to eliminate the counter party credit risk. (Kusakabe, 2003) concludes that it is not feasible for the

Private Sector Department (PRI) of IDB to participate in a cat bond transaction for the Caribbean region, despite the big interest. Factors such as a lack of resource and specific expertise are the reason for this decision.

Parametric Reinsurance Covers

Parametric reinsurance cover does not indemnify a cedent against actually incurred losses, but grants a pay out of an agreed amount of money as soon as a parametric trigger is reached or exceeded (e.g. wind speed, Richter scale magnitude, etc.). This type of cover appears to be best suited for uninsurable or “non-assessable” risks (typically infrastructure or crop), normally the ones governments pick up the losses from. There is some basic risk, as actual losses are not perfectly correlated with the parametric trigger. This is particularly true for smaller events and one of the reasons why in deals done so far parametric trigger levels have been set rather high (at frequencies of less than 1-in-50 years). There also needs to be carried out a rough overall assessment of potential damages for given events, so that the right amount of cover can be purchased at the right trigger level. The big advantage of such a cover is the immediate availability of money after the triggering event. Obviously there need be established mechanisms of control that the received money is used for the intended purpose.

The setting up of this type of deal can be quite complex. It is recommended to involve independent consultants to assess and calculate the price in order to gain the confidence of investors. For earthquake and tropical cyclone already several solutions exist and corresponding deals have been placed with investors. For flood not much experience exists yet, but one could think of triggers like: (i) water level in several rivers above defined flood level, (ii) amount of precipitation at several stations, (iii) percentage of flooded settlement areas.

Counter parties of such a transaction can be either an individual country and the financial markets (via a cat bond) or reinsurers on the other side. Current price levels would suggest that the latter is the more likely avenue to explore.

Box 4. Crop insurance against natural disasters – problems and possibilities.

Traditional multiple-peril crop insurance has proven to cause high administrative costs and opportunities for moral hazards, thus becoming very costly for governments (Varangis, 2003). Due to the high premium costs, only large commercial farms can afford this insurance; in developed countries, crop insurance schemes are highly subsidized by the government. In the last years, alternative forms of natural disaster insurance have emerged. These new systems are based on the occurrence of a weather event rather than on actual losses such as crop failure. It can be assumed that certain weather events are highly correlated with crop losses and are therefore income risks. Drought, for example, can thus be defined as a shortage of water. The trigger factor here is a rainfall deficit, which can be measured and independently verified without being subject to manipulation. A necessary pre-requisite to this idea is access to meteorological data and investments in the quality of the country’s weather stations in order to ensure reliable, tamper-proof measurements. Furthermore, it is important to determine the correlation of any measurement within a certain region to guarantee that data are representative for that area. Regarding the practical aspects of modern crop insurance, the policy can e.g. be area based on a specific event. The policy gets sold in standard units, e.g. US\$ 10 or 100, in the case of an event resulting in the same indemnity payment for all buyers (Varangis, 2003). Selling this insurance does not require any special premise and causes only justifiable administration. Not only farmers, but anyone who gets affected by the weather (e.g. farm hands without their own land) can buy the insurance. The principle is simple, no on-site inspections, individual contracts or consulting are needed (OAS, 1990). A potential disadvantage is the fact that in the event of a drought, all policyholders have to be compensated at the same time. This can pose an intolerable level of risk exposure for the insurance provider on the local level. Mechanisms to spread these financial risks internationally are still to be further developed. It should also be made sure that this insurance assistance does not unduly obstruct economic incentives for pre-disaster measures.

Parametric Reinsurance Cover is best suited for uninsurable or “non-assessable” risk

Prerequisites for a functioning insurance/reinsurance market

Acceptable quality of risks	<ul style="list-style-type: none"> • <i>Acceptable quality of risks</i> (building standards, regional planning, etc.) requires a combination of awareness, regulations, and control. The risk landscape will only gradually change and it will take at least one to two decades to see a major improvement and a consequential increase in insurance density. However, without basic risk management in place, the insurance market will always abstain from covering risks they perceive as having too high a hazard exposure or being too uncertain.
Assessable/quantifiable exposures	<ul style="list-style-type: none"> • <i>Assessable/quantifiable exposures</i> constitute one of the basic principles of insurability. The main concerns in this regard are risks with lack of detailed data and/or suitable hazard models, e.g. dam-break floods or storm surges.
Low/inexistent risk of being anti-selected	<ul style="list-style-type: none"> • <i>Low/inexistent risk of being anti-selected</i> is another principle of insurability: losses have to happen randomly. Flood risks are especially difficult to deal with since assets located on floodplains or close to channels may be affected every few years.
Majority of population can afford to pay for insurance cover	<ul style="list-style-type: none"> • <i>The majority of population can afford to pay for insurance cover.</i> At present insurance cover remains a privilege of the rich. Without active external support only the speed of the social and economical progress will determine the degree/increase of insurance penetration.
Local insurance companies sufficiently capitalized to pay for minor natural disasters	<ul style="list-style-type: none"> • <i>Local insurance companies are sufficiently capitalized to pay for minor natural disasters.</i> The reinsurance market expects local markets to retain some portion of the risks. It is better to have a few strong players than many weak ones in a given market.
Sufficient reinsurance capacity to cover natural major disasters	<ul style="list-style-type: none"> • <i>Sufficient reinsurance capacity is available to cover major natural disasters.</i> There is ample reinsurance capacity available for any loss scenario from developing countries, although affordability may be the crucial issue. Some Caribbean Islands, which form part of the major Atlantic hurricane scenario, might be somewhat short of capacity.
Government disposes of sufficient funds to absorb (parts) of uninsured or uninsurable losses	<ul style="list-style-type: none"> • <i>Government disposes of sufficient funds to absorb (parts) of uninsured/uninsurable losses.</i> This poses a vital prerequisite to manage any post-disaster crisis effectively; particularly losses to infrastructure will fall back to the public and need readily available funds to re-establish a functioning economy. Many LAC countries struggle to meet that requirement. See (Freeman <i>et al.</i>, 2003) for interesting experiences in Colombia and Mexico
Legal Framework	<ul style="list-style-type: none"> • <i>Adequate, "non-discretionary" legal framework and financial risk spreading</i>

Current country perspectives and capabilities for a functioning insurance market

35 questionnaires from Bolivia, El Salvador, Jamaica, Nicaragua, and Peru: negative impression of technical and financial capacities

The previous section discussed what LAC countries should ideally provide in order to establish a functioning insurance market. However, current field studies indicate that theory and practice are quite different, with a wide gap stretching between desired prerequisites and actual capacity (Figure 9). In summary of altogether 35 questionnaire responses from Bolivia, El Salvador, Jamaica, Nicaragua, and Peru, interviewees had an overall skeptical impression of their respective technical as well as financial capacities, i.e. the maximum amount(s) of coverage offered by (re)insurers over a given period, based on underwriting policy, financial strength, and market conditions.

3. Risk Financing

According to the interviewee's opinion, national technical capacity was considered to be quite difficult to obtain (Figure 9), particularly information on capital stock, i.e. the sum of all (insurable) values per region. However, 50% of the interviewees were convinced that statistical information (e.g. building types split into residential, commercial, and industrial) were easier to acquire than data on infrastructure. Nonetheless there is a distinct lack of consensus on this particular topic. Loss potential studies for major natural disasters are virtually non-existent. From the field trip interviews it became apparent that technical information was often not standardized or useable. In addition, crucial information such as e.g. hazard maps were not often very easily available to the public.

Questionnaire results indicate dominant lack of financial capacities

Roughly 80% of the interviewees were convinced that there was not enough financial support for disaster risk management activities (preparedness, emergency response, rehabilitation, and reconstruction). While insurance and other pre-risk transfer mechanisms were often discussed with enthusiasm during the field interviews, very few countries in LAC actually employ this mechanism. Most noted that setting aside funds for risk transfer mechanisms (through insurance, premiums, reserve funds, contingency credits, cat bonds etc.) would be an excellent idea to pursue. However, at the same time, they noted that this would go beyond their countries' capabilities. Even more significant was the present lack of experience with (re)insurance concepts. In the case of Mexico, most of the public assets at the federal level are legally required to be insured. Nevertheless, at the state and municipal levels compliance is uneven, possibly due to budget constraints. Insurance awareness and penetration need to be affordable in price, which appears not to be the case. Mexico has experimented with projects in risk transfer such as the Fondo de Desastres Naturales (FONDEN), which although are solely focused on emergency response. FONDEN's rules of operation establish that in case of a high-probability occurrence of a natural disaster or imminent danger, the local governments can declare a state of emergency to get resources from the FONDEN faster, and take measures to attenuating potential disaster impact.

Another fund, concentrating on preventative measures, is FOPREDEN (Fondo para la PREvención de DEsastres Naturales). It is a fund established by the Federal Government to support technical studies, mitigation measures and dissemination of better protection practices, at state and municipal levels, which is currently being institutionalized and according to plans should commence activities as of 2004.

3. Risk Financing

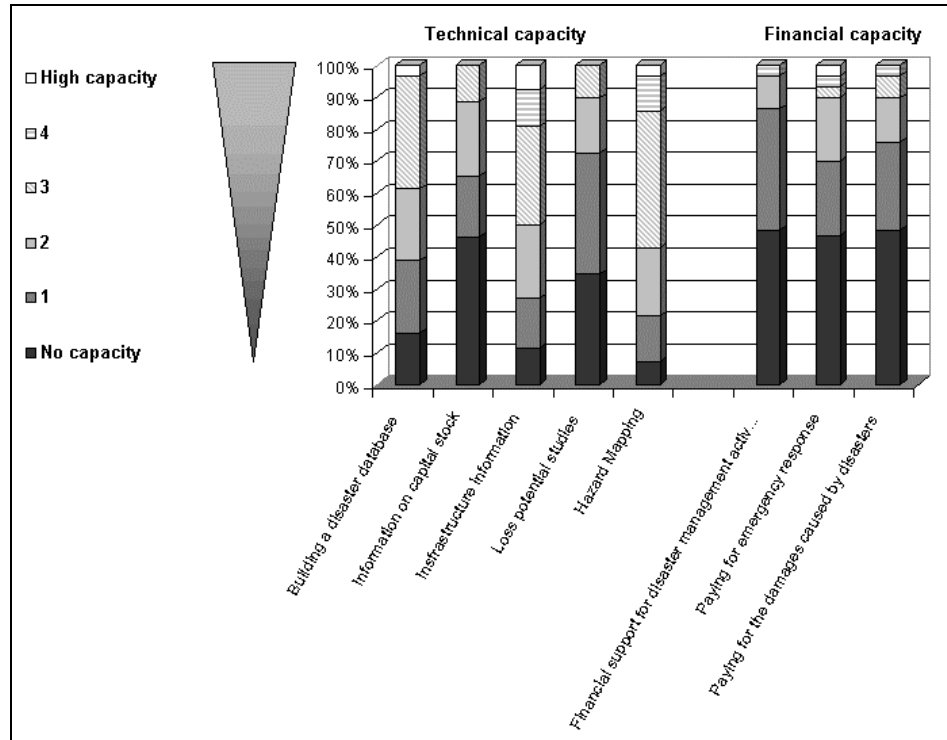


Figure 9. Estimation of technical and financial capacity

Results from 35 questionnaires including Bolivia, El Salvador, Jamaica, Nicaragua, and Peru. Source: SLF questionnaire evaluation. Technical and financial “capacity” are defined as the maximum amount(s) of coverage that can be offered by an insurer or re-insurer over a given period, based on underwriting policy, financial strength, and market conditions.

No discussion of insurance mechanism in IDB loan documents

Reviewed IDB loan documents contain no discussion on insurance mechanisms. However, a few Technical Cooperation (TC) projects are under development, which incorporate issues of insurance modes. Two of them in Honduras and El Salvador have commenced recently, and include a feasibility study for natural disaster finance with respect to insurance-based risk spreading. Currently, IDB is allocating some resources at the IDB’s Infrastructure and Financial Markets Division to evaluate a potential insurance structure to be implemented at the regional and/or country level. In addition, IDB is building up collaboration with the Inter-American Federation of Insurance Companies (FIDES), However, it is unclear to what extent other (re)insurance companies are involved in an effort to explore appropriate mechanisms for finance-based disaster risk spreading in the LAC region.

4. OP-704 and the Action Plan

“We don’t have electricity or running water for many of the people living in our district. We have inadequate roads, and many of the people live in temporary housing from the last disaster. How can we attempt to make investments in lowering risk when faced with these other priorities? Where do we start? How can we do more than emergency response in this situation?”

A field mission interviewee in La Paz, May 2003

4.1. General remarks

OP-704 and the Action Plan are enhancements of the Bank’s objectives and sector priorities

The OP-704 and the Action Plan – following OP-704 and enhancing some of its statements a few years later - outline a spectrum of instruments that the Bank’s borrowing member countries can use in disaster risk management. Under ideal circumstances, the policy guidelines contained in OP-704 and the Action Plan will lead borrowers to undertake disaster risk management that incorporates effective natural risk reduction measures throughout the disaster risk management cycle. This encourages governments to account for the negative impact of natural disasters on society, the economy, and the environment in developmental planning. By incorporating effective measures into their development program, it is hoped that the OP-704 and the Action Plan can help countries improve their overall development strategies. With these goals, both, OP-704 and the Action Plan follow straight forward the two main objectives of the Bank (IDB, 1959; IDB, 1999b; IDB, 2001e); namely:

- Poverty and inequality reduction
- Environmentally sustainable growth

and implemented according to (IDB, 2001e) through actions in four sector priorities (four pillars):

- Social development
- Modernization of the State
- Competitiveness
- Economic integration

As a matter of fact, to cope with natural disasters does not directly contribute to the Bank’s main objectives

The evaluation of OP-704 and of the Action Plan will check how close IDB follows the two objectives mentioned above, and how far they support measures contributing to the four sector priorities. Looking at objectives and sector priorities at a first glance, an immanent problem reveals in the sense that natural disasters in any case are unforeseeable “obstacles”. Natural disasters claim for investments, which do not, or only little contribute to fulfill the above objectives and sector priorities (hindering poverty reduction and a smooth sustainable growth or social development). Especially investments for preventive measures therefore always will have to compete with investments, which are directly linked to a “positive” development of a country.

To cope with natural disasters as a must for a sustainable development process

To cope with natural disasters in any case needs investments or urgent funding which are then lacking to achieve the Bank’s primary objectives and priorities, thus representing somehow a mission risk. This is even true for investments in preventive measures, which only indirectly are contributing to the Bank’s objectives.

Nevertheless, the occurrence of natural disasters is one of the determining factors that are jeopardizing the Bank's objectives (poverty reduction and sustainable development).

4.2. IDB Disaster Policy (OP-704)

Evolution of OP-704 has led to progress

The Bank's Operational Policy¹⁰ on Natural and Unexpected Disasters (OP-704) was approved in November 1998, and revised in 2000. OP-704 is distinct from the earlier natural disaster-related policies because it emphasizes the importance of reducing the country's vulnerability to natural disasters (IDB and ECLAC, 2001). The document stresses the significance of pre-disaster activities (such as prevention and preparedness) in achieving a risk reduction through vulnerability reduction, in addition to traditional measures and actions during and after natural disasters (e.g. emergency response, recovery, rehabilitation and reconstruction, see). OP-704 explicitly calls for the incorporation of effective risk reduction measures, such as prevention and mitigation, into development programs, and reflects broad consensus with international disaster risk management standards (Gilbert and Kreimer, 1999; ISDR, 2002; Munasinghe and Clarke, 1995; RedCross, 2002).

OP-704 assists countries in protecting development goals

The main purpose of IDB's participation in the field of natural and unexpected disasters is to assist member countries in effectively protecting and resuming their socio-economic development and in taking appropriate measures to reduce or avoid losses from all disasters. At a country's request, the Bank will participate in enhancing the capacity to respond to disasters, and to take into account the country's vulnerability to disasters in its development projects and programs. Specific objectives of the OP-704 are to assist countries to prevent, to prepare for, and/or to mitigate the hazards, which cause loss of life and property and damage to the socio- economy, infrastructure, and the environment.

OP-704 covers all three stages of the risk cycle

In assisting borrowing member countries affected by natural disasters, OP-704 identifies three disaster risk management stages: before, during and after the event. The IDB fosters activities corresponding to each of these stages. These activities are referred to in the document as "Before the emergency" (pre-disaster, ex-ante), "During the emergency stage" (during the disaster), and "After the emergency" (post-disaster, ex-post) activities, respectively.

Pre-disaster stage

Before a natural disaster, IDB assistance focuses on pre-disaster activities like disaster prevention, preparedness and mitigation. Such measures are intended to prevent losses and other negative effects and to reduce risks from natural hazards. Activities related to natural disaster preparedness aim to lessen the impact of a disaster by structuring in advance the countries' ability to cope quickly and effectively with the event (e.g. early warning systems).

During-a-disaster stage

During a natural disaster, the central objective of activities is to minimize the loss of life and property as by-product. Depending on the type of disaster and the state of preparedness, IDB collaborates with the borrowing member country in its efforts to achieve urgent priority objectives.

Post-disaster stage

After a natural disaster, IDB activities strive to help a borrowing member country recover, rehabilitate and repair damage incurred from the event. Common activities include providing critical goods and services, restoring normal economic activity, providing temporary housing, restoring public infrastructure, etc.. Such activities –

¹⁰ The Bank defines operational policies as "general directives whose purposes is to regulate the assistance provided by the Bank to its borrowers, define development strategies, and provide a high-level guide for operational decisions"

mainly reconstruction work - may incorporate measures to prepare for, prevent, and mitigate the adverse effects of future disasters.

Importance of mission and credit risks missing in OP-704

The document also states some basic guidelines with criteria on the eligibility, financing and risk assessment. The eligibility criteria are defined for all three stages whereas the financing criteria are primarily focused on the “during” and the “after the emergency” stage. Mission and credit risks are mentioned only indirectly and very rudimentary. No guidance is provided on how investments are assessed and decisions taken, especially in the situation where preventive measures compete with ordinary development goals.

4.3. IDB Action Plan

IDB Action Plan identifies strategic areas of disaster risk management for borrowing member countries

In 2000, as a continuation of OP-704, the Bank created an Action Plan “*Facing the Challenge of Natural Disasters in LAC*” to complement OP-704 and to provide further guidelines to implementation of a comprehensive approach to disaster risk management in specified strategic areas. The IDB Action Plan addresses the changing development needs of the region with a proactive stance to reduce the toll of natural disasters in the region. This requires a more comprehensive approach that strengthens pre-disaster risk reduction measures without weakening post-disaster recovery measures. It is framed by new institutional arrangements and strategic tools that support effective action, involving a broad set of activities like e.g.:

- *Risk analysis* to identify the kinds of risks faced by people and development investments as well as their magnitude;
- *Prevention and mitigation* to address the structural sources of vulnerability;
- *Emergency preparedness and response* to enhance a country’s readiness to cope quickly and effectively with an emergency; and
- *Risk transfer* to spread financial risks over time and among different actors;
- *Post-disaster rehabilitation and reconstruction* to support effective recovery and to safeguard against future disasters.

The Action Plan encourages combined actions to address the root causes of vulnerability in the LAC region. It also envisions the appropriate positioning of comprehensive disaster risk management (i.e. including pre-disaster aspects like disaster prevention and mitigation) in the region’s overall development agenda. The Action Plan further points towards an incorporation of disaster risk management into the overall economic development. Part of this long-term strategy is the integration of disaster risk reduction into developmental planning processes and investments, and helping borrowing member countries building their own institutional and technical capacity to manage disaster risk reduction more effectively in the future.

The Action Plan states six strategic areas

To accomplish this long-term goal, the IDB’s Action Plan identified six strategic areas that could help countries adopt an effective comprehensive risk management scheme:

- *Building National Systems for Disaster Prevention and Response*. Building national legal and regulatory frameworks, strategies and programs that bring together the planning agencies, local governments, and civil society organizations;
- *Building a Culture of Prevention*. Developing and disseminating risk information and empowering citizens and other stakeholders to take risk reduction measures;
- *Reducing the Vulnerability of the Poor*. Supporting poor households and communities in reducing their vulnerability to natural hazards and recovering from disasters through reconstruction assistance;

- *Involving the Private Sector.* Creating conditions for the development of insurance markets while encouraging the use of other risk-spreading financial instruments;
- *Risk Information for Decision-Making.* Evaluating existing risk assessment methodologies; developing indicators of vulnerability, dissemination of risk information; and
- *Fostering Leadership and Cooperation in the LAC region.* Stimulate coordinated actions and to mobilize regional resources for investments in risk mitigation.

The Action Plan states five operational tools to promote and implement disaster risk reduction policy

The Action Plan states a two-pronged strategy necessary to implement the six strategic areas with a) promoting its goals by helping each country to adopt appropriate risk reduction measures and b) by making a concerted effort to mainstream risk management into the way the bank does business. The following elements for mainstreaming disaster risk reduction in the Bank's operations have been defined:

- A facility for Innovation in disaster prevention.
- Disaster risk reduction as a component of the Bank's dialogue with member countries
- Disaster risk reduction in the project preparation and financing
- Focal points for disaster management
- Partnerships: Building networks and strategic alliances

The Action Plan leaves open the problems of priority setting, mission and credit risk

Similar to OP-704, the Action Plan leaves open a broad field of activities. Only very limited guidance is provided for priority setting. The problems, how investments for preventive measures are balanced with ordinary development investments or how to deal with mission and credit risks are left open. Interesting also to note, that the Action Plan is restricted to natural disasters, not mentioning the importance of unexpected disasters anymore.

4.4. IDB operational and non-financial instruments

OP-704 promotes economic development through disaster risk reduction

To meet the array of natural disaster-related issues such as finance and technical assistance, IDB is continually striving to improve its operational policy for disaster risk management and its strategic Action Plan. The OP-704 and the Action Plan define objectives to guide disaster risk management activities for IDB and borrowing member countries. The vision of disaster risk management represented in OP-704 and the Action Plan promotes economic development through disaster risk reduction and comprehensive activities that reduce the impacts of disasters in borrowing member countries.

Operational instruments

OP-704 instruments to help countries finance pre- and post-disaster activities

The OP-704 and Action Plan provide a spectrum of instruments to facilitate operational and non-operational activities to manage disaster risk in borrowing member countries (Table 5).

Table 5. Operational instruments designed to help countries address their disaster risk management needs.

Listed are the main instruments and their main focus as outlined in the IDB OP-704 and Action Plan. Source: (IDB, 2000b; IDB, 2001d)

Instrument	Description
Emergency Reconstruction Facility ERF (PR-806)	<u>Post-disaster focus.</u> To help countries quickly respond to disaster impacts; ERF facilitates the rapid disbursement of resources (up to US\$ 20 million) to finance a pre-established menu of eligible activities. ERF is designed with a “fast track” process of loan approval and resource disbursement.
Sector Facility (PR-810) for Disaster Prevention (GN-2085-53-9-011)	<u>Pre-disaster focus.</u> Designed to strengthen disaster risk prevention and management systems through vulnerability reduction and improved preparedness to natural disasters. The Sector Facility will help countries meet risk reduction objectives for their development through consensus building on inter-sectoral priorities, strengthened institutions, and preparation to launch larger scale national programs. The first operations were approved in 2002. No incentives are considered for this type of operations. However, this mechanism is part of the Flexible Lending instruments and therefore has simplified approval procedures and a maximum of US\$ 5 million loan amount.
Regular loans	<u>Pre- or post-disaster focus.</u> IDB provides regular loans to finance disaster risk prevention and mitigation measures. Examples include projects for watershed management, urban and social development. Many current loans have facets of disaster risk prevention and mitigation. This instrument is also used to finance post-disaster reconstruction and rehabilitation.
Loan reformulation	<u>Post-disaster focus.</u> Non-committed available resources from existing loans are reallocated to cover expenses associated with natural disasters. This instrument is usually associated with the emergency and the post-emergency expenses. If the reformulation does not modify the original objectives of the loan, Management provides the approval; otherwise, it has to be submitted to the Board. These reformulations could be associated with new loans (regular loans and ERF).
Technical Cooperation (TC) for natural disaster-related emergencies	<u>Pre- or post-disaster focus.</u> This instrument is usually funded with grants. The total amounts are substantially lower than the amounts that could be obtained with loans. The country representative of the Bank has the authority to approve a TC for amounts up to US\$ 50,000. This instrument can also be used in combination with loans or as part of a reformulation package, as required.
Project Preparation and Execution Facility (PROPEF)	PROPEF is a line of credit approved by the Board to cover gaps in project preparation financing and up to the full compliance of conditions prior to first disbursement. The financing of each individual operation may amount up to US\$ 5 million.

Instruments such as the Sector Facility for Disaster Prevention, regular loans, and Technical Cooperations (TCs) are designed to help countries undertake disaster risk reduction activities before disasters occur. Even prior to the creation of a specific policy for disaster risk management at the IDB, countries could incorporate disaster risk management facets into regular loans and TCs.

Emergency Reconstruction Facility (ERF) and Technical Cooperations (TCs)

Instruments such as Emergency Reconstruction Facility (ERF) or TCs are designed to allow the IDB to react quickly and effectively in providing countries with resources after a natural disaster. Because of the urgent need of borrowing member countries for post-disaster resources, these instruments have a higher level of full implementation and disbursement, usually within one year after the event. Since 1999, ERFs have been approved in Belize, Bolivia, Colombia, Jamaica, Peru, Venezuela, and two loans in El Salvador. A detailed review on the ERF has been conducted by IDB Management and the Board of Execution (OVE, 2002). They concluded that ERFs are an effective, expeditious, and timely financial instrument valued by the countries and growing in demand. The review resulted in a proposed amendment (IDB, 2003) with suggestions to improve the efficiency of the ERFs. TCs are frequently used for post-disaster purposes. In 2002 for example, six emergency TCs were used for immediate post-disaster humanitarian response in Central America: In El Salvador and Honduras for Dengue Fever, in Costa Rica and Haiti for flooding, and in Mexico and Haiti for hurricanes (IDB, 2002b). TCs will be the subject of a more detailed discussion in Chapter 5.2.

Disaster Prevention Facility

The Sector Facility for Disaster Prevention is a new loan instrument created in March 2001. The intention of this facility is the quick placement of resources available to the countries, to reinforce disaster risk management and to reduce vulnerability. It also provides advisory support to borrowing member countries, and promotes awareness-raising activities among IDB staff and field offices (IDB and SDS, 2002). Currently, two loans (Dominican Republic DR-0145; Bolivia BO-0206) have been approved under this facility. An US\$ 5 million operation for the Dominican Republic was approved mid-year 2002 to help the country improve its capacity to reduce and manage disaster risk at national and municipal levels, and set the stage for a larger program of public investment in disaster risk reduction (IDB, 2002b). However, the field survey indicated that differences in the perception of disaster risk management between civil defense and other institutions have created obstacles for carrying out this program. Implementation of projects with clearly defined pre-disaster facets tends to be very recent; by mid-2003 many such projects had only been partially implemented.

Non-Financial instruments

The IDB also utilizes several non-operational activities to improve disaster risk management

The IDB has also implemented a series of non-financial activities to improve the efficacy of its natural disaster-related operations and to help borrowing member countries address their disaster risk management needs (Table 6). However, borrowing member countries appear largely unaware of these measures, which somewhat limits their effect on actual disaster risk management practice. Non-financial instruments appear to have higher visibility and effectiveness at IDB headquarters and among other international financial institutions than they do in borrowing member countries.

Internal institutional strengthening

Internal institutional strengthening is one of the areas where the Bank has been particularly active. For example, personnel among technical specialists and financial analysts at IDB headquarters were designated to serve in 14 disaster risk management focal point teams (Box 5), with additional disaster focal points being located in 26 field offices (IDB, 2002a; IDB, 2002b). In Central America, e.g. significant in-house expertise has been developed in the form of a multidisciplinary response team that responds immediately when a natural disaster strikes, while team effort is devoted mostly towards emergency response and some reconstruction. The focal point team maintains continual contact with the mission office during the emergency and for a period of time following the disaster, intended to provide technical expertise and logistical support to the mission office in addressing post-event impacts. The team currently includes the Senior Coordinator for Central America, specialists in disaster risk management, finance, natural resource management, the personnel division, and other personnel as deemed necessary by the Senior Coordinator. Interviews with IDB staff indicated that the focal point in this sub-region appears most well developed within the Bank, forming an institutional network that allows cross-departmental coordination of disaster risk management practice.

Box 5. IDB's Disaster Management Focal Points (DMFPs)

In 2000, DMFPs were established in each of the three operational departments, SDS/ENV and SDS/IFM with at least one professional acting as a point of contact in each Country Office.

The DMFPs' objectives are to support countries in the preparation of programs aimed at disaster prevention, mitigation, preparedness and emergency response, foster dialogue, coordinate activities between sectoral divisions and Country Offices, and promote knowledge and learning. At present, the DMFPs number 36 professionals (26 in Country Offices and 10 at Headquarters) with some 20 additional specialists representing different relevant sectors (transport, energy, water and sanitation, agriculture, housing, etc.). The DMFPs are an important institutional innovation, but the degree of integration of the groups and their traction in borrowing countries varies considerably between the operational departments.

Table 6. Non-financial activities designed to help countries address their disaster risk management needs.

Listed are activity names, description, and comments resulting from the evaluation of these activities. Source: (IDB, 2001a; IDB, 2001b; IDB, 2001c; IDB, 2002b; IDB, 2002c; IDB and SDS, 2002).

Activity	Description	Evaluation comment
Internal Institutional strengthening of the IDB in natural disaster-related themes	Since 2001, a wide variety of measures have been initiated to strengthen the IDB's disaster risk management capabilities: specialists and analysts form disaster focal points at headquarters and in field offices; training workshops and seminars; an explanatory toolkit for project design; development of indicators and checklists to strengthen project design and disaster risk analysis; and close cooperation with other agencies.	Some activities too recent to evaluate. Partial implementation but low country awareness. Project design elements not yet implemented.
Technical paper series and studies	A series of technical papers and studies has explored a number of natural disaster-related themes, such as disaster risk finance, current disaster risk management, practices in LAC, or practical applications of financial instruments for natural disasters (TC-0109018, execution scheduled to take place in 2003).	Low effectiveness in influencing disaster risk management in borrowing member countries. Ongoing implementation but low country awareness of studies.
Regional policy dialogue on natural disasters	The Integration and Regional Programs Department and the Sustainable Development Department at the IDB coordinate this dialogue as of 2001. The aim of this dialogue is to create communication networks on natural disaster policy and practice in LAC.	Low effectiveness in influencing disaster risk management in borrowing member countries. Low country awareness, may not have reached appropriate policy makers.
Cooperation with other agencies	IDB actively cooperates with other agencies involved in disaster risk management in LAC, including: working groups with OAS in risk financing; development of strategies for risk management in the hemisphere with IACNDR; contributing to numerous conferences on risk management with the World Bank, USAID, PAHO and others; work with ECLAC on the economic evaluation of disaster losses; coordination with specialized disaster agencies like CEPREDENAC and CDERA; TC with Japan, Norway, Sweden, Germany, Denmark, the Netherlands, and the European Commission; and participating in partnerships such as the ISDR and the ProVention Consortium.	Moderate effectiveness in influencing disaster risk management in borrowing member countries. Moderate to high influence on general disaster risk management discussions with other organizations.
Plan Puebla Panama (PPP)	Within this regional initiative, the IDB and MIF support development of insurance markets for disaster risk. Awareness-raising activities and a sub-project to modernize hydro-meteorological information and forecasting systems in Central America and Mexico are planned.	Not yet implemented.

A few training workshops and seminars have begun to familiarize field staff with IDB policy and instruments for disaster risk management. The first of these training workshops was held in Manizales, Colombia, in 2001; the second was held at IDB headquarters in Washington, D.C., in 2002. Other non-financial disaster risk management activities have been coordinated the Department of Sustainable Development, such as a regional policy dialogue, a paper series on disaster risk management, and ongoing evaluations of disaster risk management policy. Such non-operational activities aim to build the Bank's knowledge base about disaster risk management. However, the degree to which this knowledge promotes the development of IDB natural disaster-related instruments or the provision of natural

disaster-related services is unclear. Interviews suggested a gap between IDB instruments and services that focus almost entirely on emergency response, and a widely-held acceptance that disaster risk reduction activities may provide a more effective long-term solution for borrowing member countries with high risks from natural disasters.

Additionally, cooperation with other agencies serves as a mechanism for sharing research findings and lessons learned about disaster risk management in LAC. Country interviews indicated that the most effective cooperation had occurred when IDB had worked with other organizations in the coordination and pooling of resources for natural disaster-related projects. IDB has undertaken a few such activities with multilateral financial institutions like the World Bank, NGOs, governmental organizations in Europe and Asia, or the U.S.

Cooperation with international financial institutions

The IDB has also been visible among international financial institutions in pushing forward disaster risk management concepts through international conferences, studies, and meetings, in which IDB experts regularly participate (IDB, 2002d; IDB, 2002e). Contact with organizations such as the World Bank occurs on an informal basis as well, and IDB natural disaster-related research, particularly the Action Plan, is frequently cited (Freeman *et al.*, 2001).

Low awareness in borrowing member countries for non-financial activities

However, gaps exist between activities largely implemented in Washington, D.C. and the awareness of the measures in borrowing member countries. Country interviews indicated a low awareness of outcomes of IDB non-financial activities such as e.g. the Regional Policy Dialogue. Although disaster risk management concepts as described in the Action Plan are vaguely recognized (though the Action Plan as a document has not been recognized) they are rarely implemented. Interviewees also showed little awareness of research on risk transfer tools for financing disaster risk management, or IDB non-operational activities such as training workshops.

4.5. Relevance, coherence and usefulness of OP-704 and Action Plan to country activities

Incentive structure for disaster risk management

Through the instruments described in this chapter, the IDB provides mechanisms intended to foster effective disaster risk management. According to the main objectives of the OP-704 and the Action Plan, “effective risk management” includes activities throughout the disaster risk management cycle which *reduce future risk* and make societies less vulnerable to the negative affects of disasters. It is generally accepted that activities implemented before a natural disaster can be the most effective as well as cost-efficient in lowering disaster risk. This section examines the actual incentives that motivate countries to undertake certain types of disaster risk management activities. It provides insight into the degree to which IDB instruments used to implement the OP-704 and the Action Plan actually motivate countries to achieve “effective risk management.”

To better understand the pattern of disaster risk management choices, a spectrum of incentives was identified for the IDB and borrowing member countries. Table 7 lists hypotheses on how incentive structures would affect these choices. Based on these hypotheses, the effects of incentives provided by policy guidelines (OP-704 and the Action Plan), and operational/non-financial activities at the IDB, were examined.

Table 7. Incentives that motivate disaster risk management activities at IDB and in borrowing member countries.

The focus has been divided into disaster risk management at IDB and in the borrowing member countries, respectively. Incentives for motivation are based on hypotheses on how incentive structures would affect choices of disaster risk management strategies.

Focus	Incentives that motivate disaster risk management choices
Disaster risk management at the IDB	<p>Hypothesis: Disaster risk management behavior and activities within the IDB respond to a series of internal incentives including</p> <ul style="list-style-type: none"> • Stress put on central activities of the Bank (creating and managing loan-related activities); and • Project evaluation criteria.
Disaster risk management in borrowing member countries	<p>Hypothesis: Disaster risk management behavior and activities in countries respond to a series of external incentives such as IDB instruments and resources, as well as domestic incentives (political and institutional factors) including</p> <ul style="list-style-type: none"> • Ease of getting resources, including familiarity with channels to secure resources; • Amount of time it takes to get resources; • Political considerations; • Public visibility of disaster risk management activities; • Ability to achieve consensus to undertake this activity; and • Ability of activity to reduce future risk.

Incentive structures affecting IDB disaster risk management choices

Only a few qualitative IDB incentives for disaster risk management exist

Incentive structures for the IDB are related to the ability of departments and teams to successfully manage projects. Several interviewees indicated that it was deemed more beneficial to feature many large projects focused on areas of importance to the Bank in a team’s portfolio rather than to work on (small) projects for appropriate design and implementation of pre-disaster activities. Responses in interviews indicated that IDB operational staff face incentives related to size and type of project, as well as the fit of such projects into overall development priorities. Interviews at IDB headquarters indicated that on a day-to-day basis, the driving incentive for professional behavior in operational areas was the design, processing, and implementation of projects (loans).

Few incentives exist for field offices to promote IDB policy on disaster risk management. Representatives evaluate field office activities according to aspects such as the number of projects and quantity of resources disbursed. Current project evaluation criteria do not incorporate or pertain to disaster risk management, and can be easily overlooked in day-to-day activities.

Incentive structure affecting borrowing member countries disaster risk management choices

IDB-Disaster risk management not a priority in IDB-country dialogue

The most powerful IDB incentives discussed above encourage LAC countries to focus on emergency response. In relations with the IDB, country dialogue is set on mutual priorities, and in this regard disaster risk management ranks low for both parties. Additionally, interviews at the IDB suggested that project design and evaluation criteria did not require rigorous consideration of disaster risk management, thus weakening this issue in the dialogue. For countries faced with natural disasters, the incentives that motivated action to the greatest extent involved the ease of getting resources, timing, political considerations and visibility, and the ability to achieve consensus. In contrast, the conviction that particular activities could reduce risk from future disasters appeared to be a weak encouragement.

The ability to achieve consensus affects country decisions on disaster risk management

The ability to achieve consensus on what type of activities should be undertaken also affects disaster risk management choices. Interview responses indicated that saving human lives (a key facet of emergency response), and reconstruction activities enjoy high levels of consensus. Pre-disaster activities tend to face greater obstacles in gaining support due to lack of urgency, an abundance of competing ideas about priorities, and a low level of knowledge of appropriate disaster risk reduction measures. Additionally, while countries often receive technical and other forms of external assistance following disasters, the types of information needed to achieve decision-making consensus on pre-disaster activities and risk reduction are difficult to obtain. The ability to manage natural disasters requires personnel and an integrated strategy with planning capability, something many respondents indicated as lacking. Additionally, countries need technical support and resources before disasters to create disaster risk management capabilities such as risk analysis, value-at-risk studies, and better understanding of the economic and social impacts of natural disasters. Without these technical capabilities, the possibilities of achieving consensus appear limited.

The “conviction that disaster risk management reduces risk” motivates prevention

The potential of reducing future risk from natural disasters is a relatively weak incentive. In countries recently affected by major natural disasters, such as Hurricane Mitch or the El Salvador earthquakes, awareness of the need to reduce disaster risk was relatively high. Respondents from these countries noted that “the conviction that disaster risk management reduces risk” motivated their country to undertake pre-disaster activities. However, several interviewees noted that because many disincentives (difficulty of obtaining resources, lack of institutional and technical capacity, and lack of public visibility) threaten the effectiveness of many pre-disaster activities. Evidence from past events suggests that—even with scientific support—this conviction can be a weak incentive to action. For example, in spite of mounting scientific evidence of imminent catastrophic eruptions of Mount Pinatubo in the Philippines in 1991, local communities still undertook no risk reduction measures to protect themselves (Gilbert and Kreimer, 1999). Aside from a conviction that pre-disaster activities could reduce risk, respondents indicated that few incentives exist for pre-disaster activities such as those contained in the vision of OP-704 or the Action Plan.

From OP-704 to the Action Plan

OP-704 and the Action Plan are intended to complement each other in providing guidelines for the IDB and borrowing member countries in disaster risk management activities. This section examines the degree to which the two documents actually complement each other, both in vision and implementation.

To begin the discussion it is helpful to understand the difference in “policy” and “action plan” in guiding IDB activities. Three levels of guidelines are outlined at the Bank: (i) policies (such as OP-704), (ii) strategies, and (iii) action plans. Policies generally have a greater weight in guiding IDB activities than do strategies and action plans. Policies are binding and guide the Bank’s activities in a specified area, although they leave many components unspecified. Strategies are not binding and contain a greater degree of detail. Action plans are not binding and provide the greatest level of detail but tend to carry the lowest weight in guiding IDB activities. These three levels are intended to be coordinated and coherent. For example, both OP-704 and the Action Plan concur with international findings on effective disaster risk management (especially regarding prevention and mitigation). OP-704 provides a broad description of these standards and encourages IDB activities and operations to conform to these standards, while the Action Plan details the vision of comprehensive disaster risk management and provides six key areas for action, which the Bank and borrowing member countries could use to develop disaster risk management activities. Close coordination of disaster risk management activities at the Bank and in borrowing member countries based on the vision promoted in the

Action Plan may not be fully effective due to the different positioning of the OP-704 and the Action Plan within IDB's hierarchy.

Interviews with IDB staff indicated that

“[...] policy guidelines are particularly important for larger projects, such as infrastructure.”

Project teams include components of policies if the Bank places priority there in order to gain project approval. For example, a review of biodiversity activities undertaken by IDB revealed that the majority of projects were actually road and transportation projects with built-in environmental components. The weakness of present evaluation mechanisms raises the serious question to which degree such projects actually fulfill the vision of specific action plans for the environment, natural disasters, or any other specific areas.

An examination of the OP-704 and the Action Plan reveals some inconsistencies between the vision promoted and the actual implementation to achieve this vision. The degree, to which project teams use the Action Plan in designing and implementing projects, even when they are aware of the Action Plan, is not clear. This can lead to inconsistencies in policy and Action Plan. For example, the Action Plan defines *risk identification* as a mechanism for incorporating disaster risk management into IDB projects; yet it is not a common facet of disaster risk management activities, either in IDB projects or activities undertaken by countries. While both the OP-704 and Action Plan promote a vision of proactive disaster risk management and a greater emphasis on a range of pre-disaster activities of risk reduction, current implementation tools and practices do not reflect this vision. The general tools provided by the OP-704 focus implicitly on emergency response, rather than encouraging a more comprehensive management of disaster risk, including risk reduction as suggested in the Action Plan. The OP-704 does not provide specific instruments to implement the six areas of the Action Plan, although some initial efforts in non-operational activities have occurred.

While the OP-704 guides actual project formulation and implementation, the more detailed vision of the Action Plan may often be overlooked in natural disaster-related projects. Awareness of the Action Plan among IDB staff and borrowing member countries appears low, limiting the ability to implement its comprehensive disaster risk management strategies, and further impeding effective evaluation of the impact of IDB disaster-related activities in borrowing member countries.

Awareness for OP-704 and the Action Plan

Low awareness of IDB policy and instruments for natural disaster-related activities

To effectively guide disaster risk management behavior, IDB field offices and key institutions in borrowing member countries need some knowledge about OP-704 and the instruments available to implement the policy. Interviews revealed a low level of awareness of IDB policies on natural disaster risk management. Comments by most representatives also reflected a low level of awareness and strategic vision of IDB disaster risk management policy and its relevance for day-to-day country operations. In most cases, field offices that are aware of disaster policy had requested assistance due to recent major natural disasters (e.g. Nicaragua, Honduras, and El Salvador). Likewise, field offices in countries that had experienced recent disasters were aware of specific instruments related to emergency response like ERF and practice of reallocating existing IDB project resources (loan reallocation).

IDB instruments related to disaster risk management appeared largely unknown in field offices and key country institutions. Less than 10% of in-country respondents were familiar with the processes and rules for use of instruments other than ERF

and loan reallocation. Even a smaller number of respondents was familiar with the spectrum of IDB instruments for natural-disaster related activities, and indicated that non-ERF instruments were deemed to have unclear eligibility requirements and often required new loan approval processes.

Post-disaster instruments favored due to streamlined processes and clearer rules

OP-704 and the Action Plan do not provide sufficient motivation for the IDB and for borrowing member countries for implementing relevant strategies. Some 80% of questionnaire respondents felt that the IDB reacted “moderately” to “very effectively” to emergency response needs of a country; pre-disaster activities were considered less effective. Interview responses indicated that countries employ IDB instruments with streamlined processes for obtaining resources and instruments whose rules for use are clear. The pre-disaster objectives of OP-704 were also perceived to be less clearly defined than instruments leaning towards post-disaster replacement of losses. OP-704 discusses most instruments in conceptual terms while the ERF is discussed in terms of exact procedures and processes. Interviews suggest that only the ERF and loan reallocation are developed to a motivating degree. In particular, the streamlined approval and resource disbursement process makes the ERF attractive. Countries that had used this instrument were very positive about its ability to respond quickly to emergency response needs, which however is already partly rooted in their tendency to prefer reactive over proactive natural disaster-related strategies.

Finally, no effective instrument exists specifically as to assist reconstruction apart from short-term exigencies. Interviews implied that many reconstruction projects insufficiently accounted for pre-existing risks and re-built vulnerabilities. In El Salvador, e.g. the municipality of Cuscatancingo implemented an IDB reconstruction program (utilizing the ERF) for earthquake victims. The program provided provisional building materials such as tin roofing to quickly re-establish shelters. Due to lack of resources and restrictions in space, houses were often rebuilt only partially and in the same hazard-prone areas. The director of reconstruction services for the community noted that while the activity provided immediate shelter and relief, the precarious structures remained in a very vulnerable state. The imbalance of IDB tools to implement OP-704 limits the effectiveness of the policy. In light of the vision promoted by the Action Plan and (ideally) implemented by OP-704, however, current disaster risk management policy of the bank is not effective.

Field offices tend to place low priority on promoting and implementing disaster policy in non-disaster periods

The role of the field offices affects how effectively the policy guidelines reach country counterparts. IDB guidelines on disaster risk management were given low relevance in overall country relations and generally did not include natural disaster-related issues in normal country dialogue.

The tendency not to promote the IDB’s policy guidelines on disaster risk management in borrowing member countries may be related to the IDB’s organizational structure, which casts field offices in a responsive role towards countries and IDB headquarters. Mission Representatives frequently forwarded the view that the role of field offices was to provide services to countries rather than guide countries in developing policy and action strategies. The general lack of awareness about IDB guidelines and instruments for disaster risk management in field offices may be a reason for this reactive Bank involvement.

The responsive character of field offices may impede the active fostering of the development of national disaster risk management systems or including such issues in strategic dialogues with country officials. Some initiatives of this type have begun in Central America and the Andean Region, but generally require a more proactive role from the side of the Bank and its field offices. Interviews gave the impression that such IDB participation had been inexistent or very limited. 80% of

questionnaire respondents felt that IDB activities had a neutral effect on the development of national systems and policies for disaster prevention, while only 5% felt that IDB activities strengthened this aspect.

Some exceptions exist to this notion, such as Nicaragua's strengthening of local public health emergency response capabilities. Interviews in Nicaragua and Bolivia indicated that the IDB plays an important role in providing continuity in disaster risk management guidelines, especially in the face of constant change in political priorities and institutional landscapes in borrowing member countries.

Feedback from the field

To determine the extent to which the OP-704 and the Action Plan are useful guides to IDB activities and natural disaster-related management in LAC countries, the objectives pursued through the Bank's operational and non-financial agenda (found in IDB's OP-101 and OP-201) were examined. The focus here is on the degree to which IDB policy on natural disaster risk management defines lines of action related to disaster risk management in its operations, administration, and personnel. Ideally, the usefulness and relevance of the OP-704 and the Action Plan should be reflected in areas related to disaster risk management such as risk reduction, prevention, emergency response, rehabilitation and reconstruction, and risk finance.

OP-704 and the Action Plan provide clear guidelines for IDB's assistance to its borrowers: not fully met

First, the usefulness of OP-704 and the Action Plan for guiding *IDB assistance to its borrowers* is limited. Examination of country strategy papers, loan documents, and interviews at the IDB and borrowing member countries showed that disaster risk management does not play a role—either as a single consideration or within a larger development strategy—in the general directives. Yet it seems very common, both at the IDB and other international financial institutions, to disrupt normal assistance procedures. In a number of cases IDB natural disaster financing occurred in a somewhat uncoordinated and parallel manner with activities of other organizations. For example, after the earthquake in the Colombian Coffee belt in 1999, several countries, NGOs, and multilateral organizations contributed technical and financial support for reconstruction. In response to the Colombian government's request, the World Bank reallocated US\$ 100 million from four existing loans for redirection within 60 days. The IDB's responded with a TC and the identification of US\$ 390 million from six loans that could be reallocated to reconstruction (IDB, 1999a). Disaster risk management principles from OP-704 and the Action Plan do not appear to provide general directives, help define development strategies, or to guide operational decisions at IDB.

OP-704 and the Action Plan help promote social and economic development strategies: not fully met

Second, Country Papers (CPs) do not treat disaster risk management as part of an overall development strategy. CPs following Hurricane Mitch e.g. mentioned the disaster damage incurred, yet failed to identify a strategy using OP-704 to address future needs for disaster risk management. Approximately 49 operational activities with natural disaster-related components were identified, out of a post-1995 portfolio of 655 projects (see Chapter 5.2 Table 11) —a period of time in which OP-704 may have provided some guidance for operational decisions. Closer examination of these disaster components revealed that these components were largely related to post-disaster activities such as emergency response and reconstruction. The emphasis in many projects was not directly related to objectives outlined by OP-704.

OP-704 and the Action Plan provide a guide for operational decisions (IDB, OP-101): not fully met

Third, the usefulness of OP-704 and the Action Plan for guiding *operational decisions and activities related to natural disasters* at the IDB is limited. Interviews with IDB personnel in Washington, D.C., and in field offices acknowledged that while the impacts of disasters were very serious, disaster risk management took a

4. OP-704 and Action Plan

low current priority relative to other IDB project foci, such as economic and social goals. Field officers noted that

“[...] specific disaster-related activities—such as disaster risk mapping and analyses, the improvement of infrastructure maintenance, and early warning systems—were needed to enhance economic and social development in their country”;

yet these same respondents described themselves as unfamiliar with the IDB’s policy on disaster risk management. This unfamiliarity raises the question of how the OP-704 or the Action Plan could provide an impetus for disaster risk management.

OP-704 and the Action Plan influence the IDB’s strategy vis-à-vis each borrowing member country and sub region: not fully met

Fourth, the OP-704 and the Action Plan appear to only moderately affect the formulation and implementation of the IDB’s operation program. The policy itself dates from the mid-1990s and, although many projects now contain disaster risk management-related components most are either in the approval process or are so newly implemented that evaluation of efficacy is difficult. The borrowing member country demand for the type of disaster risk management suggested by OP-704 and the Action Plan currently appears low, mostly due to the prevailing lack of awareness and appropriate incentives to act beyond emergency response. Tools that coincide more with the visions in OP-704 and the Action Plan are not known or utilized in IDB field offices. Rare exceptions came in instances where countries had recent experience with natural disasters and loans had been reformulated or reoriented, and where the emergency response and reconstruction funds had been used.

OP-704 and the Action Plan help the IDB define areas for priority action to foster the economic and social advancement of the country or sub-region: not fully met

Fifth, the OP-704 and the Action Plan do not seem to assist the IDB in defining areas for priority action to foster the economic and social advancement of the country or sub-region.

Interviews with IDB staff confirmed the view that disaster risk management is not yet a pervasive part of overall strategies at the Bank, be it in development strategies in partnership with borrowing member countries or operational activities like project design and implementation. One third of respondents felt that IDB activities discouraged effective reduction of natural disaster vulnerability for the poor, while half of respondents said that IDB activities tend to discourage the participation of the private sector in disaster risk management.

4.6. Credit and Mission risk

The purpose of operational and non-financial measures is to help countries improve disaster risk management and ultimately reduce disaster risk. These measures should also reduce the Bank's exposure to credit risk and mission risk. Credit risk results from country practices, and is usually a failure or the inability to adequately secure necessary resources to manage natural disaster exposure. Mission risk results both from a country's post-disaster finance practice as well as a widely used practice among IDB project managers and field offices.

Credit risk

Credit risk for IDB: Disasters may cause countries to miss repayment schedules

Broadly defined, credit risk is the possibility that a borrower will fail to repay principal and interest in a timely manner (Wright, 1997). Borrowing member countries expose the IDB to credit risk by obtaining credit and guarantees from its Ordinary Capital (OC). Bank Management, in turn, needs to implement a series of measures related to the mitigation of financial risks associated with the quality of the loan and guarantee portfolio. Current financial policies are contained in the Capital Adequacy Framework, approved by the Board of Directors in December 2002.

Review of the credit risk issues associated with natural disasters shows that such events could pose an obstacle to credit repayment schedules (Gilbert and Kreimer, 1999; IMF/IDA, 1999; Otero and Marti, 1995). Disasters can potentially damage capital stock and productive capacity up to a degree that a country may not be able to meet both its debt repayment schedule and finance necessary disaster risk management activities.

Credit risk increases in countries that are vulnerable to natural disasters and economic disruptions. Such countries may face the problem of financing major disaster losses, which in turn compromises their ability to pay back loans to multilateral financial institutions. Turkey provides an example of the relationship between credit risk and natural disaster exposure (see Box 6). The 1999 Izmit earthquake occurred at a time when Turkey was attempting to undertake significant structural reforms, which were to involve fiscal discipline such as selected tax increases, anti-inflationary policies, and restricted government spending. To meet IMF lending criteria, Turkey had committed itself to reduce budget deficits and inflation.

Box 6. Credit Risk – the example of Turkey after the 1999 Izmit earthquake.

The occurrence of a high-magnitude earthquakes such as the 1999 Izmit event, Turkey, had been predicted with increasing reliability. Moreover, policy-makers and society were largely aware of seismic risk in regularly affected areas. However, only few effective provisions were made to either protect human lives or to mitigate the economic impacts that a major earthquake could cause. The Izmit earthquake that struck Turkey on August 17, 1999, caused approximately 18,000 deaths, left more than 500,000 homeless, and devastated the country's industrial core, which produces over 40% of Turkey's tax revenues. Estimated direct costs of the earthquake range between 5 and 10% of GDP (IMF, 1999). When the earthquake occurred, the government had made no other provision to finance disaster losses than to pay for these losses itself. Private households faced overwhelming losses and no means to restore lost assets, since both private and public infrastructure was largely uninsured, with no more than 15% insurance penetration for homeowners in Istanbul. Local governments relied almost entirely on the Federal Government to provide emergency response equipment, to pay for reconstruction, and to finance almost all natural disaster-related activities. The then-current Disaster Law obligated the government to finance reconstruction of destroyed capital stock, which amounted to US\$ 6 billion for private housing alone (Gülkan, 2002). Business damage and physical loss of capital has been estimated at between US\$ 3-6.5 billion and caused Turkey to request emergency financing from several multilateral financial institutions (IMF, 1999). This money was later raised through loans from the World Bank and European Investment Bank as well as from national resources.

To avoid defaulting on its loans and maintaining the structural reform program, Turkey received emergency credit lines to avoid a potential financing crisis exacerbated by the earthquake. Within days of the event, the IMF had approved a US\$ 501 million relief package and softened loan repayment schedules (IMF, 1999). Similar actions were undertaken by the World Bank and other multilateral financial institutions to help Turkey avoid defaulting on credit repayment. These emergency financing actions, however, endangered Turkey's future economic and financial stability, and may have heightened credit risk. Within one year of the 1999 earthquakes, Turkey began experiencing acute financial problems and political trouble as citizens protested structural reforms at a time when the public felt the government should use expansionary policies to aid in earthquake recovery. This led to difficulties in meeting credit payments to multilateral financial institutions due to the lacking capability to absorb the financial post-disaster shock in an already fragile national economy.

Source: (Gülkan, 2002; IMF, 1999)

Mission risk

At the operational level, the concept of mission risk encompasses the possibility of not achieving the developmental objectives and sector priorities proposed by the Bank mutually agreed upon with the borrowing country, within the overall operational strategy. Mission risk is associated with substantial changes to the operational program (loans and TC) or the reformulation of existing operations () that could affect IDB assistance to the country during a given period of time. Loan reallocation could be a key potential source of mission risk considering that the projects approved by the Bank are chosen to perform a critical role in achieving the strategic goals agreed to with the borrowing governments.

Box 7 explores how the current practice of loan reallocation affects priority actions for such developmental objectives.

Box 7. Impact of loan reallocation on development objectives.

In coordination with borrowing member countries' governments, the IDB defines developmental objectives for its projects and other activities. Loan approval depends somewhat on the degree to which proposed projects respond to developmental priorities of the country and the mandates that the Bank receives from the Governors. Modifications to the existing operations and project pipeline can have a critical impact on the developmental objectives. Fiscal consequences of a natural disaster e.g. may cause a government to re-evaluate investment priorities, including projects financed with IDB participation. As a result of the review, the government may decide that at least some of the investments will be suspended or delayed, while others maybe scaled back to a smaller and financially more viable operation (Often the loans chosen for reallocation correspond to operations that either have severe problems in their execution, or those already selected for cancellation.) Project funds are deducted and channelled towards natural disaster-related activities.

Disaster-related projects, particularly those with pre-disaster elements such as prevention and mitigation, are subject to mission risk. Mudslides and El Niño-related weather patterns e.g. threaten Ecuador's coastal highway. Although a post-emergency construction and financing plan was discussed, a short-term reconstruction project focusing on the initial emergency was started. Post-emergency measures fell short of providing any long-term risk mitigation or prevention, since financing was only provided for studies related to short-term road rehabilitation. There is no evidence of any prior policy discussion regarding the prevention or mitigation of damage to the country's infrastructure during El Niño events. As in other cases, the Bank set aside money for prevention; but over the course of that loan's execution, the money was reallocated by the government to more immediate concerns.

The practice of reallocating resources from projects to immediate disaster risk management needs may help countries in the short-run but also hinder their pursuit of longer-term developmental objectives. Several interviews indicated that the developmental opportunity cost of loans that go unexecuted can be serious. Few individuals could quantify the level of opportunity cost, nor do project or country documents evaluate this item. The process of loan reallocation appears somewhat informal, and project evaluation procedures do not capture either the practice or the consequences. This lack of relevant evaluation limits the ability to assess the developmental impacts of loan reallocation to the IDB and its borrowing member countries.

However, interviews and questionnaires did indicate that development opportunity costs of projects foregone could be negative for borrowing member countries. The comments of one former Jamaican finance minister illustrate the point that loan reallocation can provide both a blessing and a burden for borrowing member countries.

"My country needs resources to finance disaster-related activities, and the loan reformulation process provides a helpful, flexible, and timely manner of accessing these funds to meet immediate disaster response needs. However, if my country does not plan disaster finance on its own, and if loan reformulation is utilized, as a matter of course to finance disaster needs, then important projects are never fully executed. These projects could improve productivity, reduce poverty, enhance economic performance [...] help my country develop. But the combination of constant disaster shocks, our lack of financial preparation for these shocks, and the ease and availability of loan reformulations can hinder real development progress".

A review of the loans reformulated during 1995-2002 (partial list in Table 8) suggested an inclination to select operations that ostensibly will continue to disburse in the same sector in order to avoid approval processing that could delay the redirection of funds. Also, at times, the selection of projects for reformulation may be influenced by considerations related to bidding and procurement: in some of the cases reviewed, the reassignment of funds appeared to create an opportunity for speeding up the operation by taking advantage of the Bank's simplified emergency procurement rules.

Table 8. Loan reformulation on natural disasters, 1995-2002 (preliminary).

Countries do not included in this table reportedly have no identified emergency programs with reassignment of resources from existing loans. Source: IDB/OVE

Country	Loans	Amount US million)	Comments
AR	795/OC-AR	35.00	Approved by the Board of Executive Directors. Problems with the execution of the emergency program.
BL	1189/OC; 1211/OC-BL.	2.00	Approved by the Board of Directors. Good execution.
CO	774/OC; 863/OC; 1075/OC.	133.70	All transfers approved by the Board of Directors.
EC	596/OC-EC; 874/OC-EC; 892/OC-EC; 978/OC-EC; 834/SF-EC; 900/SF-EC; 913/SF-EC; 919/SF-EC	34.20	Approvals were made by Board of Directors. Execution of projects could be rated as normal.
ES	731/OC-ES; 838/OC-ES; 839/OC-ES; 840/OC-ES; 886/OC-ES; 919/OC-ES; 920/OC-ES; 1041/OC-ES; 1067/OC-ES; 1092/OC-ES; 1004/SF-ES; 1100/OC-ES.	169.20	Approvals by Board of Directors. Execution of emergency projects could be rated as normal. Loans included by the Country Office in this table are only those that had transfers approved during the first half of 2001.
HO	906/SF-HO; 981/SF-HO; 1024/SF-HO; 1029/SF-HO; 1037/SF-HO;	59.2	Two of these reformulations (US\$7.0 million) were approved at the level of the Regional Manager and the other 3 loan reassignments were approved by the Board of Directors.
JA	1028/OC-JA	0.65	According to the Country Office, they have not had reassignments from existing loans during the period 1995-2002. However, the ERF (2001) loan reported this transfer and indicated that other transfers could be made by Management.
PE	1150/OC-PE	2.50	Approved by Management. Program execution shows delays as compared with the original schedule.
VE	696/OC-VE; 732/OC-VE; 779/OC-VE; 818/OC-VE; 928/OC-VE.	154.4	Of the total amount reassigned, only US\$13.7 were disbursed. The borrower did not sign the amendments of two of the 5 contracts for an amount of US\$100.0 million. The reassignments had a negative impact in those loans that finally maintained the original amounts. Reassignments were approved at the Regional Manager level.

The precise destination of the reformulated resources is not spelled out in the documentation that accompanies the request for approval of the reformulation. The resources are typically said to be devoted to the on-going rehabilitation/reconstruction effort, augmenting monies made available through the IRF and possibly other loans. But, as determined by OVE, detailed, functional budgets governing the deployment of the reformulated funds are not constructed. The PPMRs, in turn, are not informative about the use of reformulated funds and the results thereby obtained.

5. Evaluation of IDB's de facto disaster risk management strategy related to natural disasters

5.1. Introduction

In this chapter a closer look at IDB's de facto disaster risk management strategy has been undertaken. To do so, all programming papers (Country Papers) and programming memoranda, programming mission reports, annual reports, programming memoranda, loans, and Technical Cooperations have been examined for the period 1995-2002. All IDB regular loans have been briefly examined for the whole period based on the annual reports. Relevant projects have been selected and have been named a "natural disaster loan" if the description in a report was seemingly related to natural disaster phenomena. This rough selection resulted in a total of 49 projects related to natural disasters, which have been examined in greater detail, followed by an analysis of mission and credit risk. Finally, the evaluability and efficiency of implementation of IDB's natural disaster-related portfolio has been reviewed.

5.2. Inventory of the Bank's action in disaster risk management 1995-2002

Programming Papers (Country Papers, CPs)

Country Papers review socio-economic priorities in borrowing member countries

The Management of the Bank requires the preparation of several internal documents oriented to the identification of the key components of its developmental role in relation with the borrowing member countries. The review of the economic and social priorities of each country is performed through the preparation of Country Papers (CPs), which at the same time provide the elements to engage governments in a discussion regarding the financing priorities with the Bank. Development issues for the country, areas of emphasis, the Bank's portfolio, participation of others sources of financing, as well as the definition of the instruments to be used by both the country and the Bank during the next three to five years are also included. This study analyzed all CPs prepared during the period 1995-2002 to evaluate the approach used by the Bank on natural disaster matters.

To verify the Bank's approach in this respect, the most recent Country Paper (CP) produced during the 1995-2002 timeframe for each of 24 countries (all borrowers except Haiti and Trinidad and Tobago) was reviewed. As shown in Table 9, despite the presence of important disaster-induced economic losses in recent years in most cases, CPs almost never mention disaster risk reduction and risk management in the context of the development strategy discussion that (to a degree) is advanced in each of them. The two exceptions to this rule, as per Table 9, are the most recent CPs for Belize and the Dominican Republic, respectively.

Table 9. Country papers and disaster risk management.

Most recent country paper in the period 1995-2002.

	Country	Natural Disaster Losses 1995-2002 US\$ billion ¹	CP	YEAR	DRM ² as part of development strategy vision	"Prevention" mentioned
1	Argentina	12.95	GN-2140-1-E	2001		
2	Bahamas	0.57	GN-2141-1-E	2001		X
3	Barbados	0.16	GN-2051-1-E	1999		
4	Belize	0.35	GN-2019-2-E	1999	X	X
5	Bolivia	3.49	GN-2036-2-E	1999		
6	Brazil	17.48	GN-2104-1-E	2000		
7	Chile	4.17	GN-2134-1-E	2001		
8	Colombia	6.51	GN-2052-1-E	1999		
9	Costa Rica	1.09	GN- 1982-3-E	2000		
10	Dominican Republic	2.93	GN-2153-3-E	2001	X	X
11	Ecuador	2.55	GN-2169-1-E	2001		
12	El Salvador	5.08	GN-2121-3-Rev-S	2001		
13	Guatemala	3.36	GN-2149-3-E	2001		X
14	Honduras	2.70	GN-2070- 1-E	1999		
15	Jamaica	3.04	GN-2025-E	1998		
16	Mexico	15.69	GN-2181-1-Corr-E	2002		
17	Panama	0.12	GN-2136-1-E	2001		
18	Paraguay	0.15	GN-2118-1-E	2000		
19	Suriname	n/a	GN-2080- 1-E	2000		
20	Uruguay	0.32	GN-2119-1-E	2000		
21	Venezuela	2.27	GN-2081-3-E	2001		
22	Guyana	0.03	GN-2228-1-E	2002		
23	Honduras	2.70	GN-2238-1-E	2003		
24	Nicaragua	2.73	GN-2230-1-E	2003		
25	Peru	3.94	GN-2205-1-E	2002		X

¹ based on EM-DAT
² DRM: disaster risk management

Programming Memoranda

Programming Memoranda annually identify loans and TCs; basis for policy discussions

The Programming Memorandum is the second instrument used by the Bank to focus on the development mission. It is prepared annually and intended to identify loans and TC programs for up to three years, while providing the basis for policy discussions to be held with the government during the Bank's country visit. In this study, all programming memoranda prepared by the Bank for the seven selected countries, and countries affected by natural disasters during the period 1995-2002 were reviewed.

Non-Financial Products: Policy Dialogue Papers (PDP)

Policy Dialogue Papers identify policy matters to be discussed with national authorities

Policy Dialogue Papers (PDP) are briefing papers prepared by Management under the leadership of the Senior Economist of the respective Regional Department, to identify policy matters that are important to discuss with the national authorities. The timing for these papers is defined by presidential elections. Between 3 to 6 months before presidential elections, the Bank starts the preparation of the paper. During the first 90 days of the new government, the Bank will have a closed-door, high-level meeting, usually including the new President and Ministers, as well as other personalities that will be involved with the formulation and implementation of the national policies. During the last three years the Bank has prepared papers for most of the countries in the region, including all Central American countries.

IDB Loan Portfolio

665 projects of a total of US\$ 57 billion in loan projects

The Inter-American Development Bank approved over US\$ 57 billion in loan projects (hereafter also called projects or programs) in Latin America from 1995 to 2002 (Table 10). This includes a total number of 665 projects. 70 (or 11%) of these projects are seemingly related to natural disasters. 7 of these projects are located in the Caribbean, 36 in Central America, 24 in South America and 3 are sub-regional programs where several countries have been included.

Table 10 divides the projects into several categories that are seemingly related to Earthquake, Windstorm, Flood, and general Natural Disaster Projects. The category titled „seemingly related to Natural Disaster“ includes projects that often deal with soil stabilization against erosion or reconstruction of damage caused by forest fires. It also features general transfer programs where only a small percentage of the loan sum had been allocated for damage recovery or disaster prevention measures like education for effective national disaster risk management.

Table 10. Annual Reports Summary between 1995-2002

Total loan sum in US\$ million, () = number of IDB projects seemingly related to natural disasters; * = incl. Panama. About 6.7% of the total regular loans approved for the LAC region have been seemingly related to natural disasters. In the Caribbean and Central America, most loans were allocated for windstorm-related damage, whereas in South America resources have predominantly been allocated for flood-induced damage. Mexico has received the highest amount (US\$ 365 million) for a single (seemingly flood-related) project in the whole LAC region.

Country	seemingly related to Earthquake	seemingly related to Windstorm	seemingly related to Flood	seemingly related to Natural Disasters (general)	loans total seemingly related to Natural Disasters
The Bahamas		21 (1)			21 (1)
Barbados			17 (1)		17 (1)
Dominican Republic		105 (1)		5 (1)	110 (2)
Guyana				27 (1)	27 (1)
Haiti			16 (1)		16 (1)
Jamaica					
Suriname					
Trinidad and Tobago				28 (1)	28 (1)
Total Caribbean		126 (2)	33 (2)	60 (3)	219 (7)
Belize		41 (2)			41 (2)
Costa Rica					
El Salvador	193 (5)			148 (4)	341 (9)
Guatemala				260 (7)	260 (7)
Honduras		211 (7)		28 (2)	239 (9)
Mexico			365 (1)		365 (1)
Nicaragua		73 (2)		125 (5)	198 (7)
Panama				15 (1)	15 (1)
Total Central America* and Mexico	193 (5)	325 (11)	365 (1)	576 (19)	1'459 (36)
Argentina			550 (2)		550 (2)
Bolivia			26 (1)	66 (3)	92 (4)
Brazil			280 (4)	330 (2)	610 (6)
Chile					
Colombia	20 (1)		250 (1)		270 (2)
Ecuador			159 (3)	50 (2)	209 (5)
Paraguay			35 (1)		35 (1)
Peru	20 (1)		270 (2)		290 (3)
Uruguay					
Venezuela			20 (1)		20 (1)
Total South America	40 (2)		1'590 (15)	446 (7)	2'076 (24)
Regional				57 (3)	57 (3)
Overall Total	233 (7)	451 (13)	1'988 (18)	1'139 (32)	3'811 (70)

In order to assess the appropriate distribution of resources, the allocation of total loan sums by natural disaster category between 1995-2002 (Table 10) can be weighted against the relative long-term importance of each hazard category in the respective sub-regions, as expressed by total losses between 1975-2002 (Figure 1). In the Caribbean, 2 out of 7 projects with 57.5% of the total loan sum have been assigned for mitigating damage seemingly related to windstorms. This corresponds well with the high total loss predominantly resulting from these hazards between 1975-2002. In Central America, damage caused by earthquakes takes the highest proportion in the long term, but has only been allocated 13.2% (US\$ 193 million) of a total of US\$ 1'459 million, while loans for windstorm- and flood-related damage have amounted to 22.3% and 25.0%, respectively. In the South American sub-region, 76.6% (US\$ 1'590 million) of the total loan sum (US\$ 2'076 million) between 1995-2002 were dedicated to flood damage, which aptly reflects the importance of this disaster type in the long-term, although earthquakes and drought/famine have

5. Evaluation of IDB's loan portfolio related to natural disasters

in some South American countries caused considerable additional damage between 1975-2002.

In the Caribbean 8.2% of loan projects include a natural disaster component

In the Caribbean 7 out of 90 projects (7.8%) seem to include a natural disaster component. Two of these were wind and storm projects for the reconstruction of damage caused by hurricanes. For example, Hurricane George damaged over two-thirds of the Dominican Republic in 1998. Reconstruction and recovery projects for Hurricane George used 48% (US\$ 105 million) of the total loan sum allocated in the Caribbean between 1995 and 2002.

In Central America most projects deal with the Hurricane Mitch aftermath

Central America is the sub-region with the highest number of natural disaster projects. 36 of the 220 projects deal with natural disasters and risk management. 11 of these projects are wind storm projects. Honduras has received most support for these types of projects focusing mostly on damage recovery required after Hurricane Mitch (e.g. 3 of the 4 projects in 1999 were "Hurricane Mitch projects"). Between 1995-2002, there are 7 seemingly earthquake-related projects in the LAC region, with 5 of these projects located in El Salvador due to the damages resulted of the January and February 2001 earthquakes. Mexico has received the highest amount within one single "Natural Disaster project". Compared to other sub-regions, Central America has the highest number of projects (19) in the category "seemingly related to Natural disaster".

In South America flood programs are most important especially to mitigate El Niño-related damage

Nearly 55% of the total loan sum for IDB projects had been allocated in South America through 1995-2002. However, only 24 (6.9%) of the 343 projects are seemingly related to natural disasters. 15 out of the 24 programs are for damage protection against flood disasters. 6 out of the 15 flood projects aim to prevent or mitigate anticipated damage to infrastructure and services by the El Niño climatic phenomenon. In 1998 El Niño affected much of South America, especially Andean countries such as Peru or Ecuador, where relevant emergency programs have now been instigated. In Argentina, the highest sum was allocated to mitigate economic losses and repair damage to social infrastructure in six provinces for an El Niño loans program in 1998. The other flood projects deal with prevention and protection measures for flood control, like urban drainage systems or institutional support to develop a disaster prevention system in e.g. Brazil.

IDB-Projects with natural disaster components (1995-2002)

In the annual report 70 projects have been identified seemingly related to natural disasters for the period 1995-2002. In agreement with IDB and OVE, a closer look had been taken at 49 projects (Annex II and Table 11). One example is a tri-national program with El Salvador, Guatemala, and Honduras (CA-0034), which has been treated as separate national projects (Annex II). The projects have been analyzed in response to (i) Prevention, (ii) Emergency Reconstruction Facility (ERF), and (iii) Rehabilitation/Reconstruction. The 'logical framework' and the 'executive summary' of each loan document provided the base for the distinction into these three categories.

44 IDB loan projects including a natural disaster component cost 4.8 US\$ billion; only 1.8 US\$ billion has been disbursed as of December 2002

The total loan sum for these 49 projects was US\$ 6.4 billion, out of which about US\$ 3.2 billion were provided by IDB (Table 11). These projects are considered loan projects that provided money for any type of natural disaster projects. From the overall total loan sum, which includes contributions from IDB and other organizations and/or countries, US\$ 3 billion are considered for the natural disaster component. Overall, only US\$ 1.1 billion of the promised IDB loan sum has been disbursed as of December 2002.

Table 11. IDB regular loan projects with a Natural Disaster Component between 1995-2002.

The following countries members don't have a project with a natural disaster component: Guyana, Haiti, Trinidad and Tobago, Chile, Suriname, Uruguay and Costa Rica. *The tri-national program with El Salvador, Guatemala, and Honduras has been treated as three separate loan projects. The loans sums are US\$ 14 million for El Salvador, US\$ 4.5 million for Guatemala, and US\$ 3.3 million for Honduras.

Countries	Natural Disaster Losses 1995-2002 US\$ (million)	Number of Loans with Natural Disaster Component*	Total Loan Sum US\$ (million)	IDB Loan Contribution US\$ (million)	Natural Disaster Component (NDC) US\$ (million)	NDC %	Total IDB Loan disbursed as of Dec 2002 US\$ (million)	Total IDB Loan disbursed as of Dec 2002 (% of Total Loan Sum)
Argentina	3'586	2	1'000	550	862	29%	236	43%
Mexico	3'938	2	2'205	870	327	11%	3	0%
Ecuador	314	4	366	213	324	11%	133	62%
Nicaragua	1'127	5	449	250	290	10%	130	52%
El Salvador	2'862	7	456	350	288	10%	60	17%
Peru	1'504	2	235	170	212	7%	167	98%
Dominican Republic	2'419	3	184	158	184	6%	102	65%
Honduras	2'338	6	162	141	124	4%	76	54%
Guatemala	63	4	148	131	74	2%	40	30%
Belize	328	2	57	41	57	2%	26	62%
Bahamas	253	1	43	30	43	1%	7	23%
Paraguay	2	1	40	35	40	1%	26	73%
Venezuela	2'245	1	40	20	40	1%	11	54%
Bolivia	60	4	110	83	36	1%	27	33%
Colombia	3'253	1	36	20	36	1%	19	96%
Brazil	407	1	33	20	33	1%	20	100%
Jamaica	8'556	1	20	16	20	1%	5	29%
Barbados	unknown	1	24	17	17	1%	0	0%
Panama	14	1	47	42	4	0%	0	0%
Total	33'269	49	5'655	3'157	3'011	100%	1'087	34%

The differences between actual natural disaster losses and the loan distribution are huge. On the other side, some countries receive far more disaster-related loans than their disaster risk exposure would seem to warrant. For example, Paraguay suffered about US\$ 2 million natural disaster losses, but received a loan of US\$ 40 million (Table 11).

Emergency and rehabilitation/reconstruction still dominates

19 or 39% of the 49 examined loan projects are focused solely on natural disaster prevention (Table 12). The majority of projects is focused on expediting recovery efforts such as emergency response (16%), rehabilitation, and reconstruction efforts (45%) (Table 12). In the interviews held with IDB staff, it was indicated that the high priority assigned by the Bank to prevention activities however, has been concentrated in the financing of construction projects. Most of the time, the resources allocated to technical assistance during the execution of the project are redirected to construction (and reconstruction), leaving very little financing for institutional strengthening, training, studies, and other software initiatives. Interviews with Bank's people also revealed that loans dedicated to prevention risk to be at first redirected respectively reallocated to reconstruction (up to 2/3).

5. Evaluation of IDB's loan portfolio related to natural disasters

Table 12. Analysis of Loan Portfolio based on the Risk Cycle.

IDB loans are grouped by categories "Prevention", "ERF", and "Rehabilitation/Reconstruction". Nearly half (49%) of the total loan sums with a Natural Disaster Component have been allocated for rehabilitation and reconstruction, i.e. post-disaster activities. A similar amount has been allocated for prevention measures.

	Number of Loans	% of loans	Total Project loan Sum US\$ (million)	% of Total Loan Sum	Natural Disaster Component (NDC) of project loan US\$ (million)	% of NDC	IDB Loan Contribution US\$ (million)	% of Total Loan Sum	IDB NDC Contribution US\$ (million)	% of NDC IDB Loan Sum
Prevention	26	53%	3785	67%	1242	41%	1961	62%	969	47%
ERF	8	16%	193	3%	193	6%	139	4%	139	7%
Rehabilitation/Reconstruction	15	31%	1676	30%	1575	52%	1058	34%	940	46%
Total	49	100%	5655	100%	3011	100%	3157	100%	2047	100%

Reactive approach to natural disaster assessment

In general, LAC governments have taken a more reactive approach dealing with natural disasters in recent years. The level of investments tended to be concentrated immediately after a major natural disaster has occurred. Therefore, it is no surprise that 61% of the total loan sum has been assigned for emergency and rehabilitation/reconstruction projects (Table 12). The highest contribution for emergency projects has been allocated after major flooding and earthquake events in Argentina, Colombia, Ecuador, and Peru (Figure 10).

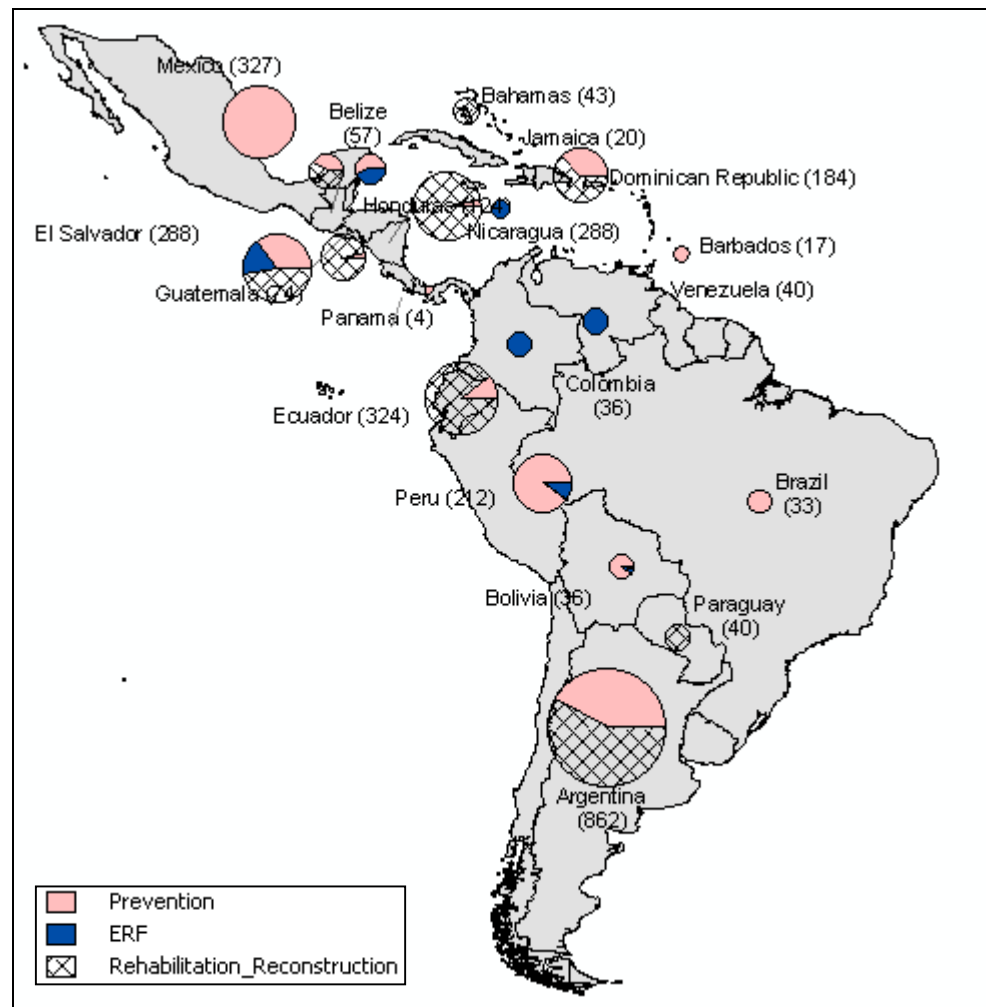


Figure 10. Sum of the natural disaster component of 49 inspected natural hazard loan projects distributed based on Prevention, ERF and Rehabilitation/Reconstruction.

The figures in brackets represent the total sum of natural disaster component in US\$ 3'011 million (Table 11). Rehabilitation/Reconstruction loans have been primarily allocated to Central America and Argentina, which also has received the highest natural disaster-related total sum of US\$ 862 million. Dominant expenditures for disaster prevention have e.g. been allocated to Ecuador, Peru, and Brazil, while Colombia and Venezuela have exclusively received loans for Emergency Reconstruction Facility (ERF).

During the period 1995-2002, 19 (36%) loan projects focused solely on natural disaster prevention (Table 12). Box 8 gives an example of preventive actions undertaken in Nicaragua.

Box 8. Example of Level of Natural Disaster Prevention Investment - Nicaragua

In 1998, Nicaragua incurred over US\$ 1.2 billion in direct economic loss as a result of Hurricane Mitch. As a result the Natural Disasters Law was enacted in 2000, creating a National System for Natural Disaster Prevention, Mitigation, and Management.

Amongst the preventative measures requested by the new system are forestry/agroforestry practices and the construction of channel stabilization structures. In support of this request a specific objective of the **Socio-environmental and Forestry Development Program II (POSAF II)** project in Nicaragua in 2001 was to reduce the impact of natural disasters. This project included three components; Sustainable natural resources management (US\$ 20.25 million), Community works for natural disaster prevention and mitigation (US\$ 4 million), and Capacity building and training for natural resources management (US\$ 3.5 million).

The primary objectives of the **Program to Fight Poverty and Strengthen Local Capacity** are to strengthen community and local government capacity for implementing and maintaining basic social infrastructure. As stated in the loan document, one benefit of the program is that it will support the creation of knowledge in land-use planning and natural disaster mitigation at the municipal level. The exact amount (total loan is US\$ 55.645 million) to be dedicated to natural disaster prevention is not specified.

The **Multi-phase Low Income Housing Program, Phase I** project includes US\$ 300,000 (total loan amount Phase I: US\$ 25.3 million) for the development of environmental risk maps. The preparation of these maps is financed with non-reimbursable resources from the Austrian Hurricane Mitch Disaster Assistance and Reconstruction Trust Funds. The maps will strengthen municipalities' capabilities to manage natural disaster risks.

Source: Inter-American Development Bank, Loan NI-0141 (2001), Loan NI-0108 (2000), and Loan NI-0064 (2002).

Investment in institutional/governance development is consistently included as either a preventative and/or mitigating component of a natural disaster loan. Levels of development range from helping a single government official specialize in upper-level policy making to strategy and planning activities supporting a municipality and Program Coordinating Unit to improve program management capabilities.

In spite of growing awareness, actual initiatives still focus on improving disaster response and less on prevention

The emphasis on institutional strengthening also supports the conclusion that the governments of LAC have adopted a more and more proactive approach to natural disasters. For example, the Government of Belize realized that after Hurricane Mitch the nation's agencies needed to improve the level of preparedness and responsiveness to a natural disaster. In 1999, the Hurricane Rehabilitation and Disaster Preparedness project allocated US\$ 2 million to improve the response capacity of the National Emergency Management Organization (NEMO) and other community organizations. The initiatives include:

- The design, implementation, and enforcement of building codes;
- Natural disaster analysis and risk assessment;
- An effort to improve public awareness, education and training programs for local civil preparedness;
- The development of disaster risk management plans; and
- An analysis to safeguard critical infrastructure and lifeline networks.

The initiatives funded by this project represent many of the efforts employed across most of the loan documents. Institutional capacity at the national, municipal, and local levels is a critical success factor in minimizing the impact of a natural disaster (see Box 9).

Box 9. Institutional capacity at the tri-national, national, municipal, and local levels (the Tri-national Trifino Plan).

In 2001, El Salvador, Guatemala, and Honduras signed a treaty on the implementation of the Trifino Plan. The Tri-National Program for Sustainable Development in the Upper Lempa River Basin project seeks to promote economic development in the area and break the cycle of poverty and degradation of natural resources.

Except as provided in the treaty for implementation of the plan, the actions initiated by the TPP, were continued by the Trinational Commission of the Trifino Plan (CTPT) with international support. The coordination among the authorities in the three countries is insufficient since there is no tri-national strategic plan for adequate natural resources management or disaster risk prevention.

To address the lack of coordination, this project directed US\$ 1.9 million to tri-national institutional strengthening. The component will focus on institutional capacity at all levels and will finance activities including: consultancies, modernization, manuals and regulations, technical assistance, training, social, environmental, and participatory diagnostic studies. Of equal importance to the project are facilitating the population's access to basic services, promoting of activities aimed at reducing of natural disaster risk, and supporting the municipalities in the design and implementation of development projects.

Source: Inter-American Development Bank, CA-0034 (2001)

Minimal participation of private sector and insurance companies in IDB loan projects

Minimal private sector participation was identified during this review. The private sectors role was primarily limited to the outsourcing of various management/oversight activities. No evidence was found of private sector participation in natural disaster-related activities. In addition, there had been no discussion of any natural disaster insurance mechanisms in the loans reviewed. While disaster risk is discussed in each of the loan documents, a disaster risk matrix was not employed to evaluate the project and recommend disaster risk prevention mechanisms.

Technical Cooperation (TCs)

US\$ 22 million have been allocated on TCs directed towards natural disaster risk where IDB paid 75%

The Inter-American Development Bank (IDB) supported 40 Technical Cooperation projects (TCs) in LAC with a natural disaster component for the period 1995 to 2002 (Table 13). A total amount of about US\$ 22 million has been allocated to these TCs, where IDB has contributed 75% (US\$ 16 million); local organizations and governments provided the remaining 25%. Table 13 provides an overview of TCs in the different sub-regions.

Most of the TCs are grant programs put in place right after natural disasters. In particular, Honduras received support for 4 projects after Hurricane Mitch. Honduras also has the highest number of TCs (7) of all LAC countries, and received the highest amount for windstorm-related projects (US\$ 2 million). On average there are one or two TCs per disaster category. The Natural Disaster (general) projects are often programs to strengthen and expand national Geographic Information Systems (GIS), which are rarely supported in regular IDB loans. IDB also supports some countries, which have not received any regular IDB loans with a natural disaster component during the period 1995-2002 (e.g. Costa Rica and Uruguay).

As with the natural disaster loans, the efficient targeting of TCs between 1995-2002 can be gauged by comparison with the long-term importance of natural hazard categories (i.e. for the 1975-2002 period, Figure 1 and Figure 2). In the Caribbean, 36.7% of a total of some US\$ 2.0 million have been allocated for windstorm-related damage and fully paid by the IDB. This is the highest disaster type-specific expenditure and relates well to the dominance of windstorms as potentially damaging natural hazards in the sub-region. TCs on earthquakes, windstorms, and floods have received 8.8%, 25.8%, and 9.0% in Central America, respectively, with IDB having financed >80% of each. The relative percentage allocated for

earthquake damage is at odds with the observation, that this type of natural disaster has caused the highest long-term total losses. In South America, earthquakes and floods were financed with 25.9% and 23.1% within TCs, respectively. Compared with the long-term total loss from these disaster types, flood events have gained less attention than earthquakes, which accounted for high percentage of losses only on a national basis.

Table 13. Technical Cooperations (TCs) between 1995-2002.

Total amount in US\$ thousand, () = percentage paid by IDB. (see Annex III)

Country	Total Number of TCs	Earthquake	Wind Storm	Flood	Natural disaster (general)	Total
The Bahamas	1				1'292 (77%)	1'292 (77%)
Dominican Republic	1		750 (100%)			750 (100%)
Guyana	1					
Total Caribbean	3		750 (100%)		1'292 (77%)	2'042 (85%)
Belize	1		180 (83%)			180 (83%)
Costa Rica	1			868 (86%)		868 (86%)
El Salvador	4	938 (80%)		524 (86%)	175 (86%)	1'637 (82%)
Guatemala	2				340 (88%)	340 (88%)
Honduras	9		2'583 (97%)	440 (91%)	340 (88%)	3'363 (96%)
Nicaragua	5		485 (93%)		1'065 (89%)	1'550 (90%)
Panama	1				3'238 (31%)	3'238 (31%)
Total Central America	23	938 (80%)	3'248 (96%)	1832 (87%)	6'026 (57%)	12'044 (74%)
Argentina	1				150 (100%)	150 (100%)
Bolivia	1				150 (100%)	150 (100%)
Colombia	3	1'100 (81%)			390 (38%)	1'490 (70%)
Peru	4			1280 (93%)	150 (38%)	1'430 (94%)
Uruguay	2				1'320 (83%)	1'320 (83%)
Total South America	11	1'100 (81%)		1280 (93%)	2'160 (77%)	4'540 (83%)
Regional	11		350 (86%)	1'538 (65%)	3'140 (77%)	5'028 (96%)
Overall Total	48	2'038	4'348	4'650	12'618	23'654
Total amount paid by IDB		1'640	4'162	3'786	8'565	18'153
Percentage paid by IDB in relation to overall total		80%	96%	81%	68%	77%

In 1995-2002 the Bank supported 47 natural disaster-related technical cooperation projects (TCs) with a Bank contribution equal to or greater than US\$150,000 each (Annex III).¹¹ Table 3.7 shows that this group of larger TCs is clearly (and more heavily than the loan portfolio reviewed earlier) weighted in favor of disaster prevention and mitigation. Following disaster events in 1998 and 1999, the bulk of TC approvals favoring prevention occurred between 1999 and 2001 (23 out of 33 projects, cf. Annex III). From the data, we conclude that the Bank takes recourse to TCs in a significant way—as an instrument of choice, one might say—to foster prevention, taking advantage of the grant-funded nature of TCs which acts as an incentive for borrowing countries to focus on this function.

¹¹ This list does not cover smaller TCs. Among those, operations for up to US\$50,000 frequently made available by the Bank as a gesture of solidarity when disaster strikes are the most important kind.

Table 14. Apparent functional distribution of 48 natural disaster-related Technical Cooperations (TCs) between 1995-2002.

Total amount in US\$ thousand, TCs ≥ US\$ 150'000

	Number of Loans	Total Project Sum US\$ (1000s)	% of Total Loan Sum	IDB Loan US\$ (1000s)	% of IDB Loan
Prevention	34	17'571	78%	13'703	74%
Emergency Assistant	4	1'200	5%	1'200	6%
Reconstruction	10	3'864	17%	3'610	19%
Total	48	22'634	100%	18'513	100%

5.3. IDB's handling of Mission Risk

Reformulation of loans is one of the major problems for IDB

The structure of the reports, analyses, country discussions, and operational implementation set the framework for the development mission of the Bank in each borrowing member country. Changes in national policies or changes in the substance of support provided by the Bank to each country will have an impact in the mission of the Bank as described in the above mentioned documents and outlined in Chap. 3 and 4.

Natural disasters pose important obstacles to national development goals and may have a decisive impact on the implementation of the strategy agreed by the Bank with the national authorities.

Natural disasters pose important obstacles to national development goals and may have a decisive impact on the implementation of the strategy agreed by the Bank with the national authorities. The seriousness of this matter has been expressly recognized by the Bank through different initiatives adopted and the subsequent establishment of operational instruments designed to address the issue. However, the rush to support a country could have a negative developmental impact if current operations were modified to provide fast relief, and to initiate the reconstruction and rehabilitation without providing enough attention to the Bank's mission risks associated with the reassignment of its loan and technical cooperation resources.

The reformulation of loans, as a component of a natural disaster support package, is one of the most important problems that the Bank confronts. Most of the time, the set of documents that gave origin to the strategy adopted by the Bank in agreement with the governments of the borrowing member countries, are not reviewed or modified as a result of the reformulation. On the basis of this evaluation, it was concluded that the analysis of the costs associated with suspended project execution and the reassignment of available resources are not discussed in terms of mission risk for the Bank. Neither are they mentioned in an evaluation of new strategies that should serve better the developmental goals of the IDB. In fact, the Reformulation memorandum is based on internal discussions of the Management and is focused on:

- The amount that the Bank will be able to facilitate with reformulations;
- The interest of staff not to modify the original objectives of the loans and therefore avoid the need to present the documentation to the Board approval;
- The opportunity to disburse loans that have had a poor operational performance; and
- The ability to reassign resources that otherwise would have been cancelled and use procurement procedures that could expedite the commitment of these resources.

Lack of internal review following loan reformulation may increase the IDB's exposure to mission risk

The practice of loan reformulation could eventually increase the exposure of the Bank without due internal review and adjustment of the strategy towards a borrowing member country. As a result, this could be an additional burden to the country that will have to accept the reallocation of resources according to objectives that are not necessarily the highest priority during the emergency period. Also, the financing from the Bank is authorized in absence of the established ERF minimum

requirements, even though normally the amounts involved are much higher than the ERF maximum loan. In addition, it is not clear whether there is any follow-up with those projects and programs that are suspended due to the reallocation of funds. It is important to determine if it would have been better for country and Bank to cancel those resources and provide new financing, in spite of the conveniences of the reformulation process.

Box 10. Example of Loan Reallocation in response to a natural disaster – Dominican Republic after Hurricane George

Following Hurricane George, the government of the Dominican Republic declared a state of emergency on September 23, 1998 and requested immediate aid from the IDB and other international organizations.

In response, the IDB formed a three-tier strategy:

- **Response with immediate disaster relief**, in the form of non-reimbursable emergency assistance (ATN/SF-6164-DR) and the immediate channeling of US\$ 10 million from other active loans for emergency work. These unallocated or uncommitted funds did not deviate from the original contemplated objectives in their respective programs; hence they were allocated to this end under the authority of the Country Office, in accordance with the Bank's operational policies.
- **Short-term assistance for reconstruction and improvements**, consisting of an administrative adjustment of the goals of loans 897, 905, 1047 and 1114/OC-DR, to shift US\$ 79 million in proceeds of those loans to the emergency rehabilitation of education infrastructure (US\$ 10 million), farm irrigation works (US\$ 7 million), health infrastructure (US\$ 14 million), and local roads (US\$ 48 million), including measures to prevent and mitigate future natural disasters. Redirecting these funds will mean adjusting the programs' original targets but no significant change in objectives; hence the shift is being arranged under the authority of Regional Operations Department II, as set forth in Technical Annex II. It should be noted that 55% of the proceeds of loan 1124/OC-DR (for strengthening of the Northeast) are allocated for Duarte and Sanchez Ramirez provinces, which were hit by the hurricane, and they will be used in accordance with a participative methodology of priority identification, and the introduction of measures to mitigate natural disasters and strengthen provincial planning offices for project execution.
- **Support for reconstruction and restoring economic flows**, entails reconstruction outlays of US\$ 75.4 million plus US\$ 30 million for a component to support recurrent social expenditure.

The IDB delivered relief grants of US\$ 50,000 and immediately provided the government with US\$ 10 million from active and unallocated loans for emergency rehabilitation of electricity, local roads, community works, and restoration of San Juan Valley as one of the most devastated areas. In addition to this immediate emergency response, the IDB supported reconstruction efforts through the administrative reformulation of a further US\$ 85 million in loans.

Source: Inter-American Development Bank, Loan DR-0135, 1998

About one-quarter of all disaster-financing activities by the IDB are loan reallocations

Box 10 illustrates the post-disaster focus of typical loan reallocations. Review of project and country documentation revealed that loan reallocation is overwhelmingly used for immediate emergency response and reconstruction. The level of detail provided in project documentation varies; however, documentation consistently noted that reallocation was used as a mechanism to provide immediate funding to assist in the emergency relief and reconstruction of affected areas. Unused or uncommitted funds are the first targets for reallocation. Currently this practice makes up about one-quarter of all disaster-financing activities by the IDB.

5.4. IDB's handling of Credit Risk

Lack of evaluation of credit impact in borrowing countries with high exposure to natural disasters

During the review of the programming documents of the Bank, it was evident that IDB has a very accurate external debt profile of the borrowing member countries, including the Bank's exposure. However, in cases of countries with higher risk for national- or regional-scale disasters, the eventual credit impact of these disasters has not been evaluated. This is necessary to determine the ability of the country to meet repayment schedules, even though the Bank could be immediately engaged in financing that eventually may increase the exposure to higher levels than those before the natural disaster occurred. Interviews with staff of the Bank confirmed this observation.

The new financial model used by the Bank does not contemplate explicitly the event of a natural disaster. It rather assumes that the operational departments will advise the Bank regarding the credit risk that the institution may confront with a

disaster-affected country. This is a striking absence, especially in those borrowing member countries that combine high indebtedness levels, high population, and high asset exposure to natural disasters (Freeman *et al.*, 2001; Freeman *et al.*, 2003).

some bilateral financial relations of the Bank with some borrowing countries may be subject to future stress,

During the period 1995-2002 natural disaster-related credits represented about 7% of total approvals. The countries that concentrated most of the financing were El Salvador, Honduras, Nicaragua, and Mexico. An important part of the credits were funded with the Fund for Special Operations (FSO) and therefore did not directly affect the credit risk profile of the Bank. The outcome of this analysis shows that the Bank may not be exposed to a high level of credit risk; nevertheless, some bilateral financial relations of the Bank with some borrowing countries may be subject to future stress, especially when considering that in the medium term those countries will eventually be confronted with substantial negative flows from the Bank.

Hazard scenarios and loss estimations needed for the future to be prepared for credit risks

It should be noted that the Bank does not carry a credit evaluation risk of the impact from a disaster at the time new operations are processed or reformulations are approved. The operational departments should maintain a credit evaluation in all cases a borrowing member country is hit by natural disaster, and should determine the credit risks associated with new financing and loan reformulations. Credit risk might substantially increase in situations where not only one country is hit but a whole sub-region is hit by a major disaster (low frequency events), e.g. Central America by a major earthquake cutting across frontiers, El Nino extreme effects in South America, a century wind storm in the Caribbean, etc.. Hazard respectively. damage scenarios and loss estimations are missing but could provide basic information for credit risk estimations.

5.5. Evaluability and efficiency of implementation of natural disaster-related loan projects

This section reviews the performance evaluability and efficiency of the Bank's natural disaster-related portfolio. It assesses and quantifies the degree to which projects are designed to the degree that (a) it is possible to evaluate operations, and (b) determine their effectiveness in addressing stipulated development challenges. Different dimensions of evaluability are addressed, including the formulation of outcomes and outputs, the availability and specification of indicators (baselines, milestones, targets), and the identification and mitigation of natural disaster risks. Evaluability is examined at both the project design (ex-ante) and project implementation (ex-post) levels. The efficiency of implementation is inferred from timeline analysis of delays between key events in the project cycle and estimation of the Efficiency Delivery Curve that traces disbursement progress in relation to the Bank average.

Evaluability of natural disaster-related projects

20 natural disaster-related IDB projects under evaluation

20 natural disaster-related projects were examined for their ex-ante and ex-post evaluability¹². This sample corresponds to 41% of the total number of the 49 loan projects listed in Annex II. The selection criteria were the following: (i) ERF projects were excluded since they have been previously evaluated by OVE;¹³ (ii) all non-ERF projects that make unambiguous references to natural disasters in their titles were selected (12 projects); and (iii) 8 other projects were randomly chosen among those that do not make a clear allusion to natural disasters in their titles.

¹² General notes on the OVE evaluability methodology can be found in (Knight, 2003).

¹³ OVE, RE-264, Evaluation of the Emergency Reconstruction Facility (ERF), 23 May 2002.

Disaster-related projects have low evaluability before and after implementation

Analysis of these 20 projects showed that loan documents currently have a low level of evaluability in the project design phase, based on the Department of Evaluation's Ex-Ante Evaluability Index.¹⁴ Loan documents tend to give more attention to the delivery of products than to the attainment of development goals. Closer reading suggests that some entries identified as development goals are actually project results. If the information were not taken at face value, the evaluability figures for development goals would likely be lower. This finding may support the statements of several IDB personnel that a gap exists between day-to-day Bank activities focused on high-priority results and the achievement of development objectives emphasized at the Bank's strategic level. This assessment also suggests that, in the project design phase, project teams may not have sufficient information about the relationship between specific natural disaster-related activities and their impacts on the achievement of development objectives. This information gap weakens the ability to evaluate the degree to which such activities actually achieve desired results such as disaster risk reduction.

Absence of attention to disasters in mid-project documentation (PPMRs)

Disaster-related projects across LAC are difficult to monitor and evaluate for the implementation progress according to results of the Ex-Post Evaluability Index¹⁵. To exacerbate this problem, a review of past Project Performance Monitoring Reports ("PPMRs") revealed a striking absence of attention to natural disasters. Little or no documentation history exists on natural disasters for e.g. PPMRs or CPs. Natural disasters are not a regular topic of discussion, and the PPMRs do not document, e.g. previous natural disaster-relevant activities. This absence is puzzling in ongoing projects, while the lack of "natural disaster tracking" in the past leaves the Bank without measures with which to compare current implementation progress of natural disaster-related projects.

Lack of country- or disaster-specific knowledge

Current evaluation techniques lack both the information and criteria necessary to provide a meaningful evaluation of natural disaster-related projects. Due to these gaps it is not possible to determine whether these activities have achieved some or any of the objectives outlined in the OP-704 or Action Plan. Natural disaster-relevant risk matrices are not employed in Loan Documents, nor are they used to evaluate projects or make recommendations for appropriate disaster risk reduction, prevention, or mitigation mechanisms. Although some consensus has been developed on the negative impacts of natural disasters on development, specific knowledge gaps exist for most countries. Loan documents e.g. did not indicate that disaster risk analyses were conducted prior to project design. Project teams may find it difficult to design meaningful natural disaster-related activities without a greater understanding of the nature of the problem (e.g. earthquake management requires different actions and has different impacts than windstorms) or the types of activities to effectively address these issues.

¹⁴ The Ex-Ante Evaluability Index describes the degree of evaluability of a given project at approval based on information provided by the Loan Document. For each project a results matrix is defined, with mapping objectives, proposed metrics, baselines, milestones, and targets. Each concept is classified as either an outcome or an output, where the classification is taken at face value from the Loan Document. Rows are defined as project objectives, and columns as metrics, baselines, milestones, and targets. The matrix is binary: when verifiable information is provided, cells are scored with "1"; in the absence of information or when information is inappropriate, cells are scored with "0". The index is the ratio of the sum of all cells entries "1" to the sum of total cells in the matrix ("0" plus "1"). Indices are also calculated at a disaggregate level for all matrix components.

¹⁵ The Ex-Post Evaluability Index describes the degree of evaluability of a given project during implementation. It is based on information provided by the most recent Project Performance Monitoring Report (PPMR), and constructed similarly to the Ex-Ante Evaluability Index (see footnote 14). The only difference is the incorporation of an additional column containing information on implementation progress.

Overemphasis on “deliverables” and quantitative over qualitative results; misuse of terms

In order to meet project approval requirements, project leaders facing this knowledge gap may opt to include project activities that represent some material effort but in reality may not appropriately manage natural disaster risk in a given country. The possible bias towards results could skew the project orientation of disaster risk management activities away from disaster risk reduction, a central priority of OP-704 and the Action Plan, towards the execution of “deliverables” which may or may not achieve these developmental objectives. Several interviews e.g. suggested that this bias might favor larger infrastructure projects, emphasizing quantity over quality. One interviewee referred to an instance of their country requesting—and being granted—a project that emphasized road mileage over maintenance. When such infrastructure systems incurred damage, country documentation did not note the degree to which damage was related to earlier project design, or make suggestions about how future projects could be designed in ways to reduce damage. On this specific issue, Bank personnel and country interviewees suggested that, whereas road mileage alone may be a positive aspect of the project, it may ultimately prove that road maintenance would be the key factor for meeting the development objectives of the natural disaster-related project.

Implementation efficiency of loan portfolio

Three time intervals are analyzed during project evaluation

Three main time intervals are important in analyzing the efficiency of implementation of projects: (i) time from Profile I to approval by the Board; (ii) time from Board approval to contract signature; and (iii) time from contract signature to first eligibility.

Table 15 illustrates findings about the evolution of the project cycle for natural disaster-related projects, compared with total IDB investment and non-investment loans. Projects with natural disaster components on average appear to require less time in each phase, indicating that these projects perform better than average IDB investment loans. For example, the time from contract signature to first eligibility date for natural disaster-related projects (6.7 months) is considerably shorter than for the total of IDB investment and non-investment projects (9.1 and 13.9 months respectively). The emergency character of many natural disaster-related activities however skews these results. For example, Emergency Response Facility (ERF) projects take an average of 1.8 months from Board approval to contract signature, while non-ERF natural disaster-related projects take 3.5 months—the same observed average for total IDB non-investment loans.

Table 15. Timeline of Natural Disaster-Related Projects measured in months.

Natural disaster-related projects are characterized by relatively short approval times, when compared to the total of IDB (non-)investment loans. The quickest decision-making applies to Emergency Reconstruction Facility (ERF), which partly skews the data.

Type of Project	Time from Profile I to Approval	Time from Approval to Signature	Time from Signature to First Eligibility
Total Natural Disasters¹	14.6	3.2	6.7
ERF ²	--	1.8	1.7
Non-ERF ³	14.6	3.5	7.7
Total IDB Investment Loans ⁴	20.2	5.1	9.1
Total IDB Non-Investment Loans ⁵	13.6	3.5	13.9

(Measured in number of months)

¹ With the exception of time from Profile I to Board Approval, all other time intervals were calculated for the 40 projects (33 non-ERF and 7 ERF) for which Board Approval, Contract Signature, and First Eligibility dates were available. Calculation of the time interval from Profile I to Board Approval was based on the 27 non-ERF projects with available Profile I dates.

5. Evaluation of IDB's loan portfolio related to natural disasters

² Time intervals were calculated based on the 7 ERF projects. None of the ERF projects had Profile I dates.

³ With the exception of time from Profile I to Board Approval, all other time intervals were calculated for the 33 non-ERF projects for which Board Approval, Contract Signature, and First Eligibility dates were available. For time from Profile I to Board Approval, interval was calculated based on the 27 projects with available Profile I dates.

⁴ Time intervals for total IDB investment loans for the 1991- 2002 period were obtained from LoanLMS.

⁵ Time intervals for total IDB non-investment loans for the 1991- 2002 period were obtained from LoanLMS.

Current evaluation tools provide limited insight into effectiveness of natural disaster-related projects

The temporal analysis of disaster-related projects provides limited insight into the implementation efficiency of the loan portfolio for natural disaster-related projects. Evaluating the timing of the project life cycle alone does not offer meaningful transparency on implementation efficiency. Although this evaluation criterion captures the ability of the ERF to provide quick emergency response, it does not indicate whether natural disaster-related projects are efficient in implementing activities that improve disaster risk management capacity in the borrowing country, or efficiently implement policy guidelines contained in OP-704 or the Action Plan.

Second, an analysis of loan disbursement reveals that disaster-related projects perform better than the Bank average. Figure 11 shows an Efficiency Delivery Curve (EDC) for the 34 investment projects with a natural disaster-related component that were in execution in January 2003.¹⁶ Of the 34 natural disaster-related projects included in this analysis, 3 are ERF projects (ES-0150, JA-0123, and PE-0215) and 6 are non-ERF projects with emergency response components (AR-0242, EC-0183, HO-0131, GU-0137, PE-0188, and PR-0112). Twenty-six projects include disaster prevention and mitigation components and 6 have reconstruction activities.

ERF by design more time-efficient

Two groups of projects appear in this analysis, one group clustering at 20% disbursal and half a year in execution and the second group clustering at about 80% disbursal and slightly more than one year of time in execution. The first grouping consists mostly of „mixed“ projects with a natural disaster component, and is generally still early in the execution phase. The second grouping performs above the average efficiency delivery curve and contains 13 projects—9 of which are emergency related. The slightly better performance of natural disaster-related projects might be explained by the emergency character of some of the projects. This disbursal/timing pattern is unsurprising, because emergency-related projects by nature require quicker disbursement and the ERF by design requires that all funds be disbursed within a year of approval.

¹⁶ 16 projects were excluded in this exercise because they were not in execution in January 2003: BL-0018, BO-0206, BO-0217, BR-0182, BR-0183, BR-0234, CO-0243, DR-0145, EC-0143, ES-0087, ES-0148, GU-0155, HO-0143, NI-0064, PN-0149, and VE-0122.

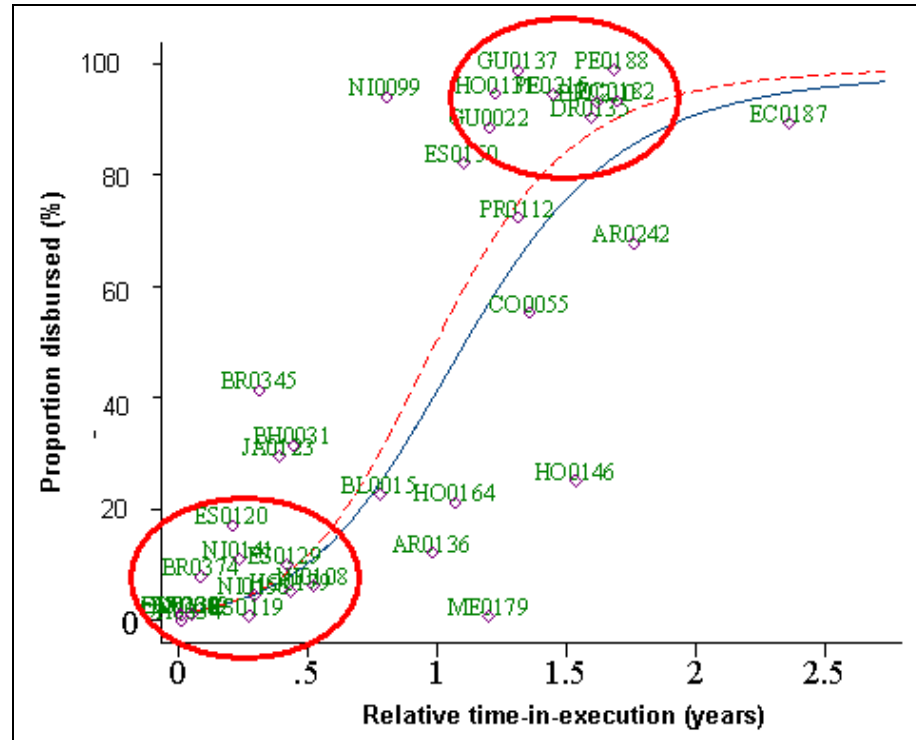


Figure 11. Efficiency Delivery Curve (EDC) for Natural Disaster-Related Projects in execution 2003.

Projects are notable clustered at 20% and 80% disbursal and half a year and slightly more than one year time-in-execution, respectively. The group with low relative disbursal performs slightly better and consists mostly of “mixed” projects with a natural disaster component, whereas the group with high relative disbursal comprises mainly emergency-related projects.

Emphasis on evaluating timing of project cycle and rapidity of resource disbursal reflect Bank priorities

Whether timing of the project cycle and the rapidity of resource disbursal are appropriate assessment criteria for natural disaster-related projects is not clear. Based on these two criteria alone, projects with natural disaster-related components appear to have higher-than-average implementation efficiency. However, country interviews and questionnaires indicated that while timing and the rapid availability of emergency response funds, e.g. motivated these countries to select a particular type of instrument to finance disaster risk management needs (usually the ERF or loan reallocation), factors such as institutional and technical capacity were generally more important determinants in implementation efficiency. It is also interesting to observe the implied priority, which the Bank places on project timing and on the amount of funding, disbursed in day-to-day operations.

5.6. Effectiveness of the natural disaster-related loan portfolio

Criteria for evaluating effectiveness of loan portfolio from borrowing countries' perspective

Two sets of criteria in questionnaires on countries' opinions on natural disaster-related loan portfolio

How effective have IDB natural disaster-related policies and activities been from the perspective of the *borrowing countries themselves*? To evaluate the effectiveness of the natural disaster-related loan portfolio in borrowing countries, a different set of criteria was needed than that used in the IDB project evaluation process. Therefore, individuals from disaster-relevant country institutions were interviewed and asked to complete questionnaires based on two criteria. Their answers form the basis of the evaluation in this section.

The IDB's natural disaster-related loan portfolio was considered effective whenever interview and questionnaire responses indicated that the following two sets of criteria were met:

Criteria 1: To what degree do disaster-related activities meet country needs and priorities?

1. Natural disaster-related activities meet disaster risk management needs and priorities in borrowing countries:

- Increase capacity for disaster risk management (technical, institutional, and financial); and
- Fulfill technical requirements for appropriate disaster risk management.

Criteria 2: To what degree do disaster-related activities fulfill objectives of OP-704 and Action Plan?

2. Natural disaster-related activities fulfill the objectives of OP-704 and the Action Plan:

- Assist borrowing countries in effectively protecting and resuming socio-economic development, and reduce or avoid losses from natural disasters (OP-704 objectives); and
- Assist borrowing countries adopt comprehensive disaster risk management policies in six strategic areas: national systems for disaster prevention and response, inserting prevention into the national culture, reducing the vulnerability of the poor, involving the private sector, developing risk information for decision-making, and fostering leadership and cooperation in the LAC region.

Based on the degree to which these criteria were met, IDB activities were graded as highly, moderately, or not directly effective. For example, those activities, which met both sets of criteria, were deemed “highly effective.” Activities which neither met country needs nor the objectives of OP-704 and the Action Plan were deemed “not directly effective”.

Analysis of effectiveness ratings of natural disaster-related loan portfolio

The highest effectiveness ratings went to a series of TCs in borrowing countries. Highly effective IDB projects and TCs fit the pattern of meeting *both* country needs for disaster risk management and fulfilling objectives outlined in OP-704 and the Action Plan.

Highly effective

Highly Effective = Countries felt activity met their needs and was consistent with objectives of OP-704 and Action Plan; many TCs considered relevant

Technical Cooperations (TCs)

TCs were applied in various areas, from meeting technical requirements to strengthening institutional capacities. These services matched the requirements and capacity-building needs of borrowing countries, particularly in developing a knowledge base for natural disaster-related decision-making. Interviews e.g. showed that at all levels—national, regional, and community—decision makers realized the need for activities to effectively reduce disaster risk but needed some assistance to undertake necessary activities. At the national level, interview and questionnaire results indicated a need for IDB activities supporting legal and institutional reforms and processes of integration of disaster risk management in overall development planning. Officials in Nicaragua felt that IDB technical cooperation with the Ministry of the Environment had been very effective in developing territorial planning capabilities. One TC helped create the Plan Nacional de Ordenamiento y Desarrollo Territorial (PNDOT), which included facets to strengthen planning mechanisms, and an information system to support decision-making to better manage social and environmental resources. Furthermore, Nicaragua's national disaster risk management institutions have received beneficial assistance in developing and maintaining information systems, and disbursing information to relevant decision makers. IDB-supported technical studies on

geologic hazards and disaster risk-related studies with the Ministerio Del Ambiente y los Recursos Naturales (MARENA) have been deemed very effective in expanding knowledge about hazards, vulnerabilities, and potential impacts of disasters in different areas. Such national institutions also expressed a keen interest in gaining technical assistance in implementing early warning systems, the strengthening of critical infrastructure facilities, and a serious exploration of financial risk transfer mechanisms.

Projects related to natural resource management useful for sub-regions

At the sub-national level interviews showed that decision makers place a high importance on strengthening projects related to natural resource management. For example, watershed management and land-use management ranked as a priority for sub-national organizations in all countries. Officials of the Instituto Nacional de Desarrollo (INADE) in Peru indicated that the environmental study of the Rimac watershed had been very relevant ("Preparation of the management plan and feasibility studies for Rimac river basin," ATN-JF 5298). This TC represents the only integrated study with this type of watershed zonation and environmental management in Peru. INADE officials noted that although INADE was not involved in projects in the Rimac watershed, and did not implement the study's recommendations due to the cost of the proposed measures, the study had been very important because it permitted a projection of focus in the entire country. INADE has used the study as a platform for the identification of required works in other watersheds.

At this level, high priority was also placed on mitigation activities that reduce the impacts of natural disasters on the public and their assets. Many regarded the appropriate management of water and other natural resources (particularly soil and forests) very important. Similarly, communities in turn placed high importance on mitigation, but also on longer-term vulnerability reduction. Activities favored at this level were those on flood and mudslide control. For example, three communities in El Salvador and Nicaragua noted the importance of non-structural measures to reduce flooding vulnerability, such as garbage collection along roadsides and canal and waterway maintenance. One community found that the maintenance of waterway banks by planting special types of grass was an effective way to reduce flood vulnerability of their community. However, the community needs further assistance in sustaining and expanding these efforts ("Sustainable Development Program Lempa River" and associated watershed program, TC-010511-RS and TC-010510-RS).

TCs were favored in part because they required greater country participation and supported development of local capacities, but also because they were less costly than normal projects. Country interviews indicated that TCs generally could be used more often as a means to directly improve disaster risk management.

Regular Loans

In addition to TCs projects directly related to emergency response and rehabilitation were considered highly effective in meeting country needs. For example, two projects in Peru ("El Niño Emergency Program" and "Earthquake Emergency Program", PE-0188 and PE-0215, respectively) were considered to have adequately responded to country needs for emergency resources. The El Niño project also moved towards realization of objectives from OP-704 and the Action Plan because it contained prevention and mitigation aspects for future hydro-meteorological phenomena. It was signed and implemented quickly (disbursement eligibility was established within two months), while PE-0215, an ERF was signed three days after submission, and 12 days after approval was eligible for disbursement. The first loan was drawn out to 1.5 years period due to insufficient local capacity to manage disbursed funds and lack of experience and high personnel turnover in the executing agency.

Reconstruction projects with facets of prevention also considered highly effective by borrowing countries

Similarly, projects for reconstruction or rehabilitation in Nicaragua and Honduras were considered highly effective, especially in relation to restoring damaged transportation systems ("Pan-American Highway Rehabilitation Program," NI-0099, and "Emergency Road and Water-Supply Infrastructure Project" HO-0143). In addition, housing reconstruction for low-income groups (NI-0064) was considered relevant and effective not only to recover from the impacts of Hurricane Mitch, but also in achieving a broader vision of environmental management and economic development.

Moderately effective

Moderately Effective =

Countries felt activity met their needs OR activity was consistent with objectives of OP-704 and the Action Plan

Borrowing countries considered projects directly related to alleviating impacts of disasters on the poor moderately effective. Such projects tend to address acute emergency needs but may not serve to reduce longer-term vulnerability of the poor to natural disasters. For example, El Salvador's Social Investment Fund (FISDL), established in 1996 with IDB financing, plays an important role in construction and rehabilitation of social infrastructure (e.g. loan reformulation ES-120). A large part of FISDL's activities are oriented towards helping low-income groups that suffer from natural disaster impacts. The focus of its actions appears to be in emergency response and post-event rehabilitation with an emphasis on temporal aid, more than reduction of longer-term vulnerability (Siri, 2001).

Projects directly related to alleviating impacts of natural disasters on the poor (reducing the vulnerability of the poor)

Another example, Nicaraguan project NI-0108 "Program to Fight Poverty and Strengthen Local Capacity," focuses on strengthening municipal institutions and local technical capacities. This program was considered moderately effective, as the implementation focused on reconstruction rather than reduction of vulnerability. Although beneficiaries of the program in the Municipality of Cuscatancingo did receive assistance in the form of housing reconstruction materials, local conditions prevented recipients from relocating to lower-hazard areas. The sustainability of the municipality's disaster information system was also precarious due to limited resources. It is important to note that many Bank activities geared towards poverty alleviation might also reduce vulnerability to natural disasters; however these projects did not appear in the natural disaster-related loan portfolio. This may be an evaluation issue for future consideration: more knowledge is needed to link "no regret" solutions with disaster risk management issues such as reducing the vulnerability of the poor.

In addition, external factors such as recent major events appear to play a greater role in encouraging disaster risk prevention in countries more than do IDB projects. Central American countries have developed a wider spectrum of activities due to reforms related to disaster risk management. These recent reforms reflect a higher consciousness about the need to reduce natural disaster damage following major natural disasters such as Hurricane Mitch or the El Salvador earthquakes of 2001. Reforms of this type in Central America occur under the auspices of environmental institutions and laws, and support the development of planning and information mechanisms for future decision-making in disaster risk management. In these countries, disaster risk management dialogues have taken place within broader discussions of environmental management and are linked to territorial planning and sectoral development.

Not directly effective

Not directly effective =

Countries felt activity neither met their needs nor was consistent with objectives of 704 and Action Plan

Apart from specific instances, country interviews and questionnaire responses indicated a low overall awareness about IDB disaster-related activities and limited effectiveness in meeting country needs or fulfilling the objectives of the OP-704 or Action Plan. In the six areas outlined by the Action Plan as important goals for IDB disaster-related projects, questionnaire respondents stated either that they were either unfamiliar with relevant IDB activities, or considered them ineffective in

fostering this aspect. For example, 3% of respondents indicated that IDB activities had been effective in promoting the development of leadership capabilities in disaster risk management in their country, while over 90% ranked IDB activities in this area as “not relevant”.

Three factors help explain this general low level of effectiveness within borrowing countries.

Gap between policy guidelines promoted by the IDB and actual demands of borrowing countries in terms of disaster risk management

First, the type of IDB projects in the country ultimately reflects the priorities of the borrowing country. Although the Bank strives to exercise a positive influence in guiding country choices about activities that will best enhance economic and social development objectives, the IDB does not impose projects upon countries. Disaster risk management activities supported by the IDB will go only as far as the government of borrowing countries allows them to in meeting natural disaster-related needs. Also, projects with disaster risk management components may be either too novel to evaluate or IDB policy too less known or considered relevant for country projects. Traditional institutional and political approaches to disaster risk management have focused on emergency response, which makes a shift to a more comprehensive vision (promoted by the Action Plan) difficult. Country interview responses indicated that some of the key political and institutional obstacles for a more comprehensive approach to disaster risk management include internal resistance from emergency-focused institutions such as Civil Defense. Also, addressing the scope of disaster risk management within economic development and varying awareness of natural disasters between countries and sub-regions poses a challenge for the public sectors. A space exists for dialogue between the IDB and functionaries in borrowing countries to develop a common strategy and coordinated actions for disaster risk management corresponding to country needs.

Low awareness limits efficacy of IDB activities in borrowing countries

Second, countries have a low level of awareness of IDB instruments that could help improve practices of disaster risk management. In general, country institutions are only familiar with those instruments, which they have used in the past, in particular loan reformulation in emergency situations. Lack of awareness or a low priority placed on comprehensive disaster risk management by field offices may also account for currently low utilization of natural disaster-related facets in IDB projects.

Disaster-related activities occur within, but not across, sectors

Third, cross-sectoral projects do not incorporate disaster risk management. Natural disaster-related activities in IDB projects are undertaken strictly within, rather than across, sectors. No mechanisms exist to institutionalize (coordinate strategies, resource use and activities, share inter-sectoral expertise, etc.) a broad vision of disaster risk management. Such activities promoted by IDB projects currently appear to be confined within individual sectors.

5.7. A Note on unexpected disasters and on infrastructure

Unexpected disasters tend to be underestimated.

OP-704 includes also coping with unexpected disasters whereas the Action Plan is restricted to natural disasters only. The current status of projects and activities concentrates exclusively on natural disasters even Chapter 2.1 Table 3 reveals the importance of this category of risk. Resulting damages are often higher as they are for natural disasters.

Unexpected disasters contribute to the mission risk

Consequently, the evaluation has been restricted to natural disasters only. It is however important to mention that natural disasters might trigger additional technical disasters (e.g. oil or chemical spills) leading to additional threats of people and to environmental impacts respectively degradations. These technical disasters of course may also occur without an unintended, external triggering through natural disasters but just through technical failures or by deliberate human impact (negligence, terrorist attack, etc.), Also unexpected disasters may substantially

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contribute to mission risks. The functionality of political entities following major incidents can be severely compromised. The same can be said about other entities, such as factories or service operations, which can possibly be pushed to the brink. It is therefore important, to re-implement the unexpected disasters in future policies and Action Plans and to include them also in hazard scenarios and loss estimations, as previously mentioned for natural disasters. A list with the worst technical disasters in LAC between 1900 and 2002 can be found in Table 16.

The role of infrastructures is of essential importance both in natural and unexpected disasters.

Infrastructure that is of significance to the population, like hospitals, water and power supplies, roads and railways ("lifelines"), once viewed from an overall security perspective, needs special consideration. Natural hazards are only one possible impact, deliberate human impacts might be even worse. Seen the rapid increase in mobility, in communication, in power consumption, etc. of the population it might be technically very difficult to decrease vulnerability to the same extent, thus leading to an increase in risk. Hazard scenarios and loss estimations have specifically to pay for attention regarding the importance of infrastructures, their vulnerability, their indirect effects on subsequent damages, possible redundancies, etc.

Table 16. The worst technical disasters in LAC (1900-2002).

*Loss numbers are normalized to the US consumer price index 2002 (CPI) Source: (EM-DAT, 2003; Rojas Gutierrez, 2003; UNEP/APELL, 2003)

Country	Type of technical disaster	Year	Fatalities	Damage US\$ (million)*	Note
Mexico	Industrial accident	1996	6	1'144	Chiapas State
Brazil	Transport accident	1988	0	501	Campos basin, Enchova
Mexico	Industrial accident	1992	200	384	Guadalajara
Colombia	Industrial accident	1956	2'700	264	Cali
Peru	Transport accident	1996	70	63	Pacific, near Lima
Mexico	Industrial accident	1995	0	53	Tula
Brazil	Industrial accident	1984	36	52	Rio De Janeiro
Ecuador	Misc accident	2002	8	50	Riobamba
Colombia	Misc accident	1966	1	44	Quibdo (Choco department)
Mexico	Industrial accident	1992	0	38	Tultitlan

6. Conclusions

6.1. Introduction

Natural disasters pose a significant challenge to the Latin American and the Caribbean countries. With a mission to help borrowing member countries reach social, economic, and environmental goals, and further develop productive capacity of sectors, these disasters also directly and indirectly affect many activities of the Inter-American Development Bank. Conclusions are drawn with respect to the two main objectives and the four sector priorities defined in the Bank's fundamental mission (IDB, 1959; IDB, 1999b; IDB, 2001e). Consequently, this chapter highlights four of the major themes that emerged from this evaluation:

- The relationship between disasters and development;
- Lack of preparation for disaster finance;
- The importance of incentive structures for disaster risk management;
- Factors that limit the effectiveness of current IDB activities.

The following discussion focuses on the relationship between disasters and development and on how countries manage their disaster finance needs. Findings are synthesized about incentive structures that motivate current disaster risk management choices in LAC. Finally, specific obstacles that influence the effectiveness of the Bank's disaster-related activities in borrowing member countries are pointed out.

6.2. Development and disaster risk management

This evaluation revealed a contradictory policy relationship between disaster risk management and development in LAC. Disaster risk management activities have a very low political priority on a day-to-day basis. When disasters strike, the reactive pattern of managing the disasters tends to exacerbate underlying challenges of development and may prolong a region's efforts to reach sustainable development objectives.

Institutional structures hinder disaster risk reduction

The evaluation revealed that institutional structures hinder disaster risk reduction and contribute to a negative cycle of development. Weak institutional capacities slow e.g. the implementation of building codes and high personnel turnover creates obstacles to consistent coordination of programs. Insufficient resources encourage a focus on emergency response only, and limits the degree to which communities can implement risk prevention and other disaster risk management measures. Many countries lack effective institutional mechanisms to channel resources to appropriate activities. Gaps grow between actual disaster risk management (most often reactive and post-disaster) practices and legal frameworks for disaster risk management that enhances sustainable development.

Consensus about importance of risk and vulnerability reduction

Almost all individuals interviewed, and the majority of questionnaire responses indicated that prevention should take priority in disaster risk management activities. Respondents agreed that effective preventional measures would help the country out of its disaster-development dilemma. For example, interviews often indicated that building more robust infrastructure systems, investing in maintenance of those systems, and creating appropriate redundancies to prevent cascading infrastructure failures would be measures to make a society less vulnerable to a whole range of natural hazards.

Current practice misses most opportunities for risk and vulnerability reduction

Despite the overwhelming consensus that disaster risk management practices should focus more on effective risk reduction, almost all interview respondents indicated that currently, disaster risk management in their country has a low day-to-day priority. It has been indicated a general lack of explicit links between disasters and sustainable development policy. Disaster policy was viewed, as something a country should undertake only when the event occurred, that is, in the post-disaster phase. Although awareness of the negative or even vicious relationship between disasters and development was high, most respondents reflected on the practical reality that as long as disasters did not occur, countries placed no priority weight on managing such risks. With limited resources for priority development needs, including life-sustaining water and infrastructure projects, disaster risk management tends to take low priority until an event occurs.

The result of “wait and see” disaster risk management in most countries is a pattern of emergency response and a function of resource availability for rehabilitation and reconstruction. When disasters occur IDB staff and resources are reallocated from their normal development duties, generating mission and pin some cases also credit risks for the Bank. Countries additionally channel any available resources to the immediate disaster and post-disaster situation; however, most opportunities for vulnerability reduction were missed with this approach.

Completely missing at the present stage is a focus on unexpected disasters. Damage toll and political implications might sometimes be even worse than for natural disasters. If a technical accident occurs, only reactive emergency response is left.

6.3. Disaster Risk Finance

Lack of preparation for disaster finance

Current practice in LAC shows, with few exceptions, a complete absence of awareness of disaster finance needs, an absence of planning for disaster finance, and an absence of demand for tools to manage finance needs (absence of hazard scenario evaluations and loss estimations). Interviews indicated that risk transfer mechanisms such as insurance were not used in the public sector, although officials indicated interest in exploring such possibilities. Often officials from ministries of finance noted in interviews that countries lack mechanisms to coordinate information for making decisions about how to pay for disaster risk management activities or, more likely, disaster damage. With few exceptions, countries do not include the financing of disaster risk management activities in their budget planning process. One exception is Mexico’s disaster reserve fund, which has created a pool of resources specifically designated to pay for emergency response needs for public infrastructure.

LAC rely on precarious post-disaster finance

LAC countries rely heavily on precariously variable sources of disaster finance. Most interviews indicated that countries rely entirely on post-disaster resource funds, such as international aid and grants (often received as in-kind payments—goods and services specifically for emergency response) and the reallocation of international development loans. Domestic resources such as budget reallocation or additional taxes may supplement international disaster assistance, and often communities bear the ultimate financial burden for disaster losses.

The lack of disaster finance planning on the part of its borrowing member countries contributes to credit and mission risk at the IDB. The prime source for both credit and mission risk is the need of the individual countries for resources to pay for disaster-related activities. Because countries do not consistently or adequately plan for their disaster-finance needs, these countries turn to the IDB for financial assistance. The frequency of natural disasters in LAC region poses a potential threat to the credit profile of the Bank and its borrowing member countries, and to the developmental objectives of IDB activities in these borrowing member

countries. With an average of about 7 % of the IDB's total loan portfolio going towards disaster-related purposes, credit risk is an important issue. Further, reallocation of international development loans is a common practice by international financial institutions, including the IDB. When a country experiences a resource gap and cannot pay for disaster-related needs, it requests institutions like the IDB to reallocate resources from other development projects. This reallocation exposes the IDB to mission risk or goes at the expense of loans which have originally been dedicated to risk prevention projects.

6.4. Current disaster risk management incentive patterns

This evaluation revealed that current disaster risk management solutions in LAC reflect the underlying incentive structures embedded both in the borrowing member countries and in IDB practices. In borrowing member countries, responses consistently indicated that the (timely) availability of resources, public visibility, the ease of obtaining political and social consensus about activities to be undertaken, temporary shifts in political priorities, and political rewards for highly-visible public actions, all reinforced the preference to undertake post-disaster activities (emergency response, rehabilitation, reconstruction). The fewer resources available, the more information or technical expertise required to undertake an activity, the lower public awareness or visibility of the activity, and the level of difficulty in obtaining political consensus for an activity all acted as domestic disincentives for disaster risk management, specifically for pre-disaster measures. Only the conviction that a measure could reduce future risks was consistently cited as a motivation for undertaking pre-disaster activities like prevention or mitigation.

Interviews and questionnaire responses also indicated that the implicit incentives offered through the IDB itself powerfully motivated choices in disaster risk management. Interviews noted that resources are the single most powerful incentive that international financial institutions like the IDB have to influence country disaster risk management choices. Country's acute need for resources led to an acceptance of projects from a variety of international financial institutions. In the case of disaster risk management, this approach leads to a mosaic of repetitive activities with various international organizations whose strategies and approaches were equally varied and potentially contradictory. IDB instruments designed to help countries manage disasters in practice provide incentives (and resources) for post-disaster activities—witnessed by the popularity and frequent use of the ERF and project reallocation. Field officers and borrowing member country interview respondents frequently noted that the flexibility provided by loan reallocation processes, and the quick disbursement mechanisms of the ERF greatly facilitated emergency response activities. While these characteristics in themselves are helpful, they tend not to be balanced with equally powerful incentives to undertake pre-disaster activities that might more effectively reduce future risks. Instruments for pre-disaster activities, in contrast, often required applying for new loans, which faced a series of disincentives related to the country's reluctance to incur new debt, the low priority for national disaster risk management, and the time involved in loan approval and implementation.

6.5. Effectiveness of IDB's disaster risk management efforts

Finally, this evaluation revealed consistent patterns specifically related to the way that IDB conducts disaster-related operational and non-financial activities. These patterns help explain findings about the effectiveness of IDB policies and programs in disaster risk management. Responses from interviews and questionnaires indicate that to date the OP-704 and the Action Plan as policy guidelines have little influence on disaster risk management practices in borrowing member countries. Operational activities were generally rated ineffective to national disaster risk

Country incentive structures continue to encourage post-disaster activities

Incentive structures at the IDB encourage post-disaster activities more powerfully than pre-disaster ones

6. Conclusions

management needs. Overall, interviews and questionnaire responses noted a gap between the active interest and involvement of IDB headquarters in disaster risk management (regional policy dialogue, technical paper series, etc.), and actual influence of these non-financial activities on disaster risk management in LAC. Examples of “best practice” exist in each of the IDB Regions I, II, and III, and these exceptions were noted previously. This sub-section briefly examines factors that currently limit the effectiveness of IDB disaster related activities, and include:

- Awareness;
- The internal consistency of OP-704 and the Action Plan;
- Project design;
- The evaluation process.

Awareness. Low country mutual awareness of IDB efforts

Limited awareness of IDB policy and operational activities exists related to disaster risk management. Field offices rarely expressed familiarity with OP-704 and the Action Plan. Knowledge of disaster-related policy guidelines comprised either loan reallocation procedures or guidelines for accessing the ERF. Similarly, low awareness of non-financial activities dominated interview responses, although IDB headquarters had documented a series of activities in disaster risk management, such as a regional policy dialogue, the establishment of disaster focal points throughout the institution, technical paper series, etc. While individual interviews occasionally noted an appreciation of such activities, most interviews reflected a complete lack of awareness of non-financial activities of this type. Although some IDB documentation notes that disaster focal points exist not only at headquarters, but also in each of the 26 field offices, interviews with field officers themselves did not reflect such specifically designated focal point.

Internal consistency. OP-704 and Action Plan contain inconsistencies

Internal inconsistencies between the vision of comprehensive disaster risk management presented in the OP-704 and the Action Plan limit effectiveness of IDB efforts. Related to awareness, the design of OP-704 and the Action Plan do not explicitly account for specific country incentive structures. This makes it difficult for the OP-704 and Action Plan to meet country needs related to disaster risk management. For example, many interview respondents indicated a very high need for pre-disaster activities, but also noted acute resource needs. Many respondents felt that technical cooperations could help address this need, because it is one instrument outlined in OP-704, which distributes both technical expertise and resources that do not imply greater debt burdens. Some respondents felt that new loans for pre-disaster activities were not feasible due to domestic disincentives and obstacles.

Field trips and document review indicated a gap between the risk-reduction orientation of OP-704 and the Action Plan and, specifically, the greater attention given to detailing emergency response measures in OP-704. Most field interviews reflected the understanding that the main purpose of IDB interventions for disaster risk management were to fund emergency response, rehabilitation, and reconstruction. Additionally, some interviews at IDB headquarters reflected the opinion that risk management in general is not a day-to-day issue for Bank management.

Project design. Practical focus remains on emergency response

Project design can also limit the effectiveness of IDB disaster-related efforts. Interviews noted that many projects insufficiently capture opportunities for risk reduction. Disaster risk management officials in borrowing member countries repeatedly pointed to the possibilities of “no-regret” solutions in project design—the incorporation of activities that are good for sustainable development *and* reduce risk, activities that should be undertaken regardless. Road and infrastructure maintenance were the most-often mentioned example of “no regret” features that should be integrated into project design. The management of natural resources like

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soil, water, forests were commonly considered to be important aspects of project design that could also achieve risk reduction. Currently few links exist between OP-704 and the Action Plan, and specific project design. IDB does undertake such activities, but no clear relationship to risk reduction efforts has been drawn. Projects do neither incorporate risk matrices, nor indicators to show the efficacy of the project in achieving risk reduction and sustainable development.

Evaluation. Process highlights speed of resource disbursement but does not embody transparent measures for disaster-relevant facets

Finally, the IDB's evaluation process can limit effectiveness of disaster-related endeavors by masking the most relevant information. The current evaluation process stresses implicit Bank values: the time required to approve and to implement operations, and the amount of resources the Bank can approve and disburse for specific operations. Currently the "effectiveness" of the loan portfolio reflects performance according to these aspects. Yet these two guidelines alone provide little insight into the actual performance of operations in helping countries better manage disaster risk. Also, because of the design of specific instruments like the ERF and loan reallocation, emergency-response related activities appear very effective and relevant relative to other IDB loans. Measures for other disaster-related operations that include, for example, pre-disaster aspects may not perform as well according to the current criteria. Titles of loan documents are not consistent and not clearly defined. For example, many loan documents referred to "emergency" but were not ERFs. This type of nomenclature obscures which projects are actually related to disaster risk management, and how they are related to disaster risk management.

A review of loan documentation revealed other examples of evaluation obstacles. The loan reallocation process is not transparent, it is hard to track and evaluate, and eligibility criteria are unclear. Thus it is difficult to accurately assess the mission risk to the Bank, and the true developmental impacts on borrowing member countries. Loan documentation did not show the use of risk matrices (especially important for infrastructure projects), or define desirable outcomes in terms of vulnerability reduction, or quantify meaningful criteria along the disbursement process that could encourage countries to undertake risk reduction.

7. Recommendations

Four sets of recommendations to improve disaster risk management

This final chapter makes a series of recommendations that the Inter-American Development Bank, and its borrowing member countries, should consider to improve both policy and practice of disaster risk management in LAC. The chapter outlines four sets of recommendations, gathered from observations in the field and by reviewing IDB documentation of disaster activities, and from direct suggestions drawn from field trip interviews and questionnaire responses. These recommendations group around the following themes:

- Mission, vision and strategy
- Awareness building
- Organizational implementation
- Operational aspects
- Self-Evaluation

7.1. *Mission, Vision and Strategy*

Resolve internal inconsistencies in OP-704 and the Action Plan

Internal consistency of the documents OP-704 and the Action Plan could be improved. The IDB should consider the following recommendations:

- Review the OP-704 and the Action Plan with the specific goal of closing the gap between the mission, the vision and strategy and the operational implementation mechanisms. For example, the IDB should consider rewriting sections of OP-704 specific to resolve inconsistencies in designing and implementing projects.
- IDB should consider keeping strictly apart the vision for disaster risk management to be defined in a restructured OP-704 from the strategy with the operational implementation mechanisms to be defined in a redrawn Action Plan.
- IDB should consider implementing consistently the natural and the unexpected disasters (due to technical failures, human negligence, terrorist attacks, etc.) with a special emphasis on infrastructures and other complex structures.
- Special attention should not only be given to high and medium frequent disasters as they occurred the last two decades but also to low frequency events with a catastrophic damage potential exceeding by far a country's capacity. Prerequisites are a complete and consistent database, the continuous evaluation of hazard scenarios and loss estimates and the periodic evaluation of its implications on mission and credit risks.
- OP-704 should provide a set of visionary guiding principles that could facilitate the Management of the Bank to adequately comply with its responsibility. The Action Plan should provide the strategy and the implementation tools.
- Management should emphasize to the countries that the implementation of prevention and mitigation programs will be a pre-condition for future financing through any of the operational instruments available in the Bank.
- Incorporate the natural disaster discussion in the guidelines for the preparation of the country papers.
- Ensure that instruments provide effective incentives for the countries to undertake activities in the whole range of disaster risk management, not just for the emergency response. For example, timeliness and ease of obtaining resources for emergency response make the ERF and loan reallocation the most popular sources of disaster finance in LAC. This situation does not correspond with the objectives of the OP-704, and measures should be defined, which could be implemented within project

design to provide incentives that motivate the desired disaster risk management choices, according to the Action Plan.

- Form or strengthen partnerships to avoid overlapping or repetitive activities and improve the coordinated efforts of international and country institutions. For example, a partnership could be formed between an international financial institution like the IDB and relief organizations and borrowing member country institutions. The partnership could coordinate a span of activities to meet a country's needs in ways suited to the individual capabilities of each partner. A relief organization may be better at offering emergency response assistance, while the international financial institution may have a relative advantage in providing disaster risk reduction/development projects.

7.2. Awareness Building

Raise awareness

Low awareness of IDB policy guidelines, strategies, tools and activities related to disaster risk management could be improved through several steps. The Bank may consider the following recommendations:

- Define a specific strategy to increase awareness at all relevant levels in the IDB and field offices and in the Ministries of the borrowing member countries.
- Train IDB staff at headquarters and field offices. Include information about the link between Bank development activities and disaster risk management. Within this perspective, information about the OP-704 and Action Plan, instruments, and general principles of disaster risk reduction can be introduced. The important stress in such training workshops should be on how incorporating disaster risk management can improve the overall effectiveness of staff in their respective development work.
- Use Regional Policy Dialogue or networks like the Disaster Focal Points at the IDB to promote the exchange of lessons learned and experiences related to specific areas in disaster risk management in Regions I, II, and III, between IDB and other agencies, and within and between the borrowing member countries. Disaster risk management Focal Points could also be utilized to increase awareness. For example, a training session could aim to improve the appropriate use of information, to help develop specific technical expertise, to identify institutional mechanisms for planning, etc.
- Motivate decision makers with information. Give decision makers the information they need to make appropriate long-term decisions about disaster risk management, such as cost benefit analyses, documented pay-offs of “no regret” solutions and disaster risk reduction measures, etc.
- Address disaster risk management aspects as country papers are approved by the Board

7.3. Organizational Implementation

Data source

Disaster risk management requires specific information and improved data sources

To incorporate disaster risk management into development strategies, the IDB should consider active measures to improve data sources. Bringing disaster risk management into the mainstream of sustainable development requires specific knowledge. The Bank should consider the following recommendations:

- Play an active role in ongoing international efforts to improve disaster databases, such as the dialogue with the World Bank, CRED, and major reinsurance companies. Current statistical modeling efforts and cost-benefit analysis are based on existing, incomplete data sources. Modeling (and damage forecasting) efforts cannot be made significantly more useful for decision making without improving underlying data sources.

- Support data acquisition and analytical tools to help policy makers identify risks and vulnerabilities (hazard scenarios and loss estimations), and prioritize actions using these data and analytical tools. Examples are the development of hazard and risk maps, vulnerability studies, cost-benefit analysis, cost-effectiveness studies, disaster risk reduction studies, and studies on the economic impacts of disasters which will all improve the ability of policy makers to incorporate disaster risk management into overall development strategies.
- Help countries become self-reliant and competent in the maintenance and updating of these data sources. Identify mechanisms to ensure that countries have the necessary resources to sustain high quality, consistent databases for disaster risk management and sustainable development.
- Improve the dissemination of basic information and the coordination of disaster risk management studies for decision-making.

Support for borrowing member countries

From the institutional point of view, it was evident that the majority of natural disaster events with high economic and human losses are in countries assigned to the Regional Department II. Also, this Department has adopted measures to have a specialized group of professionals that are involved not only with the emergency aspects of the natural disaster, but also has a critical role, in close coordination with the Sustainable Development Department, in the analysis of the conceptual framework that the Bank develops regarding its operational and non-operational activities. Regional Department II could have the responsibility on natural disaster risk management for the three regional departments. Also, the non-financial initiatives of the Bank could benefit with their expanded role in the region. The operational experience accumulated by the other regional departments is less intensive, even though the magnitude of economic losses in terms of total losses in the Latin America and Caribbean region is enormous.

Region II should:

- Provide good technical advice at the time of an emergency
- Prepare prevention and mitigation programs
- Facilitate access to specialized agencies
- Recommend better practices
- Disseminate information that could be critical for the countries in the process of deciding on natural disaster programs.

Perform an important role in the internal dissemination and training programs in the headquarters and the country offices of the Bank.

Country's Disaster Finance

To help countries improve their ability to *plan* for natural disaster finance and management, the IDB staff concerned may consider the following recommendations to improve planning capacities in borrowing member countries:

- Investigate the distribution of disaster loss burdens (i.e. who pays) in specific country contexts. Clarify the government's disaster finance obligations and incorporate these obligations into the budget planning process. Understanding who bears disaster loss burdens is particularly important for plans that aim to achieve sustainable development objectives, such as pro-poor growth strategies. Using this information, a country can both plan for equitable disaster loss management and programs to share burdens if necessary (such as livelihood protection, social investment funds, etc..)
- Help countries develop planning mechanisms to incorporate disaster contingencies and disaster finance need estimates into national and local budgets. Examples include budget line items for investment in future disaster related activities (especially disaster risk reduction), creation of

Involvement of Region II to support the other regions with know-how

Improve planning capacity

risk-sharing or risk transfer arrangements (insurance and reinsurance), the creation of disaster reserve funds/pools, etc.

- Identify and encourage mechanisms to improve communication and participation between disaster risk management and sustainable development institutions in borrowing member countries. Strengthen current activities at the IDB in institutional capacity building, and continue to foster local participation. Such approaches capture local knowledge (e.g. management of disasters, distribution of resources, environmental factors, social objectives, etc.) and may have a more direct, positive impact. Strengthen efforts like those underway in Nicaragua (Sistema de Planificación Municipal).
- The procedures for loan reallocations should be better defined, the awareness for mission risk and credit risks improved and the effectiveness of the reallocated loans continuously controlled.
- Consider measures that increase appropriate participation of the private sector in disaster risk management activities, including disaster risk reduction and disaster finance measures.

Improve disaster payment capacity

To help countries improve their ability to *pay* for natural disaster risk management, the IDB may consider the following recommendations:

- Help define clear and appropriate criteria for the use of risk sharing or risk transfer mechanisms, within specific contexts. For example, a catalogue of criteria for using insurance or reinsurance in specific situations could guide decision makers and improve the ability of a country to pay for disaster losses. This in return will help the governments to compensate and finance reconstruction in those social and productive sectors that are not able to get insurance.
- Complement general technical paper series on risk transfer with specific studies that explore risk transfer needs and capabilities in specific contexts—for countries, for sectors, to reach particular groups or sustainable development objectives (like the poor).
- Initiate dialogue with borrowing member countries to explore implementation issues for risk sharing and risk transfer mechanisms. Use these discussions to discover what types of tools or combinations of tools are appropriate in which specific context. In theory, risk transfer and risk sharing could help a country more efficiently and effectively pay for disaster losses (for example by increasing returns on investment and decreasing instability in the economic system). In practice, some situations the increased use of private insurance (perhaps housing) may be appropriate. In other situations a public insurance model in which risk for certain assets like government-owned infrastructure is transferred to a third party may fit better. Risk sharing mechanisms should also be explored to achieve equitable distribution of disaster loss burdens.

7.4. Operational Aspects

Operational Instruments

IDB instruments must provide incentives to incorporate disaster risk management into sustainable development strategies

The IDB may have only indirect influence on the existing incentive structures in its borrowing member countries, but it can still effectively influence country disaster risk management decisions through its own instrument design. The Bank should consider the following recommendations:

- Review the degree to which countries use eligibility criteria and conditions to encourage certain disaster risk management activities. For example, does the Bank use eligibility requirements that “encourage” borrowing countries to explicitly factor in potential disaster damage in requests for

7. Recommendations

loans? Possible eligibility requirements could include disaster risk reduction measures in infrastructure investment projects, enforcement of land use and building codes and other best practices in disaster risk management.

- Make disaster risk reduction a standard part of the entire loan portfolio. Reinforce the importance of including disaster risk reduction in project design and project approval/implementation. Study and document specific links between infrastructure investments and disaster risk reduction investments. For example, identify where current infrastructure projects do not incorporate disaster risk reduction. Using a consistent methodology, document and disseminate the unit costs of factoring disaster risk reduction into investment in infrastructure. This will assist project teams and implementing agencies to find cost effective solutions that include disaster risk reduction and appropriate disaster risk management during the initial investment period.

Improve instrument design to account for incentives

The design of IDB instruments plays a key role, in which instruments are used by countries. Table 17 below provides recommendations specific to instruments in the OP-704.

Table 17. Recommendations for the instruments

Instrument	Recommendation
Sector facility (PR-810) for Disaster Prevention (GN-2085-53-9-011)	<ul style="list-style-type: none"> • Address incentive issue and overcome obstacles that prevent wider use of pre-disaster instruments in non-disaster periods. • Promote disaster prevention facility as a mechanism for institutional strengthening and for the promotion of national disaster risk management strategies and priorities
Emergency Reconstruction Facility (PR-806)	<ul style="list-style-type: none"> • Incorporate greater incentives and mechanisms to encourage countries to undertake pre-disaster disaster risk reduction activities, and improve evaluation of this aspect • Incorporate component of risk analysis studies that facilitate disaster risk reduction (and hinders emergency response activities from enforcing future vulnerability) • Establish criteria for disaster risk reduction and make these criteria an eligibility requirement for access to the ERF
Regular loans	<ul style="list-style-type: none"> • Improve evaluation process of regular loans to capture disaster risk management activities, particularly pre-disaster risk management activities that reduce risk • Incorporate components of maintenance and improvement for normal loans, particularly for critical public infrastructure • Establish an explicit instrument for reconstruction which establishes conditions to incorporate risk and vulnerability reduction
Loan reallocation	<ul style="list-style-type: none"> • Document clearly the loan reallocation process, including a description of why funds were diverted, how funds were then used. Document the impact of loan reallocation on the original development goals of the project (to improve assessment of mission risk) • Approve reallocation by the Management
Technical cooperation for natural disaster-related emergencies (PR-802)	<ul style="list-style-type: none"> • Use TCs to finance risk related studies, particularly studies that facilitate pre-disaster activities (cost-benefit, value-at-risk, etc) • Combine TCs with loans to optimize the assignment of resources for studies that generate information useful for appropriate disaster risk management (such as value-at-risk, hazard and risk analysis, soil and other mapping activities, development of digital databases, etc. • Use TCs to design and facilitate pre-disaster planning, strengthen national disaster risk management systems, strengthen technical capabilities in countries, and strengthen decision making ability (often based on information availability)

Adjustments could improve the effectiveness of IDB efforts in disaster risk management

Non-Financial Instruments

Given the active interest the IDB has manifested in disaster risk management, some adjustments could improve ongoing endeavors. These adjustments would improve the effectiveness of the IDB’s disaster risk management efforts. Recommendations are made to improve awareness, internal consistency of OP-704 and the Action Plan, project design, and the evaluation process.

Existing non-financial efforts related to disaster risk management can be mutually enhancing. Table 18 provides specific suggestions for non-financial activities of the IDB.

Table 18. Recommendations for the non-financial activities

Non-Operational Activities	Recommendations
Studies/papers on financing	<ul style="list-style-type: none"> • Conduct a series of detailed papers on the feasibility of actual disaster risk management alternatives within countries, create a “menu” of realistic policy alternatives and their costs and benefits for borrowing member countries
Regional policy dialogue	<ul style="list-style-type: none"> • Involve more specialists and technical/professional expertise directly related to disaster risk management in regional policy dialogues and include the participation of IDB field officers
Cooperation with other agencies	<ul style="list-style-type: none"> • Closer coordination with other agencies in disaster risk management activities to avoid duplication of effort and increase complimentary aspects of activities in countries • Share lessons learned, coordinate the development of a knowledge and expertise base of practical alternatives that countries can use to manage disaster risk
Internal institutional strengthening of the IDB	<ul style="list-style-type: none"> • Strengthen and support professional expertise in-house at the IDB, and identify ways to gain greater leverage and access to the expertise embodied in IDB staff • Ensure that country offices have access to this professional resource at all times, not just following a disaster.

7.5. Self-Evaluation

Enhance evaluation capabilities

Finally, adjustments in the evaluation process employed by the IDB could improve the effectiveness of disaster risk management efforts. The Bank should consider the following recommendations:

- Strengthen the overall evaluation methodology for the project outcomes in ways that improve risk management capability. The current stress on indicators that measure timing of loan processes and the quantity of loan disbursement are too limited for meaningful examination of effectiveness of the loan portfolio for disaster risk management and sustainable development. For example, loan documents may include risk matrices that evaluate the risks associated with proposed activities. Indicators should be chosen that have direct relevance to both sustainable development and disaster risk management. Disaster risk reduction indicators should meet both these needs, and could be developed through existing TCs (such as TC-0020018-RG “Information and Indicator Program”) or through recommended studies and data collection activities. For comparative purposes, a central set of risk-related indicators should be consistently used in all evaluations.
- Improve PPMR. This would allow both project teams and country governments to maintain a track record of implementation effectiveness of disaster-related activities. For effective evaluation and improvement, Bank documents should reflect greater institutional memory about disaster-related activities with borrowing members, with the greatest specificity possible and appropriate. More thorough and accurate documentation would improve evaluation and an ability to learn and improve from past experience. Greater emphasis is also needed on the maintenance of up to

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date, accurate risk matrices and monitoring reports regarding ongoing projects. The concept of a history of lending is vital to the Bank's internal learning process.

- Most important might be, that each borrowing member country and each region continuously has to undergo a self-evaluation process focusing on the goals achieved, on the effectiveness of the allocated loans and on the extent to which OP-704 and Action Plan are executed.

Glossary¹⁷

Capacity	Maximum amount of coverage that can be offered by an insurer or reinsurer over a given period, based on underwriting policy, financial strength, and market conditions.
Catastrophe Bond or Cat Bond	Investment instrument in risk securitisation, for which the payment of interest or principal is dependent on the performance of a pool or index of natural catastrophe risk, or on the occurrence of a catastrophe of specified extent in a specified area.
Credit Risk	The potential loss due to a change in credit rating or default by a counter party.
Damages Direct	Total number of human losses, injured and homeless people, but also all losses to buildings, infrastructures, etc. which are directly and primarily related to the causative natural disaster.
Damages Indirect	All losses which are due to consequences of the primary event, e.g. production losses due to destroyed manufactories, crop losses due to destroyed irrigation system, loss of market share due to retarded or impossible delivery of products, losses in the tourist industry due to absence of guests, etc. Indirect damages are also called secondary damages or losses.
Disaster	An event that causes serious disruption of the functions of society and results in widespread human, material or environmental losses, exceeding the ability of the affected society to cope using only its own resources. Disasters are often classified according to their speed of onset (sudden or slow) or according to their cause (natural, man-made, or unexpected).
Disaster Risk Management	Comprehensive approach and activities to reduce the adverse impacts of disasters. It encompasses all actions taken before, during, immediately after, and some time after a disaster. It is holistic and includes activities on mitigation, preparedness, emergency response, recovery, rehabilitation, and reconstruction.
Disaster Preparedness	The state of readiness on the part of the government and society to respond effectively to a disaster and to recover quickly from its effects. Disaster Preparedness includes preparing and testing emergency response plans, training, acquiring and maintaining equipment needed for response, stockpiling relief materials, etc. The purpose of preparedness is to anticipate likely impacts of disasters so that ways can be devised to effectively mitigate major adverse effects.
Disaster Risk Reduction	The systematic development and application of policies, strategies, and practices to minimize vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) adverse impact of hazards, within the broad context of economic development.
Early Warning	The provision of timely and effective information, through identified institutions, that allows individuals at risk from disaster, to take action to avoid or reduce their risk and prepare for effective response.
Emergency Response	Actions taken during and immediately after a disaster to ensure that its adverse effects are minimized and that people affected are given immediate relief and support. It includes search and rescue, relief services, as well as restoration of power, water, and telephone services.

¹⁷ Source: SwissRe, (McNamee, 1999), (Wright, 1997), (White J., 2002).

Estimated Damage	Economic impact of a disaster; usually consists of direct (e.g. damage to infrastructure, crops, housing) and indirect (e.g. loss of revenues, unemployment, market destabilization) consequences for the local economy.
Hazard	An event or physical condition that is a potential cause of fatalities, injuries, property damage, infrastructure damage, agricultural loss, environmental damage, business interruption, or other types of harm or loss. The magnitude of the phenomenon, the probability of its occurrence, and the extent and severity of its impact can vary, although in many cases may be anticipated or estimated.
Insurance	System whereby individuals and companies that are concerned about potential hazards pay premiums to an insurance company, which reimburses them in the event of loss. The insurer profits by investing the premiums it receives. Some common forms of insurance cover business risks, automobiles, homes, boats, worker's compensation, and health. Life insurance guarantees payment to the beneficiaries when the insured person dies. In a broad economic sense, insurance transfers risk from individuals to a larger group, which is more able to pay for losses.
Insurance Pool	Association of insurance or reinsurance companies for the purpose of underwriting a specific type of risk, where premiums, losses and expenses are shared in agreed ratios by all members of the pool; often formed for risks with extremely high exposures (e.g. aviation or nuclear risks).
Loading	Additional charge added to a policy's basic premium to cover the insurer's expenses, provide a profit or to reflect a peril not included in the basic rate.
Mitigation	Structural (e.g. reinforcing buildings) or non-structural (e.g. training building contractors or educating the public) measures taken in advance of a disaster, which are aimed at decreasing or eliminating its impact on society and environment.
Prevention	Encompasses activities designed to provide permanent protection from disasters, including engineering and other physical protective measures, but also legislation on land use and urban planning.
Reconstruction	Actions taken to re-establish a community after a period of rehabilitation following a disaster. Actions include construction of permanent housing, full restoration of all services, and complete resumption of the pre-disaster state.
Rehabilitation	The operations and decisions taken after a disaster with a view to restoring a stricken community to its former living conditions, whilst encouraging and facilitating the necessary adjustments to the changes caused by the disaster.
Retrocession (retro)	Process of passing on risks or parts of risks from one reinsurer (the retrocedent) to another (the retrocessionnaire).
Risk	Expected losses (fatalities, injuries, damaged property, and disrupted economic activities) due to a particular hazard for a given area and reference period. Based on mathematical calculations, risk is the product of hazard, vulnerability, and "value-at-risk".
Risk Transfer	Shifting of risk, as with insurance or the securitization of debt.
Securitization	Process of converting loans of various sorts into marketable securities by packaging the loans into pools. In a broader sense, it refers to the development of markets for a variety of debt instruments that permit the ultimate borrower to bypass the banks and other deposit-taking institutions and borrow directly from lenders.

Structural Measures	Engineering measures and construction of hazard-resistant and protective structures and infrastructure.
Sustainable Development	Measures that meet the needs of the present without compromising the ability of future generations to meet their own needs. It comprises the concept of “needs”, i.e. the essential needs of the poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment’s ability to supply present and the future needs.
Value-at-Risk	An estimate of the potential loss to a single position or a portfolio of positions due to change in prices, yields, indices or their volatilities over a given period within a confidence level.
Vulnerability	Characteristic of human behavior, social, and physical environments, describing the degree of susceptibility (or resistance) to the impact of e.g. natural hazards. Vulnerability is determined by combining hazard awareness, condition of human settlements and infrastructure, public policy and administration, and organizational strength in disaster management. Poverty is one of the main causes of vulnerability in many parts of the world.

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Annexes

I. Skewness Factor

Skewness describes asymmetry in a distribution

Skewness is a parameter that describes asymmetry in a random variable's probability distribution. A distribution, or data set, is symmetric if it looks the same to the left and right of the mode. Both probability density functions (PDFs) in Figure 12 have the same mean and standard deviation. The one on the left is positively skewed (i.e. mode < mean), whereas the one on the right is negatively skewed (i.e. mode > mean).

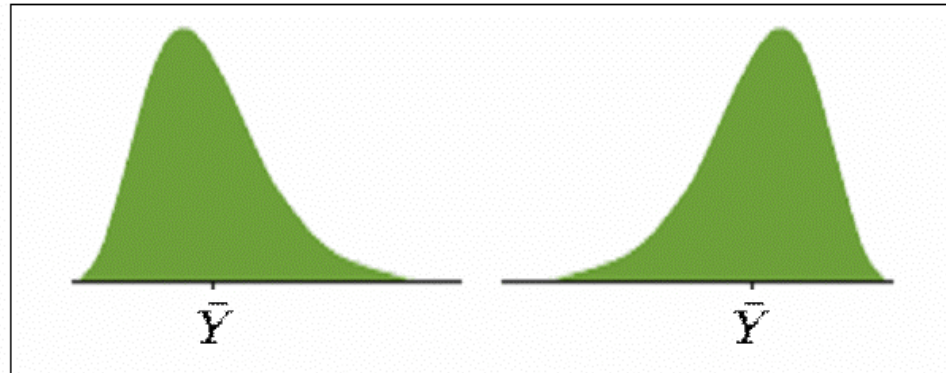


Figure 12. Positive vs. Negative Skewness

These graphs illustrate the notion of skewness. Both PDFs have the same expectation (mean) and variance. The one on the left is positively skewed, while the one on the right is negatively skewed.

Definition of Skewness

For univariate data Y_1, Y_2, \dots, Y_N , the formula for skewness is:

$$\text{skewness} = \frac{\sum_{i=1}^N (Y_i - \bar{Y})^3}{(N - 1)s^3}$$

where \bar{Y} is the mean, s is the standard deviation, and N is the number of data points. The skewness for a normal distribution is zero, and any symmetric data should have skewness near zero. An asymmetric frequency distribution is skewed to the left if the lower tail is longer than the upper tail, and skewed to the right if the upper tail is longer than the lower tail. Distributions of positive-valued random variables values are often skewed to the right.

A skewness coefficient is considered significant if the absolute value of $\text{SKEWNESS}/\text{SES} > 2$. SES is the standard error of skewness ($\text{SQR}(6/N)$).

For all the natural disaster data examined in this study the skewness factor is positive (Figure 12 left), due to the high number of natural disaster with little damages. The higher the skewness values for the different countries deviate from zero, the more the data distribution is dominated by small-scale natural disasters.

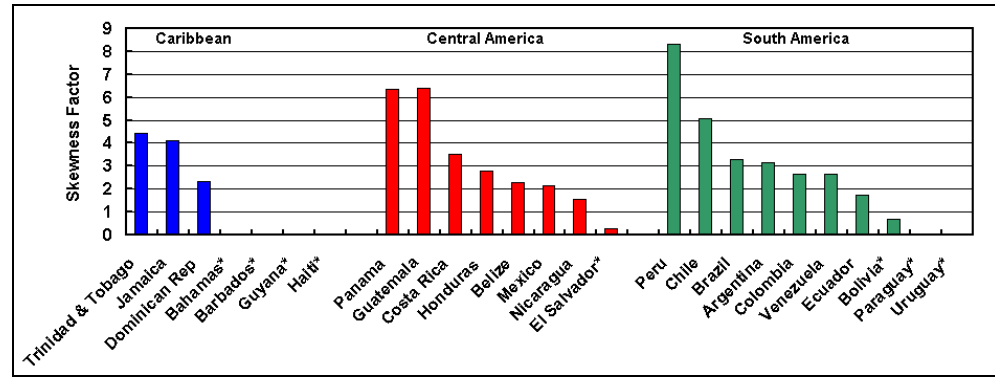


Figure 13. Skewness factor for databases used for this study based on natural disaster damage. This databases include information from EM-DAT, La Red, CEPREDENAC, and SwissRe. The skewness factor of the countries marked by a asterisk is not significant.

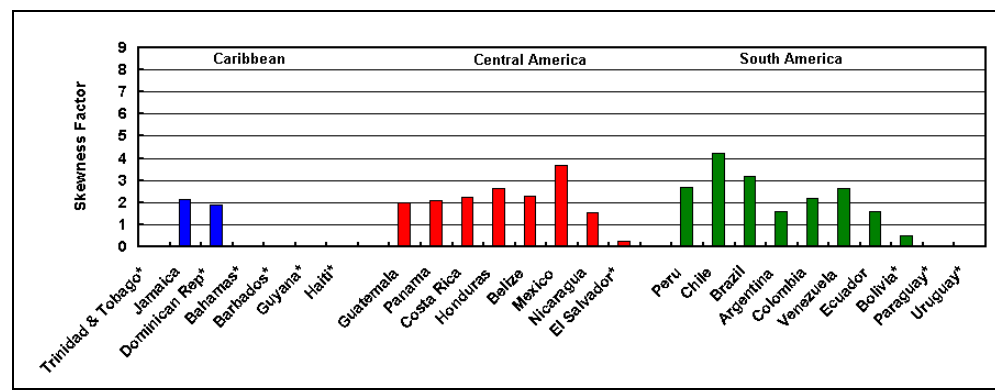


Figure 14. Skewness factor for EM-DAT based on natural disaster damage. The skewness factor of the countries marked by a asterisk is not significant.

The skewness coefficient was considered significant for 15 and 17 countries within the merged (i.e. EM-DAT, La Red, CEPREDENAC, and SwissRe) and EM-DAT datasets, respectively (Figure 13, Figure 14). Countries marked by a asterisk did not exhibit a significant skewness.

The comparison of the Figures 2 and 3 shows that the skewness coefficients of the EM-DAT records are closer to zero (Figure 14) as those of the merged database (Figure 13). The merged database contains only 8 countries with insignificant skewness factors. The difference are especially due to the La Red database, which contains a high number of records on natural disasters in e.g. Trinidad and Tobago or the Dominican Republic.

The merging of La Red, CEPREDENAC, and SwissRe data with EM-DAT thus leads to a distortion of the normal distribution for some countries (Peru, Chile, Argentina, Guatemala, and Panama); on the other hand it improves the data quality for other countries (e.g. Mexico).

II. Loan Portfolio

Loan #	Title	Country	Year	Classification	Total Project Amount US\$ (1000s)	IDB Loan Amount US\$ (1000s)	% disbursed IDB loan as of Dec 2002	Natural Disaster % ¹	Loan Objective	Comments
AR-0136	Environmental Management of the Matanza-Riachuelo River Basin	Argentina	1997	Prevention	500,000	250,000	12.11%	72%	To improve management of the Matanza-Riachuelo Basin's natural resources through coordination of environmentally related actions. Four sub-programs: (1) industrial pollution control; (2) flood control works; (3) solid waste mgmt; and (4) urban rehabilitation.	The program will provide critical drainage and flood works, and will largely resolve the flooding problem in the most flood prone areas.
AR-0242	Emergency Flood Rehabilitation Program	Argentina	1998	Rehabilitation/Reconstruction	500,000	300,000	68.61%	100%	To provide support for the economic and social recovery of affected zones through activities to attenuate the impact of the flood, reconstruction and rehabilitate economic and social infrastructure, and mitigate damage from similar catastrophes in the future.	Three components of the program: (1) Mitigation (\$30 mn.), (2) Reconstruction (\$430 mn.), and (3) Prevention (\$5 mn.).
BA-0019	Coastal Infrastructure Program	Barbados	2001	Prevention	24,200	17,000	....	59%	To support the sustainable development and improvements for shoreline preservation and management.	Global and regional changes and their effect on the coastal environment of Barbados are related to fluctuations in temperature, oceanographic current circulation, meteorological variations and natural hazards from hurricanes and tropical storms.
BH-0031	Infrastructure Rehabilitation Program	Bahamas	2001	Rehabilitation/Reconstruction	43,000	30,000	32.80%	100%	Rehabilitation of basic infrastructure damaged by Hurricane Floyd.	Phase I - rehabilitation or reconstruction of specific works damaged or destroyed by Hurricane Floyd Phase II - includes other specific works designed to replace works that have been repeatedly damaged by storms over the years.

BL-0015	Hurricane Rehabilitation and Disaster Preparedness	Belize	1999	Prevention	32,222	21,333	27.22%	100%	To reduce the country's vulnerability and improve its response capacity to natural disasters.	The program has two components (1) a structural component that addresses measures needed to reduce the vulnerability of Belize to damages from winds, rains and storm surge; (2) an institutional component.
BL-0018	Emergency Reconstruction Facility Following Hurricane Keith in Belize	Belize	2000	ERF	25,000	20,000	100.00%	100%	To restore basic services to the population affected by Hurricane Keith.	The project will provide resources for urgent activities needed to restore services to the affected population including: the removal of debris, repair and stabilization of damaged roads, bridges, drainage structures and city streets.
BO-0040	National Irrigation Program (PRONAR)	Bolivia	1995	Prevention	32,900	25,600	58.92%	100%	To bring about an institutional and legal rearrangement of the water-resources sector and the irrigation subsector to create the requisite elements for managing and coordinating actions in the subsector, enhance the efficiency of investments and foster the rational and sustainable use of water resources.	
BO-0098	Improvement Program For The Ventilla-Tarapaya Highway and Transportation Sector Support	Bolivia	1999	Rehabilitation/ Reconstruction	71,000	52,000	23.26%	1%	To help improve the competitiveness of the country's productive sectors, in the context of growing domestic and international trade, by enhancing the level of service on the basic highway system, and reducing costs for users. Specifically, to upgrade the characteristics and structural capacity of the Ventilla-Tarapaya-Potosi section, by undertaking roadway improvements, paving and rehabilitation, and increasing the usability of its access roads, in accordance with proper safety standards.	Provides the possibility to conduct studies to identify vulnerable areas, however does not discuss any specifics.
BO-0206	Disaster Prevention Program	Bolivia	2002	Prevention	3,000	2,700		100%	To help the Bolivian government to operate its national disaster prevention and risk reduction system (SISRADE) more effectively. Specifically, (1) strengthen the institutional structure of SISRADE, and (2) to raise public understanding of risk.	

BO-0217	Emergency Support for Water Production at the Sama Mountain Biological Reserve in Tarija	Bolivia	2002	ERF	2,778	2,500		100%	To provide Bolivia with the resources necessary to cover the immediate costs of restoring water services to the population of the communities affected by the fire at the Sama Mountain Biological Reserve in Tarija.	Project components: (1) Restore quantity and quality of potable water supply - \$1 mn. (2) Restoration of water production capacity in Sama Mountains - \$874,000 (3) Studies to assess damage and prevent disasters - \$260,000 (4) Project Mgmt. - \$400,000
BR-0234	Flood Control Program in Campinas	Brazil	1996	Prevention	33,000	19,800	100.00%	100%	To reduce the damage caused by flooding in the city of Campinas, thus helping to improve the city's socio-economic and environmental situation, particularly the living conditions of families residing along the banks of watercourses.	No mention specifically of natural disasters, however the primary objective is to mitigate damage caused by flooding.
CA-0034	Tri-National Program for Sustainable Development in The Upper Lempa River Basin	El Salvador	2001	Prevention	17,500	14,000	....	7%	To improve the quality of life of the inhabitants of the upper Lempa River basin, through actions that promote sustainable development in the target area and that seek to break the cycle of poverty and destruction of natural resources.	Disaster prevention and mitigation including two sub-components: (i) Interventions at the subbasin level, restoration of degraded areas and protection of vulnerable areas; and (ii) Prevention, early warning, and monitoring systems for natural phenomena.
CA-0034	Tri-National Program for Sustainable Development in The Upper Lempa River Basin	Guatemala	2001	Prevention	7,000	4,500	....	19%	To improve the quality of life of the inhabitants of the upper Lempa River basin, through actions that promote sustainable development in the target area and that seek to break the cycle of poverty and destruction of natural resources.	Disaster prevention and mitigation including two sub-components: (i) Interventions at the subbasin level, restoration of degraded areas and protection of vulnerable areas; and (ii) Prevention, early warning, and monitoring systems for natural phenomena.
CA-0034	Tri-National Program for Sustainable Development in The Upper Lempa River Basin	Honduras	2001	Prevention	6,795	3,300	....	19%	To improve the quality of life of the inhabitants of the upper Lempa River basin, through actions that promote sustainable development in the target area and that seek to break the cycle of poverty and destruction of natural resources.	Disaster prevention and mitigation including two sub-components: (i) Interventions at the subbasin level, restoration of degraded areas and protection of vulnerable areas; and (ii) Prevention, early warning, and monitoring systems for natural phenomena.

CO-0243	Emergency Reconstruction Facility Following the Earthquake in the Coffee Belt	Colombia	1999	ERF	355,000	20,000		100%	To resume basic services to the population stricken by the earthquake in the coffee belt.	Provide resources for urgent activities including debris removal, building demolition, the inspection and stabilization of buildings and bridges, temporary housing and, in general, repair of the infrastructure of services such as drinking water and sanitation.
DR-0131	Local Road Maintenance and Rehabilitation Program, Phase II	Dominican Republic	1998	Prevention	60,000	48,000	15.86%	100%	To ensure sustainability of local road maintenance. Specifically, (i) consolidate modernization of the institution responsible for the local roads systems, (ii) promote new implementation arrangements (iii) help devise new alternative ways to ensure steady, permanent funding of maintenance plans; and (iv) help fund a portion of the annual investment plans for rehabilitation and maintenance of local roads and bridges.	Negative environmental impacts, identified in the environmental and social impact report, are small and can be reduced or prevented altogether. The following kinds of impact are possible: disputes over land use, erosion, negative effects on the groundwater supply or water quality, and on the landscape or unique habitats.
DR-0135	Reconstruction and Improvement Program in the Wake of Hurricane Georges	Dominican Republic	1998	Rehabilitation/Reconstruction	117,000	105,000	90.05%	100%	To restore parts of the country's infrastructure and economic flows that were hard hit by Hurricane Georges, with an emphasis on aid to the poor, disaster prevention, and involvement of the populace in preventative initiatives.	
DR-0145	Sector Facility; Disaster Prevention and Risk Management Program	Dominican Republic	2002	Prevention	6,661	5,000		100%	To help the country to improve its capacity to reduce and manage risks of disasters.	Component I: Local disaster prevention and risk management. Objective is to enable eight municipalities to better understand and manage their risk of disasters and to provide the national authorities with a test model for supporting local risk management.
EC-0143	Slope Protection Program for Mt. Pichincha	Ecuador	1996	Prevention	25,000	20,000		68%	To control runoff, flooding and mudslides on the eastern slopes of Mt. Pichincha.	
EC-0182	El Nino Emergency Program	Ecuador	1997	Rehabilitation/Reconstruction	231,000	105,000	100.00%	100%	To restore socioeconomic development in areas affected by El Nino.	

EC-0187	Supplementary El Nino Emergency Program (Coastal Highway System)	Ecuador	1999	Rehabilitation/Reconstruction	60,000	48,000	91.28%	100%	To reopen the coastal highway network damaged by El Nino. In addition, studies and final designs for the works to be undertaken in an 'after-the-emergency' stage will be prepared, covering reconstruction activities to be financed under a new operation.	
EC-0200	Metropolitan Quito Environmental Sanitation Program (Phase I)	Ecuador	2002	Prevention	50,000	40,000	....	33%	To reduce flooding, mudslides and landslides, to expand water and sewer services in MDMQ priority areas, and to build institutional capacity for efficient management of EMAAP-Q water and sewer services.	
ES-0087	Housing Program	El Salvador	2001	Prevention	142,700	95,500	....	14%	To support the Government of El Salvador in developing and introducing a set of sustainable housing policy instruments.	Component 5 includes risk prevention (municipal environmental maps and studies on natural disaster-resistant construction technologies).
ES-0119	Agribusiness reengineering project	El Salvador	1997	Prevention	31,250	25,000	0.81%	68%	To promote higher incomes from agricultural and forestry activities by developing greater efficiency and higher value added.	
ES-0120	Local Development Program II	El Salvador	2001	Prevention	77,800	70,000	20.64%	74%	To improve the living conditions of poor people living in vulnerable municipalities and communities.	
ES-0129	Multiphase Program for Sustainable Roads in Rural Areas	El Salvador	2001	Rehabilitation/Reconstruction	136,700	105,000	11.89%	100%	To promote passenger and freight transportation by rehabilitating a portion of the tertiary road system in rural areas, establishing new systems for road maintenance, and modernizing the transportation sectors institutional structure.	Under PNCSAR, priority is given to roads serving the most impoverished areas and areas vulnerable to natural disasters.
ES-0148	Emergency Reconstruction Support Program Following the Earthquake of January 2001	El Salvador	2001	ERF	25,000	20,000	100.00%	100%	To contribute to efforts to restore basic priority services to the population affected by the earthquake.	Program resources will be used to remove debris or rent private, unimproved lots with an option to purchase and subsequent temporary housing on these permanent residence sites, prevention measures to stabilize hillsides in order to ensure the population's safety.
ES-0150	Emergency Reconstruction Support Program Following the Earthquake of February 2001	El Salvador	2001	ERF	25,000	20,000	92.05%	100%	To help restore basic priority services to the population affected by the earthquake.	

GU-0133	Program for Natural Resource Management in Upper Watersheds	Guatemala	2002	Prevention	44,450	40,000	....	10%	To improve natural resource management in upper watersheds by means of a strategy to support adjustment and/or conversion of production by small producers in rural areas.	The third component of the program consists of activities and investments to reduce vulnerability to natural disasters, to manage risk, and to develop criteria for valuation of the environmental services provided by watersheds.
GU-0137	Emergency Program in Response to Natural Disasters	Guatemala	1998	Rehabilitation/Reconstruction	44,470	40,000	98.84%	100%	To prevent, avoid and reduce the effects that, as a result of the natural disasters that hit Guatemala in the last six months.	El Nino resulted in landslides, avalanches, high water in rivers, and mudflows. Hurricane Mitch caused severe damage.
GU-0155	Urban Poverty Reduction Program	Guatemala	2002	Prevention	52,000	46,800	....	48%	To help reduce poverty in urban areas of the Department of Guatemala by improving living conditions of residents of urban shantytowns.	Only mention of natural disasters states the lack of appropriate channeling of rainwater increases vulnerability to natural disasters in settlements located on steep slopes.
HO-0131	Social Investment Program (FHIS III)	Honduras	1998	Rehabilitation/Reconstruction	55,600	50,000	94.64%	95%	Damage evaluation; infrastructure emergency reconstruction; community participation.	
HO-0143	Emergency Road and Water-Supply Infrastructure Project	Honduras	1998	Rehabilitation/Reconstruction	28,700	25,800	99.19%	100%	To alleviate the economic, social, and environmental impact of the damage caused by Hurricane Mitch to Honduras's road and water-supply infrastructure.	
HO-0146	Post Hurricane Housing Program	Honduras	1999	Rehabilitation/Reconstruction	11,550	10,390	25.12%	78%	To support in an initial stage the Government's strategy to develop housing solutions for those low-income households made homeless by Hurricane Mitch.	
HO-0164	Road Infrastructure Project	Honduras	2000	Rehabilitation/Reconstruction	31,700	26,800	24.20%	93%	To supplement the financing approved by the Bank's Board of Executive Director in January 1999 for the emergency road and water-supply infrastructure Program (HO-0143).	
HO-0179	Multiphase Program for Natural-Resources Management in Priority Watersheds - Phase I	Honduras	2001	Prevention	27,800	25,000	5.30%	11%	To spur processes that can achieve sustainable rural development, by strengthening natural-resources management in central government agencies and at the local level. To improve watershed management.	Module 4 (\$1.3 million) will support the role of the Standing Committee on Emergency Management (COPECO). Increase disaster prevention and management capacities.

JA-0123	Emergency Reconstruction Facility (ERF); Following Torrential Rains in Jamaica	Jamaica	2002	ERF	20,000	16,000	29.49%	100%	To address the temporary reconstruction, stabilization, and repair of infrastructure within five parishes declared disaster areas as a result of heavy rains during the May/June 2002 period as well as to strengthen the country's ability to respond to emergencies.	The program will provide resources for urgent activities needed to restore basic infrastructure services.
ME-0137	Housing Finance Program	Mexico	2000	Prevention	1,170,000	505,000	....	1%	To improve the efficiency of Mexico's formal housing finance system and facilitate its expansion to lower income segments of the population.	Request developers to evaluate soil contamination and natural hazards.
ME-0179	Mexico Valley Sanitation Program	Mexico	1996	Prevention	1,035,000	365,000	0.87%	31%	To help solve drainage problems in the Mexican Valley metropolitan area (ZMVM) in order to prevent catastrophic floods; reduce wastewater pollution to improve health conditions; and slow environmental degradation.	
NI-0064	Multi-Phase Low-Income Housing Program; First Phase	Nicaragua	2002	Prevention	50,300	42,500	....	1%	To improve housing conditions of low and moderate-income households by providing subsidies, deepening markets, and strengthening institutions in the sector.	As part of the investment component the program addresses the needs related with environmental vulnerability of low-income housing settlements by introducing an instrument that orients construction of safe areas and strengthens municipalities' capabilities.
NI-0068	Road Rehabilitation and Improvement Program	Nicaragua	1995	Rehabilitation/Reconstruction	223,000	75,000	100.00%	34%	To advance economic and social development by improving the country's road infrastructure and institutionally strengthening the subsector. The purpose is to afford a sound infrastructure for the transport of goods and persons and to promote foreign and domestic trading, to be accomplished through the anticipated reduction in transportation costs and more efficient maintenance.	p. 43 "While Nicaragua is located in an area of considerable seismic activity and is prone to torrential rains and flooding, one can never predict where phenomena of this kind will occur. The program does not include measures to mitigate the effects of such eventualities."
NI-0099	Pan-American Highway Rehabilitation Program	Nicaragua	1999	Rehabilitation/Reconstruction	81,600	50,000	94.00%	91%	(i) to support rehabilitation of the Pan-American Highway, (ii) to support implementation of a sustainable road maintenance mechanism.	

NI-0108	Program to Fight Poverty and Strengthen Local Capacity	Nicaragua	2000	Prevention	55,645	50,000	8.75%	5%	To help fight poverty by providing funding for basic social infrastructure through delegation and participation that improves access by the poor. Specifically, to strengthen community and local government capacity for implementing and maintaining basic.	Included in component 2; Strengthen of local technical capacities, training for NGOs and other local actors on issues including natural disaster mitigation. Component 3 FISE is responsible for contracting technical assistance.
NI-0141	Socioenvironmental and Forestry Development Program II (POSAF II)	Nicaragua	2001	Prevention	38,000	32,700	11.01%	11%	To improve socio-economic conditions and living standards of resident of priority Nicaraguan watersheds and lessen the impact of natural disasters in these basins, through the sustainable use and development of renewable natural resources.	A lot of mention of prevention and mitigation throughout the loan
PE-0188	El Nino Emergency Program	Peru	1997	Prevention	215,000	150,000	98.85%	89%	To carry out activities to prevent or mitigate the impact of the El Nino phenomenon and to rebuild the physical infrastructure damages and restore services interrupted by it.	It is considered an Emergency Program but in the loan document money is distributed for prevention and reconstruction projects.
PE-0215	Earthquake Emergency Program	Peru	2001	ERF	20,000	20,000	100.00%	100%	To provide relief in earthquake struck areas (Earthquake 23. June 2001 southern Peru).	
PN-0149	Multiphase Program for Sustainable Development of Bocas del Toro	Panama	2002	Prevention	469,000	42,200	....	1%	To foster conditions for the sustainable development of the Bocas del Toro region through support for activities and investments that will yield economic, social, and environmental benefits.	Phase I will focus on building management capacity for the productive use of natural resources in a sustainable manner, and for reducing vulnerability to natural hazards.
PR-0112	Emergency and Infrastructure Rehabilitation Program	Paraguay	1998	Rehabilitation/ Reconstruction	40,000	35,000	73.18%	100%	To support the rapid restoration and reopening of the infrastructure destroyed or damaged by the effects of El Nino and prevent future damage from similar phenomena; and to improve the response capacity of the institutions in charge of dealing with emerge.	
VE-0122	Emergency Program for Torrential Rains, Flooding and Landslides	Venezuela	2000	ERF	40,000	20,000		100%	To restore basic services and to take urgent measures to avert additional losses to persons and property from torrential rains, floods, and landslides mainly in the central littoral of the country.	

Note: ¹ = % of total project amount apparently devoted to natural disaster related expenditure.

III. Technical Cooperations (TC) (> US\$ 150,000) related to natural disasters, 1995-2002

	TC-Number	Title	Country	Year	Total Project Amount US\$ (1000s)	IDB Amount US\$ (1000s)	Classification	Typ of Risk
1	TC-98-03504-AR	Development of a Digital Cartographic Information	Argentina	1999	150	150	Prevention	Natural disaster (general)
2	TC-96-01-08-1	National Geographic Information System	The Bahamas	1997	1'292	992	Prevention	Natural disaster (general)
3	TC-99-02-01-1-BL	Strengthening of the National Emergency Management Organization	Belize	1999	180	150	Prevention	Windstorm
4	TC-98-10-46-8-BO	Institutional Strengthening in the Area of Digital Cartographic Production	Bolivia	1999	150	150	Prevention	Natural disaster (general)
5	TC-98-01-24-3-CO	Chinchina River Watershed Management Plan	Colombia	1998	390	150	Prevention	Natural disaster (general)
6	TC-99-03-03-1-CO	Demolition Debris Management and Disposal in the Coffee Belt Region affected by the Earthquake	Colombia	1999	150	150	Emergency Assistant	Earthquake
7	TC-99-09-01-6-CO	Solid Waste Management and Disposal in the Coffee Belt Region of Colombia	Colombia	2000	950	740	Prevention	Earthquake
8	TC-96-03-269	Design and Feasibility Studies of the Rio Grande de Tarcoles Integrated Watershed Management Program	Costa Rica	1997	868	749	Prevention	Flood
9	TC-98-09-49-5	Program of Reconstruction and Improvements Resulting from Hurricane "Georges"	Dominican Republic	1998	750	750	Emergency Assistant	Windstorm

10	TC-99-10-02-9	Flood-related disaster Prevention and mitigation in the lower Rio Lempa watershed	El Salvador	1999	150	150	Prevention	Flood
11	TC-99-08-02-4-ES	Three National Sustainable Development Project for the Upper Lempa River Basin	El Salvador	1999	175	150	Prevention	Natural disaster (general)
12	TC-00-09-02-6-ES	Design of a Sustainable Development for the Lower Rio Lempa	El Salvador	2001	374	299	Prevention	Flood
13	TC-01-04-02-9	Apoyo a la Ejecucion y Seguimiento del Programa de Reconstruccion	El Salvador	2001	938	750	Reconstruction	Earthquake
14	TC-99-08-0-23-GU	Three National Sustainable Development. Project for the Upper Lempa River Basin	Guatemala	1999	175	150	Prevention	Natural disaster (general)
15	TC-01-04-00-1	Uso Sig en Programas Desastres Naturales	Guatemala	2001	165	150	Prevention	Natural disaster (general)
16		Uso SIG en Desastres Naturales	Guyana	2001		150	Prevention	Natural disaster (general)
17	TC-98-11-98-7-HO	Evaluation of Disaster Damage: Tegucigalpa Water and Sewerage	Honduras	1998	150	150	Reconstruction	Windstorm
18		Reconstruccion Pos Huracan Mitch	Honduras	1998		150	Reconstruction	Windstorm
19	TC-99-08025-HO	Three National Sustainable Development Project for The Upper Lempa River Basin	Honduras	1999	175	150	Prevention	Natural disaster (general)
20	TC-99-03-00-4	Strategic Planning for the Reconstruction of Tegucigalpa	Honduras	1999	451	410	Reconstruction	Windstorm
21	TC-99-03-00-7	San Pedro Sula Emergency Recovery Program Technical Cooperation for flood protection works	Honduras	1999	440	400	Reconstruction	Flood

22	TC-98-12-00-9	Program to Support the national Reconstruction Process	Honduras	1999	1'100	1'000	Reconstruction	Windstorm
23	TC-99-05-04-4	Apoyp Rehabilitacion Infraestructura Danada	Honduras	1999	150	150	Reconstruction	Windstorm
24	TC-98-01-30-0	Cooperacion Tecnica Para la Formulacion del Programa Nacional de Ordenamiento Territorial (PRNOT)	Honduras	2000	732	652	Prevention	Windstorm
25	TC-01-12-02-0	Gestion financiera del riesgo de catastrofes	Honduras	2002	165	150	Prevention	Natural disaster (general)
26	TC-98-11-24-2	Reconstruccion Posterior Huracan Mitch	Nicaragua	1998	150	150	Emergency Assistant	Windstorm
27	TC-99-09-02-0	Assessing Vulnerability of Nicaragua to Natural Disasters, Planning use of land affected by Hurricane Mitch.	Nicaragua	1999	160	150	Reconstruction	Windstorm
28	TC-99-12-044-NI	Danish Trust Fund for Consulting Services, Special contribution for the reconstruction of countries affected by Hurricane Mitch	Nicaragua	2000	175	150	Reconstruction	Windstorm
29	TC-98-01-49-1	Formulacion del Programa Nacional de Ordenamiento Territorial (PRNOT)	Nicaragua	2001	765	650	Prevention	Natural disaster (general)
30	TC-02-08-01-5	Multi-Phase Low-Income Housing Program, First Phase: Preparation of Environmental Risk Maps	Nicaragua	2002	300	300	Reconstruction	Natural disaster (general)
31	TC-98-06-48-3	Strategy for Sustainable Development of the Panama Canal Watershed	Panama	2000	3'238	1'000	Prevention	Natural disaster (general)

32	TC-95-05-16-8	Preparation of the Management Plan and Feasibility Studies for the Rimac River Basin Environmental Management Program	Peru	1996	830	740	Prevention	Flood
33	TC-97-11-24-4-PE	El Nino Rapid Early Warning System Demonstrative Project	Peru	1998	150	150	Prevention	Flood
34	TC-97-08-35-8	Zonificacion Ecologica-Economica para al Desarrollo Sostenible de la Cuenca Alta del Rio Madre de Dios	Peru	1998	150	150	Prevention	Flood
35	TC-97-11-24-4-PE	Predicciones Desasres - Proyecto El Nino	Peru	1998	150	150	Prevention	Flood
36	TC-95-07-50-2	Ayuda de Emergencia para OECS	Regional	1995	150	150	Emergency Assistant	Windstorm
37	TC-96-02-15-4-RG	Digital Mapping and Geographic Information Systems Pilot Project	Regional	1997	889	608	Prevention	Natural disaster (general)
38	TC-99-06-00-6	Strengthen Regional Dialogue in the post Mitch Process	Regional	1999	200	150	Prevention	Windstorm
39	TC-97-12-38-3-RG	Study on the Prediction and Amelioration of Socio-Economic Impacts of el Nino Southern oscillation (ENSO) in Latin America and the Caribbean	Regional	1999	1'538	998	Prevention	Flood
40	TC-97-09-46-3	Mitigation Desastres en Centroamerica	Regional	1999		1'110	Prevention	Natural disaster (general)
41	TC-00-02-02-0-RG	Participacion Comunitaria y Educacion en la Salud para el Combate al Dengue	Regional	2000	356	291	Prevention	Natural disaster (general)
42	TC-01-09-018-RS	Practical Applications of Financial Instruments for Natural Disasters in Latin America	Regional	2001	170	150	Prevention	Natural disaster (general)

43	TC-00-07-03-1	Updating Wind and Earthquake Codes for ACS Countries	Regional	2001	150	150	Prevention	Natural disaster (general)
44	TC-01-03-04-4-RG	Disaster Relief and Conservation	Regional	2001	150	150	Prevention	Natural disaster (general)
45	TC-01-06-04-4-RG	Mangement of Environmental Risk in Low Income Human Settlements In Urban Areas In Central America	Regional	2002	335	75	Prevention	Natural disaster (general)
46	TC-01-01-07-2-RG	Program to Combat Desertification in South America	Regional	2002	1'090	1'000	Prevention	Natural disaster (general)
47	TC-00-04-01-7-UR	Integration of INE and Cadastral Spatial Data Base to Support Rural Infrastructure Planning and Management	Uruguay	2001	420	350	Prevention	Natural disaster (general)
48	TC-98-11-91-1-UR	Spatial Information System for National Infrastructure Management and Planning	Uruguay	2001	900	750	Prevention	Natural disaster (general)

IV. Other IDB Activities

Country Papers (CP)

	Project	Country	Date
1	GN-2140-1-E	Argentina	6.3.2001
2	GN-2141-1-E	Bahamas	30.3.2001
3	GN-2051-1-E	Barbados	21.9.1999
4	GN-2019-2-E	Belize	14.10.1999
5	GN-2036-2-E	Bolivia	24.5.1999
6	GN-2104-1-E	Brazil	7.7.2000
7	GN-2134-1-E	Chile	13.2.2001
8	GN-2052-1-E	Colombia	20.7.1999
9	GN-1982-3-E	Costa Rica	9.5.2000
10	GN-2153-3-E	Dominican Republic	19.7.2001
11	GN-2169-1-E	Ecuador	6.12.2001
12	GN-2121-3-Rev-S	El Salvador	11.7.2001
13	GN-2149-3-E	Guatemala	3.8.2001
14	GN-2070-1-E	Honduras	14.10.1999
15	GN-2025-E	Jamaica	7.8.1998
16	GN-2181-1-Corr-E	Mexico	19.3.2002
17	GN-2136-1-E	Panama	24.4.2001
18	GN-2118-1-E	Paraguay	30.10.2000
19	GN-2080-1-E	Suriname	2.3.2000
20	GN-2119-1-E	Uruguay	27.9.2000
21	GN-2081-3-E	Venezuela	14.2.2001
22	GN-2228-1-E	Guyana	19.11.2002
23	GN-2238-1-E	Honduras	4.2.2003
24	GN-2230-1-E	Nicaragua	5.2.2003
25	GN-2205-1-E	Peru	24.9.2002

Programming Mission Reports (PMR)

	Project	Country	Date
1	CP-1560-2-E	Bahamas	14.3.2001
2	CP-1129-4-E	Barbados	2.7.2001
3	CP-1129-7-E	Barbados	16.12.2002
4	CP-1067-4-S	Bolivia	11.6.1998
5	CP-1067-7-S	Bolivia	16.8.1999
6	CP-2202-S	Bolivia	16.7.2001
7	CP-2202-2-S	Bolivia	4.7.2001
8	CP-1058-10-S	Brazil	4.4.2001
9	CP-1158-9-S	Colombia	22.8.2001
10	CP-1568-2-S	Colombia	13.12.2002
11	CP-1088-4 Corr.	Dominican Republic	2.2.1998
12	CP-2293-S	Dominican Republic	4.12.2001
13	CP-1639-6-S	Ecuador	1.10.2001
14	CP-1005-6-S	Guatemala	15.10.2002
15	CP-2402-1-E	Guyana	13.12.2002
16	CP-1528-1-E	Jamaica	1.10.1998
17	CP-1528-5-E	Jamaica	30.10.2000
18	CP-1528-7-E	Jamaica	16.5.2002
19	CP-1136-8-S	Panama	27.12.2001
20	CP-1197-1-S	Peru	7.9.1999
21	CP-1279-8-REV-S	Peru	20.3.2002
22	CP-2227-E	Suriname	13.8.2001
23	CP-2498-1-E	Suriname	16.12.2002
24	CP-1715-7-E	Trinidad & Tobago	20.12.2002

Operation Program Revision Reports (OPRR)

	Project	Country	Date
1	CP-1067-2-S	Bolivia	21.1.1998
2	CP-1067-11-S	Bolivia	30.10.2000
3	CP-1067-9-S	Bolivia	8.5.2000
4	CP-1067-10-S Update	Bolivia	29.6.2000
5	GN-2036-5-E Update	Bolivia	22.10.2001
6	CP-2202-1-S Update	Bolivia	27.7.2001
7	CP-2202-3-S Update	Bolivia	4.9.2001
8	CP-1058-11-S Update	Brazil	27.7.2001
9	GN-2052-2-E Update	Colombia	12.12.2001
10	CP-1538-8-S Update	Honduras	5.1.2001
11	CP-1264-9-S Update	Paraguay	3.12.2001
12	GN-2118-3-E Update	Paraguay	20.2.2002
13	CP-1013-15-S Update	Uruguay	7.12.2001
14	GN-2119-3-E Update	Uruguay	15.2.2002
15	CP-1547-6-S	Argentina	5.10.2001
16	CP-1547-8-S	Argentina	21.5.2002
17	CP-1058-13-S	Brazil	8.8.2002
18	CP-1058-14-S	Brazil	18.10.2002
19	CP-1192-9-S	Chile	12.4.2001
20	CP-1192-11-S	Chile	21.5.2002
21	CP-1706-4-S	Paraguay	6.6.2001
22	CP-1706-6-S	Paraguay	16.5.2002
23	CP-1706-6-S	Uruguay	29.11.2001

Project Completion Reports (PCR)

	Project	Title	Country	Duration (years)	Total Sum US\$ (000's)
1	BR-0182	Programa de Urbanización de Asentamientos Populares en Rio de Janeiro	Brasil	5	180'000
2	BR-0183	Cartografía digital y drenaje urbano para la municipalidad de Rio De Janeiro – Cuenca De Guanabara	Brasil	7	30'000
3	CO-0243	Mecanismo de reconstrucción de emergencia por el terremoto en el eje Cafetero	Colombia	1.5	20'000
4	VE-0122	Programa de Emergencia por Lluvias Torrenciales, Inundaciones y Aludes	Venezuela	2	20'000

Program Revision Reports (PRR)

	Project	Country	Date
1	CP-1547-5-S	Argentina	23.2.2001
2	CP-1547-7-S	Argentina	12.12.2001
3	CP-1547-9-S	Argentina	24.6.2002
4	CP-1547-10-E	Argentina	28.8.2002
5	CP-1518-2-E	Bahamas	13.12.2002
6	CP-1129-6-E	Barbados	12.12.2002
7	CP-2272-1-E	Belize	17.12.2001
8	CP-2433-E	Belize	3.7.2002
9	CP-1067-1	Bolivia	21.1.1998
10	CP-1067-8-S	Bolivia	9.3.2000
11	CP-2202-4-S	Bolivia	17.12.2001
12	CP-2202-5-S	Bolivia	20.11.2002
13	CP-1058-12-S	Brazil	9.11.2001
14	CP-1192-10-S	Chile	21.12.2001
15	CP-1192-12-S	Chile	26.12.2002
16	CP-1158-12-S	Colombia	12.12.2001
17	CP-1158-13-S	Colombia	19.7.2002
18	CP-1243-1-S	Costa Rica	20.7.2001
19	CP-1243-2-S	Costa Rica	5.11.2002
20	CP-1088-3	Dominican Republic	21.1.1998
21	CP-1088-6	Dominican Republic	7.9.1999
22	CP-1088-8	Dominican Republic	18.10.2000
23	CP-2343-S	Dominican Republic	19.3.2002
24	CP-2343-1-S	Dominican Republic	28.6.2002
25	CP-1639-7-S	Ecuador	01.10.2001
26	CP-1639-8-S	Ecuador	27.1.2003
27	CP-1181-8-S	El Salvador	4.4.2002
28	CP-1181-9-S	El Salvador	24.10.2002
29	CP-1579-1-S	Guatemala	16.2.2001
30	CP-1579-2-S	Guatemala	17.12.2001
31	CP-1579-4-S	Guatemala	3.10.2002
32	CP-2432-E	Guyana	3.7.2002
33	CP-1538-9-S	Honduars	20.10.2001
34	CP-1538-10-S	Honduars	3.7.2002
35	CP-1528-2-E	Jamaica	7.1.2000
36	CP-1528-4-E	Jamaica	5.10.2000
37	CP-1528-8-E	Jamaica	6.9.2002
38	CP-1305-11-S	Mexico	17.10.2002
39	CP-1627-7-S	Nicaragua	19.12.2001
40	CP-1627-8-Corr-S	Nicaragua	11.9.2002
41	CP-1136-7-S	Panama	27.11.2001
42	CP-1136-9-S	Panama	4.10.2002
43	CP-1264-8-S	Paraguay	21.11.2001
44	CP-1264-10-S	Paraguay	8.11.2002
45	CP-1279-7-S	Peru	27.12.2001
46	CP-2501-E	Suriname	21.10.2002
47	CP-1715-5-E	Trinidad & Tobago	13.9.2002
48	CP-1013-13-S	Uruguay	28.6.2001
49	CP-1013-16-S	Uruguay	10.7.2002
50	CP-1053-6-S	Venezuela	27.12.2001

Project Performance Monitoring Reports (PPMR)

	Project	Title	Country	Date of Board Approval	Loan Amount Original US\$ (000's)	Loan Amount Current US\$ (000's)	IDB Loan Amount Disbursed as of Dec 2002 (000's); not included phase II & reallocation US\$ (000's)	Disbursements Percent (%)
1	AR-0136	Environment. Recovery Matanza-Riachuelo	Argentina	25.11.97	250'000	250'000	30'263	12.11%
2	AR-0242	Flooding Emergency Program	Argentina	5.8.98	300'000	300'000	205'830	68.61%
3	BA-0019	Coastal Infrastructure Program	Barbados	9.1.02	17'000	17'000	....	....
4	BH-0031	Infrastructure Rehabilitation	Bahamas	13.9.00	21'000	21'000	6'888	32.80%
5	BL-0015	Hurricane Rehab. and Disaster Preparedness	Belize	20.10.99	21'333	21'333	5'806	27.22%
6	BL-0018	Hurricane Keith Emergency	Belize	1.11.00	20'000	19'987	19'987	100.00%
7	BO-0040	National Irrigation Program (PRONAR)	Bolivia	6.12.95	25'600	25'600	15'083	58.92%
8	BO-0098	Improvement Program For The Ventilla-Tarapaya Highway and Transportation Sector	Bolivia	7.7.99	52'000	52'000	12'084	23.26%
9	BR-0210	Favelas Sao Paulo Rehabilitation Program	Brazil	10.7.96	150'000	150'000	139'553	93.04%
10	BR-0234	Campinas Flooding Control Program	Brazil	17.7.96	19'800	19'800	19'800	100.00%
11	BR-0345	Federal District Sanitation Program	Brazil	6.12.00	130'000	130'000	53'790	41.38%
12	BR-0374	Urban Paraná	Brazil	5.6.02	100'000	100'000	7'874	7.87%
13	CA-0034	Sustainable Management of the Lempa River Basin	El Salvador	25.7.01	14'000	14'000	....	....
14	CO-0055	Irrigation and Drainage Program	Columbia	22.3.95	140'000	52'000	28'876	55.53%
15	DR-0131	Local Road Maintenance and Rehabilitation Program, Phase II	Dominican Republic	29.7.98	48'000	48'000	7'612	15.86%
16	DR-0135	Georges Hurricane Emergency Program	Dominican Republic	2.12.98	105'000	105'000	94'548	90.05%
17	EC-0182	Mitigate el Nino Impact Program	Ecuador	19.11.97	70'800	70'714	70'714	100.00%

Annexes

	Project	Title	Country	Date of Board Approval	Loan Amount Original US\$ (000's)	Loan Amount Current US\$ (000's)	IDB Loan Amount Disbursed as of Dec 2002 (000's); not included phase II & reallocation US\$ (000's)	Disbursements Percent (%)
18	EC-0187	Fase Nino Phenomenon Complementary Program	Ecuador	4.11.98	48000	48000	43813	91.28%
19	EC-0200	Environmental Sanitation of Quito Metropolitan District	Ecuador	25.9.02	40000	40000	....	....
20	ES-0087	Housing Program	El Salvador	12.12.01	70000	70000	....	....
21	ES-0119	Retooling Agro-Enterprise	El Salvador	27.6.01	25000	25000	203	0.81%
22	ES-0120	Local Development Program II	El Salvador	26.9.01	70000	70000	14447	20.64%
23	ES-0129	Sustainable Rural Roads Program	El Salvador	11.4.01	58000	58000	6897	11.89%
24	ES-0148	Emergency Project for el Salvador	El Salvador	9.2.01	20000	19683	19683	100.00%
25	ES-0150	Emergency Project el Salvador II	El Salvador	16.4.01	20000	20000	18410	92.05%
26	GU-0022	Housing Program	Guatemala	15.10.97	60000	60000	53140	88.57%
27	GU-0133	Priority Basin Natural Resources	Guatemala	17.4.02	40000	40000	....	....
28	GU-0137	Emergency Support Prog. Natural Disaster	Guatemala	18.11.98	40000	40000	39537	98.84%
29	GU-0155	Program Against Urban Poverty	Guatemala	19.6.02	46800	46800	....	....
30	HO-0131	Social Investment Program (FHIS III)	Honduras	2.12.98	50000	50000	47322	94.64%
31	HO-0143	Road and Water Infra. Emergency Program	Honduras	20.1.99	18800	18800	18647	99.19%
32	HO-0146	Housing Program After Hurricane	Honduras	9.6.99	10390	10390	2610	25.12%

Annexes

	Project	Title	Country	Date of Board Approval	Loan Amount Original US\$ (000's)	Loan Amount Current US\$ (000's)	IDB Loan Amount Disbursed as of Dec 2002 (000's); not included phase II & reallocation US\$ (000's)	Disbursements Percent (%)
33	HO-0164	Emergency Road Complementary Program	Honduras	2.2.00	26800	26800	6486	24.20%
34	HO-0179	Natural Resources Management of Priority Basin	Honduras	23.5.01	25000	25000	1325	5.30%
35	JA-0123	Emergency Reconstruction Facility Torrential Rains	Jamaica	6.8.02	16000	16000	4719	29.49%
36	ME-0137	Housing Finance Program	Mexico	13.12.00	505000	505000	....	....
37	ME-0179	Sanitation for the Valley of Mexico	Mexico	4.12.96	365000	365000	3164	0.87%
38	NI-0064	Low-Income Housing Program	Nicaragua	25.9.02	22500	22500	....	....
39	NI-0068	Road Rehabilitation and Improvement Program	Nicaragua	18.10.95	75000	75000	75000	100.00%
40	NI-0099	Panamerican Highway Rehabilitation	Nicaragua	2.6.99	50000	50000	47000	94.00%
41	NI-0108	Poverty Allev and Strength Loc Capacity	Nicaragua	8.11.00	50000	50000	4377	8.75%
42	NI-0141	Social Environment for Forestry Development II	Nicaragua	12.9.01	32700	32700	3601	11.01%
43	NI-0156	Municipal Strength. and Development Prog	Nicaragua	19.9.01	12000	12000	22	0.18%
44	PE-0188	Support el Nino Weather Pattern Emergenc	Peru	19.11.97	150000	150000	148279	98.85%
45	PE-0215	Program to Support the Earthquake of Emergency	Peru	20.7.01	20000	18903	18903	100.00%
46	PN-0149	Sustainable Develop. Province Bocas del Toro	Panama	4.12.02	15200	15200	....	....
47	PR-0112	Emergency Support to "El Niño"	Parguay	5.8.98	35000	35000	25613	73.18%

V. Activity Report

This activity report represents a list of people interviewed in each country.

Bolivia (19-23 May 2003)

Héctor Arce	Damnificados Villa San Antonio
Luis Avalos	Damnificados Llojeta
Lic. José V. Barragán	Viceministro de Servicios Básicos Ministerio de Vivienda y Obras Públicas (MVOP)
Elizabeth Carrasco de Méndez	Comité de Vigilancia Gobierno Municipal de La Paz (GMLP)
Paul Castellanos	Perfecto de Tarija
Mario Galindo	Viceministro de Planificación Ministerio de Desarrollo sostenible y Planificación (RDS)
Mateo Laura	Perfecto de La Paz
Carlos Melo	Representative Banco Interamericano de Desarrollo (IDB)
Janeth Murillo	Damnificados Calle Mercado
Jorge Martínez Riva	Deputy Representative Banco Interamericano de Desarrollo (IDB)
Francisco Suárez	Viceministro de Defensa Civil y Apoyo al Desarrollo Ministerio de Defensa Nacional (MINDEF)
Freddy Teodovich	Ministerio de Defensa Ministerio de Defensa Nacional (MINDEF)
Gonzalo Vargas	Oficial Mayor Técnico Gobierno Municipal de La Paz (GMLP)

Mexico (19-23 May 2003)

Dr. Segio Alcocer	Coordinador de Investigación del Centro Nacional de Prevención de Desastres (CENAPRED) ex Technical Director
Alberto Jaime	Comisión Nacional del Agua (CNA)
Ing. Rafael Negret	Natural Resources and Ecology specialist Banco Interamericano de Desarrollo (IDB)
Sergio Palafox	Project Director Comisión Nacional del Agua (CNA)
Luis Robledo	ex special projects coordinator Comisión Nacional del Agua (CNA)
Ing. Paz Soldán	Gerente Valle de México Comisión Nacional del Agua (CNA)
Ing. Sergio Urra	Water and Sanitation specialist Banco Interamericano de Desarrollo (IDB)

Peru (26-30 May 2003)

Ing. Arturo Farromeque Chumbes	Director Dirección Ecología Municipalidad Metropolitana de Lima
Ing. Francisco Gayoso Levallos	Gerente Proyectos en Costa Ministerio de Vivienda, Construcción y Saneamiento Instituto Nacional de Desarrollo (INADE)

Annexes

Dr. Carlos Giesecke	Director General de Programación Multianual del Sector Público Ministerio de Economía y Finanzas
Tomas Grados	Gobernador del Distrito de San Mateo 2000-2002
Pedro Kuljevan Garcia	Director Dirección de Defensa Civil Municipalidad Metropolitana de Lima
Ciro Lazo	Secretario Técnico de Defensa Civil Distrito de Santa Cruz de Cochachacra
Dr. Ing. Néstor Montalvo Anrquiñigo	Jefe del PEAE Ministerio de Vivienda, Construcción y Saneamiento Instituto Nacional de Desarrollo (INADE)
Juan Luis Podestá	Jefe Instituto Nacional de Defensa Civil
Vladimir Radovic	Representante Banco Interamericano de Desarrollo (IDB)
Saturnino Alejandro Rios Leon	Regidor de la Municipalidad Provincial de Huarochiri
Gilberto Romero	Programa Regional Andino para la Prevención y Mitigación de Riesgos "PREANDINO" Vicepresidencia de Infraestructura Corporación Andina de Fomento (CAF)
Ing. Ricardo Sánchez Carlessi	Asesor Principal Ministerio de Vivienda, Construcción y Saneamiento Instituto Nacional de Desarrollo (INADE)
Eli Tapia	Co-fundador de CODEMADES (Comité de Defensa del medio ambiente y desarrollo)
Ing. Federico Vargas Centeno	Presidente Ejecutivo Ministerio de Vivienda, Construcción y Saneamiento Instituto Nacional de Desarrollo (INADE)
Nancy Zapata Rondón	Asesora Secretaria de Gestión Multisectorial Presidencia del Consejo de Ministros

Jamaica (26-28 May 2003)

Joy Alexander	National Environmental & Planning Agency (NEPA)
Ivan Anderson	Chief Executive Officer NWA National Works Agency (NWA)
Karleen Black	Earthquake Unit UWI, Mona Kingston
Simon L. Bradfield	Senior Project Manager WSP National Works Agency
Philbert Brown	Ministry of Land and Environment
Majorie Campbell	General Manager Urban & Development Corporation (UDC)
Evan Cayetano	Inter-American Development Bank (IDB)
Alvin Clarke	Disaster Coordinate St. Ann Parish Council St. Ann Parish Council
Maurice Cohson	Urban & Development Corporation (UDC)
Sonia Dowding	Urban & Development Corporation (UDC)

Olga Faye Headley	Parish Coordinator for Disaster Preparedness St James Parish Council
Dorothy Francis	Deputy Chair, Emergency Service Jamaica Red Cross
Kirk Freckleton	Urban/Physical Planner Planning Institute of Jamaica (POJ)
Kirk Haugthon	National Environmental & Planning Agency (NEPA)
Lucien Lewis	Urban & Development Corporation (UDC)
Franklin J McDonald	Executive Director National Environmental & Planning Agency (NEPA)
David Parks	Secretary Manager Portland Parish Council
Hopeton Peterson	Manager Sustainable Development Planning Institute of Jamaica (POJ)
Tyrone A. Rajnauth	Sectorial Specialist Inter-American Development Bank (IDB)
Mr. Reno	Disaster Coordinator Jamaica Red Cross
Johannes Ruof	Project Manager National Works Agency
Paul Sanders	Office of Disaster Preparedness and Emergency Management (ODPEM)
Franklyn Smith	Disaster Coordinator St. Catherine Parish Council
Maclene Smith	Office of Disaster Preparedness and Emergency Management (ODPEM)
Lasford Stone	Manager – Mutual Financing Programme Planning Institute of Jamaica (POJ)
Helma A. Tato	Manager Westmoreland Parish Council
Evan Thompson	Meteorological Survey
Paul Williams	Earthquake Unit UWI, Mona Kingston

Honduras (28-30 May 2003)

Marcio Alvarado E.	Director General de Carreteras Secretaría de Obras Públicas, Transporte y Vivienda (SOPTRAVI)
Sergio Amaya	Director General Secretaría de Obras Públicas, Transporte y Vivienda (SOPTRAVI)
Hugo Arevalo	Sub Comisionado Nacional Comisión Permanente de Contingencias (COPECO)
Jorge Carranza	Ministro Secretaría de Obras Públicas, Transporte y Vivienda (SOPTRAVI)
Cesar A. Castelleon	Esp. Sectorial Banco Interamericano de Desarrollo (IDB)
Hector Cerna	Project Manager Servicio Nacional de Aguas y Alcantarillas (SANAA)
Riguberto Funes C.	Vice-Ministro Secretaría de Obras Públicas, Transporte y Vivienda (SOPTRAVI)
Ana Julia Garcia	Sub-Directora de Carreteras Secretaría de Obras Públicas, Transporte y Vivienda (SOPTRAVI)
Jose Santos Martinez C.	Sub Director de Fortalecimiento municipal Fondo Hondureño de Inversión (FHIS)

Annexes

Gerardo Noe Pino	Sub Director de Finanzas y Administracion Fondo Hondureño de Inversión (FHIS)
Antonia Jose Paz	Specialist in water and sanitation Banco Interamericano de Desarrollo (IDB)
Rubin Reyes j.	Jefe Unidad Ejecutora Secretaría de Obras Públicas, Transporte y Vivienda (SOPTRAVI)
Carlos Andres Rodriguez	Director de Sistema Fondo Hondureño de Inversión (FHIS)
Jorge Alberto Rodriguez	Fondo Hondureño de Inversión (FHIS)
Dr. Oscar A. Núñez Sanodval	Banco Central De Honduras Director
Raful A Sura	Administrator Amidad ejectren
Leony Yu Way M.	Fondo Hondureño de Inversión (FHIS)

El Salvador (2-6 June 2003)

Dr. Herbert A. Betancourt	Viceministro de Salud Publica y Asistencia Social
Joel Branski	Subrepresentante Banco Interamericano de Desarrollo (IDB)
Arq. Grana Maria de Calderon	Gerente de Programacion, Segurimiento y Evaluacion de la Unidad de Planificacion Vial
Dr. Ing. Humberto Castedo	Especialista Sectorial Banco Interamericano de Desarrollo (IDB)
Sr. Oscar Nelson Cruz	Gerente Financiero, FISDL
José Domingo Castellanos	Asesor Dirección General de Cooperación Externa
Sr. Philippe Dewez	Representante Banco Interamericano de Desarrollo (IDB)
Ernesto Durán	Coordinador Area de Analista para la Gesión del Riesco Servicio Nacional de Estudios Territoriales (SNET)
Lic. Miguel Angel Espinoza	Gerente Administrativo Ministerio de Educación
Dr. Reinaldo Flores	Encargado de Proyectos Banco Interamericano de Desarrollo (IDB)
Arq. Patricia Fortin	Gerente General Fondo de Inversión Social (FISDL)
Ing. Miguel Francia	Colaborador Técnico Unidad Tecnica de Desastres Ministerio de Salud Pública y Asistencia Social (UTD)
Sr. Tom Hawk	Director Ejecutivo Fondo de Inversión Social (FISDL)
Roberto Jovel	Coautor Manual de CEPAL
Ing. Kathy Kury	Directora Nacional de Infraestructura Educativa Ministerio de Educación
Jose Emilio Márquez H.	Especialista en el Area Económica Servicio Nacional de Estudios Territoriales (SNET)
Lic. Wendy Guadalupe Menjivar Diaz	Gerente Financiero Ministerio de Educación
Sr. Raúl Murillo	Coordinador de Sistema Alerta Temprana para Inundaciones y Sequia Comisión de Emergencias Nacional (COEN)
Guillermo Navarrete	Ministerio de Medio Ambiente y Recursos Naturales

Ing. Jorge Alberto Oviedo	Director, Oficina de Planificación Agropecuaria Ministerio de Agricultura y Ganadería (MAG)
Herberth Quezada Alvarado	Coordinador Nacional, Programa Descontaminación de Áreas Críticas Ministerio de Medio Ambiente y Recursos Naturales
Lic. José Ángel Quiras	Ministro de Obras Públicas, Transporte, Vivienda, y Desarrollo Urbano Ministerio de Obras Públicas
Francisco Antonio Rivas Mejía	Asistente Ejecutivo Dirección General de Cooperación Externa
Hernán Romero Ch.	Especialista Sectorial Banco Interamericano de Desarrollo (IDB)
Miguel Gonzalo Salazar	Asesor de la Unidad de Desarrollo Social Integral Ministerio de Relaciones Exteriores
Armando Servellón R.	Director, Oficina Financiera Institucional Ministerio de Agricultura y Ganadería (MAG)
Ing. Oscar Seysas	Gerente de Gestión de la Unidad de Inversión Vial
Saul Antonio Tobar	Mayor's Office at the Municipal of Cuscatancingo
Salvador Urrutia Luocel	Ministro de Agricultura y Ganadería Ministerio de Agricultura y Ganadería (MAG)
Leopoldo A. Ventura Urrutia	Director Ejecutivo Cámara Salvadoreña de la Industria de la Construcción
Lic. José Napoleón Zepeda	Coordinador Nacional de Programación y Monitoreo Proyectos Ministerio de Educación

Nicaragua (9-13 June 2003)

Juan José Amador	Coordinador de la Unidad para Manejo de Desastres Ministerio de Salud (MINSAL)
Libio Bendaña	Director, Gestión Ambiental Ministerio de Transporte e Infraestructura (MTI)
Eduardo Caldera	Fondo de Inversión Social de Emergencia (FISE), Specialist
Mario A. Callejas López	Dirección General de Recursos Naturales D.G.R.N. Ministerio de Fomento, Industria y Comercio (MIFIC)
Maria Amanda del Carmen	Directora de Política y Normas Dirección General de Recursos Naturales D.G.R.N. Ministerio de Fomento, Industria y Comercio (MIFIC)
Ing. Danilo Centeno	Director de Inversiones Program Ministerio de Transporte e Infraestructura (MTI)
Silvio Cerna Hernández	Seguimiento y Evaluación de Proyectos de Prevención, Mitigación y Atención a Desastres Sistema Nacional para la Prevención, Mitigación y Atención de Desastres (SINAPRED)
Sr. Denis Corrales	Especialista Recursos Naturales y Ambiente Banco Interamericano de Desarrollo (IDB)
E. Cuarezma	Alcaldía de Managua
Dr. Uriel Figueroa	Delegado Ministerio Hacienda y Crédito Público
Marcelino Jiménez G.	Proyecto Saneamiento Lago de Managua Empresa Nicaragüense de Acueductos y Alcantarillados Sanitarios (EN ENACAL)
Lic. Mayra Blandino Lacayo	Jefe de Unidad Ambiental Fondo de Inversión Social de Emergencia (FISE)
Dr. Milán	Alcaldía de Managua

Sra. Georgina Orozco	Coordinadora de Planificación y Sanimiento Programa socioambiental y de desarrollo forestal (POSAF) Ministerio de Recursos Naturales y del Ambiente (MARENA)
Luis Palacios	Director del departamento de recursos hídricos Instituto Nicaraguense de Estudios Territoriales (INETER)
Víctor Palacios	Director, Proyectos del BID Ministerio de Transporte e Infraestructura (MTI)
Dr. José Luis Pérez Narváez	Coordinador General Unidad Técnica de Enlace para Desastres Ministerio de Salud (MINSA)
Sr. Francisco Rodríguez	Coordinador Unidad Técnica Programa socioambiental y de desarrollo forestal (POSAF) Ministerio de Recursos Naturales y del Ambiente (MARENA)
Ing. José Humberto Romero A.	Jefe del Departamento de Informática Secretaría Ejecutiva del Sistema Nacional para la Prevención, Mitigación y Atención de Desastres (SINAPRED)
Ing. Mauricio Rosales R	Director General de Meteorología Instituto Nicaraguense de Estudios Territoriales (INETER)
Salvador Sacasa Cisne	Asesor Económico del Ministro Secretaría de Relaciones Económicas y Cooperación Ministerio de Relaciones Exteriores
Alejandro Sevilla	Coordinador de la Unidad Ministerio de Recursos Naturales y del Ambiente (MARENA)
Ing. Jleana Sira Espinoza	Dirección General de Construcción Desarrollo Urbano Ministerio de Transporte e Infraestructura (MTI)
Dr. Wilfred Strauch	Director del Departamento de Geofísica Instituto Nicaraguense de Estudios Territoriales (INETER)
Lic César N. Suaro Robleto	Secretario General Ministerio de Hacienda y Credito Publico
Lic. César Suazo	Secretario General Ministerio Hacienda y Credito Publico
Teresa Suazo	Fortalec. Capacidades Locales Instituto Nicaraguense de Fomento Municipal (INIFOM)
Arq. Erasmo Vargas	Director Sistema Nacional para la Prevención, Mitigación y Atención de Desastres (SINAPRED)
Lic. Raúl Vega Basurto	Coordinador Instituto de la Vivienda Urbano y Rural (INVUR)
Ignacio Vélez	Director de Proyectos Fondo de Inversión Social de Emergencia (FISE)
Lic. Luis Zúñiga Mendieta	Director General de Ordenamiento Territorial Instituto Nicaraguense de Estudios Territoriales (INETER)

VI. Questionnaire

The questionnaire was distributed to all people interviewed during the country field trips and in addition sent to all IDB country local representatives. 35 questionnaires have been sent back.

Table 19 Overview on the backflow of questionnaires

Countries	Number questionnaires
Bolivia	6
El Salvador	16
Nicaragua	6
Peru	5
Jamaica	2
Total	35

The answers in the following questionnaire are based on a summary of the most quoted answers.

Country Questionnaire

Name of interviewee: _____ Title: _____

Position of interviewee in organization: _____

Date: _____

Contact information:

Name:	
Address:	Email:
	Tel:
	Fax:

1. DISASTER MANAGEMENT IN YOUR COUNTRY (TASK 1).....	1
1.1 Current disaster management strategies in the country (region or municipality, if relevant to you).....	1
1.2 How does your country pay for disaster-related activities (disaster finance).....	2
1.3 Disaster risk reduction in your country.....	6
2. DISASTER-RELATED ACTIVITIES OF THE IDB IN YOUR COUNTRY (TASKS 4, 6).....	8
2.1 Relevance of IDB activities for country needs in disaster management.....	8
2.2 Effectiveness-impact of IDB policy guidelines on disaster management.....	11

1. Disaster Management in your country (task 1)

1.1 Current disaster management strategies in the country (region or municipality, if relevant to you)

- (Task 1.2): Using the following table, how would you rank the following disaster management measures in your country, in terms of their importance relative to actual political realities.

Spectrum of political priorities	Ranking of importance relative to actual political reality (mark with an "x")					Do not know	
	Not a priority				High priority		
Disaster management activities	0	1	2	3 (31%)	4	5	
Macroeconomic and fiscal policy	0	1	2	3	4	5 (46%)	
Social policy (health, education, pensions, etc.)	0	1	2	3 (29%)	4	5	
Sectoral policy (business, agriculture, industry, etc.)	0	1	2	3 (37%)	4	5	
National security	0	1	2	3 (26%)	4	5	
Other: _____	0	1	2	3	4	5	

- (Task 1.2) Using the table below, provide us an overview of your country's top disaster-related priorities. What priority do you think each of these disaster-related measures *should* have?

Disaster Management Measure	Actual disaster-related priority for my country	What priority <i>do you think this measure should</i> have?
	Ranking (where highest priority = 1)	Ranking (where highest priority = 1)
Prevention	5 (23%)	1 (73%)
Mitigation	6 (48%)	2 (45%)
Disaster preparedness	2 (29%) / 5 (29%)	1 (34%)
Emergency response	2 (63%)	6 (26%)
Rehabilitation	2 (31%)	5 (37%)
Reconstruction	3 (31%)	6 (28%)
Other:		

1.2 How does your country pay for disaster-related activities (disaster finance)

- (Task 1.3) Using the following table, describe how your country currently finances disaster losses.

Source of disaster resources	How does your country/region/municipality pay for disaster-related expenses? (0%=financial instrument not used, 100%=only this financial instrument used)			On a scale of 1 to 6, rank the source of disaster resource in importance (1=most costly i.e. highest interest rate or premium, and 6=least costly, lowest interest rate or premium)**	
	Which source is used?	Relative importance (%)	Do not know	Scale	Do not know
Post-disaster lending	Yes (80%)			1 (49%)	
Community solidarity	Yes (72%)			5 (52%)	
Post-disaster grants and aid	Yes (71%)			No cost for grants or aid, 0%	
Pre-disaster contingency credit	No (86%)			3 (23%)	
Pre-disaster reserve fund	No (80%)			4 (26%)	
Insurance and reinsurance	No (79%)			3 (24%)	
Other:					

**For example, grants and aid cost nothing because they must not be repaid

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- (Task 3.3) Does the way that your country currently pays for its disaster losses force your country to sacrifice other development priorities? Using the table below, tell us what you think about the degree to which the way that your country currently pays for its disaster losses impact other development priorities.

Policy priorities of my country/region/municipality	Degree to which the way your country pays for its disaster losses negatively impact other development priorities (mark with an "x")					Do not know
	No negative impact			Serious negative impact		
Economic (e.g. enhancing growth rates, controlling inflation, encouraging savings and investment, enhancing sectoral development, etc.)	0	1	2	3	4	5 (43%)
Social (e.g. meeting goals for poverty reduction, public health and education, quality of life, etc.)	0	1	2	3	4	5 (40%)
Poverty reduction	0	1	2	3	4	5 (34%)
Financial (e.g. meeting goals to improve the climate for business and investment, increase rates of return, etc.)	0	1	2	3 (37%)	4	5
Environmental	0	1	2 (31%)	3	4	5
Other: _____	0	1	2	3	4	5

- (Task 3.3) What disaster management activities do you currently undertake, and why?

What disaster management activities do you currently undertake, and why?					
Type of disaster management activity	No, we do not undertake this activity	What factors discourage this activity from being undertaken?	Yes, we undertake this activity	What incentives play a role in motivating you to undertake this activity?	Do not know
Prevention	X (57%)	26% Ease of getting resources 19% Amount of time it takes to get resources 12% Political considerations 21% Public visibility 21% Ability to achieve consensus to undertake this activity 1% Ability of activity to reduce future risk Other incentives: _____		<input type="radio"/> Ease of getting resources <input type="radio"/> Amount of time it takes to get resources <input type="radio"/> Political considerations <input type="radio"/> Public visibility <input type="radio"/> Ability to achieve consensus to undertake this activity <input type="radio"/> Ability of activity to reduce future risk <input type="radio"/> Other incentives: _____	
Mitigation		<input type="radio"/> Ease of getting resources <input type="radio"/> Amount of time it takes to get resources <input type="radio"/> Political considerations <input type="radio"/> Public visibility <input type="radio"/> Ability to achieve consensus to undertake this activity <input type="radio"/> Ability of activity to reduce future risk <input type="radio"/> Other incentives: _____	X (58%)	17% Ease of getting resources 7% Amount of time it takes to get resources 17% Political considerations 10% Public visibility 5% Ability to achieve consensus to undertake this activity 38% Ability of activity to reduce future risk 6% Other incentives: _____	

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	No, we do not undertake this activity	What factors discourage this activity from being undertaken?	Yes, we undertake this activity	What incentives play a role in motivating you to undertake this activity?	Do not know
Disaster preparedness		<input type="radio"/> Ease of getting resources <input type="radio"/> Amount of time it takes to get resources <input type="radio"/> Political considerations <input type="radio"/> Public visibility <input type="radio"/> Ability to achieve consensus to undertake this activity <input type="radio"/> Ability of activity to reduce future risk <input type="radio"/> Other incentives: _____	X (89%)	14% Ease of getting resources 9% Amount of time it takes to get resources 20% Political considerations 13% Public visibility 4% Ability to achieve consensus to undertake this activity 38% Ability of activity to reduce future risk 2% Other incentives: _____	
Emergency response		<input type="radio"/> Ease of getting resources <input type="radio"/> Amount of time it takes to get resources <input type="radio"/> Political considerations <input type="radio"/> Public visibility <input type="radio"/> Ability to achieve consensus to undertake this activity <input type="radio"/> Ability of activity to reduce future risk <input type="radio"/> Other incentives: _____	X (93%)	19% Ease of getting resources 20% Amount of time it takes to get resources 20% Political considerations 17% Public visibility 17% Ability to achieve consensus to undertake this activity 4% Ability of activity to reduce future risk 3% Other incentives: _____	
Rehabilitation		<input type="radio"/> Ease of getting resources <input type="radio"/> Amount of time it takes to get resources <input type="radio"/> Political considerations <input type="radio"/> Public visibility <input type="radio"/> Ability to achieve consensus to undertake this activity <input type="radio"/> Ability of activity to reduce future risk <input type="radio"/> Other incentives: _____	X (96%)	16% Ease of getting resources 16% Amount of time it takes to get resources 23% Political considerations 20% Public visibility 14% Ability to achieve consensus to undertake this activity 7% Ability of activity to reduce future risk 4% Other incentives: _____	
Reconstruction		<input type="radio"/> Ease of getting resources <input type="radio"/> Amount of time it takes to get resources <input type="radio"/> Political considerations <input type="radio"/> Public visibility <input type="radio"/> Ability to achieve consensus to undertake this activity <input type="radio"/> Ability of activity to reduce future risk <input type="radio"/> Other incentives: _____	X (94%)	19% Ease of getting resources 7% Amount of time it takes to get resources 22% Political considerations 25% Public visibility 17% Ability to achieve consensus to undertake this activity 7% Ability of activity to reduce future risk 3% Other incentives: _____	

1.3 Disaster risk reduction in your country

- (Task 1.6): Regarding incentives that foster or limit effective risk management in your country, do you agree or disagree with the following hypotheses?
 - **Agree/Disagree**: Effective disaster management has a high political priority even when disasters have not occurred for the past year or two.
 - **Agree/Disagree**: Decision makers in my country are rewarded for effective disaster risk management that goes beyond emergency response (including risk prevention, emergency preparedness, reconstruction and vulnerability reduction, etc.).
 - **Agree/Disagree**: National organizations involved in disaster risk management in my country have sufficient access to the offices that deal with the IDB (particularly the finance ministry).
 - **Agree/Disagree**: The central government has incentives to cooperate with national and international organizations for disaster risk management and in disaster management activities.

- (Task 1.6): Regarding risk reduction, do you agree or disagree with the following hypotheses?
 - **Agree/Disagree**: Risk reduction is not rewarded (lacks visibility, individual rewards)
 - **Agree/Disagree**: Risk reduction is poorly understood by lenders and borrowers
 - **Agree/Disagree**: Risk reduction activities are limited because technical resources are limited at all levels

- (Task 1.3): What insights can you add about the incentives your country faces for disaster risk reduction activities?

- (Task 1.6): Using the table below, rank the most serious obstacles to pre-disaster risk reduction.

Possible obstacles for disaster management	Your ranking of how serious the <u>obstacle</u> is for pre-disaster risk reduction activities		
	Not an obstacle		Serious obstacle
Institutional (rules, evaluations, capabilities and organizational mandate, etc.)	0	1 2 3 4 5	4 (34%)
Political (competing priorities, timing of political processes, etc.)	0	1 2 3 4 5	3 (26%)
Technical (information needs, ability to estimate the return on investment of non-events, etc.)	0	1 2 3 4 5	3 (34%)
Other: _____	0	1 2 3 4 5	

2. Disaster-related activities of the IDB in your country (tasks 4, 6)

2.1 Relevance of IDB activities for country needs in disaster management

- (Task 4.1) Characterize disaster management needs and disaster management capabilities in your country.

Disaster management activity	Which of the following disaster-related activities are undertaken in your country?			Capacity of my country to carry ahead this activity					
	Activity undertaken	Activity NOT undertaken	Do not know if activity undertaken	No capacity (assistance is essential)	High capacity (no assistance required)	Do not know			
Disaster preparedness				0	1	2 40%	3	4	5
Risk reduction				0 31%	1	2	3	4	5
Emergency response				0	1	2	3 26%	4	5
Reconstruction and rehabilitation				0	1 26%	2	3	4	5

Technical capacity and Disaster-related data

<u>Mapping of hazards</u> (Flood, EQ, hail, storm etc), soils, land use patterns				0	1	2	3 35%	4	5
<u>Infrastructure information:</u> Statistic information on building types (confined masonry, reinforced masonry, concrete frame, adobe, steel frame....) , ideally split up into classes residential/commercial/industrial and with an indication on which type can be found in which region				0	1	2	3 23%	4	5
<u>Information on capital stock,</u> i.e. the sum of (insurable) values per region				0 34%	1	2	3	4	5

	Activity undertaken	Activity NOT undertaken	Do not know if activity undertaken	No capacity (assistance is essential)		High capacity (no assistance required)	Do not know		
Development of or access to disaster databases (Information on historic events, e.g. event lists of the last decades/centuries with information on the intensity, area affected, damages to buildings and infrastructure, casualties etc.)				0	1	2	3 31%	4	5
Loss potential studies for major events affecting populated areas				0	1 31%	2	3	4	5
Institutional capacity									
National institutional capacity to manage disasters				0	1 31%	2	3	4	5
Coordination of disaster management activities with NGOs and other international organizations				0	1 29%	2	3	4	5
Financial capacity									
Paying for emergency response				0 40%	1	2	3	4	5
Paying for the damages caused by disasters (reconstruction)				0 40%	1	2	3	4	5
Financial support for disaster management activities (preparedness, risk reduction, emergency response, reconstruction)				0 40%	1	2	3	4	5

- (Task 4.5) Could you suggest addresses of contact persons, data and other information sources, interesting web addresses?

- (Task 6) Are you familiar with the disaster management policy and disaster management recommendations of the IDB?

35% not familiar with IDB disaster management policy
48% familiar only with the IDB programs that we have worked with
16% familiar with IDB disaster management policy

- (Task 4.5) To what degree do IDB activities (projects and other activities) respond to disaster management needs and facilitate effective disaster management in your country?

Disaster management needs	Do IDB projects and other activities respond to your country's disaster management needs?				
	IDB activities are not related to disaster management needs in my country			IDB activities effectively respond to my country's disaster management needs	Do not know
Technical capacity	0	1	2 (20%)	3 (20%)	5
Institutional capacity	0	1	2	3 (31%)	5
Financial capacity	0	1	2	3	4 (26%)
Disaster preparedness	0	1	2	3 (26%)	5
Risk reduction	0	1	2 (23%)	3	5
Emergency response	0	1	2 (20%)	3	5
Reconstruction and rehabilitation	0	1	2	3 (34%)	5

Annexes

- (task 4.2) Have you ever had any disaster related IDB projects in your country?
54% yes 46% no

- (task 4.2) If yes, which projects?

- (task 4.2) If yes, what benefits did the project generate?

- (task 4.3) Using the table below, to what degree do IDB activities in your country encourage the following disaster related measures

Disaster related activity	Degree to which IDB projects and activities help my country in the following disaster-related activities						
	IDB activities discourage this disaster-related measure			IDB projects and activities strengthen this measure	Do not know		
National Systems for Disaster Prevention and Response	0	1	2	3 (29%)	4	5	
Integrating Prevention into the Country Culture	0	1	2 (37%)	3	4	5	
Reducing the Vulnerability of the Poor	0	1	2	3 (29%)	4	5	
Involving the Private Sector	0 (23%)	1	2	3	4	5	
Risk Information for Decision-Making	0	1	2 (29%)	3	4	5	
Fostering Leadership and Cooperation in the Region	0	1	2 (20%)	3	4	5	

2.2 Effectiveness-impact of IDB policy guidelines on disaster management

- (task 6) Are you aware of the IDB instruments available to help your country manage disasters? 31% yes 69 % no

- (task 6) If yes, which instruments are you aware of?

- (task 6) In summary, do you think that IDB projects and activities are relevant to disaster risk management in your country? 34% yes 66% no

- (task 6) If yes, in what ways have IDB projects and activities been relevant to disaster risk management in your country?

- (task 6) What recommendations could you offer to the IDB to improve its assistance in disaster risk management?

