

INTER-AMERICAN DEVELOPMENT BANK

REGIONAL POLICY DIALOGUE

NATURAL DISASTERS NETWORK

III MEETING

**COMPREHENSIVE RISK MANAGEMENT BY COMMUNITIES AND LOCAL
GOVERNMENTS**

**COMPONENT IV: EX-ANTE AND EX-POST FINANCIAL CONSIDERATIONS FOR
LOCAL GOVERNMENT RISK MANAGEMENT CAPACITY**

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Deutsche Gesellschaft für
Technische Zusammenarbeit (GTZ) GmbH
International Services

Versión preliminar

Washington, D.C., 6 y 7 de marzo de 2003

Note: This document is part of a series of papers commissioned by the Inter-American Development Bank for the Regional Policy Dialogue. This document is under review, therefore it should not be cited as reference. The opinions expressed herein are solely those of the author and do not necessarily reflect the position of the Bank.

Preface

In the third phase of the Regional Policy Dialogue on disaster risk management, the Inter-American Development Bank (IDB) requested the Deutsche Gesellschaft für Technische Zusammenarbeit (German Technical Cooperation Agency, GTZ) to conduct a study on “**Comprehensive Risk Management by Communities and Local Government**”, with the purpose of suggesting strategies and measures to strengthen local actors for disaster risk management. This analysis is based upon the results of studies carried out in the two previous phases of the Dialogue regarding institutional (Freeman and Martin 2001) and financial mechanisms (Freeman and Martin 2002) at the national level. The present study is divided in four components:

Component I: Institutional Aspects of Local Government Disaster Risk Management

Component II: Capacity Building and Technical Assistance for Disaster Risk Management at a Community Level

Component III: Indicators and other Disaster Risk Management Instruments for Communities and Local Governments

Component IV: Ex-ante and Ex-post Financial Considerations for Local Government Risk Management Capacity

The consultant team combined two approaches to the study: an analysis of existing concepts at the global level with emphasis on Latin America and case studies based on country-specific experiences. Case studies have been prepared by national experts in the countries of Latin America, Europe, and Asia with the goal of analyzing national and local systems and practices in disaster risk management. These approaches have enabled the team to take into account a wealth of contextual and conceptual information, in addition to their practical applications. Appraising strengths and weaknesses of disaster risk management systems through these case studies also facilitated outlining the recommendations and models appropriate for disaster risk management in Latin America and the Caribbean, where local actors play a crucial role.

Although separate reports have been prepared for each component, the consultant team has ensured a conceptual integrity and coherence among the four components through pursuing similar approaches and common concepts.

The aim of this study is strengthening local governments, institutions and communities for undertaking disaster risk management, and establishing their complementarity in the national disaster management system. It is important to recognize the importance of local resources and initiatives in assessing the national capacity for disaster risk management.

With this underlying objective, it is necessary to consider that the effectiveness of local actors depends on the existence of appropriate national frameworks for disaster risk management. Local actors derive their role, authority, and resources from institutional, legal, and financial frameworks established at the national level.

The concept of risk management applied in the study embodies: prevention, mitigation, preparedness, response, rehabilitation, and reconstruction. Within this approach, it considers as essential the analysis of risks as the basis to identify and define appropriate measures for reducing risks. The understanding of these elements, as well as the concept of strengthening of capacities in this area is based on the definitions contained in the preliminary version of the survey of global initiatives in disaster reduction prepared by the International Strategy for Disaster Reduction (ISDR) published in the year 2002 (ISDR 2002).

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List of Acronyms

AIF	Asociación Internacional de Fomento
CONARADE	National Council for Risk Reduction and Emergency and Disaster Response
CRED	Centre for Research on the Epidemiology of Disasters
DGPAD	General Directorate for Disaster Prevention and Management
ECLAC	Economic Commission for Latin America and the Caribbean
ESF	Emergency Social Fund
EU	European Union
FONDEN	Fund for Natural Disasters
FOPAE	Emergency Prevention and Management Fund of Bogotá
FORADE	a Risk Reduction and Disaster Management Trust Fund
FOREC	Fund for the Reconstruction and Social Development of the Coffee Growing Region
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit German Agency for Technical Cooperation Agencia de Cooperación Técnica Alemana
IDB	Inter-American Development Bank
LPP	Ley de Participación Popular
MFI	Microfinance Institution
NFIP	National Flood Insurance Program
OECD	Organization for Economic Cooperation and Development
PAHO	Pan American Health Organization
PET	Temporary Employment Program
SENADECI	National Civil Defense Service
SENAR	The National Risk Reduction Service
SIF	Social Investment Fund
SISRADE	Risk Reduction, Emergency and Disaster Response System
UNDP	United Nations Development Programme
UTOAF	Operational Technical Unit for Support and Strengthening

Executive Summary

1. The process of empowering local governments in Latin America reflects growing trends in democratization and pluralistic politics in the region. Most of the Latin American countries initiated significant constitutional reforms in the decade of 1980s and 1990s to redistribute political, fiscal and administrative powers in favor of local governments. These reforms also brought certain public services and functions within the domain of local governments, disaster risk management being one of them. As Latin America is a disaster-prone region, local governments are expected to play an increasingly important role in disaster prevention, preparedness, mitigation and response. It underscores the need to strengthen the capacity of local governments through provision of technical and financial resources.

2. This study focuses on financing and fiscal arrangements for disaster risk management at the local level. It assumes significance in view of a number of considerations. First, local governments are obligated to provide basic emergency services to the citizens within their jurisdiction. Second, disaster preparedness is conducted most effectively at the local level. Third, community-based mitigation programs represent a more targeted and cost-effective approach to disaster risk management. Fourth, the impact of disasters is most often centered on a certain region or city within a country, affecting households, communities, civic utilities and infrastructure on a local basis. Fifth, the social security system in Latin America remains weak, which makes people more dependent on locally available financial mechanisms. Finally, large investments are made at the local level through externally assisted reconstruction programs. The participation of local governments in these reconstruction programs will enhance their capacity in disaster risk management.

3. Local governments are extremely diverse in their jurisdiction, capacity, and resources. Metropolitan cities with more than 10 million population to very small towns with less than 10,000 population—all are, as a rule, governed through one or the other form of a local government. Financing strategies for disaster risk must reflect the diversity of these functioning entities. The study has selected three countries—Colombia and Bolivia from Latin America, and Germany from Europe—to present the diversity of experiences and approach. The study briefly discusses the political and financial scheme of decentralization in Colombia and Bolivia to provide the context in which the financing

strategy for disaster risk in Latin America has been discussed. Germany, which experienced unprecedented floods in 2002, provides the developed country perspective.

4. Local governments have access to different sources of local revenue—user charges, taxes, transfers, and loans. The most appropriate mix of these revenue sources for a local government would depend upon its capacity and the public functions assigned to it. Though fiscal arrangements vary across countries, the need for greater revenue and resource assignment to local governments has increased in view of the growing ambit of decentralization. In many sectors such as forestry, drinking water, fisheries and coastal resources, and urban environment, local governments are playing a bigger role in the regulation and management of services. Disaster risk management too is an emerging area of public responsibility, where the role of local governments and other local entities is being increasingly recognized.

5. All the three countries included in the case study have recently decentralized their national disaster management system in the last decade, assigning specific responsibilities and resources to the sub-national and municipal governments. In Colombia, a new National Disaster Prevention and Management System was set up in 1989, which decentralized disaster-related functions and gave a large role to departments and municipalities. In Bolivia, the Risk Reduction and Disaster Response Law, enacted in 2000, created the national Risk Reduction, Emergency and Disaster Response System. In Germany too, the federal government handed over the executive authority for civil defense to the states (*Laenders*) in 1990 through a revision of earlier 1968 act. States are now responsible for the population's protection against natural and technical disasters, and have, therefore, enacted fire protection and disaster management laws. The ambit of disaster management too has tended to expand in these countries beyond emergency response to include components of mitigation and risk management.

6. The study discusses fiscal and financial arrangements for disaster risk management at national and local levels. Though these arrangements could be classified as *ex ante* and *ex post*, the fact remains that these financial arrangements could be used both as *ex ante* and *ex post* risk management mechanisms. It is also true that at present, most of the financial mechanisms and services are in nature

of *ex post* interventions. There has been little public policy support or investment in *ex ante* mechanisms.

7. An important source of funding is national reserve fund for disasters, with its variants in different countries—National Calamity Funds in Colombia, Risk Reduction and Disaster Management Trust Fund in Bolivia, and the special disaster relief and reconstruction fund, reconstruction fund in Germany. The reserve funds are generally used as extra-budgetary sources to meet contingent demands arising from a disaster. At the local level, while the bigger municipalities have the resources to provide the infrastructure and services for emergencies and disasters, smaller municipalities are heavily dependent upon national transfers. For post-disaster recovery and reconstruction, however, all the local governments, big and small, rich and poor, are dependent upon national transfers, as was demonstrated in the case of Germany, a developed country.

8. In all the countries included as case studies, insurance coverage for natural disaster is low, both at the level of governments and private property-owners. In Germany too, a developed country, out of total expected costs of reconstruction at €9 billion, insurance indemnity payments are estimated to sum up only to €1 billion. All the countries need external assistance for reconstruction, and there is a need to strengthen the international system of disaster assistance.

9. The study recognizes disasters to be a concurrent subject. While local governments need to be provided access to greater financial and technical resources for effectively discharging their functions, the national and sub-national governments will always be required to play important roles in dealing with disasters. The objective of the study, therefore, is to recommend financial strategies and mechanisms which are consistent with the functions and responsibilities of local governments. It looks at how the national and sub-national governments could help and strengthen local governments in managing disaster risks. In essence, the study does not seek to promote local governments as independent actors, to the exclusion of national and sub-national governments, but sees them as part of a larger framework of national governance.

10. Realistically, local governments depend upon tax sharing and intergovernmental transfers for most of their revenues. Since the tax sharing revenue is not always adequate to meet their expenditure

needs, transfers are always required to close the gaps. In fact, inter-governmental transfers or grants are the main source of revenue for most of the local governments. National governments can use these transfers to finance reconstruction and set up reserve funds for disasters at different levels. These resources could be used to increase the participation of local governments in preparedness, mitigation, and reconstruction programs.

11. The study proposes a more broad-based approach to disaster risk management. It looks at disaster risks as part of a wider spectrum of risks to which households and communities are exposed. It recommends multiple instruments and services, which work as safety nets. Employment programs, social funds and social insurance are important examples of public-mandated social safety nets that could be introduced at the level of local governments to reduce disaster and other types of risks to which households and communities are exposed. In addition to these social safety nets, there are market-based and public-funded insurance and microfinance programs, which could be used as both *ex ante* and *ex post* risk management mechanisms. These instruments have their own strengths and weaknesses; however, they comprise a wide variety of instruments and services, which could be used in combination for an effective risk management program.

12. A number of recommendations could be made for strengthening fiscal and financial arrangements for disaster risk management. It may begin with great public policy support in the design and delivery of financial mechanisms. New innovations in financial mechanisms may lay the basis of a strong public-private partnership for mitigation incentives at the local level. Targeted intergovernmental transfers may strengthen local governments' initiatives in disaster risk management. Local governments need to invest in setting up emergency services infrastructure and emergency reserve fund. While insurance is a necessary risk management mechanism, local governments may move gradually towards greater insurance coverage. At the household and community level, social safety nets reduce vulnerability and increase resilience. National governments should also take steps to increase the participation of local governments in post-disaster reconstruction programs. Assumption of many of these responsibilities by local governments needs to be supported through access to financial resources and capacity-building.

1 Introduction and Background

1. Financing disaster risk management in Latin America has become a critical issue in view of the mounting cost of disasters. According to the Centre for Research on the Epidemiology of Disasters (CRED), between 1990 and 1999, disaster losses in the region reached \$30.5 billion, or \$3 billion a year (Charvériat, 2000). On the other hand, public finances in the region have been constrained in many ways. The external debt burden of the region has expanded steadily throughout the 1990s, from less than US\$ 500 billion to over US\$ 800 billion by the end of the decade. The official development assistance received by the region has also shown a downward trend. The region received US\$ 5 billion, which is equivalent to 12 percent of gross bilateral assistance, and no Latin American or Caribbean country figured among the 10 principal recipients (ECLAC and UNDP, 2002). Though private international financial flows have increased in the region, its high cost and volatility have ruled out its availability for disaster risk management.

2. Resources for disaster risk management in the region are available primarily through two sources: first, loans from multilateral development banks, and second, domestic financing. The Inter-American Development Bank and World Bank have been the main lenders for post-disaster reconstruction and rehabilitation. During the past four years, the IDB approved \$1.5 billion in new financing to help the affected countries recover from disasters, increasing its average annual disaster-related lending by a factor of 10 compared to the previous 15 years (IDB, 2001). The World Bank has lent around US\$ 3.8 billion for post-disaster reconstruction in the region.¹ However, the IDB and World Bank lending for reconstruction projects have been in nature of *ex post* interventions in the wake of major disasters. It implies that domestic resources remains the most important source of funding all *ex ante* measures— prevention, preparedness, mitigation— and smaller disasters, even more at the local level. However, domestic financing for disaster risk management has been slow to develop owing to both institutional and informational weaknesses in dealing with disaster risks. Due to considerable focus on natural disasters in the last decade, an important public policy objective is the integration of disaster financing into mainstream public financing.

¹ <http://www.worldbank.org/dmf/projects/reconstruction.htm>

3. Insurance has been a well-established market-based mechanism for sharing disaster risks. Insurance payments can pay for the cost of recovery and reconstruction. However, the insurance coverage for natural disasters in most developing countries, and even in some developed countries, is low for several reasons which we shall discuss later. It poses a challenge of securing a greater commitment of public finance to disaster risk management, on the one hand, and developing more optimally structured risk sharing arrangements, on the other. In most countries, these efforts have just begun at the national level. Extending these efforts to the local level will require enormous public policy support. However, the growing trends in decentralization, the emergence of diverse financial services and instruments, and a greater awareness of risks and losses have made it necessary to look for an appropriate strategy for disaster risk financing at the local level.

1.1 Objective and Structure of the Study

4. The study addresses a number of issues regarding financing of disaster risks situated in the context of political and fiscal decentralization in Latin America: What are the financing and fiscal arrangements for disaster risks at the national, sub-national and local governments? How do local governments raise their resources for disaster risk management? What is the level of dependence of local governments upon national governments for financing of post-disaster recovery and reconstruction? Do these local governments have any “rainy day” funds to deal with extreme events? Do they consider it worthwhile to invest in *ex ante* risk management? Do they provide support to the most vulnerable groups affected by disasters? What needs to be done to augment these resources at the municipal and community levels? The study also looks at the feasibility of community-led mitigation programs in financial terms. It explores the availability of financial instruments and services which households and communities can utilize for the purpose of investing in disaster risk reduction.

5. The study draws upon three case studies based on Colombia and Bolivia from Latin America, and Germany from Europe. Germany has been included to provide a developed country perspective to the study. The study is organized in five sections. In the first section, we look at the context, rationale, and approach to the study. In the second section, we look at the scheme of decentralization that has evolved in Latin America, with special reference to the countries included as case studies, and its implications for disaster risk management. In the third section, we discuss different channels of fiscal and financial arrangements and the actual commitment of resources for disaster risk management in

these countries, based on the case studies prepared by national consultants. The fourth section looks at the availability of financial instruments and services for disaster risk management at local level. The fifth and final section presents conclusions and recommendations.

1.2 The Diverse Context of Local Governments

6. Financing of disaster risk at the local level can be meaningfully discussed only in the context of existing levels of political and fiscal decentralization in the country. The study therefore looks at how the national and sub-national governments could help and empower local governments to manage disaster risks. In essence, the study does not look at the local governments as independent actors, but as part of a larger framework of national governance. In this broader scheme, the study seeks to assess the capacity of local governments to invest in both *ex ante* and *ex post* disaster risk management.

7. “Local government” is a term that covers a wide range of functioning entities. Cities with more than 10 million, and villages with 200 inhabitants, densely populated urban and rural areas, and sparsely populated territories-- all are, as a rule, governed through one or the other form of a local government (Bird, 2000). Provision of financial resources to these entities is a rather complex exercise on account of diversity in terms of territory, population, and local economy.

8. There are 14,000 municipalities in the Latin American region, which could be divided broadly into four groups. The first group comprises the very small municipalities (with less than 10,000 inhabitants), which account for 53 percent of the total number of municipalities but serve only 8 percent of the population, which is mostly rural. The second group includes municipalities in the 10,000 to 100,000-population range, which make up 42 percent of the municipalities and provide services to 40 percent of the population, again mostly rural (IDB, 2001a). Though both these groups of municipalities do not have adequate institutional and financial resources for dealing with disasters, it is also true that these cities are less exposed to disaster risks due to lesser concentration of buildings and populations.

9. Medium-sized cities with populations between 100,000 and 1.5 million are about 600 in number and provide services to 40 percent of the population. Cities in this group are growing faster than any other urban areas in the region, increasing their demand for resources to sustain the level of urban services. The fourth group includes large metropolitan cities, such as São Paulo, Mexico City, Buenos Aires, Rio de Janeiro,

Lima, Bogota and Santiago de Chile. In most cases, the built-up area of these cities extends well beyond the administrative boundaries of the core municipalities, encompassing the jurisdiction of several local governments (IDB, 2001a). These metropolitan cities often have the institutional and financial resources to respond to disasters, but still they need to be supplemented with the resources from the national and state / provincial governments.

10. It is necessary to recognize the diversity and heterogeneity of local governments and their resources. Local governments and communities need to be supported on the basis of an assessment of vulnerabilities and capacities they are exposed to. An appropriate financing strategy for disaster risk management is therefore linked to risk assessment, economic resources, and exercise of public choice at the local level.

1.3 Rationale for the Study

11. There is a growing tendency to present disaster losses in Gross Domestic Product (GDP) terms. However, with the important exception of widespread drought, natural disasters have not had measurable short-term impacts on national economic aggregates—such as levels of GDP, the balance of payments, or the rate of investment—in geographically larger countries (Benson and Clay, 2000). A disaster may have high costs in absolute terms—as was the case of Mexico City earthquake with losses of US\$ 4.1 billion (current value)—but in view of the size of the country’s economy, it had relatively modest macroeconomic effects (ECLAC and IDB, 2000). In South America, Brazil has the highest occurrence of disasters, with 3.4 disasters per year on the average. However, its proportional losses have been far less, the highest loss pegged at 1 percent of GDP during 1984 floods. If a particular region or sector is seriously affected by a disaster, its losses are absorbed by activities in other sectors (Charvériat, 2000).

12. It is smaller and single crop-based countries, typically the countries in Central American and the Caribbean, which are likely to have greater macroeconomic impact of disasters. However, in smaller countries too, the public and private investment in reconstruction may increase the GDP growth rates after the initial losses (Albala-Bertrand, 1993). Besides, smaller countries are diversifying their economies, thus reducing the impact of disasters. Dominica is a small economy, dependent on the export of bananas for most of its income. Though its GDP has been affected by adverse weather

conditions, the growth of non-agricultural sectors have somewhat compensated these losses. In 1994, real agricultural GDP declined by 3.7 percent in part due to the impact of Tropical Storm Debbie in September on the banana sector as well as to deterioration in the export price of banana. Overall GDP increased by 2.2 percent, however, reflecting a 4.0 percent expansion in non-agricultural GDP. For 1995 GDP growth had initially been projected at 4.5 percent, reflecting the banana sector's recovery from the 1994 storm. In the event, the island experienced three damaging storms and achieved real growth of only 1.6 percent. A positive growth in the GDP despite these three weather shocks in one year once again showed that the diversification of national economy as reflected in expansion of manufacturing and service sector and reduced share of agriculture reduced the impact of disasters. (Benson et.al. 2001).

13. What may be a small macroeconomic impact could be hugely damaging at the level of cities, towns, and communities. The common experience is that residential property tends to bear the brunt of damage and destruction. Urban and community services are damaged too. Transport infrastructure is the most affected, followed by water supply and sewage systems. Within communities, those most frequently killed and injured are the urban poor who often lose their homes, many of which are constructed with low quality materials on unstable and disaster-prone land (Albala-Bertrand, 2002). These are the concerns which could be addressed more effectively through democratic participation in local governments. It does not require commitment of additional resources. A redistribution of resources supporting local governments consistent with their capacity and a risk reduction program targeted at local communities would address these objectives adequately.

14. Financing of disaster risk at the local level becomes even more critical in view of lower national expenditures on social security and disaster-related functions in Latin America. As shown in the Table 1 below, where the industrial countries spend over 16 percent of GDP, and over a third of public sector spending on social security, Latin America spends only 2.5 percent, or less than 10 percent of total spending. While it has been explained by differences in demographic composition of two regions, with higher proportion of elderly in the population of industrial economies, it could also be attributed to relative newness of most social security systems in the region and to fiscal pressures that have made it difficult for governments to fund the systems as generously as industrial countries have done. Further, Latin America also spends much less than the industrial economies on "core" government functions,

defined here as all areas other than interest, social security, and public investment. Disaster risk management could be included in the “core functions”, as it is generally not classified as an item of public investment.² While industrial economies spend 25 percent of GDP on core functions, it is only 15 percent for Latin America.

Table 1: Spending of the Non-financial Public Sector, 1990-95

(In percent)

	Industrial Economies	Latin America
<i>(% of GDP)</i>		
Social Security Payments	16.4	2.5
Interest Payments	3.6	3.8
Public Investment	1.9	6.6
Core Functions	24.2	15.2
<i>(% of Spending)</i>		
Social Security Payments*	35.9	9.0
Interest Payments	7.9	13.7
Public Investment	4.2	23.7
Core Functions	53.0	54.7

Source: IDB, 1997

*Insurance payments against accidents, disasters and calamities are not included in the Social Security Payments

15. Local governments need to have access to resources for providing basic emergency services to the citizens within their jurisdiction. An emergency management capability constitutes the core of local government’s functioning. In dealing with disasters, local governments may create geographical focus at the local level by coordinating resources through different sectors. Similarly, community-based mitigation programs, which are planned and implemented at the local level, represent a more targeted and cost-effective approach to disaster risk management. At the local level, NGOs and professionals could be supported financially for implementing community-based interventions.

² Public investment includes only capital spending.

16. The Inter-American Development Bank (IDB) has financed a number of post-disaster reconstruction programs in Latin America. These programs have focused on rebuilding physical infrastructure (water, sewerage, electricity and road systems-- corresponding to 65 percent of all lending in reconstruction), on re-establishing social services (on health, education, housing-- 25 percent), and on credit lines and support for productive activities (such as microenterprises--10 percent) (IDB, 1999). Though national governments are more often in charge of these post-disaster programs, many of these components contribute to capacity-building at the municipal level. All the utilities and social services are provided at the municipal level, and with the livelihood and business recovery programs having greater implications at the local level, local governments and institutions have a greater role to play in reducing disaster risks. Other multilateral and bilateral agencies such as the World Bank, Pan American Health Organization (PAHO), USAID, etc. too are supporting programs for reducing the impact of disasters. These external borrowings and assistance have important implications for resource mobilization at the local level.

1.4 A Feasible Risk Management Approach at the Local Level

17. While developing a broader approach to financing disaster risks at the local level, it will be important to revisit some of the issues raised in the earlier two studies conducted under the regional dialogue. It will help us understand the issues and constraints involved in proposing an appropriate financing strategy at the local level. It will also distinguish the local strategy for financing disaster risks from the national strategy.

18. The study suggests that the best way to ensure financial sustainability of national systems is “to ensure political impetus behind the system. Other methods include committing to long-term financing contracts with external parties and responding to pressure from the international finance and donor community” (Freeman & Martin, 2001, p. vi). While political commitment and external initiatives are important for more investment in disaster risk management, these are often difficult to sustain, due to limited span of visibility that disasters have. What is more useful in the context of disasters is the emphasis on governance, reflected in more accountable and participatory institutions, technical capacity, and strengthened public finances.

19. The main import of earlier studies has been developing and popularizing risk transfer mechanisms, or increasing the penetration of insurance. “A fundamental distinction between the risk management policies in many developed countries and in developing countries is the role of risk transfer” (Freeman and Martin, 2001 p. iv).³ Though risk transfer mechanisms are not yet popular in developing countries, informal risk-sharing arrangements exist in these countries in varying degrees. It takes the form of common property resource management, occupational associations, rotating savings and credit associations, reciprocal exchange of gifts, and transfers from networks of mutual support (Lustig, 2001). The importance of these sources of informal finance for risk management at local and community levels cannot be overstated, and there is a very strong case for strengthening these informal mechanisms at these levels.

20. Insurance is a continuous commitment of resources. Its feasibility through a cost-benefit needs to be established. At times, self-insurance is a better option than commercial insurance. What is perhaps more important in this context is investment in risk reduction and mitigation. All the developed countries invest a great deal in risk reduction through improved construction standards, better land use, and emergency preparedness. The United States invested billions of dollars in satellites, radars, surface observing networks, and information processing to modernize its ability to observe, forecast, and warn of hydro-meteorological hazards. What distinguishes a developed from developing country is basically the level of investment in preparedness and mitigation, and not really the role of insurance. Which suggests that there is a very strong case for greater commitment of public funds at the national and local levels to disaster risk management.

21. The subsequent study conducted under the regional dialogue (Freeman and Martin, 2002) identifies financing needs at the national level through positing a “resource gap”. The study arrives at the resource gap through a calculation of catastrophic exposure for a country and its capacity for resource mobilization to finance post-disaster reconstruction. It requires considerable debate if such a “resource gap”, based on probabilistic estimates, could be the basis of financial planning. There could be “resource gaps” arising out of multiple other loss scenarios, such as collapse of international price of

³ The role of risk transfer mechanism in covering losses in developed countries is somewhat exaggerated. Total insurance payments arising from the Kobe earthquake was less than \$10 billion, out of a total loss of \$140 billion, which is about 6

a primary commodity, or shrinkage of external trade, or collapse of financial system. Do countries need to plan for all these hypothetical losses? A resource mobilization strategy based on a one in 100 years disaster scenario seems neither feasible nor practical.

22. To deal with such unprecedented catastrophes, there exists an international architecture of development assistance through multilateral development banks and bilateral donors which countries can legitimately access. It takes care of the hypothetical “resource gap” through emergency financing. The case of Dominican Republic, which was used as a case study to illustrate the concept of “resource gap”, proves the point. When hurricane Georges struck the World Bank and IDB provided millions of dollars in loan for reconstruction. It is more important for the countries to deal with “resource gap” for development, rather than the one for disasters.

23. A more sensible approach to disaster risk reduction would be to assess annual losses resulting from disasters, develop a risk assessment, and invest steadily in mitigation and risk reduction. Even a modest investment in preparedness and mitigation programs on a consistent basis can bring substantial reduction in disaster losses, and prove to be a more sustainable way of dealing with disasters, rather than planning for massive resource mobilization in case of a major catastrophe. There is now a greater recognition in governments and international agencies of the need to incorporate natural disaster mitigation in development planning. It would therefore be more realistic to plan for optimal investment in mitigation on an annual basis as part of the development rather than project the cost of reconstruction in the aftermath of a major disaster event. Such an approach is even more relevant at the local municipal level.

24. The earlier study argues against “unreflective assumption of private sector risk... governments have assumed substantial risk for the reconstruction of private housing after a disaster. This assumption of risk always occurred as a political gesture. The precedent set creates substantial future contingent liability for each government” (Freeman and Martin, 2001 p. 5). While this criticism has considerable merit, this needs to be qualified too, first on the basis of needs and political feasibility, and second, on grounds of accountability. If the people are in dire situation following a disaster, it is incumbent upon a

percent (Laurie Johnson, 2000). In the recent floods in Germany, insurance payments were about US\$1 billion out of a total

democratic government to provide them the necessary support for reconstruction, through subsidy, cheap construction materials or concessional credit. Asking people to depend exclusively upon insurance payments or other market-based resources is neither reasonable nor politically feasible. Without making it an argument for a government dole, it is necessary to underscore the government's moral responsibility to act as a catalyst and facilitator in peoples' efforts at reconstruction and rehabilitation.

25. Second, a large number of reconstruction projects, which have not included the housing component, have turned out to be not very successful. Since households and communities are not involved, these reconstruction programs end up helping the local building industry and contractors. Including a housing component ensures greater participation and more accountability. So governments and multilateral development banks need to get involved with housing, though not on a completely grants basis.

26. In comparison with earlier studies, we propose a more broad-based approach. Risk management mechanisms could be based either on kinship- or community-based networks, or driven through market forces or provided through governments. Diverse strategies and multiple mechanisms are important, as they provide depth of resources and greater resilience. These mechanisms bring together a range of instruments and services: exchange of gifts, self-insurance through savings, financial intermediaries and insurance, and publicly provided social insurance programs for old age, disability, and unemployment (Lustig, 2001). The approach to risk management at the local level must recognize the diversity of these arrangements and their appropriateness for different groups. Local governments and communities need to tap into this wide variety of risk management mechanisms, depending upon specific situations for developing a sustainable disaster risk management strategy.

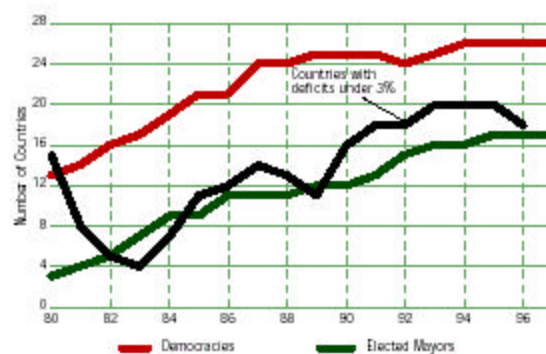
loss of US\$ 9 billion.

2 Decentralizing the State: Its Scope and Sweep in Colombia, Bolivia, and Germany

27. Since the early 1980s, the growing trends of democratization and decentralization in Latin American countries have significantly strengthened local governments in terms of planning, decision-making and spending. Large federated systems and unitary governments alike approved constitutional reforms, passed major laws, and even adopted new constitutions (in Brazil and Colombia) which conferred substantial powers and authority upon local governments (Campbell, et.al, 1991). While only three countries in the region elected their mayors directly in 1980, 17 countries today use this form of local representation, while in six others mayors are appointed by elected municipal councils (IDB, 1997).

28. Support for local governments in Latin America also increased with its growing urbanization. Today, Latin America has become a largely urban continent, with more than 75 percent of the population of the continent living in urban areas (United Nations, 1998). A number of other factors, which encouraged the growing autonomy of urban local governments in Latin America, have been urban social movements, the increasing impact of informality and the precariousness of large marginal urban populations, a heavy debt burden at the central government level, and a general shift toward decentralization and political pluralism. “Municipal government has thus become the arena of an emerging set of major challenges and opportunities... In a continent whose history is one of centralization, and whose population until the early 1960s was predominantly rural, the rise of local governments represents an unprecedented new reality” (Stren, 2000).

Figure 1: Democratic Governments, Elected Mayors, and Countries with Low Fiscal Deficit



Source: IDB, 1997

2.1 Political Decentralization in Colombia, Bolivia and Germany

29. As regards the countries included as case studies in this study, **Colombia's** decentralization began in 1983 with the decision to strengthen sub-national sources of revenue and to grant sub-national governments more discretionary authority on tax rates and overall tax administration. In 1986, the process was reinforced with the decision to permit the direct election of mayors and transfer of significant revenues and responsibilities to municipalities. A new constitution of 1991 authorized the direct election of provincial governors. Colombia is currently divided into 32 departments and 1,098 municipalities. There are considerable differences among them as far as size, population, income and economic activities are concerned. This influences their fiscal and administrative capacity to manage certain public goods and services (Burki, et.al., 1999).

30. In **Bolivia**, the most comprehensive package of decentralization legislation, known as the *Ley de Participación Popular* (LPP), was passed in 1994. The law heralded a new era of municipal government for the overwhelming majority of Bolivian towns and cities. One-hundred ninety-eight new municipalities – 64 percent of the total – were created, and existing ones were expanded to include suburbs and surrounding rural areas, to the point where the 311 municipalities exhaustively comprise the entire national territory. In addition to changing the physical jurisdictions of the country, the LPP granted real powers to municipalities, allowing the public election of municipal officials – a municipal council and mayor – and granting substantial transfers of central government funds to the new governments (Burki, et.al, 1999, Faguet, 2000). Municipalities are now responsible for the provision of education through the secondary level and virtually all health services. They have also been assigned responsibility for micro-irrigation, local roads, culture and sports (Mackenzie and Ruiz, 1997).

31. One of the LPP's most innovative features was the complex system it created to encourage community involvement in local government. It granted formal recognition to territorial grassroots organizations (*organizaciones territoriales de base*) such as indigenous communities, neighborhood associations and peasant associations. The law encourages these entities to form a municipal oversight committee, selected through the customs and practices of the community. This oversight committee is charged with monitoring the elected local government. Oversight committees can petition the central government to suspend a municipality's fiscal transfers in the case of bad management, giving this vigilance bite (O'Neill, year unspecified). An important finding has been that decentralization did

change local and national investment patterns in Bolivia, with local governments committing more resources to education, agriculture, urban development, water management, sanitation, and possibly health. In other words, the local decision-makers do respond to local needs (Faguet, 2000).

32. **Germany**, which is included as a case study from outside Latin America, has a well-established democratic federal set up. The administration is conducted at three levels: (1) the Federation, which deals with issues of national importance, such as defense, foreign policy, foreign trade, rail and air transport, posts and communication; (2) the *Laender* i.e. intermediate federal authorities responsible for education, police, culture, etc. and (3) the municipalities, i.e. the lower federal authorities responsible for the local level.

2.2 Fiscal Decentralization

33. In Latin America two models are used for the allocation of resources to local governments. The first model is the so-called *mandante-mandatario*, where transfers and subsidies define the relationship between local governments and central ones, the former being responsible to the latter. The second model is the so-called *opción fiscal local* (fiscal local options), where local jurisdictions finance their own expenses with local resources (taxes) with greater freedom and flexibility to define their priorities. In both the case study countries, the first model is followed (Vries, et.al., 2001).

34. Local governments have access to different sources of local revenue—user charges, taxes, transfers, and loans. Different kinds of revenue have different impacts on behavior and different patterns of incidence: user charges impose costs on individuals and can thereby ration consumption by price; benefit taxes can impose costs more broadly on the taxpayers within a jurisdiction, but can only ration through the local political process. Transfers make it possible to move money across jurisdictions, enabling central government to influence the behavior of local government and to redistribute income between constituents of different local jurisdictions. Local governments also raise loans through financial markets and multilateral agencies, with strong fiscal implications for the national economy (Dillinger, 1994).

35. Fiscal decentralization and the consequent intergovernmental transfer in Latin America resulted into an increased access to financial resources for the state and local governments. In Brazil, the 1988

constitutional changes cut approximately six percentage points from the central government's share of the final retention of public-sector revenues. These revenues were reassigned to state and local authorities. In Venezuela decentralization legislation increased states' share of centrally collected ordinary revenues from 15 percent to 20 percent over a five-year period ending in 1995. Local governments from Guatemala to Argentina have been spending 10 to 40 percent of total public spending amounting to significant fractions of GDP (Peterson, 1997; Campbell, 1997).

Table 2: Principal Revenue Sources of Subnational and Municipal Governments in Selected Countries

Three-Tier Countries		
	Provincial Government	Municipal Government
Argentina	Fixed shares of total central government taxes; taxes on gross receipts, property, motor vehicles	Varying shares of provincial taxes and transfer revenues, fees
Brazil	Origin-based VAT, fixed shares of central government income and excise taxes	Fixed shares of state VAT and central income and excise taxes, property and service taxes
Colombia	Fixed shares of total central government taxes; minor taxes on alcohol and tobacco	Fixed shares of total central government taxes; property tax, industry and commerce tax, gasoline surcharges
Peru	Fixed shares of national sales tax, taxes on vehicle purchases and business licenses	Shares of central government revenues, property tax
Venezuela	Fixed shares of total central government taxes	Fixed shares of state revenue-sharing receipts, taxes on property, vehicle tax
Two-Tier Countries		
	Municipal Government	
Chile	Earmarked capitation grants for education, health, property tax	
Ecuador	Fixed shares of central government oil revenue; taxes on property, business assets, vehicles, business registration	
Guatemala	Fixed shares of total central government revenue, miscellaneous local taxes	
Bolivia	Fixed shares of total government revenues; taxes on vehicles and property	

Source: Burki, Perry, and Dillinger, 1999

36. In **Colombia** too, a growing portion of centrally collected revenues was assigned to lower level governments. Since the national government collects nearly 80 percent of the country's total tax revenue, it means that territorial governments must have resources transferred to them in order to

supplement their incomes and carry out the tasks assigned to them. There are four main mechanisms for revenue sharing between the national, regional (departments), and local (municipal) governments: (1) the *situado fiscal*, which provides automatic transfers to the regional governments for current and investment expenditure on basic services including education, health, and water supply; (2) the *participación municipal*, which earmarks transfers to the local governments for current and investment expenditure on basic services including education, health and water supply⁴; (3) the system of co-financing funds; and (4) the National Royalties' Fund (Ahmad and Baer, 1997). Along with vertical transfers of revenue, the national government introduced fiscal equalization through distribution of resources between municipalities and departments on the basis of number of persons with unsatisfied basic needs, poverty index, population, fiscal efficiency, and administrative efficiency index.

37. In the year 2001, the Constitution created a National Participation System consisting of a fixed amount of close to 50 percent of the national income (in this year's pesos, the amount was nearly 11 billion, or about USD 4,000 million). The National Participation System is regulated by Law 715 of 2001, which divides the funds transferred into three large shares: a. the share for education representing 58.5 percent of resources; b. the share for health representing 24.5 percent; and c. the share for general purposes representing 17 percent. Of the funds earmarked for the general purposes share, 41 percent is earmarked for drinking water and basic sanitation, 7 percent for recreation and sports and 3 percent for culture. The rest is allocated to a list of sectors and expense categories such as public services, transportation, agricultural development, etc. Disaster prevention and management form part of this list. A highly earmarked fiscal system, however, reduces the discretion in the use of funds.

38. In **Bolivia**, municipalities were given exclusive authority to impose vehicle and property tax. The element of fiscal equalization among municipalities was introduced through the stipulation that 20 percent of the central budget was to be divided among the municipalities based purely on each municipality's share of the population, as established by 1992 census. Total resources devolved from central to local governments increased by 72 percent.

⁴ It was changed by the law 715 of 2001.

39. The per capita criterion results in a massive shift of resources in favor of the smaller, poorer municipalities in Bolivia. Starting from a tiny or nonexistent base, these districts see enormous increases in their transfers, collectively exceeding 15,000 percent in Oruro, 43,000 percent in Chuquisaca, and 63,000 percent in distant Pando. The larger cities listed saw more modest gains, and only La Paz suffered a net reduction in transfers, itself a sign of how disproportionately it benefited under the old system. As a result of decentralization, participatory organizations grew dramatically during the initial years, and citizens have demonstrated an active interest in local investment planning and monitoring of municipal governments (Burki, et.al., 1999).

40. In **Germany** too, the Basic Law lays down a scheme of fiscal federalism, whereby taxation and sharing of revenues between different levels of government are regulated. Major sources of government revenues consist of income tax, corporation tax and value added tax, levied and collected centrally, which are shared out between federal government, states (*Laender*), and municipalities. Other tax revenue accrues directly to the levels of administration, e.g. taxes on gas, cigarettes and alcohol to the federal state, car and inheritance tax to the states, and property and excise tax to the municipalities. Furthermore, an important element of this system is the vertical and horizontal financial equalization at the level of states and municipalities for which tax revenue per capita is used as the metric. Lower levels of governments often execute policies on behalf of higher levels, where financing is sometimes tied to function performed, with corresponding grants or cost restitution (Spahn and Föttinger, 1997).

2.3 Growing Ambit of Decentralization

41. As decentralization brings greater attention and sensitivity to local conditions and needs, it can bring efficiency gains of local schemes that deliver tangible benefits to beneficiaries without unreasonable “administrative” costs (Vries, et.al. 2001). This is the reason, decentralization is making its presence felt in other sectors related to disaster risk management. In the forestry sector, there is a dynamic transition underway whereby public forests are being transferred or assigned to local governments, or indigenous and non-indigenous communities. In the past decade, the percentage of forest land transferred or devolved to community ownership or management has doubled, with the result that one-fourth of the world's forest estate is community managed. In parallel, municipal governments and associations of water users have assumed much stronger roles in decision-making regarding drinking water and irrigation systems, and municipal governments and residents of upper

watersheds are being provided greater resources and authority to manage their natural resources for watershed protection. Similar experimentation has been initiated in a number of other sectors such as fisheries and coastal resources, facilitating greater access to local communities vis-à-vis large-scale commercial enterprises, and devolving allocation and environmental regulatory function to local governments and their residents (World Bank, 2001)⁵.

42. In the area of urban environment, a number of cities in Latin America have started environmental management actions to tackle problems in their own jurisdiction. They have set up environmental agencies or departments for devising environmental policies and coordinating their implementation. A number of initiatives have been taken in the area of sewerage, solid waste management, pollution management (Vries, et.al. 2001).

43. In the overall backdrop of political and financial decentralization, and the need to provide better services at the local level, financing for disaster risk management at the local level has assumed a great importance. One of the major challenges is to diversify sources of financing and evolve financial instruments and services for specific applications in disaster risk management.. These instruments can provide more alternatives for disaster risk reduction to local governments, communities and households in terms of providing incentives, raising new funds and reducing the burden on public funds for preparedness and mitigation.

3 Fiscal and Financial Arrangements for Disaster Risk Management: Evidence from Colombia, Bolivia and Germany

44. The section looks at the fiscal and financing arrangements for disaster risk management in all three countries included in the study: Colombia, Bolivia, and Germany. Though the institutional and public finance context in these countries are diverse, these case studies provide us relevant lessons for

⁵ As mentioned above, the success of decentralization in these sectors depends on the design of decentralization and on the institutional arrangements governing its implementation. In a number of African countries, decentralization of environmental powers, however, often witness the transfer of powers to centrally controlled, non-democratic or unaccountable local institutions, the failure to transfer significant powers that help create a meaningful domain of local discretionary decision making, and the use of insecure transfer mechanisms, such as ministerial or administrative orders (Ribot, 2001).

developing specific financial services and instruments for disaster risk management. Many aspects of the national and local context of these countries have been presented together under specific themes.

3.1 National System of Disaster Risk Management

45. All the three countries have decentralized their national disaster management system in the last decade, assigning specific responsibilities and resources to the sub-national and municipal governments. The ambit of disaster management too has tended to expand beyond emergency response to include components of mitigation and risk management.

46. In **Colombia**, a new National Disaster Prevention and Management System was set up in 1989, which decentralized disaster-related functions and gave a large role to departments and municipalities. At the apex level is the General Directorate for Disaster Prevention and Management (DGPAD), part of the Ministry of Interior, which functioned with a number of operational and technical committees, drawn from other agencies. The national structure was replicated at department and municipal levels. The role of military in disaster management was radically cut down. Decentralization was further reinforced by Law 715 of 2001, which regulated the distribution of responsibilities and resources among government levels, and assigned functions in the disaster management to local governments, allowing them to channel resources from their general purposes share to disaster prevention and management activities.

47. In **Bolivia**, the Risk Reduction and Disaster Response Law, enacted in 2000, created the national Risk Reduction, Emergency and Disaster Response System (SISRADE). Its primary mission is to prevent and minimize the human, economic, physical and cultural loss resulting from disasters, as well as to rehabilitate and reconstruct the affected zones. At the national level, the SISRADE is managed by the National Council for Risk Reduction and Emergency and Disaster Response (CONARADE), the highest decision-making and coordination body and operates through a national, departmental and municipal network. It has been planned to strengthen the SISRADE and its subsystems of information and finance, with a credit of US\$3 million from the BID, starting from 2003.

48. The national system works through two agencies: National Civil Defense Service (SENADECI) and National Risk Reduction Service (SENAR). SENADECI is a decentralized institution with its own budget and autonomous management, and it operates as a public agency under the guidance of the Ministry of National Defense. The National Risk Reduction Service (SENAR), which works as a dependent of the Ministry of Sustainable Development and Planning, is entrusted with prevention, mitigation and post-disaster reconstruction. . National policies and strategies for disaster risk management is the responsibility of the Ministry of Sustainable Development. Prevention and mitigation activities have little support at the national level, and are supported largely through externally assisted projects.

49. In **Germany** too, the federal government handed over the executive authority for civil defense to the states (*Laenders*) in 1990 through a revision of earlier 1968 act. States (*Laenders*) are now responsible for the population's protection against natural and technical disasters, and have, therefore, enacted fire protection and disaster management laws. States have also taken steps for flood protection and regulation of flood plains.

3.2 Financing for Disaster Risks at National Levels

50. In **Colombia**, the funds for disaster risk management at the national level are provided through a number of sources. The important sources are: a. National Calamity Fund provided through the national budget, b. budget resources appropriated by different national agencies, c. national and international credit, and d. technical cooperation resources. There are other sources too such as the National Royalties Fund, and Solidarity and Collateral Fund, but these are not very important for covering disaster risks. The national government provides most of its resources through the National Calamity Fund and the credit from multilateral development banks. However, a consolidated information upon the resources available through different mechanisms is not available.

51. In **Bolivia**, the El Niño-related emergencies provided the context for setting up new financing arrangements at the national level. The Ministry of Finance was asked to channel all the resources for disasters, making allocations from the national budget as well as securing external loans. The government also saw the need to create the Operational Technical Unit for Support and Strengthening (UTOAF), now called the National Risk Reduction Service (SENAR), for all the emergency works.

The UTOAF coordinated closely with the Ministry of Finance and the Social Investment Fund (SIF) for resource allocation and its channelling through Departmental Prefectures. Later on, the UTOAF was allocated DEG 18.5 million from the Asociación Internacional de Fomento (AIF) for the El Niño Emergency Assistance Project. UTOAF was responsible for reviewing and evaluating the projects, which would be implemented by the Prefects and other decentralised entities. However, the need for greater decentralization led to a revamp of the system as introduced by Law 2140 for the Reduction of Risks and Management of Disasters and/or Emergencies in 2000.

52. In **Germany**, despite the responsibility of *Laender* and municipalities in respect of disaster protection, it was recognized that the recent floods were beyond the capacity of these political units, and the people expected the federal government to take political and financial responsibility for response and recovery. Though the federal government responded to the floods invoking national solidarity, it also re-emphasized the responsibility for disaster management on local and *Laender* level. As evidenced during the recent floods, disaster risk management in Germany involved a great deal of negotiation over resources and responsibilities at different levels of government.

3.3 National Reserve / Calamity Funds

53. In **Colombia**, the National Calamity Fund was created in 1984 via Decree 1547 and later reorganized via Decree-Law 919 of 1989. The main objective of this Fund is to tackle disaster situations, but it also undertakes prevention and the operation of the Directorate for Disaster Prevention and Management. The fund can be supported with resources from the national budget, the contracting of loans, the placement of public debt titles, investment profits, special quotas from the Bank of the Republic and national and international donations. In reality, the Fund is mainly financed from the national budget, and it is not adequately financed to address disaster prevention and mitigation. For this reason, the Fund's resources are not stable and vary substantially, significantly increasing when a disaster does strike.

54. In 1995, the Fund's resources were close to 17,000 million pesos and in 1998 they dropped to 5,000 million pesos. In 1999, when an earthquake struck the coffee-belt region, this sum increased to 25,000 million pesos, but during the years that have followed it has dropped to far below 5,000 million pesos.

55. In **Bolivia**, along with the SISRADE, a Risk Reduction and Disaster Management Trust Fund (FORADE) was set up. Working under jurisdiction of the Ministry of Presidency, it is being supported through a regular contribution from the national budget. It will also channel international co-operation funds and distribute them through SENAR (formerly UTOAF) and SENADECI, to be used respectively in risk reduction and disaster management. The fund will support a broad range of activities including disaster prevention and mitigation projects and scientific research.

56. In **Germany**, though there is no national reserve fund, a special disaster relief and reconstruction fund, *Sonderfonds Aufbauhilfe*, was set up after the Elbe floods of 2003. It is a large fund, with a resource level of €7.1 billion. It was created by means of tax raises regulated by the *Fluthilfesolidaritätsgesetz*, a special flood help solidarity law decreeing:

?? One year shift of planned decrease of income tax rate until 1.1.2004;

?? Increase of corporate income tax of 1.5 percent to 26.5 percent for one year;

?? It will have €7.1 billion in reserve even if additional tax revenue falls short of this amount.

57. Most of these funds are used as extra-budgetary sources. Within national budgets, there is no earmarked resource which is to be used as a calamity / reserve fund. Budgetary provisions may replenish them, if these funds are depleted.

3.4 Allocations for Disaster Risk Management at Local level

58. Financing arrangements for disasters at the local level in these countries vary considerably, depending upon the size, capacity and resources of local governments and the risks and vulnerabilities to which they are exposed. Within each country there are considerable variations across local governments, and it is difficult to generalize for all the municipalities.

59. In **Colombia**, despite legal provisions that all municipalities must assign resources to risk management and provide emergency services, only big and medium municipalities such as Bagota, Madellin, Cali, Manizales, and other cities are in a position to provide the infrastructure and services through their own resources. However, these municipalities too expect resources through national transfers when they face a major disaster. Most of the other municipalities in Colombia, which are

small in population and limited in fiscal resources, depend heavily on national transfers. There is a perception among smaller municipalities that these transfers are not adequate.

60. Bogotá, the capital of Colombia with a population of approximately 6.5 million, is the biggest city. Large percentages of the country's industrial production, economic activity, and public and private utilities are concentrated in this region, and its risk exposure is considerably high. The city has been working on disaster preparedness and mitigation for a long time.

61. The municipal government of Bogotá set up the Emergency Prevention and Management Fund of Bogotá (FOPAE in Spanish) in 1987. It is much bigger in size than the National Calamity Fund, and receives col \$4000-5000 million annually. Its main objectives is to provide financial support for a broad-based disaster risk management program, based on risk assessment, communication and education, disaster prevention and mitigation, and emergency response. The FOPAE also provides support for environmental sanitation in affected communities during rehabilitation, reconstruction and development phases. Within FOPAE, there is a Reserve fund fixed annually for financing all the expenditures on emergencies and helping people with recovery. Within 2001 and 2002, only half of the reserve fund was spent, as there was no major emergency in these years.

62. The Fund's main source of income is the city budget. It was agreed that the Mayor's Office would earmark a sum of not less than 0.5 percent of the administration's income from taxes on residential and industrial properties in the capital district. The municipal government through the same agreement also created the Emergency Prevention and Management Coordination Office, with the objective of handling all the responsibilities related to disasters and emergencies, and network with relevant public and private entities.

Table 3: Emergency Prevention and Management Fund - FOPAE

Figures in Thousands of Dollars

Concept	1997	1998	1999	2000	2001	2002
Operational Costs	173	359	280	192	169	161
Investment Costs	10.658	13.071	11.149	4.605	3.150	4.401
Total Costs	10.831	13.430	11.429	4.797	3.319	4.562
Exchange rate	1.141,08	1.427,04	1.75858	2.087,42	2.299,77	2.625,05

Source: Statistics provided by FOPAE

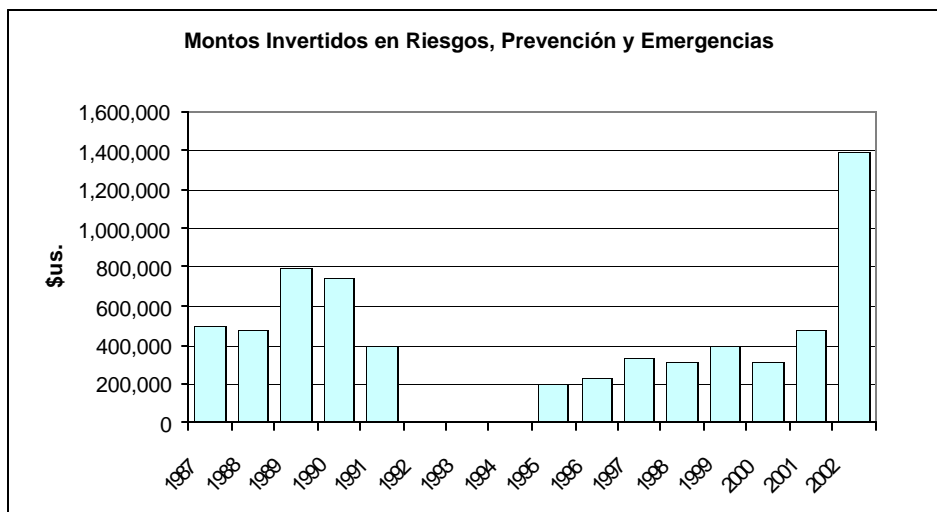
63. The financial provision as mentioned in the above table suggest greatly fluctuating behaviour, with very high values for 1996 and 1999 and a generally decreasing trend, especially as far as investment projects are concerned. The data confirms that the FOPAE is not being used as a reserve fund. The Fund is mainly conceived as a steady source of resources for disaster prevention. According to interviews carried out with the officials of the Ministry of Finance and Public Credit in Bogotá, the FOPAE was not conceived as a reserve fund, to be used exclusively for addressing disaster risks. Due to the city's fiscal constraints, it has not been possible to earmark the Fund's assets only for disasters, and the resources have been used for various purposes.

64. In 1999, when the earthquake struck the coffee-growing region, FOPAE transferred a considerable part of emergency funds (10 %, 3 %) in 1999 and 2000 for the other municipalities in the region. Besides, FOPAE spent around 15 percent of its resources on disaster risk education and prevention during the Mayoral regime of Mockus, a very popular independent candidate. FOPAE has incurred all the expenditures through its own funds, and it has not taken any credit from any internal or external source. In addition to FOPAE, Bogotá's other sources of funding for disasters are from the proceeds of the National Calamity Fund, National Royalties Fund, the budgetary allocation of public entities that constitute the national disaster prevention and management system, and insurance payment. However, FOPAE, which is bigger than National Calamities Fund, remains the main source of funding for disasters for the city.

65. In Bolivia too, smaller municipalities and provincial administration have not allocated any resource for disaster risk management, except for the projects being implemented through international assistance. It is only a bigger city like La Paz, which has invested in disaster risk management. The annual investment in disaster risk management in the city has ranged from US\$200,000 to US\$1,400,000, based on estimates available with the municipal authorities. The city also has a land use

plan, though frequent change in municipal governments and low enforcement of building regulations has increased its vulnerability.

Figure2: Annual Investment in Disaster Risk Management in La Paz



Source: Prepared with data provided by the Municipal Government of La Paz, May 2002

66. All the municipalities are dependent upon the national transfers available through budget, or the resources available with FORADE. Allocations are made from the national budget upon declaration of a state of emergency, though it may be released to the national agencies for response and recovery. External donors also have their specific mode of assistance in case of disasters.

67. In the case of an ice-storm with heavy snowfall in the province of Potosí, the government’s decree authorised the release of up to US\$ 0.5 million from the FORADE, which was administered by the civil defence. In the case of large fires in forests of Tarija, the government’s declaration authorized the provincial government to spend the necessary amount of money, which was reimbursed by FORADE afterwards. However, the government has not compensated the Tarija government for various reasons.

68. In the case of minor disasters, state of emergency is declared at the appropriate level. The respective legislative assembly declares the state of emergency at local level. These procedures facilitate availability of resources from the budget, mostly for transport of equipment and staff.

69. **In Germany**, municipal financial resources of Dresden and Pirna are discussed only in the context of Elbe floods of 2002. In Dresden, total losses in all sectors as a ratio of the budget amounted to 114 percent, and in Pirna 292 percent. Losses to municipal infrastructure amounted to 47 percent and 35 percent of the budgets in Dresden and Pirna respectively. City officials in both cities asserted that it would have been impossible to finance these losses, let alone compensate private households or firms.

Table 4: Losses in Dresden and Pirna in comparison

	Dresden in million €	Pirna in million €	Dresden % of budget 2002	Pirna % of budget 2002
Total losses	962	181.0	114%	292%
Losses to municipality	400	22.0	47%	35%
Budget 2002	847	62.0	-	-
Expected own municipal contribution (10% of losses)	40	2.2	5%	4%

Sources: Local governments of Dresden and Pirna, Mitteldeutscher Rundfunk (2003)

70. The municipalities expect to receive 90 percent of their losses in the currently ongoing negotiations from the German Reconstruction Fund. Thus, Dresden and Pirna will only have to finance five and four percent of their losses themselves respectively. These fractions will probably decrease, as donations and in the case of Pirna insurance indemnity payments will come forward. Due to declining income from corporation tax revenue in the last few years, both cities are heavily constrained in their financial means. City officials stated that they would not have been able to finance these losses through their own sources. Therefore, aid from the German Reconstruction Fund was welcome.

3.5 Insurance Payment at Local Levels

71. In Both **Colombia and Bolivia**, insurance coverage for natural disaster is low, both at the level of governments and private property-owners. Though public entities are required to purchase insurance for various contingencies including natural disasters, in practice this has not been followed. Though there is no strong public policy support for increasing the insurance protection, its coverage is also limited by the capacity to pay both in the public and private sector. However, in new private and public investments, insurance coverage is almost mandatory.

72. In **Bolivia**, natural disasters, if they are covered, are generally included in fire insurance policies and account for 13 percent of all insurances / insurance contracts. Private sector businesses buy these insurances as part of the legal obligations accompanying the bank loan. Insurance companies and their supervisory authority argue that people are not insurance-conscious and insurance may not be a priority due to the economic crisis.

73. In both **Bolivia and Colombia**, a systematic and large-scale risk transfer through insurance contracts still requires a major effort in terms of establishing an insurance market. There is the need for an active public policy support to insurance through incentives and regulations, which could be provided through national insurance regulatory authorities.

74. In **Germany** too, the insurance coverage has not been high. Out of total expected costs of reconstruction at €9 billion, insurance indemnity payments are estimated to sum up to €1 billion. At the level of local government, the insurance coverage was not high, particularly in Dresden. The city therefore expects to receive 90 percent of its losses through national and international sources with 50 percent to be disbursed in 2002-2003. In contrast to Dresden, municipal assets in Pirna were insured to a certain degree. This was felt necessary due to the high risk exposure of Pirna. The amount of indemnity that will be provided for reconstruction of the city is still unclear. The insurance coverage of households and businesses in these two cities has also not been high. In Dresden, about 25 percent of private businesses were insured.

3.6 International Assistance for Reconstruction

75. A considerable amount of resources in all three countries came from international sources. External assistance was in form of both loan and grants.

76. In **Colombia**, the World Bank sanctioned a US\$225 million emergency loan to support reconstruction of Colombia's coffee-growing region, struck by the January 1999 earthquake. The loan supplemented the US\$93.2 million from existing projects reallocated to reconstruction works last August. The emergency loan provided resources for repair or total reconstruction of approximately 80,000 dwellings and reconstruction or repair of infrastructure and civic amenities. The IDB first pitched in with an emergency loan of US\$20 million, which was to be used for facilitating reconstruction. It followed up the emergency assistance with the authorization to redirect \$133.7 million in loans previously approved for Colombia into the emergency reconstruction and development program. The IDB loan was utilized for financing expenditures on housing, water and sanitation, health, education and culture, solid waste disposal, and environmental management.

77. On grants basis, the United Nations Development Programme (UNDP) too supported a project to make the National Disaster Reduction and Response System operational. International flow of resources for disaster mitigation has grown in importance in the past years. Though Colombia has received these resources during actual disaster situations, it has not used the assistance for preventive and mitigation activities.

78. **Bolivia** has received financial assistance from a number of sources in the wake of El Niño-related disasters which struck the country in 1997-98. Like Colombia, the World Bank and IDB have provided a significant amount as loan for the purpose of reconstruction. UNDP has provided assistance for the project “National Program for Risk Prevention and Emergency Attention”. One of the reasons behind the decentralization of the national disaster management system in Bolivia was that external donors were reluctant to provide financial resources to Department of Defense. In fact, the Ministry of Defense created the UTOAF as part of the conditionality attached to the financial assistance from external sources. Table 5 shows the flow of resources from different sources for disaster risk management for the period 1997-2002.

79. As can be seen from the chart below, the contribution of prefectures and municipal governments to reconstruction is substantial at 16 percent. It shows that despite their fiscal constraints, local governments provide counterpart funds through their own budget, and it generally oscillated between 10 to 20 percent of the total cost of reconstruction.

Table 5: External Loan and Assistance for Disaster Risk Management in Bolivia

**Total Summary per Source
1997 – 2002**

Source	USD	%
World Bank	25.521.610	23%
Inter-American Development Bank	21.077.000	19%
Japan	3.205.382	3%
UNDP	400.000	0.3%
EU	688.000	0.7%
Miscellaneous	18.037.046	16%
National Treasury (TGN)	24.319.678	22%
Prefectures and Municipal Governments	18.032.300	16%
TOTAL	111.281.016	100%

Source: Prepared by Vladimir Ameller Terrazas and Marco Antonio Rodriguez, 2003

80. **Germany**, despite being a developed country is dependent on external help and assistance for reconstruction. Out of the total cost of reconstruction, the European Union (EU) solidarity fund for emergencies, newly created with an annual amount of €1 billion, will support with a contribution of € 500 million. The contribution of different sources to the cost of reconstruction has been shown in the following chart:

Table 6: Sources of Financing for Post-Elbe Floods Reconstruction

Source	Amount (billion €)
German Reconstruction Fund (Federal and state governments)	7.10
EU	0.500
Donations	0.242
Insured losses	1.000
Total financing	8.842
Non-financed	0.226

Source: Compiled by Juergen Weichselgartner and Reinhard Mechler⁶

4 Financial Services and Instruments for Disaster Risk Management

81. As more and more national governments devolve powers and functions, and resources to local governments, they are going to play an important role in the management of public finance. The proportion of municipal to total public-sector spending between the 1970s and the early 1990s for Colombia, Argentina, Chile, and Peru increased respectively from 10.5 to 15.7 percent, from 5.4 to 8.6 percent, from 4.7 to 12.7 percent, and from 2.2 to 9.2 percent (UNCHS, 1996 cited in Stren, 2001). Overall, the share of state and local governments in total government spending in Latin America increased from 15.6 percent in 1985 to almost 20 percent a decade later (IDB, 1997). The local governments' contribution to total public expenditure in Latin America favors comparably with G5 countries, where it ranges from 17 percent in France to 33 percent in Japan (Dillinger, 1994).

82. Despite the growing importance of municipal finances in the total public investment and expenditure and the principle of subsidiarity, certain broad patterns in respect of local governments can be identified (Bird, 2001, p. 113-115). First, local governments are always constrained for resources, and depend upon transfers. Even with transfers, resources are often inadequate to provide even the most minimal level of many of the services with which such governments are charged. Second, as discussed in the beginning of this study, not all local governments are equal. Municipal governments

⁶ Compiled through following sources: Staatskanzlei Freistaat Sachsen (2002), Guy Carpenter (2002), Interview with M. Priesterath, from Task Force 'Flood Assistance', Federal Ministry of the Interior, December 10, 2002, by J. Weichselgartner

vary significantly in their jurisdiction, staff, functions, budget, and capacity, with bigger cities having access to incomparably high level of resources, and entrusted with a wide range of functions. A third common feature is that few countries permit local governments to levy taxes capable of yielding sufficient revenue to meet expanding local needs.

4.1 Disaster Risk Management as an Emerging Municipal Responsibility

83. These emerging features of fiscal federalism would influence financing for disaster risk management too at the level of local governments. However, unlike other subjects, such as water supply, roads, sewage, solid waste collection, health, and education, where roles of local governments in a country have been defined with some specificity, disaster risk management has not emerged as a discrete and well-defined activity. In Bolivia, for example, it is difficult to account for public investment in disaster prevention and mitigation, as no such expenditure category exists in the budget. There are certain aspects of disaster management such as fire services, which has traditionally been within the purview of local governments. In respect of other aspects such as flood protection works or post-disaster recovery, the traditional roles of national or sub-national governments have not changed much. As the scheme of decentralization in Latin America deepens, it is likely that local governments will assume greater responsibility in respect of disaster risk management.

84. Local governments are not exclusively responsible for even those social services for which their responsibilities are well-specified. Governments at state and national levels too are involved with other aspects. For example, central governments may be responsible for policy-making and regulations, state governments may finance and invest, while local governments actually operate and deliver the services. A key to designing good policy is a clear understanding of what outcomes are important for the central government, and what outcomes can be determined by local governments (Litvack, Ahmad and Bird, 1998). In respect of disaster risk management, for instance, the central government can lay down the building codes for different types of houses, and leave it to the local governments for enforcement. Similarly, central or state governments can fund flood protection works, but ask local governments to maintain it. What is important from the point of decentralized financing is unbundling of disaster risk management, and ascertain what are the costs that could be feasibly borne by local governments, and what needs to be absorbed by state and central governments.

Table 7: Possible Tax and Expenditure Assignments by Level of Government

Central government	State government	Local government
<i>Revenues</i>		
Value added tax	Individual income tax	Property taxes
Individual income tax	Surcharges on national taxes	Vehicles taxes
Corporate income tax	Retails sales tax	User charges
Excise taxes	Excise taxes	Licenses and fees
Natural resources tax	Property taxes	
Customs & Export duties	Vehicle taxes	
<i>Expenditures</i>		
Tertiary health care (control of infectious diseases, research)	Secondary health care (hospitals, curative care)	Primary health care
University education	University and secondary education	Primary and secondary education
Roads and Highways (Intercity)	Roads and highways (intercity)	Roads and highways (Intracity)
Public transportation (Intercity)	Public transportation (Intercity)	Public transportation (Intracity)
Natural resource management	Air and water pollution	Air and water pollution
Defense	Natural resource management	Solid waste disposal, water sewerage, fire protection
	Police protection	Land use regulation and zoning
		Housing
		Police protection

Source: World Development Report, 1997

85. A reasonable assumption could be made about what could be done by governments at different levels. Governments at the central and state level provide the policy and regulatory framework for disaster management. It also lies within the capacity of these governments to invest in large-scale structural mitigation measures. Post-disaster recovery and reconstruction programs require huge commitment of resources, as in the case of Germany, which can be managed only by central and state governments. On the other hand, local governments are required to maintain a basic infrastructure of emergency management, which include fire services, transit shelters, health care, and immediate relief. The level of these services would, however, vary from one local government to another, depending upon the area, population, level of risks, and resources of respective governments. In addition to providing these emergency services, one of the primary functions of local governments could also be to support a number of community-based measures for reducing disaster risks.

86. Let us take the example of earthquake preparedness to understand what a “community-based” disaster management constitutes. “Institutional” or “capital-intensive” approaches might include strengthening and enforcing building codes, retrofitting public building (such as schools) and other infrastructure (such as bridges and highways), or investing in sophisticated search and rescue equipment such as sonar detectors, optic viewers, or hydraulic lifting equipment. A “community-based” approach, on the other hand, might include a public information campaign to encourage citizens to fasten tall pieces of furniture to the walls of their homes and offices, to store heavy items on shelves near the floor, and to keep a small fire extinguisher near at hand. A “community-based” program might also teach citizens where to take cover during an earthquake (in an open area, for example, or under a bed or in a doorway), and what to do immediately following an earthquake (such as turn off gas valves and electricity, extinguish small fires, and so on). For a number of reasons, these measures are more effective at saving lives than a capital-intensive disaster management approach (Brennan, 2001), which also are important for reducing economic losses. A list of community-based measures for different hazards is given in the Annex.

87. The intention here is not to go into comparative merits of approaches to disaster risk management. Rather, it is to establish what measures for disaster risk management could be taken and outcomes expected at different levels of governments. In fact, an ideal approach would require an appropriate combination of both community-based and capital-intensive measures. It must also be said that in most of the countries in Latin America, financing for both the approaches to disaster risk management needs to be stepped up.

4.2 Financing Strategy for Disaster Risks at the Local Level

88. Once we know what local governments could feasibly do, it is easier to suggest an appropriate financing strategy for disaster risks. As mentioned above, local governments have traditional sources of revenue-- user charges, taxes, transfers, and loans—which could be accessed for disaster risk management. Local governments can incur expenditures on disaster preparedness and response from their general pool of resources. It may, however, be difficult for local governments to raise resources specifically for disaster risk management. Can local governments demand user charges or levy taxes or raise loans specifically for disaster risk management? User charges and taxes for emergency services

may be politically unacceptable. People will not be willing to pay such a tax or charge. It may not also be possible to provide emergency services on the basis of recovery of actual costs, as it is being done gradually for water supplies in Colombia.

89. Municipal governments are privatizing many of their services. For example, municipal solid waste services have been privatized in major cities of Latin America such as Buenos Aires, Caracas, Santiago and São Paulo (Bartone, 2001). Risks can be privatized too. Utilities, businesses, and private property can transfer their risks by purchasing insurance if they find it feasible. However, “emergency services” is very much a public good, which cannot be privatized. Public subsidy for an important component of disaster management, which could be described as emergency services, is thus a necessity.

90. Local governments can borrow to finance disaster risks. However, borrowing is usually a minor source of finance for local governments in most developing countries. While in principle local governments can act as an independent entity for the purpose of borrowing, their access to credit is generally limited to prevent overexposure (Ebel and Vaillancourt, 2001). Besides, it is unrealistic to expect local governments to borrow from external or domestic financial markets or float commercial bonds except to finance major capital expenditures. In Bolivia, for example, La Paz has been the only Municipality launching two emissions of bonds: USD 3 million in 1994 and USD 11 million in 1997, none of which was meant for risk management. Disaster losses for which the cost of recovery and reconstruction is beyond the capacity of local governments is always passed on to central and state governments. In case of all the loans that countries raise from multilateral development banks for the purpose of post-disaster reconstruction, the borrower is invariably the central government.

91. This leaves municipal governments only with tax sharing and intergovernmental transfers among the regular sources of revenue for disaster risk management. Sub-national / local governments can get a share of tax revenues collected by central governments. An alternative arrangement is to permit local governments to levy their own broadly based taxes. Since revenues collected through these sources rarely permits local governments to meet their expenditure needs, transfers are always required to close the gaps. In fact, intergovernmental transfers or grants are the main source of revenue for most

of the local governments. Central governments use transfers as means of influencing local governments in terms of sectoral patterns of local expenditure (Ebel and Vaillancourt, 2001).

92. Intergovernmental transfers can be broadly classified as non-matching (lump sum) and matching. Non-matching transfers may be either conditional (selective) or unconditional (general). Conditional non-matching transfers offer a set amount of funds without local fund matching, provided the funds are spent for an established purpose. General or unconditional non-matching grants attach no constraints on how the grants are spent and, unlike the case with conditional grants, no minimum expenditure in any area is expected. Matching grants or cost-sharing programs are conditional transfers that require funds be spent for specific purposes and that the recipient match the funds to some degree (Shah, 1999). These two types of transfers--conditional non-matching and matching grants—could be the most effective way of channeling resources for disaster risk management.

93. The effectiveness of transfers in financing for disaster risk management depends upon its design. The important issues are the criteria chosen for effecting transfers at the local level, instrument / facility through which transfer is effected, and the conditions attached to the use of transfer. Central governments can use these transfers very effectively to build the capacity of local governments and reduce disaster risks on a sustainable basis. We shall discuss these transfers here in the specific context of financing reconstruction, setting up calamity funds, and supporting safety nets including public-funded insurance programs.

4.3 Financing Reconstruction

94. When the central government passes on the proceeds of a World Bank or IDB loan to a sub-national or local government for post-disaster reconstruction, it is a case of conditional transfer of resources. Local governments need to utilize these funds for well-specified objectives. In Germany, for example, funds are being transferred from the German reconstruction fund) to the municipalities of Dresden and Pirna on a large scale for the purpose of reconstruction. Municipalities must submit their detailed plans for reconstruction and determine priorities. The percentage of compensation was high, from a minimum of 90 percent to sometimes even up to 100 percent.

95. Post-disaster reconstruction is generally a multi-sectoral program, involving a number of implementing agencies on the ground. In developed countries, private sector plays a leading role in reconstruction. In developing countries, on the other hand, governments tend to set up a special agency at the apex level, which derives its authority from the highest political body. There is always an emphasis on the participation of NGOs and civic groups, though their effectiveness varies considerably across countries. However, partnerships between public entities and private groups, including NGOs has come to be recognized as a necessary pillar of reconstruction program. In respect of public entities, a vertical integration of activities supported by national, sub-national and local governments provides a more broad-based support to the reconstruction program (Gilbert and Kreimer, 1999).

96. In case of Armenia earthquake (1999) in Colombia, the Government assigned responsibility for managing the reconstruction project to the Fondo para la Reconstrucción y Desarrollo Social del Eje Cafetero (FOREC). FOREC is responsible for determining (or amending) the eligibility criteria, review and approval of individual financing proposals, as well as the overall management and implementation of reconstruction activities. It has identified NGOs for different zones in which the reconstruction program has been divided. These NGOs will identify beneficiaries for housing subsidies, work closely with affected communities in prioritizing reconstruction activities and supervise all reconstruction activities in their respective zones. Local governments therefore have little role in the entire reconstruction program.⁷

97. The need to involve local governments in reconstruction was underscored when the IDB organized the consultative group meeting for the reconstruction of El Salvador. It suggested that reconstruction projects should be designed and executed in coordination with municipalities (by the administration itself or through contracting), community associations, and civil organizations operating at the local level. Besides, the projects must encourage agreements among municipalities, open lines of financing and other credit and mutual aid mechanisms for basic housing in rural areas, and provide technical support to municipalities in order to strengthen their operating and management capability (IDB, 2001b).

⁷ The details of the project are available on the following web site:

4.4 Setting up Calamity Funds

98. In many countries calamity funds are being set up at national levels to address short-term needs following a disaster. We discussed the National Calamity Fund in Colombia, and the special disaster relief and reconstruction fund, following floods in Germany. Elsewhere, Philippines, India, and Fiji have set up similar national funds to provide support in case of contingencies. The advantage of creating such a fund is not to ask for a new budgetary provision in the middle of a fiscal year to address post-disaster recovery and reconstruction needs. By using resources accumulated before disaster strikes, these funds smooth government expenditures at the municipal, local, national and even regional levels during a crisis. Besides, the calamity fund could also support specific *ex ante* investment in risk reduction. The institutional design of such funds should guarantee that they not be used for other purposes and that spending priorities not be influenced by political considerations.

99. In 1996, the Government of Mexico established a Fund for Natural Disasters (FONDEN). FONDEN is composed of three separate funds. The infrastructure fund provides for the repair of uninsured infrastructure. The agriculture fund provides immediate assistance to restore the productivity of low-income farmers. The assistance fund provides relief to low-income victims of disasters. FONDEN has, however, not been capitalized sufficiently to cover its obligations. In 1998, for example, FONDEN's budget was about \$227 million, while its expenditures were expected to exceed \$500 million (Varangis, 2001, Kreimer, et.al., 1999). The World Bank has recently provided a US\$404 million in 2002 to re-capitalize FONDEN and support wide-ranging activities related to disaster management.

100. At the regional level, EU set up a solidarity fund for emergencies with an annual amount of € 1 billion. The IDB set up an Emergency Reconstruction Facility for Natural and Unexpected Disaster Support endowed with US\$100 million to be used for emergency related temporary rehabilitation projects. The IDB has also set up a Disaster Sector Prevention Facility under which it can approve

loans of up to \$5 million to finance efforts to reduce natural disaster-related risks. It is currently preparing such loans for projects in Bolivia and the Dominican Republic.

101. At the state level, the World Bank in Andhra Pradesh, India financially supported the concept of establishing a vulnerability reduction fund. The objective of the fund was to provide matching funds to districts for encouraging communities to undertake hazard reduction activities at the local level. At the local level, the city of Manizales, Colombia, struck by recurrent mudslides, created a municipal calamity fund equivalent to 1 percent of the city's revenues as part of the Comprehensive Plan for Disaster Prevention and Response.

102. Independent of the budgetary cycle, these special funds for disaster management could be very useful for the local governments to access funds immediately. These funds could also be operated to provide incentives to local governments and communities to invest in mitigation and preparedness on a matching basis. However, the usual problem with these funds is that they are not sufficiently capitalized. Once the money is depleted, the replenishment of funds is delayed.

4.5 Supporting Safety Nets

103. Poor households in Latin America are exposed to a wide spectrum of risks. These risks are: ill health, disability, and death in the family, which are known as "idiosyncratic" shocks, and economic recession, natural disasters, and conflicts and civil wars, which are called "covariate" shocks. In addition to these risks, some of the households suffer from a chronic incapacity to work and earn. Financing and supporting people only during disasters while leaving out other household risks is not a sustainable arrangement. There is an established need to support social safety nets, especially in view of economic recession and huge unemployment in the region in the decade of 1990s. These safety nets work as both *ex ante* and *ex post* mechanism for dealing with disasters.. In fact, when these safety nets are in place, people are more prepared in a pre-disaster situation, and they show greater resilience in a post-disaster situation.

104. Safety nets work better when they are decentralized. Implementing these safety nets at the local level reduces costs and improves targeting. Local governments and administrators may be better informed about members of their community and thus better able to identify their poor. District

officials in Karnataka, India, have attributed a tenfold increase in information flow from communities to decentralization. This has helped to increase the warning time before natural disasters and has improved the government's ability to respond to and fend off potential disasters (Litvack, 1999).

105. Central governments realize the importance of implementing safety nets and financing them. Local governments, which require instituting safety nets in a more pressing way, may have the least own-source revenues with which to support them. Sub-national governments may not also have sufficient resources to implement these programs. In fact, safety nets, if they involve public works programs, are generally very expensive. An ideal solution to financing these programs is through pooling of financial resources from central, sub-national and local governments, and improving their targeting. Intergovernmental transfers are therefore more effective, when they are specified transfers and accompanied with matching resources from lower levels of government. In fact, equity considerations could be introduced through these transfers. For example, a rich local government might receive one central dollar for every three dollars it raises and spends on safety nets, while a poorer local government might receive three central dollars for every one dollar it raises and spends on safety nets (Litvack, 1999).

106. The most common examples of safety nets are employment programs, social funds, and social insurance for the unemployed and old. Of these, employment programs and social funds have been used for disaster risk reduction. After flooding in Chiapas, the Mexican government's temporary employment program (*PET*) provided families with much needed additional income by enabling them to work on reconstruction crews for one day a week. In northeast Brazil, the *Frente de Trabalho* program provides similar employment in periods of drought. During the 1979-84 drought, the program employed some 3 million workers in construction and drought-related jobs (IDB, 2000a).

107. Social funds use poverty map for targeting investments to the poor. With information on consumption, employment, basic infrastructure, as well as nutrition setting the eligibility criteria for directing investment, social funds finance projects in the poorest regions. The experiment of social fund, as it is known today, began with the Bolivia Emergency Social Fund (ESF), which was launched in 1987 to mitigate the adverse impact of structural adjustment by creating employment and delivering emergency social programs. Since then, the concept of social funds has spread very fast, with around

50 countries having set up similar facilities. The World Bank, Inter-American Development Bank, and other international agencies played a central role in the process of dissemination of the social fund model (World Bank, 1996, Reddy, 1998, Jørgensen and Domelen, 2001).

108. In terms of the level and focus of activity of social funds, they are most widely known for their investments in social infrastructure, particularly health, education, water supply, and sanitation, although this allocation varies greatly by country. Though they are targeted at the most poor and vulnerable, there is evidence that non-poor too benefit from social funds. In the area of disaster risk management, the role of social funds is relatively new.

109. Following hurricane Mitch in October 1998, Social Investment Funds (SIFs) in Honduras, Nicaragua and Guatemala supported emergency projects, involving damage assessments, locating sites for resettling the homeless, and providing sanitation systems. In early November, the three SIFs began reconstruction efforts, focused on small-scale infrastructure and social services – bridges, schools, health facilities, roads, water and sanitation. Within days, SIF emergency response teams were deployed, and worked with local governments and citizens to address the most urgent reconstruction needs. In Honduras and Nicaragua, particularly, SIFs played an important role in helping communities cope and rebuild after natural disasters, though there are also opinions that these SIFs have not been very successful at reconstruction (Boschmann, 2003).

110. SIFs in Honduras and Nicaragua analyzed the factors which helped them to respond to urgent local needs. They came to similar conclusions about three key factors: (a) Decentralized SIF teams had been very important to their effectiveness; (b) Increased procedural and financial flexibility during the emergency period produced faster responses to beneficiaries' needs; and (c) working closely with communities and municipalities was invaluable to making the right decisions, responding rapidly to the most urgent demands and getting things done quickly.⁸

⁸ Posted on the web site:

[http://wbln0018.worldbank.org/HDNet/HDDocs.nsf/2d5135ecbf351de6852566a90069b8b6/e4ffb93fea7896f2852568ba0056f2d3/\\$FILE/SF20and Natural Disasters.pdf](http://wbln0018.worldbank.org/HDNet/HDDocs.nsf/2d5135ecbf351de6852566a90069b8b6/e4ffb93fea7896f2852568ba0056f2d3/$FILE/SF20and%20Natural%20Disasters.pdf)

111. In addition to these social funds, there is a wide array of *development funds* that can be used to finance investments in prevention and mitigation. In Latin America and the Caribbean there are municipal (urban and rural) development and environmental funds that can allocate resources for the prevention and mitigation of catastrophic events in addition to their normal activities. Some of these funds operate with reimbursable resources and allow the financing of major post-disaster reconstruction activities. Other funds operate with non-reimbursable financing and could be applied for seeding a range of mitigation measures (Keipi and Tyson, 2002).

112. Among other important financial mechanisms which address disaster risks are contingent credit, insurance and microfinance. International banks extend contingent credit lines upon payment of a smaller fee up front. However, countries or public entities do not use contingent credit lines for recovery from disasters. It is not a very relevant financial instrument at the local level. Insurance is the most widely practiced insurance risk transfer mechanism all over the world. Microfinance has just emerged as an important social safety net. Private finance and NGOs are the leading stakeholders for insurance and microfinance respectively, though governments also are required to play a supportive role. For these reasons, we discuss these two instruments here independently.

4.6 Insurance

113. Most of the discussion regarding insurance as a risk transfer mechanism has taken place from the point of view of market-type insurance (Freeman and Kunreuther, 1997). While the insurance provided by private sector is very important, its coverage is circumscribed by its affordability. A comprehensive insurance approach, which involves both private and public-funded insurance programs as well as self-insurance, will be more useful in context of local governments in Latin America.

114. In Latin America insurance markets are underdeveloped and their present capitalization is insufficient in comparison to the value of assets potentially at risk. Public infrastructure, utility companies and the agricultural and informal sector are either uninsured or insufficiently covered against natural disaster risks. At the macro level, problems both from demand and supply sides impede the growth of insurance markets in the region. On the demand side, the major obstacle is that governments tend to bail out uninsured parties in the aftermath of a disaster for legal and political

reasons, while on the supply side, the risk pool is often too small to make insurance viable (IDB, 2000b, Freeman and Martin, 2001).

115. At the local level, perspectives are formed differently. For example, in the Caribbean, the standard product offered by the insurance industry to the average property owner is expensive; more than half of the premium paid by the insured is allotted to commissions, profit, marketing, and administrative expenses. The underwriter pays little attention to catastrophe risk, and the industry does not offer the insured any incentive to reduce that risk (Vermeiren, 2000).

116. At the level of local governments, inadequate insurance coverage may be attributed to low perception of risks, expensive insurance, or lack of funds to pay for insurance. A gradual approach is required to improve insurance coverage. It may begin with a credible risk assessment, followed by insurance of the most critical facilities and installations. The cost-effectiveness of insurance coverage needs to be ascertained before a decision is taken about insuring its buildings and assets. It may neither be necessary nor affordable to insure all the buildings and assets owned by local governments. Self-insurance could also be introduced through creating a building renewal fund at the level of local governments with annual contributions, which may be used for repairs or replacement of their buildings.

117. One of the ways in which cheaper insurance options could be offered to local governments and residents and the risk pool be enlarged is through creating group-based, public-funded insurance programs. The group-based insurance programs provide incentives to the people to come together and initiate improvements in their physical surroundings in order to qualify for insurance benefits. The Homeowner Comprehensive Group Insurance plan in St. Lucia is a successful example of group-based property insurance and mitigation program (Vermeiren, 2000). Despite the predominance of private sector insurance, a number of developed countries have started providing support for homeowners' insurance, and there are a number of state-funded insurance programs. In the US, National Flood Insurance Program (NFIP) provides insurance coverage against floods in eligible communities. In addition, the Florida Hurricane Catastrophe Fund and California Earthquake Authority were set up to run state-supported insurance programs against hurricane and earthquake losses respectively (Kliendorfer and Kunreuther, 1999). France and Spain also support public-funded insurance schemes

(Freeman and Martin, 2001 & Charveriat, 2000). Most of these public-mandated programs have combined insurance with mitigation, which also shows the importance of insurance as an *ex ante* mechanism of risk reduction.

4.7 Microfinance

118. Microfinance is non-collateral financial service, consisting of savings, credit, and insurance, which is provided by non-governmental organizations and finance institutions. For poor households and communities, it is both an alternative to insurance and public-mandated social safety nets. Originally conceived as a poverty alleviation program, its impact on reducing income and consumption volatility has made it emerge as an important instrument of risk management in the last decade.

119. Microfinance instruments helps poor households diversify their income by source and season. It also diversifies income by earner as it provides opportunities to women to earn. Multiplicity of income-earning opportunities and asset-building through microfinance help the poor households in dealing with disasters better (Pitt, 2000). Access to credit, savings, and insurance services through microfinance can also improve transitory and chronic food insecurity in three ways. First, credit or savings can provide capital for financing inputs, labor, and equipment for income generation. Second, access to credit and liquid financial savings services enables households to adopt more effective precautionary savings strategies. Third, financial services could more efficiently stabilize consumption of food and other essential goods during lean times. All three functions help income- and consumption-smoothing, and reduce food insecurity (Zeller, 1999). Microfinance thus acts as both *ex ante* and *ex post* risk management mechanism.

120. The role of microfinance as a coping mechanism was for the first time documented extensively during the 1998 floods in Bangladesh. During the period of June to September 1998, floods affected more than two-thirds of the country, causing extensive damage to agriculture, individual assets, and infrastructure. The Microfinance Institutions (MFIs), which serve millions of households in Bangladesh, helped their clients through short-term emergency loans to meet their immediate needs of consumption. The MFIs also rescheduled the existing loan repayments and allowed their members to withdraw from their compulsory savings. The vast network of MFIs was also used to distribute relief during the floods. Once the floods receded, the MFIs provided loans for recovery and reconstruction.

Though all the MFIs, big and small, struggled to maintain their liquidity, and reported significant losses of capital at the institutional level, they survived the crisis (Brown and Nagarajan, 2000, Nayar and Fasal, 1999).

121. The experience of the Bangladesh floods has created a new awareness among microfinance institutions of the need for providing special facilities and products for risk management. Special products and services such as flexible savings programs, short-term emergency loans and microinsurance are being evolved to help households. However, these services require considerable investment in product development and pilot testing. It may also be said that microfinance institutions themselves have not shown a great interest in developing services and products aimed at risk management. This is where national and local governments can support microfinance institutions through provision of subsidies and incentives. Its objective to develop a product or service, and not actually run a program, and therefore, the fiscal burden of such a subsidy need not be very high. Local governments can also seek the assistance of microfinance institutions in implementing community-based risk management programs.

122. The Multilateral Investment Fund of the IDB recognized the need to support the MFIs for responding to natural disasters. It has sanctioned US \$10 million towards an emergency financing mechanism for natural disasters. The facility will guarantee the availability of the contingency resources to both microenterprises and microfinance institutions so they could get back on the road to financial and operational self-sustainability after dealing with the adverse consequences of natural disasters (IDB, 2001c).

5 Conclusions and Recommendations

123. Financing disaster risks through different alternative mechanisms is a relatively new idea in developing countries. In developed countries, a system of insurance and incentives has been in place for quite some time. New financial instruments such as catastrophe bonds and weather derivatives have emerged which are commercially traded. Still, the discipline of disaster risk management is lagging behind environmental management, where since early 1970s economic instruments are being used. Organization for Economic Cooperation and Development (OECD) has documented more than 60 taxes in force in

different countries for controlling air, water, and soil pollution, solid wastes and noise pollution. In addition to these taxes, there are fees, charges for non-compliance with standards, deposit and reimbursement system, tradable permit systems, bonds contingent on environmental performance and subsidies for environmental protection (ECLAC and UNDP, 2002).

124. There is a need to pool both public and private resources for disaster risk management, and build a range of incentives for implementing them. Households and communities will always be dependent upon public-funded programs for preparedness, response and recovery. Yet public-funded programs run the risk of crowding out private efforts to mitigate risks, or encourage them to engage in unsafe practices (Vatsa and Krimgold, 2000). It is therefore necessary to strike the balance between public mandate and private responsibility for disaster risk management.

5.1 Financial Strategy for Local-level Mitigation Investment

125. Based on the recognition of a more broad-based approach to disaster risk management, a multi-pronged strategy could be proposed for investing in preparedness and mitigation at the local level. These are: a. Supporting local governments through assignment and transfer of resources; b. Financing community-based mitigation programs; c. Partnering with financial institutions for mitigation incentives; and d. Maintaining social safety nets at the local level.

126. *a. Supporting local governments through assignment and transfer of resources:* Disaster is always a concurrent subject. It invokes jurisdiction of governments at all levels: national, provincial / state, and local. Local funds for disaster risk management is always limited, and national and state transfers are still the most important source of financing for cities. Central and state governments therefore need to provide conditional matching or non-matching grants to local governments, based on disaster risk assessment of regions and cities. Besides, a share of certain tax revenue may also be assigned for the purpose of local capacity-building. It is always preferable to provide matching funds to local governments, as it creates incentives for the local governments to raise their sources and get more involved with mitigation. Transfers need to be linked to capital investment in preparedness and mitigation, while the revenue assignments can be used for maintenance of facilities and services.

127. For example, in Bolivia, there are three Departments, which show a high degree of disaster risk: Chuquisaca, Oruro and Potosi. In these Departments, 66 percent of the Municipalities are permanently

exposed to disasters risk. In the rest of the country's departments, risk and vulnerability has a more uniform distribution, between the low and the medium trends. Based on the ranking of these Departments in terms of disaster risks, national government can allocate additional resources for local capacity-building in disaster risk management.

128. *b. Financing community-based mitigation programs:* Community-based programs, a more cost-effective approach to mitigation, could be funded through different mechanisms. Again, while there must be incentives for a community to undertake mitigation, communities too need to contribute their resources. In Bolivia, for example, intense deforestation along the slopes of the Grande river in the municipal district of San Julián has increased floods risks significantly. The GTZ-supported municipal risk management project has been successful at pooling the resources of municipal government, communities and other stakeholders such as Red Cross and civil defense committees. At the level of communities, 45 risk management plans have been prepared. The Project Impact, implemented by the Federal Emergency Management Agency (FEMA) in the US has been another example of pooling both public funds and community resources for implementing community-based mitigation projects.

129. Financial support for these projects may come from different sources, from governments, NGOs, donors and local financial institutions. Transaction costs involving local financial institutions, community networks and self-help efforts are always lower compared to the projects supported by big governments. It is necessary that local financial institutions be provided the necessary policy and regulatory support for financing these community-based initiatives.

130. *c. Partnering with financial institutions for mitigation incentives:* It is also important for governments at different levels to set up partnerships with financial institutions for promoting risk management mechanisms. For example, the insurance market for catastrophic risk in the Caribbean region remains a “thin” market characterized by “high” prices and “low” transfer of risk. These market failures which explain the lack of development of the catastrophe insurance in the region could be addressed only through public sector interventions (Auffret, 2003). Similarly, governments, NGOs and donors can work with the MFIs to develop more flexible loan and savings products which the households could access when faced with a major disaster or a crisis.

131. *d. Maintaining a social safety net at the local level:* Measures aimed at the poorest members of the population have the potential to reduce their vulnerability. In combination with a variety of environmental and productive actions they can improve the ability of both individuals and families to quickly recover after these events. What it requires is an expanded concept of social safety nets, which combines basic safety net with environmental and economic safety nets (Barahona, et. al, 1999). As discussed earlier the level of expenditures on social security is low in Latin America. National governments need to step up the expenditure on social safety nets, with greater authority and flexibility to local governments to implement these safety nets. However, safety nets are at times misused at the local level, which necessitates proper safeguards in their targeting and implementation.

5.2 Financial Instruments and Services for Disaster Risk Management

132. Following the broad strategies outlined above, financial instruments and services can be designed and promoted for disaster risk management. These instruments and services—insurance, microfinance, social funds, public works program, etc.—have been discussed in Section 4 in the context of Latin America. Many of these social protection applications have a very fledgling record in respect of disaster risk reduction. In fact, with the exception of insurance, these instruments are not generally associated with disaster risk management. A strong public policy support for these measures will be necessary, which would effectively bridge social protection with disaster risk management.

133. These financial instruments and services are sometimes discussed in terms of *ex ante* and *ex post* mechanisms. However, the distinction between *ex ante* and *ex post* is mere contextual. In fact, these instruments could be used as both *ex ante* and *ex post*. Insurance is generally considered as an *ex post* mechanism. However, an effective insurance is always combined with mitigation. With certain risk reduction measures in place, insurance premiums are more viable. Savings and credit, offered by microfinance services, are helpful in reducing the risks before the disaster and smoothing income and consumption following the disaster. Similarly, social funds can finance mitigation programs as well as post-disaster reconstruction. It is more critical to assess which of the interventions would be most cost-effective and sustainable at a given stage of disaster risk. It is also necessary that these instruments and services be specifically recognized and promoted for disaster risk management.

134. The development of these financial instruments and services, however, require innovation and public policy support. For example, social funds and microfinance have just emerged as risk management mechanisms. Similarly, a great deal of variation could be introduced in insurance products to make them more attractive and affordable to the potential insurers. Multilateral development banks and donors can play a very important role in the development of these instruments and services.

135. In addition to these financial instruments and safety nets, a number of facilities need to be set up for improving disaster risk management at the local level. These are discussed as follows:

136. *Investment in Emergency Services Infrastructure:* It is imperative that all local governments invest in a basic emergency management infrastructure. It may include early warning, fire services, emergency medicine, and rescue equipment. A focus on these basic emergency services is the first step for a sustainable practice of disaster risk management. These services must be financed on a regular basis in the local-level development schemes. These resources at the level of local governments contribute to the national pool, which could be accessed by public entities in case of bigger disasters.

137. *Establishing a Reserve Fund:* It is always very useful to set up a reserve fund through a tax or revenue assignment. The reserve fund may be small, but it plays an important role in dealing with contingencies, and supporting smaller programs in capacity-building and community education. A reserve fund must be viewed as an essential part of the municipal finance. For example, as discussed in the case study, FOPAE set up for the city of Bagota could be capitalized further. Further, its funds must be used for specified purposes only, and hence these funds must be set up with adequate legal safeguards.

138. *Insurance Protection for Critical Installations:* Local governments need to undertake insurance of their assets in a gradual way. It may not be possible for them to insure all the buildings and civic facilities at one go. It is important to prioritize. Critical installations in the area of power and gas may be insured first, followed by other utilities. For buildings owned by local governments, a building renewal fund could be set up through an annual contribution. The renewal fund can be used for repairing old buildings, or replacing them when buildings collapse in disasters.

139. *Sharing the cost of Reconstruction:* Even in an ideal situation, local finances would be inadequate for meeting the cost of post-disaster reconstruction. Local governments will require financial help from state and central governments, even international assistance. However, it is necessary that local governments provide part of counterpart funding for reconstruction. It improves their stakeholding and participation in reconstruction program. International development banks generally ask for a special agency to be set up when they finance a large-scale post-disaster reconstruction program. While it may be a more efficient implementation strategy, the role of local government needs to be recognized in the reconstruction program. Provision of counterpart funding is the first step towards the participation and involvement of local governments.

140. It must be kept in mind that transfer of responsibilities to the local governments is a positive trend to the extent that the local governments assuming such responsibilities are prepared for them and are capable of mobilizing their own resources. Since disasters tend to overwhelm public entities, local governments may always need the support of central and state governments. However, an appropriate balance of capacities and resources between different levels of government in a country will be a more feasible and sustainable system of disaster risk management.

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Appendix

A List of Community-based Mitigation Measures

Hazard	Community Mitigation Measure
Flood	?? Building and maintenance of embankments by communities ?? Agricultural practices that reflect local knowledge of flooding conditions ?? Planting of trees that can withstand periods of submersion ?? Developing community forestry (to be used in strengthening protection structures) ?? Establishment of flood forecasting and warning systems ?? Mapping of flood-prone areas ?? Strengthening of homes (foundations, raising plinths) and improved siting of public buildings ?? Improved urban and rural roads ?? Building of platforms using woods, bamboos, etc.
Hurricane	?? Storm warning system ?? Public education and awareness campaigns regarding warning system and threat of hurricanes ?? Community-built and maintained multi-purpose cyclone shelters ?? Strengthening and integration of communications networks ?? Strengthening of homes ?? Mapping of storm surges
Untimely rainfall	?? Leveling of fields to prevent standing water ?? Draining fields for broadcast-sown crops ?? Making ridges, raised beds for crops sensitive to wet soil conditions ?? Protecting seedlings ?? Preparing contingency plans
River bank erosion	?? Undertaking small scale structural works ?? Strengthening of homes ?? Relocation ?? Growing crops that can be harvested before period of peak flood flows and erosion
Tornadoes, Hail	?? Strengthening of homes ?? Establishing community warning systems
Earthquakes	?? Developing and enforcing building code ?? Providing education on risk ?? Training communities ?? Strengthening of homes ?? Storing supplies
Drought	?? Developing food for work programs ?? Increasing food grain reserves ?? Issuing timely drought warnings from Meteorological Department ?? Planting drought-tolerant crops ?? Keeping reserve stock of seeds ?? Practicing moisture-conservation techniques ?? Developing practical measures to conserve water and use sources rationally