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MANAGING NATURAL DISASTERS
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(With research assistance from Cory Siskind)

INTER-AMERICAN DIALOGUE

Managing Natural Disasters

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Like other developing regions, Latin America and the Caribbean is extremely vulnerable to natural disasters. In the three decades between 1980 and 2010, some 4 million people a year in Latin America, on average, were disaster victims.^[1] Some lost their lives. Others endured injuries, property damage, and loss of income and jobs. 2010 was a particularly destructive year. The region suffered three-quarters of all disaster-related deaths worldwide, largely due to the Haitian earthquake, with its toll of some 230,000 lives.^[2] Only a few months later, the Chilean earthquake, the world's costliest natural hazard that year, produced an estimated \$30 billion in losses.^[3] As climate change accelerates, the frequency and intensity of natural disasters are likely to escalate further worldwide. The scientific evidence suggests that Latin America and the Caribbean will almost surely experience an increasing number of major disasters in the coming years.

Most Latin American and Caribbean countries, however, have not yet begun to put into place the necessary policy adjustments, capital investments, and other preventative measures that could help either to avert natural disasters or contain their damaging effects. To be sure, it is usually not possible to prevent a hurricane, an earthquake, or a drought from taking place, but there is a spectrum of initiatives that, if adopted, can lessen the impacts of these and other natural hazards, keep them from turning into major disasters, and allow for a faster and more complete recovery.

Where and when disasters do occur, appropriate planning and preparation can limit the damages to people, property, and national and local economies.

Latin American nations have paid a high price for their neglect of preventive approaches. Not only have full-scale, unmitigated disasters needlessly cost lives and damaged property, they have at times reversed years of development gains. Their direct costs have been crippling to some economies. Besides the extraordinary number of fatalities, the 2010 earthquake in Haiti caused destruction estimated at about \$8 billion, almost 20 percent more than the country's annual GDP. In addition, it left a large share of an already desperately poor population impoverished, jobless, and homeless.^[4] From 1990 to 2000, natural disasters in Nicaragua sliced about 15 percent from the economy's growth in the decade. Jamaica lost more than 12 percent of its growth in the same period. Everywhere low-income families suffered the most. They tend to live in the most disaster prone locales, often in badly built housing, and have the greatest difficulty in recovering their jobs and livelihoods. The poorest communities and households in every country are inevitably the most vulnerable to disasters.

By adopting strategies of prevention and preparation to deal with natural disasters, Latin American governments can save lives, curtail economic losses, and help assure a better future for their countries and populations. While the longer-term benefits of preventive approaches have, time and again, been amply demonstrated, it is not hard to explain the reluctance of many countries to introduce them. They require expenditures today that most of the region's fiscally and financially pressed governments want to direct toward more visible and immediate priorities. Latin America's limited investment so far in disaster prevention and preparation has much the same origins as the

region's low rates of public investment generally. Preventive measures not only require public action. They also mean that businesses and households face added expenditures and regulations—which are, understandably, resisted or simply ignored in practice. Moreover, many countries of the region lack the technical and/or institutional capacity to develop and manage preventive approaches.

Disaster Risk Management

There is now a broad consensus among development agencies (and almost everyone else involved in disaster-related activities) that the best way to confront natural hazards is through strategies that emphasize prevention and preparation. These are strategies which accept the inevitability of hazards—earthquakes, hurricanes, tsunamis, droughts, frosts, volcanic eruptions, flooding, and so forth—but call for actions that can prevent these hazards from turning into disasters, lessen the force and damage of the disasters when they do occur, and facilitate a prompt and full recovery.

This consensus approach, commonly called “disaster risk management,” involves (1) careful assessment of the vulnerability of countries and their populations to natural disasters, (2) prevention or risk reduction measures, which seeks to avoid disasters and, when that is impossible, to mitigate the damage they cause, (3) extensive advance preparation so that a quick and effective response can save lives and property following a disaster, and (4) prior efforts to assure that, when disaster strikes, financing is available to cover the costs of rescue, recovery, and rebuilding. What is most critical is that all of these elements of risk management—assessment, prevention, preparation, relief and reconstruction, and financing—are fully integrated into every nation's

development planning.

This consensus view or approach has been endorsed by some 170 countries (including every country in Latin America and the Caribbean), which have signed the 2005 Hyogo Framework for Action. The framework calls on governments to make disaster risk reduction a national and local priority, monitor potential disaster risks and upgrade early warning systems, and reduce underlying vulnerabilities and strengthen disaster preparedness. The multilateral development banks and bilateral donors, moreover, have reinforced this consensus by providing financial support for countries to incorporate disaster risk management into their development strategies.

Despite having signed on to the Hyogo Framework, few Latin America and the Caribbean governments have made much headway in building preventive and preparatory measures into their national growth and development plans. Some countries have taken important steps, but most of the region's governments continue to deal with natural hazards as if they are random, unavoidable events that can only be addressed after they occur.

Governments across the region can and should do better. They know that the low-lying areas of their countries are prone to floods—and they have the capacity to stop flooding in some instances, to reduce the amount of flooding in others, and to take measures to curb the human and economic costs of floods. Similarly, authorities in the Caribbean islands and Central America know their countries will be struck by hurricanes on a regular basis—and they can help their citizens and communities to protect themselves. Chilean and Peruvian officials know that destructive

earthquakes can occur at any time.

Governments, at all levels, in these and other vulnerable countries can and should adopt approaches that will help prevent and mitigate damage. Some initiatives can reduce the force of the hazard itself; flooding, for instance, can be contained by protecting wetlands, reforesting hillsides, and installing better drainage systems. Other measures can increase the durability of buildings and other structures. Bridges and homes, for example, can be made more wind or earthquake resistant. Granting property titles to residents of poor urban or rural settlements encourages more careful land use. And some measures, like early warning systems or evacuation plans, are aimed mainly at saving lives. What is critical is that disaster risks are fully taken into account in managing natural and settled areas, and in planning and carrying out development projects of all types.

Response, Recovery and Reconstruction

Once a natural hazard has struck, the effectiveness of the response depends on (1) the extent and quality of preparation and (2) well-orchestrated coordination among the multiple institutions involved in relief and rescue operations.

Careful, systematic anticipation and advance preparation is essential. The arrangements that must be in place for successful rescue and relief operations include early warning systems; evacuation and sheltering plans; stockpiles of food, water, and medical supplies; communication equipment and emergency generators; and trained volunteers and response teams. Procedures for community involvement are particularly important, especially since the residents of affected communities are

the first line of support for disaster victims. Plans are also needed for securing outside assistance. Development organizations like the IDB, World Bank, and CAF are ready to provide financial aid and technical aid to countries preparing for and confronting natural disasters in Latin America. The Pan-American Health Organization (PAHO) has been consistently effective in dealing with disaster-related health problems and getting essential water and sanitation services into place. Along with the US and Canada, Latin American countries have over the years been source of needed supplies, technical personnel, and equipment.

A second vital element is coordination, for which national governments and community leaders need to set up systems and procedures in advance. Disaster responses bring together many different institutions and actors—national and international, private and public, large multilateral agencies and smaller NGOs, humanitarian and religious groups, police agencies and armed forces, print and broadcast journalists, and many others. Coordination is essential to assure the different groups are pursuing a common strategy, communicating in an orderly fashion, and following a consistent pattern of decision-making. Lacking effective coordination, rescue and relief operations can fall into disarray with different groups competing and working at cross-purposes. In most instances, the national government of the affected country should provide the leadership in directing the operations of the multiple groups involved. But when an affected government lacks the experience or authority to take the initiative, the international community may have to assume a more prominent role in coordination.

Financial Management

Following a national disaster, governments will inevitably be confronted with a myriad of financial challenges. They have to prepare for those challenges in advance.

At times, huge expenditures are required to conduct immediate rescue and relief operations, including providing temporary care and shelter to victims. In some cases, particularly dramatic, highly publicized events, overseas donations may be available to cover a significant share of these costs, but that cannot be assured. Over the middle to longer-run, disaster-related expenses are likely to rise even higher to pay the costs of repairing and rebuilding private and public structures, including homes and business, schools and hospitals, roads and bridges, harbors, airports, and much else. Economic slowdowns caused by natural disasters can cut into tax receipts at the same time they increase demands for government assistance.

Governments should have in place, prior to the onset of a disaster, arrangements to secure access to the funding needed for rescue and recovery operations, and to sustain government programs.

And a variety of methods for transferring the risks and cost of disasters are available today—including contingency credits, reconstruction loans, insurance coverage, catastrophe bonds, risk-pooling, and reserve funding.

Determining how much and what types of financing a country needs is a complex task. The IDB, CAF, and the World Bank all offer technical assistance to governments in managing financial risk and assembling appropriate packages of needed credits and financing. They also offer loans for emergency relief and rebuilding, and can help countries secure private funding.

Although it is still a relatively new mechanism in Latin America, insurance coverage is an approach to post-disaster financing that is likely to become increasingly important in the region. Private insurance, however, is currently not available for all disasters and may not provide sufficient financing. Other mechanisms are also being tested. Mexico is the first country in the region to set up a national reserve fund to cover disaster losses and expenditures, an initiative that should be considered by others. Mexico was also the first country to issue “catastrophe bonds,” that is bonds in which the principal is written down following a natural disaster. The 16 CARICOM countries are sharing risks through an insurance pool established to cover certain hazards. Some NGOs working in microfinance and micro-insurance fields are now developing mechanisms to reduce the financial risks faced by low-income individuals and poor communities.

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Conclusions and Recommendations

1. There is now wide agreement that the best way for governments to confront natural hazards is through strategies that emphasize prevention and advance preparation. All national governments should incorporate such strategies, generally known as “disaster risk management,” into their development planning and make sure they are appropriately financed. The starting point for every country is to perform a “risk assessment” to identify the natural hazards that are most threatening and measure the vulnerability of different areas of the country to these hazards. This assessment serves as the basis for planning and preparation for natural disasters—and managing responses when they occur. More important, however, it should serve also to guide development planning and implementation across the country, particularly in its most vulnerable areas.
2. Preparing for and responding to disasters is a complex set of tasks that requires significant expertise and institutional capacity, which only a few countries have in place today. The principal challenge for Latin America and the Caribbean is to build that needed expertise and capacity. It should be a high priority of the multilateral development banks and other donors that serve the region. The banks themselves may need further to build up their own disaster planning and management capabilities as countries increasingly take on the challenge of disaster prevention and preparation.
3. Governments need to develop and have in place arrangements to secure access to the funding needed for rescue and recovery operations before a disaster occurs. The amount of

financing should be consistent with the national risk assessments of governments.

Multilateral institutions need to press on governments the importance of calculating the potential costs, both shorter and longer term, of natural disasters and developing appropriate plans for financing them—including fast-disbursing contingency funding from the institutions themselves. The multilateral agencies should also be prepared to provide necessary technical assistance and advice for these exercises. Financial instruments that are commonly used in Europe and the US, such as insurance and sovereign catastrophe bonds, need to be more widely adapted to and used in Latin American nations.

4. Every stage of disaster preparation and response requires coordination among all levels of government—national, state, and municipal. In most situations, national governments will take the lead, but in some cases the international community will need to assume an important role as well. It is also up to national authorities to develop middle and longer term plans (including financing) for recovery and reconstruction—and to oversee their implementation. Where possible, reconstruction should be guided by the concept of “build back better” to reduce future vulnerabilities.
5. To boost capacity for emergency response and relief, national governments should consider creating DART teams (Disaster Assistance Response Team) once disaster strikes. These teams can make quick, robust assessments of damages –which should then determine what supplies, services and technical assistance are needed.

6. National government planning for disasters should take account of the fact that the first response to an emergency— before any outside rescue workers, supplies, or equipment arrive—comes from community leaders and local residents. They require training and preparation. They need to be able to identify early signs of natural hazards, operate early warning systems, and identify evacuation routes and shelters. With help from national and state authorities, municipal governments can provide most of the needed training for local residents and develop cadres of volunteers for rescue and relief efforts. They can also be effective in working with non-governmental organizations, which can offer a great deal to affected communities.

7. Multilateral financial institutions and other international donors should make special efforts to encourage the most vulnerable countries and localities in Latin America and the Caribbean (many of which are also the poorest and least developed) to give priority attention to (a) building their capacities for disaster risk management and (b) making disaster prevention and preparation a central part of their national development plans.

^[1] Inter-American Development Bank, *From Disaster Response to Prevention: Companion Paper to the Disaster Risk Management Policy*, 2007.

^[2] World Bank, Data Bank on Haiti. <http://data.worldbank.org/country/haiti>

^[3] Center for Research on the Epidemiology of Disasters, *Using disaster footprints, population databases and GIS to overcome persistent problems for human impact assessment in flood events*, 2011.

^[4] Ibid.

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