

Managing Natural Hazards, Reducing Risks to Development

Natural disasters are a major source of risk for poor people. A country's development level closely correlates to the number of deaths caused by disasters. Reducing vulnerability to disasters is an integral part of the fight against poverty since the poor are consistently the most affected. Poor people typically live on the most fragile lands, in unsafe structures, and have fewer resources with which to protect them.

IDA plays a key role in disaster reconstruction and increasingly in risk reduction before disaster strikes. It is also one of the largest donors for disaster reconstruction and recovery. Humanitarian aid reported by the OECD Development Aid Committee offsets less than 10 percent of a country's disaster losses on average. When the World Bank does not finance the larger reconstruction work, problems are addressed only piecemeal, if at all.

World Bank partnerships, technical assistance and research have all contributed to establishing the links between poverty and disasters, and generating the demand for risk reduction investment. In supporting recovery, the Bank's International Development Association (IDA) has demonstrated it has the flexibility, leadership, ability to build on policy reform and to draw in local communities to yield successful project results. IDA is making use of its unique convening power to work with partners to develop awareness and tools for mainstreaming risk reduction, and is leading innovations for more effective risk financing.

At a glance

- 49 percent of deaths caused by disasters occurred in low-development countries (per UNDP's Human Development Index) in 1994-2003.
- In the last decade (1996–2005), IDA committed approximately US\$13 billion to disaster recovery and prevention activities.
- Over the past decade (1996–2005), 80 percent of IDA projects involving natural disasters were rated as satisfactory or highly satisfactory by IEG, making this area among the most successful portfolios in the Bank.
- Within three months of the 2004 tsunami, IDA provided nearly 100,000 families in Sri Lanka with emergency cash grants.

SECTORAL CONTEXT

Natural disasters have grave consequences for poor countries.

A country's development level, as measured by the UNDP's Human Development Index, closely correlates to the number of deaths caused by disasters. Countries of high human development accounted for 9 percent of disaster-related deaths (about 59,000 people) from 1994–2003; those of medium development for 42 percent (286,000 people); and those of low development for 49 percent (328,000 people).

Wealthy countries rank higher than poor countries in terms of economic losses from disasters due to higher insured values of property. However, when reported as a proportion of GDP, developing nations rank higher in terms of economic impacts.

Hurricane Andrew, which hit the states of Florida and Louisiana in 1992, and cost roughly US\$40 billion, represented only about 0.3 percent of the US GDP. In contrast, the Maldives' 2004 tsunami losses amounted to 66 percent of GDP. Grenada lost 200 percent of its GDP to Hurricane Ivan, and Hurricane Mitch caused losses equal to 41 percent of GDP in Honduras.

Even when the national impact is relatively small, the local impact may be catastrophic. The 2004 tsunami is estimated to have reduced Indonesia's GDP growth by just 0.1 to 0.4 percent, but the province of Aceh suffered destruction of its capital stock equivalent to 97 percent of its GDP.

Without effective insurance markets, governments are left with damages which exceed

their fiscal resources. In low income countries, disasters affect the poor the most severely, robbing them of scarce resources and sealing their fate in a cycle of poverty.

This situation will be exacerbated by the fact that natural disasters are expected to increase in frequency and severity due to climate change, increased urbanization, and continued environmental degradation. Low-income, IDA countries are disproportionately affected by these trends, and disasters pose an increasing threat to development efforts.

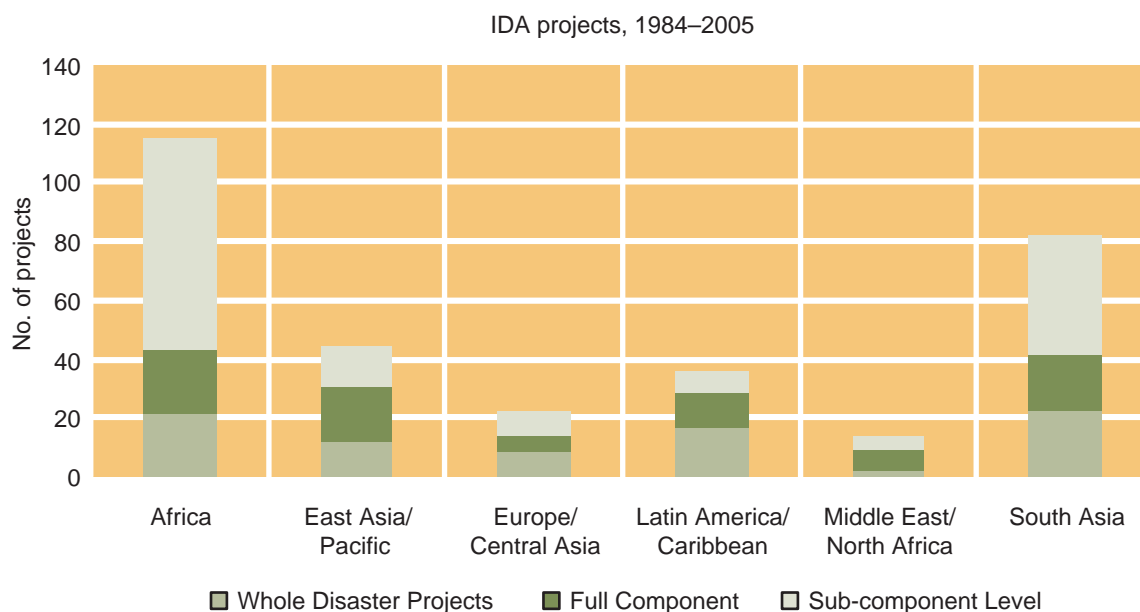
IDA CONTRIBUTIONS

Bank support to disaster risk management has included major financing for post-disaster recovery, investments in preventing and mitigating disaster impacts, analytical work for improving disaster risk management, and, increasingly, promoting the integration of improved risk management in Country Assistance Strategies.

Operations. IDA support for disaster risk management has been growing over the years, both in terms of volume, and as a percentage of overall lending. Within this upward trend, however, lending tends to be cyclical with peaks every few years.

Three-hundred-thirteen IDA credits and grants were approved between 1984 and 2005. Eighty-two of these projects were wholly focused on post-disaster reconstruction and recovery. An additional 84 had at least one formal component devoted to disaster activity (reconstruction or prevention); and the remainder (147) had a disaster activity below the component level (reconstruction or prevention).

How many IDA projects deal with disaster?



The total credit commitment amount of these projects was US\$18.2 billion (US\$10.2 billion approved from 1996–2005), which represents all projects regardless of the level of disaster activity. Total amount committed to only disaster activities is approximately US\$13 billion.

Reallocations. Reallocations of existing project funds towards reconstruction after a disaster have been an important part of IDA emergency support, and demonstrate IDA’s ability to respond quickly and flexibly to emergencies.

For example, in Zambia, IDA responded quickly to the government’s request for drought recovery assistance by reprogramming un-disbursed funds from existing operations, which allowed the government to maintain its spending programs and address its balance of payments crisis.

Reallocations are highly relevant where the scope or scale of the original project is reduced by disaster and particularly when the funds keep their sector dedication. For example, funds originally intended for school improvement were reallocated to school reconstruction after a hurricane or volcanic eruption destroyed schools. This was the case in the 1995 Honduras Basic Education Project, the 1995 Nicaragua Basic Education Project, and the 1993 Papua New Guinea Education Development Project.

In other cases, IDA has taken advantage of projects with slow-disbursing components and formally reallocated funds for emergency reconstruction purposes regardless of the original project sector (this occurred in Bolivia in 1998 and Vietnam in 1995).

Analytical Work. Analytical work is becoming an increasingly important area of Bank sup-

port for disaster risk management. Its experts provide the analysis of risk and potential impacts; assess institutional capacity for managing disaster risk; share lessons learned from recovery efforts; and guide borrowers on how to improve risk management.

Overall, the Bank has prepared 65 publications and reports on disaster risk management since 1999. Thirty-one of these were done under the auspices of the Hazard Risk Management Team (Finance Economics and Urban Department), typically in collaboration with staff with particular country or sector expertise.

Natural Disaster Risk Hotspots

One global initiative has had a particular impact at the strategic level. "*Natural Disaster Risk Hotspots*," published in 2005, identifies countries prone to experiencing high human and economic losses resulting from six major hazards: droughts, cyclones, earthquakes, floods, volcanoes and landslides.

By determining disaster vulnerability using a common geospatial unit of reference in all countries, and by ranking countries in terms of highest risk potential, the study is influencing risk mitigation investments and informing the Bank and other donors on how to better manage future emergency lending.

The Hotspots initiative received the 2006 Good Practice Award from the World Bank's Independent Evaluation Group (IEG) for being influential, innovative, and demonstrating results. The IEG evaluation also recommends the Bank use the Hotspots categorization of countries' relative risk levels to prioritize investments, target vulnerable areas, and ensure that mitigation measures into built into operations.

Inclusion in country strategies. Traditionally, natural disasters were considered external shocks that could not be planned for, and therefore were not featured in the Bank's country assistance strategies (CAS). However, the Hotspots analysis has dispelled much of the uncertainty and unpredictability surrounding hazard. This analysis is being used to raise awareness among Bank staff and clients in high risk countries of the need to integrate disaster risk reduction in their strategies.

The CAS for three IDA countries—Bangladesh, India, and Mozambique—flag natural disasters as a high development priority. The most recent CAS Progress Report for Indonesia adds disaster risk management as new pillar for Bank support. In addition, the Bank's partnership for vulnerability reduction, the Global Facility for Disaster Reduction and Recovery (GFDRR) launched in 2006, supports national capacity building in hotspot countries to deal proactively with natural disaster risks.

IDA's work in disaster risk management has yielded many positive results.

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Restoring physical assets.

Disaster projects have been best at restoring physical assets destroyed or damaged by natural disasters. For example, IDA support to recovery following devastating floods in Yemen in 1989, included the reconstruction

of damaged housing and the rehabilitation of 12 schools and 13 health centers and hospitals. When severe flooding struck Yemen again in 1996, IDA support benefited almost 124,000 people in the three governorates most affected by the disaster through the restoration and rehabilitation of main roads, urban and rural water supply facilities, irrigation systems, canals, embankments and flood protection works.

Improving emergency preparedness.

IDA-supported shelter activities in the emergency context have included building emergency shelters, relocating victims to safer areas, facilitating self-help construction of temporary shelter, and supporting the reconstruction of permanent housing using disaster-resistant construction technologies. The Maharashtra emergency earthquake project in India, for example, promoted simple earthquake-resistant features for non-engineered masonry construction based on three simple rules that could be understood, adopted, and applied by villagers. Their simplicity made a wide dissemination possible and benefited a much larger population than originally targeted.

Seven IDA-financed projects have helped build more than 500 cyclone shelters between 1984 and 2003. Bangladesh provides an example where investments in this type of emergency preparedness measures have greatly reduced loss of life due to cyclones. IDA, along with other donors, has supported cyclone shelter construction over several decades. In 1970, 300,000 people died in a cyclone. In 1991, a cyclone left almost 140,000 people dead (90 percent of the victims were women and children). Two cyclones in 1997 killed about 200 people, and major flooding from storms

in 1998 claimed about 800 lives, a significant reduction from previous years.

In Grenada, IDA supported retrofitting of emergency shelters and an education sector project included the retrofitting of schools so that when in September 2004, the island was hit hard by Hurricane Ivan, the structures were able to withhold the blow. The damage assessment revealed that the retrofitted shelters operated effectively, and the two schools retrofitted by the IDA-supported education program not only survived without significant damage, but were also being used as shelters.

Focusing on social impacts of disasters.

There has been an increasing trend for disaster projects to focus on social impacts of disasters, and to target the poor. IDA's long-standing support to the Pakistan Poverty Alleviation Fund (PPAF) enabled it to respond immediately to the October 2005 earthquake. Through its network, the PPAF reached the most vulnerable in remote areas of the country with relief and later reconstruction support. PPAF is involved in about 20 percent of the 600,000 houses being reconstructed.

In North China, an earthquake reconstruction project gave affected people a chance to take part in rebuilding and maintenance while providing much needed income sources. The project preparation included income-generation schemes that were introduced to help families repay loans received for reconstruction. Affected poor farmers who did not have funds to repair or rebuild their homes particularly benefited from this project. Local economic activity was not only restored to pre-earthquake levels but has been growing since project completion.

The post-disaster context can at times be used as an opportunity to advance issues that may not move during “normal times.” A good example is gender equity. IDA supported recovery projects have helped promote inclusion and equity for women. For example, in many developing countries women are not allowed to own land or houses. (In Tonga, after a disaster in 2002, any woman whose house was not damaged by the cyclone had to give up her home to a male relative who had lost his house.) IDA-financed projects have helped elevate the status of women in society by providing land titles in the names of both men and women. This took place in Maharashtra, where, for the first time, even widows received houses in their own names, and *ex-gracia* payments for lost relatives were disbursed to them. The same approach was taken in the Gujarat Earthquake Emergency Reconstruction Project following the January 2001 earthquake in that state.

Successful projects have displayed some key ingredients: flexibility, innovation, policy dialogue, partnership and community participation.

Flexibility. In the wake of Hurricane Mitch, IDA provided Honduras with urgently needed support. In that particular case, IDA’s primary response was balance of payment support through an emergency recovery credit. This was supplemented by reallocations from seven existing projects and redirection of a social fund to assist in the recovery and reconstruction.

The Honduran Social Fund (FHIS) dramatically expanded its operations after Hurricane Mitch

struck in 1998. Operations during the two years following the disaster (one of the strongest and deadliest hurricanes in the Western Hemisphere) were significantly increased compared with the fund’s first eight years overall. Some 6,400 projects (US\$137 million) were approved during the two years following Mitch (November 1998–October 2000), compared to the 10,000 projects (US\$125 million) executed during the first eight years of the social fund’s existence (1990–98).

IDA bolstered FHIS’s role in the reconstruction efforts by stepping up disbursements of the next credit supporting the fund (US\$45 million) and granting US\$22.5 million as a supplemental emergency credit in 1999. A follow-on project is now working to reduce vulnerability through strengthening municipal institutions for disaster risk reduction.

Three Months after the Tsunami

IDA also demonstrated flexibility in providing early livelihood support in the immediate aftermath of the December 2004 tsunami. In Sri Lanka, IDA support provided cash grants for affected households to help restore their livelihoods and rebuild their houses within three months of the devastating event.

Nearly 100,000 families benefited from these cash grants, which reduced immediate suffering, restored their livelihoods, and restarted the local economies. The livelihood cash grants helped affected people get back to business promptly and also helped children return to school by allowing families to replace school supplies and school uniforms lost by the tsunami.

More than 80 percent of those hit the hardest (the self-employed and casual workers) regained employment within one and a half years after the tsunami.

Innovation. The IDA-financed North China earthquake reconstruction project (1993) integrated cultural heritage concerns in its response to the Lijiang earthquake in China. High-rise apartment complexes were torn down and traditional single family houses reconstructed. This helped Lijiang achieve UNESCO designation as a World Heritage Site, which increased the city's attractiveness for tourists, thereby creating additional employment.

The Bank is also using its expertise and convening power to explore innovative risk financing mechanisms for its clients. National catastrophe insurance schemes have been developed in IBRD countries such as Turkey and Romania, and more recently in the Caribbean (see box below).

Pooling Risk, Saving Money

The *Caribbean Catastrophe Risk Insurance Facility* (CCRIF) is the first regional disaster insurance facility in the world. Heads of government within the Caribbean Community (CARICOM) requested World Bank assistance in establishing this facility following the devastation of Hurricane Ivan.

It represents an important shift from disaster response to *ex-ante* disaster risk reduction. It will provide participating governments from the region with immediate access to liquidity if hit by a hurricane or earthquake. (On average, one major hurricane affects a CARICOM country every 2 years.) Pooling their risk will save the eighteen participating countries approximately 40 percent in individual premium payments. Caribbean States are highly vulnerable to natural disasters and have only limited options available to respond.

At a donor conference hosted by the World Bank for the CCRIF in February 2007, pledges were received from Bermuda, Canada, France, the United Kingdom, the Caribbean Development Bank and the World Bank. The CCRIF will also serve as a pilot program that could be extended to other small states, such as the Pacific islands.

Partnerships and coordination. The Bank typically plays a lead role in conducting post-disaster damage and needs assessments with the United Nations (UN) and other international financial institutions, and its leadership has also provided critical coordination and strategic guidance to recovery programs.

Project documents show that the development of a joint strategy with other donors following disasters has often been accomplished successfully in IDA client countries—in Bangladesh (1999), Gujarat, India (2002), Honduras (1999), Mozambique (2000), Nicaragua (1999), and Sudan (1989).

Sudan serves as a best practice example. For the 1989 Sudan Emergency Flood Reconstruction Program, IDA and the UN Development Programme conducted a joint damage and needs assessment. Following the assessment, the mission produced a document that was then presented at a donor conference in Paris. Negotiations helped ensure that donors' interests were met but that there were no unnecessary overlaps in coverage. By keeping the composition of IDA's contribution flexible, other donors were better able to make adjustments in their programs. IDA then financed the balance in order to complete a comprehensive reconstruction program.

In Sri Lanka after the 2004 tsunami, IDA played an important role in getting other key donors active in the housing sector to adopt the same model of owner-driven housing reconstruction in their geographic region of responsibility.

At the global level, the ProVention Consortium provides another example of effective Bank partnerships for disaster risk management.

Established by the Bank in 2000, ProVention is a global coalition of governments, UN agencies, international organizations, academic institutions, the private sector and civil society organizations dedicated to increasing the safety of vulnerable communities and to reducing the impact of disasters in developing countries. ProVention has generated a large body of research on the links between disasters and poverty, and the need to integrate disaster risk reduction into development activities (including *Hotspots*, mentioned earlier).

It has also developed a significant number of tools and training exercises to mainstream disaster risk reduction. (ProVention has trained more than 1,000 professionals from 2001 to 2004.) ProVention's work has been internationally recognized as high quality and innovative and found by independent evaluations to promote changes at the policy level within the World Bank, developing country governments and a number of international agencies.

Community participation. The benefits of participation were demonstrated in a 1993 flood rehabilitation project in Argentina. Beneficiaries were involved in all stages of the project, and interaction between them and the local authorities resulted in the timely availability of construction materials and the accommodation of local customs in the architectural design of new houses. Staff observed that this created ownership among beneficiaries and increased the maintenance of the new homes.

In Aceh, following the tsunami, IDA took advantage of the existing Kecamatan Development Program (KDP), a landmark community-driven

project covering almost half of Indonesia's villages, to implement a community-driven program for housing reconstruction. Similarly, the homeowner-driven housing program in post-tsunami Sri Lanka was based on the principles of inclusiveness, equity, transparency, beneficiary participation, and the application of subsidiarity.

OUTLOOK

Client countries have very much valued IDA's role in providing emergency assistance in the past, and the Bank as a whole is stepping up efforts to improve its response capacity for future emergencies.

The Bank's policies and procedures are being revised in light of the Bank's evolving role and the growing demand for rapid and effective emergency responses.

Proposed revisions include time-bound clearances and one-stop approvals for emergency operations; a stronger focus on social sector support in addition to reconstruction of physical assets; increased flexibility for better cooperation; a clearer understanding of the Bank's role in an integrated international response to emergencies; and a more strategic approach to disaster risk reduction. Capacity building efforts are also ongoing in parallel with policy changes, including the development of a Quick Reaction Team and an "on-call" register of staff for surge capacity in fragile states.

These changes will further strengthen IDA's ability to provide quick, flexible and strategic support to client countries in need of urgent reconstruction and recovery assistance.

Thinking Ahead

In January 2005, 168 governments adopted the Hyogo Framework for Action (HFA) at the UN World Conference on Disaster Reduction, in Kobe, Japan. The HFA provides an action plan to substantially reduce disaster losses by 2015. To support countries in reaching this goal, the Bank recently launched the Global Facility for Disaster Reduction and Recovery (GFDRR), which facilitates a coordinated approach among donors and partners in implementing the Hyogo Framework for Action (HFA) through mainstreaming disaster risk reduction into development plans (including Country Assistance Strategies and Poverty Reduction Strategies) of Bank borrower countries.

The GFDRR provides support at the global level to the UN/ISDR system to enhance global and regional advocacy, partnerships and knowledge management in disaster risk reduction. At the country level, it supports efforts by developing country governments to identify disaster risks and to formulate and implement risk mitigation and financing strategies. A stand-by recovery financing instrument to support medium and long-term recovery programs in countries struck by disasters and where preparedness and mitigation measures have been institutionalized is also proposed for development, possibly through a mechanism linked to IDA.

At the same time, there is an increasing recognition among members of the international community that disaster risk reduction is not merely an issue of humanitarian assistance, but a key development challenge.

Human action (or inaction) creates hazard vulnerability, turning hazard events into disasters when they interact with low capacity systems. The Bank is poised to treat disaster prevention as a core development issue, and its work with partners to document the disaster-poverty links has been critical to providing the impetus for more investment in reducing potential impacts before disaster strikes.

IDA is uniquely positioned to support effective recovery, and to make disaster risk reduction an integral part of development.

It can lead the development of comprehensive risk management strategies for its client countries because of its convening power

which is unmatched by any other institution. IDA can coordinate and assemble leading global specialists in various fields of expertise that are particularly needed at the initial stage of a catastrophe risk management program. It has close working relationships with the governments of member countries with interest in improving risk management. It can help to ensure that risk financing mechanisms are part of an overall country risk management strategy that also includes effective risk reduction strategies. It can potentially achieve the global coordination effort needed to solve moral hazard issues.

In sum, IDA can bring together all relevant stake-holders to promote risk reduction and make development efforts truly sustainable. IDA resources are essential to making this happen.

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<http://www.worldbank.org/ida>