



The World Bank Responds

Natural disasters directly affect the traditional beneficiaries of World Bank-financed development assistance—98 percent of the 211 million people affected by natural disasters each year from 1991 to 2000 were from developing nations (IFRC 2001).

And although a few disasters have been devastating to the better-off (such as when cities with a large number of poorly built and badly designed high-rise apartments are hit by earthquakes), unquestionably the most vulnerable to disaster are the poor, who live in dangerous zones, on marginal lands, and have precarious livelihoods.

The Bank has a major stake in ensuring that country assistance following a disaster contributes to long-term development, and that the potential future impacts of disasters are reduced or prevented. As the human and economic losses from natural disasters continue to rise, they represent a large and growing obstacle to sustainable development. Hence, the portfolio of projects supported by the Bank includes activities related to their immediate response, recovery, reconstruction (with mitigation), and prevention.

The Bank's Natural Disaster "Portfolio"

The portfolio of projects approved by the Executive Board of the World Bank (International Bank for Reconstruction and Development [IBRD] and International Development Association [IDA]) since 1984 that have had some activity

involving natural disasters contains projects entirely devoted to disasters, projects with formal disaster components as part of a larger project,

and projects with smaller disaster activities.¹ It consists of 528 projects hereafter referred to as "disaster projects" when discussing the full universe of activities (see Appendix B for more on how these projects and the amounts of lending were identified). A total of \$26,281 million in activities have focused on natural disasters.² These 528 projects represent 9.4 percent of all Bank loan commitments since 1984.

Some projects are entirely devoted to natural disasters. These include Emergency Recovery Loans (ERLs; including IDA credits and grants), as well as projects using other instruments. Such projects represent less than a third of the 528 identified projects (table 2.1). The value of these loans and credits is \$12,200 million.

The Growth of Bank Lending for Disaster

Looking at the full portfolio (all 528 projects), increasing Bank involvement over time is

Natural disaster assistance accounts for 9.4 percent of commitments since 1984.

Table 2.1: Natural Disaster Portfolio Composition, 1984 to 2005

	Total	Completed	Ongoing
All projects with some disaster activity	528	303	225
Emergency Reconstruction Loans	89	59	30
Disaster projects using other instruments	51	28	23
Projects with at least one full disaster component	130	85	45
Projects with an identified disaster activity below component level	258	131	127

Source: World Bank data.

Note: Data based on project approval year.

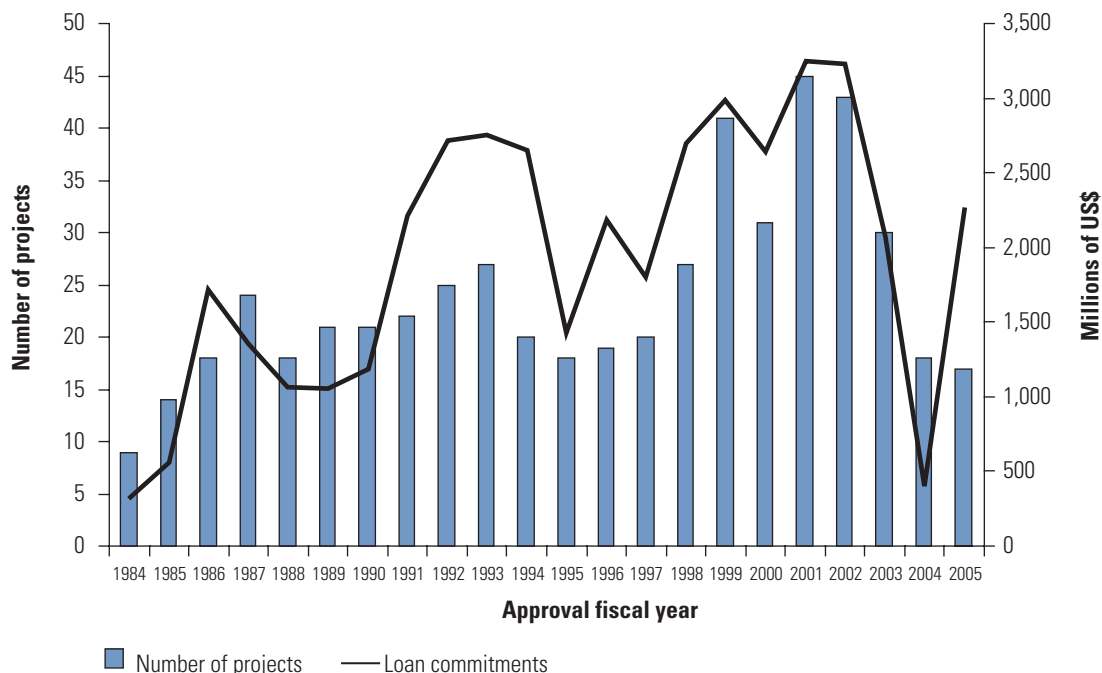
Lending for disasters has been gradually increasing.

evident (figure 2.1). In addition, as a share of overall Bank lending, assistance related to natural disasters has been growing (see Appendix C, figure C.1). Much of this assistance is quite recent: about 43 percent of all disaster-related loans have yet to close. Lending for disasters is noticeably cyclical, with peaks about every five years. Even so, Bank

lending for disaster has risen gradually over the past 20 years. If projects that are still open (those approved since fiscal 1999) reallocate according to the historical trend, the numbers in the most recent years will rise. Project reallocations are discussed later in this chapter.

Among the 528 projects, the amount of disaster-related support ranges from a few thousand dollars for fire detection towers in a forestry project to a \$500 million loan for post-

Figure 2.1: The Number of Projects Related to Natural Disasters Has Been Rising, with Sharp Peaks in Lending about Every Five Years



Source: World Bank data. Reallocations are recorded by approval fiscal year as well.

earthquake reconstruction. In recent years the scale of individual operations financed by the Bank has grown. The 1999 Turkey earthquake alone led to Bank commitments of over \$1.1 billion and a Bank-coordinated reconstruction program of \$1.7 billion. Other relatively recent events have unleashed large responses because they have affected multiple countries (such as the Indian Ocean tsunami, Hurricane Mitch, and the El Niño phenomenon).

Lending by Disaster Type

The kind of disaster for which countries most frequently requested Bank financing was flooding. Of the 528 projects in the portfolio, 243 had a flood-related activity. Drought was the second most common disaster type, with 107, and fire was third, with 95 projects. Since drought is the only type of disaster that is entirely slow onset, about 80 percent of the portfolio is primarily focused on rapid-onset events.³ Notably, 127 of the 528 projects responded to more than one disaster (floods

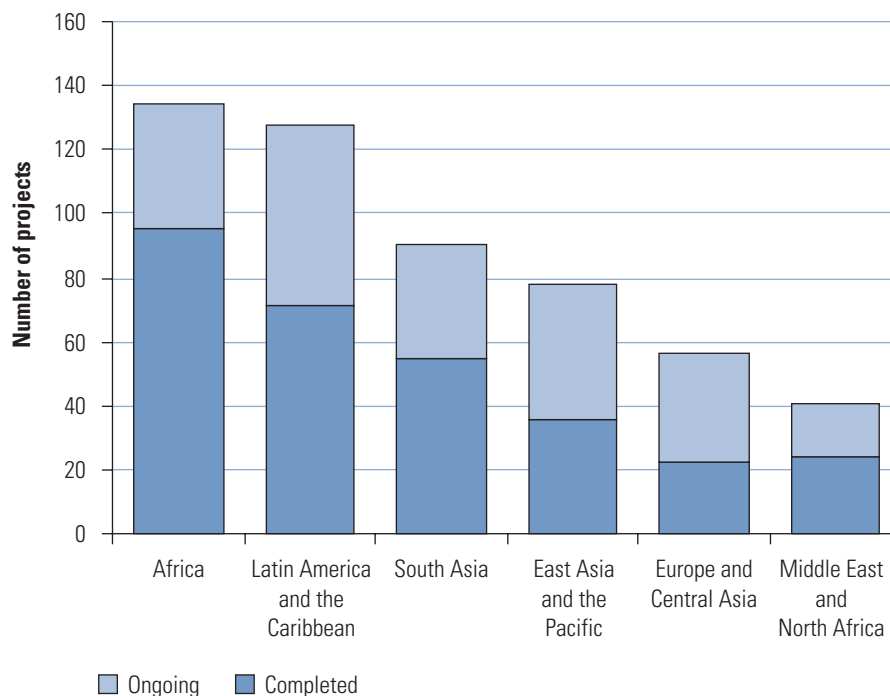
and tropical storms, for instance), either because they struck together or because another disaster occurred during implementation and the project had to be modified to take the later event(s) into account.⁴ Of the 140 completed and ongoing projects that were completely devoted to disaster, 21 (in 17 countries) have focused wholly on prevention activities.

The Bank has approved 89 ERLs for natural disasters since 1984.⁵ Reflecting the general trend for the whole portfolio, floods dominated this group of projects, earthquakes were the second most common, and tropical storms were the third.

Lending by Region

The Sub-Saharan Africa Region had the largest number of disaster projects, 134 (figure 2.2). The Latin America and Caribbean Region was a close second with 128. The Middle East and

Figure 2.2: The Bank Has Most Often Provided Lending for Disasters in Africa and in Latin America and the Caribbean



Source: World Bank data.

North Africa Region had the smallest portion of projects. This distribution generally follows the broader trend in Bank lending. The Bank has helped the Africa Region to confront natural disasters for many years. It is the only Region where drought is the most common hazard, and it also had the largest proportion of completed projects. Recent attention has gone to the East Asia and Europe and Central Asia Regions, which have a majority share of their portfolios in ongoing projects. The evaluation also compared Regional disaster lending with overall Regional lending to identify Regions where disaster impacts were disproportionate (see Appendix C, figure C.2).

Lending by Sector

The rural sector implemented 40 percent of the natural disaster portfolio. This is not surprising, since many disasters, such as floods, droughts, and fire, and especially their mitigation and prevention activities, take place in projects involving forest management, irrigation, and disaster-resistant crops. Other sectors that have been highly involved are transport (13 percent), environment (10 percent), and urban (9 percent). Among the 528 projects were 12 multisectoral projects, accounting for 2 percent of the total.

The rural sector implements the largest share of natural disaster projects.

Analytic Work

The Bank has prepared 65 publications, working papers, articles, and reports on natural disaster topics since 1999.⁶ The most frequently researched topics have been risk management and financing mechanisms. Although much research work on these topics is done collaboratively with country staff or staff in other departments with various expertise, 31 were done under the auspices of the Hazard Management Unit. As might be expected, most of these are global in scope or topically oriented. However, about a third of them (10) focused on a particular country or Region.

Regional or country offices are responsible for an additional 17 reports or publications. The

East Asia Region has produced five reports on topics such as risk management in the Pacific region, with a pilot study of Vanuatu and a report on the Philippines focusing on enhancing poverty alleviation through disaster reduction. Among the Latin America and the Caribbean Region's four reports is one on the catastrophe insurance market in the Caribbean and another on "Risk and Vulnerability in Guatemala." This seems a particularly relevant report, as Guatemala is in the "top ten" list of borrower countries that are at greatest economic risk for natural disasters, and it has not borrowed from the Bank for natural disasters in 20 years. South Asia's four studies have included "Financing Rapid Onset Natural Disaster Losses in India" and "Bangladesh: Climate Change and Sustainable Development." Europe and Central Asia have done two research reports on the topic, most notably one in Turkey entitled "Poverty and Coping with Crises." One of the two done in Africa was on "Systemic Shocks and Social Protection."

In total, notwithstanding authorship, 15 countries were the subject of specific analytical work on natural disasters. All but one of the countries are considered to be of elevated economic vulnerability and/or mortality risk.

The Environment Department of the Bank has devoted resources to at least six reports on natural disasters—most on climate change. The Development Research Group (DEC) has produced five reports in the area in the past six years, including "Natural Disasters and Development" and "Can Financial Markets be Tapped to Help Poor People Cope with Weather Risks?" The Social Protection Department has done two studies that have included major sections on natural disaster risk. The Consultative Group on International Agricultural Research (CGIAR) has produced a study with the Bank on rebuilding agriculture in countries affected by natural disaster.

Concentrations in Lending Patterns

A majority of Bank member countries have turned to the Bank for emergency financial assistance (110 countries) following a natural disaster. However, lending has been highly

concentrated: 53 countries had only one or two loans with disaster activities, while the top 10 countries had 208 projects (39 percent) among them (table 2.2).

In terms of commitments as well, Bank lending has been quite concentrated: 32 percent of the \$42,552 million in commitments over the 20-year period from fiscal 1985 through fiscal 2005 went to 7.5 percent of the projects. The 10 largest loans for reconstruction and/or prevention totaled \$3,882 million (table 2.3).

Reallocations

After a natural disaster, when a country requests assistance, Bank country staff first examine the existing country portfolio and identify loans from which funds can be reallocated for reconstruction. Over the past 20 years, funds from 217 projects have been reallocated (see Appendix C, table C.1).

The importance of reallocation as an emergency response is highlighted by comparing it with emergency recovery lending: since 1984, the Bank has made more than \$3,047 million available for natural disaster response through loan reallocations⁷ and has dedicated \$9,021 million toward disasters through ERLs. In a typical example, following the 2001 earthquake in Gujarat, 12 projects were restruc-

tured, providing a total of \$416 million for immediate reconstruction. Funding of \$10 to \$130 million per project was taken from the original implementing agencies and given to another implementing agency handling reconstruction. Projects changed not only their scope, but also their components and the sectors they targeted.

In part, reallocations appear to have been sensitive to periodic increased awareness of disaster in the Bank related to policy development. The number of reallocations each year varied from fewer than 10 in the 1980s to 17 in the 1990s (figure 2.3).

The first jump in 1984 coincided with the introduction of OPN 10.07, which encouraged reallocations, and a second jump appeared in 1990, perhaps in part because of the renewed visibility of emergencies with the introduction of OD 8.50. While in the pre-policy period (1976–83) reallocations averaged 2 each year, they averaged 11 each year from 1984 through 1999.

After 1999 disaster-related reallocations decreased, presumably

Ten countries account for 39 percent of the lending and 41 projects account for about a third of the lending.

A total of \$3,047 million has been reallocated from 217 projects since 1984.

Table 2.2: Concentration of Lending in the Disaster Portfolio Compared with Overall Bank Lending

Rank	Country	Number of disaster projects	Lending to projects with disaster activities (US\$ millions)	Rank: all Bank projects, 1984–2005	Rank: all Bank commitments, 1984–2005
1	India	43	8,257	2	1
2	China	32	4,902	1	2
3	Bangladesh	28	2,880	8	12
4	Brazil	27	2,349	4	4
5	Honduras	15	712	45	53
6	Turkey	13	3,390	11	7
7	Yemen	13	306	14	49
8	Madagascar	13	327	17	39
9	Mexico	12	2,145	5	3
10	Vietnam	12	1,232	29	17
	TOTAL	208			

Source: World Bank data. Each reallocation counted as a separate project.

Table 2.3: Ten Largest Loans for Disasters

Country	Project name	Approval fiscal year	Original loan amount (US\$ millions)
Turkey	Marmara Earthquake Emergency Reconstruction	2000	505
India	Emergency Tsunami Reconstruction	2005	465
India	Gujarat Emergency Earthquake Reconstruction	2002	443
Mexico	Mexico Natural Disaster Management Project	2001	404
Turkey	Istanbul Seismic Risk Mitigation	2005	400
Mexico	Earthquake Rehabilitation & Reconstruction	1986	400
Turkey	Emergency Flood Recovery	1999	369
India	Drought Assistance	1988	350
Turkey	Earthquake Rehabilitation & Reconstruction	1993	285
India	Maharashtra Emergency Earthquake Rehab. Project	1994	261
TOTAL			3,882

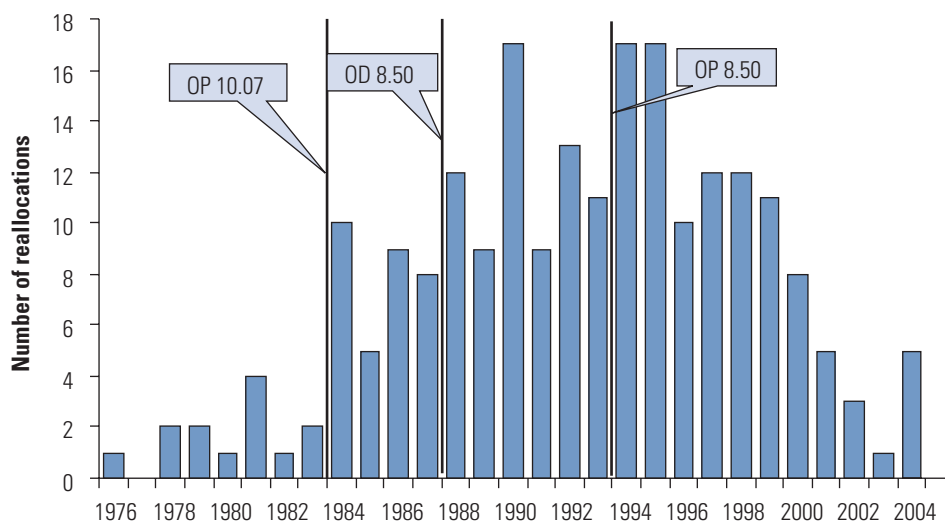
Source: World Bank data.

The level of reallocations has responded to policy changes.

because, for the most recent years, the ongoing projects are still new and reallocations tend to occur toward the end of the project life, though it may also be because ERLs have been used instead of reallocations (more than a third of

the ERLs in the portfolio are ongoing; see table 2.1).

While reallocations can give borrowers flexibility to react to unforeseen needs, the Bank has been developing promising alternatives. Additional lending to existing projects is already in use, though it has not yet been applied in a disaster response. In addition, a specialized

Figure 2.3: Reallocations Peaked Following Each Policy Revision

Source: World Bank data.

Note: Based on project approval years.

form of development policy lending (the Contingent Hazard Recovery and Management Loan) is in development.

These new alternatives may further help to avoid the diversion of funds from their original purposes, as in reallocations. In 18 cases reallocations have undermined achievement of the original objectives of the project. For example, in January 1999, as a result of the earthquake in the coffee growing region, the Government of Colombia decided to use 55 percent of the Secondary Education Project (a \$90 million loan) together with funds from three other projects to support reconstruction. Instead of supporting improvements in education, the proceeds went into the Reconstruction Fund for the coffee production zone. This decision was made despite the concern of the Ministry of National Education that the municipalities left out had no other possibility of accessing supplementary resources for educational improvement.

Project Performance

Bank-financed projects with at least one natural disaster reconstruction and mitigation component have had outcome and sustainability ratings that are higher than the Bankwide

portfolio (figure 2.4). Almost 80 percent of the projects were rated satisfactory for outcome compared with the Bank average of 72 percent for the 1984–2004 period. A sustainability rating of likely was attained by 63 percent of the disaster portfolio, seven points better than the Bankwide average for the 1984–2004 period.

Where Bank-Financed Projects Perform Best

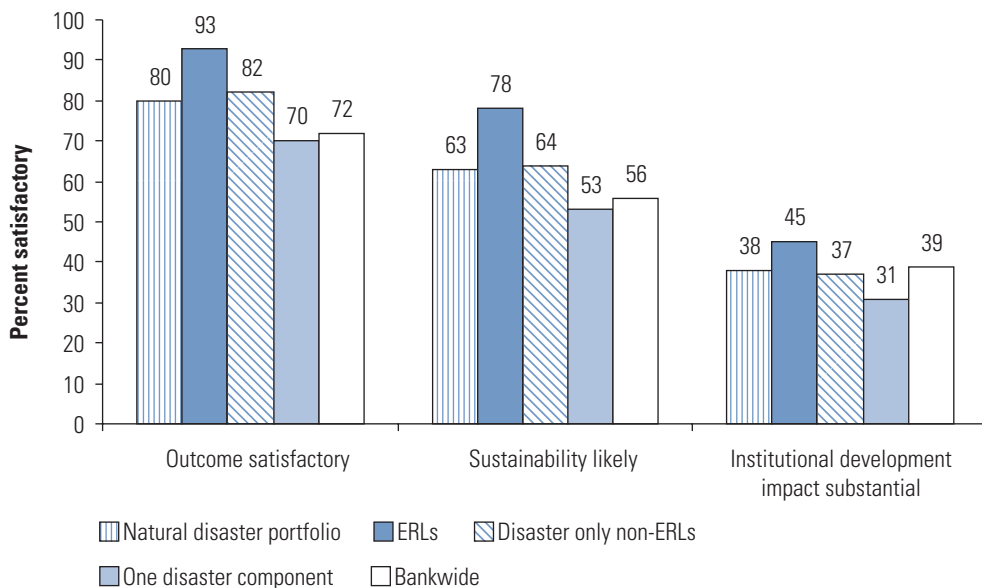
Disaster Type

Project outcome ratings for most disaster types were well above the Bank average, with landslide and earthquake projects rated satisfactory on outcome more frequently than other disaster types. The story is similar for sustainability. Earthquake projects were most frequently rated likely for sustainability, at a rate 21 points above the Bank average of 56 percent.

Reallocations give borrowers flexibility but can prevent achievement of planned development goals.

Disaster projects perform better than average on outcome and sustainability, and about average on institutional development.

Figure 2.4: Natural Disaster Portfolio Ratings: Projects Approved and Completed, 1984–2005



Source: IEG data.

Institutional development impact performance was closer to the Bank average. Only drought and tsunami projects were rated above the average. One reason why drought projects received higher ratings than other disaster types was that such slow-onset disasters provided a bit more time to get the institutional framework right. These projects tended to take longer to implement as well, averaging almost seven years from approval to completion (see also Chapter 4), so there was more time for institutional capacity development (see Appendix C, figures C.6–C.8).

Emergency Recovery Loans

ERLs (described in box 2.1) were rated substantially higher than either the disaster portfolio or the overall Bank portfolio (figure 2.4). Only 4 of 59 completed ERLs were rated unsatisfactory on outcome, accounting for a 93 percent satisfactory outcome rate.

Comprehensive Multisector Projects and Other Subsets

Although only 12 in number, multisector projects were the best performers, followed by another subset of 9 social sector projects (including health projects). Of the larger subsets, the urban sector performed best, although the rural and transportation sectors, which contain the bulk of the portfolio, still performed well above the Bank average (see Appendix C, figure C.9).

Regions

There was a 22 percentage point difference between the best-performing Region (Middle East and North Africa), which was also the

smallest portfolio, and the worst (Africa), which was the largest. Out of 13 completed projects in the Middle East and North Africa Region, only one was rated unsatisfactory on outcome. All but the Africa Region performed above the Bank average (see Appendix C, figure C.10).

Outputs and Outcomes of Projects

The Bank's capabilities in assisting countries with their response to natural disasters are apparent in the results of its projects. Not surprisingly, Bank-financed projects were best at restoring physical assets. In 115 completed projects, damaged infrastructure was successfully restored; in 28 projects, infrastructure reconstruction was not fully completed or not entirely successful (Appendix C, table C.2).

In addition, 86 projects had successful mitigation activities, while such activities were unsuccessful in 32 projects. Despite this ability to reconstruct infrastructure and provide some additional security to the population, 73 projects still recorded that a subsequent disaster lessened the project's impact (an additional 55 projects were not disaster responses but were also affected by disaster during implementation).

Based on limited experience with prevention activities, the Bank may not yet have learned enough about what activities are effective. Of the 21 projects wholly devoted to prevention, 8 have been completed and evaluated, with about 63 percent rated satisfactory. Of the eight, three were rated unsatisfactory on outcome and one was rated highly unsatisfactory. This is a very small sample from which to make judgments, but it seems to indicate an area that may require more Bank research.

Some of the negative results indicate the difficulty of addressing social issues in disaster projects (discussed in Chapter 5). Thirty-five projects successfully restored economic assets, and nine successfully restored social assets. However, in six projects, stakeholders and vulnerable groups were neglected, and target groups were missed in two projects.

Lessons Learned

The lessons from project-level evaluations of 303 completed disaster projects exhibit some

Box 2.1: What Are Emergency Recovery Loans?

An Emergency Recovery Loan (ERL) is a three-year lending instrument. It has several advantages over other Bank lending instruments: it allows for expedited processing from project initiation through Board approval, quick disbursement through a positive list of imports, and delay in meeting some safeguard and fiduciary requirements. It requires an ad-hoc advisory committee headed by the country director. The ERL also limits the use of conditionality.

persistent themes—the top 12 are listed in table 2.4. Because certain lessons keep coming up, it suggests that they are not being learned (IEG 2005c).

Hazard Management in the Bank

The growth in disaster-related lending in the late 1990s prompted the creation of a separate Bank unit to guide staff. Between fiscal years 1999 and 2005 the Disaster Management Facility, later the Hazard Management Unit (HMU), assisted Bank task managers with natural and technological disasters and helped provide a more strategic and rapid response. The status of this unit changed in 2005, as detailed below.

Bank management has recently adopted a distributed, decentralized approach to hazard risk management in the institution rather than retaining a specialized central unit. The current Hazard Risk Management Team of the Urban Unit serves as the anchor for the Hazard Risk Management Thematic Group, which consists of more than 100 Bank staff in the various organizational units with a particular interest in hazard risk management.⁸ Other international organizations have found it

useful to centralize the hazard risk management function (see box 2.2 and Appendix C, table C.3).

This arrangement handles emergencies unevenly, however. When a disaster strikes, the country teams that are the Bank's interface with the borrowers are unlikely to have the expertise needed and must call on others, either in the Hazard Risk Management Team or the Hazard Management Thematic Group, for technical assistance. The quality of the result is partly a function of who is around to answer the calls.

With the recent change, an important reserve capacity has been lost. Soon after it was founded, what was then the Disaster Management Facility became the secretariat for the ProVention program—making the team far more visible internationally. But when that program left the Bank, the team lost staff that could help in emergencies. Three people are too few to spread across the natural disasters that occur every year,

Projects performed best when they restored physical assets.

The lessons from disaster projects do not seem to have been learned—the same ones are recorded repeatedly.

Table 2.4: A Dozen Lessons Learned from Natural Disaster Projects

Category	Times in database
Disaster management, preparedness, and mitigation need to be addressed	49
Simple and flexible procurement is fundamental to expeditious implementation	40
Lessons regarding Project Coordination Units (PCU) and/or working with existing agencies (pros and cons)	31
Maintenance is critical for sustainability	25
Simple project design is more important when activities to be implemented are urgent	25
Community participation produces several identifiable benefits	25
Trade-off between careful project preparation and quick action	21
Emergency projects need experienced staff during project preparation	19
Assure borrower ownership by involving the highest levels of government	17
Donor coordination: cofinancing is preferable to parallel financing	16
Reconstruction often requires careful assessments and long-term efforts that extend beyond the three-year implementation period for emergency operations	12
Studies need to be prepared before project approval	12

Source: IEG project database.

Box 2.2: Other Organizations Have Institutional Structures for Disaster Risk Management

The Asian Development Bank (ADB), the U.K. Department for International Development (DFID), Inter-American Development Bank (IDB), and UNDP have specialized units and/or decentralized disaster specialists that deal with disaster prevention, mitigation, and management.

For instance, UNDP's Disaster Reduction Unit (DRU) helps country offices set up and provide more effective responses for natural disaster reduction. The DRU is made up of 8 Geneva-based professionals, 4 Regional Disaster Reduction Advisors (lo-

cated in Bangkok, Nairobi, New Delhi, and Panama), and 20–24 National Disaster Reduction Advisors in highly disaster-prone countries. These senior officials act as permanent government counterparts, identify disaster risk management opportunities, and assist with relevant initiatives and oversee linkages with UNDP programs.

Similarly, the IDB has 36 disaster risk management focal points—26 individuals in the country offices, and 10 in key departments in headquarters.

The Bank has adopted a less-centralized approach to hazard risk management than other international organizations.

and they are too few to be both the face of the Bank to the donor community and to serve the needs of countries affected by disaster, while also ensuring attention to long-term reduction of hazard risks in client countries and lending programs.

Overall, the perceptions of the HMU were positive among staff surveyed about the unit's relevance and effectiveness.⁹ Eight respondents (22 percent) stated that they had used the HMU in their projects (see Appendix D for details of the survey results). This number reflects the period under study: only 6 of the 20 years reviewed overlapped with the period in which the unit was in existence. Among the respondents who had used the HMU, the most helpful assistance was

seen as providing advice (7 respondents), providing project documentation or institutional memory (4 respondents), and maintaining a consultant database (2 respondents).

The task managers that used the HMU cited additional services the HMU could provide, including seed funds for supervision and increased staff availability for missions. Task managers were also asked to provide suggestions of how the services provided by the unit could be improved. Their requests were for more assistance in designing prevention policies, more training, the organization of a more active thematic group, the promotion of adjustments to the Bank's ERL guidelines, the inclusion of mitigation as a safeguard and the mainstreaming of mitigation in regular lending activities, and the promotion of the Bank's operational experience in conferences around the world.