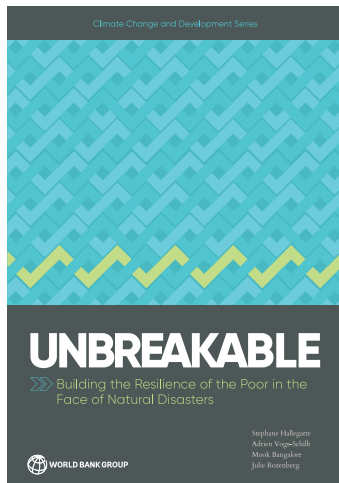




**POLICY NOTE:**

**UNBREAKABLE:  
BUILDING THE  
RESILIENCE OF  
THE POOR IN THE  
FACE OF NATURAL  
DISASTERS**



» **FULL REPORT:**  
[www.gfdr.org/unbreakable](http://www.gfdr.org/unbreakable)

“**E**conomic losses from natural disasters totaled \$92 billion in 2015, and the average annual losses have been estimated at more than \$300 billion a year.” Such statements are rather commonplace. They measure the severity of disasters and their socioeconomic impacts using the value of the damage that disasters inflict on buildings, infrastructure, equipment, and agricultural production. But \$1 in losses does not mean the same thing to a rich person and a poor person, and the severity of a \$92 billion loss depends on who experiences it. By focusing on aggregate losses, the traditional approach to disaster risk assessment examines how disasters affect people wealthy enough to have wealth to lose—and so does not take into account most poor people.

This shortcoming is not just a monitoring issue. When projects to reduce disaster risk are assessed on the basis of the value of the damage that can be avoided, the projects favored will protect richer areas or richer people. Furthermore, instruments such as social safety nets do make it easier for people to cope with and recover from natural disasters, but they do not reduce the direct damage caused by natural disasters. These policies cannot be assessed if the only metric used is based on the value of the damage.

This report moves beyond asset and production losses and focuses instead on how natural disasters affect people’s well-being. It provides a deeper view of natural disasters than the usual reporting—a view that takes better account of poor people’s vulnerability. It also identifies opportunities for action and policy priorities at the country level, with three main messages.

**Figure 1: This report moves beyond asset losses to estimate how natural disasters affect well-being**

**ASSET LOSSES**

- 1. Hazard
- 2. Exposure
- 3. Vulnerability



**WELL-BEING LOSSES**

- 1. Hazard
- 2. Exposure
- 3. Vulnerability
- 4. Socioeconomic  
resilience**

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## 1. Efforts to reduce poverty and disaster risks are complementary: if natural disasters could be avoided next year, at least 26 million people would escape poverty.

Poor people suffer disproportionately from natural hazards because they are often more exposed to such hazards, especially recurrent ones. They also lose more when they are hit because they depend on assets and livelihoods that are more vulnerable. For example, poor people are nearly twice as likely as the average population to live in fragile dwellings. And they are less able to cope with and recover from disasters, especially because they receive less support from friends and family, the government, and the financial system. Poor people are also subject to irreversible effects on education and health that reinforce the intergenerational transmission of poverty. Poverty thus worsens people's vulnerability to disasters.

On the other hand, disasters are a driver of poverty. Among Guatemalan households hit by tropical storm Agatha in 2010, per capita consumption fell 5.5 percent, increasing poverty by 14 percent. After Ethiopia's 1984–85 famine, a decade passed before most asset-poor households could restore their livestock holdings to pre-famine levels. Our analysis of 89 countries concludes that if all disasters could be prevented next year, 26 million fewer people would be in extreme poverty—that is, living on less than \$1.90 a day.

Because disasters push people into poverty, disaster risk management can be considered a poverty reduction policy. And because poverty reduction policies make people less vulnerable to natural disasters, they can be considered part of the disaster risk management toolbox.



"BECAUSE DISASTERS PUSH PEOPLE INTO POVERTY, DISASTER RISK MANAGEMENT CAN BE CONSIDERED A **POVERTY REDUCTION POLICY.**"

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## 2. Natural disasters affect well-being more than what traditional estimates suggest: their average annual impact on well-being is equivalent to a \$520 billion loss in global consumption.

For hazards such as floods, storms, tsunamis, and earthquakes, risk assessment typically focuses on hazard (the probability of an event occurring), exposure (the population and assets located in an affected area), and asset vulnerability (the value lost when an asset is affected by a hazard).

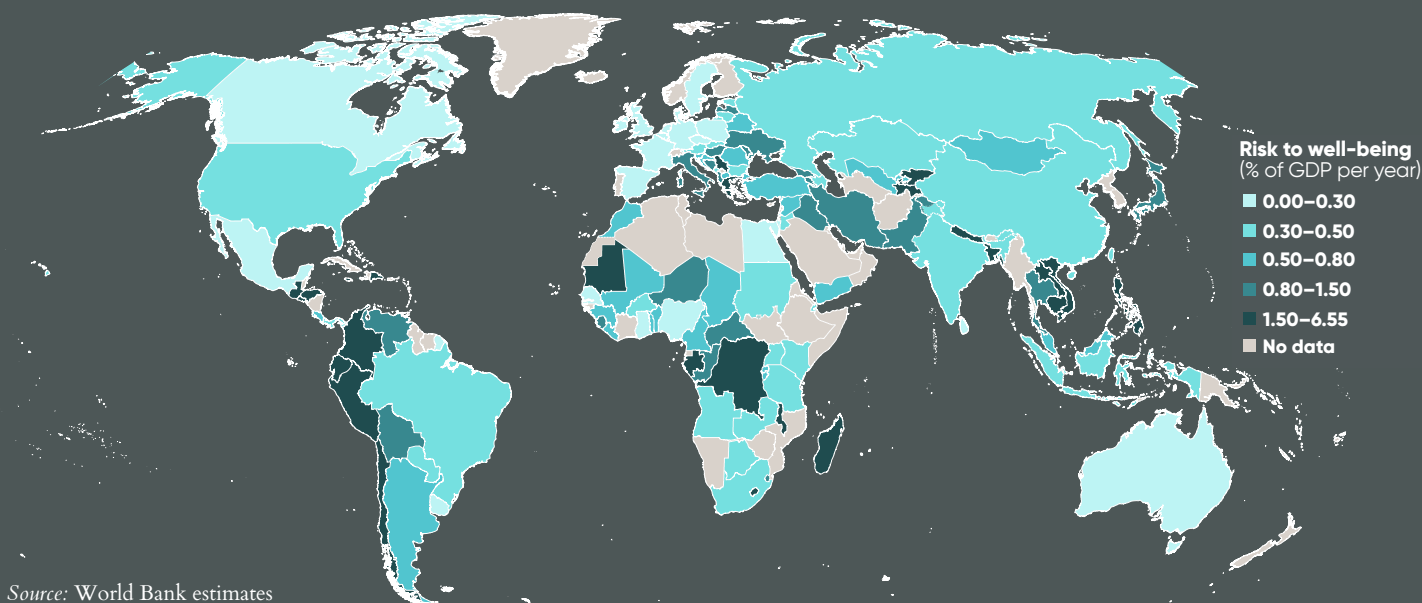
These three factors constitute the *risk to assets*—that is, the average monetary value of the damages that disasters inflict on assets. But the risk to assets is an incomplete metric. In our analysis, we extend risk assessment to measure the well-being losses caused by natural disasters (figure 1).

In all of the 117 countries studied, well-being losses from natural disasters are larger than asset losses. Based on the *United Nations Global Assessment Report on Disaster Risk Reduction*, we estimate that the total asset losses from natural disasters in these countries average \$327 billion a year.

Because disaster losses are concentrated on a small share of country populations, imperfectly shared, and affect more poor people (who have a limited ability to cope with them), we estimate that well-being losses in these countries are equivalent to consumption losses of about \$520 billion a year (60 percent larger than asset losses). Developing countries experience the highest well-being losses (map 1). And poor people are disproportionately affected: whereas people in the bottom 20 percent of the income ladder experience only half of the per capita asset losses of the average person, they suffer well-being losses that are more than twice as large.

## Map 1: Risk to well-being combines hazard, exposure, asset vulnerability, and socioeconomic resilience

Risk to well-being as a percentage of GDP, 117 countries



Source: World Bank estimates

Based on this thinking, we assess the benefits of various interventions not only in terms of avoided asset losses but also in terms of well-being gains. For example, reducing by 5 percent the share of the population exposed to natural hazards by targeting only the poorest 20 percent of people in each country could reduce asset losses by \$7 billion a year. However, the global gains in well-being would be \$40 billion because the intervention would benefit poor and highly vulnerable people. Reducing the share of the population exposed to natural hazards by the same 5 percent by targeting only the top 80 percent would generate much larger benefits in terms of avoided asset losses—about \$19 billion. But gains in well-being would be smaller—\$22 billion.

These results highlight the trade-offs between monetary gains and well-being gains. If a disaster risk reduction budget is allocated only on the basis of avoided asset losses and monetary benefits, most investments will go to rich areas. Instead, investments in disaster risk management need to balance the need for economic efficiency with the imperative to protect the most vulnerable. Measuring benefits in terms of increased well-being instead of avoided asset losses—as we do—is a way to do so.



**“POLICIES THAT  
MAKE PEOPLE  
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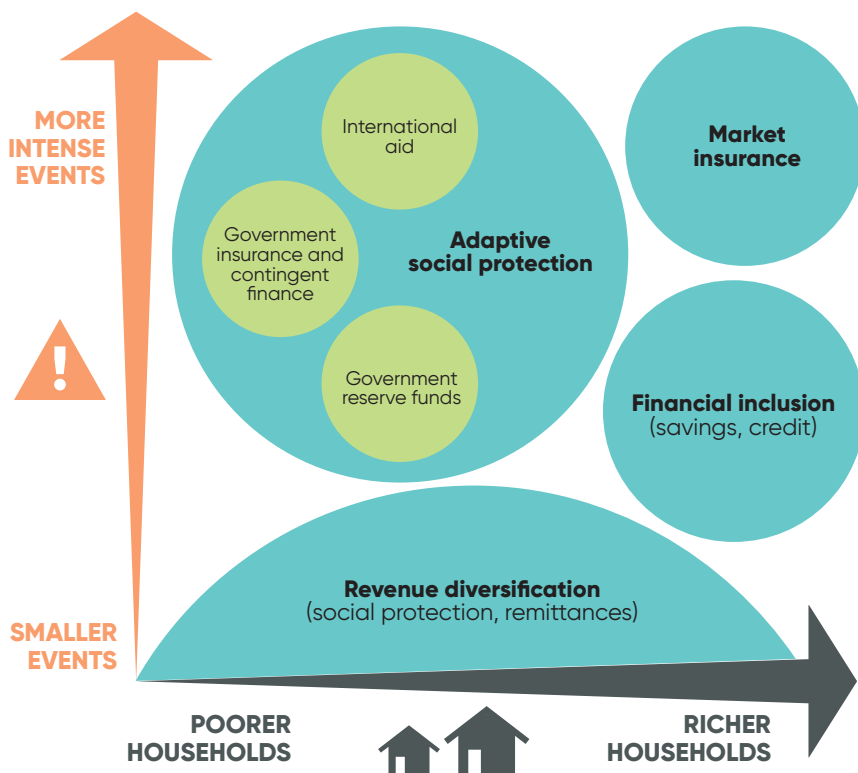
### **3. Policies that make people more resilient—and so better able to cope with and recover from the consequences of disasters that cannot be avoided—can save \$100 billion a year.**

Despite efforts to reduce people’s exposure to natural hazards or make their assets less vulnerable, natural risk cannot be cut to zero. Disasters will continue to occur, and they may even become more frequent because of climate change, urbanization, and the growing population densities in coastal areas. Thus it is critical to supplement actions on exposure and vulnerability with improvements in people’s resilience—that is, their ability to cope with shocks. Such efforts require a flexible, holistic risk management strategy that uses different policy instruments for different types of disasters and populations (figure 2).

**Figure 2: Risk management should include a range of tools for different types of disasters and households**

Note: Instruments in blue target households; instruments in green protect governments' or local authorities' budgets.

These instruments increase people's ability to cope with asset losses and reduce the impact on well-being without reducing the asset losses themselves. This report provides estimates of the potential benefits of a few policies in each of the 117 studied countries. Actions include revenue diversification to make people's income less vulnerable to local shocks, financial inclusion to make people's savings safer, health insurance, disaster risk insurance to protect people against larger shocks, adaptive social protection to provide affected people with timely postdisaster support, and disaster risk financing instruments to ensure that governments and local authorities have the resources to act in times of crisis.



Implemented together as part of a *resilience policy package*, these instruments could reduce global well-being losses from natural disasters by \$78 billion a year. Adding universal access to early warning systems would raise well-being benefits to \$100 billion a year.

Adaptive social protection is one the most promising policies. Postdisaster transfers have a benefit-cost ratio above 1.3 in the 117 countries studied. And in 11 countries—Angola, Bolivia, Botswana, Brazil, Central African Republic, Colombia, Honduras, Lesotho, Panama, South Africa, and Zambia—every \$1 spent on postdisaster relief yields well-being benefits of more than \$4. Countries are already implementing these policies. In Ethiopia, the Productive Safety Net Program has reduced by 25 percent the impacts of the 2005 and 2011 droughts on the consumption of poor farmers. In 2015, Kenya's Hunger Safety Net Programme delivered support to more than 100,000 additional households to help them cope with a severe drought.

To achieve adaptive social protection, countries must access the appropriate financing instruments to manage higher social expenditures when a shock occurs. Available instruments include reserve funds, contingency credit lines (such as World Bank's Cat-DDOs), regional risk pools (such as the Caribbean Catastrophe Risk Insurance Facility), or transfer of part of the risk to global reinsurance or global capital markets (such as with FONDEN bonds in Mexico).

Resilience-building policies would generate benefits that go beyond the avoided well-being losses estimated here, contributing to the broader development agenda. Financial inclusion, access to health and nonhealth insurance, and stronger social protection shield people against all sorts of shocks (not only natural disasters) and facilitate investment and innovation. These policies do not only build resilience—they also promote development and poverty reduction.