Disaster Safety Nets for Developing Countries
Extending public-private partnerships

Joanne Linnerooth-Bayer and Reinhard Mechler
IIASA
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Abstract

Neither the public nor the private sector, acting alone or in partnership, has provided needed security to developing country households and communities at risk from major shocks to their lives and livelihoods caused by natural disasters. In most developed countries, the state and private insurers, often in partnership, provide safety nets for victims by providing post-disaster assistance and monetary compensation. Public-private partnerships, however, are neither available nor affordable in many highly exposed developing countries. In this paper we examine recent innovations in financial management regimes that extend beyond traditional public-private partnerships for providing disaster safety nets to developing countries. These regimes rely on extended partnerships that usually include the government and private insurers, and also NGO’s, international financial institutions and other donors. Importantly, they provide secure financial arrangements to low-income communities before disasters strike and thus relieve the uncertainty and anxiety of depending on ad hoc post-disaster aid for recovery and even survival. We examine three examples of extended partnerships: the Turkish Catastrophe Insurance Pool; the Andhra Pradesh microinsurance program and an index-based weather derivative for farmers facing drought in Malawi.

Key words: insurance, microinsurance, risk, vulnerability

1 INTRODUCTION

Low- and middle-income countries, and the vulnerable within these countries, bear a large and growing economic burden from floods, earthquakes, windstorms, droughts and other naturally occurring disasters (Müller, 2003; UNDP 2001). As illustrated in Figure 1, in a sample of large natural disasters over the period 1980–2004, fatalities per event were higher by orders of magnitude in low- and middle-income countries compared with high-income countries; and losses as a percentage of gross national income (GNI) were also highly negatively correlated with per capita income.

Figure 1

Often receiving only minimal support from governments or insurance companies, disaster victims in developing countries rely extensively on kinship relations, which may not be forthcoming when disasters affect entire regions. The co-variant or systemic nature of disaster risks greatly complicates locally based formal and informal risk pooling. Without pooling arrangements or external assistance disasters can lead to a worsening of poverty as victims take out high-interest loans (or default on existing loans), sell assets and livestock, or engage in low-risk, low-yield farming to lessen exposure to extreme events (Varangis, et al., 2005). Likewise, if governments do not have the necessary infusion of capital after a disaster to rebuild critical infrastructure and assist households and businesses, delays in recovery can lead to secondary economic and social effects, such as deterioration in trade, budget imbalances and increased incidence of poverty.
For these reasons, international financial institutions and the disaster management community are placing great emphasis on pre-disaster, pro-active disaster planning to reduce and transfer risks (Gurenko, 2004, Kreimer and Arnold, 2000). Emphasis is thus shifting from emergency relief and rehabilitation to preventing losses and providing safety nets that enable governments, households and businesses to recover in a timely manner.

In most developed countries, the state and private insurers, either acting alone or in partnership, provide safety nets for victims by providing post-disaster assistance and monetary compensation. In the US, Japan and France, among other highly exposed countries, private insurers in partnership with the state provide cover for floods, earthquakes and all hazards, respectively. However, traditional government-insurer or public-private partnerships as they exist in the developed world are generally inadequate for providing security against financial shocks in low- and middle-income developing countries. Households, farmers and businesses in these countries cannot easily afford commercial insurance to cover their risks, even if it is offered and backed by the government. Nor can they rely on public support since their governments frequently confront liquidity deficits after major disasters. This is the case even accounting for discretionary domestic and international aid, which with rare exceptions (e.g., the 2005 Indian Ocean tsunami) does not cover the financing needs for emergency relief and reconstruction.

In this paper we examine recent innovations in financial management regimes that go beyond traditional public-private partnerships in providing disaster safety nets to developing country households and farms. Extended partnerships can include the government and private insurers, and also NGO’s, international financial institutions and other donors. Importantly, they provide secure financial arrangements to low-income communities before disasters strike and, among many other benefits, they relieve the uncertainty and anxiety of depending on ad hoc post-disaster aid for recovery and even survival.

We begin in the next section by examining the role of traditional public-private partnerships in providing disaster safety nets in developed countries, and the challenges of extending these arrangements to the developing world. In Section 3 we describe the difficulties developing country governments face in providing disaster assistance, and in Section 4 we detail the limitations of stand-alone market solutions for this purpose. This is followed in Section 5 with three examples of new and innovative extended partnerships that provide security to low-income households and farms. We conclude by discussing the advantages and challenges of these extended partnerships.

2 DISASTER SAFETY NETS IN DEVELOPED AND DEVELOPING COUNTRIES

Figure 2 shows how direct losses to private assets and public infrastructure have been absorbed by insurers and the national government for six major disasters in the 90’s affecting five developed and one developing country. In this figure the direct losses include public infrastructure, which is rarely insured, but for which the national government may assist state and regional governments as a form of national solidarity. The figure thus reflects the differential extent to which formal market mechanisms (insurance) and taxpayer solidarity are utilized to cope with the financial burden of disasters.

The proportion of national government assistance and insurance compensation varies greatly. In Poland, for instance, there is little public or private insurance, and the national government absorbed around 48% of the estimated direct losses from the 1997 floods, mainly in the form of government assistance to private victims. The situation is similar in
Japan, where only about 4% of households damaged or destroyed by the 1995 Kobe earthquake were insured despite a national public-private seismic insurance system. In the US the losses from the 1994 Northridge earthquake were absorbed by private insurance companies (about 30% of total direct private and public losses), and the federal government provided assistance to state governments for repairing public infrastructure (about 20% of total losses). In stark contrast, the UK government gave practically no assistance to the private victims or local governments after the 1998 Easter floods (this does not mean that the national government did not repair damaged national infrastructure, but it did not, for example, provide support for repair of local schools and other infrastructure for which local authorities are responsible). The lack of government assistance for households, businesses and local infrastructure resulted in only about 39% of the estimated public and private losses being reimbursed, and almost fully by private insurers, who claim over 75% flood insurance penetration for the private sector.

Figure 2

Many developed countries, including Japan, France, the US, Norway and New Zealand, have legislated formal public-private insurance systems for natural perils. The US National Flood Insurance Program (NFIP) is unique in that the federal government serves as the primary insurer, offering voluntary policies to residential and commercial buildings (mandatory in the case of a mortgage). Because the flood peril was considered uninsurable, the NFIP was designed to increase the role of the insurance industry in writing flood insurance policies (where the government bears all the risks) and ultimately to have the industry take over a risk-bearing role. A notable feature of the NFIP is that communities must take prescribed loss-reduction measures if their residents are to be eligible for cover. Minus taxpayer support and with risk-based premiums, the philosophy of the NFIP (and also the earthquake insurance program recently put into place in California) is that persons living in exposed areas should eventually bear their full risks. The aftermath of Hurricanes Katrina, Wilma and Rita in 2005, however, revealed large debts in the NFIP and its continuing dependence on taxpayer support.

A different philosophy underlies the French system, which deliberately incorporates national solidarity through taxpayer involvement and cross subsidies from low-risk to high-risk areas and across hazards. In France, private insurers are required to offer catastrophe insurance in an all-hazards policy (including fire) that is bundled with property insurance. The program is reinsured through a public administered fund, the Caisse Centrale de Réassurance (CCR). If this fund proves insufficient, taxpayers will be called upon to contribute. In contrast, the Japanese earthquake program is backed by government reinsurance and taxpayers, but only to a certain level of losses at which point claims will be pro-rated (meaning that claimants will receive less if losses are high). The French have rejected risk-based premiums in favor of a flat rate as a percentage of the property value. To counter the problem of disincentives from the cross subsidies, a recent decree sets a deductible that increases with the number of disasters in the same area. This means that the compensation a household or business receives will continually decrease in high-risk areas, leading to incentives to relocate or take other loss-reduction measures.

3 THE ROLE OF GOVERNMENTS

The situation is starkly different in most of the developing world. Typical of least developed countries, after the devastating 1998 floods in Sudan the government compensated victims by only about 15% of the direct losses, and there is no private flood insurance to make up the deficit. Moreover, in this event there was almost no international donor assistance. This
meant that household, business and farm victims, and including local authorities, received no compensation for a large proportion of their flood losses.

Throughout the world, governments have two main post-disaster roles: the repair and replacement of damaged public infrastructure and the provision of support to those persons least able to cope. Governments hold a large portfolio of public assets, and disaster losses can be significant. For instance, Hurricane Mitch in 1998 destroyed approximately 20% of the public infrastructure in Honduras (Linnerooth-Bayer, et al., 2001).

In addition to restoring public infrastructure, governments absorb private-sector losses by acting as "insurers of last resort." Because of their ability to spread and diversify risks over a large population, Priest (1996) refers to governments as "the most effective insurance instrument of society". This role can be significant in the developed world. Around a third of the USD 6.2 billion direct losses from the 1993 mid-west floods in the US were reimbursed by federal and state government assistance. As another case, after the catastrophic flooding of Hungary’s Upper Tisza river in 2001, the government fully rebuilt nearly 1000 houses that had been washed away (Linnerooth-Bayer and Vari, 2005). This kind of taxpayer solidarity with flood victims is typical of many European countries. After the 2002 floods on the Elbe, direct losses were estimated at 9.1 billion Euro, and in compensation 9.6 billion Euro were provided by the German national government, an EU emergency fund and private donations (Mechler and Weichselgartner, 2003). Critics of government post-disaster assistance point to the resulting "moral hazard" since recipients, expecting public support, may not engage in appropriate loss-reduction measures or purchase insurance.

In low/middle-income countries, governments often have insufficient funds after major disasters to repair critical infrastructure and provide assistance to the private sector. Post-disaster financing gaps are frequently encountered. For example, after the devastating earthquake of 2001 in Gujarat, India, there was a significant shortfall between the state government’s planned expenditure, planned funding sources and the actual funding made available. The Gujarat government estimated its post-disaster liabilities, or expenditure for reconstructing infrastructure and housing, at 2.4 billion USD, and planned funding from the state, from central reserve funds, and multilateral and bilateral financial sources was estimated at 3.6 billion USD. However, actual funding received by end 2002 amounted to only 0.7 billion USD. The state government faced a financing gap of 1.7 USD (World Bank 2003).

Absent sufficient funds for recovery, the follow-on or indirect costs from disasters can be substantial. For example, five years after the devastation of Hurricane Mitch in 1998, the GDP of Honduras was 6% below pre-disaster projections (Mechler, 2004). A study for the InterAmerican Development Bank showed that Colombia, the Dominican Republic and El Salvador can meet only 62%, 82% and 60%, respectively, of their anticipated post-disaster expenses in the event of a 100-year (.01 probability) disaster (Freeman et al., 2003). These countries are financially vulnerable in the sense that they have a relatively high risk of insufficient funds from domestic or foreign sources to meet their post-disaster obligations.

Governments experiencing a financing gap often turn to international donors and international development banks, which are greatly concerned about the dependence of developing countries on post-disaster capital grants and loans. Critics claim that post-disaster assistance discourages them from engaging in risk reduction activities for which the returns can be substantial (Gurenko, 2004). In addition, a major limitation of this ex post dependency is the growing discrepancy between the amount of reconstruction funds available from the international donor community and the growing funding needs of...
disaster-prone countries. The $5.3 billion pledged after the 2004 Asian tsunami was exceptional; humanitarian aid reported by the OECD Development Aid Committee is only a small percentage (usually under 10%) of disaster losses in recipient countries (Linnerooth-Bayer and Amendola, 2000). Moreover, as shown in the Gujarat case, promises can fall short of actual outlays.

4. The role of the private market
As shown in Figure 3 most commercial disaster insurance is held by citizens of high-income countries (per capital income greater than USD 9,361), although even in these countries less than a third of disaster losses are insured. Not surprisingly, the picture is quite different for countries outside of the high-income bracket. Insurance density drops from around a third to less than a tenth in emerging economy countries, and it is almost negligible (1-2%) in low-middle and low income developing countries. Furthermore, the global reinsurance market covers mainly assets in developed countries.

Figure 3
Households, farmers and businesspersons in poor countries cannot easily afford commercial insurance to cover their risks. In contrast to other types of microinsurance (e.g., for health or funeral expenses), insurers offering cover for co-variant risks face large, stochastic losses and thus must hold expensive capital reserves, diversify or purchase reinsurance. For this and other reasons, catastrophe insurance premiums are often substantially higher than the long-term actuarially fair risk premium. This means that governments and individuals can pay significantly more for disaster insurance than their expected losses over the long term. For example, in the Caribbean region, insurance premiums were estimated to represent about 1.5% of GDP during the period 1970–1999, while average losses per annum (insured and uninsured) accounted for only about 0.5% of GDP (Auffret, 2003). Cost is not the only limiting factor to insurance uptake; other factors include a lack of formal titles to property, lack of awareness and understanding of the concept of insurance, and reliance on government or international donor relief spending (Andersen 2001; Kreimer et al., 1999; and Litan, 2000).

Lacking savings or access to credit, the alternatives to insurance for many in the developing world include high-interest post-disaster loans and arrangements that involve reciprocal exchange, such as kinship ties, community self help and remittances. Despite their limitations, Cohen and Sebstad (2003) claim that these risk-sharing arrangements work reasonably well for less severe and idiosyncratic shocks. Women in high risk areas, for example, often engage in complex, yet innovative, ways to access post-disaster capital by joining informal insurance schemes, becoming clients of multiple micro-finance institutions, or maintaining reciprocal social relationships. These informal strategies, however, have limited scope for co-variant or systemic shocks that affect entire risk-sharing communities.

Insurance, even if affordable, has some disadvantages. Improperly designed contracts (that do not reward risk-reducing behavior) can lead to “moral hazard” if individuals take fewer precautionary measures because they are insured. Moreover, in immature and unregulated markets, there is a high risk of insurer insolvency and defaults on claims in the case of large or repeated catastrophes. Finally, while insurance is promoted as an efficient self-help strategy, one could ask whether the poor should bear the burden of natural disasters that are, in part, caused by failures of governments in providing structural defenses, land-use practices and other risk-reduction measures (Cohen and Sebstad, 2003), and on another level, the failure of the developed world to curb greenhouse gas emissions that may greatly worsen climate-
related disasters in developing countries.
6. NGO AND INTERNATIONAL DONOR-ASSISTED PARTNERSHIPS FOR PROVIDING DISASTER SAFETY NETS

As this discussion reveals, neither the public nor the private sector, acting alone or in partnership, has provided needed security against the risks of disasters in highly exposed developing countries. Moreover, the deficit has not been effectively filled by the international donor and financial communities, which focus their financial support on post-disaster assistance. As we have argued elsewhere (Linnerooth-Bayer et al., 2005) the international donor community should consider refocusing disaster assistance to support pre-disaster risk reduction and risk transfer systems. This could enable the private sector, in partnership with the government and non-governmental organizations, to pool and transfer catastrophe risk to the global financial markets at affordable prices to the poor. In what follows we present three innovative examples of partnerships on the part of insurers and NGOs, and in some cases including the public sector and international financial and donor institutions. These extended partnerships are still in early stages without facing major loss events. If they prove successful, they will set important precedents for providing affordable disaster safety nets in developing countries.

The Turkish Catastrophe Insurance Pool

The recently launched Turkish Catastrophe Insurance Pool (TCIP) is the first of its kind to tackle the problem of insurance affordability in a middle-income developing country and couple it with incentives for disaster prevention. Istanbul, one of the disaster “hot spots” worldwide, faces an estimated 0.41 probability of a severe earthquake over the 30-year period from 2004 to 2034 (Parsons, 2004). In response to this risk, earthquake insurance policies are now obligatory for all urban property owners, who pay a fee based in part on their risk-reduction measures, such as retrofitting their apartment buildings, to a privately administered, public fund. Policies are not obligatory for rural property owners, thus excluding many of Turkey’s very poor, for whom the government will continue to provide post-disaster assistance. In effect, there is now a partnership between the government and the private sector in providing security for earthquake risks throughout the country.

This partnership extends beyond the government and private insurance market to include an international financial institution. To reduce premiums and make the system viable, the World Bank provides support by reinsuring two layers of the TCIP risk in the form of a contingent loan facility with highly favorable conditions and contingent on the occurrence of a major disaster (Gurenko, 2004). Arguably, without this low-cost reinsurance the premiums would not be affordable for many in this middle-income developing country. The record is too short, however, to assess the success of the TCIP. Although policies are obligatory, enforcement is lax and to date insurance penetration is estimated at only about 17%, compared, for example, with the French system that claims 95% penetration. Still, the TCIP sets an important precedent as the first time an international organization has joined a public-private partnership in absorbing developing country disaster risk with a pre-disaster financial instrument.

The Andhra Pradesh Disaster Microinsurance Scheme

A national insurance pool like the TCIP is hardly viable in low-income developing countries where there is little insurance infrastructure and where households and farms cannot afford anything but minimal cover. Even in these countries, however, microinsurance instruments are emerging to indemnify losses from catastrophic natural disaster risks (for a review, see Mechler, et al., 2006). The intent of catastrophe microinsurance is to provide low-income
households and businesses with easily accessible and affordable insurance for deaths, health expenses, loss of small-scale assets, livestock and crops in the event of a natural disaster. The viability of catastrophe insurance for very low-income households and businesses, however, remains tenuous given the high costs (from reinsurance, reserve funds or diversification) of providing cover for co-variant disaster risks.

In India’s coastal Andhra Pradesh region, microinsurance services are provided since 2004 as part of the region’s disaster preparedness program. Life insurance policies that include natural disaster risks are offered to vulnerable families by the Oriental Insurance Company, a profit-oriented, but publicly owned, insurer. Coverage for risks of floods, landslide, rockslide, earthquakes, cyclone and other natural calamities is available to groups of women in the age of 10-75 years and with a minimum size of 250 members. The premium ranges between 100 to 150 Rupees (approx. 2-3 Euro) (Krishna, 2005).

Insurance premiums are kept low by offering only minimal cover and dealing with organized womens’ groups, thus limiting transaction costs. Still, to help the operation get underway, the international NGO, Oxfam UK, paid 50% of the premium in the first year. This is not the only source of subsidy. Since 2000, the Indian regulatory authority has made it mandatory for formal insurance providers to service the poor through a provision that regulated insurers increase their shares of low-income clients over time (ADA, 2004). Insurers wishing to operate in India confront fines for non-compliance and some appear willing to incur a loss on their low-income microinsurance business in order to access the broader market. Insurers have thus made insurance affordable to poor communities with cross subsidies from their other lines of business and wealthier clients. Contributing even further to the low premium, additional support for the system comes from OXFAM-trained village disaster management volunteers, who act as insurance agents by carrying out contract preparation and claims handling and thus lowering transaction costs even further.

This partnership between insurers and NGOs sustained by India’s regulatory authority and local volunteers has thus far proven successful in providing disaster cover, as well as other types of microfinance and microinsurance services. Coverage under this scheme is extended currently to more than 1000 vulnerable families, and since 2002 more than 80 insurance claims have been reported and settled, including damages to property from natural events (Krishna, 2005). However, there have been no major catastrophes in the insured region. It should also be kept in mind that this is only a small pilot system. Scaling up would put more stress on the program, requiring considerably more backup capital or reinsurance.

The Malawi index-based loan-insurance pilot project

Malawi is one of the more drought-prone countries in the Southern African region, and its predominantly smallholder farmers are severely affected by rainfall risk resulting in food insecurity. In the past, the government has responded to recurrent drought-induced food crises by providing ad hoc food relief. Droughts not only are a source of risk of food shortage, but also inhibit farmers from planting higher yield hybrid seeds. Smallholder farmers lack traditional collateral and often have a limited credit history, and therefore loan recovery and creditworthiness are directly linked to farmers’ seasonal revenues. Because rural banks are reluctant to issue credit to the heavily exposed agricultural sector, farmers cannot obtain the capital to purchase high-yield seeds. Not only is there a high risk of default due to droughts, but banks seeking to diversify their lending portfolio into the agricultural sector are constrained by their inability to manage co-variant drought risk (World Bank, 2005).
The Commodity Risk Management Group (CRMG) at the World Bank in collaboration with local stakeholders piloted a weather insurance scheme in Malawi for the 2005/2006 crop season in order to enhance groundnut farmers’ ability to manage drought risk and, in turn, access credit (Hess and Syroka, 2005). Bundled loan and insurance contracts were offered in four pilot areas and were designed to compensate farmers for deficit rainfall during the growing season. In November 2005, 982 smallholder farmers through their farmer clubs bought the weather insurance that allowed their respective clubs to access a loan package for hybrid groundnut seed.

The contracts are based on a rainfall index. Rainfall is measured at four weather stations, each located centrally to the insured regions, and the contract specifies three rainfall-deficit levels that trigger payment. Index-based contracts as an alternative to traditional crop insurance have the advantages of greatly limiting transaction costs (from reduced claims handling) and eliminating moral hazard (claims are independent of the farmers’ practices), but a disadvantage is their potential of a mismatch between yield and payout, or basis risk (see Ibarra, this volume).

The insurance payout goes directly to the bank in fulfillment of the loan. The bank is thus protected against default risk and the farmer against loss of creditworthiness in the case of drought-induced default on the loan. The Malawi scheme does not, however, fully protect insured farmers against food insecurity since they receive no cash payouts during droughts. This is not the case with a similar pilot scheme launched by the rural microfinance organization BASIX in the Indian state of Andhra Pradesh, which provides cash payouts – albeit to higher-income farmers who insure their cash crops and (Hess and Syroka, 2005; Mechler, et al., 2006).

The Malawi pilot scheme is a partnership of Malawian and international institutions, including Opportunity International Bank of Malawi (OIBM), the Malawi Rural Finance Corporation (MRFC), the Insurance Association of Malawi and the National Smallholder Farmers Association of Malawi (NASFAM). The scheme depends heavily on technical support from the World Bank and World Food Programme. Moreover, NASFAM, which is legally an NGO, played a decisive role by communicating with farmers’ clubs and arranging the financing. Although it is too early to judge the performance of the Malawi pilot project, the insurer-NGO-donor partnership, by increasing the productivity of farmers and perhaps eventually providing cash in times of food shortage, may have great potential in providing a greatly needed safety net for smallholder farmers. Such donor-supported pilot schemes, if they can be scaled up to create a sufficiently diversified pool, hold large promise for the more than 40% of farmers in developing countries who face threats to their livelihoods from adverse weather (World Bank News and Broadcast, 2005).

7. ADVANTAGES AND CHALLENGES
Providing disaster safety nets through extended partnerships, including state authorities, private insurers, NGOs and donor institutions, can be mutually beneficial. With affordable insurance, low-income households, farms and businesses will no longer have to rely on ad hoc post-disaster aid, which often is untimely and inadequate. Governments are also partly relieved of their obligations to support the private sector after a disaster, which they are often unprepared to fulfill. International financial institutions and donors also stand to gain. By sharing responsibility with individuals and/or the state, donors leverage their limited budgets and substitute a calculable annual commitment to a financial risk transfer system for the unpredictable granting of post-disaster aid. Donor support will provide poor households, businesspersons and farmers with access to affordable means to spread risks spatially and temporally, which will secure
their livelihoods and improve their creditworthiness. By making this assistance contingent on requirements or incentives for prevention (such as the premiums in the TCIP), pre-disaster assistance can ultimately reduce the human and economic toll disasters take on the poor. Alternatively, the schemes can encourage cost-efficient risk taking (such as high-yield groundnut crops in Malawi) and thus reduce the disaster-induced cycle of poverty.

In addition to the economic benefits and implications for poverty reduction, insurance schemes made possible by extended partnerships can potentially provide dependable and calculable safety nets and thus lower the follow-on effects of disasters. The certainty of post-disaster assistance provided by an insurance contract can also relieve the psychological stress of ad hoc aid, as well as reduce the marginalization of very low-income victims. This is expressed by the founders of the Afat Vimo disaster microinsurance scheme in Gujarat following the devastating earthquake in 2001:

[Low-income] businesses are marginalized by the mainstream NGO and government relief. Compensation has hardly reached them. As a result, they have no right to relief as victims, no right to economic recovery as active economic agents, and no right to the city of Bhuj as citizens. The poor among victims were asked to tell if they needed insurance protection, and to which extent. The result of that survey was Afat Vimo. Now, the victims have a rightful claim over compensation for future losses (Sadhu and Pandya, 2005).

The potential benefits of extended partnerships for providing disaster safety nets are impressive, but there are also challenges in providing affordable disaster insurance to low-income clients on a large scale. One challenge is estimating risks. In many respects, catastrophic risks are becoming more insurable as computer technologies provide improved methods for estimating risks and as better knowledge reduces the problem of adverse selection due to asymmetries in knowledge about the risks. Catastrophe models and other methodologies for estimating risks, however, can never yield unambiguous measures. Historical data on rare events is by definition sparse, and land-use and climate change require scenarios about an uncertain future world. Because of these ambiguities in the risk estimates and increasing insurance losses, insurers have pulled out of some catastrophic risk markets, and there has been an increase in premiums on catastrophe insurance. This is not only a problem in developed countries, but insurance is unavailable for many types of disasters throughout emerging-economy and developing countries.

Extended partnerships for providing disaster security also require a stable institutional setting and good governance. Good governance refers to the legitimacy and credibility of social institutions and procedures responsible for the development, implementation and regulation of the insurance system. Social institutions, in turn, include governmental regulatory bodies, NGOs, private market entities, international financial and donor institutions and public organizations (e.g., co-operatives, community-based organizations and self-help groups). One of the most important factors leading to the viability of disaster insurance is trust of stakeholders in the system: that claims are paid in a timely manner, that insurers will remain solvent, that the government will assure credible regulation, and there will be sufficient oversight and a reliable legal basis. It is too early to judge whether the institutional environments of the fledgling insurance schemes in Turkey, India and Malawi will prove stable over the medium run.

Another challenge is supporting systems without crowding out the private market or reducing incentives for preventing disaster losses. Critics of government- or donor-supported insurance argue that subsidies inevitably distort market prices and thus can provide disincentives for loss reduction and
result in moral hazard. Traditionally insurers have addressed moral hazard with deductibles and other instruments that attribute responsibility to the insured. The schemes in Turkey, India and Malawi, however, only cover part of the full risks to households and farms, thus providing incentives for loss reduction.

On a broader level, and if these pilot schemes would be scaled up to cover the large number of low-income persons facing disaster risks, insurance arrangements could fundamentally change the role of the state and donor communities. Critics may worry about the market replacing social solidarity in providing security. It is important to stress the importance of continuing solidarity or support for those unable to fully provide for their own security. This support, however, might fruitfully be reoriented to more secure and shared forms of responsibility through pre-disaster assistance that enables insurance instruments.

8. CONCLUSIONS
Recent experience with extended partnerships, including state authorities, private insurers, NGOs and donor institutions, if proven viable, will set important precedents for providing disaster security to low-income households and businesses in developing countries. Low-cost reinsurance provided by the World Bank has helped to make earthquake insurance affordable to most urban property owners in Turkey; international NGO support combined with cross subsidies in the insurance system have made microinsurance policies covering disaster losses affordable to women in the Andhra Pradesh region of India; and technical assistance offered by international organizations and a local NGO have made a drought loan-insurance package affordable to Malawi farmers. These nascent systems confront many hurdles: overcoming myopic behavior in Turkey where only 17% of households have purchased insurance; assuring that Andhra Pradesh and other microinsurers can sustain large losses, and confronting basis risk and problems of institutional stability in Malawi. It is too early thus to assess the success of these pioneering efforts. Still, novel schemes are providing important lessons for what may be a dramatic shift from post-disaster aid to the provision of secure safety nets to developing country households and communities at risk from major shocks to their lives and livelihoods caused by natural disasters.
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