

# Invest to prevent disaster

## The potential benefits and limitations of micro-insurance as a risk transfer mechanism for developing countries

Viewpoint for International Day for Disaster Reduction – 12 October 2005

ProVention Consortium / IIASA

### Background

As the international community places more emphasis on disaster prevention, there is growing interest in the potential of risk transfer as part of an effective disaster risk management strategy. Insurance, in particular, is an established instrument for transferring natural disaster risks by providing indemnification against losses from a disaster event in exchange for a premium payment. Whereas in high-income countries about a third of natural disaster losses are insured, there is almost no catastrophe insurance in developing countries<sup>1</sup>. Instead of insurance, households and business typically rely on family and public support. If this support is not forthcoming, there can be substantial socioeconomic consequences due to long delays in disaster reconstruction and recovery. For example, five years after the devastation of Hurricane Mitch in Honduras, in spite of exceptionally high donor pledges but little insurance penetration, GDP was 6% below pre-disaster projections<sup>2</sup>.

From the launch of the ProVention Consortium, a global partnership of international organizations, governments, the private sector, NGOs and academia dedicated to reducing the impact of disasters in developing countries, risk transfer and risk sharing as part of a disaster risk management strategy has been a central theme on the ProVention agenda. A key concern for ProVention remains whether and how the poor in developing countries can have access to affordable and viable risk transfer mechanisms, such as insurance. Risk transfer for developing countries raises important issues regarding the role of the international donor community in making such instruments affordable and linking risk transfer directly with preventive and preparedness measures for reducing risks. ProVention's interest in risk financing is also linked to a wider concern to see increased private sector involvement and investment in disaster risk management in developing countries.

At the macro level, a number of recent initiatives directly address the need to facilitate better access to insurance and hedging products for developing countries. As a recent example, the World Bank in conjunction with other donors is planning the launch of a Global Index Insurance Facility that, among other services, will provide reinsurance to index-based insurance pools in developing countries.

The subject of micro-insurance is also attracting wide interest as a growing body of evidence demonstrates the potential benefits of micro-insurance for low-income households and businesses that are traditionally excluded from conventional insurance services. The intent of micro-insurance is to provide easily accessible insurance cover for small-scale assets and livestock at affordable premiums by keeping transaction and other costs low. Whereas microfinance services over the last three decades have been offered on a wide scale, they have only recently included insurance for natural disaster losses.

Due to the limited experience and specific challenges with micro-insurance schemes for natural disaster risk, there is a need to undertake an independent evaluation of the potential benefits, viability and limitations of micro-insurance as an instrument for transferring risk in developing countries. ProVention, therefore, is collaborating with the International Institute of Applied Systems Analysis (IIASA) on a micro-insurance research initiative. This opinion piece briefly discusses selected efforts underway in the field of micro-insurance and reflects on the opportunities and challenges of micro-insurance provision for natural disasters in developing countries. It is offered as a contribution towards the International Day for Disaster Reduction on October 12<sup>th</sup>, where micro-finance is being considered as a tool for reducing risk.

## Need for micro-insurance

Governments, households and businesses in poor countries cannot easily afford commercial insurance to cover their risks, or they lack access to such services. Only 1% and 3% of households and businesses in low- and middle-income countries, respectively, have catastrophe insurance coverage, compared with 30% in high-income countries. Instead of insurance, they rely on family and public support, which is not always forthcoming for catastrophes that affect people throughout a region or country at the same time (referred to as dependent or covariant risks). Without support, disasters worsen 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<sup>3</sup>. Many poor persons in low-income countries have two or more sources of livelihood, and often they encourage their children to take on jobs in and out of the region to hedge against family disasters. When all else fails, the poor rely on their governments and the *ad hoc* generosity of international donors. In the past, these post-disaster sources of finance have been woefully inadequate to assure timely relief and reconstruction of critical infrastructure. For example, two years following the 2001 earthquake in Gujarat, India, assistance from a government reserve fund and international sources had reached only 20% of original commitments<sup>4</sup>. As another example, in the first 60 days after the 2004 tsunami, even with a massive relief effort, just 60% of families reported receiving timely and adequate aid<sup>5</sup>. More worrying, disaster assistance discourages governments and individuals from taking advantage of the high returns on preventive actions.

Photo : IFRC



Micro-insurance for unexpectedly severe disasters can provide low-income households, farmers and businesses with access to affordable means to spread losses, which will secure their livelihoods and improve their creditworthiness. For many, an insurance contract is a more dignified means of coping with disasters than relying on (or begging for) the generosity of donors after a disaster strikes. Contractual arrangements might have reduced the despair of the 2004 tsunami victims, many of whom have expressed concerns about the dignity and cultural sensitivity of the relief supplies and the distribution process.

## Micro-insurance options

In recent years, microfinance services, like savings, investments, remittances, credit and insurance, have become important for providing affordable financial services to low-income and poor households and enterprises, thus improving their income stability and asset building opportunities. As a form of microfinance, micro-insurance provides indemnity for losses with respect to a pre-specified event in exchange for a premium payment. Micro-insurance is distinguished from conventional insurance by its provision of affordable cover to low-income clients that cannot be profitably insured by commercial firms, or that are not currently served by conventional insurance. As with microfinance, affordability is usually secured by building groups of clients and, otherwise, minimizing transaction costs, overhead and profits. In addition, micro-insurance schemes can be made affordable through subsidies.

Micro-insurance is offered in developing countries, but to date contracts have mainly covered independent risks, such as funeral expenses, health and loss of life. Disasters present a special challenge to micro-insurers because of the covariant nature of the risks, which means that insurers must have a large capital reserve or reinsurance to cover infrequent but very high claims. Because of the high costs of capital and reinsurance, it is difficult to offer low cost catastrophe cover. Despite the difficulties, a number of innovative pilot schemes are emerging.

For example, in India micro-insurance for sudden-onset disaster risks is offered by NGOs in conjunction with insurance companies in two states. These schemes build on micro-insurance arrangements for independent risks, such as unemployment, fire and accidents, by extending cover to loss of life, property or livestock due to natural disaster events. Coverage for property losses due to floods, earthquakes, cyclone and other natural calamities is offered to groups such as women with a minimum group size of 250, or to community groups for managing the impacts of disasters post-event. Furthermore, clients can additionally engage in risk reduction training for a small fee.

Micro-insurance can also take the form of index-based weather derivatives. Such pilot schemes have been implemented in India and Ukraine with pilot projects underway in Nicaragua, Ethiopia, Malawi, Peru and Mongolia providing financial protection to farmers against weather risks, such as drought<sup>6</sup>. Contracts are written against a physical trigger, say, severe rainfall measured at a regional weather station. Contracts are designed by insurance companies and sold by rural development banks, farm cooperatives or microfinance organizations. Since payouts are not coupled with individual loss experience, farmers have an incentive to engage in

loss-reduction measures, for example, switching to a more robust crop variant. A physical trigger also means that claims are not always fully correlated with the actual losses experienced, but this “basis risk” may be offset by the reduction of moral hazard and elimination of long and expensive claims settling.

## Challenges for micro-insurance for disaster risk management in developing countries

Recent initiatives to put innovative micro-insurance programs for natural disasters into place are encouraging. Still, there are many questions with regard to their viability and their capacity for genuinely providing affordable security to the poor and, above all, reducing the economic and human losses from disasters in the developing world.

### Viability

Micro disaster insurance is fundamentally different from other types of micro-insurance because claims are not independent nor of modest size; rather, very large and geographically accumulated claims can occur in any one or consecutive years. Without sufficient back-up capital through reserves or reinsurance and/or sufficient geographic diversification the payment of claims is jeopardized and thus the viability and credibility of the micro-insurance program. Thus, for its viability, any disaster insurance scheme should be based on sound estimates of low-probability, high-consequence risks so that premiums can be priced and the requisite capital reserves or reinsurance can be assured. The science underlying the models and risk estimates must, therefore, be independent, verifiable and viewed as reliable by insurers, investors and donors.

In examining current micro-insurance schemes, it is thus important to ask:

- ◆ Are there sufficient reserves in place for settling very large claims?
- ◆ Are reliable institutions in place for regulating the practices of private micro-insurance providers, or assuring that they have they sufficient clients, capital, reinsurance and diversification?
- ◆ How are risk estimates generated, and by whom? Is this information transparent?
- ◆ By absorbing risks of very extreme events with often ambiguous risk estimates, can the international donor community improve conditions for private sector involvement?

### Affordability

Micro-insurance is distinguished from conventional insurance insofar as the instruments need to be affordable and available to low-income clients. Disaster insurance premiums include the costs of handling many small contracts, distributing the product often to remote areas, as well as assuring sufficient capital to cover dependent claims. These elements combine to make insurance more costly than the purchaser's expected losses from the insured events, and thus the dilemma for micro-insurers is the provision of a low-cost product to highly risk-exposed, low-income and poor clientele.

There are many possibilities for reducing disaster insurance premiums, perhaps even to levels below expected losses: The most obvious is subsidies from public authorities, international donors or those at lower risk in the insurance pool (cross subsidies in the insurance system). There are many examples in developed and transition countries. The Hungarian government is providing subsidies to poor households as part of a recently legislated flood insurance pool. In the U.K. extensive cross subsidies in the private flood insurance system make it affordable to low-income households. In developing countries, transaction costs can be minimized by offering policies to groups or communities and through established micro-finance institutions. The expense of claims handling can be dramatically reduced through index-based instruments. Finally, the high costs of capital reserves and reinsurance can be lowered through government or donor provision of reinsurance, for example, the World Bank reinsures a risk layer of the Turkish Catastrophe Insurance Pool. In examining current experiences, it is important thus to ask:

- ◆ How are premiums made affordable to low-income households and businesses?
- ◆ How is the trade-off between affordability and commercial viability resolved?

### Risk prevention

Critics of disaster insurance point to the “moral hazard” problem, which asserts that households and businesses are prone to take less precaution if their assets or livelihoods are insured. This same problem also plagues government or donor aid, the currently major source of disaster loss financing in developing countries. Insurers reduce this risk by including sizeable deductibles in the contract, a possibility also for micro-insurers. More importantly, disaster insurance schemes can be directly linked to risk prevention.

One potential link is through incentives. If disaster insurance premiums are directly tied to risk, then preventive measures should reduce the cost of insurance. Although valid in theory, the practice

shows little connection between preventive initiatives and insurance rates, and subsidies can further distort the link. Weather derivatives and other index-based insurance schemes, alternatively, have strong incentives for prevention since claims do not depend on actual losses experienced.

Another possibility is contingent assistance to micro-insurance schemes. The government or donor community could require risk-reduction as a requisite for support, for example, offering risk reduction training as is the case in one Indian micro-insurance program. It should be kept in mind, however, that any contingent support can be controversial. For example, should donor support for flood insurance schemes require governments or communities to build levees and other structural measures that will likely be opposed by environmental groups? In examining recent micro-insurance initiatives for natural disasters, it is thus instructive to ask:

- ◆ Do these schemes offer effective incentives for disaster prevention?
- ◆ If they are tied to public or donor support, are there contingent requirements for risk reduction?
- ◆ Are contingent arrangements subject to democratic procedure involving the interested stakeholders?

## Governance

Good governance, including stakeholder involvement and a sound regulatory environment, are prerequisites for any risk-transfer scheme, and

especially for providing security to the poor and marginalized. Disaster funds that accumulate over many years are particularly subject to political risk of diversion to other purposes. Alternatively, insolvency of insurers presents a risk highlighting the need for sufficient capital reserves. For all these problems, micro-insurance funds must be independently regulated and controlled.

International involvement can promote the requisite institutions and reduce political and other risks. For example, in Turkey premium payments for the TCIP are placed in a segregated account that is legally inaccessible to the government. Still, corrupt practices present a risk even to clear contractual arrangements. This risk, however, should be compared to that of ad hoc post-disaster assistance, which is often diverted from its intended purpose. In examining experience with micro-insurance schemes, it is thus important to ask:

- ◆ Have the relevant stakeholders been involved in the design of the scheme?
- ◆ How are the accumulated insurance funds regulated, and by whom?
- ◆ What institutions, including NGOs, oversee the operations of the insurers?
- ◆ If international financial institutions or donors are involved, what role do they play in ensuring good governance?

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- 1 Data source: Munich Re NatCatSERVICE (2005). Natural disasters according to country income groups 1980-2004. Munich Re, Munich.
  - 2 IIASA, own calculations.
  - 3 Skees, J. R., P. Varangis, D. Larson, and P. Siegel (2005). "Can Financial Markets Be Tapped to Help Poor People Cope with Weather Risks?" In *Insurance against Poverty*. ed. S. Dercon. Oxford: UNU-WIDER Studies in Development Economics, Oxford University Press.
  - 4 World Bank (2003). "Financing rapid onset natural disaster losses in India: a risk management approach." World Bank, Washington, DC.
  - 5 <http://www.fritzinstitute.org>
  - 6 World Bank Agriculture and Rural Development Department (2005). Managing Agricultural Production Risk. Innovations in Developing Countries. Report No. 32727-GLB. World Bank. Washington, DC.

## The ProVention and IIASA research initiative

The ProVention and IIASA research initiative will examine these and other issues with the intent of evaluating the potential benefits, viability and limitations of micro-insurance as an instrument for transferring risk in developing countries. The study to be finalized at the end of November 2005 hopes to enhance dialogue and collaboration on this topic between the important stakeholders, including, among others, the disaster risk reduction and microfinance communities, NGOs, developing country governments as well as the commercial insurance sector.

This Viewpoint was produced by Reinhard Mechler and Joanne Linnerooth-Bayer of the Institute of Applied Systems Analysis (IIASA) in collaboration with the ProVention Consortium.



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