

# Role of Micro Insurance in Disaster Management<sup>1</sup>

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## Abstract

Over two billion people worldwide lack any type of formal social security protection.<sup>1</sup>

Poor people confront many of the same risks faced by the elite population, but these risks have greater financial impact for the poor. Key risks include illness, death, loss of property by theft, fire and natural disaster like earthquakes, drought. Moreover, the vulnerability of poor people is exacerbated each time they incur a loss, creating a vicious cycle that impedes economic welfare.

The emergence of Micro Insurance is an important development within the field of microfinance. Micro insurance being available at affordable prices is an important financial service providing protection to the poor in the event of disasters. Hence, it challenges the previously held belief of the non-insurability of the poor.

The paper emphasizes the role of Micro Insurance in disaster management for low income group of the Indian society. The paper is an initial effort to illuminate, how Micro Insurance can be used to mitigate the economic effects of disaster resulting from covariant risks.

The paper also highlights the approaches to product design, distribution mechanism, limitations and the

various operational challenges faced by an insurance company in administering a Micro Insurance scheme. The paper does not encompass the financial management aspect of an insurance company related to its claims and profitability.

## Characteristics of Disaster Risk

Insurance allows transferring financial risk from an individual to a pooled group of risks. To insure a risk, the insurer must be able to identify the risk and determine its probability of occurrence and extent of expected losses and to set premiums for each potential customer or class of customers. However, risk arising from disasters and calamities create problems for insurers since they are Covariant in nature.

Let's take an example of a flood to understand covariant risks. In case of a severe flood, there is a high probability that many houses, crops and life will be destroyed at once. The aftermath of such a disaster will leave behind diseases causing health hazards. Also this impact of damage would be inflicted on a large section of people, may be an entire district at the same time. Hence the standard support mechanism of friends, family, local relief societies etc. would not be available since even they would be subjects to the impacts of the disaster. This phenomenon would cause every person in the locality facing the same risk at the same time.

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Moreover, since each instance of such flood produce different amount of losses, estimating an average loss with an adequate degree of predictability would require a long recorded history of floods which is typically not available.

The following diagram (Fig 1) separates out the four main characteristics of covariant risks as explained in the above example.

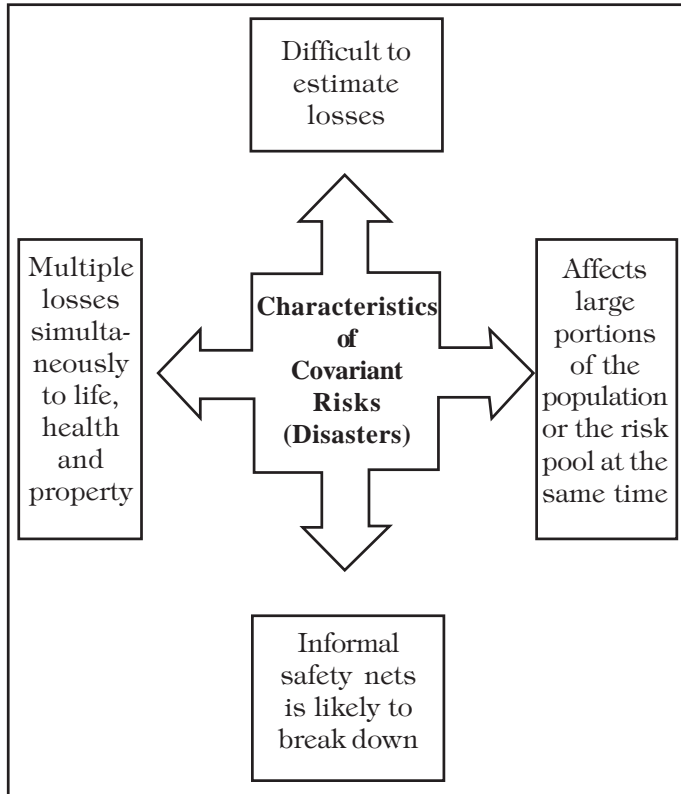


Fig 1: Characteristics of Covariant Risks

Disaster risks affects large regions with multiple losses and are extremely uncertain when compared to other types of insurance. Life insurance is the simplest since the risks can be reliably estimated with limited scope for moral hazard and fraud. Health and property are more problematic to insure than life, but has fewer obstacles than co-variant disaster events.

As shown in the diagram below (Fig 2) disaster risk can be placed at the farthest point of the Cost vs. Certainty spectrum. Such risks are insurable, but need more careful consideration.

**Microfinance in Disaster Management**

Low income households are the ones who suffer from both a higher disaster risk exposure and a lower risk bearing capacity than other population groups.

While the market-based risk management instruments available to the poor are usually effective in dealing with idiosyncratic risks, they tend to breakdown in the face of highly covariant, macro-type risks such as disasters. Moreover, many disaster risk management issues are beyond the capacity of the individual household, requiring broader social interventions.

Microfinance services in the form of credit, savings and insurance combined together have a great potential to increase the risk-bearing capacity of poor households in the following ways -

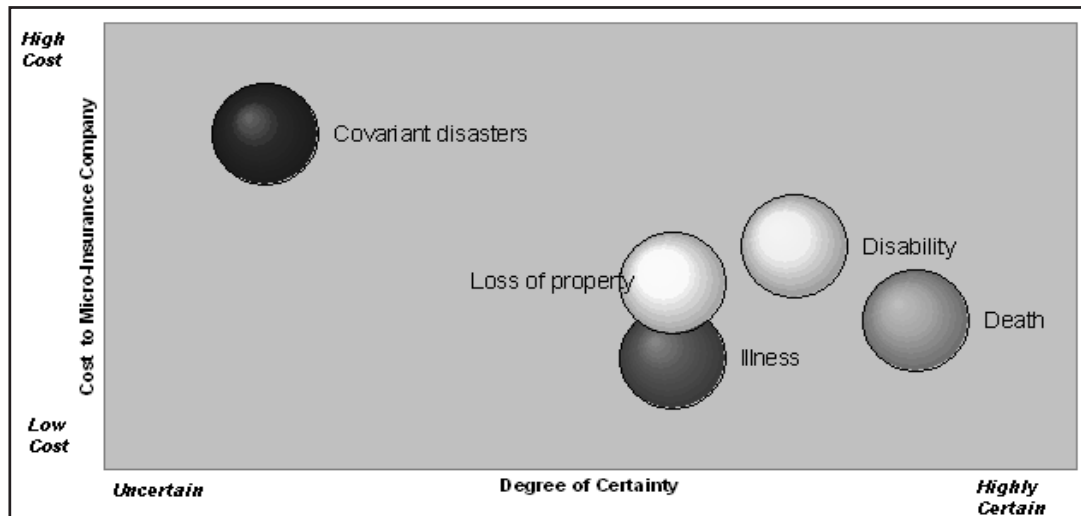
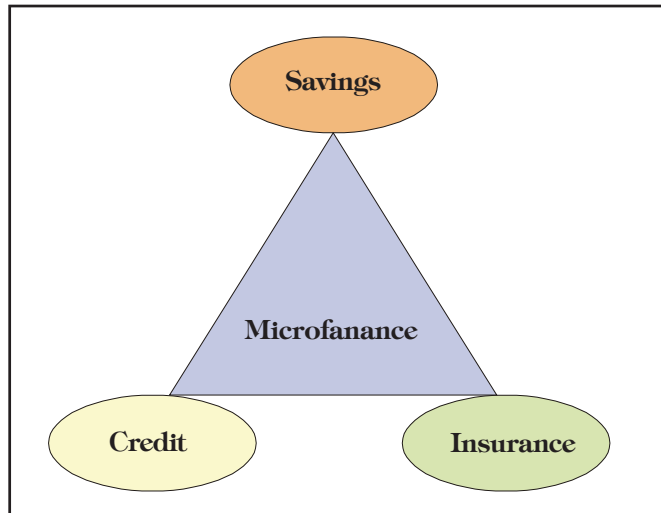


Fig 2: The Risk Matrix

- **Credit** can help reduce risk through income smoothing
- **Savings** can help mitigate and cope with risk through consumption smoothing
- **Insurance** can provide an effective shield from unforeseen circumstances.



**Fig 3: Elements of Microfinance**

Insurance can help keep low-income people from significantly depleting their resources in the case of disasters. Although savings and emergency credit are important tools that can assist low-income people in managing these crises, often they are unavailable, insufficient, or untimely. To complete the set of financial tools that can provide a financially stable platform for low-income families and from which further growth and stability are by-products, low-income people need access to well-designed and managed Micro Insurance.

### **What is Micro Insurance**

Micro Insurance provides indemnification against the losses by pooling risks in exchange for a premium payment. By providing timely financial assistance following unforeseen events, it reduces the long-term consequences of disasters. Insured persons affected by a disaster benefit from the contributions of the many others that are not affected and thus receive a contribution greater than their premium payment. Micro Insurance is distinguished from other types of insurance by virtue of its low premiums, focus of risk protection, easy understandability and affordability to lower income population.

Micro Insurance can break the “cycle of poverty” by providing low-income population with access to post

disaster liquidity, thus securing their livelihoods and providing for reconstruction.

Also, micro insurance can help improve the ability of the low income group to access other financial products and hence enhance the profitability of microfinance institutions. Even though these advantages have been increasingly recognized, microfinance institutions face constraints in providing disaster insurance products.

### **Types of Disaster Micro Insurance Products**

Usually micro insurance products currently available for disaster management are either be Indemnity based or Index based.

Indemnity based products are designed to pay claims based on actual losses to property, crop and livestock. However, this calls for huge administration cost for claims settlement as it requires an extensive network of claim adjusters who assess individual losses following an event. This type of microinsurance contract covers both sudden-onset events, such as earthquakes, floods and cyclones, as well as slow-onset events, such as droughts.

Index based schemes for slow-onset events have been in the market of late. The difference between index based contracts and indemnity contracts lies in the fact that index based contracts are written against a physical trigger set against a fixed indexed variable (such as rainfall). The clients collect a claim payment if the index (in this case rainfall) reaches a certain measure irrespective of the actual losses incurred. These claims successfully negotiate the high cost element involved in case-by-case settlement. Also since the claim is a prefixed amount per unit of protection, transactions are greatly simplified for operational purposes.

This type of micro insurance contracts also ensures lesser moral hazards and better risk reducing behaviour on part of the policy holder as the payouts are not linked with individual losses.

The clear upside of index based contracts are the reduction of moral hazard and transaction costs. Also index based mechanisms are more transparent since they are based on a physical trigger, and the payout is fixed in advance.

However, proper actuarial research must be done to set the trigger which if wrongly correlated with the probable losses might result either in no claims despite

substantial losses or excessive claim payout on nominal losses.

### Challenges faced in Micro Insurance

Existing Micro Insurance schemes that provide disaster & catastrophic insurance find it difficult to become sustainable. Suppliers—whether governments, savings and credit societies, private-sector insurers, or other financial institutions — face the following challenges:

- **Product Design:** Insurance requires specialized actuarial capacity, which uses mathematics to place a monetary value on future risks. Actuarial analysis for disaster insurance is complicated by claim volatility and lack of reliable data characteristic of low-income & informal markets. On top of that often, actuarial expertise resides with one type of institution (i.e., formal insurers), while distribution networks to poor customers lie with another (i.e., MFIs or NGOs).
- **Marketing and sales:** Most poor people do not understand insurance or are even biased against it. Many are skeptical about paying premiums for possible future benefits in case of a catastrophic event, when the insured event may not occur. Creating awareness about the value of insurance is time consuming and costly. In addition, the wording of insurance contracts is often too complicated for the poor, many of whom are illiterate.
- **Distribution Channels:** Micro Insurance requires a distribution system that can both efficiently handle small financial transactions in convenient locations and engender trust. Existing distribution systems of this kind are hard to find; creating a new system to collect premiums and pay claims is expensive and often ineffective.

### Product Design

Following are the key issues pertaining to the design of insurance products that institutions offer –

**What & Which:** Institutions need to zero down on what products to offer and which risks to bundle together in order to make the product look more comprehensive for easy marketing while not trading off too much on the complexity of the statistics that actuaries can play around with, to factor different category of risks.

**Pricing:** Since affordability is one of the key variables attached with Micro Insurance the institutions must make proper assumptions with regard to operating costs, risk premiums, and reinsurance. Keeping in mind the price elasticity of demand it would be a better idea to work backwards from the premium figure to arrive at the various cost elements and build sensitivities around each of them in order to play around with different permutations before arriving at the final figure.

**Efficiency:** Given the relative high costs of delivering large volumes of small policies, maximizing efficiency across every operational point is a critical strategy to ensuring that the products are affordable to the low-income market. Further stress on efficiency comes from the very nature of disaster insurance whose settlement and payout needs to happen quickly in order to uphold the purpose of the concept.

**Strategies:** The next set of issues focus on strategies for controlling risks. Institutions should come up with stable diversified risk pooling and reinsurance strategies in order to mitigate the covariant factor of catastrophic risks. Exclusions need to be designed in controlling risks however, giving due importance to the comprehension levels of rural low income markets. Strategies for controlling risks of client and staff fraud also need to be taken into consideration.

### Marketing & Distribution

Since the target market of Micro Insurance are people at the bottom of socio-economic pyramid the insurers have to put extra effort in managing their cost so as not to lose out on the viability of the premiums.

In this scenario the insurers have lesser flexibility to apportion their distribution and marketing cost as a loading on the premium. However, insurers continue to face challenges in distribution of the policy, collection of premium and administering claims in remote villages where connectivity is a major problem both in terms of transportation and electronic infrastructure.

In order to ascertain affordability in terms of cost and given the prevailing infrastructure in Indian villages a scenario where a commercial or public insurer provides the full range of insurance services from development of the product, its distribution to absorbing the risk seems unviable. Though institutions interested in maximizing the financial gains from their insurance

products are more likely to prefer the full-service insurer approach yet the sustainability of the model in the long run remains questionable.

A better way to solve this puzzle would be to take a partnership approach with an institution or body that operates closely with the target customer segment.

**Partnering with MFIs and NGOs** establishes a symbiotic relationship between the two parties and help them in exploiting each other's comparative advantages. Insurers capitalize on the efficient delivery mechanism of MFIs and NGOs while providing them with the leverage to provide insurance to their clients with no risk and limited administrative burden.

Partnering with corporates having a rural focus brings a readymade solution to the problem of reach. FMCG giant ITC Ltd. comes up as the first name as a potential partner. With its unique *e-chaupal* initiative ITC brings a long awaited solution to the infrastructural problems of rural India. The *e-chaupal*, with its digital infrastructure and associated human and organization capacities built, has already become rural India's largest Internet based intervention and is surging towards the vision of servicing 100,000 villages by 2010 reaching out to 10 million rural households. Increasingly more FMCG marketers are looking towards following ITC's footprints in order to tap the potential of rural India with innovative business models to fuel their strategic growth plans.

This straightaway brings to the table a way in which insurer's can reach the Micro Insurance clients through one of their conventional channel, the Internet. Internet can be used to market as well as distribute policies. Entry of policy data and collection of premium can also be achieved with ease. With the degree of wireless connectivity on an upswing, in most cases of disaster request for claims can also take the route of Internet. Visual advertisements and campaigns can be run on the portals regularly visited by the village folks to check out their crop prices.

This model would also add value to corporates by luring more rural consumers to the doorsteps of the *chaupal* which would now act as a gateway to multiple financial services.

Another option which eliminates the participation of commercial insurers in the entire process is a community based insurance model. Local communities

and/or cooperatives come together to design, develop, service, and sell the product, manage the risk pool and absorb the risk as well. However, the viability of this model is also questionable given the nature of disasters which brings in covariant risks. In most cases, a disaster would affect every member of the community and the risk pool, resulting in a huge amount of claim during a small time window. The probability of the insurance body going insolvent will be very high in the absence of suitable diversification of risk.

Regardless of the institutional arrangements, one of the biggest challenges in delivering microinsurance has been the complications of educating staff and clients about the products, getting them to appreciate the benefits and embrace insurance as an appropriate risk management tool.

### Conclusion

Micro Insurance might be seen as an ideal self-help strategy for the rural population against natural disasters. But looking at the situation from a contrarian point of view one needs to introspect whether the rural poor should bear the burden of earthquakes and other natural disasters that are either a result of governmental failure or providential in nature. On top of this, one can hardly overlook the role of developed and developing nations in pollution, global warming etc. which can straightaway be linked with weather-related disasters.

These issues of responsibility at the international level have brought in concepts of insurance as a public service where the entire population pays a premium for coverage during the time of disaster. Practically, this is a proposition for levying an additional tax component in order to provide disaster shelter.

While there is still time for some concrete and morally befitting solution to be rolled out, it will be too late if we leave our 750 million rural population at the mercy of events like floods, earthquakes and tsunamis. It is high time when public as well as private sector insurers took note of the commercial as well as humanitarian potential of the concept of Micro Insurance. On practical implementation this would be a giant leap in the field of corporate social responsibility and a pioneering endeavour which would be spoken about in times to come.



Though it may seem that Micro Insurance is a panacea for all disaster related losses for the rural population, enough reasons exist to make you think otherwise.

Firstly, Micro Insurance might prove very costly in the long run given the high costs of insuring correlated or covariant disaster risks and the client might end up paying substantially more than their expected losses over the long term.

Secondly, inconsiderate design of insurance products can also lead to moral hazard where the individuals take fewer precautionary measures because they are insured. Micro Insurance by principle should induce and reward risk-reducing behaviour.

Finally, in unregulated markets and improperly diversified risk pools, the insurer runs the risk of insolvency and default on claims in the case of large scale or intermittent disasters within a small window of time.

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### Glossary

MFI – Microfinance institute

NGO – Non-government organization

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