

## Women's action towards climate resilience for urban poor in South Asia



# RISK MANAGEMENT

## —CLIMATE CHANGE AND THE POOR

**-Arman Oza**  
National Insurance VimoSEWA  
Co-operative Limited, Ahmedabad

This paper aims to throw some light on the quantification of risks to individual lives of the poor due to climate extremities- challenges and scope for financial incentives and solutions.

### About Risks

The term risk is often used generously in common parlance to include any situation, activity or event involving uncertainty of outcomes. Various connotations of the term are used to describe the precarious nature of event, activity, etc. In technical terms risk is a function of probability and financial impact. Thus any outcome that has a probability between 0 and 1 of inflicting a financial loss on the exposure unit is a risk. From this standpoint, a large variety of situations can be termed as risks. Pure risks are those where the probable outcomes are loss or no loss. There is no chance of a gain in pure risks. All insurable risks like natural disaster, sickness, fire, accidents to humans and property are pure risks. Speculative risks are those that carry probabilities of loss as well as gain. All economic

activities like business, agriculture as well as gambling, betting and wagers are speculative risks. Most of the speculative risks cannot be insured.

Fundamental risks like natural disasters, drought, inflation, unemployment, etc. affect the society at large while particular risks like sickness, injury, fore affect individuals only. Fundamental risks are more often catastrophic in nature as they involve substantial financial impact. Also being covariate in nature, they are difficult to retain at the individual, household and community level. Particular risks being sporadic in nature can be easily carried through community based models. Risks like inflation, unemployment, etc. are driven by macro-economic factors and are called dynamic risks. They are more complex, difficult to quantify and predict and hence are costly to manage. Static risks like sickness and accident are localized and hence follow certain statistical patterns at the 'portfolio' level. They are more predictable and relatively simpler to finance.



*Focus Group Discussion in Bhagwatinagar, Ahmedabad (March 2015)*

## Quantification of Risks

The classical methods of quantifying risks involve estimation of probabilities and impact. For most kind of pure risks, especially natural disasters, an analysis of historic data can reveal trends that can then be extrapolated over the future years to estimate frequency of loss producing event. The frequency distribution so prepared can provide the mean (average) as well as variability of losses. This exercise will also enable the assessment of whether the risk in question is a high or low frequency risk.

Quantification of financial impact of risks is a relatively complex exercise and cannot be carried out merely on the basis of secondary data. The financial impact a risk can inflict upon a household could be influenced by a variety of physical and economic factors surrounding the household. Hence the exact quantification of a particular risk at the household level will require collection of primary data. The impact indicator so arrived at may differ from family to family and certainly from

community to community. Hence after collation of primary data, some amount of averaging or a ranging-out may become necessary to arrive at a standard level of financial impact.

As against this classical approach of quantification risks, an alternative approach, especially for natural disasters that calculate impact of disasters in 'life years lost' is also gaining ground. Here the financial impact of natural disasters is quantified in terms of human lifeyears lost as a result of disasters. All kinds of losses inflicted by natural disasters like mortality, morbidity, disability, displacement, infrastructure and property damage as well as social costs of disasters are expressed as human life years lost. It is claimed that such an approach will standardize losses taking place across the world on account of natural disasters and will overcome the difference in quantification of losses between rich and poor countries. The assumption of course is that the value of human life is same across the world.



## Risk Financing

Direct risk financing arises when risk retention is to be adopted as the risk management strategy. Risk retention is an ideal strategy to handle low frequency low severity losses but can also be used to cover high frequency low severity losses where risk reduction is not an option. Losses arising out of frequent flooding and water logging in urban areas could be one such instance. Risk retention necessarily implies paying for losses out of pocket because the losses are not frequent or significant. Typically this means funding losses out of the revenue cash flows or savings of the family. This might be a challenge for low income households as their cash flows are erratic as well as marginal. In such cases there could be a scope of developing savings mechanisms at the community level through models like SHGs.

The savings so generated can be pooled to be used to fund losses arising out of specific contingencies like water logging. Such mechanisms can also be used where risk reduction through prevention interventions at the community level are perceived. Financing has a definite role even in cases where risks reduction and avoidance are to be pursued as primary risk management strategies. Risk reduction through loss prevention may involve investments in infrastructure designed to protect communities from disasters. Depending upon the scale of investment, savings and credit can be used to fund them.

On the other hand, risk avoidance is necessitated in case of high frequency high severity risks. Instances of such risks are generally difficult to find, but in the context of climate change risks, loss of property and livelihoods arising directly on account of vagaries of nature as well as indirectly through diseases burden could be one such example. Based on a careful analysis risk avoidance strategies may involve radical actions like relocation of communities. In most cases involving risk avoidance, there is also an element of reward associated with the risky situation. For example those living on the river bed and thereby getting exposed to frequent flooding may also be earning their livelihoods from the river. For them losing the proximity to the river as a result of relocation involves a substantial opportunity cost. In such cases, people may have to be motivated to adopt alternative livelihoods as a result of the relocation. Narrow framing tendencies are bound to create resistance to such proposals. Avoidance thus involves substantial financing considerations that may require a mix of instruments like savings,

credit and insurance, apart from sovereign allocations.

Lastly, risk transfer is one strategy that largely involves financing considerations. Low frequency high severity losses are ideal for risk transfer through formal mechanisms like insurance. As mentioned earlier, particular risks that do not involve catastrophic losses are best for community based insurance mechanisms. At a higher level, catastrophic losses can also be transferred to capital markets through instruments like CAT bonds. Index based insurance covers are also designed for risks like excess and deficit rainfall, heat and cold waves, etc. These instruments are a departure from the principle of indemnity applied to insurance contracts and are hence not strictly insurance contract but are a kind of financial derivatives based on 'put' and 'call' options. In advance financial markets such derivatives are traded on mercantile exchanges.





### **Mahila Housing SEWA Trust**

4<sup>th</sup> floor, Chanda Niwas, Opposite Karnavati Hospital, Ellisbridge,  
Ahmedabad-380006, Gujarat, India.

*“Mahila Housing SEWA Trust (MHT) aims to build capacities of women from slum communities to take lead in resilience action against heat stress, extreme precipitation events, water scarcity and contamination and vector borne diseases. The proposed community based resilience model will be women-led, integrated; evidence based, and will focus on innovative communication strategies to promote a culture of resilience action.”*