Microfinance and Disaster Risk Management
Experiences and Lessons Learned

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This report is part of an initiative on microfinance and disaster risk management carried out under the umbrella of the ProVention Consortium by the World Bank's Disaster Management Facility, the UN Development Program (UNDP), and the UN Capital Development Fund (UNCDF). The findings, interpretations, judgments, and conclusions expressed in the report are those of the author and should not be attributed to any of the sponsoring organizations.

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Preface

This report is part of an initiative to help develop mechanisms for poor households and communities to better manage disaster risks, undertaken under the umbrella of the ProVention Consortium by the World Bank's Disaster Management Facility (DMF) in partnership with the UN Development Program (UNDP) and the UN Capital Development Fund (UNCDF).

As a preparatory step, in February 2000 the World Bank and UNDP organized a colloquium in Washington, D.C., entitled *Microfinance: Disaster Risk Reduction for the Poor*. One conclusion from the event was that financial services have the potential to help the poor better manage natural disaster risk. It was agreed that it would be relevant to study this potential through an analysis of the experiences of microfinance institutions in disaster risk management from the client and institutional perspective. This report presents the results from such effort.

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Acronyms and Abbreviations

ACODEP	Asociación de Consultores para el Desarrollo de la Pequeña, Mediana y Microempresa
AIG	American International Group
ASA	Association for Social Advancement
BRAC	Bangladesh Rural Advancement Committee
BRI	Bank Rakyat Indonesia
BURO	Bangladesh Unemployed Rehabilitation Organization
CARD	Center for Agricultural and Rural Development
CBOs	Community-based Organizations
CGAP	Consultative Group to Assist the Poorest
CHF	Cooperative Housing Foundation
CDF	Credit and Development Forum
DMF	Disaster Management Facility
DRM	Disaster Risk Management
ECLAC	Economic Commission for Latin America and the Caribbean
FCC	Fondo de Crédito Communitário
IDB	Inter-American Development Bank
IFRCRS	International Federation of Red Cross and Red Crescent Societies
MHST	Mahila Housing SEWA Trust
MIS	Management Information Systems
MFIs	Microfinance Institutions
MFN	Microfinance Network
MRFC	Malawi Rural Finance Company
NFIP	National Flood Insurance Program
NGOs	Non-Governmental Organizations
PKSF	Palli Karma Sahayak Foundation
POs	Partner Organizations
PPPCR	Project de Promotion du Petit Credit Rural
SEWA	Self Employed Women's Association
UNDP	United Nations Development Program
UNCDF	United Nations Capital Development Fund

1. INTRODUCTION

After a brief overview, this section describes the objectives, methodology and conceptual framework of the report. In particular, basic concepts such as risk, vulnerability and risk management are defined, and these concepts are aligned with the general risk management frameworks of microfinance clients and institutions.

1.1 Overview

As microfinance has evolved, a better understanding has emerged of its strengths and limitations in poverty reduction, and of its potential for strengthening the risk management capacity of the poor (Wright et al., 1999).[1] Field research indicates that access to microfinance services including credit, often savings, and less typically housing loans and microinsurance,[2] increases poor households' prospects of escaping poverty and at minimum stops them from falling further down the poverty line (Sebstad and Cohen, 2000; Wright, 1999; Gulli, 1998). Provision of microfinance services that can have a sustainable impact on clients' well being and reduced vulnerability is not an easy endeavor, however. Microfinance institutions (MFIs) face many risks that can adversely affect their long-term operational and financial sustainability. Some of the most serious risks pertain to the external environment in which these institutions operate, and include natural disasters, economic crisis and war (MFN, 2000). While many of these risks are common to all financial institutions, the physical environment of the communities where most of the poor live – and the constraints they face in dealing with the difficult conditions that result from it – exacerbate the risks associated with delivering microfinance services.

Among the external risks mentioned above, disaster risk is of particular relevance to microfinance clients and institutions. On the one hand, many of the poor and the near poor, who are the typical microfinance clients, suffer from both a higher disaster risk exposure and a lower risk bearing capacity than other population groups.[3] Poverty constraints make individuals unable or unwilling to engage in high risk/high return activities, which limits their ability to manage risks and to escape poverty (World Bank, 2001). At the same time, the poor cannot usually avoid disaster risk given their limited choices when deciding where to live. By delivering services to clients under these conditions, MFIs link disaster risk to their portfolio, while exposing directly to it their staff, facilities and equipment. When unmitigated risk translates into a disaster, not only the clients, their microenterprises, income streams and ability to repay loans are affected, but also the MFI's portfolio, their service delivery capacity and the sustainability of their impacts.

On the other hand, the effectiveness of MFIs in helping clients manage disaster risk is limited by the nature of this type of risk. Disaster risk is collective in its origin and remains mainly a 'public,' shared risk that makes finding individual, and often community solutions, difficult (Cardona, 2001; Comfort, 1999). A disaster is said to take place precisely because the losses

[1] Although the evidence of the impact of microfinance on poverty is inconclusive, it is generally accepted that microfinance can play an important role in poverty reduction as one of several valuable tools, and that its benefits go beyond income poverty improvement (Gulli, 1998).

[2] In addition, some MFIs provide non-financial services such as training for skill development, literacy, health, and so on. Many microfinance programs seek to incorporate social and economic development within their activities. More generally, social intermediation is considered integral to the financial intermediation provided by many microfinance institutions (Edgcomb and Barton, 1998).

[3] According to several studies (Sebstad and Cohen, 2000; Gulli, 1998), the majority of microfinance clients cluster above and below the poverty line, although some extreme poor and some nonpoor households also access these services.

originated by a given event overwhelm the capacity of a population (local, regional or national) to respond and recover from it. Often, the poorer households are the most affected in relative terms. In addition, natural disasters are complex and multifaceted events resulting from mismanaged and unmanaged risks that reflect current conditions and historical factors (Alexander, 2000). Many of these conditions and factors cannot be changed by providing microfinance services alone. Similar to other risks affecting many households in an area, government and civil society intervention may be required to deal successfully with disaster risk (Holzmann, 2001). In the long run, effectiveness of disaster risk management will depend on the mix of available informal, market-based and public mechanisms.

More and more experiences show that MFIs cannot avoid disaster risk, let alone ignore it. Their achievements can be erased by a single catastrophic event or undermined by repeated disasters, as their borrowers become increasingly impoverished and vulnerable, and their operational and financial sustainability is compromised. These issues are critical to the 'microfinance revolution' said to be under way, which can only be advanced through institutions that are self-reliant and sustainable (Robinson, 2001; UNCDF, 1999a). It is therefore important, from this perspective, to assess whether MFIs can be more effective in what they do – and become more sustainable institutions – by addressing disaster risk directly; and to assess how, to what degree, and under which conditions they can help their clients manage this risk.

1.2 Objectives and Methodology

The objectives of the report were to understand how MFIs can manage disaster risk at the institutional level, and to assess their potential and limitations in increasing the disaster risk management capacity of clients. Achieving these objectives required:

- Analyzing how microfinance clients have usually dealt with disaster risk
- Assessing the implications of disaster risk for MFIs; and how they have managed disaster risk and dealt with actual disaster events not only to help clients, but also to ensure operational continuity and financial sustainability
- Identifying lessons learned from MFIs' involvement in disaster risk management, focusing to the extent possible, on how, to what degree and under which conditions microfinance may (or may not be able to) contribute to disaster risk management

The analysis underpinning this report recognizes that the effectiveness of any risk management strategy will depend on the nature of the risks, household and group (clients) and institutional (MFIs) characteristics, and the availability and range of risk management alternatives. In reference to microfinance clients, risk strategies are analyzed considering the type of instruments used by the poor and near poor, the degree of formality or informality of these instruments, and the type of actors and institutions that have typically supplied or supported these instruments. From the perspective of MFIs, the analysis adds disaster risk to the risk management framework recommended for MFIs by looking at how these institutions can deal with their own physical and financial exposure, and at how they can help their clients deal with disaster risk.

In addition to secondary sources, information supporting the analysis reported here was collected through selected interviews with microfinance and disaster management experts from several institutions, and from field experiences of the author in disaster risk management in Latin America and South Asia. More specifically, secondary sources included:

(a) Literature on poverty, vulnerability and risk management strategies of the poor and near poor – the potential and actual clients of most MFIs.

(b) Literature on disaster risk management and disaster impacts on the poor and MFIs.

(c) Documented experiences where MFIs have been involved in disaster risk management, before and after disasters. These experiences dealt with efforts to both help clients manage disaster risks and to deal with disaster risk exposure of the institution itself.

(d) Relevant experiences of MFIs in the context of the HIV/AIDS pandemic and in post-conflict reconstruction.

1.3 Conceptual Framework

1.3.1 General Approach

To achieve the above objectives, different views and definitions of three key concepts – risk, risk management and vulnerability – have been brought together under a common framework: the disaster risk management framework (DRM) generally used in the 'disaster field' today (Cardona, 2001; Alexander, 2000; Mileti, 1999). These concepts have been defined differently by several disciplines and fields of study, including, *inter alia*, economics, sociology, geography, environmental science and disaster management (which is by itself multidisciplinary).[4] According to the DRM framework, **risk** is the probability that an adverse event (or events) will occur and will potentially affect an exposed element or system, such as a household, a community, or a country, on the one hand; or the microfinance sector and/or some of its institutions, on the other. Simply put, for a household or a microfinance institution, "risk is an exposure to a chance of loss" (Churchill and Coster, 2001). An additional concept to understand risk within the DRM framework is **natural hazard**, which refers to meteorological or geological phenomena that due to their location, severity, and frequency, have the potential to affect microfinance clients, their housing and microenterprises, and their economic activities, as well as MFIs' staff, facilities, equipment and information systems and records (Churchill and Coster, 2001; Mileti, 1999; OAS, 1991). **Disaster risk** emerges from the interaction between a natural hazard (the external risk factor) and vulnerability (the internal risk factor) (Cardona, 2001). **Vulnerability** would consists of a 'risk chain', including the risk itself, the options for managing risk and the outcome – in terms of welfare loss, in the case of households, and of financial loss and adverse consequences for sustainability in the case of MFIs (Alwang, Siegel and Jorgensen, 2001; MFN, 2000). While risk represents the probability of exposure to events and outcomes, vulnerability influences the impact of an event on households and their communities or on a microfinance institution and the sector in general.

Disaster risk management is a cyclical, dynamic process that requires continuous adjustments, decision making and interaction at different yet interrelated levels and among a variety of institutions and actors, including individuals, households, communities, non-governmental organizations, market institutions, and government (Cardona, 2001; World Bank, 2001; Mileti, 1999). All these levels, actors and institutions are equally important, but this report focuses on the

[4] For instance, many definitions of vulnerability have emerged as the use of the concept has broadened across disciplines (Alwang, Siegel and Jorgensen, 2001). Definitions by Moser (1998) and Anderson (1995), among others, are relevant to disaster risk management.

individual/household and group levels (microfinance clients), and on the institutional level (microfinance providers). In addition, to be more effective, DRM requires risk identification and risk reduction, and when feasible, risk transfer. The main interrelated and overlapping 'stages' of the **DRM process** include:

- **Preparedness,** which strives at building an emergency response and management capability before a disaster occurs to ensure an adequate response. By definition, preparedness helps mitigate disaster effects.

- **Response** entails actions taken immediately before, during, and after a disaster occurs to save lives, minimize property damage and enhance the effectiveness of recovery. The objective is not only to deal with the disaster's physical impacts, but also to mitigate new risk factors created by the event itself.

- **Recovery** includes short term activities to restore vital support systems and long term activities to bring life back to normal. Depending on a disaster's magnitude, community resilience, and resources available, recovery can take a few weeks or several years. Prevention and mitigation, and improving, when feasible, social, economic and environmental conditions of the affected area and population, are intrinsic to a good recovery process.

- **Prevention** and **mitigation** refer to policies, measures and activities – usually put in place before a disaster occurs - that reduce hazards and/or vulnerability in order to diminish the possibility or magnitude of future disasters and minimize human and economic losses. Mitigation includes structural and non structural activities and measures.[5]

1.3.2 Disaster Risk Management Framework at the Individual / Household Level

From the perspective of microfinance clients, the report links the disaster risk concepts discussed above with the social risk management framework developed for the 2001 social protection strategy of the World Bank (see also Holzmann and Jorgensen, 1999). This framework includes disaster risk, as it assumes that all individuals, households and communities are simultaneously exposed to many risks from a variety of natural (earthquakes, floods, illness, etc.) and manmade sources (discriminatory practices, unemployment, environmental degradation, and war). It also recognizes, as the DRM framework does, that poor people are more vulnerable than other population groups due to their higher exposure to risk and limited access to appropriate risk management strategies. In addition, it defines vulnerability as a dynamic dimension of poverty,[6] while approaching poverty, as this report does, from a broader perspective than income poverty (World Bank, 2000a; Sen, 1999).[7] Accordingly, vulnerability would be influenced by the level of human, physical, social and financial assets, and the availability and adequacy of mechanisms to reduce or mitigate risks, including disaster risk (Weichselgartner, 2001; World Bank, 2000a). **Disaster vulnerability** would therefore correspond to a household's or a

[5] Levees, dams and channel diversions are examples of structural flood mitigation measures aimed at controlling floodwaters in order to prevent damage. Zoning ordinances are an example of non structural mitigation measures (Mileti, 1999).

[6] Available panel data sets show that over time a core group of households is always poor while a large number of households move in and out of poverty. As a result, some households are sometimes poor but not always poor and many remain vulnerable to falling under or further below the poverty line (Holzmann, 2001; Dercon, 2000).

[7] Other dimensions of poverty include voicelessness and powerlessness, material deprivation (traditionally measured by income and consumption levels), and low achievements in health and education (World Bank, 2000).

community's predisposition, based on the above factors, to be affected when a hazardous phenomenon occurs (Cardona, 2001).

Households obtain access to **risk management strategies** through informal, market-based and public arrangements. Due to the lack of market institutions and publicly provided mechanisms, households in developing countries tend to rely more on informal risk management strategies and instruments. In general, risk management at the household level involves **prevention strategies** to reduce the probability of the risk occurring, **mitigation strategies**, including preparedness, to reduce the impact of a future risk event, and **coping strategies** to respond to – and hopefully recover from – the adverse effects of the risk once it has become a disastrous event (World Bank, 2001). The best strategy would be prevention, followed by mitigation. Risk coping would basically be the residual strategy. Relying only on prevention or mitigation, however, may not always be efficient or feasible as all risk management strategies have both direct and opportunity costs for individuals and households. All of these strategies, in the case of disaster risk, include social, physical and financial instruments and/or mechanisms.

1.3.3 Disaster Risk Management Framework at the Institutional Level

The report links disaster risk concepts with the institutional risk management framework recommended for MFIs, which is based on the premises that risk is intrinsic to financial services, and therefore MFIs need to manage risks efficiently and effectively to fulfill its social and financial mission. The framework recognizes that MFIs must deal with internal risks – those risks within microfinance lines of business environment. It recognizes as well that some of the most serious risks come from the external environment in which MFIs operate, including natural disasters, economic crisis and war (Churchill and Coster, 2001; MFN, 2000). Despite the recognition of external risks, the institutional risk management framework has focused more on the management of internal risks. The framework does not sufficiently emphasize either that in addition to their own disaster risk exposure, MFIs should take into consideration that of their clients. In terms of risks common to MFIs (see Table 2 in Section 2) the report draws from the categories and definitions developed by Churchill and Coster (2001) and MFN (2000). A general, yet crucial risk faced by MFIs is **governance risk**, associated with inadequate governance or a poor governance structure. More specific categories of risks include:

- **Institutional risks** that result from the interaction between MFIs' social mission (providing financial services to low-income persons to help them improve their welfare) and commercial mission (providing financial services in a sustainable manner); and from the relative dependency of an institution on external organizations (i.e., donors or international NGOs).

- **Operational risks** are faced by MFIs in their daily activities, and include credit risk (that can affect portfolio quality) and security risk created by the possibility of fraud or theft.

- F**inancial management risks** are related, on the one hand, to asset and liability exposure of an institution, including interest rate, liquidity and foreign exchange risks; and on the other, to inefficiency risk (due to lack of capacity in managing costs per unit of output) and integrity risk (due to the quality of the information system).

- **External risks** are originated by the environment in which a microfinance institution operates. This type of risks includes regulatory, competition, demographic, physical environment (disaster risk, infrastructure constraints, etc.) and macroeconomic risks.

2. DISASTER RISK: IMPLICATIONS FOR MICROFINANCE CLIENTS AND INSTITUTIONS

After briefly presenting the characteristics of disaster risk, this section discusses the types of effects generated by disasters as well as the factors underlying disaster risk exposure of microfinance clients and institutions and the main consequences of disaster on both of them. Contrasting examples of the effects of disasters on microfinance institutions are also provided.

2.1 Characteristics of Disaster Risk

Disaster risk is a 'covariate' risk, as it typically affects many households in an area or across areas. In contrast, household-specific risk is defined as 'idiosyncratic' risk.[8] Disaster risk can take place over time (repeated) and with other risks (bunched); moreover, it can be catastrophic (low frequency but high welfare effects) or non-catastrophic (high frequency but low welfare effects) (World Bank, 2001).

Disasters of a hydro-meteorological origin (floods, hurricanes, cyclones and droughts) tend to affect larger geographical areas, while those of geological origin (earthquakes, volcanic eruptions) tend to have more localized effects. Most of the phenomena that underlie disaster risk take place in a sudden manner (earthquakes, floods), although there are cases where occurrence may be slow (droughts). Importantly, natural hazards are often interrelated, and the occurrence of a given phenomenon may give way to other threatening phenomena in a series of events. For example, seismic activity can create landslides; landslides can create floods, etc. A hurricane can bring high winds, heavy rains, floods and landslides.

2.2 Overview of Disaster Effects

Natural disasters – along with economic crises and civil conflicts – are among the main sources of aggregate shocks to society, and often lead to dramatic increases in poverty incidence (World Bank, 2001). In developing countries, the death toll is usually high while capital losses in absolute terms tend to be smaller than in developed countries. The relative weight and total impact of disasters in the former, however, is quite significant (Anderson, 2000). Moreover, disaster effects are not experienced equally by all affected population. As Lewis (1999) shows through comparisons at the national level, it is the poorest who may suffer the most in relative terms.

Specifically, as defined by ECLAC (2002), disasters cause **direct damages** by partially or totally destroying immovable assets and stocks.[9] Disasters also give way to **indirect losses** by affecting the flows of goods and services, including microfinance service delivery. This type of losses results from the direct damages to social and economic infrastructure and to production capacity. Indirect losses also include current outlays or increased costs in providing services due to the disaster event. Although impossible to quantify, households experience indirect effects such as human suffering and insecurity. [10] Ultimately, as a result of the repercussions of the direct

[8] Idiosyncratic risk can affect households like covariate risk in communities that are extremely poor, isolated, and lacking in social and other assets (Siegel, 2000a).
[9] Stocks include final goods and goods in process, raw materials, materials and spare parts.
[10] Disasters may at times produce positive impacts, although as a matter of convenience the terms damage and loss are used when describing direct and indirect effects (ECLAC, 2002).

damages and indirect losses in the functioning of the economy, disasters have **macroeconomic effects** at the regional and/or country level.[11] Such secondary effects are evident in the deterioration of living conditions of the affected population that result from curtailed supply sources, reduced availability of basic services, and loss of employment and subsequent fall in income.

Duration of disaster effects will depend on the type and magnitude of the disaster. Typically, direct damages occur at the moment of the disaster event or within a short period, while indirect losses and macroeconomic effects will be felt longer. Direct damages caused by slowly-evolving or long-duration events such as droughts and El Niño phenomenon may nevertheless take place during an extended period of time.

Thirty years of experience in assessing disaster impacts indicate to ECLAC (2002) that in areas of comparable population densities, the number of victims may be expected to be larger for disasters of geological origins (earthquakes) than for those of hydro-meteorological origin (floods, hurricanes). Earthquakes tend to cause more destruction of capital stock in physical and social infrastructure than floods. Floods and droughts tend to cause more production and indirect losses. When an earthquake causes floods and landslides, production and indirect losses can also be significant. Droughts, for which no universally accepted definition exists, are different from earthquakes and hurricanes in several important ways: they are intrinsic to the natural variability of almost all climates; their onset and recovery are typically very slow; and their area of impact tends to be much larger and their duration much longer than for other hazards (Mileti, 1999).

2.3 Disaster Risk and Microfinance Clients

2.3.1 Disaster Risk Exposure

The poor and near poor – the prospective and existing clients of microfinance institutions – tend to have higher disaster risk exposure than the rest of the population, and to suffer more, in relative terms, the adverse effects of disasters. Disaster risk contributes substantially to poor households' vulnerability in many developing countries.[12] This contribution is influenced by the interaction between two of the survival strategies of poor households: risk aversion in economic terms, and risk 'taking' in spatial (or physical environment) terms.

Risk aversion is the inability and/or unwillingness of the poor to engage in higher risk/higher return economic activities that will help them improve their welfare (Holzmann, 2001; World Bank, 2001). It is, to some degree, a behavioral response originated by the lack of resources and the fear of loosing these resources in seemingly risky activities.[13] As vulnerability levels increase with the accumulation of unsuccessful risk management experiences, risk aversion may also increase. In time, risk aversion costs dearly to the poor, especially because of the opportunity cost involved in missed opportunities that delay graduation from poverty and intensify inequality (Sinha and Lipton, 1999).

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[11] The most important macroeconomic effects relate to the level and the growth rate of the overall and sectoral gross domestic product, the balance of payments, the level of indebtedness and monetary reserves, public finances and gross investment, prices and inflation, and employment (ECLAC, 2002).

[12] This fact has been corroborated by research in, among other places, Ethiopia (Dercon and Krishnan, 2000), Zimbabwe (Kinsey et al., 1998), Bangladesh (Rahman, 1998), and Bolivia and Philippines (Sebstad and Cohen, 2000).

[13] For instance, the poor will continue to use outmoded agricultural technologies because they are less risky and credit is not easily accessible (Holzmann and Jorgensen, 1999).

Risk 'taking' by the poor emerges from socio-economic constraints (i.e. limited choices, lack of access and social exclusion) and related behavioral and cultural responses. Poverty pushes people to move into precarious locations and to engage in survival strategies that often affect the environment adversely, making disaster risk exposure an integral part of everyday life (Yodmani, 2001). Additionally, government post-disaster relief compensation programs and international assistance have in many cases acted as 'incentives' for people to locate in disaster-prone areas (Charveriat, 2000). Field studies have thus found a high concentration of poor people in disaster prone areas (Sinha and Lipton, 1999; Lewis, 1999; IFRCRCS, 1998). Most of these people are unaware of their risk exposure and their risk management choices (Alexander, 2000; Mileti, 1999).

Risk aversion and disaster exposure of poor households have a direct relationship since avoidance of higher risk/higher return economic activities further reduces their ability to find relatively disaster-safe locations. The experience of disaster resulting from risk exposure, at the same time, tends to reinforce poor households' risk averse behavior. In the long term, disaster risk increases exposure of poor households to other risks, and constraints their ability to deal with them.

2.3.2 Disaster Effects

At the household level, disasters constitute a multifaceted shock to welfare, characterized by three interrelated categories of direct damages and indirect losses: physical integrity, assets and income (Charveriat, 2000). In general, natural disasters have some common effects on households. After a disaster, there will be significant reductions in the availability of housing, health and education facilities. There will also be a temporary income decrease – particularly for the lower income groups – and often an increase in under and unemployment. These effects will be underpinned by temporary shortages of food and raw materials for agricultural and industrial production, and interruptions in water supply and sanitation, electricity and communication and transport services. Finally, disasters, especially if they occur relatively frequently, will tend to affect income distribution between regions, income groups and/or genders (ECLAC, 2002).

In particular, direct effects on **households' physical integrity** are reflected in fatalities, injuries, and illnesses, which result in indirect losses due to reductions in income streams paralleled by increases in consumption and health-related expenditures. Direct damage or destruction of **household assets**, including housing and productive resources, is critical to a household's welfare, and can translate into temporary or permanent homelessness and incapacity to generate income. **Households' incomes** tend to be affected by direct impacts on the productivity of their labor due to, *inter alia*, death of income-earning members, food insecurity, and health problems (Zeller and Sharma, 1999). In addition to the destruction of income generating assets, reduced household's ability to make a living in a post-disaster situation is exacerbated by market disruptions. These disruptions also result in higher costs in basic products and services. Increases in expenditures become critical for poor households facing a temporary lack of income-generating alternatives and the loss or damage of physical and productive assets, while simultaneously lacking adequate reserves to make it through the crisis.

For microfinance clients, disasters might increase the normal risks intrinsic to borrowing and running a small business or enterprise (Hulme and Mosley, 1996). Debt is inherently risky, especially for the poor. Loans that are useful under normal circumstances will pose additional challenges after a disaster. Under conditions of unmanaged risk, the consequent risks attached to borrowing include the possibility of greater indebtedness to cover disaster losses, and of

accelerated asset depletion and reduction in consumption levels to meet payments.[14] As research tentatively suggest, poor households under stressful post-disaster conditions tend to increase their levels of borrowing (del Ninno et al, 2001). If a major disaster occurs, however, livelihoods may be so badly disrupted that many microfinance clients may eventually be unable to repay their loans. Many clients may actually have to move temporarily or to migrate permanently after losing some or all their household and productive assets.

At the same time, unmanaged disaster risk increases the uncertainty faced by microfinance clients when borrowing to start up microenterprises or small businesses. In the words of Sebstad and Cohen (2000: 41), "[o]verall, structural risks associated with seasonality, the vagaries of weather, natural disasters, and price fluctuations are a major source of risk for most enterprises." As these authors explain, taking a loan and operating a microenterprise imply risks to the poor, which are usually mitigated by technical assistance and training.[15] In a disaster situation, the rate of business failure can increase rapidly. Importantly, however, evidence from disasters in Latin America indicates that small business and personal service activities tend to recover more quickly than other activities, regardless of the amount of damage inflicted by the disaster (ECLAC, 2002).

2.4 Disaster Risk and Microfinance Institutions

2.4.1 Disaster Risk Exposure

Disaster risk is one of the most neglected external risks faced by MFIs, which tend to be unaware not only of their own levels of exposure but also of those of their clients. Disaster risk exposure is intrinsic to microfinance, adding to the overall vulnerability level of the microfinance industry in developing countries. Many microfinance institutions operate in countries that as a group experience more disasters and suffer more their impacts in relative terms (IFRCRCS, 2000). Moreover, given their focus on delivering services locally to the poor and near poor, these institutions directly assume their clients' high disaster risk exposure levels. These facts have become more significant due to the global increase in frequency of disaster occurrence and volume of losses in recent decades (Bankoff, 2001; Burby, 1998).

The level of disaster risk exposure of a microfinance institution – and its ability to manage disaster risk – is influenced by the characteristics of the sector and the institution itself. By its very nature, the microfinance sector is heterogeneous. As shown in Table 1, a considerable variety of institutional types, organizational structures, ownership arrangements, loan methodologies and funding sources can be found in most countries.[16] Many informal and formal financial organizations may comprise the microfinance sector, including nonbank financial institutions such as NGOs or village banks, on the one hand, and different types of commercial banks, on the other. Clear distinctions are not always easy to draw as many institutions are in a transition process toward commercial microfinance. Not all MFIs are moving toward long-term financial sustainability and growth, while many of them are operating without systems that

[14] According to Chua et al. (1999), risks arising from the use of specific coping strategies such as borrowing can be categorized as consequent risks, in contrast to antecedent risks, which are those that triggered the use of the coping strategies in the first place.

[15] In regular circumstances, it was found that for example, 10 to 15 percent of microenterprises started by clients of BancoSol in Bolivia go bankrupt (Hulme and Mosley, 1996).

[16] In terms of ownership, for instance, microfinance institutions may be privately owned, state owned, or "owned" by a non governmental organization or its members. Loan portfolios can be financed by donors and governments, by locally mobilized savings, or by retained earnings, savings and commercial debt.

adequately reduce risks (Robinson, 2001; MFN, 2000). Consequently, the microfinance sector in many countries is fragile and extremely vulnerable to the vagaries of exogenous factors, including natural disasters.

Table 1 – A Typology of Microfinance Institutions

	Commercial / Formal	Specialized / Formal	Specialized NGO	Multipurpose NGO / CBO
Legal form	?Banks ?Finance Companies ?Credit Unions	?Banks ?Finance Companies ?Credit Unions	?NGO	?NGO ?CBOs ?Village banks
Methodology	?Individual Lending ?Instruments adapted to client targets	?Individual and/or solidarity group lending ?Leasing	?Individual and/or solidarity group lending	?Individual and/or solidarity group lending
Funding Sources	?Capital ?Certificates ?Inter-bank loans ?Clients' savings ?Donor funds	?Capital ?Certificates ?Inter-bank loans ?Clients' savings ?Donor funds	?Bank loans ?Subsidized loans from private organizations ?Social funds ?Donor funds	?Few bank loans ?Subsidized loans from private organizations ?Social funds
Capacity to Leverage Funds	High	High to medium	Low	Low
Type of Services	?Microfinance seen as a means to expand into new markets ?Exclusive focus on financial services, and not only for microentrepreneurs	?Provision of financial services mainly to microentrepreneurs	?Provision of financial services, with some support services such as management and technical training	?Hybrid programs, including financial services and a broad range of development programs such as health, education, and management and technical training

Adapted from Gulli (1998); Sebstad and Cohen (2000)

A microfinance institution will be more or less exposed to disaster risk depending on the breadth (number of people reached) and depth (poverty groups reached) of outreach, and the spatial distribution of outreach (number of clients concentrated in disaster-prone areas or likely to suffer from a given disaster as a whole). At the institutional level, disaster risk exposure – and eventually disaster impact – is related to the size, age and level of financial and operational sustainability of the organization. These characteristics underline another important factor: outreach, which influences external risks related to clients' socio-economic profile, competition environment, and the physical environment where the institution delivers its services and its clients live. The scale or breadth of outreach will also influence risk exposure of the institution depending on whether its clients tend to concentrate in economic sectors and activities that are highly exposed to disaster risk. Overall, small, locally based microfinance institutions are thus likely to be more vulnerable to natural disasters or fluctuations in agricultural yields than larger, more geographically dispersed institutions (World Bank, 2000a). As experience suggests, geographical diversification through a wide network allows MFIs to cross-subsidize (through risk-pooling) disaster risk management activities. Geographical dispersion may nevertheless

increase risk exposure of an institution if most of its network is located in remote, disadvantaged areas that under normal circumstances represent higher operational costs.[17]

In respect of clients' profile, institutions reaching very poor clients will tend to be more vulnerable to disasters. The client profile, at the same time, is affected by the lending methodology of the organization, which in turn may affect financial viability of its programs. Although no conclusive evidence exists, a trade off between reaching poorer groups and financial sustainability has been suggested (Gulli, 1998). [18] In this respect, some microfinance experts have questioned the financial viability of village banking institutions, while others have found these institutions to be more vulnerable than solidarity group or individual lending institutions due to their focus on rural areas and on delivering small loans to very poor clients (Woller, 2000).

2.4.2 Disaster Effects

Disasters cause direct damages and indirect losses to microfinance institutions. **Direct damages** are reflected in the partial or total destruction of offices, equipment, information systems and records. **Indirect losses** result from disruptions in service delivery and from the direct and indirect effects of the disaster on clients. **Macroeconomic effects** of disasters are felt by the microfinance sector as a whole and at different degrees by individual MFIs, particularly if there are significant changes in the macroeconomic environment due to, *inter alia*, inflation and/or devaluation.

Indirect losses related to disruptions in service delivery are due to the combination of the direct damages to the institution and its staff and to the overall infrastructure and telecommunications network where the institution normally operates. Disruptions are often significant given that microfinance operations are by nature labor intensive, and these institutions have to keep staff spread out in multiple outlets at locations that are convenient to clients. Indirect losses to a microfinance institution result from the effects of the disaster on clients. In fact, the severity of the event and clients' socio-economic profile and vulnerabilities will directly influence the extent to which an institution will be affected by a disaster, and the magnitude of and changes in the demand for its services and products.

As shown in Table 2, disaster effects will trigger or interact with some of the normal risks faced by MFIs, including institutional and strategic, operational, financial management and external risks. These effects will also make evident organizational vulnerabilities related to poor governance and/or poor governance structures. As all these risks materialize, the effects of the disaster on a microfinance institution will intensify. It is thus relevant to discuss the interaction between disaster effects and these risks.

[17] This situation is exemplified by MFIs in West Africa attempting to have a large scale of outreach in a region characterized by low population density, low level and precariousness of monetary income among the population, inadequate infrastructure, and high disaster risk exposure (UNCDF, 1999b).

[18] Conversely, a positive correlation has been suggested between financial sustainability and reaching many poor people (Gulli, 1998).

Table 2 – Categories of Microfinance Risks			
Internal Risks			**External Risks**
Institutional and Strategic Risks	**Operational Risks**	**Financial Management Risks**	
(a) *Social Mission Risk* (related to lack of a defined target market and monitoring mechanisms to ensure provision of adequate financial services to the intended clients) (b) *Commercial Mission* (related to inability to set adequate interest rates and insufficient commercial orientation) (c) *Dependency* (similar to (b), but more specific to microfinance activities started and supported by international organizations / NGOs as projects rather than as independent organizations) (d) *Reputational Risk* (related to negative public opinion that may affect ability to sell products and services or to access funds)	(a) *Credit Risk* (related to general risk to earnings or capital due to late and non-payments of loans; and to risk within individual loans (transaction risk) and to risk intrinsic to the composition of the overall loan portfolio (portfolio risk)) (b*) Security Risk*, including fraud and theft (related to money flows in weak information management systems, unclear policies and procedures and high staff turnover. This risk is exacerbated in poor economic environment and crisis situations such as disasters and war)	(a) *Asset and Liability* (related to incapacity to meet current cash obligations in a timely and cost-efficient way (liquidity risk); to a mismatch between terms and interest rates and assets and liabilities (interest rate risk); to potential loss of earnings due to fluctuations in currency values, when borrowing in one currency and lending in another (foreign exchange risk); and to longer-term investments representing a good percentage of institutional assets (investment portfolio risk) (b) *Inefficiency* (affected by cost control and level of outreach, and related to lack of capacity in managing costs per unit of output) (c) *System Integrity* (related to quality of and processing of information entering the accounting and portfolio management systems)	(a) *Regulatory* (related to regulations that can affect operations and service delivery such as restrictive labor laws, usury laws, contract enforcements, and political interference) (b) *Competition* (related to lack of information on the services of others to position, price, and sell own services, and exacerbated by lack of information on applicants, and their current and past credit performance with other institutions) (c) *Demographic (Client Profile)* (related to characteristics and vulnerabilities of target population) (d) *Physical Environment, including disaster risk*. (This risks have two facets, how these conditions affect the MFIs, and how they affect clients and their enterprises, income streams and capacity to repay) (e) *Macroeconomic* (related to changes in the macroeconomic environment. It also has two facets)

Source: Adapted from Churchill and Coster (2001) and MFN (2000)

Institutional and Strategic Risks

An important challenge faced by microfinance institutions today is maintaining a balance between their social and commercial objectives. The two aspects of the mission of microfinance, social and commercial, are challenged by disasters by, first, undermining the wellbeing impacts of their services on clients and the sustainability of these impacts. And second, by affecting the financial viability of microfinance services. Especially when caught unprepared, these institutions will have to struggle during a disaster to provide emergency and recovery services to their clients without jeopardizing their own institutional and financial health. A microfinance institution will rapidly lose control of portfolio quality, however, if it is unable to enforce its loan contracts. The most critical issue in the hands of a microfinance institution after a disaster is how to enforce

these contracts while being sensitive to clients' suffering. Not uncommonly, **reputation risk** is high for microfinance institutions in a post-disaster situation. Reputation is a valuable, if intangible asset, that is not easily rebuilt.

Dependency risk may increase in the aftermath of a disaster for those MFIs that are still highly dependent on external financial and/or operational support, or reappear for those which have achieved some degree of self-sufficiency. In particular, this risk will materialize more acutely and rapidly for MFIs that depend heavily on subsidies. This adverse effect is due in part to the fact that the latter reach poorer households than more financially sustainable ones (Hulme and Mosley, 1998). Poorer households, as mentioned earlier, are precisely the ones which disasters tend to affect more overwhelmingly.

Strategically speaking, disaster effects will be more or less felt by a microfinance institution depending on the adequacy of its growth management. MFIs that have grown very quickly are likely to be more affected by a disaster than those which have expanded more carefully. When expanding too rapidly, these institutions may not take sufficient time to ensure that their loan products are well designed and that their lending methodology is effective, nor do they have time to develop a strong relationship with clients. Bottlenecks in the disbursement process due to capacity constraints related to premature expansion will most probably be exacerbated at the moment of a disaster.

Operational Risks

Disasters typically trigger operational risks, encompassing credit and security risks. The type and magnitude of disaster and clients' profile will influence the level of potential losses related to credit risk, which is triggered by clients' difficulty in meeting the terms of their loan contracts. **Credit risk**, also known as default risk, is the most common and usually the most serious risk for a microfinance institution (Churchill and Coster, 2001). Unless special arrangements – preferably in advance – are made, a disaster can be expected to cause deterioration in portfolio quality that will result not only in loan losses but also in high delinquency management costs. In addition to the loss of principal generated by loan defaults, MFIs can expect to bse income due to the inability to collect anticipated interest earnings. Opportunities for fraud and theft will also increase during the chaos of the post-disaster situation. Overall, institutions with poor portfolio quality will tend to suffer more, as well as those with weak internal control systems.

Credit risk is particularly heightened by a disaster due to its adverse effects on the non-traditional collateral or collateral substitutes that are the hallmark of microfinance, such as personal guarantees, household assets, forced savings, and peer group lending. Personal guarantees are difficult to honor by clients who have suffered serious losses, including household and productive assets. Clients are usually unable to continue contributing to the compulsory savings and may require access to their savings in the aftermath of a disaster. While individual lending is vulnerable to disaster effects on individual households, the strength of the group lending methodology is weakened by the covariant nature of disasters.[19] When all group members are badly and simultaneously affected by a disaster, exercising social pressure becomes less feasible: once one person in the group fails to pay, a domino effect will most likely follow and the whole group will default (Nagarajan, 1998). As experience seems to indicate, the larger the group, the more difficult it will be for the group to complete loan repayments after a disaster, and thus to

[19] Interestingly, during the economic crisis in Bolivia, individual lending methodology had a stronger performance than group-based methodology (Rhyne, 2001).

qualify for a new round of loans (MBP, 2001a). Vulnerability of the group-based methodology is also influenced by the length of time the group has been in existence. Empirical findings suggest that the older the group, the higher the probability that its members will feel entitled to default, and by extension, the less effective 'group guarantee' becomes (Wright et al., 1999).[20]

Transaction risks will increase during the disaster response stage, particularly if MFIs are caught unprepared. It is not easy to apply the procedures recommended for a sound microfinance practice, such as adequate borrower screening techniques and quality procedures for loan disbursements, to mitigate transaction risks during an emergency. Transaction risks tend to increase after a disaster given that MFIs will probably need to handle a higher volume of smaller transactions under operational constraints.

Financial Management Risks

Disasters can seriously undermine the financial performance of microfinance institutions, and by extension, the health of the sector, by triggering and/or interacting with risks affecting their asset/liability management capacity and efficiency level. From a financial perspective, asset/liability management consists of managing the spread or, put differently, maintaining a positive difference between the interest rate on earning assets and the cost of funds (Churchill and Coster, 2001). To manage the spread, MFIs normally have to deal with liquidity, interest rate, foreign exchange and credit risks. Liquidity and interest rate risks, and as explained earlier, credit risk, are particularly amplified by disasters.

Liquidity risk materializes after a disaster as MFIs face constraints in meeting its immediate demands for cash for loan disbursements, bill payments and debt repayment. Liquidity shortfalls emerge, first, from destabilizing cash fluctuations due to the simultaneous decline in cash inflows and increase in cash outflows; and second, from mounting pressure on capital reserves due to clients' immediate post-disaster demand for rescheduling of outstanding debt and granting of new loans (Nagarajan and Brown, 2000). In addition, clients will eventually demand new services or a different kind of assistance to meet consumption needs and to replace their housing and productive assets. Decline in cash inflows will depend on the degree to which clients lose loan repayment and savings contribution capacity due to the simultaneous disruption in income sources and increases in basic expenditures. Magnitude of cash outflows increases will depend on clients' success in accessing cash reserves and/or quick disbursing cash advances of any type, in order to address their own liquidity constraints. Significantly, liquidity risk and credit risk interact under disaster conditions, further weakening the financial health of MFIs. When loans are not repaid on time, for instance, the loss of liquidity is accompanied by an increase in credit risk. Similarly, when delinquency increases after a disaster, liquidity problems will be simultaneously triggered as cash inflows diminish while cash outflows may be growing (MFN, 2000).

The above effects may lead to short term liquidity crises and medium term capital losses for specific institutions, while also causing long-term slow down or reduction in the growth of the microfinance sector. Efficient liquidity management will help minimize the disaster effects on cash flows, but there is a limit to the amount of cash reserves that is optimum for a microfinance institution to maintain at any given time. Cash inflow decline is by and large beyond the control

[20] This is an important finding on group-based lending methodology since it would indicate that the social capital built among members tend to have, after a certain time, negative effects on the risk exposure of the portfolio of a microfinance institution. Planning to graduate clients from group-based to individual lending might be relevant in this context.

of a microfinance institution. Declines in cash outflows may be easier to monitor and control, but the reputation of the institution would suffer if not assistance is provided to clients. Normally, the incentive for clients to pay back their loans is that they will receive subsequent loans. After a disaster, they urgently need cash through loans and access to their savings, while facing constraints to meet loan payments. If the microfinance institution cannot meet disbursement requirements and withdrawal requests, the relationship with clients will deteriorate while portfolio and reputational risk will increase.

One of the main factors affecting liquidity of a microfinance institution after a disaster is its capacity to leverage funds. Non-deposit taking MFIs may suffer less liquidity constraints after a disaster than those that do, provided that they have access to funds to respond to clients' credit needs. In fact, overall operational risks tend to be higher for MFIs offering additional financial services such as savings and insurance than those focusing solely on microlending (MFN, 2000). Among institutions that mobilize savings, experience suggests that those that mobilize voluntary savings might face less acute liquidity constraints in a post-disaster situation than those collecting compulsory savings. The difference seems to lie in the fact that voluntary savings attract not only poor clients but also better off ones, are untied to borrowing, and are on average larger than mandatory ones, thus providing more room to accommodate sudden cash outflows.[21] Voluntary savings mobilization, at the same time, allows MFIs to build equity to access commercial sources of funding (Robinson, 2001). The final level of effects of the disaster on a microfinance institution will depend on the extent to which it has relied on savings to fund loans, the health of its investment portfolio and the range of deposit instruments used to mobilize voluntary savings. As discussed in Section 4, however, savings mobilization poses other kind of risks for MFIs and clients.

Interest rate risk will become a serious problem if the disaster gives way to a high, medium to long term inflationary effect. As inflation rises, the interest rates on loans may not be adequate to offset its effects, at a moment when MFIs will find it difficult to adjust lending rates. As a result, the spread between interest earnings and interest payments will diminish, and the profit margin will be adversely affected. Many mature MFIs are not regularly charging sufficient interest rates to cover expenses related to credit delivery, and have to be subsidized by donors and/or governments (Churchill and Coster, 2001). Under such circumstances, disasters can trigger interest risk without a significant inflationary effect, thereby increasing dependency levels of MFIs and slowing down their path toward sustainability.

Inefficiency risk is triggered by the disaster's effects on a microfinance institution's ability to manage costs per unit of output, which normally depends on cost control and outreach. MFIs deal with efficiency issues by increasing the number of clients to achieve greater economies of scale, streamlining systems to improve productivity, and cutting costs. Disasters, depending on their magnitude, tend to cause medium to long term decline in effective loan demand due to the reduction in debt absorption capacity of existing and prospective clients. As such, it may be difficult for a microlender to maintain the client base, let alone grow during the recovery process, thus facing limitations in outreach and productivity improvements. The latter is further constrained by the fact that during the disaster emergency and recovery process, staff can be overstretched dealing with issues beyond their regular duties, and that overall administrative costs, including operating expenses, will be higher. Service delivery costs will be particularly affected by disruptions in infrastructure and communications. As a result, the average cost per

[21] The 6:1 ratio of savings accounts to loans of BRI in Indonesia compared to the 1:1 ratio of Grameen Bank in Bangladesh illustrates clearly the difference between mobilizing voluntary savings from the general public and requiring compulsory savings from members (Robinson, 2001).

client or per loan can be expected to increase. The costs of making small loans are normally high, and can become even higher during a disaster.

External Risks

Disasters, one of the external risks faced by microfinance institutions, can trigger or interact with other external risks, especially the nature of sector competition and macroeconomic risks. In some countries, microfinance has become increasingly competitive as, in addition to MFIs, new actors such as regular banks and consumer credit companies have entered the market, often without knowing it well. Competition in itself is not a problem provided that the various players in the sector have sufficient information to position, price and sell their own services vis-à-vis those of their competitors; and to provide loan services to clients based on their current and past credit performance with other institutions (Churchill and Coster ,2001). Competition has intensified, however, in environments characterized by lack of information (i.e., information asymmetries). Often, competition has led to overindebtness of clients and higher portfolio risk for all microlenders (Robinson, 2001). Higher risk exposure of microfinance clients has resulted in higher delinquency rates and pressure to refinance loans, even under normal circumstances. When a disaster hits under these conditions, the consequences for microfinance institutions can indeed be catastrophic. Finally, MFIs are highly susceptible to changes in the macroeconomic environment, and particularly to changes related to devaluation and inflation, which are often triggered by disasters. Similar to a disaster, the economic fluctuations brought about by macroeconomic instability will affect microfinance clients more than other population groups, hindering their income generating capacity and consequently their ability to repay loans.

2.4.3 Contrasting Examples of Disaster Effects

Bangladesh helps illustrate how the disaster effects discussed above interact. The structure of the microfinance sector in this country shows two distinct groups: the sector 'giants,' namely Grameen Bank, Proshika, the Bangladesh Rural Advancement Committee (BRAC), and the Association for Social Advancement (ASA), which together share over 95 percent of the microfinance market.[22] These institutions, being the most influential and professionally managed and staffed, tend to capture most of the grants given by foreign donors (World Bank, 1996). A second group, which has the remaining 5 percent market share, is comprised of more locally-based institutions that must rely on the *Palli Karma Sahayak Foundation* (PKSF), an apex organization, for funding. A large number of marginal institutions do not belong to the PKSF network, and are small and remotely located (World Bank, 1999a). The newer institutions are faced with the dilemma of improving outreach by taking in increasingly riskier clients in terms of repayment capacity (Nagajaran, 1998). Because of the way the sector has evolved, only the large MFIs have managed to establish some decent level of financial self-reliance (Sobhan, 1998).

All MFIs in Bangladesh continue to face organizational and financial difficulties after a disaster (World Bank, 1999a). After the 1998 floods, for instance, the sector needed a cash infusion of about US$200 million to continue their operations (Hasan and Faisal, 1999; World Bank, 1999a). To a great extent, the vulnerability to disasters is are related to the fact that a sustainable microfinance model is yet to emerge in the country, while liquidity and dependency risks remain high. In disaster situations, as in their normal operations, most microfinance institutions continue

[22] Proshika, BRAC and ASA are incidentally three of the world's largest NGOs providing microfinance. Among 524 NGOs surveyed in 1999 these three organizations had 60 percent of total members, 62 percent of outstanding loan balances and 64 percent of total savings of the microfinance sector (Robinson, 2001).

to depend heavily on donors, who fund most of their overheads, capital costs and program interventions. While institutions with poor supervision and monitoring capacity and inadequate financial management suffered significant losses after the 1998 floods, most MFIs experienced difficulty in giving access to clients' compulsory savings. [23] Moreover, most the funds collected as savings had been lent out, and it was very difficult for MFIs to meet the demand in affected areas for withdrawals (Nagarajan and Brown, 2000). The smaller institutions had to limit withdrawals to 50 to 75 percent of client balances. Many MFIs continued to experience liquidity constraints long after the floods as clients needed time to redeposit the funds that they withdrew in 1998. [24]

Risk due to competition has reached a destabilizing level of intensity in certain areas, further increasing disaster vulnerability of MFIs in Bangladesh. In a growing number of districts, as many as five or more microfinance providers are operating in a single village. The numbers of clients who are members of two or more of these providers, and who have received multiple loans have risen dramatically (Graham, Matin and Christen, 2001). Repayment discipline has deteriorated, and many clients have defaulted on their loans with a given institution, as they feel confident that access to financial services will be provided by an uninformed competitor. This situation has made it harder for established MFIs such as Grameen Bank to control loan repayment behavior of its clients, particularly after disasters.[25]

Wide coverage and institutional self-sufficiency come together in Indonesia, making the country a good example of sustainable microfinance (Robinson, 2001). The relative imperviousness to crisis of the Bank Rakyat Indonesia's microbanking division or *unit desa* system can be contrasted to the vulnerability of MFIs in Bangladesh and other countries. BRI is a century old state-owned commercial bank that has developed a profitable, large-scale microfinance delivery system through its microbanking division. [26] The primary mission of BRI is to provide banking services to urban and rural communities through savings mobilization and credit delivery to small and medium microenterprises. Although BRI does not target the poorest, these clients are served by the *Badan Kredit Desa*, the village-owned credit organizations that the Bank supervises and often provides with commercial loans.

In mid-1997, Indonesia was hit the hardest among Southeast Asian countries by a monetary crisis while a severe drought was underway. The drought lasted through 1998, and led to the loss of an entire rice crop, which resulted in rising prices and diminished rural demand for products and services of microenterprises. Rural areas were more affected by the drought, while urban areas were more affected by the monetary crisis. The country's financial system collapsed but major commercial microfinance players, such as BRI's microbanking division, were not adversely affected. For the most part, borrowers under KUPEDES or general rural credit – the single credit instrument of the desa units – continued to meet their loan payments. The credit repayment record, however, was not uniform within BRI, and other divisions were in fact impacted by the

[23] Grameen Bank reported that 95 percent of affected clients withdrawn their funds during the 1998 floods (Nagarajan and Brown, 2000).

[24] By 2000, for example, only half of the 660,000 clients of BRAC in Bangladesh who withdrew money to cope with the 1998 flood had re-deposited these funds into their compulsory savings (Nagarajan and Brown, 2000).

[25] As reported in the World Bank's *Development News of November 27, 2001*, at least 19 percent of loans given by Grameen Bank are now overdue by at least a year due to the combined effects of the 1998 floods and loss of repayment discipline among clients. Increasingly, the best option left to Grameen Bank has been to refinance these overdue loans.

[26] BRI is one of three state-owned commercial foreign exchange banks in Indonesia. Although fully owned by the Government, it operates under the norms and regulations mandated for commercial banks in the country (Patten et al., 2001). In addition to microbanking, BRI has other divisions or strategic business units that provide retail banking and corporate loans.

crisis.[27] The microbanking units actually saw an increase in number of savers and volume of savings (Patten et al., 2001; Robinson, 2001). Simultaneously, demand for new microfinance loans decreased due partially to clients' feeling of uncertainty in the face of an unprecedented high inflation rate.[28] The large increase in savings was motivated by clients' search for safety and easy access to deposits when needed. Although all deposits at all banks had been guaranteed by Bank Indonesia, people wanted a solid institution where withdrawal of funds would not be entangled in procedures for restructuring or closure. An additional incentive for increased savings was the jump in interest rates on time deposits and on SIMPEDES (rural savings scheme),[29] the main unit passbook type of savings instrument. As reported by Patten and colleagues, the rate on time deposits went from 19 percent for a one-month time deposit in January 1998 to 57 percent in September 1998, and the rate paid for SIMPEDES went from 16 percent to 20 percent during the same period.

At a general level, the microbanking division was relatively protected from the monetary crisis because its clients had microenterprises oriented toward the domestic economy and borrowed in local currency (Robinson, 2001). However, clients in rural areas were negatively affected by the drought. What was perhaps more relevant according to Robinson was, first, that the clients trusted and liked the institution and its products; and second, that the portfolios of the microbanking division had an excellent quality and liquidity before the crisis and the drought. Similar to other countries, the emergency highlighted the fact that microfinance clients value their access to credit and savings services very highly (Patten et al, 2001). More specifically, as explained by these authors, the microbanking division was protected by the design of their financial products and the response to the emergency, which encouraged a pattern of behavior among clients that reduced their enterprises' vulnerability to external shocks and increased confidence of borrowers and savers in the institution respectively. KUPEDES loans, in particular, are installment loans adjusted to the cash flow of the client and its type of enterprise. As the clients payback their installments, they regularly reinvest profits to keep the level of business, thereby building equity and lowering their loan leverage, which together increase resilience to external disturbances such as sudden interest rate increases or costumer demand reductions, as happened during the 1997-98 emergency. The savings products of the units, on the other hand, offer security, access and a fair return, and distinguish between 'savings' (passbook accounts) and 'investments' (time deposits). While savings tend to be reasonably stable and long term, used by clients mainly for lumpy payments or family emergencies, investments tend to be more volatile and speculative. Moreover, taking into account the psychological importance of providing borrowers with some stability, BRI was purposely slow in raising the KUPEDES rate even as the costs of funds grew, choosing rather to take smaller interest spreads until it became unfeasible to do so. BRI also kept access to credit as open as possible, allowing those borrowers who paid on time to borrow again, provided their enterprise justified it.

The case of Bolivia is also relevant, considering that the microfinance sector in this country has reached an unprecedented level of commercialization, while becoming increasingly vulnerable to

[27] Overall 1998 losses experienced by BRI did affect the microbanking division in certain areas. Although the units remained profitable, the bank's investment budget shrunk and the units were faced with no money to replace aging equipment or to buy new equipment for new units (Patten et al., 2001).

[28] Interestingly, a similar phenomenon has also been observed in the case of earthquakes due to the insecurity generated by continuous aftershocks. One of the most dramatic examples of this occurred during the January 2001 earthquakes in El Salvador. According to David Larson (personal communication), in El Salvador many MFIs did not experience high demand for loans in the aftermath of the disaster since clients were afraid of borrowing, even for emergency needs, as they were facing the uncertainty generated by a prolonged period of aftershocks.

[29] SIMPEDES mobilizes resources at the village level, with additional incentives provided by having a lottery component.

external risks such as macroeconomic fluctuations and natural disasters. In the late 1990s, the microfinance sector in Bolivia had become increasingly competitive as a number of private commercial players had entered the market, and microcredit and consumer lending had grown immensely while increasingly overlapping in terms of clients. [30] Many clients, who – as experience has demonstrated in many countries – are not good judges of their own debt capacity, were taking on multiple loans from different institutions for productive investments and consumption. The microfinance sector was in the middle of this competitive maelstrom when an economic crisis hit the country. As Robinson (2001) explains, as the economic crisis achieved full speed in 1999, practically all MFIs found themselves in financial trouble as clients where overburdened by debt and in need of refinancing. Repayment behavior had been adversely impacted by direct competition from consumer lenders, which had a more flexible lending philosophy regarding loan delinquency and overlending than MFIs.[31] When the economic crisis was felt in the informal sector, clients started to let repayments slip, and many more began to use proceeds of one loan to pay off another – a practice known as "bicycling" loans. Both microfinance lenders and consumer lenders suffered as default spread between 1999 and 2000. Subsequently, the crisis of overindebtedness among microfinance clients became visible, resulting in a borrowers' revolt motivated, to some degree, by their growing negative perception of MFIs (Ryhne, 2001).

The consumer credit market eventually crashed down since its large portfolio was overly exposed and their relationship with clients was tenuous at best. As explained by Rhyne (2001), the microfinance sector survived the crisis, but still remains vulnerable since MFIs experienced the highest delinquency ever registered in the sector and a dramatic fall in profits. The fact that growth in numbers of clients had stalled during the crisis while portfolios rose seems to indicate that many MFIs moved further upmarket, to the detriment of the social objectives of microfinance. As a survival strategy, MFIs – with the blessing of the Superintendency of Banks – increasingly began to use rescheduling, a practice they have rarely used before 1999 as it was considered highly risky, and likely to have a long-term adverse effect on repayment discipline if used too often or widespread. In general, however, all the main microfinance institutions in Bolivia strived to maintain their commercial orientation and to continue charging full-cost interest rates. Currently, microfinance in Bolivia continues to be a commercially-oriented, competitive business, although substantial portions of the market are saturated. After the crisis, however, the government launched a major macroenterprise / microfinance initiative, while the donors continued to supply millions of dollars.

The impact of Hurricane Mitch on microfinance institutions in Central America follows a similar pattern to the one observed in Bangladesh. In addition to liquidity problems, increased operational costs, and portfolio losses due to unrecoverable loans, there is an important impact triggered by the disaster response in Central America: the undermining of financial discipline and repayment behavior of clients by the flow of uncoordinated emergency aid, particularly grant money (ACODEP, 1998). Many MFIs felt that the hurricane affected them badly, but that relief agencies affected them even more.[32] But it is not only clients' behavior that can be adversely

[30] In theory, the market for consumer lending is different to the market for microcredit. The former is supposed to target salaried employees while the latter targets informal entrepreneurs. In practice, there has usually been some overlap between the two (Rhyne, 2001). In Bolivia, the overlap was exacerbated due to the lack of a large number of prime salaried employees. As Rhyne explains, consumer lenders soon realized that they had to target lower-grade employers and independents (i.e., microentrepreneurs) to achieve their expected lending volumes.

[31] Consumer lenders worked under the assumption that a large share of clients would be late in their payments and built this projection into their pricing.

[32] Similar unintended consequences on microfinance stemming from the provision of aid in grants or 'cheap credit' by well meaning relief agencies have also been reported in the case of the 2001 earthquakes in El Salvador (David Larson, personal communication, November, 2001).

affected. In many cases, as in Mozambique after the 2000 floods, lack of coordination or inconsistent approaches in post-disaster assistance to the microfinance sector can have the unintended consequence of undermining long term efforts aimed at improving operational and financial sustainability of MFIs through mechanisms such as performance-based funding.[33]

2.5 Conclusions

Microfinance institutions need to be well informed of the potential consequences of disasters at three levels: at the level of the clients, at the level of the institution, and at the level of the sector. As this section shows, the normal risks involved in providing financial services are relatively greater in the microfinance market due to the correlated nature of the vulnerabilities of clients and institutions, and the covariate nature of disaster risk. Lending to poor and near poor households – many of whom have no experience with credit – using non-conventional collateral or collateral substitutes is a risky enterprise by itself. The physical environment where poor households live substantially increases this risk. Typically, the poor are relatively more affected by disasters, and are more vulnerable than other population groups to the social impact and economic fluctuations that these may generate. Consequently, many – if not most – of the normal risks faced by microfinance institutions are triggered by, and interact with, disaster effects.

Disasters can seriously undermine the social impact, financial viability and long-term sustainability of MFIs. The type and severity of a disaster and the clients' socio-economic profile – including their disaster risk exposure – will directly influence the extent to which a microfinance institution will be affected by a disaster, and the magnitude of and changes in the demand for its services and products. While the characteristics of the institution and of the sector will mediate these impacts, the institution's level of emergency preparedness and mainstreaming of disaster risk prevention and mitigation, as shown in Section 4, will become important factors as well. The local and national capacity to deal with disaster emergencies, provide relief and engage in recovery within a framework of sustainable development will, from a larger perspective, influence as well the final impact of disasters on microfinance clients and institutions, and the latter's effectiveness in post-disaster interventions.

Microfinance institutions should also be aware that disasters produce two types of events: those that correspond to the disaster itself, and those which correspond to the disaster response and recovery process. The interaction of these two types of events in time also interferes with the economy and social networks of affected areas, and by extension, with the selection and effectiveness of households' and communities' recovery mechanisms. Depending on the incentives or disincentives offered to microfinance clients during a post-disaster situation, a culture of dependence or a more self-reliant community might emerge.

[33] This information based on personal communication with Kiendel Burritt, UNCDF, November 2001.

3. DISASTER RISK MANAGEMENT –THE CLIENT'S PERSPECTIVE

This section discusses risk management strategies of the poor and near poor – typically the microfinance clients – relevant to disaster risk, assesses their effectiveness, analyzes the role played by financial services and identifies implications for microfinance institutions.

3.1 Individual and Household Disaster Risk Management Strategies

Poor individuals and households attempt to manage risks in several formal and informal ways (see Table 3 below). Their capacity to manage risks and the choice of risk management instrument will depend on the characteristics of the risks – their sources, correlation, frequency, and intensity; and the alternatives at hand (World Bank, 2001). To deal with risk, the poor utilize a combination of risk management arrangements, mainly informal but also market-based (including financial services) and public. Household-level risk management strategies are usually combined with meso-level (community or village) and macro-level (regional and national) ones. Keeping in mind these other levels, the risk management strategies more relevant to disaster risk at the household level are accordingly analyzed below following the 'stages' introduced in Section 1: prevention, mitigation (including preparedness), and coping (which corresponds to response and recovery). These strategies include physical measures as well as social and financial instruments and mechanisms. As shown below, households are more likely to develop management strategies for risks that are more frequent (i.e. periodic flooding), than for those occurring more sporadically and less predictably (i.e., earthquakes).

In relative terms, poor people tend to invest a larger share of their own scarce resources to deal with risk.[34] Informal risk management strategies tend to be costly while often being inadequate (Sinha and Lipton, 1999). Therefore, according to these authors, even if informal mechanisms effectively reduce vulnerability, the investment and opportunity cost that they entail slow down income poverty reduction and social mobility. Many of the costs of disaster risk management at the household level result from information failure due to lack of access to usable and affordable information, and market failure due to information asymmetry, non-appropriable externalities reflected in the undersupply of goods with positive externalities (including public goods) and oversupply of goods with negative externalities, and high contract enforcement costs. Even after years of adaptation, planning and implementing consumption smoothing continue to have significant costs for the poor. Information and time are needed, and investing in the strategy (i.e., building and filling a grain store, seasonal borrowing) demands financial and social resources, which divert income from consumption. Importantly, in a context of inadequate market institutions, including for example lack of access to credit and insurance, risk management decisions may be perfectly rational for the individual or the household, but not always socially desirable (Holzmann and Jorgensen, 1999). As explained by these authors, keeping girls from school to help fetch water during a drought is a rational decision in the face of lack of credit. However, the cost to society is far larger than the short term individual benefit.

[34] For example, in certain disaster-prone areas of India, households allocate up to 25 percent of their average income to manage risk exposure to harvest risk (Walker and Ryan, 1990).

Table 3 – Individual / Household Disaster Risk Management Strategies			
Arrangements and Strategies	**Informal**	**Market-based**	**Public**
Risk Prevention			
	+Less risky production +Migration	+Financial market literacy	+Prevention works +Land use planning +Resettlement +Risk and vulnerability reduction programs
Risk Mitigation			
Physical Measures	+ Adoption of hazard-resistant technologies	+Application of adequate standards +Microfinance services	+Incentives to promote mitigation measures +Construction Codes
Diversification	+Multiple income sources	+Microfinance services	+Asset transfers
Asset Accumulation	+Investment in human, physical and real assets +Investment in social capital	+Investment in multiple financial assets +Microfinance services	
Insurance	+Marriage/family +Community arrangements +Share tenancy +Tied labor	+Disability, accident, and other personal insurance +Crop, fire, and other damage insurance / microinsurance	+Mandated/provided damage and other insurance
Coping / Response Mechanisms			
Consumption Smoothing	+Selling of real assets +Borrowing from relatives, neighbors, community, etc. +Intra-community transfers/charity +Changing employment or working pattern +Changing eating habits +Sending children to work +Dis-saving in human capital +Reducing expenditures +Changing agricultural and livestock practices +Migration	+Selling of financial assets +Purchase of food on credit +Borrowing from Banks and microfinance institutions	+Transfers/social assistance, including relief and recovery assistance +Subsidies +Food for work +Public works

Adapted from World Bank (2001: 15); del Ninno et al (2001: 81); Holzmann and Jorgensen (1999: 16); as well as Mileti (1999) and Burby (1998)

Effectiveness of informal risk management strategies is limited by the small size of pools used by the poor to share risk (Siegel and Alwang, 1999). Due to the high opportunity cost of time and capital, the poorer groups of a community cannot participate in local organizations as much as other groups, and must assume risk management mostly on their own (Weinberger and Jutting, 2000).[35] As these authors add, limited participation at the community level results in diminished risk managing possibilities (i.e., mutual help, voluntary transfers, etc.) during covariant events such as disasters. At the household – and even community level – investments in disaster

[35] While the poor tend to be excluded, the better off groups in the community do not tend to participate in local organizations because they choose to pursue individual risk management strategies (Weinberger and Jutting, 2000).

mitigation and preparedness in particular tend to be less than optimal due to the public good nature of safety and the differences in levels of risks and risk perception among community members (Charveriat, 2000). In the long run, the efforts of individual households may not be as effective if the risk remains relatively unmanaged at the village, region and/or national level.

3.1.1 Disaster Risk Prevention and Mitigation Strategies

Poor households and communities do not have many options to reduce or mitigate disaster risk by themselves. Through adaptation, many communities have nonetheless developed informal social and financial arrangements as well as physical measures. These include: (a) adoption of hazard-resistant technologies; (b) portfolio diversification; (c) asset accumulation; and (d) informal insurance. These strategies are interrelated, and its vulnerability reduction effects tend to reinforce each other.

Adoption of Hazard-Resistant Technologies

Developing hazard-resistant technologies has been a widely used mechanism by vulnerable communities, especially in areas experiencing frequent events. In regions highly susceptible to flooding, for example, the rural poor have developed risk mitigation measures such as building houses on stilts so floodwaters can pass underneath, building houses on plinths or platforms to raise them above flood levels, and building escape areas under roofs (Cuny, 1990). In countries like Bangladesh, where people have had to learn to live with floods, floodplain settlements are typically located on the highest land available, houses have a 'light' structure, while rural nonmetalled roads (*katcha*) and courtyards of local schools and mosques are raised to the level of abnormal floods and used as flood shelters (Haque, 1997). In contrast, for populations unaware of disaster risk, traditional construction techniques and residential architecture can eventually have tragic consequences, as devastating earthquakes in India and Peru have shown.

Most of the risk mitigation mechanisms applied to traditional settlements, economic activities and social customs seem to work better for seasonal hazards than for less frequent, catastrophic disasters (Brammer and Jones, 1993). In fact, many rural households have successfully incorporated seasonal hazards into their risk management strategies. In Bangladesh, farmers' traditional cropping patterns are closely adapted to seasonal flooding characteristics. Much land grows two or three crops a year and farmers have selected many rice varieties adapted to local micro-environments considering flooding depth and duration and brackish water conditions. Rural households also engage in casual fishing and some artificially stock ponds next to their houses to take advantage of the fish spread over large areas of the floodplains during seasonal flooding (Wood, 1999). In drought-prone areas in other countries, farmers have adopted measures such as water conservation, use of drought-resistant seeds and food storage, in addition to diversification measures discussed below (Skees et al., 2001).

Portfolio Diversification

The poor attempt to reduce income variability through portfolio diversification, or in other words, by relying on different investments and activities whose returns are not perfectly correlated. Diversification is a cyclical process reflecting a poor household's life cycle (Little et al., 2001). As research by these authors suggest, while risk is an important reason why people might decide to diversify their income sources, it is not the only reason. In certain cases, risk might not actually be the most important reason.

In general, households engage in sets of activities with different rates of return and gestation periods: a set of activities that will generate a small but relatively continuous cash inflow, and another set of activities that will generate higher and lumped cash inflows (Sebstad and Cohen, 2000). The rural poor in particular need to diversify income sources through both on and non-farm activities (Pitt, 2000). In many countries, however, entry barriers to non-farm activities are high (Dercon, 2000). If in addition agro-climate conditions are harsh, migration often becomes a better income earning diversifying alternative than local non-farm activity. In rural areas, opportunities to diversify will also depend on critical variables such as climate, education, availability of services and infrastructure, and distance to markets. Under these circumstances, Sinha and Lipton (1999) find that diversification often means a trade off for the household between income and security, although on-farm diversification usually succeeds in spreading risk with little total income loss.

Diversification does not always lower the level of risk faced by a household, and it can be risky and costly, demanding information that may not be typically available to poor people, or that they do not even know that they need (Little et al., 2001). According to Little and colleagues, for poor households diversification is primarily a matter of survival that means engaging in various activities simultaneously regardless of the medium to long-term consequences. Very seldom diversification follows a clear strategy of accumulation or investment that considers the risks involved. Under these conditions, diversification does not manage to account for all the risks faced by the household, more so since poor individuals do not always plan and/or manage to diversify into several different sources. Significantly, poor households usually face liquidity constraints that limit their opportunities to diversify.

Asset Accumulation

Asset ownership is critical to the vulnerability level and overall risk management capacity of the poor, especially for mitigation, and eventually for coping with stressful events. Poor people's consumption tends to be more vulnerable to damaging fluctuations when they have few assets that can be sold, exchanged or relied upon in times of crisis. Moreover, increased assets can help the household make riskier decisions (Sinha and Lipton, 1999). These assets include physical capital (land, buildings, livestock, etc.), financial and human capital, and social capital (Sebstad and Cohen, 2000; Hozmann and Jorgensen, 1999). In addition to household assets, community and extra-community assets also influence a household's resilience (Siegel and Alwang, 1999). As these authors explain, to enlarge their risk pool and reduce their vulnerability, individual households follow strategies that maximize the synergies between these various types of assets.

The poor are aware of the importance of asset ownership over time (especially productive assets) and when facing financial constraints, will generally try to maintain assets by cutting consumption, as discussed below. Typically, credit is used by the poor as a mechanism to accumulate and diversify assets, preferably with returns that are not perfectly correlated (e.g., planting different crops and plots, combining farm and nonfarm income, etc.). To deal with harvest fluctuations in drought prone areas, in particular, investment in small animals is vital for liquidity in times of crisis, and also as a means to saving up toward larger animals (Dercon, 2000).

For the asset accumulation mechanism to be more effective, the accumulated physical and economic assets should be relatively safe from damage or destruction, and the social capital assets should not be confined exclusively to people and regions suffering common hazard exposure. Certainly, having a positive rate of return, and the degree to which the returns are not perfectly correlated, contribute to the effectiveness of this mechanism. But its effectiveness will

be greatly curtailed if most of the assets are exposed to disaster risk. Even if the disaster does not destroy the assets totally or partially, an underlying problem with the asset accumulation / diversification mechanism is that asset values and income are often covariant following a major shock (World Bank, 2000a). After a disaster, the value of the assets is at its lowest when people needs them most since everybody is trying to sell, but nobody has enough income to buy. During droughts, for example, the terms of trade between livestock and grain deteriorate drastically. Moreover, asset-based risk management strategies are generally constrained by the indivisibility and riskiness of many assets (price risk, survival risk for cattle, etc.). In drought-prone areas, grain storage is highly vulnerable to vermin infestation so farmers have to find safer ways to save any surplus. A common savings strategy is to store the grain surplus by feeding it to the livestock. Farmers may nevertheless lose their livestock during a drought if drinking water becomes too scarce (Skees at al., 2001).

Informal Insurance

Poor households access group-based informal insurance strategies based on, *inter alia*, transfers, gifts or loans shared among members. While consumption smoothing represents an attempt by households to equalize marginal utilities over time, group-based insurance is an attempt to equalize marginal utilities across members of a group. Overall, the effectiveness of informal insurance will depend on the risks in question. According to Morduch (1999), informal insurance responds better to high frequency, smaller-scale, idiosyncratic risks such as illness or highly localized crop loss. Within-village informal insurance mechanisms, including traditional local institutions such as rotating credit and savings associations, tend to break down when a disaster hits most of the members (Fafchamps et al., 1998). An important factor underlying this outcome is that the poor, out of necessity, value current consumption over future consumption, and tend to drop from group-based informal insurance after a major shock. Repeated disasters and materialization of other risks will eventually disintegrate informal risk pooling mechanisms.

Engaging in informal systems of reciprocal transfers has implicit costs for the poor, as surpluses that could have been used for individual investment are redirected to assist other family and/or community members. These opportunity costs are seldom recovered. Simultaneously, group-based insurance has an intrinsic contradiction: the larger the group the more effective this mechanism can become, but the capacity of the group to enforce reciprocity rules is weakened as the group gets larger. Under heightened disaster risk conditions, this contradiction becomes even more marked. Enforcement of implicit agreements of reciprocity or social contracts is more difficult when most members of a given risk-sharing group are in dire need after a disaster. As long as disaster risk exposure remains high, coping mechanisms will remain crucial.

3.1.2 Coping / Response Strategies

Coping entails a process through which households attempt to smooth the consequences of the disaster over time: first, by minimizing risks and managing losses to ensure a minimum level of sustenance; second, by divesting – gradually disposing of assets; and in the worst cases, by migrating (del Ninno et al, 2001; Charveriat, 2000). Liquid assets such as jewelry are usually disposed of first, followed by productive assets.[36] Poorer households are constrained in their

[36] According to the theory of optimal savings, "…households which face substantial risk but cannot smooth consumption through insurance or credit will use liquid assets for self-insurance" (Fafchamps et al., 1998).

coping efforts since they have fewer assets than other groups. Irrespective of the level of poverty, however, borrowing from informal, and less often from formal sources, is central to a poor household's coping process (Zeller and Sharma, 1999). For the rural poor in particular, borrowing during adverse times and repaying loans after harvest is a regular cycle, intrinsic to their consumption smoothing.[37] Without access to credit, after a disaster hits, households may be forced to cash their small 'insurance,' by consuming or selling whatever assets they have left. Disposal of productive assets may move households into chronic poverty, increasing their vulnerability while diminishing their prospects for recovery.

If the above coping mechanisms prove insufficient, the poor will have to extend working hours and/or increase number of members engaged in economic activities (Wright at al., 1999; Moser, 1998). Many of the poor will also have to sell labor in advance as a form of collateral, and marginal farmers might sell their last piece of land to survive. Notably, when households experience extreme events, the nutrition of children of poorer households lacking access to credit tend to be more affected than those in households with access to it. Children in credit-constrained households may be withdrawn from school and engaged in income-generating activities (Foster, 1995; Jacoby, 1994). Distress migration is not only one of the most extreme mechanisms of the coping process, but also a sign that the individual or household failed in their attempt to deal with the crisis.

Traditional coping mechanisms under extreme poverty conditions and intense and/or frequent hazardous events are not always sufficient to help poor people avoid falling further down the poverty line, or to help the near poor stay above the poverty line. Many 'coping mechanisms' are merely survival strategies, which can have deleterious consequences (i.e., dynamic effects) in the long term. High and lingering floods, protracted droughts, or highly destructive earthquakes can easily overwhelm the coping capacity of poor households, and especially the poorest. In the case of floods, when water levels continue to rise, people are forced to move to roofs or trees, or abandon their houses and go by boat to higher ground on river or road embankments. Cattle, although initially protected, may be lost as the floods continue due to the difficulty in obtaining grazing or fodder (Brammer and Jones, 1993). A household may be able to cope for a while, but this effort, if prolonged for too long, will diminish its future ability for risk management (Alwang, Siegel and Jorgensen, 2001). Buying food on credit, for instance, allowed many poor households in Bangladesh to maintain the value of household expenditures similar to pre-disaster levels during the 1998 floods, but they had to reduce their daily calorie intake to adjust to higher food prices (del Ninno et al., 2001). Similarly, in the case of severe and frequent droughts, food consumption will tend to fall despite the use of consumption smoothing mechanisms. More extreme coping mechanisms, such as frequent mobility, often used by people facing continuous hazards such as unpredictable river erosion or desertification, make it almost impossible for them to improve their lives and reduce their long-term vulnerability.[38]

Depending on the severity of a disaster, households and communities might need external assistance in the form of private and public transfers (del Ninno et. al., 2001; Charveriat, 2000). Public transfers are usually channeled into the impacted area through food aid, emergency employment programs, social funds and/or subsidized credit for productive assets and materials

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Interestingly, these authors found in their research in West Africa that livestock have a less important role in consumption smoothing than is commonly argued.

[37] Specifically, Zeller and Sharma (1999) found that in Nepal about 72 percent of the poor engaged in some form of financial transaction to smooth consumption, while in Madagascar almost 50 percent reported to use loans to cope with household emergencies.

[38] Many so called environmental refugees in Bangladesh, for instance, carry the bamboo structure of their houses along, erecting and disassembling it as river erosion takes away their briefly 'owned' land (Khan et al., 1999).

(Kinsey et al., 1998). Depending on its effectiveness, public action can contribute significantly to consumption smoothing. Private remittances can be as important or more relevant if public transfers are not given or are inadequate.[39] Nevertheless, as Charveriat (2000: 88) points out, as much as national and international assistance can help affected populations cope with disasters, it can also act as "…an unconditional subsidy to risk takers." At the national level, international assistance – regularly given without many conditions – often provides perverse incentives for governments and communities to adopt reactive disaster risk management policies and strategies. And as a result, mitigation and preparedness are not given sufficient priority.

3.2 Implications for Microfinance Institutions

By providing access to credit, savings and insurance, microfinance can contribute to increasing the disaster risk management capacity of individuals and households. Through the provision of 'chunks' of money, microfinance services enable poor people to move from reactive to more proactive risk management approaches (Rutherford, 2001). Access to these services is particularly critical in a context where formal market institutions are reluctant to lend to poor households, and public arrangements for risk management are limited in their availability and coverage (World Bank, 2001). An important contribution of microfinance to risk management is the certainty afforded by clients that credit and other financial services will be available when needed. In the case of disaster risk, this certainty, expressed for instance in the promise of post-disaster loans, acts as an 'insurance' mechanism (Nagarajan, 1998). More concretely, access to financial services is a valuable asset for the poor, who find these services directly useful in cushioning consumption and strengthening economic activities (Wright et al., 1999; Simkhada et al., 2000).

3.2.1 Financial Services and Risk Reduction and Mitigation Strategies

By helping poor households increase and diversify assets and income earning sources, financial services may reduce their vulnerability, as suggested by measurable reductions in ex-ante income variance and ex-post consumption variance of microfinance clients (Sinha and Lipton, 1999).[40] Vulnerability reduction through microfinance is also observable in the increased ability of poor households to raise productive capital to lower the costs of capital-intensive technology and assets vis-à-vis family labor (e.g. use of improved seeds and fertilizer resulting in higher crop output per unit of labor and land). As Pitts (2000) explains, microfinance helps poor households diversify income in several ways: by supporting different types of income generating strategies and of capital, by promoting regular employment throughout the year, and by providing women with income-earning opportunities. Moreover, microfinance can increase resilience of poor households to different crises if it provides them with the opportunity to keep some excess income in a safe savings account (Rutherford, 2001). Indeed, the role of savings in helping the poor deal with disaster risk cannot be overemphasized. Savings accounts have a good potential as a divisible asset that has a fixed value and positive return. Such potential, however, will be enhanced if the funds are, or can be made accessible when urgently needed (Nagarajan and Brown, 2000).

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[39] Charveriat (2000) reports that in Honduras remittances increased by 50 percent after Hurricane Mitch. In Southern Africa, the flow of remittances in cash or kind from urban-based relatives to drought-affected rural households is a regular phenomenon (Kinsey et al., 1998).

[40] The impact of access to credit on income generation depends also on other factors, including the existence of complementary infrastructure, market, health and other services.

Microfinance's contribution lies also in the fact that cash from a loan is fungible, despite use restrictions established by the MFIs (Zeller et al., 2001; Gulli, 1998). Within the household, credit funds typically get allocated flexibly (Wright et al., 1999). Housing repairs and improvements is one of the main uses given by affected clients to loans in normal times and during the recovery process, even if the loans are not expressly obtained for this activity. In addition, households have developed mechanisms to maximize the benefits provided by microfinance and advance their risk management strategies. These mechanisms include, most notably, splitting the loans as well as 'patching' them. These mechanisms are more or less effective depending on the size, use and timing of the loan product. Loan money is typically split by microfinance clients to keep some portions of the loan as cash reserves for emergencies, including making loan payments. Clients also split their loans during normal times and allocate portions of it to protect or maintain their assets, including vaccination of livestock, preventive health care, improvement of housing, redeeming mortgaged land, and acquiring title deeds of land, among many other things. Sebstad and Cohen (2000) indicate that it is a common strategy among clients to invest a portion – and often the total of a loan – in an income generating activity whose returns are earmarked for building a better house or acquiring land in a better location. Relatively better off clients patch their loans with other sources of funds to maximize their investments in productive activities (Sebstad and Cohen, 2000). Reallocating loan funds into different needs not directly linked to productive investments may benefit households in the short to medium term. But if the accumulated debt does not lead to relatively stable and adequate income levels, servicing the debt may require reductions in consumption and expenditures critical for the future welfare of household members such as education.

By acting as a protective mechanism for future damaging fluctuations, microfinance services may also allow the household to undertake riskier higher-return economic activities. Access to these services also reduce the cost of self-provided risk management mechanisms by replacing higher cost informal savings, informal credit, income diversification and personal insurance strategies, or by making some of these strategies more effective. Microfinance also helps build social capital among the poor as well as their self-confidence, and especially helps empower women, all of which will result in more proactive risk management. It too can improve flows of information about risk and risk management, and more so if a specific dissemination strategy is pursued by the microfinance institution.

3.2.2 Financial Services and Coping / Response Strategies

Poor people spend more of their income on food, and without access to credit and assets, even small negative income variations due to the effects of droughts, floods or other hazards will reduce food availability, which has direct effects on health and labor productivity. Consumption smoothing can be very difficult if a poor household cannot borrow and its portfolio of assets is limited (Kinsey et al., 1998). Access to credit services in a post-disaster situation will enhance the coping capacity of the poor not only by helping to smooth consumption, but also to avoid distress sales of assets such as land or livestock at bargain prices while allowing faster replacement of lost assets. Given the strong linkage between food consumption and labor productivity, research indicates that the poorest households can benefit greatly from consumer credit and savings, both of which contribute effectively to protecting household consumption (Gulli, 1998).

Empirical evidence indicates that borrowing is indeed a major coping mechanism among poor households. After the 1998 floods in Bangladesh, for example, while households reduced expenditures and sold assets to cope with the disaster, borrowing or credit purchasing of food was

by far the major coping strategy (del Ninno et. al., 2001). In many countries, however, the 'biggest rural banks' are still by far friends, relatives, informal groups, or money lenders, while access to formal rural credit remains a rare opportunity and microfinance's potential is yet to be fully realized. In Bangladesh, MFIs – despite their involvement in the disaster response – tended to have a relatively limited role as sources of credit for many of the flood-exposed households. According to del Ninno and colleagues, the severely disaster-affected households who borrowed after the 1998 floods obtained most of their loans from neighbors (29.8 percent) and relatives and friends (28.0 percent). Sebstad and Cohen have reported similar findings for other countries.

Borrowing after a disaster, however, can increase vulnerability of microfinance clients and institutions if cheap credit is made available and/or use of the loan money is not carefully monitored. Significantly, availability of 'cheap credit' can increase current consumption among disaster-affected households, to the detriment of future consumption. Cheap credit can encourage the adoption of the so-called gambler's throw strategy. Adoption of this strategy by desperate households, even if credit is sufficiently priced, can lead to bad investments and overindebtedness, and to a dramatic increase in portfolio risk for the MFIs. Traditionally, formal lenders have justified their lack of interest in providing credit to poor borrowers with little or no collateral under the rational that this type of clients might be induced to undertake relatively riskier economic activities once the risks are shared with the lender (Sinha and Lipton, 1999). As these authors put it, applying this strategy allows the disaster-prone poor purchase hope "at the cost of a probable bad outcome that they see, even if very likely, as making a desperate situation no worse." (p. 12).

3.3 Conclusions

In addition to having a higher exposure to disaster risk, the poor and near poor are more vulnerable than the non-poor due to their limited access to effective risk management strategies and instruments. Individuals, households and communities are particularly constrained in managing disaster risk. While informal or market-based risk management instruments 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 community and/or broader social interventions. Disaster risk management seems like a good candidate for public intervention given that damage from disasters tend to be large, locally covariate and unfortunately efficient in targeting the poor, while being nationally idiosyncratic and often difficult to insure. Significantly, a good number of the actions required to deal with these risks are related to the provision of public goods. It thus appears that the state can be more effective in covering covariant risks, while most idiosyncratic risks may be handled better by private providers (World Bank, 2000a). The government actually has a dual role in this respect: to provide its own instruments, and to ensure the supply and effectiveness of instruments from other sources (World Bank, 2001).

Credit, savings and insurance services have a great potential to increase the risk-bearing capacity of poor households. Given their fungibility, substitutability and complementarity, it is important that these three dimensions of financial services be considered simultaneously (Siegel, 2000a). In the case of disaster risk, microfinance may help the poor cope with disaster, and in a more limited manner, reduce their direct risk exposure. Credit can help reduce risk through income smoothing while savings can help mitigate and cope with risk through consumption smoothing. After a disaster, poor households seem to prefer using as sources of credit friends and relatives first. Demand for credit may be influenced by the timeliness and flexibility of the financial services

and the size of loans offered by MFIs. Despite its potential contribution to risk management, microfinance alone will not help clients make it through a disaster. There is a need for public interventions such as work programs and other safety net mechanisms, as well as grant and subsidies. Being a microfinance client, at the same time, may put additional pressures on a poor household, especially if a disaster strikes and the institution and the client have not been proactive enough to mitigate disaster risk, or have at minimum prepared for it.

The portion of social and economic resources – including those provided by microfinance – that a poor household will invest in disaster risk management will depend on how much disaster risk such household unwittingly and to a larger degree unknowingly, tolerates. Disaster risk reduction, it must be emphasized, is not high in the priority list of most of the poor. Even in developed countries, most households and even the public sector do not generally adopt cost-effective mitigation measures to reduce future disaster losses. Many of these households have chosen disaster-prone locations. In developing countries, in contrast, avoiding or reducing disaster risk exposure is not always a choice available to many of the poor. Under conditions of high disaster risk exposure, the direct costs of mitigating and coping can become unbearable to them. Without prevention and mitigation, many more lives will be lost, and homes and productive assets will be destroyed or damaged periodically. Eventually, coping mechanisms will become ineffective, recovery too costly and thus unaffordable by the poor, who will become even poorer.

4. DISASTER RISK MANAGEMENT – INSTITUTIONAL PERSPECTIVE

This section describes the disaster risk management strategies available to microfinance institutions, analyzes actual experiences at the institutional level, and concludes by identifying the most relevant lessons learned from these experiences.

4.1 Disaster Risk Management Strategies of Microfinance Institutions

Disaster risk is one of the most critical yet neglected external risks faced by MFIs, which, for the most part, continue to deal with it in an ad hoc manner. These institutions, of course, face a bigger constraint regarding risk management in general. Due to lack of capacity, most MFIs are operating without adequate risk management systems in place (Churchill and Coster, 2001). Managing microfinance internal and external risks is not easy for them, and disaster risk management poses even more challenges: it involves decisions related to both the social and financial objectives of microfinance, and requires information as well as technical, operational and financial management knowledge and skills not always available or readily accessible. The few MFIs that have developed risk management systems have therefore had very limited success in given attention to disaster risk and other external risks. Governments and donors supporting microfinance have not encouraged disaster risk management, as they have also tended to be reactive (MBP, 2001i).

Social and financial objectives often lead MFIs into opposing directions when dealing with disaster risk management. On the one hand, the social objective of delivering financial services to increasing numbers of the poor makes avoiding disaster risk difficult and often impossible. The financial objective of long-term sustainability, on the other hand, may be achieved easier by minimizing disaster risk exposure, which dictates under particular circumstances avoidance of

certain geographical areas and populations.[41] The latter decision will probably limit the social impact of microfinance. The unresolved issue is the extent to which the financial viability of MFIs would be compromised by trying to reach these areas, especially since some – and often many – clients will in any case be exposed to disaster risk, as not all vulnerable areas can be avoided or are clearly demarcated. When the time comes to assist clients cope and recover from a disaster, MFIs face the challenge again of serving the poor while continuing to operate on business principles. The challenge for MFIs in this case, as with disaster risk management in general, is to "…make decisions based upon sound business rules, not on charitable sentiment" (Churchill and Coster, 2001: 19).

Microfinance institutions, it seems, can neither completely avoid nor simply ignore disaster risk and its consequences, and should take proactive steps to manage this risk to enhance their financial sustainability. As shown in Table 4 below, there are three interrelated strategies and a broad array of instruments and mechanisms available to MFIs to deal with disaster risk. Two of these strategies relate to the institution itself: first, the systematic identification, reduction and transfer of disaster risks faced by staff, facilities, equipment, and information systems and records; and second, the integration of disaster risk into a risk management system that deals with institutional, operational, financial management and external risks in an integrated and comprehensive manner. The third strategy is intrinsic to the institution-client interface, and consists of the development of products and services to assist clients in disaster risk management, as well as to protect the institution from financial losses related to clients' probable loss of borrowing / repayment capacity and of productive investments and other valuable assets. This section deals with the first two strategies, and Section 5 deals with the last one.

4.2 Institutional-level Disaster Risk Management Strategies

4.2.1 Experiences on Identifying, Reducing and Transferring Institutional Disaster Risk

While an increasing number of MFIs have acted as de facto disaster relief and recovery agencies, not many have taken a proactive stance to assess their disaster vulnerability and to protect their own staff, facilities, equipment, and information systems and records. As Nagarajan (1998: 3) states, MFIs in disaster situations are simultaneously "…organizations in distress as well as potential instruments of recovery." If they are caught by the disaster completely unprepared, and disaster risk has not been reasonably reduced, these institutions will most likely end up being more in distress than they should have been, and by extension much less capable of assisting their clients while experiencing significant losses. In addition, without preparing for a disaster, these institutions will not be as effective in linking their response and recovery efforts to their long-term objectives and programs.

[41] In highly vulnerable countries such as Bangladesh, for instance, it has been found that MFIs tend to avoid locating their branches in areas known to be at very high risk of flood or other disasters, which often leaves many of the most exposed and poorest population outside their reach (Zeller et al., 2001).

Table 4 - Disaster Risk Management Strategies of Microfinance Institutions			
	Preparedness	**Reduction / Mitigation and Risk Transfer**	**Response (Coping) and Recovery**
(1) Systematic identification, reduction and transfer of disaster risks faced by the microfinance institution itself			
	+ Identification and assessment of disaster risk and vulnerability of staff, facilities, equipment, and information systems and records + Preparation of Institutional Disaster Response Plan + Train staff on disaster emergency and damage assessment +Agree with donors and government agencies on disaster response role	+ Relocation and/or retrofitting of vulnerable facilities, equipment, and information systems + Protection of financial and other historical records +Purchase of own insurance and reinsurance +Help staff retrofit their housing / find safer locations	+ Conduct damage and need assessments of staff and affected branches +Assist affected staff
(2) Integration of disaster risk into overall risk management system			
Institutional Risks	+ Ensure balance between humanitarian assistance and financial health +Develop sound management information systems	+Strengthen financial viability of products and services	+Minimize reputation risk by providing adequate assistance to clients +Ensure balance between humanitarian assistance and financial health
Operational Risks	+ Prepare Operational Disaster Response Plan +Monitor portfolio quality +Maintain sound internal control systems +Introduce flexibility into lending methodology	+Establish clear refinancing / debt restructuring policies and savings withdrawals limits, if applicable +Diversify portfolio geographically and sectorally	+Maintain flow of credit open and allow debt restructuring under pre-established terms +Monitor security risks
Financial Management Risks	+ Estimate probable cash flow needs +Ensure availability of funds through disaster fund, or rapid access to commercial or donor funds +Mobilize savings	+Ensure availability of funds through disaster fund, or rapid access to commercial or donor funds +Mobilize savings +Avoid over-reliance on savings to fund loans	+Monitor efficiency levels (costs per unit per output) +Avoid subsidized interest rates
(3) Development of products and services to assist clients in disaster risk management			
	+ Promote assessment of clients' disaster risk exposure + Promote training of clients on disaster emergency response +Mobilize savings +Raise disaster awareness	+Promote sound land use and natural resource management +Provide products for housing improvements and construction in safer locations +Offer savings and insurance products	+Maintain flow of credit open and allow debt restructuring under pre-established terms +Promote mitigation practices and technologies

Source: Author's compilation

When assuming a disaster risk management role, MFIs have usually emphasized assistance to clients over disaster risk reduction at the institutional level. In contrast, an example of an institution that has decided to pay attention to its own disaster vulnerability is the 'Asociación de Consultores para el Desarrollo de la Pequeña, Mediana y Micro-Empresa' (ACODEP), one of the largest MFIs in Nicaragua (Katalysis Pertnership, 2001).[42] Learning from the experience of Hurricane Mitch in 1998 and more recent disasters, ACODEP has developed a 'Disaster Prevention Plan' whose objectives are to identify, prepare for and mitigate natural and manmade disasters in order to protect the institution, clients and staff from possible losses (ACODEP, 2001).[43] The Plan is quite comprehensive, including measures to protect the institution's staff, portfolio, facilities, equipment and information systems and records, as well as measures to respond more adroitly to the many disasters that affect the country. The Plan recognizes that priority should be given to assisting clients in finding medical aid, contacting relief organizations and joining work-for-food programs, but it does not consider that the institution should provide relief directly. It is still too soon to determine the effectiveness of the Plan, but an evaluation during future disasters will certainly be valuable not only to ACODEP but to the microfinance industry in general.

4.2.2 Experiences in Integrating Disaster Risk into the Institutional Risk Management System

Not a single experience could be found where a microfinance institution has expressly decided to integrate disaster risk into its risk management system dealing comprehensively with institutional, operational, financial management and external risks. An important contributing factor to this finding is that most MFIs operate without systems to manage all these risks adequately (Churchill and Coster, 2001). In a more piecemeal way, some institutions have started to establish certain measures to prepare for operational and financial management risks triggered by disasters and economic crises. Preparing for disasters has involved monitoring and learning about disaster risk exposure of clients and their investments, and establishing disaster or emergency loan fund to minimize liquidity problems.

The Malawi Rural Finance Company (MRFC)[44] is a representative example of an institution that has undertaken specific steps in response to the exposure of its loan portfolio to weather-related disasters. Disaster risk exposure is high as most of the portfolio is concentrated in tobacco, which is Malawi's major cash crop. In 1999, for example, more than 75 percent of loans went directly or indirectly to tobacco farmers. Fortunately, Malawi did not have any weather related disasters between the company's formation in 1993 and 1999, which allowed it to grow steadily. By 1999, MRFC had successfully reached between 20 and 25 percent of the country's smallholder farmers. Moreover, because of the Malawi's geography, droughts and floods have thus far had very localized impacts. As part of its preparedness strategy, MRFC closely monitors weather-related risks, and have mapped out areas that show low rainfall patterns. As soon as rainfall patterns

[42] ACODEP reached 17,000 clients in 2000. It focuses primarily on microcredit for individual urban and peri-urban microentrepreneurs and does not engage in other development activities, although it has a large training program (Katalysis Partnership, 2001).

[43] Unless otherwise noted, information on ACODEP is based on aid memoirs kindly provided by Brigit Helms and Tamara Cook from the Consultative Group to Assist the Poorest (CGAP) and personal communications with Gioconda Hernandez Montiel, Marketing Manager, ACODEP. Ms. Hernandez e-mail address is gtemercadeo@acodep.org.ni. Additional information is also available in ACODEP's webpage at www.acodep.org.ni

[44] MRFC was established in 1993 by the government with assistance from the World Bank. MRFC is market and profit oriented, and provides credit and savings services. Savings services are mostly used by borrowers due to restrictive withdrawal requirements (Siddiqi, 1999).

reach an established dangerous threshold, the company activates a plan to put maximum loan exposure limits into effect. Management of MRFC is aware that the institution could not survive a countrywide disaster, and have lobbied for the creation of an externally financed "drought reserve fund" to have a cushion if heavy weather-related losses occur (Siddiqi, 1999).

The Disaster Prevention Plan of ACODEP, mentioned above, outlines a basic, flexible credit policy for disaster emergency and recovery, and the creation of a disaster loan fund, to help the institution prepare better for possible cash flows demands and control credit and liquidity risks. Specifically, the plan establishes that the institution will, *inter alia*, stop collecting payments during the emergency period; allow clients withdraw their deposits (which are used normally as collateral); stop lending (short-term loans of 1 or 2 months, with special interest rates, would be granted in cases of severe emergencies for household needs such as food or medicines); and, on the basis of a field damage assessment, prepare loan restructuring and refinancing plans, considering two types of situations: restructuring loans when the clients lose their housing but productive assets are not affected and/or clients are severely injured, and refinancing loans when the productive assets are lost but clients escaped the disaster unharmed. In a similar manner, although at a smaller scale, the Association for Social Advancement (ASA) in Bangladesh has established a permanent disaster loan product to offer clients after a disaster. Loans range from 500 to 1,000 taka each, are interest free, and must be paid back within two years through 100 equal weekly installments (Rahman, 1999).

Most of the disaster or emergency loan funds discussed next have at minimum two levels of terms and conditions, as money needs to be transferred from the Fund to the MFIs and from them to clients (Brown and Nagarajan, 2000). In contrast, Grameen Bank has set up a more comprehensive system to mitigate possible liquidity shortages after a disaster, based on three mechanisms operating at different levels: the group level, the center level and the institutional level. Each lending group has to create an emergency fund towards which each member pays 5 percent of each loan; in each of the 65,000 centers, borrowers have to contribute approximately 25 percent of total interest they owe into a center disaster fund; and at the institutional level Grameen keeps US$100 million as a disaster fund (MBP, 2001b).[45] BURO-Tangail has also established a 'members' emergency fund,' in addition to the institutional fund detailed below. The members' emergency fund also acts as insurance in certain cases. Specifically, the fund, capitalized from members' contributions, can be used to pay off loans in case of the loanee's death or permanent disability; to provide supplemental loans if the loanee loses income earning capacity due to loss or damage of assets acquired through a loan; to recover loans that are more than six months overdue; and to meet small scale expenses or emergencies (BURO-Tangail, 1999).

Disaster or Emergency Loan Funds

Emergency or disaster loan funds can help MFIs prepare for post-disaster situations, especially if these institutions face limitations in accessing funds quickly. Although these funds should be created as part of the institutional disaster preparedness activities, most of them have actually been set up during the disaster response period. In this respect, the experiences discussed here also provide some valuable insights into the post-disaster involvement of MFIs. Thus far, MFIs in Bangladesh, Poland and several countries in Central America have experimented, with the help of governments and donors, with these funds. The operational set up of emergency loan funds has been basically the same across countries: the donor or development agency provides a one time

[45] Despite these three mechanisms, Grameen Bank still experienced liquidity problems during the 1998 floods in Bangladesh. Its disaster fund had been totally depleted at the end of the flood emergency (Nayar and Faisal, 1999).

grant or a long term, low interest loan to an intermediary agency, which subsequently lends or transfers the funds to qualified MFIs. The intermediary agency has been an apex organization as was the case with the *Palli Karma Sahayak Foundation* (PKSF) in Bangladesh after the 1998 floods, an established NGO like CARE, also in Bangladesh after the same disaster, or entities established specifically to manage the fund, as was done in Central America by the Inter-American Development Bank (IDB) after Hurricane Mitch (Brown and Nagarajan, 2000; IDB, 2000; 1998). Some of these funds have been designed as a one time endeavor, while others have become permanent. The amount of total funds made initially available has varied greatly. Fundsz Mikro in Poland received US$3.5 million initially, while IDB provided approximately US$12 million and PKSF had a limited amount of US$200,000.

The 'regional recovery fund for microlending institutions' established by IDB and the 'disaster loan fund' set up by CARE share some common characteristics, despite the fact that IDB is a regional development bank and CARE is an international NGO. First, both funds catered to eligible MFIs at a country level. Although the IDB-supported fund had regional coverage, its management was assigned to temporary local units created in each of the affected countries, namely Honduras, Nicaragua and Guatemala. The fund set up by CARE was run internally during the 1998 floods, but the plan was to create a separate unit once the Fund became more permanent. Second, most fund management was given to these units, and little was delegated to the participating MFIs. This arrangement resulted in a three step fund transfer process: units received funds from donors; MFIs submitted requests to these units, which proceeded to review the applications; and finally, the concerned MFI obtained the requested funds and proceeded to transfer them to affected clients as emergency loans (Brown and Nagarajan, 2000; CARE, 1999). IDB carried out a rapid damage assessment to estimate the amount required, while CARE established its fund based on what could be obtained from donors at the moment. The Bangladesh Rural Advancement Committee (BRAC), in contrast to IDB or CARE, decided to conduct an assessment of needs to estimate the initial amount required to establish a permanent disaster loan fund, and took its time in designing the fund (BRAC, 1999).

IDB considered that a recovery fund was urgently needed since due to the hurricane, MFIs in Honduras, Nicaragua and Guatemala were expected to lose 25 to 45 percent of their loan portfolio. IDB's objective was to establish eventually a permanent emergency fund that can be rapidly accessed by MFIs to ensure the recovery of both the microenterprise and the microfinance sectors (IDB, 2000). Most of the initial funds (about US$10 million) were devoted to providing long-term, low interest financing to qualified MFIs, although US$2 million were earmarked as grant money to help them rehabilitate their facilities and replace equipment, if insurance was not available.[46]

The disaster loan fund set up by CARE was partially capitalized by recycling aid funds used in a Post-flood Rehabilitation Loan Assistance (PERLA) Project targeting 7,200 disaster-affected households in Dhaka (CARE, 1999). CARE initially identified between 15 and 18 NGOs providing microfinance services as eligible to access the fund. These partner NGOs can get loans with an interest rate of 2 percent a year, and are allowed to loan out funds to affected families at 4 percent. In addition, participating MFIs can charge a small processing fee to recover some of the client monitoring and loan recovery costs. The IDB-supported fund allows participating MFIs to lend at market rates at standard loan terms of not more than a year, while these institutions receive funds at reduced interest rates and with 5 to 10 years of maturity (Brown and Nagarajan, 2000). The risk with these for-profit incentives, however, is that it may induce some MFIs to

[46] The financial resources were specifically provided by the Multilateral Investment Fund of the IDB (IDB, 1998).

overstate the number of affected clients and the severity of their losses in order to obtain more 'cheap,' funds quickly.

The 'disaster management fund' provided by PKSF is an interesting example, albeit specific to the context of Bangladesh and the characteristics of PKSF itself, which is a well regarded apex foundation providing low cost funds to poverty-oriented MFIs, and helping to set norms and standards for the sector (Hossain et al., 2000).[47] Because of its relatively good performance since established in 1990 by the government, PKSF has increasingly received donor funds. In 2000, PKSF had about 172 partner organizations (POs), which were providing microfinance services to 1.8 million poor people (World Bank, 2000b).[48] After the 1998 floods, many POs turn to PKSF for badly needed funds since it is the premier refinancing body for most of them. PKSF met the challenge by rapidly disbursing close to 1 billion taka, a considerable amount of its regular funds. PKSF also set apart a relatively small amount (10 million taka or US$200,000) as a grant contribution to establish a more permanent 'Disaster Management Fund.' The POs are expected to help increase the size of the fund by contributing a portion of their income from service charges. In the future, POs will be able to access the Fund when they consider it necessary for localized disasters affecting a small number of clients, and not just when a national disaster is officially declared.

Because of the small amount of initial funds, PKSF decided to target its smaller POs, which were given a one-time grant based on a percentage of their loan portfolio (Brown and Nagarajan, 2000). The recipient partner was made responsible for managing these funds. PKSF could confidently delegate fund management because POs knew that mismanaging the emergency funds would mean losing access to their primary source of capital (Brown and Nagarajan, 2000). POs were further discouraged from using their emergency fund allocation improperly by setting up the interest rates of loans to be provided by POs to clients at 0 percent. By leaving no profit margin, the full cost of lending and of monitoring clients was nevertheless transferred to the POs, which added more to the already higher operating costs. As part of its overall disaster response, PKSF also offered to its partners the option of applying for loan rescheduling if they were unable to meet the repayment of any regular loan installment due to their own clients' loss of repayment capacity (BRAC, 1998). Simultaneously, PKSF approached the government and donors to promote the involvement of its POs in the flood response and recovery process.

Several MFIs have established emergency loan funds by themselves, including Fundusz Mikro after the 1997 floods in Poland and the Bangladesh Unemployed Rehabilitation Organization (BURO)-Tangail after the 1998 floods. In order to ensure rapid loan disbursement, an important objective during an emergency, Fundusz Mikro assigned to clients the responsibility for damage assessment completely and for emergency loan disbursement partially. This institution decided to provide a standardized loan to a group of affected individuals, and to allow the group's members decide on how to split the loan amount on the basis of individual losses. Fundusz Mikro made a critical decision by extending emergency loans to all microentrepreneurs living in the flood impacted area, trading off the increased likelihood of defaults for a wider impact. The institution eventually benefited, however, through increased outreach as it gained new clients.

A very peculiar means of control was applied by Fundusz Mikro, relying on the group mechanism and natural feelings of justice to avoid granting loans to people who had not been affected by the

[47] PKSF, along with the Credit and Development Forum (CDF) are two of the most important organizations giving sector-wide support to MFIs in Bangladesh.

[48] Large players in the sector such as Grameen Bank, BRAC, Proshika, and ASA are partners of PKSF, but they use the foundation mainly as a channel of funds.

flood. Fundusz Mikro assumed that people who were really suffering would not allow 'imposters' into their groups. This mechanism was strengthened by announcing that if the organization were to find ineligible individual members in a group, the whole group would be disqualified from receiving a loan. Clients were also informed that random checks of applications would be conducted.[49] Applications for emergency loans were considered from the smallest to the largest amount requested to discourage people from asking for more than what they needed (Fundusz Mikro, 2000).[50]

BURO Tangail established its 'Emergency Disaster Fund' through financial grants from several donors. Since BURO-Tangail emphasizes the promotion of self-reliance among disadvantaged rural communities, it prefers to avoid providing relief or charitable activities to its costumers unless outside help is considered absolutely necessary. The new fund was created precisely for these extreme situations. It is maintained in a separate interest bearing account, while a portion has been invested in government savings certificates that can be cashed in a short period of time (BURO-Tangail, 1999).

4.3 Lessons Learned

4.3.1 Identifying, Reducing and Transferring Institutional Disaster Risk

Being prepared for a disaster will help a microfinance institution respond to clients more effectively and efficiently, and manage cash outflow demands and increases in operational costs better, thereby reducing probable financial losses and mitigating adverse effects on long-term sustainability. As various experiences show, MFIs that have not prepared have typically faced demands for new products and services without having sufficient time to develop them following sound microfinance business practices. Moreover, preparedness allows MFIs to inform clients with more certainty about the type of loans and services that will be available during the disaster response and recovery efforts. The certainty that loans and services will be there when needed is highly valued by clients and perceived as a form of disaster insurance.

Knowledge of disaster risk exposure will help MFIs protect their staff, facilities, equipment, and information systems and records, as well as to integrate disaster risk into their risk management systems and to design programs and products to provide better disaster risk management assistance to clients. This objective will not be accomplished, however, without an institutional disaster response plan or without ensuring that the facilities and critical operational infrastructure of the institution are hazard resistant and that staff receives the proper training to continue delivering their services after the disaster. MFIs may also increase their disaster risk management capacity by training their personnel on relief and recovery operations, and continuously reviewing operational procedures, staffing and portfolio tracking.

[49] Information on the disaster loan fund provided by Fundusz Mikro was also obtained from Ms. Agata Szostek, International Relations Director of this institution, e-mail address Agata.szostek@funduszmikro.com.pl.
[50] The total initial emergency fund amount of US$3.5 million was distributed among 1,834 loans to 367 five-member groups.

4.3.2 Integrating Disaster Risk into the Institutional Risk Management System

Provided that a sound risk management system is in place, it is relevant for a microfinance institution to have adequate knowledge of disaster risk exposure to establish policies and procedures to mitigate related financial, operational and strategic risks on a systematic and comprehensive basis. Operational risks can be mitigated by, *inter alia*, diversifying the portfolio, when feasible, geographically and across economic sectors, and by assessing in advance the probable needs of clients. For example, loan rescheduling needs could be estimated under several scenarios based on probable impacts of a disaster on clients to determine the various alternatives at hand to minimize credit or default risk, and anticipate the costs of delayed interest and principal payments. Institutional vulnerability can be addressed by ensuring continuity of service delivery and sound financial management in post-disaster situations through the preparation of clear debt restructuring policies and procedures, and if applicable, savings withdrawals thresholds. Training staff and improving accounting systems to deal with different fund sources during the emergency will most surely translate into reduced administrative costs during the disaster.

The experiences reviewed here also show how critical is for MFIs to ensure that cash is available for loan disbursements and savings withdrawals. Financial management risks, and in particular liquidity risk, may be mitigated by ensuring rapid access to funds through a line of commercial credit or agreements with donors, in addition to establishing emergency or disaster funds. Liquidity needs, to the extent possible, should be estimated on the basis of worst-case scenarios to set policies with 'preventive' minimum and maximum cash levels.[51] Maximum levels of idle funds should be carefully estimated, since too large an amount can have detrimental effects on an institution's general return on assets. Another option is to keep the funds in interest bearing accounts. When caught unprepared, some MFIs have tried to reduce operational costs to decrease the possibility of a liquidity crisis. However, postponing payment of institutional bills or reducing salaries temporarily can bring more negative consequences than benefits to the MFIs in the long run.

Introducing more flexibility in the lending methodology may contribute to reduce operational risks, particularly credit or default risk. Variations of product design can have adverse consequences if they are not analyzed carefully, however. The management information systems (MIS) of many MFIs may not be capable of assimilating flexible loan products and their staff may lack the skills to deliver them (Churchill and Coster, 2001). The relative vulnerability of group-based lending has already been discussed earlier. 'State-contingent' type of contracts may be an option that may allow, for instance, switching from group-based liability to individual liability during a disaster so that an individual's default does not affect the rest of group members. The problem with this arrangement is that the effect of social collateral is counteracted at a moment when the portfolio is highly exposed, and social capital of the group undermined when needed the most. In fact, state-contingent contracts implicitly invite group members to abandon those most affected (who are redefined as 'liabilities' for the group) to their 'bad luck.' The longer the temporary shift from the regular arrangement is implemented, the longer the period required to rebuild the social capital built through the group-based methodology.

[51] For seasonal disaster risks, another option is to adjust cash reserves accordingly. In Bangladesh, for instance, some MFIs maintain higher cash reserves during the regular flood season (MFN, 2000).

Emergency or Disaster Loan Funds

Several lessons can be drawn from the experiences discussed in this report related to this type of funds. First, setting aside financial resources as a contingency fund may make more make sense if the area where the institution operates suffers from frequent and severe disasters. Second, emergency funds, particularly those with very attractive terms and little conditions, can increase dependency of MFIs on external funding, and discourage these institutions from taking preventive physical and financial measures to enhance their resilience and self-sufficiency. Third, developing emergency funds poses serious challenges to MFIs and donors because "[t]hese funds immediately raise the questions of ownership, rights to access, decision-making controls, and terms and conditions of deposits and advances" (MBP, 2001b: 4). Finally, depending on the way these funds are set up, clients may end up assuming most of the cost of the fund through higher interest rates or additional fees.

Setting up emergency funds as part of institutional preparedness would allow making an informed decision on whether it is operationally and financially sound to have an emergency fund in the first place. Planning in advance allows establishing sound polices and procedures to manage the fund, as well as defining clearly the responsibilities of the various stakeholders in respect of critical activities such as financial contribution, additional capitalization, damage assessments, loan disbursal and collection, and monitoring (Brown and Nagarajan, 2000). It seems clear from the experiences reviewed here that there is no ideal structure or funding mechanism for a disaster loan fund. Each of the different options applied thus far have advantages and disadvantages which will become more or less relevant to a microfinance institution depending on country conditions, external support and the nature of the microfinance sector. A central issue for permanent disaster loan funds is capitalization, which requires establishing effective mechanisms to maintain, and at best increase the initial capital. The costs of capitalizing and managing the fund should not be transferred completely to the client, who, in principle, should be the main beneficiary. It must be kept in mind also that any additional costs originated by the creation and management of an emergency fund are critical for the effectiveness of MFIs, since by its very nature, microfinance services tend to have above-market level interest rates and lending costs.

The benefits of emergency funds, on the other hand, are not merely financial. At the institutional level, having an emergency fund will enable a more adequate response to clients' needs, which increases their loyalty and likelihood of good repayment behavior. Especially at the group level, emergency funds may contribute positively and in different, reinforcing ways. As Mosley (2001a) found in the context of Bolivia, emergency funds created by forced savings within a group tend to increase cohesiveness among its members and minimize potentially humiliating personal requests for emergency loans by one group member to another. In addition, these funds strengthen the risk management potential of the group itself by creating a certain surplus of funds accessible in principle to all members. Having additional, easily accessible resources at the group level will in turn decrease pressure from clients on cash flows of the institution in case of a disaster, and the need for an emergency fund at the institutional level. Larger MFIs, especially if they have a wide geographical coverage, do not always need access to disaster loan funds, or need to set large amounts of capital aside for this purpose. This type of institutions has other options to deal with client demand during a disaster, which should also be considered. These options include, *inter alia*, transferring funds from branches in areas unaffected or less affected by the particular event to those urgently needing funds.

Savings Mobilization

As it is clear from the previous section on emergency loan funds, microfinance institutions must find ways to increase their liquidity management capacity to reduce disaster risk. It is this capacity that can better allowed them to provide clients with access to funds when they need them the most. Better liquidity management, may come in part from the ability to mobilize savings, especially voluntary savings. Savings mobilization has also some risks for both microfinance clients and institutions, more so if the institution has relied too heavily on them as loan funds (Hassan and Nayar, 1998). Although further research is needed, however, experiences indicate that mobilizing savings – especially if unbundled from loans – will decrease the likelihood that a microfinance institution will suffer a severe liquidity crisis. The regular deposits required by many MFIs to build loan collateral and instill financial discipline that constitute compulsory savings can also be useful in case of a disaster, provided that some advance planning is made on how much, how fast and for how long withdrawals will be allowed, and when to start asking clients to initiate replenishment of the accounts.

Experience across the world indicates, however, that compulsory savings do not provide incentives for clients to save as much as they could, and that it takes them longer to accumulate a balance that would help off-set income and asset losses due to disasters (Robinson, 2001). This finding means that the funds available to MFIs will also be limited, which consequently decreases the usefulness of savings for both clients and institutions. On the other hand, switching from a compulsory, locked-in savings system to a voluntary open access savings service has serious operational and financial implications for a microfinance institution.[52] As Robinson (2001) explains, not all MFIs should, or can, capture voluntary savings, and not all microloans should, or need be financed by savings. In contexts where these institutions are poorly regulated and supervised, vulnerable to disasters and economic crises, and often lacking in financial management capacity, the savings of the poor may actually be put at a very high risk.

To mitigate disaster risk, MFIs might also need to provide as broad a range of savings products as possible, including interest-bearing liquid savings, higher-interest semi-liquid savings and/or fixed deposit accounts. Having savings products that give clients continuous access decreases the probability of rapid withdrawals during a disaster and increases the pace to which these funds will be replenished (Nagarajan and Brown, 2000). Alternatively, or additionally, having cash reserves aligned with reliable forecasts of cash outflows may help these institutions cushion the liquidity crunch resulting from a disaster. Most importantly perhaps, increased funds through savings and availability of reserve funds can increase the assistance levels that MFIs can provide to affected populations.

[52] Transition from compulsory to voluntary savings products require substantial changes in management and information systems, personnel training, and organizational culture, among other things (Wright, Matin and Christen, 2001).

5. THE INSTITUTION-CLIENT INTERFACE: ASSISTING CLIENTS IN DISASTER RISK MANAGEMENT

This section describes the experiences of microfinance institutions in assisting clients in disaster risk management, analyzes actual experiences, and concludes by identifying the most relevant lessons learned from these experiences.

5.1 Overview

Microfinance institutions have increasingly become involved in assisting clients in disaster rsik management, although mainly during the response and recovery process. The type and degree of involvement of these institutions has logically varied across the world depending on regional differences in the evolution and nature of microfinance and specific country characteristics related to disaster risk exposure and the nature of poverty and vulnerability. Given the transitional character of the economy, MFIs in Eastern Europe have faced challenges different to the ones these institutions have experienced in developing countries in Asia, Africa, and Latin America and the Caribbean. In the latter region, disasters have demanded responses attuned with the higher degree of commercialization achieved by the sector and its focus on the promotion of microenterprises. In Asia – with a few exceptions – responses have continued to emphasize the regional focus on microfinance as a tool for poverty reduction. The remote, less populated rural environment that characterizes Africa has made provision of microfinance services, even under 'normal' circumstances, quite challenging (Mayoux, 2001; UNCDF, 1999b).

Generalizations on the experiences of MFIs in post-disaster situations, and particularly on lessons learned, should thus be interpreted without forgetting these differences. It must also be kept in mind that evaluations of the impact of the efforts described in this section, and of the products and services detailed in Annex 1, are limited. In general, most impact studies on microfinance face methodological shortcomings that make measuring impact of their programs and activities difficult. Lack of systematic, reliable data gathering on the impact of microfinance services and products related to disaster risk management on clients makes evaluation harder. Many of the reports on these experiences have been prepared by the MFIs themselves. Moreover, it is not always easy, or even feasible, to isolate the impacts of the specific post-disaster assistance provided by various actors, including donors, government, MFIs, and civil society groups. In normal times, individual members of the household are usually involved in different programs, not just microfinance. In many cases, households affected by disasters have more than one member involved in microfinance programs. This situation is further complicated by the fact that in the aftermath of a disaster there usually are many different organizations and programs targeting similar households. Moreover, a disaster may also have, in time, positive effects, whose role in helping in the recovery of microfinance clients is difficult to disaggregate.[53]

5.2 Experiences in Disaster Risk Prevention, Mitigation and Preparedness

Some MFIs have adopted disaster risk preparedness and mitigation measures after being caught repeatedly in disaster response operations, and as part of the growing concern with the vulnerability of many of their clients. These measures include development of specific disaster management programs such as credit for housing improvements, training for disaster

[53] For instance, the 1998 floods in Bangladesh helped improve soil conditions in the subsequent seasons through silt deposition that contributed to better soil productivity and increased rice yields.

preparedness, and disaster risk awareness raising. The most comprehensive efforts to help clients have taken place in Bangladesh, where some of the large institutions such as Proshika and the Association for Social Advancement (ASA) actually started as relief organizations. Through over more than two decades of operations, Proshika has developed what it describes as a participatory multisectoral and integrated development approach to assist poor people (Proshika, 1999). According to its institutional mandate, this approach includes, in addition to assistance to increase income and savings, the reduction of "…income and resource erosions which happen due to many vulnerabilities and insecurities of the poor people." (ibid, p.11). Among the risks faced by the poor, Proshika recognizes environmental and natural disaster risks, which in Bangladesh include not only frequent and massive flooding, but also cyclones, tornadoes, drought, river erosion and landslides. Within this framework, Proshika has developed a 'Disaster Management and Preparedness Program' that is complemented by a housing program, social forestry activities and an employment and income generation program. Proshika has especially targeted the poorest of the poor, who are landless and severely affected by river bank erosion. In its desire to increase the disaster preparedness capacity of its clients, Proshika has built disaster shelters in the coastal belts of Bangladesh (Proshika, 2000).

5.2.1 Microcredit for Housing Improvements and Construction

Some MFIs regularly offer housing finance products given the importance that housing has for the poor as shelter, as an important physical asset and as income generating investment when residential use is combined with home-based enterprises or rental opportunities. Housing loan products may be useful in disaster risk mitigation, during normal times and during the reconstruction process. Regular MFIs, however, face several constraints in offering this type of financial services: first, MFIs typically limit their involvement in controversial issues such as land tenure and access to basic services, which closes off the financing of land acquisition and infrastructure provision to help clients move to less disaster-prone locations and improve living conditions. Second, to be useful to clients, housing loans, particularly in urban areas, require larger amounts and longer amortization periods than microenterprise loans and are less suited for group-based lending methodologies. These factors translate in increased demand on funds and greater risk exposure for a microfinance institution (Ferguson, 1999). MFIs have had more difficulty in providing credit for housing in urban areas due to constraints in the land and urban markets, legal and political issues surrounding land tenure, and bottlenecks in infrastructure provision. Indirectly, the financial assistance for housing given by MFIs to their clients may be larger than it seems. Even if no explicit loan products for housing seem to be available, the demand may be indirectly met by the splitting of other type of loan products. Poor households give high priority to the physical improvement of their housing, particularly when they have some security of tenure. And to meet their housing needs, many microfinance clients divert part of their production loans into housing improvements.[54]

According to CUDS (2000), MFIs have attempted to deliver credit for housing through three different organizational arrangements: as an integral part of the institution (e.g., the Center for Agricultural and Rural Development (CARD) in Philippines); as specialized housing programs managed by a subsidiary or affiliated agency (e.g., the Self-Employed Women's Association Bank in India); and by partnering with agencies specializing in housing programs (e.g., FINCA Africa). The challenge, in all cases, is for the institution to be able to offer housing loan products that are incremental, demand-driven and financially viable, and that do not require significant

[54] In Bolivia, for instance, FIE or Centro de Fomento de Iniciativas Privadas, estimated that about 20 percent of its microenterprise loans went into home construction and expansion (Ferguson, 1999).

collateralization (CHF, 2001). In response to this challenge, loans for land acquisition are not usually offered by MFIs, most of which, at the same time, require legal land tenure for new housing construction loans. In contrast to regular MFIs, shelter advocacy organizations have provided credit for housing to the poorest of the poor with the central goal of facilitating access to land, without giving priority to financial viability (CUDS, 2000). As a result, most of these programs tend to be geographically scattered and financially weak, and to depend heavily on donor assistance.

As mentioned earlier, one of the most critical challenges faced by microfinance is the fact that many of their clients live in disaster-prone areas, and participation of many stakeholders is needed to address the problem. Some of the best experiences at hand do not deal directly with disaster risk, and are not easily replicable by typical MFIs, but help illustrate specific options to approach this issue. A good example is the work of SEWA in the *Parivartan* Scheme or Slum Networking Project whose goal is to provide households with basic infrastructure (CUDS, 2000).[55] Under this project, SEWA Bank acts as financial intermediary, *Mahila* Housing SEWA trust provides technical assistance, the private sector provides matching funds, and the municipal government provides matching funds and land tenure security for at least ten years to project participants.[56] According to SEWA's website, the scheme has benefited over 30,000 slum dwellers in the last 4 years. Similar examples are found in Latin America, where NGOs have promoted microcredit for housing as a means to link poor communities to formal institutions. In Fortaleza, Brazil, for example, the Self-help Housing Support Program has been implemented through the joint effort of the state and local government, CBOs, an intermediary NGO and the local university (CUDS, 2000).

As detailed in Annex 1, there are interesting experiences in regular housing microfinance that have contributed to disaster risk reduction. SEWA Bank has offered regular housing finance, to the extent that according to recent figures, close to half of its loan portfolio is invested in housing. The *Mahila* Housing SEWA Trust (MHST) was actually created by SEWA, SEWA Bank and other partners to assist women members in improving their living conditions. Grameen Bank offers five different categories of housing loans, including housing, basic housing, pre-basic housing, homestead purchase and house repair. Proshika's housing program had as its initial objective to provide group members with both credit and technical assistance to build low-cost houses. The focus of the program has recently shifted toward a collaborative effort with the government to improve the settlements of the poorest of the poor, especially the victims of river erosion (Proshika, 2000). Proshika has simultaneously promoted the production of different and safer housing materials and construction practices. In addition, Proshika has actively engaged in resettlement activities of river erosion victims.

5.3 Experiences in Disaster Response and Recovery

5.3.1 Disaster Response Experience

Microfinance institutions in Bangladesh, particularly the largest ones, have responded actively to the many disasters experienced by the country. The unprecedented floods in 1998 were no exception, and many of these institutions turned again into de-facto relief agencies (Zaman, 1999). The disaster affected more than 60 percent of microfinance clients, while field operations

[55] In India, several microfinance institutions are offering loans to poor clients for individual water and sanitation and other basic infrastructure.
[56] More specific details of the project are given in the section on services and products in Annex 1.

of many MFIs were interrupted for about 60 days in severely flooded areas (Hassan and Nayar, 1998). To maintain weekly contacts with clients, MFIs sent out staff on boats. Many allowed their staff to carry money with them to provide immediate interest free consumption loans, while suspending repayment collection and savings mobilization in the places most affected by the disaster. MFIs also organized medical centers, and distributed food, drinking water and medicines to all flood-affected people.

The Grameen Bank approached the disaster as an opportunity to demonstrate the degree to which microfinance can help in disaster emergency and recovery (Nayar and Faisal, 1999). In addition to the relief activities mentioned above, it established a Disaster Mitigation Task Force to prepare and coordinate its disaster activities, including, in the medium term, provision of financial assistance for housing rehabilitation and agricultural production. Based on assessments conducted by its staff, Grameen Bank provided assistance in cash and in kind, and affected clients were allowed to withdraw, if they wished, all the money available in their Group Fund Savings.[57] Borrowers who had already paid half or more of their loans were eligible to take new loans for the amount that they had repaid. First time borrowers who had paid 16 installments were given seasonal loans to resume their activities. Simultaneously, the Bangladesh Rural Advancement Committee (BRAC) provided disease control measures, seeds to farmers, input replacement (saplings, birds, etc.) for other economic activities, and subsequently helped repair schools and basic infrastructure (Sebstad and Cohen, 2000). BRAC also purchased 364 tons of rice on the open market and sold it at subsidized rates to clients. Simultaneously, it offered emergency loans and rescheduling of payments of existing ones to its clients. Proshika, carried out a 50 million taka emergency program that benefited 100,000 affected households through the provision of individual interest-free loans of 500 taka. Proshika supported as well a credit program worth 30 million taka for vegetables and winter crop cultivation. An important issue, highlighted by Hassan and Nayar (1998), is that while the main focus was understandably the flood-exposed clients, little attention was paid to the impact of both the floods and the relief efforts on the microfinance sector, or to understand the challenges individual institutions were facing in the post-disaster period. Eventually, even large MFIs such as BRAC, Proshika and Grameen Bank needed additional support to continue their operations.

Despite their good will, relief activities of MFIs were not free of controversy and of reputational risk. It did not help in the case of Bangladesh that the large microfinance providers are perceived by some population groups as "the corporate NGOs." For example, one of the large organizations was accused of taking advantage of the 1998 floods to push in hybrids of rice as part of the relief packages (Majunder, 1998). In the midst of the crisis, some of the accounts of the institutional responses to the disaster differed from those reported by the media. While the MFIs stated their willingness to suspend collection of loan installments, some newspapers reported that it was actually the clients who decided to stop repaying their loans. Overall, the floods revealed once again the correlated nature of the vulnerability of microfinance clients and institutions. The floods brought attention, on the one hand, to the double burden of affected clients, who not only needed additional capital to restart their lives, but also to meet their existing debt obligations. And on the other, to the weakened position of MFIs in light of their clients' loss of repayment capacity.

In Mozambique, clients of the Fondo de Crédito Communitário (FCC), which applies the village or community banking methodology, were facing unprecedented floods when a cyclone hit on February 22, 2000. The flooding, considered the worst in 50 years, caused more destruction to infrastructure than the civil war experienced by the country until the early 1990s. Hundreds of microenterprises operating in the areas affected by the disaster were paralyzed. FCC staff had to

[57] Money drawn from the Group Fund is repayable in installments but without interest.

juggle between providing relief and attending the tasks related to the microfinance program, especially since there were not any NGOs established in the flood-affected area. During the disaster, FCC was able to count on the assistance of its mother organization, World Relief, to meet increased operational costs. Most of the assistance received by FCC was in kind, including helicopter transport to inaccessible areas, new office supplies and materials, and communication costs. In contrast to Bangladesh, most MFIs in Mozambique are fairly young. In fact, FCC, which represents the first serious attempt at microfinance in the country, was established by World Relief in 1993. It had, however, become the largest and most successful program in the country at the time of the disaster (de Vletter, 2001).[58] Despite its relative success, according to FCC staff, the program would have gone under without external assistance.[59] Due to the disaster, the FCC program came to a complete stop for four months. Most clients were displaced for about two months and the flood emergency response phase took two more months after clients have returned to their homes.

As a pilot test during the emergency, cash grants were offered directly to FCC clients by another organization. Clients had the option of using the grant to pay off their outstanding debt or restructuring their loan in order to keep the grant. Significantly, of a total of 89 community banks targeted, only 3 chose to restructure. The community banks that chose to repay, paid the loans before the anticipated repayment date. Given that neither the staff nor the clients had the capacity to calculate the amount due if a loan was closed early, FCC decided that the loans would have to be repaid considering all capital and interest that would have been accrued to the end of the normal loan cycle of 4 months. In the end, this decision helped FCC receive additional interest income, which balanced the interest income foregone on loans repaid after schedule. Internal and external evaluations suggest that the cash grants did not have any negative impact on the credit culture of FCC clients since, first, the grants were offered by a different organization; and second, most clients used the grant to repay their loans in order to obtain a new loan. A contributing factor was that the previous credit behavior of FCC clients had been more than satisfactory, resulting in a historical repayment rate for the community banking product of almost 100 percent. It also helped that community banking, due to the smallness of the loans offered, serves usually as an income supplement and not so much as a means to carry out activities that can independently sustain a family (de Vletter, 1999).[60] On the other hand, because of the nature of its business, FCC could not offer loans for housing repairs or reconstruction.

In India, when a devastating earthquake hit the state of Gujarat in January 26, 2001, many members of the Self Employed Women's Association (SEWA) were affected.[61] The first concern of the institution was to learn about its members' losses and needs.[62] Several of the most affected districts had been experiencing a drought when the earthquake hit, and SEWA had been providing relief assistance in these districts. As it did during the 1998 and 1999 cyclones, SEWA immediately decided to get involved in the disaster response and recovery efforts. Since the day of the earthquake, relief teams of the institution started visiting members to find out how they were doing and to identify their needs. To establish a viable relief distribution network, SEWA

[58] As of November 2001, FCC-South provided credit and savings services to 4,825 clients (70 percent female) over 243 community banks. FCC-North served 1,800 clients (Eileen Miamidian, FCC, personal communication, January 2002).
[59] Unless otherwise noted, information on FCC experience during the 2000 floods is based on personal communication (January 2002) with Eileen Miamidian, officer from FCC. Her e-mail address is Emiamidian@wr.org.
[60] FCC's loan sizes have grown from US$25 in 1994 to US$75 in 2001.
[61] Unless otherwise indicated, information on the disaster response of SEWA is based on SEWA (2001a) and the author's notes from a field visit in January 2001. Additional information can be found in SEWA's web page, www.sewa.org.
[62] Many multi-storied apartment buildings and traditional houses were destroyed by the earthquake. A large number of SEWA members survived the disaster, however, as they lived in small one-room dwellings that were less affected by the tremors.

conducted an early assessment of damages, paying special attention to the self-employed women members of the institution.[63] Once finalized, the assessment report was submitted to government authorities.[64] During the emergency, SEWA focused on helping members satisfy their immediate needs for food, water, emergency supplies such as blankets and medical aid, and temporary shelter.

ENLACE is also a representative example of the challenges faced by MFIs after catastrophic earthquakes such as the ones that affected El Salvador in January and February of 2001.[65] ENLACE, one of the largest microfinance providers in the country, is a fairly young NGO-based MFI started in 1997 as a pilot effort that resulted from the 'merging' of several small local organizations that have been funded by Catholic Relief Services (Katalysis Partnership, 2001).[66] At the moment of the earthquakes, this institution had over 10,000 clients distributed across more than 500 communal banks (ENLACE, 2001a). The main concern of ENLACE, as it was for SEWA, was the well being of its staff and its clients, most of whom are self-employed rural women. Although ENLACE had the relative advantage of its international ties, it did not have the experience of SEWA nor the capacity to run a full-fledged emergency response and recovery operation.

Immediately after the disaster, ENLACE assessed the damages suffered by its staff, and with support from Catholic Relief Services, managed to provide some humanitarian assistance to them. Subsequently, an independent consultant conducted a market assessment of the post-disaster situation to determine clients' losses and credit needs. The market survey revealed that most of the demand for new loans was concentrated on housing reconstruction (64 percent), which is perhaps related to the fact that more than two thirds of ENLACE's clients have some security of land tenure. Demand for new production credit was only about 20 percent (ENLACE, 2001b). ENLACE also estimated that about 12 percent of its portfolio was adversely affected by the disaster. To minimize credit risk, ENLACE developed a temporary policy to help clients manage their debt according to their needs. The first decision was to consider the outstanding debt of those clients who had lost everything as unrecoverable. Simultaneously, ENLACE offered debt restructuring and refinancing to those clients who could continue operating their business, but for whom the volume of sales had decreased considerably. And finally, as a donation, ENLACE temporarily stopped interest payments for clients with excellent repayment records. Cash flows were not too impacted as loan demand actually decreased in the first quarter of the year due in part to the uncertainty generated by the continuous aftershocks.

In other countries in Central America, many microfinance institutions were involved in disaster response and recovery after Hurricane Mitch devastated the region in October 1998. The cases of ACODEP and Pro-Mujer help understand this experience. Although ACODEP has recently begun solidarity group lending, as most MFIs in Nicaragua, its loan portfolio is concentrated in individual lending. [67] In contrast, Pro-Mujer is a medium-sized institution with direct international

[63] A team of 50 organizers conducted the damage assessment, looking at the extent of damage to housing; household goods, tools and equipment; community social infrastructure, including SEWA's field coordination and community centers; and the number and extent of injuries suffered by the affected members.

[64] According to the assessment, at least 60,000 families with SEWA members were heavily affected by the earthquake. All of the institution's field coordination and community centers suffered heavy damages.

[65] In addition to two internal reports (see ENLACE 2001a and 2001b), information on ENLACE is based on personal communication with Carlos Villegas, its General Manager (e-mail address: cvillegas@enlace.com.sv).

[66] The small organizations advocated the need for a large microfinance institution in El Salvador, and Catholic Relief Services 'bought back' portions of their portfolios (Katalysis Partnership, 2001).

[67] Information on ACODEP's experience is based on aid memoirs kindly provided by Brigit Helms and Tamara Cook from the Consultative Group to Assist the Poorest (CGAP), internal reports and electronic communications provided by Gioconda Hernandez Montiel, Marketing Manager, ACODEP, and field visits of the author after Hurricane Mitch and

links providing credit and savings to about 5,800 women through communal banking (Pro-Mujer, 1999).[68] While Pro-Mujer provides non-financial services such as basic health services and technical assistance in business skills, ACODEP concentrates more exclusively on financial services. Given their institutional characteristics, it is not surprising that Pro-Mujer assumed more of a relief agency role than ACODEP. In fact, for about two weeks, the focal centers of Pro-Mujer became relief facilities. Parallel to this local effort, Pro-Mujer International launched a fundraising campaign for relief activities. Interestingly, however, ACODEP has decided to mainstream disaster risk management into its operations, and the disaster prevention plan mentioned before is part of this process. Pro-Mujer has not taken any concrete steps in this regard. When a largely unreported earthquake hit the city of Masaya in July of 2000, Pro-Mujer had just started a microenterprise program there, and responded again as a de-facto relief agency (Pro-Mujer, 2000).

The hurricane severely damaged several market areas where ACODEP and Pro-Mujer operate, and both institutions rapidly mobilized humanitarian support to help clients and staff. Pro-Mujer staff temporarily stopped credit and training operations, postponed disbursements to new associations, and used training centers to counsel clients and distribute food donations. Moreover, it quickly managed to deploy trainers who could teach clients and their families on hygienic strategies and preventive health measures for a post-disaster situation (Pro-Mujer, 1999). ACODEP management initially sent a high-level team to assess clients' needs, while Pro-Mujer relied on volunteers. Pro-Mujer staff also worked directly with clients to determine their needs and reassure them that the program would continue, and brought in a consultant to conduct workshops on emotional recovery. ACODEP, in contrast, held special training sessions more specifically targeted at boosting the confidence of entrepreneurs in the affected areas.

As a result of the hurricane, many clients could not meet their repayment installments. Following a pattern seen in other countries, ACODEP and Pro-Mujer did not pardon any loans. ACODEP gave a temporary one month reprieve on payments and worked with its clients to restructure or refinance loans. ACODEP was somewhat constrained in carrying out this measure because it had been suffering from having too many different terms and repayment schedules related to the excessive proliferation of its credit products. Whereas this had allowed ACODEP to retain its market share, it had made it difficult for this institution to offer new products and to conduct realistic cash projections under normal circumstances. Pro-Mujer carried out a similar post-disaster portfolio management policy, and extended loan terms on the basis of clients' needs, capacity to repay and repayment history (Pro-Mujer, 1999). Because of its lending methodology, Pro-Mujer needed to send trainers to work closely with established communal banks to gather information on clients in order to assess the quality of the loan portfolio and establish strategies for disbursing new loans. To guide associations through the process of rescheduling loans and its clients through the process of restarting businesses, Pro-Mujer received assistance from its international network through the deployment of experienced staff from other countries. In the medium term, Pro-Mujer helped those clients who have lost their business completely to identify alternatives and establish new business plans.

Although few of the mostly urban clients of ACODEP were directly affected by the disaster, the markets they depended on dried up in the short term, causing increasing uncertainty. In addition, cost of basic supplies became very high. The main objective of the restructuring and refinancing

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the earthquake in Masaya (e-mail address of Ms. Hernandez is gtemercadeo@acodep.org.ni.) Additional information comes from ACODEP (1998) and ACODEP's webpage at www.acodep.org.ni.

[68] Professional staff from Pro-Mujer help women organize communal banks of 25 to 30 members. During the pre-credit training, women create smaller solidarity groups of five women. Additional information on Pro-Mujer can be found at www.promujer.org.

offered by ACODEP was thus to help clients maintain adequate liquidity levels so that they could continue operating their microenterprises. To affected clients, this institution offered refinancing of outstanding debt on an individual basis to be more responsive to the type of business operated by the client, and to the disaster effects felt by the local economy. For those clients who sold their products on credit, ACODEP reviewed bills owed to them and income statements to determine financial needs and repayment capacity. Short term loans were offered to clients to buy inputs, materials, or to restock their businesses. ACODEP efforts notwithstanding, delinquent payments were the first manifestation of the disaster effects on the institution. Despite the restructuring of outstanding debt, ACODEP lost over 5 percent of its portfolio after the hurricane. Even after suffering losses, ACODEP decided to participate in the national reconstruction efforts, specifically by providing loans for reconstruction of housing and small business structures, and rehabilitation of microenterprises. It also decided to start the process to develop of a new rural finance product called SERVICAMPO to assist in the reactivation of the rural sector.

ACODEP performance in assessing and managing the losses inflicted by Hurricane Mitch was commendable, even though it had been suffering before the disaster from a vicious cycle: low portfolio volume and relatively high operational costs were squeezing profitability, in turn forcing an ever-slowing capitalization rate that was constraining volume – and income – more and more. After the disaster, operational costs increased and clients required access to their mandatory savings. It was fortunate that at the time of the hurricane, ACODEP had an ongoing partnership with the Consultative Group to Assist the Poorest (CGAP), which included some performance-based financial assistance. The objective of CGAP's support was to shore up the capital base of ACODEP in preparation for massive leverage and expected transformation into a formal institution. Based in part on ACODEP's prudent disaster response, CGAP decided in January 1999 to disburse the final tranche of this assistance (US$300,000), which helped the institution mitigate a possible liquidity crisis. To authorize this disbursement, CGAP also had to revise the performance targets agreed with the institution, particularly the reduction of administrative cost per loan. Given this experience, ACODEP has included the creation of a disaster fund as one of the measures to protect the portfolio in the disaster prevention plan mentioned earlier. In the case of Pro-Mujer, savings became a disaster fund, and many clients used these to repay loans and meet basic needs during the emergency.

CGAP also face several challenges after becoming involved in assisting ACODEP deal with the disaster effects. CGAP soon realized that ACODEP had depended excessively on CGAP money and forced savings as its main sources of finances, which made the institution highly vulnerable to liquidity problems at any moment. It did not help that retained earnings and commercial sources of funds had not materialized for ACODEP as expected. CGAP also realized that donors should respond in a rapid and flexible way to the needs of their microfinance partners in distress, and be willing to amend partnership agreements and disburse funds sooner than planned. Finally, CGAP had to reconsider performance against targets since the main assumptions used for financial projections had changed. Previous to the disaster, for instance, staff costs for ACODEP had increased due to a new law raising the minimum wage, and administrative costs have consequently increased. The disaster caused these administrative costs to increase even more.

5.3.2 Disaster Recovery Experience

Several microfinance institutions have also decided to assist their clients during the recovery process, often through their regular programs. In a few cases, however, MFIs have gone beyond their regular business programs, and prepared specific disaster recovery programs. Even before the earthquake relief effort ended, for instance, SEWA in India had already prepared a long-term

disaster rehabilitation program.[69] As mentioned earlier, the earthquake-affected districts were experiencing a second consecutive drought year when the earthquake hit. The challenge for SEWA was to ensure that the rehabilitation program had a multi-hazard perspective covering seismic and cyclone resistant measures as well as drought mitigation measures, while continuing to provide drought relief. Similar to the earthquake relief operation, the rehabilitation program has been implemented through SEWA's family of network organizations: the district associations and federations have been in charge of the livelihood security program, the *Mahila* Housing Trust has implemented the shelter restoration program, and the Health and Child Care Cooperatives and the SEWA Academy have provided the necessary social protection services.[70] The disaster rehabilitation program has managed to take advantage of several opportunities to maximize the integration of drought and earthquake mitigation measures into the reconstruction process. For example, increased availability of water has been provided by adding roof rain water harvesting structures to the new housing constructed through the shelter restoration program. Architects and engineers in SEWA designed the 5,000 liter water tanks to ensure that adequate seismic-resistant standards were followed. Simultaneously, to provide drought relief, a fodder security program including dry fodder and cattle feed has also been established.

Simultaneously, SEWA has implemented a housing shelter restoration program following a participatory, owner-driven approach. Moreover, the program was developed in close partnership with the State government, and within the framework of the state's housing policy established for the earthquake reconstruction period. Given the magnitude of the task at hand – SEWA estimated that approximately 28,000 families in 161 villages required its assistance in housing restoration – the program was designed in phases.

In Bangladesh, Grameen Bank has been offering housing loans for many years, and has a permanent Housing Rehabilitation Program. As part of the 1998 flood recovery assistance, it offered to clients who had received housing loans before the disaster an additional amount of 5,000 taka if their houses had experienced damaged, while those who did not previously have housing loans were given 2,500 taka toward housing reconstruction. BRAC also extended loans to 240,000 families for housing to support reconstruction efforts. The loan amount was primarily used to buy construction or repair materials. ACODEP in Nicaragua, which has a more exclusive focus on microenterprise loans, established a new housing loan product in response to Hurricane Mitch called MI VIVENDA ('my house'). During the reconstruction period, 2,700 households took advantage of this financial product.[71] The housing loan is now offered as a regular loan product and has reached a good level of demand.[72] Based on the market assessment discussed before, after the January 2001 earthquakes in El Salvador, ENLACE designed a new loan for housing reconstruction or acquisition. This loan product has been offered since July 2001 on a pilot basis (ENLACE, 2001b). The market assessment indicated to ENLACE that over US$6.0 million were needed to satisfy the potential demand for this type of loan. Demand, however, has been slower than expected.

[69] Unless otherwise indicated, information on SEWA's recovery efforts comes from SEWA (2001b) and the author's January 2001 field visit notes. Additional information can be found in www.sewa.org.
[70] SEWA's rehabilitation work has covered about 161 villages throughout the three most affected districts.
[71] Gioconda Hernandez Montiel, Marketing Manager, personal communication, October 2001.
[72] According to the marketing manager, ACODEP has given 10,200 loans under MI VIVIENDA to date, totaling about US$4.0 million (average per loan of US$390). After the earthquake in the city of Masaya, ACODEP has started to emphasize the use of the housing loan among clients as a mitigation investment.

5.4 Experiences in Providing Microinsurance to Clients

For the most part, MFIs have not managed to tap into the potential of insurance as an instrument to assist clients in their risk management efforts. While savings was seen as the "forgotten half" of finance in the 1980s, insurance has now been identified as the "forgotten third" (Siegel, 2000b). In many countries, microinsurance services for disasters are nonexistent, while some of the insurance products offered exclude disaster-related losses (Nagarajan and Brown, 2000).[73] As Siegel explains, insurance can help reduce the impact of disasters on clients, while increasing their ability to recover and to repay loans. In addition, insurance can help improve both clients' ability to access other financial products and MFIs' profitability and financial sustainability. Although these advantages have been increasingly recognized, MFIs face serious constraints in providing disaster insurance products. Before reviewing the experiences of MFIs in providing insurance, it is thus relevant to first, describe the general characteristics of disaster risk insurance, and second, understand these constraints.

5.4.1 Characteristics of Disaster Risk Insurance

Insurance allows transferring financial risk from an individual to a pooled group of risks. Insurance's basic principle is "the sharing of risks by pooling resources" (Siegel, Alwang and Canagarajah, 2001: 10). In other words, it is not the pooling of risks per se that makes the resource base stronger. The latter actually grows stronger as the group gets larger when the individuals pooled make payments that exceed the expected value of the loss.[74] However, the risks posed by natural hazards such as earthquakes, floods or hurricanes create particular problems to prospective insurers since the risks affected by these events, known as *catastrophe risks*, are highly correlated – or simply put, they are not independent (Kunreuther, 1998b). For example, if a severe earthquake occurs, there is a high probability that many structures will be damaged or destroyed at once. Moreover, since each particular event produces different amount of losses, estimating an average loss with an adequate degree of predictability requires a long recorded history of disaster events that is not typically available. Insurers dealing with disaster risk generally face the risk of large and indeterminate losses and potential financial difficulties and insolvency.

As Kunreuther (1998b) explains, to insure a risk, the insurer must be able, first, to identify the risk and determine its probability of occurrence and extent of expected losses; and second, to set premiums for each potential costumer or class of costumers. In addition to highly correlated losses, when setting up premiums, prospective insurers of disaster risk face issues common to other risks related to risk ambiguity, adverse selection and moral hazard. Risk ambiguity results from the uncertainty regarding the probability of a specific loss and its magnitude.[75] If the premium is based on the average probability of a loss, and the entire population is used to arrive to this estimate, adverse selection may take place since those at the highest risk for a given hazard will be the most likely purchasers of coverage for that hazard. However, purchasers cannot always be expected to have the informational advantage of knowing their risk exposure level, let alone the poor in developing countries. Insurance protection may some times lead to careless behavior resulting in moral hazard, which refers to an increase in the probability of loss due to

[73] The livestock insurance program run by Grameen Bank, for instance, is commonly stopped during the rainy season.
[74] Loss is defined in the insurance industry as "the payment that the insurer makes to the policy-holder for the damage covered under the policy" and also as the total amount paid to policy-holders in one event (Kunreuther, 1998b: 23).
[75] Loss projections for future hurricanes, for example, are still highly uncertain given that they are events of low frequency but high financial impact (Kunreuther, 1998b).

changes in the behavior of the insured. It is difficult to monitor behavior once a person becomes insured.[76]

Given the above issues, prospective insurers may have to charge premiums that exceed the expected loss. These premiums may require levels that discourage demand for coverage, and that often cannot be set due to rate and coverage restrictions imposed by government. If the objective is to provide insurance services to the poor, the insurer will face the challenge of setting up affordable rates which can also ensure financial sustainability of the program. In the end, even if a risk is considered insurable, it may not be profitable, or at least sustainable, since, as Kunreuther (1998b: 27) puts it,"…it may be impossible to specify a rate for which there is sufficient demand and incoming revenue to cover the development, marketing, and claim costs of the insurance and still yield a net positive profit." This was precisely the experience of insurance companies in the United States that led them to declare flood risk as unmarketable. Experience in this country also indicates that without a mandatory requirement it is difficult to spread the risk among a large number of people in order to provide affordable insurance rates.

Weather-related risks such as flood and crop have long been identified as having insurability problems (Mills et al., 2001). Significantly, according to these authors, the U.S. crop and flood insurance programs have never been profitable. The failure of crop insurance in developing countries such as India, Brazil and the Philippines is evidence of what may happen when an attempt is made to provide insurance under uninsurable conditions.[77] Under certain circumstances, even when risks are technically insurable, there may be alternative risk management products that are more adequate, such as savings and emergency funds.

A way to make flood insurance available has been for governments to partner with the insurance industry, as is the case in the National Flood Insurance Program (NFIP) in the United States (Kunreuther, 1998b; Pasterick, 1998). This program is actually comprised of three essential components: risk identification, hazard mitigation and insurance. The federal government carries out the required hydrological studies to delimit vulnerable areas and the nature and extent of the flood hazard. State and local governments adopt and enforce minimum standards for floodplain zoning and construction. And the commercial insurers sell the federally underwritten insurance policies.

5.4.2 Constraints faced by Microfinance Institutions

In addition to the technical and insurability issues described above, the provision of insurance to the poor faces constraints related to high transaction costs, the lack of collateral on the part of microfinance clients and lack of risk pooling capacity on the part of the institutions; lack of adequate legal and regulatory frameworks, and limited understanding of insurance needs. Moreover, disaster insurance programs should be effectively linked to mitigation activities to increase their prospects of financial viability.

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[76] Insurance companies try to mitigate moral hazard through deductibles (transferring loss coverage) and coinsurance (sharing loss coverage).

[77] Agricultural production is intrinsically risky, as farmers face a myriad of weather, pest, disease, input supply and market related risks. According to Skees, Hazell and Miranda (2000: 3), "[t]he financial experience with publicly provided, multi-peril crop insurance has been disastrous." One of the most important reasons identified by these authors why public crop insurance has failed is "than many of the risks covered by multiple risk insurance are inherently uninsurable, leading to large actuarial losses for the insurer" (p. 4).

Insurance is a highly technical operation with substantial transaction costs (Del Conte, 2000). Most MFIs do not have the necessary expertise to price their products adequately, nor do they have the human and financial resources to support an insurance product, and are for the most part too small to achieve appropriate risk pooling levels (Brown et al., 2000). Small MFIs operating in a narrow geographical area are particularly limited in what they can do to insure clients against disaster risk. In general, many of the options available to formal insurers are not readily available to MFIs. These options include diversifying the book of business to avoid over-concentration in certain regions, buying reinsurance, using available research in seismology, geology, structural engineering and so forth, and increasing premiums in high risk areas (Mileti, 1999).

Even if the risk may be insurable and the clients are interested in insuring against it, MFIs still face the challenge of providing coverage that is simultaneously affordable and financially viable (Brown et al., 2000). Overall, microinsurance provision has been an expensive endeavor (McDonagh, 2001). One of the major problems of microinsurance, of which microcredit and microsavings are not exempted, is the smallness of the transaction, which results in high unit transaction costs for the institution. It may be feasible to provide disaster insurance services, but given the risk exposure levels of many microfinance clients, insurance premiums will most likely have to be set at a rate that they could not afford. In countries like Mexico, for instance, low coverage stems in part from the high premium prices that the insurance industry has to charge in zones that are highly prone to earthquakes (World Bank, 1999b). Alternatively, in areas where risk exposure is low, clients do not have the incentive to buy insurance coverage, which further reduces the risk pool.

Effective demand for disaster insurance is, in any case, generally limited. Not even in developed countries have many property owners located in disaster-prone areas felt compelled to pay voluntarily for coverage against risks such as earthquakes, hurricanes and floods. As in developing countries, many owners misleadingly perceive government disaster assistance as a form of insurance or do not see the risk as imminent.[78] In developing countries, it is even more difficult to offer insurance services due to lack of well-defined property rights (Charveriat, 2000; Sinha and Lipton, 1999). In the United States, for example, only about 27 percent of the houses exposed to floods are insured, while in areas of relatively high earthquake loss probability, no more than 30 to 40 percent of property owners have bought coverage (Mileti, 1999, Palm, 1998). In developing countries, market research for insurance products indicates that poor households are not interested in being protected against all risks. Most households typically consider the trade offs between the uncertainty of experiencing significant losses due to a certain risk and the certainty of paying small, regular premiums over a life time (Brown et al., 2000). In addition to financial considerations, social and cultural factors enter into play in this decision.

5.4.3 Linking Insurance and Mitigation

It has been assumed that although disaster insurance is not a mitigation strategy per se – as it redistributes rather than reduces losses – a well designed insurance program should promote the adoption of loss reduction measures (Mileti, 1999). Programs such as the NFIP mentioned earlier assume that to be feasible, a disaster insurance program must make sure that risk exposure will be reduced overtime through 'responsible mitigation actions' (Pasterick, 1998). Importantly, the standards established by the NFIP follow a non-structural approach to floodplain management,

[78] In the United States, the declaration of a national disaster area entitles the affected population of such area to grant loans from the federal government at subsidized rates. This form of public transfer tends to discourage purchase of insurance (Charveriat, 2000).

and are supposed to complement the federal program of structural flood works. The responsibility for adopting and enforcing the standards falls on the local community as a whole, while there are incentives to ensure that communities adopt them. Pasterick reports that NFIP has managed to promote hazard mitigation with relative success. When the responsibility is left to the individual household, the results seem less encouraging. Empirical research in California suggests that despite relatively good awareness levels and incentives, residents have displayed very low interest in adopting earthquake mitigation measures (Palm, 1998).

A major challenge related to the link between insurance and mitigation is posed by the location and standards of existing structures. Given the difficulty in relocating and upgrading pre-existing structures, floodplain management standards in the NFIP, for example, are directed toward future development. The program is nevertheless required to offer coverage to all properties in high-risk areas, resulting in a 'subsidy' for old structures since their premiums do not effectively represent the probable losses.[79] It is expected that as the mitigation component of the program render positive results, the subsidy will decrease.

In developing countries, it is far more difficult to establish the link between insurance and mitigation. The need for mitigation is high as many structures are completely uninsurable since they are not only located in settlements without basic services and/or in flood plains or other places with high probability of disaster occurrence. In addition, many of these structures are not built with solid materials and appropriate building standards, while their occupants often lack legal ownership title (World Bank, 1999b). The poor, in addition, do not have adequate financial incentives, let alone the means to take mitigation actions. Local governments, at the same time, lack the capacity to develop and enforce land use management plans and building standards to improve the conditions of these settlements.

5.4.4 Experiences on Provision of Microinsurance

Microfinance institutions have offered insurance products, including disability and life insurance, property insurance, loan insurance (in the form of, *inter alia*, price and yield insurance), and disaster insurance (Siegel, 2000b). In a few cases, comprehensive insurance has also been provided. According to Siegel, disability and life insurance, as well as disaster insurance has not necessarily been linked to loans. In contrast, property insurance has typically been offered in connection with loans.

Disability and Life Insurance.

Some MFIS have started to offer basic life coverage, the least complex form of insurance according to Brown and Churchill (2000). Less often, but still significant, coverage for injury and old age has also been offered. Many of these schemes have in many instances been structured as non-profit schemes. Notably, some of these schemes have been promoted in Africa to protect microfinance institutions and clients in the face of the HIV/AIDS pandemic. In Uganda in particular, FINCA has partnered with the American International Group (AIG) to provide group-based life and disability insurance as a non-for-profit activity (Brown et al., 2000; Del Conte, 2000). Coverage of the life insurance is limited to death by accidents, excluding death by natural

[79] According to Pasterick (1998), about 35 percent of NFIP policies were subsidized to some degree, costing the program close to half a billion dollars in annual premiums. Subsidization was deemed necessary to provide both 'fair' coverage to those who had built without knowing the extent of the risk, and incentives to communities to regulate the location and quality of future floodplain development.

cause or HIV/AIDS, and is offered to the village bank clients in FINCA's program. According to Brown and his colleagues, AIG pays the outstanding balance of the loan due to FINCA and an additional benefit of between US$210 and US$820 to cover burial costs. This type of compensation protects the beneficiary's group and family as well as the institution. Another relevant example mentioned by Del Conte is found in Bangladesh, where Delta Life Insurance, a private insurance company, offers microinsurance products to rural and urban clients which combine life and savings insurance schemes.[80] In Philippines, the Center for Agricultural and Rural Development (CARD) has established a Mutual Benefit Association as a non-profit organization managed and owned by its members-clients, and that provides coverage to members and their spouses in case of death and disability due to old age or sickness. This mutual fund has been capitalized through clients' contributions of 2.00 pesos per week and from the 2.5 percent loan redemption fees charged on certain loans (Chua et al., 1999).[81]

A number of insurance schemes linked to credit are offered to ensure loan repayment in case of death or default. In Africa, several MFIs have started to offer voluntary and more often mandatory credit insurance (McDonagh, 2001). In Bangladesh, life insurance linked to loans is also common. For example, the Association for Social Advancement (ASA) provides insurance connected to their small credit and small enterprise loans. A borrower must deposit 0.3 percent of the actual loan amount for life insurance in each loan cycle in the case of the former, and 0.5 percent in the case of the latter. In the event of the borrower's death, ASA gives a one time donation to her or his successor equivalent to the present loan amount (Rahman, 1999). Credit insurance has proven useful in protecting the portfolio and reducing the vulnerability to crisis of the group-based lending methodology. Credit insurance has not only protected group members from loan liability of deceased members, but also reduced the perverse incentive to exclude individuals viewed as liabilities (Parker, 2000).[82] However, linking insurance to a credit product means that the clients only have coverage when they have a loan.

Comprehensive Coverage

SEWA in India is a good example of a microfinance institution providing comprehensive coverage to its members. SEWA started its integrated insurance program in 1992, as collaboration between SEWA, SEWA Bank and the nationalized insurance companies. Eventually, SEWA established its own insurance company, VimoSEWA, which according to the most recent figures, has insured about 90,000 women and men in Gujarat. The current insurance program offered by this institution consists of a group insurance package still linked with other insurance companies. Specifically, the program has three different insurance packages including life, accidental death, hospitalization and maternity, and loss of housing and other assets. In addition, SEWA plans to offer its members old age pension coverage, which may be reinsured or managed by an asset management company. SEWA has offered life insurance through a group insurance scheme of Life Insurance Company of India (LIC), underpinned by a 50 percent premium subsidy of the central government. Accidental death has been offered also through a group insurance scheme of New India Assurance Company (NIA). In terms of asset protection,

[80] Although Delta Life Insurance has been successful with its regular products, it has faced several problems with its microinsurance products. These problems include, according to Del Conte (2000), high overhead costs, high drop out rate and unsuccessful staff incentive schemes.

[81] Benefits for a member include burial expenses and debt redemption in the event of death, as well as disability benefits due to old age or sickness. Amount paid and length of coverage will depend on the length of membership (Chua et al., 1999).

[82] In the absence of credit insurance, adds McDonagh (2001), some institutions in Africa have tried to limit the individual liability of members in a solidarity group by stipulating a pre-determined maximum debt amount per member. This option, however, has not completely protected the institution against defaults.

SEWA provides coverage to members for losses related to natural disasters such as fire and flood, and man made disasters such as riots (SEWA, 2001c). Interestingly, the insurance scheme is linked with savings. Women who want to become long-term members of the insurance scheme can deposit a certain amount in SEWA Bank and the annual premium is paid from the interest accrued from this deposit.

Property Insurance

Provision of property insurance is more difficult than life insurance.[83] First, a single property insurance policy is likely to experience multiple claims, while life insurance will by definition experience only one claim. Moreover, property insurance has a higher risk of fraud and moral hazard. It must be noted, however, that despite some successful experiences, the life insurance schemes reviewed by Brown and Churchill (2000) have not achieved satisfactory levels of outreach, coverage and sustainability. These authors found that some of the main challenges faced by MFIs include the difficulty faced by clients in grasping the concept of insurance, and the difficulty faced by institutions in managing program funds, developing insurance products, and in deciding on the trade offs between balancing moral hazard and adverse selection and effectively reaching the intended clientele. In the case of property insurance, and in general for its integrated insurance program, SEWA has learned that in a place like Gujarat, reinsurance is a must if a microfinance institution is planning to deliver insurance in a long-term sustainable basis. In the last five years, for example, SEWA members have faced one flood, two cyclones, three droughts, one epidemic and a catastrophic earthquake, in addition to the predictable life cycle crises (SEWA, 2001c).

Specific Disaster Insurance

Proshika in Bangladesh has developed some relatively simple yet effective insurance mechanisms as part of its policies for risk and vulnerability management. These mechanisms include Proshika Savings Scheme (PSS) and Participatory Livestock Compensation Fund (PLCF). The PSS is detailed on Annex 1. The PLCF was introduced in 1990, and it covers the loss caused by sudden death of farm animals and poultry, specifically cattle, goats and chickens. Each group of borrowers contributes 3 to 5 percent of the purchase value of the animals to this fund.

MFIs are also testing new approaches to provide microinsurance to farmers (Mosley, 2000b; Skees, Hazell and Miranda, 2000). An approach seen as very promising by Skees and colleagues are the index and area-based contracts to insure natural disasters. Area-based index insurance is provided through contracts written against specific perils or events such as area yield loss, drought, or flood, defined and recorded at a regional level via, for example, local weather stations. The insurance is sold in standard units, with a standard contract or certificate for each unit sold (known as a Standard Unit Contract). All buyers are free to buy as many units of the insurance as they want, pay the same premium rate for a Standard Unit Contract in a given region, and receive the same indemnity if the insured event takes place. A good example of this type of insurance is area-based crop yield insurance, as described by Mosley (2000b) in India. Usually, insurance is written against the average yield of a region, and a payment made if the measured yield for the region falls below the pre-defined limit. Area-based yield insurance requires long and reliable series of area-yield data, a kind of data not usually available in many countries. Alternative indices such as rainfall and soil moisture can be used instead of historical

[83] Health insurance is even more complex than property or life insurance. In addition to experiencing multiple claims, the risk of fraud and moral hazard in health insurance is not only originated by the client but also by the health care provider (Brown et al., 2000).

area-yield data. The advantage for MFIs is that the same borrowing groups used for the savings and lending services can be used as conduit to sell index insurance.

5.5 Lessons Learned

5.5.1 Assisting clients in Disaster Risk Prevention, Mitigation and Preparedness

Can all MFIs deal equally with disaster risk by themselves? And importantly, Should they try to deal with disaster risk individually? The experiences previously analyzed suggest that, at a general level, the potential of MFIs to deal with their own disaster risk exposure and to assist their clients in disaster risk management will depend on sector and institutional level factors. At the sector level, these factors include the structure of the sector, its degree of commercialization, and the health of the formal financial sector. At the level of individual institutions, these factors include the degree of formality or informality, the dependence on donor or government funds, the level of financial and operational sustainability, and the decision to offer subsidized credit for poverty alleviation.

Performance with respect to credit and savings seems to allow predicting which microfinance institution might have a better chance of providing disaster risk management assistance to their clients efficiently and effectively. Following Robinson (2001), MFIs can be grouped by what they can or cannot do as part of their normal operations: (a) institutions providing microcredit but not allowed to mobilize savings (including all institutions that are not regulated and publicly supervised); (b) institutions that perform very well as microlenders but poorly in microsavings (e.g., Grameen Bank); (c) institutions that mobilize savings well but are bad in lending (e.g., China's Rural Credit Cooperatives and India's Rural Banks); (d) institutions that are good on both fronts; and (e) institutions that are equally bad on both fronts. Although conclusive evidence has not yet been collected, it is likely that a microfinance institution which is a good microlender and good in microsavings will have more alternatives at hand to mainstream disaster risk management strategies to protect its clients, its portfolio and its facilities. An additional factor to consider is the scope of the programs offered by MFIs in each of these groups. There are MFIs that run minimalist finance programs, on the one hand; and institutions, often hybrid organizations, which typically bundle credit with nonfinancial services such as health, education, and enterprise management, on the other (Sebstad and Cohen, 2000).

General Lessons

The experiences analyzed in this report show the potential and limitations of what MFIs can do to assist clients in reducing disaster risk. Disaster risk exposure stems from location and behavior, and from their mutual interaction (Lewis, 1999; Sinha and Lipton, 1999). While microfinance institutions can affect behavior more effectively, they are more constrained in affecting location. Many of their clients are already living in disaster-prone environments and these institutions are not in the capacity of financing disaster mitigation projects, implementing resettlement programs or enforcing sound and equitable land-use management. Moreover, in many disaster-prone areas, it may be technically and/or economically unfeasible to develop mitigation measures while it may be difficult to implement post-disaster activities such as relief or rescue, and impossible to promote sustainable recovery programs. At the same time, most microfinance services are aimed at financing productive assets, and especially private assets, while many of the mitigation investments required at the community level correspond to public goods.

Microfinance institutions are further constrained by the fact that they cannot assist all poor households improve their risk management capacity. The poor are a heterogeneous group, with different asset portfolios and differential access to infrastructure and support services, and by extension, to markets (Siegel, 2000a). Empirical evidence indicates that the impact of microfinance services on income and consumption not only depends on the length of time a client has been in a program, but also on the initial endowment of the household (Sebstad and Cohen, 2000). Extremely poor people, more so when living in underdeveloped areas, do not possess much to begin with, may lack the capacity and opportunities to find profitable self-employment strategies, and will not be able to repay their loans. Under normal circumstances, access to credit for these population groups would not be very effective as they might end up eating their loans away, which will not help them or the institutions (Hulme, n.d.; Robinson, 2001). Most MFIs across the world do not reach the poorest of the poor due in part to eligibility requirements, and to the fact that typically the poorest households self-select themselves out of microfinance programs (Sebstad and Cohen, 2000). Moreover, very poor households who want to participate in these programs do not find easy entry, particularly if these are group-based credit programs.[84] According to Zeller and Sharma (1999), for the poorest of the poor, in addition to (precautionary) savings, insurance services appear to be potentially more important for disaster risk mitigation than credit for income-generating activities. Evaluations of microfinance programs to reach the poorest of the poor indicate that they may indeed benefit better from grants rather than loans (Siddiqi, 1999).[85]

Specific Lessons

Overall, however, MFIs have an important role to play in disaster risk reduction, by promoting risk and vulnerability assessments, promoting training of clients on disaster emergency response, offering financial products that can assist clients improve their housing – in conjunction with government and community efforts at providing safer locations – and by providing insurance, when feasible.

Promotion of Disaster Risk and Vulnerability Assessments

Knowledge of disaster risk exposure and vulnerability will help microfinance clients and institutions as both will be able to make more informed decisions and to prepare for disasters better. In other words, this knowledge will allow clients and institutions to take better 'calculated' risks, and in the process, reduce probability and level of future losses. Without this knowledge, MFIs may be inducing further development in hazardous areas, and increasing clients' needs for relief and recovery assistance in the future.

Training Clients on Disaster Response

Providing training for disaster risk management to clients, and particularly for disaster response, helps protect not only these clients but also the institutions. Whether a microfinance institution should offer this training will depend on the type of institution and the services it usually offers to

[84] Under this kind of approach, the 'social collateral' and the peer pressure promoted works better if based on the group members' propinquity in social and economic terms. Those prospective members who are considered to be 'too poor' are justifiably seen as too risky in economic and social grounds and are thus denied group membership.

[85] An example of the problems faced by this type of programs is discussed by Siddiqi (1999). There are relatively successful examples of microfinance programs targeting the poorest of the poor in Philippines, South Africa and Bangladesh.

clients. The sustainability of a microfinance institution may be hindered by attempting to add training for disaster risk management to regular financial services. Regular training and technical assistance often place an additional burden on both institutions and clients. Those MFIs focusing more on financial services would not probably be as effective when they expand into new non-financial activities (Gulli, 1998).

The emerging consensus is that, in general, financial and non-financial services should be separated to increase effectiveness and financial sustainability of microfinance operations (Lapenu and Benoit-Cattin, 1999). When MFIs link credit directly with nonfinancial services (such as training in skill development, literacy, family planning, disaster preparedness, etc.) to borrowers these costs are very rarely recovered by revenues (Robinson, 2001). Provision of auxiliary services such as disaster preparedness training tends to be negatively correlated with financial sustainability, which is vital for any microfinance institution to face future disasters and to develop a viable disaster risk management strategy. In practice, many NGOs in the process of becoming formal financial institutions have chosen to transfer the majority of their microfinance portfolio to the formal institution they have created, while keeping the original NGO structure to address credit needs of the poorer clients and implement developmental activities (Gulli, 1998).[86]

Financing Housing Improvements and New Construction

In general, loan products and services for housing improvements and new construction have very specific requirements which are not often compatible with typical microfinance programs focusing on loans for income generating assets and activities. Many MFIs are aware of the demand for housing loans, but are constrained by the fact that these financial products have different price, affordability, client qualification, technical assistance and supervision requirements than microenterprise loans. An important difference, pointed out by CHS (2001), is that a housing loan is an asset-building loan rather than an income-generating loan, although indirectly it may help improve productivity and income earning potential of a client. Moreover, some relative security of tenure is needed to guarantee loan security and long-term benefits for clients. Because of loan size and high cost of technical supervision, timely repayment and efficiency in administrative costs are also critical. Provision of technical supervision is an unavoidable requirement of a microfinance housing program if one of the objectives is to improve building standards and practices that take disaster risk reduction into consideration. When offered, technical assistance has to be considered in the pricing of the loan product to ensure financial sustainability.

As Ferguson (1999: 192) explains, "…the effective demand for micro-housing finance at the rates to make this activity commercially viable has yet to be widely tested." To ensure both affordability and operational and financial sustainability, housing loan terms, especially interest rates, fees, and repayment period must respond to the specific needs of clients and the objectives of the microfinance institution. Without developing a good understanding of the effective rate to the borrower, an institution will not manage to set an appropriate loan price (CHS, 2001). Interest rates for microenterprise loans have to be set up usually above market averages to ensure financial sustainability, but these loans are still attractive and useful to poor microentrepreneurs. Housing loans, on the other hand, require larger amounts, lower interest rates, lower monthly payments and longer terms to remain affordable and beneficial to clients.[87] Larger amounts and

[86] Representative examples of this evolution can be found in Bolivia, a country where the microfinance industry has become highly developed and competitive.

[87] Microenterprise loans offered at 25 to 35 percent annual interest rates are still attractive to poor households, while interest rates for housing loans have to be limited to a lower range of 13.5 to 15 percent per annum to remain affordable.

longer terms not only mean increased portfolio risk, but also greater risks for clients, particularly if solidarity group lending methodologies are used.[88] Experienced organizations such as Cooperative Housing Foundation (CHF) do not recommend using group lending methodology for home improvement loans.

Providing Microinsurance

Direct provision of disaster risk insurance is a particularly risky undertaking for MFIs (MBP, 2001h). The insurance industry is complex and heavily regulated in many countries. In many developed markets, commercial lenders have been barred from entering this industry for good reasons (Brown et al., 2000). In less developed markets, regulations or poor regulation may not allow MFIs to provide insurance legally. According to these authors, as much as banking and insurance products are potentially complementary, they can also be mutually destructive. A critical factor in the context of disaster risk is that loan losses may quickly erode reserves needed to meet insurance claims, and losses in insurance services may accelerate the liquidity crisis faced by MFIs during disasters. Insuring clients may thus increase the risk for these institutions of rapid depletion of loan capital and depositor assets. Regardless of their size, MFIs operating in areas that might experience catastrophic losses, notably earthquakes and hurricanes, would have difficulty in collecting sufficient resources to pay for a worst-case scenario.[89] This constraint is made worse by the fact that low-frequency yet costly events do not allow building an appropriate statistical base upon which to make relatively accurate projections, assuming that MFIs have the technical capacity to make these projections. These issues become more critical in light of the fact that few MFIs have reached financial sustainability or are capable of mobilizing voluntary savings. If a microfinance institution has not provided clients with access to flexible savings and credit, it may be premature for it to attempt to provide insurance services. Finally, as Brown and his colleagues make clear, "[b]y definition, any MFI that is not operationally sustainable will generate a negative return on insurance premiums invested in its lending activities." (p. 2).

Under these circumstances, Brown and his colleagues suggest that while MFIs should find alternatives to address clients' needs for risk transfer, they should not provide insurance by themselves, at least initially. For these authors, in many cases MFIs could provide microinsurance more effectively through partnerships with licensed insurers. Under a partnership between a microfinance institution and an insurer, each partner can provide the services and expertise that suit them best: the institution acts as the agent, marketing and selling the insurance product, while the insurer provides the actuarial, financial and claims-processing expertise. This way, the microfinance institution in particular does not have to acquire new, high-cost resources and skills necessary for the successful execution of insurance activities (Brown et al., 2000). MFIs should first insure their facilities and probable losses, and if and when they decide to offer insurance to clients by themselves, purchase of reinsurance should definitively be considered.

[88] Ferguson gives the example of PROA, an NGO providing microloans for housing in the city of El Alto in Bolivia. PROA's first experiment did not work well to a great extent because solidarity groups failed as a guarantee mechanism. Other problems included inadequate follow up on the documentation submitted by clients to prove property ownership and poor monitoring of repayment behavior. At the end, many clients decided not to pay back their loans. For the second and third phase of its program, PROA offered housing loans backed by individual guarantees.

[89] The insurance industry in developed countries has already experienced problems in covering areas subject to catastrophic losses, particularly related to hurricanes (Mileti, 1999).

5.5.2 Assisting Clients in Disaster Response and Recovery

Disaster Response Experiences

The experience of MFIs thus far indicates that they have a role to play in disaster response, building on the comparative advantages of having a large network of people and facilities with good local outreach.[90] In the absence of adequate disaster risk management capacity at the national and local level, however, a microfinance institution's own capacity is tested during disasters by the triple challenge of having to provide relief and recovery services to clients while struggling to continue with the implementation of regular programs and to maintain organizational and financial health. As disaster losses escalate, there will be increasing demands on these institutions to offer new and/or temporary products and services, while attempting to protect their existing portfolios. If the disaster is so severe that most of the critical infrastructure is destroyed, local markets collapse, and survivors have to leave the area for a prolonged period of time, MFIs will face a daunting task in assisting clients and protecting their portfolio. In cases when level of disruption is too severe, it may even become unfeasible for them to intervene.

Although further research is required, several factors seem to have influenced the effectiveness of MFIs during disasters. Those institutions with good leadership, sound financial management and accounting systems, and a certain level of disaster preparedness managed to respond faster and better to the disaster situation. Rapid access to funds, made available in the form of emergency funds or through efficient transfer of external funds, was particularly critical. Having committed and easy to deploy field staff allowed certain MFIs to carry out damage assessments rapidly and to monitor the situation closely. In turn, damage assessments and close monitoring of the situation enabled these institutions to respond better to clients' needs. These assessments provided them later on with more accurate estimates of the funds needed for the recovery process.

Another critical factor influencing the relative success of MFIs' assistance during disasters is the level of engagement with, and relative dependency on donors and international NGOs. Currently, involvement of microfinance in disaster risk management in many countries remains highly vulnerable to the ebbs and flows of donor funding.[91] Given ongoing relationships, donors and governments have typically found it practical to channel emergency and recovery funds through MFIs. In fact, the major source of funds for the products and services offered by MFIs in post-disaster situations has been grants from donors. Accepting donors' requests to channel funds for disaster response has often brought additional pressures on MFIs, more so if donors do not fully understand the challenges posed by disasters (MBP, 2001i).

In some occasions, management of donor and government funds has increased costs and complexity of MFIs' post-disaster assistance to clients. During the response period, these institutions have to monitor with heightened intensity their loan portfolio composition and quality by region, by business sector, loan cycle number and loan size. By using donor funds, MFIs have to increase their monitoring efforts and separate the financial resources dedicated to the emergency from those used for the regular operations. This effort adds to the operational financial management burden, as it creates the need to have separate accounts and to scrutinize expenditures and recording of beneficiaries closely. If the microfinance institution did not prepare

[90] As stated in the MBP technical brief on non-financial services in post-disaster situations (2001e: 2), "[i]n the absence of other relief actors, MFIs may step into the breach and provide emergency services until other relief organizations arrive on the scene."

[91] BRAC, for instance, was only able to provide its clients with reconstruction loans as a response to the 1998 floods in 2000 due to delays in receiving funds from donors (Nagarajan and Brown, 1998).

to respond to a disaster, it will also face high direct costs due to poor logistics, which will add to the burden of indirect costs generated by the disaster. On the other hand, for relatively smaller or younger MFIs, having a direct link with the mother organization or an ongoing relationship with donors has been the saving factor.

The particular experience of SEWA helps identify additional factors that influence the relative performance of MFIs in post-disaster situations. SEWA's post-disaster assistance, it must be noted, was very well received by clients. These factors are: first, SEWA had a very good knowledge of the area and its population, as it had been working in the affected areas for over ten years, and under normal circumstances had assisted its members with diverse programs to enhance their food security, housing, and health and employment security. Second, it had experience in previous disasters and an extensive grassroots network of women members throughout the most affected areas that made a rapid and effective disaster response highly feasible. Third, thanks to its solid reputation and institutional influence, SEWA rapidly managed to obtain tents, medical aid and supplies from specialized agencies.[92] In fact, some agencies like UNICEF and UN World Food Program, and the Government of Gujarat channeled relief aid through SEWA. The state government in particular gave SEWA cash doles, in addition to food packets and medical aid, to be passed on to affected members. Fourth, the decentralized yet coordinated nature of its relief distribution network enabled SEWA to provide adequate and timely assistance. A three tier mechanism, with teams working from the village through the district to the state level, was adopted by the institution to carry out its earthquake response and assistance program. At the village and district level, teams ensured that the distribution of relief materials was adequate and timely. At the state level, mechanisms were established to ensure coordination with concerned actors such as officials from the Government control room and external aid cell, donors, United Nations agencies, NGOs, and the private sector. Finally, SEWA's relief program was closely aligned with the changing needs of members. As the relief operation advanced, SEWA added activities that its members considered relevant such as counseling and day care activities for children, promoting safe building practices, mobilizing community workers in anticipation of reconstruction needs, and promoting emergency livelihood measures. In response to members' requests for immediate work, livelihood measures were promoted through a specific program that included craft work for local artisans, masonry training, and financial assistance and tools to salt farmers.

The post-disaster efforts of large MFIs such as SEWA, or Grameen Bank and BRAC, are not easily replicable, however. These organizations are more the exception than the rule in microfinance across the world. Grameen Bank is, of course, a pioneer provider of microcredit whose experience has been replicated throughout the world, while BRAC is one of the largest multi-purpose NGOs in Bangladesh and the world. Both of these institutions have a significant share of the national microfinance market and are highly influential with donors. Moreover, BRAC is one of the few successful cases where an institution providing social services and microfinance has managed to achieve a good financial management record (Robinson, 2001). SEWA was established in 1972 as a trade union for poor women working in the informal sector, and it is currently a large institution comprised of several subsidiaries including, *inter alia*, SEWA Bank, *Mahila* Housing SEWA Trust and SEWA insurance (CUDS, 2000). SEWA Bank is one of the largest MFIs in India in terms of business volume, and its performance is considered outstanding in terms of savings outreach (Sinha et al., 2000). In general, SEWA has followed an integrated approach that combines promotion of economic activities among members with provision of social security services such as health care, child care, housing and insurance, in

[92] With the help of the Embassy of Denmark, for instance, SEWA obtained a 14 bed hospital with all medical facilities, which was airlifted from Denmark and quickly set up near the affected areas.

addition to financial counseling and literacy campaigns. It has promoted self-organization of women at the local level, and as a result, more than 1,000 village-based groups, district level associations and cooperatives have been created. In urban areas, neighborhood associations and cooperatives have also been created under SEWA's leadership. In contrast to these large institutions, NGOs providing microfinance services to help the poor deal with drought risk in West Africa, for instance, are small, have a limited scale of outreach, weak operational sustainability, and are fully dependent on donor funds (Fidler and Webster, 1996). Although these institutions provide needed drought relief and mitigation assistance through small loans and some training, this is done at a very high cost per client and to the detriment of their operational viability.

An important distinction to be made is that MFIs with high risk exposure have often found themselves in disaster situations, while certain organizations might purposely come into a post-disaster situation to deliver microfinance programs as part of the recovery effort. The issues faced by the latter group of institutions will differ from the former. Section 2 described the disaster risk exposure of and disaster effects on existing MFIs. Organizations entering a post-disaster situation will face similar issues in terms of client needs, but will be more restricted in terms of what they can do initially since they have not developed a long-term relationship with their target population, which is in any case under social and economic distress. There is a certain similarity in this case with the situation faced by MFIs starting to work in areas requiring post-conflict reconstruction (Doyle, 1998). Setting up new MFIs as a post-disaster response, however, may not be effective because these institutions would lack experience, and knowledge of the area and of the affected households. Under these conditions, it would be very unlikely that they would manage to establish sustainable microfinance practices that would be well aligned with relief and recovery needs (MBP, 2001c).[93]

Specific Lessons

Microfinance institutions have learned several important lessons for their lending policies during their post-disaster operations. In many cases, they have managed to speed up the recovery of disaster victims by providing more than one loan at a time to the same client. The accepted practice, under normal circumstances, has been to give only one loan per client at a time. Rather than providing new loans, some institutions have managed to protect their portfolio and help their clients by giving small emergency loans to a few clients, authorizing withdrawals from savings and giving small advances against these savings. Affected clients have tended to repay the advances against their savings and the small emergency loans faster than any new loans and rescheduled old loans. Although it is not an easy task given the uncertainty regarding the length of the recovery process, MFIs should ensure that the new loan amounts given are within their clients' repayment capacity and that repayment frequency does not add substantially to transaction costs while allowing to control credit risk. For relatively new clients, experience indicate that it is advisable to keep loan amounts small, loan terms short, while establishing frequent repayment periods. Under a crisis situation, the challenge for MFIs of ensuring appropriate use of the loan money is greater since the fungibility of money becomes a critical

[93] Many MFIs have in fact been originally established to provide post-disaster assistance to the poor. In Africa, for instance, several MFIs (e.g., the Project de Promotion de Petit Credit Rural (PPPCR) in Burkina Faso) have been started in response to successive years of drought (UNCDF, 1999b). In South Asia, there are many examples as well, including PROSHIKA and BRAC in Bangladesh. However, relative success in the transition of some of these institutions cannot be generalized. In post-conflict environments, agencies that started as purely relief or socials services institutions have experienced difficulty in making the transition into microfinance service providers (Doyle, 1998).

mechanism for clients to cope and recover, despite the intended use of the loan. Especially if caught unprepared, these institutions have learned that portfolio losses will occur despite all efforts to assist clients.

Debt Forgiveness and Subsidies

Most MFIs today would not consider debt forgiveness as part of their post-disaster efforts. Past experiences indicate that, even though debt forgiveness brought immediate relief to affected borrowers, it undermined years of work of the microfinance sector aimed at creating a culture of repayment and financial discipline among the poor. At the same time, debt forgiveness increased the losses suffered by the institutions and exacerbated their liquidity constraints, while making them more dependent on donors or government support. In the end, the long-term negative consequences on the impact and sustainability of the microfinance institution were probably much higher than the immediate benefits enjoyed by borrowers. An important lesson learned from these experiences, many of which were mandated by governments, is that MFIs should not be expected to perform social welfare functions in post-disaster situations. This, of course, does not preclude that, in the absence of effective relief agencies or in agreement with them, MFIs already operating in the affected area go ahead and provide some emergency assistance, including food and medicine, even in a non-exclusionary basis.

Empirical evidence indicates that disaster-stricken borrowers do not necessarily insist on debt forgiveness, and are willing to accept assistance to improve their liquidity through, for instance, cash or in-kind relief loans, and access to savings (Nagarajan, 1998). Emergency loans might be a good mechanism to help affected households. However, although many households might benefit from an emergency loan, MFIs must respond to this demand cautiously. Protecting existing clients could increase their loyalty, while enlisting new clients during an emergency might actually increase the vulnerability of the portfolio. There are other demand-based financial services, such as channeling remittances, which could be offered to everybody across the affected area that would ease cash flow problems of clients and non-clients.

Offering subsidies through the interest rate of emergency and new loans during the disaster response and recovery process is an option whose consequences have to be weighted carefully. Under regular circumstances, many mature MFIs have to be subsidized given that they are not regularly charging sufficient interest rates to cover expenses related to credit delivery, including operating expenses, cost of capital (including adjustments for inflation and subsidies), loan losses and intended surplus (for retained earnings and/or dividend to shareholders) (Churchill and Coster, 2001). By charging an interest rate that is lower than the cost of providing the loan, these institutions have typically been transferring their subsidy to clients. In contrast, Gulli (1998: 45) advises that normally, "[i]n order to avoid market distortion and undermining of more market-based approaches to microfinance, the interest rate of MFIs should never be subsidized, since this creates incentives for better-off clients to appropriate the subsidy and undermines the institution's sustainability and savings products." Of course, Gulli's advice applies better to more mature MFIs, since as explained by Churchill and Coster, it is unrealistic to expect new MFIs to charge interest rates covering its costs.[94]

Commercial MFIs normally need higher interest rates than lending rates of regular commercial banks, given that their operating costs are significantly higher due in part to the labor-intensive nature of their operations, which stems from having to keep staff spread out in multiple outlets

[94] According to Churchill and Coster (2001: 20), "[m]icrofinance institutions need to reach certain economies of scale (roughly five to ten thousand clients) before they can become profitable."

whose location is convenient to clients. Moreover, processing many small loans is bound to be more costly than processing a smaller amount of larger ones (Robinson, 2001). In other words, the cost of providing microloans is typically higher as a percentage of loan amount than providing conventional bank loans. The interest rates charged by MFIs remain attractive to low-income borrowers because they are lower than those charged by the informal market (i.e., moneylenders) (Rutherford, 2001). Poor households are generally willing to pay above average costs to enjoy access to financial services suited to their needs (Wright et al., 1999). In a post-disaster situation, it is highly likely that more loans of smaller amounts than normal will be needed, and that processing costs will thus be considerably higher. Higher transaction costs added to new loans, rescheduling of loans, extra costs of administering donor funds, and low repayments significantly reduce total interest income for MFIs. In many cases during disasters interest income will be so low that it will not even cover administrative costs (Nagarajan, 1998).

Access to Savings

As pointed out earlier, a risk management mechanism widely used by the poor is keeping cash reserves, including savings. Those MFIs that mobilize compulsory and/or voluntary savings are likely to face pressure from clients to provide access to these funds. Simultaneously, these institutions are highly exposed to the danger of their clients defaulting on debt commitments. This situation demands that MFIs expedite withdrawal of savings and reschedule contributions for compulsory savings. Rescheduling compulsory savings does not only help the client smooth consumption and attend immediate needs, but also helps the institution protect its portfolio by increasing client satisfaction and likelihood of loan repayment. The critical issue for MFIs in this respect is determining the adequate time periods to allow clients access to compulsory savings and to ask them to start replenishing withdrawn funds. One of the main difficulties for these institutions is establishing appropriate terms and conditions for emergency withdrawals that serve the clients' needs while preserving institutional liquidity. Asking clients to pay interest on the withdrawn funds, which are basically advance payments against their own savings, may be perceived as unethical by them if the institution does not regularly pay interest on these savings (MBP, 2001f).

Loan Rescheduling

Similar to the rescheduling of compulsory savings, loan rescheduling may help clients and protect the portfolio by allowing clients to repay loans in a flexible manner. By giving affected clients the option to delay repayments on their loans for a specified time, MFIs can counteract the probability of defaults and reduce financial losses (Nagarajan and Brown, 2000). If adequate and transparent rescheduling policies have been set up in advance, microfinance clients and institutions will know what to expect and can manage to deal with related reductions in principal and interest income (Churchill and Coster, 2001).

Effectiveness of loan rescheduling, however, will depend on the length of time the client has participated in the program and losses attributed to the disaster, among other factors. The longer a client's participation, in most cases, the lower will be the probability of default. Loan rescheduling will also be more effective for loans that have tangible collateral (Nagarajan, 1998). Capacity of offering this option, on the other hand, will depend, *inter alia*, on the size of the institution, operating procedures and legal arrangements. Small MFIs or in general those with low internal capital reserves have to keep in mind that loan rescheduling will decrease cash flows, which may lead them straight into a self-inflicted liquidity crisis. Applying a general rescheduling policy to clients may be adequate to reduce operating costs, but there is a good possibility that

this decision will not address all clients' needs.[95] In general, all MFIs face critical issues related to the length of rescheduling and the optimal way to redistribute payments that might work better for clients without adversely affecting their cash inflows. To control better for credit risk, portfolio quality indicators should clearly distinguish between regular and rescheduled loans.

Disaster Recovery Experiences

Microfinance may contribute to recovery, including reconstruction and rehabilitation, in several ways. Clients have lost household and community assets, and face the challenge, along with the rest of the local community, of reactivating the local market. Affected households must find ways to rebuild residential and/or business structures, and to restart income generating activities. By providing new loans for housing repairs or reconstruction, or for asset replacement, MFIs may help accelerate the recovery process of affected clients and strengthen their capacity to stabilize income. In this way, these institutions also make sure that their clients will be able to continue participating in their programs. But if the level of indebtedness of the client and the location of her structure is not taken into account, these loans might actually increase portfolio risk. Loans for housing reconstruction may not be as productive as other loans. Clients may already be overburdened with debt from previous commitments and new small loans received as relief. Giving a loan to rebuild on a highly exposed site will not help the client or the institution. Recovery assistance should strive to promote mitigation. Products and services to be offered by microfinance will be more effective if designed and implemented within an overall recovery framework that ensures coordination with other agencies.

Consistency in the general approach to the emergency response and especially to the recovery process is critical to ensure that the sustainability of MFIs is not adversely affected by the disaster. It was pointed out above that offering subsidized loans can negatively affect the financial health of the microfinance institution, particularly because operating costs are higher in a post-disaster context. Competition by charitable or socially focused organizations offering very low or zero interest rate loans, or outright grants, can affect the future behavior of existing and prospective clients and the nature of the microcredit market. In disadvantaged areas where operating costs are high under normal circumstances, this type of competition can undermine the work of MFIs whose stated goal is to provide sustainable financial services and promote financial discipline among the poor.[96] Innovation and coordination are required under these circumstances to ensure that in disaster situations, MFIs can provide some assistance without increasing risks to their portfolio or losing control of operational costs.

Overall, offering a single new loan to affected clients may not be as effective as offering a broader range of financial services in protecting the portfolio of a microfinance institution or in helping clients cope and recover. It is important to consider how many consecutive loans will be required for the client to be able to generate sufficient income to start servicing the old rescheduled debt and the newly acquired one satisfactorily. Debt absorption capacity is also important since overindebtedness among the poor, including microfinance clients is not so uncommon, and after disasters the possibility of exacerbating or at least creating this problem looms even larger. In addition, it is important to consider the timing for offering new loans for housing or asset replacement, among others. Appropriate timing is critical to ensure cost recovery

[95] Nagarajan and Brown (2000) found that instead of a blanket loan rescheduling policy, most MFIs in Bangladesh decided during the 1998 floods to establish the terms and conditions of loan rescheduling by consulting clients individually.

[96] Constraints associated with remote areas in West Africa, for instance, correspond to about 80 percent of the additional costs associated with running microfinance programs there (UNCDF, 1999b)

of loans (Nagarajan, 1998). The period during which debt absorption capacity of affected clients will remain low depends largely on the type of disaster. At least five to six months will probably pass before the recovery process commences, and clients' income sources are more reliable. Sorting out these issues will not be easy because many external factors contribute to the client's recovery, and microfinance is one tool among many other tools that should be made available. Interestingly, despite the commendable efforts of MFIs in Bangladesh, preliminary evaluations indicate that many beneficiaries slipped back into poverty after the 1998 floods. This outcome would raise questions on the beneficial impact of the second and often third loans that poor clients received to help them cope with the disaster.

Microfinance products and services will need to be responsive to the type of disaster risk that existing and prospective clients face. Rapid onset disasters such as earthquakes or flash floods will create different relief and recovery needs than slow onset ones such as droughts. One of the most difficult tasks for microfinance in the aftermath of a disaster is determining clients' needs. Identifying the most adequate lending program is not easy. Offering group-based lending with joint liability and equal loan sizes may not work so well since individual clients have different needs during the reconstruction and rehabilitation process. Offering new loans to clients in good standing may be the less risky option (MBP, 2001g). Although this decision limits the immediate contribution of a microfinance institution to the recovery process, it might actually increase the chances that the institution will be able to provide services to all prospective clients in a shorter period of time.

Adding asset replacement and housing loans to their portfolio may also increase the operational costs of MFIs, particularly if they tend to specialize on group-based, short-term loan products. This type of loan is better targeted to individuals and offered for longer terms, which will require changes in the financial technology and staff mix of the concerned institution (MBP, 2001g). Overall, the MBP technical brief reports that asset replacement and housing loans offered during the recovery process tend to have a high maintenance and delinquency costs for MFIs. Experiences in Bangladesh indicate that, at least initially, clients will tend to be late in payments. On the other hand, housing reconstruction loans provide an opportunity to promote mitigation through upgrading of construction quality and standards. Actual benefits to the affected borrowers have not been assessed, but it is argued by some MFIs that in general standard short-term working capital loans might be more suited for affected borrowers engaged in reconstruction and rehabilitation.

6. CONCLUSIONS AND RECOMMENDATIONS

Microfinance institutions facing disasters have learned a critical general lesson: the importance of maintaining credit flowing. Without credit, recovery for both the microfinance clients and institutions would be difficult, and for many, perhaps impossible. Rather than cutting back on their lending, MFIs have felt the pressure to expand it, at a moment when cash inflows diminish and cash outflows increase. These institutions will continue to learn this lesson the hard way again and again unless they also pay attention to a ***second general and more crucial lesson: the importance of dealing ex ante with risk to reduce the impact of disasters on them and their clients***.

The third general lesson learned by MFIs is the importance of maintaining their integrity as financial entities, regardless of what type of risk management activities they decide to provide. In fact, it cannot be overemphasized that client discipline and institutional discipline should remain as the main pillars of any disaster risk management effort. While it would not be a sound

business practice to ignore disaster risk exposure of their clients and their own, it would be even worse if MFIs forfeit operational and financial viability to address it. The main rule to follow is that products and services be designed to minimize not only the vulnerability of clients, but also the vulnerability of the institution. More specifically, the findings in this report indicate the following:

- ***Microfinance institutions should not become full-time disaster risk management agencies***.

The analysis carried out in this report strongly suggests that MFIs should not assume a permanent role as disaster risk management agencies. Nor should they try to assume full responsibility for disaster response and recovery needs of their clients. MFIs should instead partner with concerned agencies and social service organizations with a comparative advantage in the areas needed to provide comprehensive and adequate disaster risk management within the framework of sustainable development. More pragmatically, they need to identify gaps in local, national and internal disaster risk management capacity, and bridge these gaps through advocacy, partnership and effective actions.

- ***Microfinance institutions should therefore carefully consider where they can contribute best in disaster response, and avoid taking on a role beyond their capacity or mission.***

MFIs have to provide services not only rapidly, but that are also responsive to clients' and often non-clients' needs without undermining previous achievements in promoting sound repayment behavior and financial discipline. The good will generated in clients by providing assistance can have a positive effect insofar as these institutions ensure that affected clients are aware of the difference between emergency response initiatives and their regular programs.

Disaster response and recovery should be advanced within a framework of sound microfinance business practices. On a humanitarian sense, relief services may be provided on a non-exclusionary basis to fill in while appropriate relief mechanisms are put in place. In contrast, reconstruction and rehabilitation assistance should be more focused on existing clients. Otherwise, MFIs run the risk of overstretching their capacities and undermining the recovery process. Simultaneously, MFIs should monitor sources of relief assistance that may provide negative incentives with regard to their clients' sense of self-sufficiency, financial discipline and willingness to deal with disaster risk.

- ***Microfinance institutions, donors and government should consider the establishment of a sector-wide strategy to address disaster risk***

While it is important that individual MFIs respond well to their respective clients' needs, such involvement may be more effective if a coherent disaster response is implemented at the sector level. Overall, disaster preparedness and reduction efforts, including disaster risk identification and assessment, could be consolidated to achieve economies of scale. Disaster risk management needs of the poor require the establishment of a sustainable microfinance sector that offers a wide range of credit, savings and insurance services. It is neither practical nor feasible in many cases for one individual institution to supply all that is required. Indeed, institutional specialization has been found to be central to achieving cost-efficiency and effectiveness of microfinance. Typically, for instance, the younger and/or smaller institutions have a more difficult time in responding to disasters, in operating during the emergency period, and in implementing effective disaster risk preparedness and mitigation strategies. In this respect, donors, governments and MFIs should pay attention to the composition of the sector and identify the comparative advantage of individual microfinance institutions and service delivery approaches, as well as the

best way to promote a division of labor for disaster risk management that maximizes these advantages. In normal circumstances, proliferation of programs from different MFIs generates lack of coordination within the sector, some duplication of efforts and increase in aid delivery costs. During a disaster, the rush to provide relief adds to the challenge of coordination as actors with various levels of experience and set of objectives enter the affected areas

- ***Financial flows should remain open during a disaster, balancing between the need to maintain credit discipline and humanitarian concerns for clients***

In post-disaster situations, MFIs should not be expected to sacrifice operational and financial viability or to serve as social safety nets for affected communities. During disasters, these institutions have often faced pressure from their own clients, and from donors and governments to forgive debts or serve as social safety nets for entire villages or communities. Microfinance institutions should resist pressures, and strive to respond to clients' demands while protecting their portfolio to ensure operational and financial sustainability. This is not an easy endeavor, since the needs of affected clients should be put before business concerns. Justifiably, humanitarian concerns often dictates that loan terms and conditions be relaxed during an emergency, which increases the difficulty in protecting the portfolio. In addition, responding to clients' needs may also require that the objectives and activities of regular programs be restructured and that certain programs be temporarily stopped. Before making changes to long-term lending policies and methodology, however, MFIs should have a relatively clear notion of the extent of losses and number of affected clients. In many cases, MFIs have come together in an ad hoc manner to avoid adverse government decisions such as the mandate to forgive debts, a relief strategy often given in the past. Many of these institutions have consistently managed to maintain discipline in their existing programs, and to use the disaster as an opportunity to strengthen the sector. Their efforts would be supported greatly if donors and governments agree on disaster response and recovery policies for the microfinance sector before a disaster occurs.

- ***Microfinance institutions should be aware that disaster risk management is a continuous process.***

Vulnerabilities will change over time as MFIs mature and grow, and their clients graduate and change. These institutions should periodically test the effectiveness of their disaster risk management strategies, and evaluate their results, in order to maintain appropriate policies and procedures. Despite disaster risk reduction efforts, they need to prepare for worst case scenarios by applying a comprehensive approach to risk management, integrating disaster risk management strategies into their operations and organizational culture. Donors and governments have an important role to play in promoting the adoption of these strategies.

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Annex 1 – Microfinance Products and services useful for Disaster Risk Management

Disaster Risk Prevention and Mitigation		
	Description	**Analysis**
MFI	SEWA, specifically SEWA Bank and *Mahila* Housing SEWA Trust, India	SEWA was established in 1972 and is currently comprised of several subsidiaries
Loan for Basic Infrastructure **Multi-hazard**	▪ Provided through *Parivartan* Scheme or Slum Networking Project, whose goal is to provide basic infrastructure to urban poor ▪ It is implemented by several partners: SEWA Bank, Mahila Housing SEWA Trust (MHST), Ahmedabad Municipal Corporation (AMC) and the private sector. ▪ SEWA Bank is the financial intermediary and MHST provides technical assistance, and both mobilize the target slum population to join the project. ▪ Each family needs to contribute with Rs2,100 (US$48.35 in 1999) to pay for an infrastructure improvement package costing about Rs15,000. ▪ Package includes seven infrastructure services: individual water supply; underground sewerage to individual households; total paving of internal roads, lanes and by lanes; solid waste management; individual toilettes; storm water drainage; and street lightning. In addition, the scheme includes community mobilization activities ▪ The private sector (local industries) match household contribution with Rs2,000 and the additional amount (Rs2000) is provided by AMC. ▪ SEWA Bank provides individual loans of up to Rs1,600 (US$37 in 1999) to each participant household to meet their contributions. Interest rate is 14.5% ▪ Loans may be repaid monthly (Rs100/month) or as a lump sum.	▪ Impact of the project in three participating slums show income increases thanks to increased household productivity ▪ Scheme demonstrates the way microfinance services can be an enabling tool for improved water and sanitation services ▪ This type of products and advocacy services are better suited for larger institutions ▪ Technical advisory support is fundamental to the success of microcredit provision for infrastructure ▪ Responsiveness of local government and the private sector is an important determinant in the success of this type of schemes
Housing Loan **Multi-hazard**	▪ SEWA Bank offers regular housing finance, including loans to repair or replace a roof, wall, floor or door, for monsoon proofing, and for hosing expansion or rehabilitation ▪ Loans for new housing require that the house be bought in the name of the woman borrower ▪ Borrower does not need to have land title for loan disbursement, but she must have two guarantors who cosign the loan application ▪ Given that SEWA members typically operate home-based microenterprises, they can take a housing loan as their first loan, without going through parts or the whole loan cycle. But members should open a bank account and save for a year to be eligible for a loan ▪ SEWA Bank offers maximum housing loans of up to Rs25,000 ▪ Annual interest rate: 13.5% (when funds come from Housing Development Finance Corporation); 14.5% (when funds are provided by the Housing and Urban Development Corporation at 10.5%); 17% (on own funds) ▪ The loans have to be paid back in at least 5 years. Minimum terms for loans are 35 months in urban areas and 20 months in rural areas	▪ Many members pay their housing loans faster than expected ▪ Over 10 percent of housing loans have been used by members for monsoon proofing, and about 30 percent for buying or constructing a new house. The rest of these loans are used for general repairs or house upgrading

Disaster Risk Prevention and Mitigation		
	Description	**Analysis**
MFI	MFI: ACODEP, Nicaragua	ACODEP is a non-profit organization providing credit and technical assistance to microentrepreneurs
Housing Loan **Multi-hazard**	▪ Housing loan product, MI VIVIENDA, created after Hurricane Mitch in 1998, now offered as part of the regular financial services to help poor households, particularly those located in hazard-prone areas, to help improve their housing incrementally ▪ MI VIVIENDA is targeted to clients living in low income settlements (known in Nicaragua as 'barrios consolidados,' 'asentamientos progresivos' y 'asentamientos espontaneos') ▪ Requirements to obtain a loan include: client has to be part of a family unit (husband, wife and/or children, but single parents are also accepted). Legal marriage is not required; family monthly income has to be between US$50 and US$500 for a family of five members; and the family has to live in the house to be improved, rebuilt or extended. A loan can be extended even if people need to rebuild in a different place from where they were living before ▪ Use of the loan is basically for purchasing of building materials, but ACODEP also allows to use loan money for connections to basic services and expenditures related to securing title to the property and obtaining building permits ▪ MI VIVIENDA does not finance land purchasing, payment of personal debts, purchasing of household appliances or personal items, taxes or fees not related to processing of property title or building permit, and interestingly, political or religious activities	▪ Housing loan has become a regular financial product with relative good demand. Demand has come even from zones that ACODEP did not initially consider a priority in terms of hazard exposure ▪ No clear mechanisms are in place to ensure that improved, hazard-resistant standards are always applied by clients
MFI	ENLACE, El Salvador	ENLACE is on of the largest microfinance providers in El Salvador
Housing Loan **Multi-hazard**	▪ Housing program created after the 2001 Earthquake ▪ Loans for purchase of a new home and for housing reconstruction, renovation, improvement and additions ▪ Total loan amount ranges from a minimum of US$115 to a maximum of US$2,857 ▪ Minimum loan period of 6 months to a maximum of 7 years ▪ Loans offered preferentially to microentrepreneurs who are clients of ENLACE, with a minimum household income of about US$2,000, and good credit history ▪ Interest rates vary depending whether the client can provide a mortgage guarantee (21%) or co-signers (25%)	▪ ENLANCE cannot offer technical assistance to ensure that hazard-resistant standards are applied by clients ▪ Level of demand lower than expected, although a post-disaster survey helped identify the need for this type of product
MFI	Bangladesh Bank via microfinance institutions, Bangladesh	Central Bank offering subsidized loans
Housing Loan **Floods**	▪ Loan fund created after the 1998 floods. The Bank channels the money through the microfinance intermediaries at a subsidized annual rate of 1% ▪ Provision of 10 year loans for microfinance clients living in flood-prone areas to build hazard-resistant housing using cement and tin.	▪ In the short time period of operation, repayment rate at a high 99% ▪ Program limited to clients with good repayment capacity due to the relatively high monthly repayment (about US$4.50 per month).

Disaster Risk Prevention and Mitigation		
	Description	**Analysis**
MFI	Center for Agricultural and Rural Development (CARD), Philippines	CARD is the largest MFI in Philippines. In 1997, CARD reorganized its financial operations under a formal Bank called CARD Rural Bank, while keeping some services as an NGO.
Housing Loan **Typhoons**	▪ Loans for land or housing purchase or improvement of an existing house offered to qualified borrowers ▪ Two cycles are followed: during the first cycle clients can borrow up to P10,000 (US$260 in 1999); and during the second cycle up to P20,000 (US$520). Client can access the second housing loan cycle after completing the first cycle ▪ All loans have to be repaid in 50 weeks, and annual interest rate is 20% ▪ Additional upfront costs include 4.5% service charge on the loan amount and 2.5% redemption fee for loans over P10,000. ▪ To qualify for the first cycle of a housing loan, a borrower must have completed the second cycle of a regular loan, saved regularly for 1.5 years, and lived in the community for at least one year (two years if the client has not taken loans previously). ▪ Legal documentation of land ownership must be provided for new housing construction ▪ Once client meets requirements, she must form a group of five members and submit loan application to the Center (usually comprised of 8 credit groups). ▪ Application must be signed by the client's husband or legal guardian and other group members. Loans are given first to the two neediest members in the group.	▪ Design of the houses is left to the client ▪ Although technical officers visit construction sites to ensure that loan funds are invested in the house, no close technical assistance is provided to ensure that improved building standards are applied ▪ Most loans go initially toward housing repairs because most houses are build with lightweight materials that require continuous upkeep ▪ Members applying for a home improvement loan are not required to demonstrate legal ownership of the property, and many of them use these loans to purchase land after the first or second loan cycle ▪ Overall, housing loans have resulted in more stable structures that have protected clients during typhoons and cold winds ▪ Housing loans can be used for a wide variety of purposes, including purchasing household appliances ▪ Overall household improvements have translated into enhancement of productive assets
MFI	Grameen Bank, Bangladesh	Pioneer microfinance institution, initially established as a rural bank
Housing Loan **Floods / Cyclones**	▪ Housing loans offered to clients with legal ownership of land (loans are also offered toward land purchase) ▪ The borrower's group and center members must agree to stand behind her housing loan, and must ensure that the loan is used as intended. All members cosign loan application ▪ To qualify, the client must attend weekly meetings, accumulate savings, have an excellent credit history, and have adequate income and involvement in microenterprise ▪ Moreover, the branch to which the client belongs must have been in operation for at least 2 years and have an excellent credit history too ▪ Five loan products offered: housing (up to 30,000 TK or US$600 in 1999), basic housing (US$242), pre-basic housing, homestead / land purchase (US$202) and house repair (US$101). ▪ Weekly repayments are required; interest rate is 8% and the maximum repayment period is ten years ▪ The borrower is in charge of the design of the house, but the Bank has minimum health and safety requirements, including installation of a pit latrine (manufactured by the Grameen production facilities) and use of cement pillars	▪ Overall, homes built under the program are better than traditional housing of clients. Since Bank officials do not have technical capacity regarding construction standards and practices, it is difficult to ensure quality of housing, including disaster risk mitigation measures. ▪ During the 1987 floods many of the houses built under the program suffered less structural damage than traditional rural houses.

Disaster Risk Prevention and Mitigation		
	Description	**Analysis**
MFI	Microfinance institutions in India and Sri Lanka	
Loans for Mitigation **Droughts**	▪ Microfinance institutions have provided loans to help poor households match the grants given by the government to build rooftop water harvesting mechanisms in drought-prone areas	▪ It shows how microfinance services can supplement government programs for disaster mitigation ▪ Water harvesting mechanism is not very effective under acute drought conditions.
MFI	Microfinance institutions in African countries	Mostly small NGOs, with small scale of outreach
Cereal Banks **Droughts**	▪ Cereals banks are self-managed, village based organizations that store and trade cereals to help the poor smooth income during drought periods. ▪ Members of the organizations store grains during the regular season, or buy grains at prices relatively higher than the market. ▪ These grains can be bought back by members of the organization at lower prices than the market during the lean season.	▪ Typically, these organizations are given grants to operate. ▪ Monetized banks seem to be more effective. ▪ Cereal banks are not very effective during severe droughts.
MFI	The Project de Promotion du Petit Credit Rural (PPPCR), Burkina Faso (implemented by Sahel Action, local NGO)	PPPCR, initially a drought-relief project, provides small loans to groups of women in rural areas. It is
Cereal Credit **Droughts**	▪ PPPCR offers loans to finance the storage of grain. Clients can borrow between US$40 and US$120 for a term of nine months at an annual interest rate of 25% ▪ Loan must be reimbursed in three installments ▪ Since clients do not like to have their interest payments mixed with principal payments, the interest is paid at the end of the loan term. Interest is calculated on a straight line ▪ Clients must create groups of 3 to 6 members ▪ Each borrower must deposit 10% of the loan amount in a guarantee fund to cover loan losses and emergencies	▪ Since the borrowing group is self-selected, it provides effective screening of applicants. ▪ Loan sizes are small. The project is characterized by very high costs relative to income, especially administrative costs ▪ Interest income does not even cover salary costs ▪ This type of loan is not very effective under severe droughts
Livestock Credit **Droughts**	▪ PPPCR also offers loans to finance livestock, including cows, sheep, and goats. Clients can borrow between US$20 and US$60 for a term of six months at an annual interest rate of 20% ▪ Loan must be paid in one installment ▪ Since clients do not like to have their interest payments mixed with principal payments, the interest is paid at the end of the loan term. Interest is calculated on a straight line ▪ Same requirements of cereal credit regarding group formation and guarantee fund apply to this product	▪ Since the borrowing group is self-selected, it provides effective screening of applicants. ▪ Loan sizes are small. The project is characterized by very high costs relative to income, especially administrative costs ▪ Interest income does not even cover salary costs ▪ This type of loan is not very effective under severe droughts
Disaster Emergency Preparedness		
MFI	Several microfinance institutions in Bangladesh	Small NGO-based MFIs
Group Loan for Flood Shelters **Floods**	▪ Program for clients living in flood-prone communities. The institutions use part of clients' compulsory savings to buy land near the community. ▪ Employ clients to raise land above flood levels ▪ Build shelters and income generating activities such as fish ponds, agriculture, etc., and provide tube well and a latrine. ▪ All clients in the community repay part of the loan as an additional levy to their regular loans. But clients operating income-generating activities must repay a larger portion of the loan.	▪ Investment offers income generating opportunities during non-disaster times ▪ Debt capacity of clients may be put under pressure ▪ Joint liability may fail if floods are too severe ▪ Shelter option restricted to those who want or can borrow. ▪ Not clear how to deal with access to the shelter during a disaster to those community members who are not clients. ▪ Program works better if integrated with local and national disaster risk management plans.

Disaster Emergency Preparedness		
	Description	**Analysis**
MFI	BURO Tangail, Bangladesh	Medium-sized institution, mainly peri-urban
Contractual Term Savings **Floods**	▪ Product introduced in 1996. ▪ Clients make regular savings deposit of an agreed monthly amount for a fixed time period (3, 5 or 10 years). ▪ Compound interest is paid at the end of the agreed period at 9, 12 or 14% rate depending on the term. ▪ If a disaster occurs, savers are allowed to withdraw up to 75% of accumulated balance without penalty.	▪ Other institutions like ASA and BRAC have introduced similar schemes. ▪ By unbundling savings from loans products, additional sources of capital can be tapped into, while providing non-borrower households with safe places to accumulate liquid assets. ▪ By offering the product on a permanent basis, clients have a better opportunity to accumulate larger balances. ▪ Increased frequency and location of collection encourages savings accumulation.
MFI	Actionaid and other institutions in Bangladesh	NGO-based microfinance institutions
Seasonal Loan Repayments **Floods**	▪ Institutions working on floodplains offer a schedule for loan repayments adapted to flood seasonality. ▪ Loan term adjusted to 8 to 9 months, instead of 12, and payments scheduled to keep payments to the principal off the flood season.	▪ Increases income smoothing capacity of clients. ▪ Higher payments during the non-flood period may limit size of loans that clients can afford, thus counteracting intended benefits of product.
Disaster Response / Coping		
MFI	Center for Agricultural and Rural Development (CARD), Philippines	CARD is the largest MFI in Philippines (financial operations under CARD Rural Bank)
Multi-purpose Loan **Multi-hazard**	▪ Renewable loans given for unspecified use to qualified clients (replaced the emergency and education loans previously offered by CARD) ▪ Only minimal use restrictions are given to the borrower ▪ Initial amount is up to P5,000, the loan term is 25 weeks, the interest rate is 5% plus a 5% service fee (both are deducted upfront) ▪ In some branches , the release of MPLs are synchronized with specific events such as graduation time (March), school opening (June) and Christmas holidays (December) ▪ To qualify, the client must have a regular loan and must have paid her first project loan ▪ Loans are approved by the group	▪ MPLs are the most popular loans among CARD's loan products due to its relatively easy access and flexibility, and clients have demonstrated an excellent repayment behavior ▪ Clients have used MPL for a wide variety of purposes (consumption, paying bills, additional enterprise working capital, household improvements, and medical emergencies) ▪ MPLs have also become a source of household liquidity, as some clients keep part of the funds in the house for future emergencies ▪ This type of loans have provided emergency funds to clients affected by typhoons and other weather-related risks
MFI	BRAC, Bangladesh	One of the largest NGO-based microfinance institution in the world
No Interest Savings **Floods**	▪ No interest savings accounts offered as the flood levels rise to provide clients with a safe place to keep assets	▪ Opening no interest savings accounts on short notice adds administrative burden to ensure good financial management and avoid fraud
Loan Rescheduling **Floods**	▪ Loan rescheduling applied during flood emergency in 1998, and carried out on a case-by-case basis. Clients were given different time periods according to needs ▪ The most offered option was postponing both principal and interest payments, while stopping accumulation of unpaid interest during the deferment period ▪ The 3 techniques used to make up for the missed payments were: extending the term of the loan to add missed payments; maintaining the term of the loan but having larger payments after the grace period; agreeing on one large repayment to be made after disaster effect lessens	▪ Requires assessment of needs on a client-by-client basis to be more effective, which increases transaction costs ▪ Work better for loans with tangible collateral, and clients with longer participation in program ▪ It will not work if loan terms are short (4 to 6 months) and disaster effects are severe ▪ It should be offered immediately after the disaster and limited to most affected areas ▪ Small institutions may suffer cash flow problems ▪ Rescheduling postpones debt burden but does not alleviates it. In extreme cases, it might hinder recovery process ▪ The option with more impact on cashflow was postponing payments of loan principal for a fixed period of time but clients continued to make interest payments during the deferment period.

Disaster Response / Coping		
	Description	**Analysis**
MFI	BRAC, Bangladesh	One of the largest NGO-based microfinance institution in the world
Emergency Relief Loan **Floods**	▪ Small emergency relief loans offered to clients (500 Tk) with a 6 month term and no interest ▪ Client must start repayment a month after disbursal of loan ▪ Other microfinance institutions offered emergency loans with longer terms (12 to 24 months), but with flat interest rates of 6 to 15%	▪ Loans provide a welcome inflow of cash into the affected households, although many waited until they have used resources from social networks to request these loans ▪ Emergency relief loans have to be offered to clients as soon as possible, demanding quick needs assessment and processing ▪ In kind loans may work better in areas where prices of basic products and services have risen due to the disaster, or where supplies may be scarce ▪ Most microfinance institutions report 100 percent repayment rates on this type of loans
Disaster / Emergency Loan **Floods**	▪ Loan offered to affected clients, to be transferred from a permanent Disaster Loan Fund ▪ Loans offered with a term of 12 months and annual interest rate of 15%	▪ Evidence from Bangladesh, Central America and Poland indicates that interest rate charged does not seem to affect the ability of willingness of clients to repay the loan ▪ Other institutions such as BURO-Tangail offered disaster loans from a Disaster Loan Fund at a much lower interest rate (5%) and longer term (up to 24 months)
MFI	Fundusz Mikro, Poland	Microfinance institution established in 1994 by the Polish American Enterprise Fund (PAEF) to promote the development of microenterprises in Poland
Disaster Loan (A) **Floods**	▪ Subsidized loan offered to groups of affected microenterprenurs, transferred from a temporary emergency fund, created after the 1997 floods with a grant from donors ▪ Loans offered with a term of 24 months and annual interest rate of 10% (at the time the average interest in Poland was about 30%) ▪ Standard loan was offered to a group of affected individuals, who were allowed to decide on how to split the loan amount by themselves ▪ When signing the loan agreement, each client also signed a promissory note co-signed by one group member ▪ Applications for emergency loans were considered from the smallest to the largest amount requested ▪ Loans were extended to all microentrepreneurs living in the flood impacted area ▪ Quarterly reports expected from borrowers informing about their business situation	▪ While in other context, microfinance institutions have experienced 100% repayment rates on disaster / emergency loans, Fundusz Mikro had a lower repayment rate of 92%. ▪ Many of the first time borrowers became clients of the institution. For the majority of borrowers, the disaster loan was the only disaster assistance that they received
Disaster Loan (B) **Floods**	▪ Cost free disaster loan offered to microentrepreneurs affected by 2001 floods as a pilot ▪ Loan amount was limited to up to US$2,000 to be repaid in 12 months ▪ The grace period depended on the loan amount as the installments were set at US$250 monthly (i.e., for a loan of US$1,000, there would be 8 month grace period and 4 repayments in the last 4 months of the loan term) ▪ Loan funds were allocated from the institution's own capital but a grant was received from a sponsor covering the interest rate and service fee	▪ The 2001 floods were not massive, but rather affected several small pockets of the national territory, which make attending client needs more difficult ▪ Clients were successfully used to carry out damage assessment, and to evaluate creditworthiness of eligible borrowers

Disaster Response / Coping		
	Description	**Analysis**
MFI	Credit Rural de Guinee, Guinea	A rural banking system that extends credit and mobilizes savings for the poor., created by a French NGO to pilot test the Grameen Bank's methodology
Dry Season Agriculture Credit **Seasonal Hazards**	▪ Short-term loans provided for activities during the dry months between October and December, with an annual interest rate of 36% ▪ Loan must be paid in two installments, and repayments are due the following year in April (half of the principal) and in June (half of the principal plus interest) ▪ 10% of loan amount is automatically placed into a mandatory savings account to provide for a guarantee fund. This fund cannot be withdrawn until the loan has been fully paid ▪ Regular rural credit is also offered in the form of short term loans for agricultural and artisanal production. These loans have to be repaid in monthly installments	▪ Financial product fits seasonal needs of rural clients. Access to funds is critical to rural households when there is little cash in the local economy as it happens during the dry season ▪ Loan processing is however lengthy, often taking up to 40 days ▪ Cost of loan transaction is relatively high
Rainy Season Agriculture Credit **Seasonal Hazards**	▪ Short-term loans provided for activities during the rainy months between April and July. ▪ Maximum loan amount is US$80, loan term is 12 months and annual interest rate is 36% ▪ 10% of loan amount is automatically placed into a mandatory savings account to provide for a guarantee fund. This fund cannot be withdrawn until the loan has been fully paid ▪ Loans are offered to mixed-gender groups of 5 to 10 individuals ▪ Loans are disbursed at the beginning of the rainy season, and repayments are due in January, February and March of the following year, when prices rise during the dry season	▪ Financial product fits seasonal needs of rural clients ▪ Loan processing is however lengthy, often taking up to 40 days ▪ Cost of loan transaction is relatively high
MFI	Fundación para la Promoción y Desarrollo de la Microempresa (PRODEM), Bolivia	In 1992 PRODEM was split into a commercial wing (the commercially successful BancoSol) and a non-for-profit wing (PRODEM today).
Seasonal Loan Repayments **Seasonal Hazards**	▪ This is a 'balloon repayment scheme' that offers loans whose terms are adjusted to the regular and predictable shock on farmers' incomes that takes place before the harvest in the period between November and March ▪ Borrower pays interest only on a monthly basis and the capital repayment in one lump sum at harvest time	▪ Increases income smoothing capacity of clients. ▪ This flexibility moves clients away from coping strategies that may increase risks to their future livelihood

Post-Disaster Recovery		
	Description	**Analysis**
MFI	BRAC, Bangladesh	One of the largest NGO-based institution in the world
Asset Replacement Loan **Floods**	▪ Loans provided exclusively for income-generating assets. ▪ Loan has a term of one year and a flat interest rate of 15% ▪ Loan disbursal is in kind, and the organization provides replacements for seeds poultry, livestock or saplings.	▪ Debt absorption capacity of clients may have reached its limit after receiving emergency relief loans on top of their previous loans. ▪ Debt levels at the moment of the disaster will influence usefulness of this type of loans. ▪ In many cases, clients need to change their income-generation activities after a disaster, and asset replacement loans will not be useful to them. ▪ Clients often need at least three more loans before being able to repay the initial asset replacement loan. ▪ Asset replacement is not free of controversy, i.e., hybrid rice seeds distributed by BRAC after the 1998 floods.

Post-Disaster Recovery		
	Description	**Analysis**
	Self-Employed Women's Association (SEWA), India	SEWA was established in 1972 and is currently comprised of several subsidiaries
Housing Restoration Package **Earthquake**	▪ Large scale housing restoration assistance provided within a programmatic approach developed in accordance with the official housing reconstruction policy developed in response to the 2001 earthquake ▪ The program follows a participatory, owner driven approach, and a focus on the village at large ▪ Teams of architects and engineers from the *Mahila* SEWA Housing Trust designed housing prototypes based on village level workshops and analysis of traditional shelter design and style ▪ Field teams of the district associations conducted 'sandesh yatras' or workshops to promote safe building practices among target communities ▪ 'Gram sabhas' were subsequently organized to ensure participation of the whole village in the decision making process related, inter alia, to the formation of a village committee, preparation of the village plan and reuse of the debris ▪ Basic housing design offered has a 200 sq.ft. area, includes earthquake and cyclone resistant measures and promotes use of indigenous building materials. ▪ 3 to 4 design variations developed for every village ▪ As per government package stipulated in the housing policy, SEWA will construct this single room dwelling unit, with a cost of up to Rs45,000. The state government will compensate home owners directly up to 50% of that cost ▪ The entire village contributed a certain amount (between Rs.8,000 and Rs15,000) per house as community contribution to housing reconstruction. This contribution is deposited in a village shelter fund account	▪ The program suffered constrains due to the need to coordinate with the Government of Gujarat and comply with its housing reconstruction policy ▪ Firstly, the official housing damage assessment under the responsibility of the Government took longer than expected, and many households were afraid of removing the debris from their houses and starting reconstruction work ▪ Secondly, information dissemination on the housing policy and the signing of the required memorandum of understanding also advanced at a relative slow pace, which caused confusion and further delays in commencing reconstruction work. ▪ Thirdly, the official procedures for procuring materials were unbearably complicated.
MFI	BRAC, Bangladesh	One of the largest NGO-based institution in the world
Asset Replacement Loan **Multi-hazard**	▪ Loans provided exclusively for income-generating assets. ▪ Loan has a term of one year and a flat interest rate of 15% ▪ Loan disbursal is in kind, and the organization provides replacements for seeds poultry, livestock or saplings.	▪ Debt absorption capacity of clients may have reached its limit after receiving emergency relief loans on top of their previous loans. ▪ Debt levels at the moment of the disaster will influence usefulness of this type of loans. ▪ In many cases, clients need to change their income-generation activities after a disaster, and asset replacement loans will not be useful to them. ▪ Often, as experience of other Bangladeshi microfinance institutions corroborate, clients need at least three more loans before being able to repay the initial asset replacement loan. ▪ Asset replacement is not free of controversy, i.e., issues surrounding hybrid rice seeds distributed by BRAC after the 1998 floods.

Microinsurance Services		
	Description	**Analysis**
MFI	BASIX, Andhra Pradesh in India	NGO-based microfinance institution
Crop Insurance **Multi-hazard**	▪ Two-year old microinsurance scheme covering yields below a specified threshold, offered to clients of BASIX ▪ Claims are assessed and verified by a village committee that includes a BASIX representative ▪ At least half of the indemnity value must come from members' own deposit in a village fund ▪ Insurance premium is 20% of loan amount, which is divided as follows: 10% goes to a village fund, 5% goes to an intervillage fund (which finances payouts) and 5% to BASIX	▪ Peer monitoring of claims is a useful defense against moral hazard ▪ BASIX applies a time-honored Indian tradition, insuring against yield shortfalls and relaying on within group peer pressure to expose fraudulent claims ▪ Peer pressure tends to weed out the 'bad risks' (i.e., the poorest farmers). This acts as a defense against adverse selection, but may limit poverty impact of the scheme ▪ It already achieved financial viability
MFI	Self-Employed Women's Association (SEWA), Gujarat, India	SEWA was established in 1972 and is currently comprised of several subsidiaries, including SEWA Insurance
House and Asset Insurance (offered as an integrated package) **Multi-hazard**	▪ Three insurance packages with different insured amounts are offered by SEWA. Each package offers coverage for natural death and accidental death of member, accidental death of member's husband, hospitalization and maternity, and house and assets ▪ Hospitalization and maternity, and house and assets insurance are underpinned by SEWA exclusively, while the rest of coverages are fully insured by other companies ▪ Asset protection offers SEWA members protection against losses incurred in case of natural disasters such as fire and flood, and man-made disasters such as riots ▪ Coverage for assets, including housing, ranges from Rs5,000 to Rs.20,000 ▪ For all coverages, only SEWA members and their husbands are eligible. Husbands cannot enroll unless their spouse is an active member ▪ Premium for package one would be Rs75, for package 2, Rs180, and for package 3, Rs330 ▪ If the woman wants to insure her husband to cover natural death, additional insurance for accidental death and hospitalization, premiums go up to Rs120 for package one, Rs315 for package 2 and 660 for package 3 ▪ Premiums can be paid annually in advance or members may have a fixed deposit sum in SEWA Bank from which annual premiums will be paid using interest income	▪ Offering an insurance package has proven useful to women members as they face multiple risks simultaneously ▪ Liking insurance scheme with banking and savings products (e.g., the fixed deposit-linked insurance) has proven useful to women members and have reduced administrative costs for SEWA Insurance ▪ Repeated disasters have affected viability of insurance scheme. SEWA exposure to high losses of insured clients in case of a catastrophic event remains high. SEWA, however, plans to obtain reinsurance to limit this exposure
MFI	Opportunity International	NGO providing microfinance services in Africa since 1992. Outreach of 30,000 clients
Mandatory Loan Insurance	▪ Originally designed to deal with HIV/AIDS epidemic in Africa ▪ Clients are charged a one-time fee of US$0.30 that covers their outstanding balance in case of death. ▪ Designed to protect the portfolio and reduce vulnerability of group based lending methodology	▪ The product has been useful to ensure that the household members left behind do not have to bear the additional consequences of unpaid debt. ▪ Clients have received the product well, as it reduces debt generated stress ▪ The product has also been useful in other contexts to protect members of solidarity groups ▪ In general, credit insurance premiums range between 2% and 5% of the outstanding balance of the loan to be financially sound ▪ Additional costs of credit insurance may price some clients out of the microfinance market, and consequently reducing institutional outreach

Microinsurance Services		
	Description	**Analysis**
MFI	Proshika, Bangladesh	NGO-based, multipurpose organization offering comprehensive development services to poor households
Proshika Savings Scheme (PSS)	▪ This scheme is a life and property risk coverage policy for group members ▪ If a group member dies or loses the homestead due to a natural disaster, the member is reimbursed twice the amount of his/her savings as compensation. However, the member's savings deposit remains intact. ▪ In case of the death of a group member, the member's family receives an amount totaling the savings of the deceased multiplied by the number of years of savings kept in deposit with Proshika since the policy entered into effect. The compensation amount is never less than the double the amount of the deceased savings ▪ Compensation should be paid within three months of the member's death ▪ A compensation fund underpins the PSS. Two percent of the savings balances of groups are transferred to this fund on June 30th of every year	▪ This scheme has proven to be relatively effective in a high risk country such as Bangladesh

Sources: MBP (2001a; 2001g); McDonagh (2001); Mosley (2001a); Mosley (2001b); SEWA (2001b); SEWA (2001c); Brown and Nagarajan (2000); Fundusz Mikro (2000); MBP (2000); Nagarajan and Brown (2000); Proshika (2000); Chua et al. (1999); Colleye and Sananikone (1996b); CUDS (2000); Mileti (1999); Nagarajan (1998); Colleye and Sananikone (1996a); Anderson and Woodrow (1989). (Also direct communications with ACODEP and Fundusz Mikro)