



EXOGENOUS RISK MANAGEMENT IN FINANCIAL INSTITUTIONS THAT SERVE THE MOST VULNERABLE SEGMENTS OF THE POPULATION

**Best practices manual and case studies of
experiences of microfinance institutions in
Latin America and the Caribbean**

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Glossary of Terms

AMC	Sociedad Cooperativa de Ahorro y Crédito AMC de R.L. de C.V.
BELfund Inc.	The James Belgrave Micro Enterprise Development Fund Inc.
CDB	Caribbean Development Bank
CDERA	Caribbean Disaster Emergency Response Agency
CGAP	Consultative Group to Assist the Poor
COAC 4 de Octubre	Cooperativa de Ahorro y Crédito 4 de Octubre
CTSF	Caribbean Technical Support Facility
ELF	Emergency Liquidity Facility
ENLACE	Enlace S.A. de C.V.
FI	Financial institution that serves the most vulnerable segments of society
IDB	Inter-American Development Bank
JNSBL	Jamaica National Small Business Loans Ltd.
LICU	La Inmaculada Credit Union, Ltd.
MFI	Microfinance institution
MIF	Multilateral Investment Fund
SECO	State Secretariat for Economic Affairs
TSF	Technical Support Facility

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Prologue

The issue of natural disasters has become increasingly relevant as our countries' populations grow and spread to coastal areas: areas near rivers and volcanoes, regions of high seismic activity and other high-risk environments. On the other hand, poverty affects large segments of the population in Latin America and the Caribbean, forcing many residents to dwell and work in these areas where threats are imminent. These facts, the vulnerability of these towns and the poverty of the people who work and live in them, couple to seriously increase the risk of disaster.

The institutions providing financial services to low-income populations – called microfinance institutions, credit unions, savings and credit cooperatives, etc. – have, in most cases, loan portfolios with high concentrations in low-income populations that usually live and work in conditions vulnerable to and highly exposed to natural hazards. Thus, by their very nature, these institutions tend to have higher exposure to natural disasters than other financial intermediaries that cater to other segments of the population.

This issue is not only of great importance for these types of financial intermediaries, but also presents an opportunity to work with clients to recognize the existence of this threat, the areas threatened, and the frequency with which these areas are threatened, as well as to mitigate vulnerabilities that affect them. This analysis specifically focuses on how a financial institution may, jointly with its customers and partners, improve their condition in the event of a natural disaster and be prepared to confront more effectively the consequences of it.

This document is based on the experiences of the Emergency Liquidity Facility (ELF), a contingency fund that provides short-term loans to support the li-

quidity of microfinance institutions that are affected by an exogenous phenomenon, which, since its creation and implementation in year 2004, has assisted a total of nine emergencies in the region, granting a total of twenty liquidity loans in seven countries. Also, this work draws on the experiences of the two facilities associated with ELF, the Technical Support Facility (TSF) and the Caribbean Technical Support Facility (CTSIF), which together have provided training services preparedness and response to exogenous events to sixty-five microfinance institutions and other financial intermediaries in Latin America and the Caribbean.

The document begins with a series of methodologies and tools for an analysis of vulnerabilities and threats, the two components of risk, and which place the institution, its customers and partners ahead of the risks they confront. The paper then provides a series of recommendations on how to strengthen their conditions and prepare for the possibility of being affected by a natural disaster. The document goes on to show a roadmap which aims to enable financial intermediaries to deal with the consequences of a disaster quickly and effectively. Finally, it presents a set of five cases of institutions, from both Latin America and the Caribbean to illuminate their experiences in preventing and responding to natural disasters.

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Juan Carlos Pereira
Omtrix, Inc.
September 2011

Introduction

The Technical Support Facility (TSF) and the Caribbean Technical Support Facility (CTSIF) are two programs administered by Omrix Inc. and associated with the Emergency Liquidity Facility (ELF). TSF and CTSIF provide technical assistance to microfinance institutions for capacity building in exogenous risk management¹ (preparedness, prevention, and response). This has been commonly referred to as **contingency planning**, which refers to planning for the unexpected and constitutes a component of business continuity planning. The TSF has the financial support of the Multilateral Investment Fund (MIF) of the Inter-American Development Bank (IDB), Calmeadow, the State Secretariat for Economic Affairs (SECO), Rockdale Foundation, Open Society Institute (OSI), and Argidius. The CTSIF is funded by the MIF/IDB and the Caribbean Development Bank (CDB).

The idea for these technical assistance programs came from the recognition that exogenous risk management had not been prioritized by microfinance institutions (MFIs) in Latin America and the Caribbean, and that the traditional behavior was reactive despite the fact that sustainability risk management is as important to an MFI's health as good governance and transparency in financial management. However, countries differ greatly in their degree of exposure to exogenous events and the impact of these events on the financial health of MFIs. The programs were designed under the premise that any exogenous shock has direct and indirect impacts on the loan portfolios of MFIs, and that exogenous shocks can be not only economic in origin, but also natural, man-made, social, and political.

Thus, financial institutions (FIs²) that serve the most vulnerable sectors of the population and operate in areas permanently exposed to exogenous risks, and therefore disasters, must increasingly invest resources in preparedness, prevention, and mitigation of impacts associated with disasters. There is no doubt that the post-disaster response tools are significantly more useful when combined with prevention and preparedness activities designed to reduce and minimize the risk levels of clients. Similarly, preparation and prevention help reduce the

initial impact of a disaster and enable institutions and their clients to have a greater diversity of coping mechanisms.

The results obtained by FIs who have already made investments in prevention and preparedness for disaster (the materialization of risks that have not been managed properly, often as a result of ill-suited development conditions) can be summarized as follows:

- i. Reduced levels of risk
- ii. Significant improvement in the quality and speed of response
- iii. Improved capabilities to deal with affected clients and their post-disaster needs
- iv. Lower financial losses

Making progress in the context of prevention is a great challenge because it demands going beyond the concept of response to incorporate exogenous risk management as an additional variable in strategic and operational plans. It is an extra ingredient to consider in the security of assets and institutional efficiency, and in protecting the lives of staff and customers. This challenge becomes more substantial when the FI serves the most economically deprived segments of population. It is well known that poor people are most affected by disasters, as poverty is closely linked to vulnerable conditions. Why? Because the poor tend to live in areas with high exposure to hazards (on floodplains, or on the slopes of volcanoes, for example) and in informal housing

¹ Throughout this document the concept of exogenous risks will be applied equally to the uncertainty about the occurrence and impact on financial results stemming from natural or man-made events outside the institution or from social and political upheaval.

² The TSF and CTSIF programs have been targeted to microfinance institutions, but the proposals from both programs are generally applicable to any institutions that intermediate resources and serve the most vulnerable segments of society, regardless of their legal form: banks, non-banking financial entities, credit unions, public or private credit and savings banks, private financial funds, nongovernmental organizations, etc.

lacking structural mechanisms to resist the impact of natural disasters. In addition, poor people tend to have limited access to health and education, and limited savings, all of which makes recovery from a disaster more difficult.

Unregulated low-income settlements, where land values are lowest, often occupy the most hazard-prone locations. (...) Hazard-prone locations are often preferred by the poor as a way of reducing everyday risks by gaining greater accessibility to urban services and employment, even though natural hazard risk may be increased.³

To cope with the scenario described above, FIs can implement actions to prepare and protect the organization before disaster strikes, in order to lessen the disaster's impact on the institution and its officers and accelerate the return to business as usual as soon as possible. These actions have two main purposes: to reduce the impact of an unforeseen disaster on the portfolio and solvency of the institution, and to enable the entity to respond quickly and effectively to the occurrence of a disaster.

Actions to protect the FI's portfolio and solvency may include:

1. Identify potentially at-risk populations and simulation of financial projections, including risk mapping, risk assessments, and estimation of liquidity needs.
2. Update and back up copies of customer records outside the identified areas of potential disaster.
3. Create a disaster fund or reserve to help address liquidity problems. A benchmark is the ELF, a fund established in 2004 by an important group of international donors such as the MIF/IDB and SECO whose purpose is to provide liquidity loans to microfinance institutions in Latin America and the Caribbean when affected by exogenous events (natural disasters and financial crises, economic and political turmoil, etc.).

Preparatory actions to respond quickly and effectively when disaster strikes and to minimize its impact might include the following:

1. Form a team for disaster prevention and mitigation (Risk Management and Operational

Crisis Management Committee) that will be responsible for coordination of the institution's preventive and response activities.

2. Develop policies and procedures for disaster response, for example, defining whether the FI will:

- a. Grant emergency loans to customers
- b. Offer some kind of emergency-care services (primarily geared to emergency support)
- c. Continue to grant loans in areas affected by a disaster that maintain their potential risk status and are in a post-disaster crisis situation. In other words, establishing minimum criteria for determining areas to reorient growth and future loan placement.

3. Develop an internal and external intervention, communication, and coordination strategy.
4. Train staff on procedures and guidelines for disaster response.
5. Create channels of communication and discussion with donors and second-tier financial institutions, domestic and foreign, to obtain emergency funding.
6. Establish partnerships with organizations that manage early-warning systems, emergency-response agencies, and institutions working in risk management. This would allow the FI to concentrate on fulfilling its mission while allowing other institutions to fulfill their respective roles in a timely, efficient, and effective fashion.

In the case of MFIs, many of their clients use existing loans for multiple purposes. Then, when disaster occurs, these customers may lose their homes, business assets, inventories, and crops—precisely those things in which loan proceeds were invested. Still in debt to the MFI, clients lose their savings, and/or the income-generating activities that would allow them to repay the debt are affected. Additionally, these customers will require emergency funds to fulfill their basic needs for food, clothing, health, and shelter. Moreover, clients suffer indirect impacts that sometimes far exceed the initial effects of the disaster.

³ UNDP. *A Global Report: Reducing Disaster Risk: A Challenge for Development* (2003), Page 61.

Because of this, MFIs can support clients in improving their level of preparedness and protection in the event of disasters by conducting briefings and media campaigns or publishing materials (leaflets) on subjects such as (i) strategies to protect the family in times of disaster, (ii) diversification of income-generating activities, (iii) preventive health practices, (iv) construction of structurally sound housing, and (v) providers of emergency-care services. Also, MFIs can collect and disseminate early-warning information on disasters to their customers.⁴

To summarize the findings of the case studies and interviews conducted with MFI officials, program donors, and the management firm of the TSF and the CTSF, and of conversations with the consultants in charge of the field work in both programs, it is possible to identify a set of keys to success in the reduction of exogenous risks in microfinance institutions and lessons learned in the process. The hope is that these keys to success and lessons learned will guide a larger number of FIs to be managed in a way that is more aligned with their circumstances and more sustainable over the long term.

KEYS TO SUCCESS IN REDUCING EXOGENOUS RISKS

After seven years spent designing exogenous risk reduction plans in Latin America and the Caribbean, and three years supporting the implementation of such plans, the experience of the TSF and the CTSF indicates that the keys to success (necessary conditions) in the adoption and implementation of a comprehensive plan for exogenous risk management are:

1. Corporate governance: Creating a risk management culture in a broad sense is a process that must emanate from the top and filter down; therefore, it must begin at the highest level of decision-making and institutional responsibilities. Thus, a board of directors committed to change and adaptation will facilitate the incorporation of risk reduction's daily tasks while maintaining the mission and vision and ensuring long-term sustainability. Positive leadership committed to a new culture and way of operating is certainly the engine for institutional change.

2. Participation: The process of building and putting into place a culture of exogenous risk reduction, and the plan designed to that end, should be highly participatory and involve all levels of the FI, including the highest level of corporate governance. Wide participation in the development of the plan and its objectives and strategies will ensure the achievement of the expected results. Participatory mechanisms that have been tested previously in the FI, for example in the construction of the strategic plan, are especially important to channel participation to this new effort.

3. Recovery of experiences and monitoring: To create institutional awareness, referring to past experiences is an effective exercise. To follow the evolution of the credit portfolio and how it has been affected by exogenous events makes it possible to look at hazards from the perspective of costs or lower revenues for the institution: increased portfolio at risk, creation of additional provisions for impairment of loans, increased administrative expenses and portfolio monitoring, reduction of expected revenues, and, in extreme cases, the inability to recover loans, among others. This knowledge of the past enables the FI to perform a cost-benefit analysis that compares operations with and without a plan to reduce exogenous risks, then take action to build a portfolio that includes criteria of quality and reduction of exposure and vulnerability to exogenous risks instead of only focusing on criteria of quantity and market share.

4. Using the existing capacity: Anchoring the process of construction and implementation of the exogenous risk reduction plan to existing processes and procedures helps to ensure the medium- and long-term sustainability of the plan so long as it is kept active and periodically reviewed. The establishment of ad hoc structures is not recommended because over time their objectives and functions tend to be diluted and goals are not achieved. If exogenous risk reduction is part of the formal structures and processes of the FI, there is greater potential for progress and internalization of processes and actions.

⁴ Development Alternatives, Inc. *Pre-Disaster Planning to Protect Microfinance Clients*. MBP Rapid-Onset Natural Disaster Brief No. 7.

- 5. Prioritizing actions:** Once the FI has identified the risks it is exposed to and the vulnerabilities it faces, the FI needs to make an assessment of the likelihood and the expected impact of different risk scenarios in order to assess the effect on medium- and long-term sustainability. Through this exercise the FI can prioritize actions and make the best possible allocation of resources. For example, regarding its work with customers, the FI can prioritize monitoring and improvement of socioeconomic conditions of highly vulnerable clients (medium- and low-vulnerability clients would be served later) through the design of credit products aimed at improving housing and businesses, relocation to safer areas, and so on. This is simply the application of qualitative methodologies for operational risk management to the subset of threats categorized by Basel II as disasters and other events.
- 6. Organization:** This refers to the creation of a committee composed of senior leaders from different functional areas that will take responsibility and accountability for preventive and response actions to exogenous events; the committee might be named the Risk Management and Operational Crisis Management Committee. The coordinator of the committee must be an officer familiar with the institution and must have the full support of the board of directors and senior management to fulfill his/her responsibilities and to perform ex ante and ex post decision-making. A proposal of pre- and post-disaster roles and functions of the committee is developed in Chapter I.
- 7. Access to existing information, experiences, tools, materials, and resources:** The FIs are not specialized agencies in the prevention and management of risk or in emergency assistance, so it is critical to have access to and retrieve documents that could facilitate internal actions and guide decision-making. A preliminary and minimum list of documentation to look at is: (i) hazard maps for different geographic levels (national, departmental, provincial, local); (ii) risk-zoning studies; (iii) plans for disaster prevention, mitigation, and attention; (iv) materials and training programs developed by specialized agencies in prevention and treatment of emergencies and disasters, which in many countries are available virtually; and (v) specific studies on hazards, risks, and disasters available from municipal governments in the areas where the FI operates
- 8. Consensus and coordination:** Once the internal goals and the needs arising from them are established, it is important to define and establish instances of consultation and coordination of actions to take advantage of existing possibilities in terms of resources and to avoid duplication. This applies to both prevention and emergency management. The establishment of partnerships with agencies specializing in prevention, preparedness, and disaster/emergency support improves the FI's access to primary information (for example, warnings) that can be used in preparation and decision-making in emergency response (e.g., mobilization of donations, specialized personnel, etc.).
- 9. Communication and integration of clients and communities:** Communication should be carried out in a way that strengthens the FI's internal and external relations. Effective communication must be present both in prevention actions and in operational management of emergencies. This element (i) helps create a culture of prevention both internally in the FI and among its clients, (ii) improves the institutional profile as a result of increasing clients' safety, and (iii) increases customer confidence in an emergency.

LESSONS LEARNED

- 1. Distinction between rapid-onset events (e.g., earthquakes) and slow-onset events (e.g., tropical storms).** The level of preparedness needed to deal with these two types of events is different. Slow-onset events, or announced events, give FIs time and opportunity to take precautions and alert staff and clients. At the other extreme, rapid-onset events, or unannounced events, take FIs, their staff, and clients by surprise and, therefore, require a preparedness exercise based on "what if" scenarios and drills. As a result, planning for exogenous risk reduction should consider distinct actions for each type of event.
- 2. The most vulnerable sectors of the population are more concerned with subsistence and day-to-day survival than with**

future planning, and in many cases this conclusion can be extrapolated to the FIs that serve them. The social and economic attributes of these segments of society (poverty, unemployment, high birth rates, low educational level, domestic dysfunction, etc.) make it a challenge for the poor to develop a culture of prevention as opposed to a culture of reaction, and the same is true for the FIs that serve them. In this context, it is important to identify the exogenous risks to which the FIs and the most vulnerable populations are more sensitive, and for which there is greater awareness and preparation. In the Caribbean, this might be the case with tropical storms, and for the rest of Latin America, although the diversity is greater, flooding and storms, which are periodic or seasonal events that remain fresher in the memory. Unfortunately, infrequent exogenous events of high impact tend to be forgotten. This mixture of responses and trends makes the FIs' work in the communities they serve very relevant for inducing changes in behavior; ensuring that the economic activities of their clients are more resilient to the ravages of nature, politics, and social development; and ensuring their long-term survival.

- 3. The scope of the exogenous risk reduction plan must be commensurate with the size and complexity of the FI's operation (there is no one-size-fits-all solution).** Undoubtedly, it is not possible to apply the same recipe to each entity, since each FI is affected by different elements that involve higher risk. In some cases, higher risks may arise from institutional weaknesses (organization and communication, fragile organizational climate, lack of a training program, excessive verticality in decision-making, poor corporate governance, etc.). In other cases physical factors may be the cause of higher risks (offices located in high-risk areas and/or in old buildings without proper maintenance, inadequate design of electrical systems, lack of safety equipment, etc.), or these may arise from profound social or client frailties. The final result and the factors that determine it are like a fingerprint; no two FIs are alike. However, there are general courses of action that can be identified (as presented in Part I of this document) and

that each FI should assess to decide whether they are applicable to its tailor-made plan. The availability of resources also imposes a restriction on how large the scope of the plan can be. The case studies discussed in Part II of this publication present different schemes that MFIs have adopted in which exogenous risk reduction has been considered a strategic line of action. The case studies were selected not only to cover different sub-regions of the continent (the Caribbean, Central America, and South America) exposed to various types of natural and social threats, but also to show different ownership structures and types of organizations (credit unions, NGOs, governmental funds, and private corporations), as well as a wide range of mechanisms to address similar issues ranging from intensive use of technology and geographical software to manual identification of clients on physical maps, for example. In any case, practicality and feasibility must be the guiding light in designing the plan.

- 4. Having an emergency-response plan (road map for facing disaster) reduces the time it will take the FI to resume operation.** Preparation and foresight pay off when they are needed most: after an exogenous event materializes and disaster strikes. Being organized and having a set of policies, processes, and emergency procedures expedites the restoration of institutional functions, the assistance to affected staff, and the timely provision of services to clients who have been impacted by the event; all of these factors in turn benefit the FI in terms of retention of staff and clients, reduction of revenue losses, control of incremental costs, location of customers, and coordination of actions with institutions that provide emergency assistance. The faster the response, the lower the potential losses. For the implementation of the plan to be effective, however, the plan must not only be written, it must also be tested, and personnel must be trained and made fully aware of how, where, and when to act.
- 5. Nonmeasurable specific actions strengthen the FIs in the short, medium, and long term.** An FI's vulnerability can be reduced by improving preparedness; this is accomplished through measures such as the relocation of

major data, applications, and communications equipment in secure areas of the building that have suitable conditions of temperature, humidity, and safety; safeguarding backups of databases and applications at external sites (outside the FI); emergency lighting; signage for evacuation and emergency routes; staff training in the use of safety equipment and first aid; preparation and visible location of an updated directory of emergency numbers; and setting up a first aid kit that meets International Red Cross standards.

6. **The consideration of exogenous risk management in an FI's planning process and operation must be part of the institution's social responsibility.** Certainly, working under this new institutional order is more complex, but it is also more comprehensive, since financial reasoning will no longer make abstract the physical, geographical, and human elements. Thus, the understanding of disasters and exogenous risks, and how these affect the results of the FI, cannot be overlooked any longer; it should become a necessary condition for the efficient, effective, safe, and stable operation of an FI that serves the most deprived segments of the population in areas highly vulnerable to natural, socio-natural, and anthropogenic hazards.
7. **Credit risk in an FI is not only a commercial issue.** Clients' ability to pay is affected not only by market variables or experience in the line of business, but also by exogenous factors (environmental and social). Environmental conditions impose restrictions on FIs, but also offer opportunities for innovation. Extrapolating this teaching to the field of integrated risk management in an FI, the conclusion is that it cannot be restricted to the management of financial and economic variables, because exogenous factors can quickly change both the risk profile of the portfolio as well as institutional sustainability.
8. **Latin America and the Caribbean have learned to live with disasters, and this complicates the adoption of good exogenous risk management practices.** For better or worse, people, organizations, governments, and societies in Latin America and the Caribbean have developed capabilities to deal with frequent crises and emergencies

arising from natural elements, human action, social upheaval, and political instability. The result is the absence of a proactive culture of exogenous risk management, possibly due to an apparently low correlation between the economic impact of exogenous risks and a willingness to work on managing those risks. Therefore, inducing cultural change in an FI requires leadership, strength, determination, and persistent strategies.

9. **Exogenous risk management is equally as important to the soundness of an FI as good governance and transparency in financial management.** Institutional strengthening must focus not only on the adoption of best practices of corporate governance, financial performance, and transparency in management that will allow the FI to achieve its mission and vision; it must also focus on contingency planning, which is a key piece of institutional soundness and sustainability.

STRUCTURE OF THE DOCUMENT

The first part of this document presents a comprehensive proposal for exogenous risk management in an FI. Under this proposal, two complementary stages of work are established. The first stage—the **Exogenous Risk Reduction Plan**—is *preventive*, or *ex ante*, in character, and oriented toward the adoption of measures to strengthen the position of the FI itself and of its clients prior to a disaster⁵ (i.e., prior to the materialization of an exogenous risk). The second stage is *operational and actionable*—the **Disaster Response Plan**—and is set up to be applied once a disaster has occurred (*ex post*). The objectives of these plans are to (i) enhance the safety and soundness of the institution in terms of physical security, resources, and productive assets; (ii) maintain the loyalty of good clients; (iii) safeguard and improve the institution's image in the context of corporate social responsibility; and (iv) ensure the flow of funding to the business sector and allow the continuity of institutional activities.

As expected, the design of a comprehensive plan for exogenous risk management should be based on

⁵ Disaster is defined as a destructive event of natural or human origin, or a social and political upheaval.

a previous diagnosis that encompasses both the analysis of threats/hazards to which the FI and its customers are exposed, as well as the weaknesses or vulnerabilities they face when exposed to those threats. For the purpose of the diagnosis, the TSF and the CTSF have developed a set of methodological proposals that compose a practical toolbox from which it is possible to determine intervention needs and actions.

The second part of the document is a compendium of case studies that exemplify the implemen-

tation of exogenous risk reduction and response plans. The institutions' experiences show other FIs that might be interested in incorporating this strategic line of action into their daily operations that it is possible to bring theoretical proposals into real application. The case studies also highlight the benefits that risk reduction has brought to the featured institutions as of the time they were interviewed, and the benefits that could be generated in the future.

Part I

Concepts, preventive and corrective
measures, methodological proposals,
and disaster response plan

Chapter I

Risk and vulnerability: concepts, definitions, and diagnostic methodologies

The development of an exogenous risk reduction plan, and the adoption of a set of preventive and corrective measures, is based on the assumption that risk—***the possibility of occurrence of losses and damage as a result of the occurrence of a disaster***—when not handled (identified, quantified, and mitigated) adequately, favors or facilitates the occurrence of disasters and the generation of differing magnitudes of associated losses and damage that can put individuals, societies, companies, or countries in a critical situation.

Consequently, to guarantee the growth of FIs in a context of financial sustainability, and reduce uncertainty about the quality of the portfolio and its probability of recovery, the challenge to reduce each identified risk factor must be undertaken. Risk factors can be related to functional characteristics of the sector or sectors served by the FI, modalities of institutional organization and coordination, structure of information management, incorporation of security parameters, or geographic or sector expansion plans of the FI, among others.

Risk analysis is assessing the possibility of occurrence of loss or damage in a location, region, country, or sector as a result of the coexistence of hazards and vulnerabilities in a given time and space. The term *hazard* refers to the possibility of occurrence of a potentially damaging phenomenon, natural or human, which can be dangerous for people and their environment. The term *vulnerability* refers to the condition under which a social or economic structure or infrastructure is likely to suffer loss or damage due to the occurrence of a phenomenon of natural or human origin (hazard), because of their exposure condition and internal factors that represent a weakness.

As an example, Box 1 presents a reference list of potential direct and indirect impacts of natural, socio-natural, or man-made disasters (e.g., floods, droughts, landslides, earthquakes, volcanic eruptions, hurricanes, fires, explosions) on the FIs and their clients located in areas of high and moderate exposure to hazards, and/or under multiple-hazard scenarios. In general, direct impacts are related to damage to physical assets and productive capital, and indirect impacts to loss of revenue and additional costs.

1. COMPONENTS OF RISK

Box 1

Potential Direct and Indirect Impacts of Natural, Socio-Natural, and Anthropogenic Disasters

Direct Impacts	Indirect Impacts
<ul style="list-style-type: none">• Partial or total losses in facilities located in areas exposed to hazards.• Severe damage to office equipment and furniture; loss of documents and impact on information systems.• Partial or total loss of clients' homes located in critical areas.• Moderate to severe effects on life and health of clients and staff of the financial institution.• If the event occurs during working hours, potential of loss of life of field officers (credit officers, collection officers, etc.) working in affected areas.	<ul style="list-style-type: none">• Partial or total impact on activities of branches located in disaster areas.• Moderate to severe loss of credit portfolio due to concentration on exposed areas.• Increase in delinquency rates resulting from clients' loss of sources of income.• Slowdown or complete interruption of the institution's growth process.• Difficulties in attaining institution's goals: growth and financial return.

<ul style="list-style-type: none"> • Partial or total loss of clients' economic activities financed by the institution. • Loss of income sources of clients resulting from total or partial impact on their businesses. • Total or partial loss of working capital financed by the institution. 	<ul style="list-style-type: none"> • Need to redefine potential growth areas and credit renewal policies. • Liquidity stress resulting from problems in collecting loans and the need to provide emergency funding and, later, reconstruction financing.
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In simple terms, the level of risk can be determined as shown in Table 1.

Table 1
Framework for the Construction of the Level of Risk in an FI

Exposure to Hazards	Flooding			Earthquake			Landslides		
	High	Medium	Low	High	Medium	Low	High	Medium	Low
FI High									
High	High Risk	High Risk	Medium Risk	High Risk	High Risk	Medium Risk	High Risk	High Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk	High Risk	Medium Risk	Low Risk	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Low Risk	Medium Risk	Low Risk	Low Risk	Medium Risk	Low Risk	Low Risk

How can the results in Table 1 be interpreted?

- To understand the orange-shaded box, consider that the FI's level of vulnerability to flooding is low (vertical axis), i.e., the FI is not very susceptible to damage or loss in case of flooding, despite the fact that the geographic region in which it operates has a high exposure to flooding (horizontal axis). This may be due to the fact that the FI has a low percentage of its loan portfolio placed in areas with a high flood hazard. Then, the combination of both factors—low vulnerability and high exposure—explains a medium level of risk. This could be the case, for example, of FIs in Jamaica that place a low percentage of loans in coastal areas flooded by rising sea levels caused by tropical storms.
- To understand the red-shaded box, consider that the FI's level of vulnerability to earthquakes is high, i.e., the FI is very susceptible to damage or loss in case of earthquake (vertical axis), and the geographic region in which it operates also has a high exposure to earthquakes (horizontal axis). This might be due to the fact that the FI has a high percentage of its loan portfolio placed in areas of high earthquake hazard, that their offices do not comply with anti-seismic building regulations, or that the homes and businesses of their clients are located in weak buildings. The combination of both factors—high vulnerability and high exposure—explains a high degree of risk. This could be the case for some MFIs in Nicaragua that concentrate a high percentage of their portfolio in the Pacific region (Managua, León, and Chinandega), with offices established in old buildings that do not meet proper construction standards and do not have good levels of maintenance, and whose clients live and develop their businesses in obsolete facilities. This may also have been the case of Peruvian MFIs with highly concentrated portfolios in the Pisco area at the time of the 2007 earthquake.
- To understand the yellow-shaded box, consider that the FI's level of vulnerability to landslides (or mudslides) is low, i.e., the FI is not very susceptible to damage or loss in case of landslides or mudslides (vertical axis), and the geographic region in which it operates is fairly exposed to landslides (horizontal axis). This may be due to the fact that the FI has a low percentage of its loan portfolio placed in

hazard areas or does not have offices located in highly exposed locations. The combination of both factors—low vulnerability and medium exposure—determines a low level of risk.

2. VULNERABILITY ANALYSIS OF THE FINANCIAL INSTITUTION, ITS OPERATING ENVIRONMENT, AND THE SEGMENT IT SERVES

In the context of the TSF and the CTSF, a methodological proposal was developed to assess vulnerability in four dimensions: institutional, social, physical, and clients. This methodological approach is one of the elements of the Toolbox developed by the TSF and the CTSF for comprehensive management of exogenous risks in an MFI (see file entitled Toolbox—Contents on the CD that accompanies this document). Annex 1, also included on the CD accompanying this document, contains the forms that facilitate the implementation of the methodology: vulnerability tables and theoretical values of vulnerability. These tables constitute the basis for the identification of the proposals, the definition of objectives, actions to be carried out, actors to involve, and timing for intervention based on the priority of the problem. Thus, a high-priority problem (high vulnerability) should be addressed in the short term. The steps for filling out the vulnerability tables, generating and interpreting the results, and formulating actions, as well as a description of each variable of analysis, are detailed in Annex 2: Methodological

Process for the Identification of Vulnerability Conditions and Description of Variables, also included on the CD accompanying this document.

Following are a series of tables showing sample questions included in the vulnerability tables, along with their respective interpretations. For each aspect being assessed (question), options weighted in two or three ranges are set; the most unfavorable conditions always have the highest value (highest vulnerability), while the most favorable conditions always have the lowest value (low vulnerability). For institutional vulnerability, the assessment is done globally for the FI and decentralized (headquarters and each branch) for physical, social, and client vulnerability, as these three dimensions may have different characteristics depending on the building that the branch occupies, the area where the branch is located, the socio-demographic characteristics of the population in the area served by the branch, and the average characteristics of clients served by the branch.

Then, for each type of vulnerability under analysis, a vulnerability index will be quantified: high vulnerability (3), medium vulnerability (2), or low vulnerability (1). Adding up the ratings of these indices of institutional, social, physical, and client vulnerability allows the institution to determine an aggregate level of vulnerability for the FI as defined by the following formula:

$$\text{VULNERABILITY} = (\text{Institutional} + \text{Social} + \text{Physical} + \text{Clients})$$

The ranges for rating global vulnerability are:

VULNERABILITY LEVEL	INDICATOR	POINTS
HIGH	3	Between 9 and 12 points
MEDIUM	2	Between 5 and 8 points
LOW	1	Between 1 and 4 points

2. 1. Institutional Vulnerability

VARIABLES OF ANALYSIS	QUESTIONS		SCORE		MAX. VULN	ASSESSED VULN.
1.1 Strategic Planning	1.1.1	How would you define the level of medium- and long-term strategic planning at the MFI?	High	1	1	6
			Medium	2		
			Low	3		
	1.1.2	If they exist, are the strategic planning mechanisms participative?	High	1		
			Medium	2		
			Low	3		
	1.1.3	The linkage between the MFI's strategy, the local development strategy, and the national development policy is:	High	1		
			Medium	2		
			Low	3		
	1.1.4	The level of accomplishment/performance of the MFI's entrepreneurial strategy is:	High	1		
			Medium	2		
			Low	3		

- Question 1.1.1: The objective is to rate if the FI has a process to define its long-term vision. If planning were only short-term (one-year maximum), this would be equivalent to a condition of high vulnerability, as there are no mechanisms to establish a long-term vision that allows the adoption of sustainable preventive measures, due to the tendency to work under a short-term framework (value 3 = low level of medium- and long-term planning). At the other end would be long-term planning (more than three years), or a low level of vulnerability from the standpoint of planning (value 1 = high level of medium- and long-term planning).
- Question 1.1.2: The purpose is to assess whether the development of the strategic plan uses a process of consultation throughout the organization (or including representatives at all levels of the organization), or if the strategic plan is designed at the highest levels of corporate governance and then communicated to the rest of the organization. If the latter were true, this approach would denote a high vulnerability, as staff at different operational levels have not been given a role in the formulation of strategies and proposals (value 3 = low level of participation). The opposite also holds: if strategic planning is highly participatory, vulnerability is low (value 1), and this would smooth the adoption of sustainable preventive actions.
- Question 1.1.3: When an FI's strategies are highly correlated with local and national development policies, it is considered a strength (value 1), because the FI's operation is consonant with the more comprehensive strategies. Otherwise, vulnerability would be high (value 3 = low linkage of FI's strategies with local and national development strategy).
- Question 1.1.4: When the accomplishment of strategies is very high, this indicates good knowledge of the market, clients, and institutional capacities, and a well-executed planning process. Consequently, vulnerability for this issue is low (value 1). However, if the degree of compliance of the strategic plans is low, it means the institution shows a high level of vulnerability (value 3), because it does not know the market potential, or has been too ambitious, and therefore the reality has stopped short of the expected scenario.

Box 2 Example of Real Vulnerability Assessment for Strategic Planning

- Question 1.1.1: Medium = 2
- Question 1.1.2: High = 1
- Question 1.1.3: High = 1
- Question 1.1.4: Medium = 2

As the table above illustrates, the sum of the values assigned to the four questions is 6 (2 + 1 + 1 + 2). The maximum value that may be assigned to institutional vulnerability is 12 (3 + 3 + 3 + 3).

In Annex 1, in the spreadsheet titled Tables for Vulnerability Identification, one can review the levels of vulnerability to which the institution is exposed and then conclude that a value of 6 corresponds to a medium level of vulnerability as a variable in strategic planning.

2.2. Social Vulnerability

TYPES OR CONTEXTS OF VULNERABILITY	VARIABLES OF ANALYSIS	QUESTIONS		SCORE		MAX. VULN.	ASSESSED VULN.
SOCIAL VULNERABILITY FACTORS	2.1 Social Issues	2.1.1	The poverty level in the location is:	Low	1	1	1
				Medium	2		
				High	3		
		2.1.2	The unemployment rate is:	Low	1		
				Medium	2		
				High	3		
		2.1.3	The dependency ratio of the population to the activities financed in terms of employment is:	Low	1		
				Medium	2		
				High	3		
		2.1.4	The degree of diversification of activities of	Low	1		
				Medium	2		
				High	3		
		2.1.5	In general, are microentrepreneurs household heads?	No	1		
				Yes	2		

- Question 2.1.1: A high level of poverty in the areas served by the FI implies high vulnerability for operations (value 3), because, as has been already stated, when disasters occur these segments of the population are most

affected given their location, ability to generate income, level of savings, access to health services, and education. Low poverty levels are associated with relatively lower vulnerability (value 1).

- Question 2.1.2: High levels of unemployment may lead many people to develop activities on their own without having the experience or knowledge to do so, in order to have income to survive. This condition of inexperience or ignorance is likely to lead to failure of the entrepreneur. Therefore, high unemployment is interpreted as high vulnerability (value 3). The opposite also applies.
- Question 2.1.3: If the activities funded by the FI are those that generate the most employment for local people, in the case of disaster and deterioration of these activities, many people would be out of work and out of business. High dependence, then, is indicative of high vulnerability (value 3). Diversification of employment-generating activities is seen as positive and reduces vulnerability.
- Question 2.1.4: A microentrepreneur with a single source of income is highly vulnerable (value 3) because if that source of income is affected he/she will not be able to honor debts with the FI due to the lack of alternative means of income generation. On the other hand, a microentrepreneur with various income-generating activities (e.g., seasonal crops, permanent crops, and small-animal raising) is a microentrepreneur better prepared to deal with the consequences of a disaster. The greater the diversification of clients' activities, the lower the vulnerability.
- Question 2.1.5: A microentrepreneur who is the head of household and sole provider of the household has higher vulnerability because the household relies entirely on him or her as the revenue generator. This is particularly evident in the case of single mothers, who cannot meet their loan repayment commitment with the FI if they fall ill or lose their business.

Box 3

Example of Real Vulnerability Assessment for the Social Dimension

- Question 2.1.1: High = 3
- Question 2.1.2: High = 3
- Question 2.1.3: Low = 1
- Question 2.1.4: Medium = 2
- Question 2.1.5: Yes = 2

As the table above illustrates, the sum of the values assigned to the five questions is 11 (3 + 3 + 1 + 2 + 2). The maximum value that may be assigned to social vulnerability is 14 (3 + 3 + 3 + 3 + 2). In Annex 1, in the spreadsheet titled Tables for Vulnerability Identification, one can review the levels of social vulnerability to which the institution is exposed and then conclude that a value of 11 corresponds to a high level of social vulnerability.

2.3. Physical Vulnerability

VARIABLES OF ANALYSIS	Variables de análisis	QUESTIONS	SCORE	MAX. VULN.	ASSESSED VULN.	EVALUATOR'S FINDINGS	
3.3 Access	3.3.1	Characteristics of access:					
	3.3.1a	Dimension (size)	SUFFICIENT	1	12	7	
			INSUFFICIENT	2			
	3.3.1b	Location	ACCESSIBLE	1			
			INACCESSIBLE	2			
	3.3.1c	Types of entrance	Puerta				
	3.3.1d	Way in which entrances work	Adecuada	1			
			Inadecuada	2			

	3.3.1e		EASY	1				
			DIFFICULT	2				
	3.3.1f		YES	2				
			NO	1				
	3.3.1g		What is the protection of the glass areas?	PROTECTED				1
				UNPROTECTED				2

- Question 3.3.1.a: The dimensions of accesses are considered to be sufficient if they allow fluid movement of people into the different areas of the financial intermediaries' facilities. Insufficient is the opposite.
- Question 3.3.1.b: An accessible location refers, for example, to having core spaces in the building that work as distribution nodes for the flow of staff and clients. Inaccessible is the opposite.
- Question 3.3.1.d: An adequate location of access is equated with lower physical vulnerability. Examples are safety push doors (doors that open from the inside out). Inadequate is the opposite.
- Question 3.3.2: Easy accesses are those that allow for comfortable circulation because there are no elements that prevent the fluid movement of people; they are indicative of low physical vulnerability. Difficult accesses are the opposite.
- Questions 3.3.3 and 3.3.4: The existence of large unprotected glass areas implies high vulnerability, as these represent a danger to staff and clients standing nearby in a disaster. Therefore, if there are large areas of glass in the building, these should be protected (for example, by being covered with a special film that keeps glass from shattering) to reduce the impact on people in case of breakage or explosion.

Box 4

Example of Real Vulnerability Assessment of Accesses

- Question 3.3.1.a: Sufficient = 1
- Question 3.3.1.b: Accessible = 1
- Question 3.3.1.d: Adequate = 1
- Question 3.3.2: Easy = 1
- Question 3.3.3: Yes = 2
- Question 3.3.4: Protected = 1

As the table above illustrates, the sum of the values assigned to the six questions is 7 (1 + 1 + 1 + 1 + 2 + 1). The maximum value that may be assigned to physical vulnerability is 12 (2 + 2 + 2 + 2 + 2 + 2).

In Annex 1, in the spreadsheet titled Tables for Vulnerability Identification, one can review the levels of physical vulnerability to which the institution is exposed and then conclude that a value of 7 corresponds to a medium level of physical vulnerability.

2.4. Client Vulnerability

VARIABLES OF ANALYSIS	QUESTIONS		SCORE	MAX. VULN.	ASSESSED VULN.	EVALUATOR'S FINDINGS	
4.3 Location	4.3.1	In general, clients are located in:	SAFE AREAS	1	9	4	
			MODERATELY EXPOSED AREAS	2			
			HIGHLY EXPOSED AREAS	3			

	4.3.2	Is installation of microenterprises spontaneous or planned?	PLANNED	1			
			SPONTANEOUS	2			
	4.3.3	Does the installation of microenterprises abide by the restrictions and opportunities defined by zoning rules (for example, established in a territorial ordering plan)?	YES	1			
			NO	2			
	4.3.4	Were conditions of potential isolation in case of disaster observed?	YES	2			
			NO	1			

- Question 4.3.1: Clients located in an area highly exposed to natural or man-made hazards have a high vulnerability condition (value 3). For example, clients located on flood plains, on riverbeds, on slopes of a volcano or unstable slopes, next to a refinery, and so on, would have more capital losses and their ability to repay loans would be reduced in case of disaster. By contrast, a customer who lives and works in a safe area is a low-vulnerability client (value 1).
- Question 4.3.2: Spontaneous installation of microenterprises is a condition of greater vulnerability, possibly because the location will not have adequate access to basic services (water, energy, sewerage, etc.) or will have to operate under conditions of greater lack of protection.
- Question 4.3.3: Generally, when the installation of microenterprises is spontaneous, they do not abide by the constraints and opportunities defined by the land use plan, which can mean increased vulnerability because microenterprises may be installed in unfit areas according to land-use conditions.
- Question 4.3.4: The existence of potential conditions of isolation in case of disaster implies greater vulnerability of clients, as it would be difficult to evacuate them or bring them timely and adequate assistance.

Box 5

Example of Real Vulnerability Assessment for Location of Clients

- Question 4.3.1: Safe area = 1
- Question 4.3.2: Planned = 1
- Question 4.3.3: Yes = 1
- Question 4.3.4: No = 1

As the table above illustrates, the sum of the values assigned to the four questions is 4 (1 + 1 + 1 + 1). The maximum value that may be assigned to client vulnerability is 9 (3 + 2 + 2 + 2).

In Annex 1, in the spreadsheet titled Tables for Vulnerability Identification, one can review the levels of client vulnerability to which the institution is exposed and then conclude that a value of 4 corresponds to a low level of vulnerability due to clients' locations.

CONCLUSION

After assessing the four possible types of vulnerability (institutional, social, physical, and clients) and identifying the problems that such vulnerabilities could bring to the FI, the next step is to identify the actions that could be implemented to reduce potential risk and develop an exogenous risk reduction plan that would comprise preventive and corrective

measures. A proposal of the components of such a plan is developed in Chapter II.

Because risk is present in every human activity, and no matter how much prevention and correction an FI implements it will never be exempt from being affected by a disaster, it is advisable to also develop a disaster response plan that aims to provide a road map on how to proceed in emergency conditions. Chapter III contains a proposal for such a plan.

Chapter II

Exogenous risk reduction plan: preventive and corrective measures (Ex Ante Instruments)

The process of analysis, assessment, and diagnosis of institutional, social, physical, and client vulnerability is the starting point for defining strategies and concrete actions for an exogenous risk reduction plan. The plan involves the implementation of actions that complement each other and contribute to the strengthening of the different dimensions of risk faced by an FI. In a generic sense, and according to the experience of the TSF and the CTSE, an exogenous risk reduction plan should consist of at least three major programs with their corresponding minimum package of measures.

The effective implementation of the program requires the definition and implementation of three priority actions:

- a. Recognition of the exogenous risks to which the FI is exposed and the challenges they pose to the achievement of strategic and business objectives. Participatory discussion is the ideal setting for raising awareness, which allows the adoption of concrete and coordinated training and internal organization actions. The exercise in Box 1, developed in the TSF implementation workshops, can serve as a reference for FIs in their initial process of discussing exogenous risk reduction.

1. Program for Institutional Vulnerability Reduction

Box 1

Exercise: Identifying Existing Risk Conditions—Where Are We?

GENERAL PURPOSE	<ul style="list-style-type: none"> To recognize the current status of the FI through a critical review of risk reduction management and the existing risk conditions
SPECIFIC OBJECTIVES	<ul style="list-style-type: none"> To identify the main risk factors that exist today and the capabilities and opportunities To contribute to the identification of the main challenges for exogenous risk reduction
METHODOLOGY	<ul style="list-style-type: none"> Work in groups Each group will discuss the issues presented in the table below and will build a table of results Each group will appoint a rapporteur who will be responsible for presenting the results in plenary session (5 minutes)
TIME FOR THE EXERCISE	<ul style="list-style-type: none"> 60 minutes
EXPECTED RESULT	<ul style="list-style-type: none"> Table of current situation

INSTRUCTIONS FOR COMPLETION OF THE SITUATION TABLE

ACTIVITIES AND PROCESSES OF THE FUNCTIONAL AREA (DAILY ROUTINE)	Each group will detail the activities undertaken and the processes in which it is involved to achieve the objectives and targets established in the business plan.
DOES THE DAILY ROUTINE CONSIDER THE EXOGENOUS RISK DIMENSION?	As part of the review of the daily work, the groups will analyze and record in the corresponding column whether the activities and processes consider the exogenous risk dimension.
MAJOR PROGRESS AND ACHIEVEMENTS IN EXOGENOUS RISK REDUCTION	With the previous inputs, the groups will make an assessment of key developments and achievements in relation to exogenous risk management and report it in this column.
MAJOR CHALLENGES	The discussion of each group will define the challenges they face in implementing exogenous risk reduction, which are entered in this column.
MAIN RISKS IDENTIFIED	This column should highlight the major exogenous risk factors faced by the financial institution.

TABLE OF CURRENT SITUATION

FUNCTIONAL AREA (CREDIT, OPERATIONS, FINANCE, ADMINISTRATION, RISKS, INFORMATION SYSTEMS, OTHER)	DESCRIPTION OF ACTIVITIES AND PROCESSES (DAILY ROUTINE)	DOES THE DAILY ROUTINE CONSIDER THE EXOGENOUS RISK DIMENSION?		MAJOR PROGRESS AND ACHIEVEMENTS IN EXOGENOUS RISK REDUCTION	MAJOR CHALLENGES	MAIN RISKS IDENTIFIED
		YES	NO			

Source: TSF.

- b. Training about hazards, vulnerability, and risk adapted to the needs and possibilities of the FI. Institutionalizing a capacity enhancement program for exogenous risk management should provide a basis for the incorporation and management of the issue in the FI. The program should consist of basic training and some items of specialized training more focused on issues related to information and indicators management, but should also include technical assistance to clients on topics such as diversification of activities and management strategies for safe businesses. This should also be viewed as having a ripple effect, whereby improving staff capabilities can reach clients (training of trainers). National prevention and emergency management agencies generally have training programs to which the FIs may have access, and this would be a first step toward the coordination of actions with relevant stakeholders in exogenous risk management.
- c. Defining minimum instruments and mechanisms for monitoring, coordination, and management of exogenous risks. One of the basic aspects to define is the formation of the Risk Management and Operational Crisis Management Committee and formalizing the roles and functions to carry out prevention and emergency operational management actions. The committee should be composed of staff with decision-making power and strong leadership, representing the different business areas of the institution, and be integrated into the existing organizational structures. Box 2 contains a proposal for the composition and functions of the committee.

Box 2**Risk Management and Operational Crisis Management Committee****1. Integration—basic structure**

- CFO
- Business manager
- Administration manager
- Risk manager
- Systems/information technology manager
- Human resources manager
- Managers/supervisors of affected areas and branches

2. Designate officer in charge of coordinating the committee

- Reports to the general manager/CEO.
- Coordinates the efforts of the institution during normal times and crises.
- Transfers his/her daily responsibilities to a qualified officer of the area in times of crisis.

3. Roles and functions—tasks*a.* In normal times

- Define roles and functions for each committee member during normal times and crisis/emergency.
- Propose exogenous risk management policies for board approval and then communicate them to staff.
- Support the implementation of the exogenous risk reduction plan to ensure process efficiency.
- Develop a disaster response plan tailored to the characteristics of the institution and its clients, and define the mechanisms for dissemination, discussion, ownership, and updating of the plan.
- Define post-disaster strategies for fundraising, and resource allocation and collection.
- Develop a strategy for information and communication (pre- and post-emergency) in order to improve corporate image, lower expectations, increase customer confidence, and communicate more efficiently during a crisis.
- Design products and services to be offered to clients in an emergency to stabilize the portfolio and prevent withdrawals.
- Develop risk scenarios for financial planning.
- Assign each functional area responsibilities for prevention and disaster response.
- Plan and manage funds needed for preventive actions.

b. During the emergency: Once the disaster occurs, and depending on its severity, the committee provides a forum to facilitate the flow of activities and information. Each member is responsible for a disaster response task (according to the roles and functions defined for each one):

- Implement the response plan and adapt the proposals to the specific crisis.
- Communicate and implement policies.
- Coordinate communication to the public based on the previously developed strategy.
- Retrieve information about damages suffered by clients and the institution itself, and analyze daily progress.
- Determine whether a liquidity gap exists, according to disaster and potential risk scenarios, and manage resources to cover the gap. Do not compromise the institution's liquidity.
- Monitor emergency activities.

Source: TSF and CTSF.

2. Program for Physical Vulnerability Reduction

Actions should be focused on providing better safety conditions for staff and customers. In support of MFIs

participating in the TSF and the CTSF, a proposal was developed containing minimum standards and technical guidelines to be considered in opening new offices, and risk reduction criteria to increase physical security at existing offices, which is summarized in Box 3.

Box 3**Criteria for Opening New Offices and for Reducing the Risk in Existing Offices****1. Opening of offices: Minimum evaluation criteria from an urban-territorial perspective**

a. Review and adapt the criteria for defining growth and expansion areas to incorporate the concept of security and risk reduction, without denying the priority defined by the institutional mission.

- I. Assess the level of exposure to threats in the areas of potential institutional interest.
- II. Prioritize areas with low exposure to hazards (safe areas) in which to open new branches, in order to reduce potential losses in case of disaster.

b. Review and adapt the criteria for opening new branches to avoid future risks.

- I. Site identification and selection
 - Prioritize and select sites identified as low or medium threat, for which it is essential to manage basic information on hazards.
 - When installing offices in high-risk areas (e.g., areas with evidence of erosion, flood plains, or areas that have been the scene of destructive or high-impact events), ensure the adoption of security measures to safeguard lives and property.¹
 - Comply with minimum standards and/or existing recommendations at the municipal level for risk reduction. If these do not exist, gather experience on risks at the local and community levels.
- II. Ease of evacuation
 - Give priority to sites that have empty urban spaces or green spaces (squares or parks) in the immediate vicinity that can be used as safe havens in case of emergency.
 - Identify existing roads that can be used for evacuation.
- III. Moderate urban concentration
 - When there are a number of sites to choose from, favor areas with moderate levels of urban concentration and well-maintained roads in order to avoid these exogenous factors creating more risk for the office. In the absence of alternatives, create conditions for adaptation to ensure minimization of risk conditions, such as organization and evacuation plans, identification of safe areas in the immediate vicinity of the office, and establishment of alternate ways for mobilizing clients and institutional resources.

2. Offices located in areas of high or very high threat: Risk reduction criteria to increase physical security

- I. Structural revisions
- II. Conditioning and retrofitting of facilities
- III. Provision of security equipment and training staff in its use—fire extinguishers for different types of fires, smoke alarms and fire sprinklers, emergency lighting, signage for evacuation routes and safe places inside the buildings, first aid kit, etc.
- IV. Increased staff capacity to handle emergency situations by performing, for example, drills and evacuation response actions to different events (fire, earthquake, social unrest). Regular and frequent exercises keep staff awareness and preparedness alive and allow for constant review and updating of the plan and the actions envisaged in it
- V. Ensuring a minimum availability of funds for the aforementioned actions, as well as agile mechanisms for accessing these economic resources

Source: TSF and CTSF.

Below are examples of signs that La Inmaculada Credit Union Ltd. of Belize (LICU) and Sociedad Cooperativa de Ahorro y Crédito AMC de R.L. de C.V. of El Salvador (AMC) have installed in their offices as a result of the technical assistance provided by the TSF and the CTSF. At LICU, signs refer to emergency phone numbers and location of the emergency door,

and at AMC to evacuation routes and safety measures in case of emergency (earthquake and fire).

⁶ Whenever possible, avoid installation in areas with high-impact potential, as adaptation measures to reduce risks could have associated costs so high that they do not justify the site's location, and results may not be guaranteed.



Picture 1: LICU: Emergency numbers



Picture 2: AMC: Evacuation route and safety measures in case of emergency (earthquake and fire)



Picture 3: LICU: Emergency exit signage

Source: Ligia Castro Monge.

In addition, some MFIs participating in the TSF and the CTSE, following consultants' visits and in order to reduce physical vulnerability, have installed fire alarm systems (LICU), hired security personnel (The James Belgrave Micro Enterprise Development Fund Inc., or BELfund Inc., Saint Lucia), conducted drills (Jamaica National Small Business Loans Ltd., or JNSBL), trained staff in the use of fire extinguishers and/or first aid procedures (LICU, JNSBL, and Enlace S.A. de C.V., or ENLACE, El Salvador), relocated computer equipment for more security and protection (LICU and the BELfund Inc.), and relocated offices to safer areas (the BELfund Inc.).

3. Program for Client Vulnerability Reduction

Actions should aim to provide the FI and its clients with mechanisms and capacities to adapt to the constraints imposed by the conditions of risk and reduce

Paying attention to exogenous risk credit analysis has improved assessment of the client's payment capacity and valuation of the property given as collateral. For example, properties given as collateral should not be located on slopes, along riverbeds, or in areas prone to landslides or where violence reigns. To that effect, a civil engineer was hired to train field staff in valuation issues concerning natural disasters and exposed terrain.

ASDIR
Progress Report
Exogenous Risk Reduction Program

Traditionally, collaterals' values were assessed, but not the environment in which the asset is located and the threats to which it is exposed, and how its recovery value could be affected in case of disaster. AMC is exploring the possibility of real estate appraisers incorporating considerations of location, accessibility, and potential risk in the evaluation of collaterals.

AMC
Case Study

the impact of disasters. This set of actions has been named “safe credit” by the TSF and CTSF.

Safe credit consists of conducting a detailed risk analysis for maximum exposure zones identified by the zoning of hazards and areas of client installation. The end result is the redefinition of credit placement strategies so as to incorporate risk as a variable of analysis and loan portfolio management, as well as the redefinition of environmental conditions (location, accessibility, and potential risk) that the FI would require for acceptance of real estate collateral and/or its valuation. This last aspect is being considered by AMC and the Asociación de Desarrollo Integral Rural (ASDIR) in Guatemala.

A useful tool for the purposes just described is the so-called self-mapping of risks, which aims to generate a variety of alternatives for adapting to natural disaster risk based on better knowledge of the environment and its influence on the development of productive activities, whether commercial, service, industrial, agricultural, livestock, or other. In other words, the self-mapping of risks is a tool that helps identify and/or determine the following:

- i. Better-adapted modalities for the development of FI-financed activities that are the base for clients’ revenues.
- ii. Safer location patterns for clients and their activities.
- iii. Self-protection practices that improve the ability to deal with disasters.

The self-mapping of risks is modeled by clients jointly with the FI, and a key to success is that customers who participate in the process should be leaders in the community, show a spirit of solidarity, and know each other, so that later they can be the ones to lead the operational phase of implementation of preventive actions. Annex 3, which is on the CD that accompanies this document, details the steps for the construction of the risk map. Box 4 presents an exercise that has been developed in the TSF implementation workshops that can serve as a first attempt to apply the methodology of participatory construction of the risk map. Pictures 4 and 5 present the result of the exercise’s application in the Cooperativa de Ahorro y Crédito 4 de Octubre (COAC 4 de Octubre) in Riobamba, Ecuador.

Box 4

Exercise: Participatory Construction of the Risk Map

OBJECTIVE	Ensure that, by reviewing the methodology explained in detail in Annex 3, participants can perform the self-mapping of risks.
PARTICIPANTS	<ul style="list-style-type: none"> • Staff • Clients (with leadership attributes) • Representatives of local government, fire squad, police, organizations specialized in emergency management, community organizations
METHODOLOGY	<p>Work in two stages:</p> <p><i>a.</i> Desk work, prior to departure to the field, aimed at recovering the historical memory of disasters and building a vision of threats, exposed elements, and resources</p> <p><i>b.</i> Field work, focused on field research and the participatory mapping of risk</p> <p>Participants will be divided into two or three working groups comprising representatives of various institutions (to avoid having homogeneous groups).</p>
EXPECTED OUTCOMES	<ul style="list-style-type: none"> • Indicative risk map • Resource map and chart

INSTRUCTIONS FOR THE EXERCISE

DESK WORK. Estimated time: 1 hour

- STEP 1: Reconstruction of the historical memory of disasters
In a participatory manner, each group briefly shares the stories of disasters that have taken place. It is

key for facilitators of the groups to promote the participation of representatives of various institutions that accompany the field work.

- STEP 2: Organizing information about the area of installation clients and their activities
Organize information about the area: maps, hazard maps (if no other source of information exists, work with hazard maps generated in the next stage, field work).
- STEP 3: Analysis and identification of hazards, vulnerabilities, and existing resources
Each group will open participatory debate to identify:
Major hazards in the area
Main elements exposed
Existing resources

FIELD WORK. Estimated time: 3 hours

- STEP 4: Field research
Each group will tour the area to identify threats, vulnerabilities (exposed elements, with special emphasis on client installation areas, markets, and agencies, among others), which are then pictured on the risk map.
- STEP 5: Development of the self-mapping of risks
The groups will include on the map basic information such as rivers, bridges, creeks, mountains, identified threats, client installation areas, basic services, and facilities such as health and education, among others, all in accordance with the methodology.
- STEP 6: Making the resources map and matrix
Based on the group discussion and field research, the groups will note on the risk map the existing resources (such as safe areas, sports fields, hospitals, fire stations) and safe areas for carrying out the activity (in markets, the safe areas could be locations for storage of goods; in agricultural areas, places that do not flood or that can be used for storage). This information will be registered on a matrix that will also detail the human resources involved in risk reduction (social, community or municipal organizations, firefighters, or other formal or informal organizations).

Exercise: Participatory Construction of the Risk Map

INDICATIVE MATRIX OF HAZARDS, VULNERABILITIES, AND RISKS:
INSTRUCTIONS FOR COMPLETING THE FIELDS

LOCATION	Specify the site for field research, detailing clear references. The site number shown in the first column should coincide with that shown on the risk map.
HAZARDS, DISASTER SITES, OR HISTORICAL EVENTS IDENTIFIED	Place in this column the list of identified threats compiled for each site during the desk work and field research. In the event that participants, community leaders, clients, or representatives of the municipality recognized sites of frequent events such as landslides, floods, or falling rock, among others, also enter that information in this field.
VULNERABILITIES IDENTIFIED	For each site, detail vulnerable elements that were identified and placed on the map: client installation areas, schools, hospitals, bridges, and roads, among others.
RISKS IDENTIFIED	Detail the estimated damage potential. For example, if an earthquake hazard is identified for a branch, indicate as damage the possibility of broken glass, information system failure and the consequent loss of data, collapsing walls, fire, faulty communication, etc., as well as the possibility of fires in markets from short circuits, etc.
OBSERVATIONS	Record all other observations arising from group work.

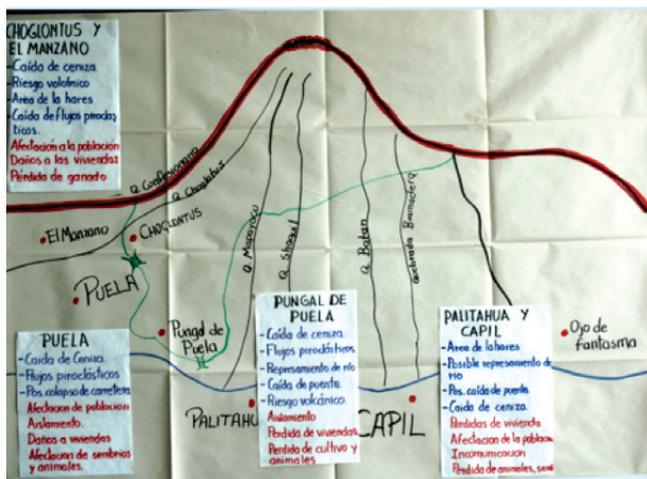
INDICATIVE MATRIX OF HAZARDS, VULNERABILITIES, AND RISKS

LOCATION		HAZARDS, DISASTER SITES, OR HISTORICAL EVENTS IDENTIFIED (listing)	VULNERABILITIES IDENTIFIED (listing)	RISKS IDENTIFIED (possibility of losses or damages from hazards and vulnerabilities)	OBSERVATIONS
SITE 1	NAME				
SITE 2	NAME				
SITE 3	NAME				
SITE 4	NAME				

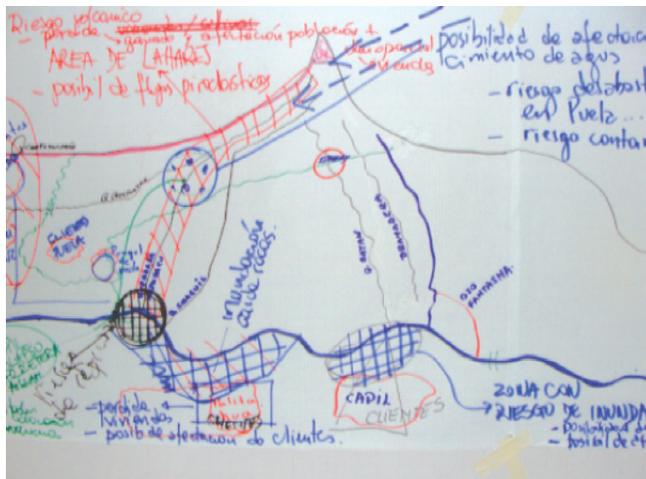
INDICATIVE MATRIX OF HAZARDS, VULNERABILITIES, AND RISKS

RISK IDENTIFIED (possibility of losses or damages from hazards and vulnerabilities)	RESOURCES IDENTIFIED							OBSERVATIONS
	Community organization	Civil defense committee/ firefighters	School/ playground/ square	Parking lot for trucks	Evacuation routes	Water-pumping trucks	Other	
1								
2								
3								

Source: TSF.



Picture 4: Puela: Identification of hazards



Picture 5: Puela: Preliminary risk map

Source: COAC 4 de Octubre.

Moreover, the development of safe credit also requires that the FI improve the client database and progress in building a client risk cadastre, which presupposes the integration of hazard data generated by specialized agencies with the FI's databases. The analysis of vulnerability and information on hazards should be updated periodically as new clients are added to the loan portfolio, to ensure its reliability for decision-making and the definition and implementation of preventive and response actions in case of disaster.

The purpose of the client risk cadastre is to have information about the client's degree of vulnerability, which, correlated with information on exposure to hazards, generates a single indicator that defines whether a client is high, medium, or low risk for the FI according to his/her vulnerability (high, medium, or low) and his/her home's and business's level of exposure to different hazards. This indicator would allow more refined lending policies to be defined that consider a client's vulnerability and exposure to different threats, i.e., the degree of risk, and given that level of risk, financial conditions under which a loan would be granted (amount, term, interest rate, collateral, etc.).

Annex 4, on the CD accompanying this document, contains the form for collecting customer information to assess their degree of vulnerability and integrate the client risk cadastre, which must be adapted to the specific conditions of clients and the threats to which they are exposed. Annex 5, also included on the CD, describes the methodological process (steps) for the identification of client vulnerability and the integration of the client risk cadastre. As for practical applications among participating MFIs in the TSF and the CTSE, LICU has integrated into its member scorecard a simplified vulnerability assessment (four questions) based on the institutional debate on the characteristics considered crucial for their members (see the later case study on LICU). JNSBL developed an extended version of the questionnaire and special software for analysis and evaluation of information (see the later JNSBL case study).

Box 5 presents an exercise developed in the TSF implementation workshops, which can serve as a first test to familiarize field personnel with the use of the tool for assessing client vulnerability.

Box 5

Exercise: Toward the Implementation of the Tool for the Identification of Client Vulnerability—Decision-Making Case Study

The financial institution has decided to reduce the levels of uncertainty related to risk conditions of its clients and to estimate the potential impact in the event of a disaster, anticipate potential liquidity shortages, and ensure the safety of the business.

To fulfill the aforementioned policy, the credit/business manager has defined two lines of work to integrate a client risk cadastre in order to review business strategies, reduce levels of uncertainty arising from the possibility of damage or loss if disaster strikes, and make the necessary arrangements to:

- a. Identify the vulnerability of potential customers, and
- b. Estimate the vulnerability of the existing portfolio.

The first aspect has been defined by management as a preventive axis, because if very adverse conditions exist in terms of possible impact on the client, which may compromise his/her ability to pay or affect the performance of his/her business, the institution may decide not to grant the loan based on a vision that would integrate financial valuation and level of exogenous risk.

Today, the credit/business manager has received credit applications from two new clients. When visiting the clients, the credit officers observe the following conditions:

CLIENT 1

1. Socioeconomic status

- Social stratum: low
- Source of income: activity to be financed by the institution would be the only source of family income
- Concentration of people in the area of location of housing: high

2. Physical conditions of the residence

- Property type: slum
- Condition: well maintained, but built with nontraditional materials
- Location: close to the river in a sector with high deterioration due to erosion

3. Exposure situation

- Coexistence of household and microenterprise: microenterprise activity takes place in the home
- Historical impact of disasters: affected by floods that produce significant damage to residence and furnishings

4. Availability of basic services

- Access only to water service; sewerage is not available and access to electricity is irregular

CLIENT 2**1. Socioeconomic status**

- Social stratum: medium
- Source of income: activity to be financed by the institution would be source of income for the head of household; family has another source of income
- Concentration of people in the area of location of housing: medium

2. Physical conditions of the residence

- Property type: house
- Condition: regular state of maintenance
- Location: social welfare housing

3. Exposure situation

- Coexistence of household and microenterprise: microenterprise activity takes place in the market
- Historical impact of disasters: The market has been hit numerous times by mudslides, a product of floods in the surrounding hills, which hinder the performance of microentrepreneurs and damage working capital, as well as by fire, a product of the poor condition of the electrical systems.

4. Availability of basic services

- Water, sewerage, and electricity

DECISION TO BE MADE

Based on observed conditions:

- Complete the client vulnerability table for each loan application
- Estimate the existing vulnerability condition of each client
- Assess the feasibility of loans based on established vulnerability

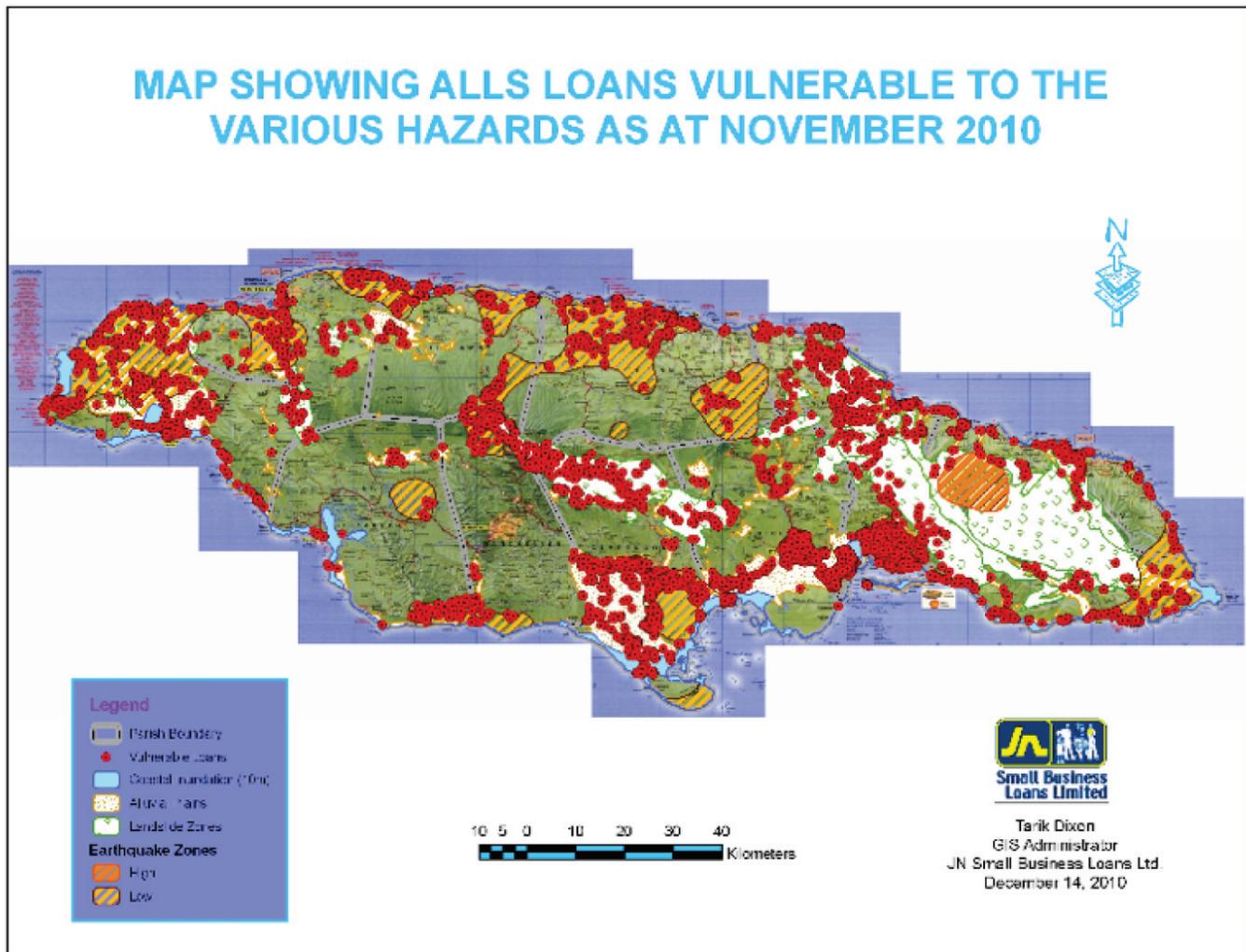
Notes:

- Use the client vulnerability assessment tool (Annex 4 on the CD)
- Follow the client vulnerability assessment procedures (Annex 5 on the CD)

Source: TSF.

The vulnerability assessment shall be correlated with hazard maps to calculate the client's risk indicator. The construction and interpretation of the indicator follows the same line of thought explained in Table 1 of Chapter I of this document. Quantifying the risk indicator for each client allows the FI, among others,

to perform evaluations of the portfolio from a spatial perspective and determine in advance the percentage of the outstanding portfolio in the hands of clients at risk. Also, this exercise will allow the FI to estimate a disaster's potential effect on its cash flow and financial revenues if the at-risk customers stop paying their



Mapa No. 1

Source: JNSBL; available at http://jnsbl.com/pdf/Vulnerable%20Loans_20_12_10.pdf.

loans or require emergency loans. Finally, the exercise allows the definition of a priori portfolio growth plans based on estimated potential losses from disasters, that is, fixing geographic exposure limits.

Each client's risk indicator by type of threat should be noted in the customer's record (credit file and database) so that once information systems are restored after the disaster, the institution can quickly generate lists of customers potentially affected and plan the response accordingly. Also, the risk indicator could be used proactively to alert customers about a potential threat (e.g., hurricanes). For more details on the construction of the client risk cadastre and its applications for operational and daily decision-making in a microfinance institution, refer to the JNSBL case study later in this document. Map 1 is a sample of the outputs of the JNSBL system.

It is worth mentioning that AMC in San Miguel, El Salvador, has begun the field process of identifying

areas prone to various natural hazards and crime, and georeferencing of customers, the latter supported by its main shareholder, which already has a Geographic Information Systems Unit (see later AMC case study). The ultimate goal of this process is to have information on the portfolio and client risk that allows the design of better-informed policies and actions for exogenous risk reduction at AMC.

With respect to actions the FI can take to promote safe credit, these can be grouped into: (i) decentralization of the loan portfolio, and (ii) diversification of the loan portfolio. This demands, in essence, that institutional strategies incorporate risk and management of information on threats and risks as analytical axes for the definition of policies, processes and procedures, and decision-making. Decentralization and diversification should prioritize deepening portfolio placement in *safe areas* (i.e., areas with low exposure to hazards and, consequently, less likely to

have significant impacts in case of occurrence of a natural, socio-natural, or man-made event) and discourage growth of credit placement in *critical areas* (those with the highest level of exposure to hazards, categorized as very high or high). This is precisely the method implemented by COAC 4 de Octubre from Riobamba, Ecuador, since 2006 to reduce the portfolio exposed to the Tungurahua Volcano from 65% in 2006 to 13% in 2011 (for details, refer to the case study later in this document).

To carry out effective diversification and decentralization of its portfolio, an institution must assume a leadership and technical assistance role toward clients, which is only feasible within the framework of a program that has continuity over time and, if practicable, it should be coordinated with local organizations responsible for disaster prevention and assistance (municipality, civil defense, emergency commission, etc.). The implementation of risk management workshops for customers, delivered in partnership with specialized agencies, would be an important element in customer adoption of business standards/methods adapted to the

risk conditions they face. However, if coordination with external actors is not possible, a step toward awareness of exogenous risk management can be made simply by having the FI provide clients with threat information produced by specialized institutions.

Several institutions participating in the TSF and the CTSF have taken steps in this direction. In most cases, as part of the advisory role of credit officers, issues relating to exposure to exogenous risks, vulnerabilities, and how to address them are discussed with clients. In other cases, specific measures have been taken: (i) JNSBL published jointly with the Office of Disaster Preparedness and Emergency Management (ODPEM) a disaster preparedness manual for customers, and (ii) the BELfund Inc. has incorporated concepts of disaster management into its client training program.

The TSF and the CTSF developed proposed criteria to guide the design of a portfolio's growth strategy with a focus on exogenous risk reduction and an exercise that has been used in the TSF implementation workshops. Both instruments are shown in Box 6.

Box 6

Proposed Criteria for Identifying Safe Areas for Portfolio Growth

Many financial institutions face a significant level of uncertainty about the safe growth of their portfolio, because although there may be demand in sectors with high business potential, criteria have not been defined to assess the risk conditions of these businesses and to safeguard the financial health of the entity.

1. Why think of a package of CRITERIA TO GUIDE PORTFOLIO GROWTH?

Portfolio growth targets outlined in the business plan represent a critical factor regarding the potential generation of hazardous conditions. The purpose is to make progress in the identification of alternatives that, without moving the institution away from attaining its objectives and growth goals, may be safer and provide greater sustainability to the lending activity.

2. Proposal: Minimum criteria with a focus on risk reduction

- Defining the parameters for identifying growth areas (basic element)
- Low to moderate level of exposure to natural, socio-natural, and man-made hazards
- Low possibility of isolation resulting from damage to main roads
- Alternative safe sites in the surrounding area
- Regular employment conditions (avoid areas of illegal occupation or invasions)

AREAS FOR PORTFOLIO GROWTH CONSIDERING RISK MANAGEMENT

Minimum criteria for identification

Criteria	Explanation	Recommendation	Assessment mechanisms
LOCATION (Physical Vulnerability)	Select areas with moderate or low potential impact on clients in case of disaster.	LOW to MODERATE client exposure to hazards.	<ul style="list-style-type: none"> • Information on exposure to hazards (maps) and/or alliance with specialized agencies • Identification of most favorable conditions jointly with clients; consider past experience (self-mapping of risks)

ACCESSIBILITY	Select areas with good potential for access in case of disaster, to ensure client's safety and assistance in case of disaster.	GOOD accessibility, which enhances evacuation and emergency assistance.	<ul style="list-style-type: none"> From the existing circulation axes and their relationship with the nearest office of the FI
ALTERNATIVE SAFE SITES	Identify areas with spaces that can be used as safe havens in case of disaster.	<p>Favor areas with empty spaces that have a low level of exposure.</p> <p>Safe areas: squares, sports centers, schools.</p>	<ul style="list-style-type: none"> Contact with specialized agencies to access information on identified sites
ADAPTATION TO REGULATION (municipal, territorial ordering, etc.)	Areas selected for growth should follow municipal standards.	Areas adapted to current standards.	<ul style="list-style-type: none"> Coordination with regulatory agencies (municipality, etc.) Avoid invasion areas, flood plains, eroded areas.

EXERCISE: IDENTIFICATION OF ALTERNATIVES FOR PORTFOLIO GROWTH FROM THEORETICAL CONDITIONS—DECISION-MAKING CASE STUDY

A branch has to expand its customer base to meet growth targets set for the year. However, growth should consider reducing the exogenous risk of the portfolio, in compliance with the policy recently approved by the board. Consequently, the branch should guide growth toward sectors with lower risk conditions given the exposure to various hazards. The aim is to ensure the safety of the business and reduce the potential impact in the event of a disaster, thus preventing a possible lack of liquidity that would undermine the institution's financial stability.

The credit manager must select, under identical demand conditions, the areas with lower uncertainty and potential impact conditions. Considering the assigned geographical coverage, the branch's portfolio growth alternatives are:

NORTH AREA

Sector with significant potential for credit placement due to the number of residents and the area's dynamics. It is an area in which the entity already has a significant level of portfolio.

Characteristics of the area:

- Located in a sector subject to recurring floods and landslides that occur because of little soil consolidation and weather conditions (especially in the winter).
- Some settlements in the area of potential growth are located in invasion zones close to riverbanks.
- Good accessibility: two entrances, one asphalt and one unpaved. The unpaved access could be slow or unpassable in the event of flooding or landslide, but this wouldn't lead to an isolation scenario.
- The immediate vicinity does not show areas that may be used as evacuation spaces for clients.

SOUTHEAST AREA

Sector with significant potential for credit placement due to the number of residents and the dynamics of the area. The portfolio of the institution in this sector is undergoing consolidation.

Characteristics of the area:

- The sector has some sites where landslides have been registered with important impacts on the population, but no impact on roads.
- The area has several entrances, one main road and two secondary roads, that link it with surrounding villages. Therefore, even when landslides occur, there are always alternatives for accessing the area.
- The Municipal Sports Center is located in the immediate surroundings.

DECISION TO BE MADE

Based on observed conditions, choose the site with better conditions (higher security levels) for the branch's portfolio growth and justify the choice.

Note: See the guidelines listed earlier in this box.

Source: TSF.

CONCLUSION

The programs and methodological approaches outlined in this chapter have proven effective in ex ante reduction of exogenous risks in microfinance institutions that have benefited from the TSF and the CTSF.

In some cases the institutions have not adopted the full package, but have adapted it to their conditions and needs. The essence, however, is the same, and the aim is to ensure compliance with the institutional mission and vision in a context of greater security and long-term sustainability.

Chapter III

Disaster response plan: emergency management measures

The recommendations in this chapter constitute a road map for an FI when a disaster strikes and it is necessary to act quickly but in an orderly, effective, and efficient way. This road map considers the occurrence of a large-scale disaster with a significant impact on the FI and its clients. In case of lesser-scale disasters, the road map could be adjusted to the specific circumstances.

STEP 1: PREPARATION

The first step in any disaster situation is to get organized and make an analysis of the problem the institution is facing. To that effect, the emergency or response mode of the Risk Management and Operational Crisis Management Committee is activated. As has already been mentioned in the introduction and in Chapter II, the committee should be led by an officer with a strong knowledge of the institution, with the necessary authority to make quick decisions, and with strong leadership to facilitate actions during the emergency. The main task of the committee is to obtain a complete understanding of the situation, the seriousness and extent of the problem, and the financial and nonfinancial consequences the disaster could have on the institution.

A. Internal Activities

A. 1 Initial inventory of key assets and resources

It is important to know the damages caused by the disaster and their direct impacts on the institution. Key assets/resources are: (i) human resources, (ii) facilities and equipment, (iii) data, and (iv) institutional processes. In order to clearly establish the impact of the disaster on the institution and not suffer additional losses, the following steps must be carried out:

1. Determine and confirm physical security of facilities

It must be confirmed that everything is safely protected: locks, alarms, and closed-circuit systems are working properly; safes and vaults operate efficiently; backups of the information system are in working order and places where these are stored continue to be adequate; legal documents that endorse credit operations with clients have not been destroyed by the disaster and continue to be legally valid; clients' files have not been destroyed by the disaster; credit officers are in their posts. Also, it is necessary to ensure that there is no possibility for a stranger to enter the facilities and take hold of the institution's assets, and that the institution's assets will not be exposed to additional damages produced by elements of nature.

Remember: During the emergency period, the Risk Management and Operational Crisis Management Committee is responsible for

1. Executing the disaster response plan
2. Preparing recommendations on how to face the crisis and policies to be adopted
3. Designing and advising on products and services to be offered to clients to stabilize credit portfolio and liquidity
4. Communicating policies to staff and monitoring their activities
5. Analyzing progress on a daily basis
6. Coordinating communications with the public (outside the institution) based on the strategy developed in advance
7. Recovering information on damages experienced by clients and the institution
8. Calculating the liquidity gap under current disaster scenarios and potential risk scenarios, and negotiating funding to close the gap. Liquidity should never be compromised.

Headquarters should immediately establish communication with each branch to determine the situation each office faces and to make decisions with respect to how to protect the institution's assets. It may be necessary to implement additional security measures (for example, hire additional security guards or install electronic monitoring systems), to transfer documents and equipment to another location, or even to close offices and offer the services in other branches.

2. Determine the situation of staff at headquarters and branches

It is crucial for the FI to know the effects the disaster has had on its personnel, and if someone

is in need of aid or assistance, what type of aid or assistance is required. This issue must receive special consideration, because in some disaster situations the staff could suffer losses similar to those of their clients. Therefore, the FI must support its employees so that they can continue serving clients during the difficult periods of the emergency and rehabilitation.⁷

The forms in Tables 1 and 2 can be used as guides to collect information on the staff's situation. Once the data for all the affected employees is available and processed, the Risk Management and Operational Crisis Management Committee will be able to decide on actions to help staff handle the impact of the disaster.

Table 1
Summary of Situation of the Institution's Staff

Name of the office (headquarters, branch)	Total number of staff members	Number of staff members killed	Number of staff members with light injuries (can return to work immediately)	Number of staff members with severe injuries (unfit to work)	Number of staff members with relatives who were killed or injured

Source: TSF and CTSF.

⁷ Fonkoze in Haiti is a good example. Floods in Gonaïves in 2004 strongly affected both Fonkoze's staff and clients. After the flood, Fonkoze's officers from other regions and headquarters went to Gonaïves to provide local staff with emergency assistance (food and clothing). Also, local employees were given an amount of money to repair their homes or find new homes. Additionally, an employees' fund was established to which staff could make donations to help affected colleagues, and Fonkoze made a contribution on a two-to-one basis for each donation made by staff. Stephen J. Werlin and Anne H. Hastings. *Post-Disaster and Post-Conflict Microfinance: Best Practices in Light of Fonkoze's Experience in Haiti*. June 2006.

Table 2
Detailed Situation of the Institution's Staff

Office: _____ Date: _____							
Summary: _____ Total number of staff members _____ Number of staff members killed _____ Number of staff members with light injuries (can return to work) _____ Number of staff members with severe injuries (unfit to work) _____ Number of staff members with relatives who were killed or injured Relief needs for staff members and their families: Housing/lodging: for _____ families (number); _____ individuals (number) Food and water: for _____ families (number); _____ individuals (number) Clothing: for _____ families (number); _____ individuals (number) Beds: for _____ families (number); _____ individuals (number) Financial aid: for _____ staff members (number) Other: _____							Comments:
Detailed information for each staff member of the offices that suffered damages:							
Name	Position	Degree of damage suffered by the staff member			Number of relatives injured or killed	Other damages	Needs
		Light injuries	Severe injuries	Killed			

Source: TSF and CTSE.

3. Determine physical damages suffered by facilities and equipment, and quantify the effect of those damages on the FI's finances

The form in Table 3 could be used to determine the extent of the impact of the disaster

on the institution's facilities and equipment (inventory damage on assets and properties). The form should be modified according to the type of assets of the FI and the facilities in which it operates.

Table 3
Summary of Physical Damages to Facilities and Assets of the Institution

Type of asset or infrastructure	Scope of damages			Required action	Estimated investment to return asset or infrastructure to its original state (US\$)
	Light	Medium	Severe		
Headquarters					
Physical structure (walls, ceilings, etc.)					
Public services supply (potable water, electricity, sanitation)					
Vehicles					

Communications (telephone, fax, mobile phones, data transmission networks)					
Computing systems (hardware, software)					
Legal documents (collaterals, etc.)					
Other					
Branch XXX					
Physical structure (walls, ceilings, etc.)					
Public services supply (potable water, electricity, sanitation)					
Vehicles					
Communications (telephone, fax, mobile phones, data transmission networks)					
Computing systems (hardware, software)					
Legal documents (collaterals, etc.)					
Other					
Branch YYY (repeat for every affected office)					
Physical structure (walls, ceilings, etc.)					
Public services supply (potable water, electricity, sanitation)					
Vehicles					
Communications (telephone, fax, mobile phones, data transmission networks)					
Computing systems (hardware, software)					
Legal documents (collaterals, etc.)					
Other					

Source: TSF and CTSF.

4. Determine the impact of any damage to staff members on the operation of the functional area, department, or office in which the person works

To keep the institution operating as efficiently as possible

after a disaster strikes, it is vital to know how the activities of the different departments/functional areas and/or branches will be affected by the death, incapacity, or absence of employees. The form in Table 4 can be used as reference for this purpose.

Table 4
Impact on FI's Operation of Staff Death or Injury

A. Managerial, administrative or back office staff

A list of affected employees who cannot fulfill their assigned functions must be prepared. On this form each office can report on the impact any damage suffered by employees (excluding credit or deposit officers) will have on the operation of the departments they belong to.

Headquarters or branch: _____ (repeat for every branch affected)

Name of employee	Seriousness of the damage suffered	Department	Impact on the department's operation	Recommended actions
Summary of impact on headquarters or branch				

B. Credit Officers

A list of affected credit officers who cannot fulfill their assigned functions must be prepared. On this form each office can report on the impact any damage suffered by credit officers will have on service to clients.

Headquarters or branch: _____ (repeat for each branch affected)

Name of credit officer	Seriousness of the damage suffered	Number of clients served	Recommended actions
Comments:			

Source: TSF and CTSF.

5. Evaluate the impact of the disaster on the FI's essential processes

Death or incapacity of staff members, and the destruction of physical infrastructure, equipment, documents, data, and/or information, can impede or complicate the operation of some processes within the FI. Among the core business processes that could be affected are: loan recovery, credit approval and

disbursement, deposits from the public, accounting, treasury, internal audit, information systems, data processing, logistics, and administration. One of the first tasks to perform is to identify which processes have been affected by the disaster and to define the measures necessary to solve the problems that such a situation generates. The form in Table 5 can be used for this analysis, but it will have to be adapted to the FI's particular catalog of processes.

Table 5
Impact on Institution's Essential Processes

(Fill out one form for headquarters and another for each branch affected by the disaster.)

Headquarters or branch: _____		
Process	Impact of the disaster on the process	Corrective action
Loan collection		
Loan disbursement		
Loan approval		
Inflow and outflow of deposits from the public		
Accounting		
Delinquency follow-up and monitoring		
Legal and compliance		
Internal audit		
Client service		
Communications		
Treasury		
Information management		
Other (add as many as needed)		
Summary (describe the current situation):		

Source: TSF and CTSF.

A.2 Security of key resources

In addition to personnel, other key institutional resources are databases and information systems, legal documents, and clients' files. Without these resources, the operation of the institution would be severely disabled. Therefore, other important activities to carry out in the first hours after the disaster and under the coordination of the Risk Management and Operational Crisis Management Committee are:

1. Ensure that computers and other equipment, as well as information and communications systems, are in working order, in headquarters as well as in each office and/or contingency site (if there is one). Additionally, confirm that information backups are still functional, in case there is a need to recover information or applications.
2. Ensure that the legal documents that support credits (loan contracts, collateral documents)

and clients' files have not been damaged, continue to be under strict safety conditions, and could not be later damaged or stolen. Update and protect duplicates of files outside the disaster zone.

3. Apply the contingency plan, the security plan, and the business continuity plan of the information technology area. In cases where the FI does not have these plans in place, it is recommended that the information technology area prepare them as a preventive and preparation measure. The plans should be approved by the general manager and board of directors, and should establish a schedule of obligatory periodic testing.

A.3 Immediate internal actions

With the findings and conclusions reached by following the procedures outlined in A.1 and A.2, the institution can take immediate temporary and immediate measures, such as:

1. Branches

- a. Determine how the offices will continue operating in terms of providing services. It will be necessary to analyze the need to close or relocate offices when a large-scale disaster occurs.
- b. If an office has been affected but could continue providing services, define the services or products that are going to be offered in the short term based on the degree of damage. Will the branch continue offering all services or products, or will it offer a limited variety of services or products?

2. Staff

Determine how the functions of personnel affected by the disaster (death or incapacity) are going to be covered.

3. Infrastructure

- a. If it becomes necessary to relocate some offices, identify and rent temporary facilities and communicate the move to clients. This could be communicated through an ad in the newspaper, vehicles with loudspeakers that circulate around the af-

ected areas, visits by field officers, radio announcements, etc. All these actions will be in accordance with the communication strategy previously defined.

- b. In facilities where damages did not have any great impact nor put staff, clients, or assets of the FI in danger, make the necessary repairs to make the facilities completely operational once again.
 - c. For affected offices that display a substantive level of damages, prepare a program of progressive relocation, avoiding its relocation to dangerous areas.⁸
4. **Information systems/information technology**
Apply the contingency plan, the security plan, and the business continuity plan for information technology. In cases where the FI does not have these plans in place, it is recommended that the information technology area prepare them as a preventive and preparation measure. The plans should be approved by the general manager and board of directors, and should establish a schedule of obligatory periodic testing.

5. Additional security measures⁹

Microfinance institutions should prepare security guidelines, and all field staff should receive training on these measures. Staff, clients, and assets of FIs that serve unsafe areas face risks. To date, there are still institutions that move large amounts of cash in and out of their branches, especially on disbursement days, and smaller amounts on collection days. These cash movements are exposed to the risk of theft, and even death of the staff members who carry the cash. This situation can become even more critical in case of disaster. Thus, the following security guidelines are suggested for implementation and training:

⁸ See Chapter II: Exogenous Risk Reduction Plan: Preventive and Corrective Measures. Physical Vulnerability Reduction Program.

⁹ Adapted from Development Alternatives, Inc. *Security Issues for Microfinance Following Conflict*. MPB Microfinance Following Conflict Brief No. 6; and The SEEP Network. *Conflict and Post-Conflict Environments: Ten Short Lessons to Make Microfinance Work*. Progress Note No. 5. September 2004.

- a. Be continuously alert. Don't fall into fixed and foreseeable patterns of behavior, and if a problem is suspected, immediately notify the institutions in charge of security in the community (e.g., police).
- b. Don't wear uniforms or organizational T-shirts or outfits that could identify who might be carrying money (applies to both staff and clients).
- c. Don't wear valuable objects such as jewelry.
- d. Wear clothing and shoes that allow for ease of movement and ability to run if necessary.
- e. Try not to travel during times of day known to be dangerous, such as at dusk.
- f. Practice "safety in numbers," which means forming groups of 2–4 staff members to carry out client visits. No doubt this increases operational costs, but it reduces risk for field workers. When making visits, the group should spread out rather than walking in a line. This way, if one person is attacked, others can run for help.
- g. Consider the option for field staff to travel by car to visit clients rather than taking public transportation.
- h. Although often unthinkable in stable, competitive environments, sharing detailed information with other practitioners on issues such as security, product terms and conditions, and client information is mutually beneficial in an unstable environment. Holding regular meetings or even developing a local microfinance network or working group of practitioners assists in articulating promising practices in the local environment and promotes lateral learning.
- i. Because disasters can prevent staff and clients from visiting branches, store information in a way that makes it available to branches outside the affected areas. For example, in the case of high-risk branches, it could be advisable to scan documents and key client data and keep these files in safe offices or in offices with lower risk potential.
- j. Develop an internal emergency communications strategy that will allow staff to be quickly located and informed about emergency procedures.

STEP 2: INVENTORY OF CLIENTS

Despite efforts previously made by the FI to be more and better prepared to face the impact of a disaster, when a catastrophic event occurs, it is of utmost importance to know the real situation of clients and how their situation is going to affect the institution. To that effect, the following must be determined:

1. How many clients have suffered damages?
2. How severe are the damages suffered by clients (life, health, homes, businesses)?
3. What percentage of the portfolio has been affected by the disaster and why: impossibility to continue repaying the credit, loss of collaterals, etc.?
4. What immediate questions do the clients have, and what type of immediate assistance do they require (lodging, medicines, food, clothing, etc.)?
5. Will the clients have access to resources or sufficient income to cope with the crisis?
6. What will the clients' financial needs be (additional or special loans, deposit outflows, etc.)?
7. What is the clients' attitude with respect to their capacity to continue repaying the credits?

A. Activities Directed toward the FI's Clients

A.1 Verify the scope of the disaster's impact on clients

To safeguard the soundness of the institution, it is necessary to determine and verify the scope/reach of the disaster at the client level. This will allow for an estimate of the financial impact of the disaster on the institution as a result of portfolio losses, refinancing/rescheduling of loans, requests for new credits, deposit outflows, reduction in deposit inflows, etc.

1. Using maps (cities, towns, districts, etc.) and information from local governments, the organization in charge of emergency management, and other public or private organizations that monitor and follow up on the effects of disasters, identify the scope/reach

of the catastrophic event, the geographic areas most affected, and the severity of the damages sustained in each zone.

- Knowing the affected areas and cross-referencing these with information on client location and vulnerability as contained in the FI's databases (institutional geographic information system¹⁰), make a first estimate (prelimi-

nary and global) of the impact of the disaster on the portfolio by branch (if necessary, the analysis could be made by a credit officer). The form in Table 6 can help with this task. This first estimate of the percentage of the portfolio in critical condition will allow the disaster to be rated as very serious, serious, light, or null from a financial point of view.

Table 6
First Estimate of Damages to Credit Clients

This form assists each branch in preparing a preliminary and global estimate of the credit clients and portfolio affected by the disaster, using the information registered in the databases of the FI and the maps of affected areas to be obtained from, for example, organizations specialized in emergency assistance, local governments, and/or public and private institutions that monitor the effects of the disaster by geographic area. This first estimate will be refined later as more data becomes available and the FI has direct access to clients. Needless to say, it is crucial to have a gross estimate as soon as possible in order to know the magnitude of the impact that could be facing the institution (upper limit).

On the form, for each office (column a), the total number of clients at the time of the disaster will be indicated (column b), as well as the total portfolio in the hands of those clients (column c). If it is possible to forecast the number of affected clients (it could be the total or less than the total), indicate it in column d, and in column e note the portfolio amount the affected clients represent. Finally, quantify the percentage of clients and portfolio that could be affected by the disaster.

The information could also be organized by credit officer, which could be useful for defining the program of visits to clients. A form for each field officer could be completed, with column a showing the names of the field credit officers instead of the branch offices. Each office would consolidate the information of its respective credit officers in a separate form. The Risk Management and Operational Crisis Management Committee would consolidate the information of each office to produce the global/total information for the institution.

Branch (a)	Totals (number or amount)		Affected (number or amount)		Percentage affected	
	Clients (b)	Portfolio US\$ (c)	Clients (d)	Portfolio US\$ (e)	Clients (100% * d/b)	Portfolio (100% * e/c)
Total						

Source: TSF and CTSF.

¹⁰ See Chapter II: Exogenous Risk Reduction Plan: Preventive and Corrective Measures. Client Vulnerability Reduction Program.

- Knowing the affected areas and the deposit clients by geographic location, make a first estimation (preliminary and global) of the impact of the disaster on the deposit accounts balances under different scenarios of funds inflows and outflows for the affected areas (sensitivity

analysis). This should be applied to both individual and institutional clients, as these two types of clients respond differently to emergencies and have different decision-making processes for choosing the FI as a financial intermediary. Table 7 can help in this task.

Table 7
First Estimate of Reduction of Deposits

This form allows each branch to prepare a preliminary and global estimate of deposit clients and the expected level of reduction of deposits as a result of the disaster, using the information registered in the databases of the FI and the maps of affected areas to be obtained from, for example, organizations specialized in emergency assistance, local governments, and/or public and private institutions that monitor the effects of the disaster by geographic area. This first estimate will be refined later as more data becomes available and the FI has direct access to clients. Needless to say, it is crucial to have a gross estimate as soon as possible in order to know the magnitude of the impact that could be facing the institution (upper limit).

On the form, for each office (column a), the total number of clients at the time of the disaster will be indicated (column b), as well as the total volume of deposits in the hands of those clients (column c). If it is possible to forecast the number of affected clients (it could be the total or less than the total), indicate it in column d, and in column e note the deposits amounts the affected clients represent. Finally, quantify the percentage of clients and deposits that could be affected by the disaster.

The information could also be organized by credit officer, which could be useful for defining the program of visits to clients. A form for each field officer could be completed, with column a showing the names of the field credit officers instead of the branch offices. Each office would consolidate the information of its respective credit officers in a separate form. The Risk Management and Operational Crisis Management Committee would consolidate the information of each office to produce the global/total information for the institution.

Branch (a)	Totals (number or amount)		Affected (number or amount)		Percentage affected	
	Clients (b)	Deposits US\$ (c)	Clients (d)	Deposits US\$ (e)	Clients (100% * d/b)	Deposits (100% * e/c)
Total						

Source: TSF and CTSF.

A.2 Prepare a list of potentially affected clients (credit and deposits)

- Print from the databases a list of clients (credit and deposits) by city, town, district, etc. and

by credit/deposit officer located in the sectors/areas that could have suffered damages.

- Estimate the portion of the portfolio at risk due to clients located in areas that could have suffered damages.

3. Estimate deposits at risk due to individual and institutional clients located in the areas that could have suffered damages.
4. According to the preliminary estimates of credit portfolio impact and deposits impact, make the necessary arrangements to guarantee liquidity and to plan an increase in provisions due to the deterioration of the credit portfolio.
5. Make sure that all credit/deposit officers have a list of their clients at risk.

A.3 Visit/survey of credit clients and deposit clients

Prepare and systematize a survey document to assess the impact of the event on each one of the affected credit clients. It is particularly important to know about the human and material (home and/or business) losses. The questionnaire in Table 8 can be used as a reference for the creation of the survey ballot, and will need to be adapted to the particular disaster that has happened and the characteristics of the credit clients.

Table 8
Survey for Credit Clients

Name of client:		
Type of event experienced (flooding, landslide, earthquake, hurricane, tsunami, drought, volcanic eruption, fire, social unrest, etc.)		
A. Name of credit officer:		
B. Delinquency from disaster	YES	NO
C. Business address:		
D. Home address (pre-disaster):		
E. Temporary address (post-disaster):		
F. Household (family) situation. Briefly explain issues such as: <ul style="list-style-type: none"> • Number of total persons in the household affected and type of impact, indicating hospitalization, death, disappearance, etc. • Physical damage to the residence and furnishings, and estimated monetary value of damages • Whether the family will require assistance, and the type and quantity: water, food, blankets, clothing (children and adults, male and female), medicines, etc. • Whether the family will need temporary lodging, materials and tools to repair the home, or materials and tools to build temporary lodging 		
G. Business situation. Briefly explain issues such as: <ul style="list-style-type: none"> • Physical damage to the facility where the business operates, and estimated monetary value of damage • Physical damage to equipment, furnishings, and inventories, and estimated monetary value of damage • Physical damage to crops and animals, and estimated monetary value of damage • Additional financial impact on the business derived, for example, from interruption of operations 		
H. Total amount of loan outstanding at the time of the disaster:		
I. Number of days of delay in payment of the loan at the time of the disaster:		
J. Number of installments of loan repayment delayed at the time of the disaster:		
K. Total amount of delayed repayment at the time of the disaster:		

L. Special observations (describe):
M. Possibility of reactivating the business (time period): <input type="checkbox"/> One week or less <input type="checkbox"/> One month or less <input type="checkbox"/> Possible to reactivate ONLY if additional financing is granted <input type="checkbox"/> Not possible to reactivate the business, even if additional financing were granted
N. Possibility of recovering the loan (time period): <input type="checkbox"/> Client will pay due installments in a month or less <input type="checkbox"/> Client will pay due installments within 1–3 months <input type="checkbox"/> Client will pay due installments within 3–6 months <input type="checkbox"/> Difficult recovery of loan

Source: TSF and CTSF.

2. Prepare and systematize a survey document to assess the impact of the event on each one of the affected individual deposit clients. It is particularly important to know about the human and material (home and/or business) losses. The questionnaire in Table 9 can be used as a reference for the creation of the survey ballot, and will need

to be adapted to the particular disaster that has happened and the characteristics of the individual deposit clients. In the case of institutional deposit clients, the assessment should consider the type of funds the client manages (insurance, pensions, mutual funds, etc.) and a questionnaire should be designed for each particular case.

Table 9
Survey for Individual Deposit Clients

Name of client:
Type of event experienced (flooding, landslide, earthquake, hurricane, tsunami, drought, volcanic eruption, fire, social unrest, etc.)
A. Name of deposit officer in charge of the account:
B. Business address:
C. Home address (pre-disaster):
D. Temporary address (post-disaster):
E. Household (family) situation. Briefly explain.
F. Business situation. Briefly explain.
G. Total amount deposited at the time of the disaster:
H. Average monthly deposit at the time of the disaster:

I. Amount to retrieve as a consequence of disaster:
J. Reduction on average monthly deposit:
K. Special observations (describe):
L. Possibility of recovering the average monthly deposit (time period): <input type="checkbox"/> In one month or less <input type="checkbox"/> Within 1–3 months <input type="checkbox"/> Within 3–6 months <input type="checkbox"/> Difficult to deposit the previous average monthly amounts

Source: TSF and CTSF.

- Credit officers and deposit officers will have to mobilize quickly to fill out the surveys. If a client has both credit and deposits at the institution, staff should coordinate to fill out both surveys on the same visit.

A.4 Determining credit and deposit clients' need for cash

With the information gathered from the surveys, and knowing the impact of the exogenous event on clients, the FI can determine the following:

- Estimated number of clients who will need to restructure/refinance/reschedule their loans, and the amount and percentage of the portfolio this represents.
- Estimated number of clients who will need additional credits (new credits), and the estimated amount of their additional financing needs.
- Estimated number of credits that might not be recovered due to death of the client or inability of the guarantor to pay (assuming clients do not have life insurance).
- Estimated number of clients who will retrieve deposits and the amount that will be retrieved.
- Estimated reduction in average monthly new deposits resulting from the disaster.
- Number of clients that will need other type of assistance/aid and the type of assistance/aid they need.

A.5 Revision and adjustment of credit and deposit policies

Quite often, microfinance institutions face a difficult situation when disaster strikes because of lack of pre-disaster preparation; this results in slow response to clients and poor post-disaster results. Thus, a good disaster response plan should answer the following questions:

Credit restructuring (see Step 3, section C: Policies to Protect/Stabilize the Credit Portfolio, for greater detail on alternatives to consider)

- What criteria will credit officers use to advise on loan restructuring?
- Who will be authorized to approve a new repayment schedule for a loan?
- Should rescheduling take place on an office-wide or case-by-case basis?
- Will interest continue to accrue on rescheduled loans?

Emergency loans (see Step 3, section C: Policies to Protect/Stabilize the Credit Portfolio, for greater detail on alternatives to consider)

- Will the microfinance institution make emergency loans only to clients in good standing?
- Under what conditions and up to what amount?

Cash (liquidity) management (see Step 3, section G: Guarantee the Necessary Liquidity for Deposit Withdrawals, Loan Disbursements, Obligatory Reserves, and Others)

Table 13
Deposits

Form to register deposits—expected and actual								
Date (1)	Expected change in deposits balance (pre-disaster)			Actual change in deposits balance (post-disaster)			Daily difference (8)	Accumulated difference (9)
	Increase in deposits (2)	Withdrawals (3)	Net change (4)	Increase in deposits (5)	Withdrawals (6)	Net change (7)		

Source: TSF and CTSF.

With respect to income and expenses, weekly monitoring is recommended because it is possible to experience high degrees of volatility on a daily basis, especially in expenses, that would not make the

analysis of daily numbers very significant or relevant for follow-up on the effect of the catastrophic event. The forms in Table 14 could be used as reference for the weekly monitoring of income and expenses.

Table 14
Weekly Estimate of Income and Expenses

<p>In post-disaster situations it is advisable to compare income and expenses, and not only monitor income, because income will generally show a reduction trend while expenses will show a rising trend. The actual versus expected income and expenses should be monitored weekly instead of daily, because as a result of the disaster the daily amounts may show high volatility, especially for expenses.</p> <p>A spreadsheet like the following can be used to register and graph the differences.</p>				
Fecha (1)	Ingreso programado (predesastre) (2)	Gasto programado (predesastre) (3)	Ingreso efectivo (posdesastre) (4)	Gasto efectivo (posdesastre) (5)
1/07/01	2,000	1,500	500	2,000
1/14/01	2,000	1,500	750	2,500
1/21/01	2,000	1,500	1,250	2,250
1/28/01	2,000	1,500	1,250	1,750
Etc.				

Form to register income and expenses (expected and actual) and calculate differences								
Date	Expected income (pre-disaster)	Expected expenses (pre-disaster)	Actual income (post-disaster)	Actual expenses (post-disaster)	Expected margin (pre-disaster)	Actual margin (post-disaster)	Accumulated expected margin (pre-disaster)	Accumulated actual margin (post-disaster)

Source: TSF and CTSF.

2. Prepare tables and graphs to be placed on the walls of the crisis room to visualize the progress of the situation. At the beginning the tables will contain pre-disaster data, and as time goes on they will be filled in with the actual daily data for comparative purposes.

STEP 3: PLANNING THE RESPONSE

Based on situational findings, the institution should plan how it will act during the first days/weeks of the crisis.

A. Basic Needs Support (Relief Services)¹¹

A question that comes to mind is, if disaster strikes, will the FI be part of relief activities in affected communities? If the answer is yes, it raises additional questions: For how long? Under what conditions? Who will be assigned to the task? If the answer is no, to what organization(s) could the FI refer its clients in order to obtain food, shelter, potable water, and/or medicines? The client risk cadastre constitutes an extremely helpful tool for handling this issue.

In the immediate aftermath of a disaster, microfinance institutions working in the affected areas are often the first to discover communities without access to potable water, food, or shelter. Under those conditions, some microfinance institutions temporarily provide emergency relief to clients or larger communities, with the goal of saving lives and protecting health, but these activities will cease when specialized nongovernmental organizations or government programs arrive at the affected areas. Other institutions, however, may decide that for their long-term benefit it is more convenient to maintain their functions as financial institutions and focus on helping clients rebuild their livelihoods.¹²

¹¹ The following documents have been used in preparing this section: Development Alternatives, Inc. *Non-Financial Emergency Services to MFI Clients*. MBP Rapid-Onset Natural Disaster Brief No. 4; and Geetha Nagarajan. *Microfinance in the Wake of Natural Disasters: Challenges and Opportunities*. Development Alternatives, Inc. June 1998.

¹² This is the case of the microfinance institution Women's Development Federation of Hambantota (Janashakti) located in southern Sri Lanka. The institution was severely affected by the December 26, 2004, tsunami: it lost 5 full-time staff and 14 volunteers; of its 32,000 clients, approximately 1,000 were dead or missing; and 20 of 72 Janashakti bank societies suffered major damage and an additional 23 had minor damage. Elizabeth Lynch. *Sri Lankan MFI Janashakti Rebuilds after the Tsunami: Report from the Field*. UNCDF. Microfinance MATTERS, Issue 9. February 2005.

If an FI decides to participate in emergency relief efforts, the FI should consider some additional issues beyond the obvious operational challenges:

1. The FI must clearly communicate to its clients that these efforts are **temporary and unique**, and that the institution will return to business as usual after the emergency has passed. This message signals that while the FI is a constructive member of the community during an emergency, it remains a serious financial services provider.
2. The FI must keep emergency relief funds separate from operational funds and keep separate financial records for relief activities. This will allow the institution to accurately assess how much was spent on relief activities, to seek outside funds to reimburse relief expenses, and to assess the proportion of relief expenditures covered by outside contributions.

If an FI decides to take on direct responsibilities of emergency relief, as a way to leverage the FI's own efforts it is also valuable to have in place an institutional plan for strategic alliances with institutions specialized in emergency management and relief. The FI could share the information gathered in the surveys with specialized institutions so they can quickly bring help to affected clients and cover the needs the FI cannot provide for. Some institutions with which the FI could establish collaboration agreements are Red Cross, local governments, Panamerican Health Organization, United Nations, Catholic Relief Services, Cooperation and Relief Everywhere, World Vision, the national organization in charge of emergency assistance, and others.

Box 1 describes the principles and guidelines proposed for the microfinance industry with respect to post-disaster emergency relief.

Box 1

Post-Disaster Emergency Relief: Principles and Guidelines for Microfinance Institutions

Key Principles:

Maintain a commitment to sustainable operations. Where possible, MFIs, rather than providing relief directly, should work with dedicated agencies and donors that specialize in emergency relief. In the absence of dedicated relief agencies, established MFIs often have to provide relief assistance immediately after disasters. This period of post-disaster assistance must be well-defined, however, and should be followed by a return to unsubsidized loans in the rehabilitation and reconstruction phases.

Be realistic about MFI role. MFIs should consider where they can best contribute to disaster response and avoid embarking on activities beyond their capacity and mission. Smaller MFIs may not have the liquidity, resources, or flexibility in their information systems to handle relief efforts and provide the medium-term loans required to rebuild assets that don't generate regular cash income, such as housing. In these instances, partnerships with commercial banks and possibly other MFIs may be considered.

Guidelines:

Relief efforts. MFI participation in relief efforts should usually be limited to locating clients, linking clients and other community members to ongoing relief operations, or transporting these people to locations where they can receive services. However, MFI field staff can play a vital role in transmitting public health messages, such as the importance of consuming only clean water. Coordination with relief organizations is essential. Where relief providers are not present, an MFI may temporarily conduct relief but should ensure that clients recognize its role as being, fundamentally, a financial services provider. MFIs can reinforce this message with visual cues, such as having staff wear special "disaster response" shirts while they are providing relief. MFIs should also keep relief funds separate from microfinance operational funds to accurately track relief spending, provide records to donors, and possibly find reimbursement for these expenses.

Going into new areas. MFIs considering entering unserved areas to provide emergency financial assistance should plan their long-term presence in these areas carefully. Clients without prior knowledge of an MFI's commercial rates and commitment to sustainability may initially view the organization as another relief agency or temporary donor program. To manage the transition from providing emergency financial support through emergency loans or grants to longer-term cost-recovering operations may require the MFI to create a new image for itself during the emergency phase. It is essential to use visual cues and be explicit with clients about the organization's true mission.

Source: CGAP (2005).

B. Services to Be Offered in Each Branch

It is necessary to decide which services are going to be offered by each office. It is possible that in some areas there will be no damage, while in others there might be significant damage for both the clients and the institution.

C. Policies to Protect/Stabilize the Credit Portfolio¹³

The institution must establish positive and clear policies regarding its relationship with clients. Some policies to be considered are:

1. Loan forgiveness

Loan forgiveness should never be an option, because it undercuts long-term client commitment to repay and results in losses to the institution. However, some microfinance institutions have chosen to write off a loan from the books when a debtor has died as a result of a disaster.¹⁴

2. Design of preventive credit products

- a. Where seasonal disasters occur (floods, droughts, hurricanes, landslides), the institution could grant credits to clients located in high-risk areas and, due to expected potential losses of clients' assets and income, expect them to be repaid during the season when events are not forecasted to occur (seasonally adjusted repayment periods). That way, when an incident such as flooding takes place, repayment obligations will be at their minimum, and expected losses for the institution will also be lower. For this to be applicable, hazard information generated by specialized organizations is needed, as well as the client risk map.

Table 15 shows two ways loan installments can be adapted to the period in which the occurrence of the natural event is expected. The example is based on the hypothesis that floods, landslides, droughts, or hurricanes typically occur in Central America and the Caribbean between July and October of each year. The baseline repayment plan is twelve months of equal installments. Alternative 1 establishes a repayment plan of eight months of equal installments to coincide with the off-season months. Alternative 2 establishes a twelve-month repayment plan under which the client pays only interest from July through October, and capital amortization occurs over eight months (off-season).

Table 15
Adjusted Repayment Plans to Protect against Floods/Landslides/Droughts/Hurricanes

EXAMPLE													
Repayment plan	Jun.	Jul.	Ago.	Sept.	Oct.	Nov.	Dic.	Ene.	Feb.	Mar.	Abr.	May.	Total
Normal (12 months)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	1,200.00
8 months	150.0	0.0	0.0	0.0	0.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	1,200.00
Interest-only payments during season of natural hazards	141.5	17.0	17.0	17.0	17.0	141.5	141.5	141.5	141.5	141.5	141.5	141.5	1,200.00
Loan amount: \$1,000 Total interest: \$200													

Source: Adapted from Brown and Nagarajan (August 2000).

¹³ The following papers have been used in preparing this section: Development Alternatives, Inc. *Loan Rescheduling after a Natural Disaster*. MBP Rapid-Onset Natural Disaster Brief No. 1; Development Alternatives, Inc. *New Loans after a Natural Disaster*. MBP Rapid-Onset Natural Disaster Brief No. 2; and Warren Brown and Geetha Nagarajan. *Bangladeshi Experience in Adapting Financial Services to Cope with Floods: Implications for the Microfinance Industry*. Development Alternatives, Inc. August 2000.

¹⁴ For example, the microfinance institution Women's Development Federation of Hambantota (Janashakti), Sri Lanka, applied this policy after the December 2004 tsunami. Lynch. *Sri Lankan MFI Janashakti Rebuilds*.

6. Preventively, in advance of the occurrence of a disaster the institution could grant new loans to clients with good credit standing and excess payment capacity so that they can improve and reinforce their homes, business, or lands for better protection against disasters.

3. Loan rescheduling¹⁵

This practice is a positive way to prevent portfolio losses in cases in which FIs are aware that affected clients cannot repay their loans according to the schedules negotiated in the pre-disaster scenario. However, it is difficult to determine the optimum characteristics of rescheduling. The empirical evidence shows that the best method is a case-by-case approach, which allows the microfinance institution to establish the terms and conditions best suited to the particular needs of each affected client.

Generally speaking, microfinance institutions can choose between three types of rescheduling:

1. Deferral of payments of loan principal for a specified period; clients are expected to continue making interest payments throughout the remaining contract period. This method of rescheduling has the least impact on the microfinance institution's cash flow.
2. Deferral of both principal and interest payments for a specified period, but interest continues to accrue over the period of deferment; clients pay the accumulated interest at a later date (not the usual practice).
3. Deferral of both principal and interest payments for a specified period; interest does not accrue during the deferral period. This form of rescheduling is the least burdensome to the client but also produces the lowest return to the microfinance institution.

There are three techniques that can be used to make up for missed payments during the deferral period; their application will depend on the severity of the disaster:

1. Extend the term of the loan, adding missed payments to the end of the original loan term.
2. Maintain the original payment schedule (number of payments) but waive the immediate payments, resulting in larger final repayments.

3. Accept total payment after the effects of the disaster have passed.

In general, when loan terms are shorter (maximum six months) and the disaster is severe, extending the loan term may be more feasible (technique 1) than increasing the amount of unrescheduled final payments (technique 2).

Loan rescheduling should take place immediately after the disaster and should be limited to geographic areas heavily affected by the disaster. To accomplish this, activities conducted in Step 2 (A.1, A.2, A.3, and A.4) should be accomplished as soon as possible. To ensure the quality of post-disaster information, however, the institution should train credit officers in emergency procedures before disaster strikes. Post-disaster, rescheduling priority should be given to branches with the highest levels of damage to their portfolio.

Advocates recommend rescheduling on a case-by-case basis. This customized approach means locating and meeting with all affected clients, and also requires greater administrative and monitoring complexity, but within the industry it is considered the mechanism that (i) allows a better use of the financial institution's limited supply of funds after a disaster hits, and (ii) guarantees that staff will be in contact with clients throughout the emergency period. Individually rescheduling hundreds or thousands of loans will require a lot of work on the part of the institution's functional areas (accounting, auditing, information systems, monitoring and follow-up, risk, marketing, credit, branches). To make the process more manageable, a specific policy should be established to give credit officers parameters for rescheduling, as well as to offer some standardized choices among payment schedules.

Every policy should include some flexibility in its parameters: different types and magnitudes of disasters require different response levels. Even in the case of specific disasters, the impact on different offices will vary. These differences could lead to the adoption of differing policies by geographic area: for example, offices seriously affected could grant longer rescheduling periods than offices moderately affected. When the response parameters are under development, the FI should perform a "what if" anal-

¹⁵ Development Alternatives, Inc. *Loan Rescheduling after a Natural Disaster*.

ysis to make sure it has enough funding to carry on the chosen policy during disasters at different levels of severity, and to identify the impact of those policies on its financial situation.

The terms and conditions of rescheduled loans must match the realities of the disaster area. Specific issues to consider include:

- a. The disaster's breadth and depth of damage. For disasters that affect larger numbers of the population and have a larger effect on infrastructure, productive assets, and agricultural production, longer periods of rescheduling are required.
- b. Timing of the disaster. In Asia, floods that hit shortly after planting may not have a major impact on the final harvest, so clients dependent on agricultural income may be able to repay in the same crop season. But floods that hit just before harvest may wash away

an entire crop, affecting not only agricultural producers but also households that provide agriculture-related products and services. In the latter case, loans may need to be rescheduled for a longer period.

- c. Timing of repayment should reflect an understanding of community cash-flow patterns. Asking clients to repay immediately after the harvest is likely to be successful. Asking clients to repay when other large expenditures come due (such as during feast periods or when school fees are due) are bound to undermine the microfinance institution's objectives.
- d. The institution's level of liquidity.
- e. Other variables such as alternative sources of income from employment or remittances.

Box 2 describes principles and guidelines that microfinance institutions have adopted with respect to post-disaster loan rescheduling.

Box 2

Post-Disaster Loan Rescheduling: Principles and Guidelines for Microfinance Institutions

Key principle:

Customize solutions according to clients' needs. Some clients may be severely affected by disaster, others less so, and a few fortunate ones not at all. MFIs should be able to provide each household with the appropriate menu of services depending on its circumstances. For those hit hardest, emergency relief would be a better first intervention than financial services. To make customization work, staff must have the training to assess the situation and the authority to make on-the-spot decisions. For the MFI, this approach offers a more efficient use of limited funding than a blanket policy for all clients, and ensures that staff maintains contact with clients throughout the recovery period. **Specific criteria should be defined for loan officers to use in making decisions about rescheduling and providing grants.**

Guideline:

Rescheduling Loans. Rescheduling loans on a case-by-case basis can help MFIs avoid losses and defaults on their loan portfolio. This can also build trust and loyalty to the MFI during a time of crisis. MFIs usually choose between two policies: (i) clients pay interest but the principal payments are postponed, or (ii) interest stops accruing until principal repayment has resumed. In some exceptionally severe cases, the MFI may consider writing off loans to the client, but the MFI should be cautious about sending the wrong message to the community. More-established MFIs are likely to experience better repayment on rescheduled loans than those with new client relationships, so younger programs may need to take additional steps to build loyalty, such as maintaining continuous contact with clients.

Source: CGAP (2005).

At least two MFIs that participated in the TSF and the CTSF have issued policies to guide post-disaster loan rescheduling and payment moratoriums. In the case of the BELfund Inc., after Hurricane Tomas hit the island of Saint Lucia (October 2010), the board of directors approved a policy that reads:

- The situation of each client will be dealt with on a case-by-case basis.
- The provision of additional loans to clients.
- The provision of grace periods or moratoriums to allow clients to get back into business.
- The restructuring of current loans to allow further assistance to clients.
- The offer of new loans at a reduced interest rate of 5% to clients affected by the hurricane.

For members of COAC 4 de Octubre, affected during 2011 by the renewed activity of Tungurahua Volcano, the administration council dictated the following resolution:

In the case of members affected by the ash who ask to extend deadlines for payments, properties will be inspected to compare with the use for which the loan was granted. If the information and inspection report match, the credit union will operate as follows:

1. First three months: interest-only payments.
2. If the problem continues, three additional months of interest-only payments.
3. If the member's loan term is about to end, it will be refinanced for up to six months according to the degree of impact.
4. At the end of the three or six months of interest-only payments, if the member has fully complied with these payments, the loan will be refinanced for a term of up to six months according to the level of impact.

4. Emergency loans¹⁶

Immediately after natural disasters hit, many microfinance institutions make emergency loans to clients to buy food, potable water, or medicines (i.e., help clients survive the emergency period). Emergency loans have a short repayment duration, often one month or shorter, and most microfinance institutions provide these loans without interest or at a subsidized rate. It is recommended to adapt the repayment period of emergency loans to the specific characteristics of the disaster and, particularly, to the estimated period in which clients will begin to generate income again.

Reported repayment rates of emergency loans are similar or better than normal repayment rates reported by microfinance institutions. From a client perspective, strong demand for these loans seems to indicate that they provided a valued influx of much-needed cash, although some complained of the loans being too small and repayment starting too quickly after disbursal.¹⁷

After a natural disaster occurs, the best policy to follow is to make new loans *only* to clients in good standing. In the case of small emergency loans, this policy may be stretched to include the microfinance institution's entire clientele.

The policy approved by the board of directors of the BELfund Inc. after Hurricane Tomas included granting additional loans to support the recovery of clients' businesses and offering an interest rate of 5% for new loans granted to clients affected by the hurricane.

5. Reconstruction loans

The objective of these loans is to help clients recover in the post-disaster period and restore livelihoods and businesses to their pre-disaster state. In general, the terms and conditions of these loans should reflect the income generation potential of the asset to be financed and the repayment capacity of the client, considering the damages caused by the disaster.

As a general rule, to qualify for special treatment the client should demonstrate, and credit officers certify, the following:

- a. The client is located in a disaster zone.
- b. The source of loan repayment was partially or temporarily affected by the disaster.
- c. The client is willing to repay the outstanding loan he/she had before the disaster hit.
- d. The client is willing to sign legal documentation containing the new terms and conditions of rescheduling.
- e. The client is willing to provide new collaterals according to the amount of the financing (if this is required by the institution's policies).

As expressed by CGAP, "Reconstruction loans are most effectively given once the emergency stage is over and MFI staff can assess the damage to property, and the credit standing of clients. Repayments on these loans must be monitored carefully, particularly if they are used to finance homes or latrines, which don't generate regular cash income. The amounts of many such 'asset replacement' loans require the borrower to also go through three or four income generation loans to earn enough income to service these reconstruction loans."¹⁸

¹⁶ Development Alternatives, Inc. *New Loans after a Natural Disaster*.

¹⁷ Brown and Nagarajan. *Bangladeshi Experience in Adapting Financial Services*.

¹⁸ CGAP. *Sustaining Microfinance in Post-Tsunami Asia*. CGAP Brief. February 2005.

D. Inform Staff of Policies and Procedures to Be Applied

All staff members must be informed and know the policies that are going to govern the crisis period so that these are communicated to clients in a clear, coherent, and consistent manner. It is advisable to prepare a memorandum with the key points and distribute it to all personnel.

E. Develop and Implement a Communications Plan

It is important that clients know and understand the policies, rules, and measures that are going to be applied. An ad could be placed in mass media channels (radio, newspapers, television)¹⁹ or be disseminated by vehicles with loudspeakers. Also, a Memorandum to Our Clients could be prepared and placed in visible places in each office to communicate the institution's policies, rules, and measures regarding its services and relations with the public.

The message to communicate to clients could be: *The institution supports the well-being of its clients and helps them find solutions to their problems while also protecting its financial soundness, solvency, and security.*

F. Provide Branches with Cash

Based on the updated cash needs of each branch, the institution has to plan how it is going to guarantee that each branch has enough cash to cover deposits withdrawal, disbursements of loans approved before the disaster and of new loans (emergency loans, for example), and increases in expenditures.

G. Guarantee the Necessary Liquidity for Deposit Withdrawals, Loan Disbursements, Obligatory Reserves, and Others

Natural disasters significantly disrupt deposits, particularly savings deposits, almost instantly (or within days after the disaster). After the disaster occurs, many customers withdraw deposited balances and/or stop making their regular deposits, reducing the cash flow projected by the institution. This is because savings deposits in particular play a significant role

in helping people cope with the impact of the disaster. For example, in 24 urban NGOs affected by the 1998 flood in Bangladesh, only 48% of customers continued to make required savings deposits after the disaster, and on that occasion 95% of obligatory deposits of affected clients of Grameen Bank were withdrawn.²⁰

The combined effect of (i) the reduction of post-disaster loan collections and the increase in new loan disbursements (emergency, reconstruction); (ii) reduction of deposits inflows and increase of deposits withdrawals; and (iii) higher expenses (administrative, equipment and infrastructure restitution, logistics, payment to personnel for overtime, etc.), can drive the institution into a significant liquidity crisis. Thus, the institution should determine in advance the amount of financial resources that must be kept in the form of liquid assets to cover its own needs and its clients' needs. Under these circumstances, the institution could obtain liquidity from various sources: voluntary cash reserves, funds committed for approved but not disbursed loans, loans from domestic and foreign commercial banks with which the institution has maintained a long-term relationship, donors and shareholders, unused credit lines, and emergency lines of credit (this is the case of the Emergency Liquidity Facility, or ELF).

The ability of the institution to attract external financing in case of a liquidity crisis is crucial to continued operations. During such a stressful period, a quick response is needed from both the managerial team and the sources of financing that already know the organization and are determined to support it. The institution could even establish in advance financial agreements with international lenders/supporters to have preapproved lines of credit that will allow the institution to quickly access the funds that will keep it liquid and solvent if a disaster hits.

Other options to explore are:²¹

¹⁹ In some countries this is not an appropriate way to operate, because this tends to create expectations about credit write-offs or massive and generalized loan restructuring, which in the end will have a negative effect on the liquidity and soundness of the institution, even beyond the disaster impact.

²⁰ Warren and Nagarajan. *Bangladeshi Experience in Adapting Financial Services*.

²¹ Adapted from María Elena Pérez, Soledad Burbano, and Mónica Hernández. *Case Study. Banco Solidario: Strategy During Ecuador's Financial Crisis*. July 15, 2003; and inputs from Mr. John Magill, Development Alternatives Initiative.

- a. Access to guarantee funds that can be used to cover increasing provisions associated with the deterioration of the credit portfolio or to endorse credits with international organizations.
- b. Restrict loan disbursements; for example, stop disbursing loans higher than a certain amount.
- c. Use liquid assets by means of overnight recovery of funds invested, money market instruments, etc.
- d. Reduce cash holdings to a minimum level.
- e. Issue guaranteed debt.
- f. Identify loans that could be liquidated and portfolios that could be transferred to other institutions (sale of loans with higher rating).
- g. Participate in the domestic money market to have access to funding for up to 180 days.
- h. Design and implement an interest rate policy that promotes deposits and loan pre-payment.
- i. Strengthen the loyalty of deposit clients and intensify actions to attract and maintain clients.
- j. Design and implement a communications campaign about the institution and its main stakeholders.
- k. Demand last-resource funding from the central bank or conduct rediscount operations.
- l. Sell fixed assets.

Additionally, institutions working in chronic disaster areas have discovered that having adequate liquidity for disaster response requires setting aside program funds on a regular basis for use in times of unexpected emergencies (for example, setting aside a percentage of the monthly profits to constitute the emergency reserve). When disasters strike, funds are available to meet the liquidity needs of clients. However, when an FI works in areas that do not face recurring disasters, it may be hard to justify setting aside operating funds for disasters that do not appear likely to strike.²² In such cases, developing client-funded contingency accounts (where clients make regular deposits into an emergency reserve account) may be a sound alternative.²³

Finally, FIs can also take a series of measures to mitigate liquidity crises before they hit:²⁴

1. Diversify geographically, promoting the provision of financial services in safe areas and to clients with potentially low impact from disasters. Geographic diversification allows offices

In the experience of LICU in Belize, when disasters occur, rescheduling or payment moratorium is not always enough for clients to recover their businesses. Then, it becomes necessary to create a contingency fund to grant additional financing to clients. The general manager will present to LICU's board of directors a formal request to set aside between 3% and 5% of net profits to create a contingency fund for special cases, beginning in 2012.

unaffected by disaster to provide bridge funding to affected regions.

2. Diversify the clientele and activities financed. By serving those involved in more than one sector of the economy, there is a better chance that some clients will weather the disaster more successfully than others.
3. Examine whether emergencies tend to be seasonal, as could be the case with floods, landslides, and droughts. If so, the FI can plan in advance to have more cash on hand during that period. Identifying seasonal trends also allows the institution to predict periods likely to show downturns in loan repayments or upturns in new loans, or in which deposits might reduce or increase. All these situations affect the organization's financial projections.

STEP 4: IMPLEMENTATION AND MONITORING

A. Implementation

Programs and policies approved by the institution must be implemented to try to return to normalcy as soon as possible. During this period, daily monitoring is the element that will guarantee success.

²² However, as has been expressed by Prof. Richard Posner, "The fact that a catastrophe is very unlikely to occur is not a rational justification for ignoring the risk of its occurrence." Richard Posner, "The Tsunami and the Economics of Catastrophic Risk," *The Becker-Posner Blog*, January 5, 2005, <http://www.becker-posner-blog.com/2005/01/the-tsunami-and-the-economics-of-catastrophic-risk.html>.

²³ Development Alternatives, Inc. *MFI Liquidity Problems after a Natural Disaster*. MBP Rapid-Onset Natural Disaster Brief No. 5.

²⁴ Development Alternatives, Inc. *MFI Liquidity Problems after a Natural Disaster*.

B. Daily Meetings of the Risk Management and Operational Crisis Management Committee

The committee must meet every morning to review data, identify problems, and decide on the actions to be taken. The data the committee will need to see are:

1. Daily report of overdue balances
2. Repayments as of the previous day compared with expected repayments (pre-disaster), and accumulated repayments as of the previous day compared with expected accumulated repayments
3. Actual income and expenses compared with expected income and expenses (pre-disaster): daily and accumulated
4. Actual loan disbursements compared with expected loan disbursements: daily and accumulated
5. New loan applications compared to expected loan applications (pre-disaster): daily and accumulated
6. Special consideration requests from clients: number and type of request
7. Updated reports from branch managers, credit officers, and other field staff on clients' status

C. Trend Analysis

The Risk Management and Operational Crisis Management Committee needs to analyze the performance of key indicators and determine the implications of trends on a daily basis in order to respond to an essential question: Is the situation improving or deteriorating?

Based on the daily assessment of data, the committee could re-estimate the magnitude of the problem the FI is facing, if necessary. The committee should also consider questions such as: How many loans, and for what amount, might be lost (loans that will have to be written off)? Will the institution have enough liquidity to satisfy increased deposits withdrawal and greater credit demands? If not, where will the additional funding come from?

Aside from the most important questions and issues, the Risk Management and Operational Crisis Management Committee will have to analyze the

data at a more microscopic level: Are there groups or specific locations that show higher delinquency rates than others? Are some credit officers experiencing greater problems with loan recovery than others? These differences will help the committee know where to focus.

D. Refining/Fine-Tuning Strategies

At least once a week, the committee will need to take the results from the analysis process and use the conclusions to sharpen its strategies. For example:

1. How can the collection process be better organized? Will it be necessary to assign more personnel to the monitoring of problematic areas? Will it be necessary to assign additional staff to cover for a disabled credit officer or deposit officer?
2. Will the FI need external financing to pay its liabilities, and how much?
3. Will the FI be able to comply with portfolio provisions requirements, or will it need to make special/additional provisions?
4. Will the FI be able to comply with reserve requirements on deposits, or will it need to create special reserves?
5. Will the FI fulfill its liquidity needs?
6. What percentage of the credit portfolio will need refinancing or restructuring, and what impact will this have on income, cash flow, and delinquency rates?
7. Will the FI need external funding to cover liquidity gaps? If so, what are the existing options for external financing?

The answers to these questions can change frequently as the conditions of clients change.

E. Protecting the Portfolio

Protection of the credit portfolio is one of the more critical tasks during the emergency period. The institution needs to focus its attention on problem loans—clients who are willing to pay but are having difficulties meeting their payments. Therefore, it is necessary to closely monitor these loans.

Each morning, the Risk Management and Operational Crisis Management Committee will analyze a list of past-due loans by branch and by credit officer, and focus attention on operations that represent the greatest potential loss. It might be necessary to assign additional credit officers to monitor problem loans, especially if most of the damage happened in areas serviced by very few officers. It might be necessary for higher-level staff members—branch managers, credit managers, or other committee members—to visit those clients personally to better

understand the reasons for payment delays and suggest solutions to help clients fulfill loan repayment.

At the same time, it is necessary to be firm. Some microfinance institutions have improved their on-time collection statistics during a period of extreme financial crisis through the establishment of strong policies of approving new loans *solely* for clients who had fulfilled their repayment schedules without any delays. Nonetheless, the FI must be prepared to write off loans that are impossible to recover due to the death or disappearance of clients.

Annex to Part I

Conditions for Success in the Implementation of a Comprehensive Exogenous Risk Reduction Plan and Steps to Follow

SUMMARY

CONDITIONS AT THE MACRO LEVEL	EXPLANATION
Corporate governance	Risk management culture must emanate from the top and filter down. Board of directors openly committed to change and adaptation will facilitate the incorporation of exogenous risk reduction into daily tasks.
Participation	Process to build a culture of exogenous risk reduction should be highly participatory and involve all levels of the FI. Participatory construction of the plan and its objectives and strategies will ensure achievement of expected results.
Experience evaluation and follow-up	Evaluation of past experience is effective in raising awareness. Monitoring of credit portfolio and how it has been affected by exogenous events can determine impact on financial situation. Perform cost-benefit analysis of operating with and without a risk reduction plan. Define actions to build a portfolio of quality; quantity and market share is not necessarily sustainable.
Use of existing capabilities	Anchor risk reduction plan to existing processes and procedures to ensure sustainability and medium- and long-term strategy, and periodically review the process. Avoid setting up ad hoc structures.
Prioritization of actions	Assessment of probability of occurrence and expected impact of different risks has a value effect on sustainability in the medium and long term, so it is important to prioritize actions to implement and better allocation of resources. Application of qualitative methodologies for operational risk management to the subset of threats categorized by Basel II as disasters and other events.
Organization	Institutionalize the Risk Management and Operational Crisis Management Committee: Designate coordinator Establish pre- and post-disaster roles and functions for each member.
Access to information, experiences, tools, materials, and existing resources	Fundamental access to and retrieval of documents to guide actions and decision-making: Hazard maps (national, departmental, provincial, local) Risk-zoning studies Disaster prevention, mitigation, and response plans Training materials from specialized organizations Studies on disasters and risks for the areas where the FI operates.
Consensus and coordination	Define and establish consultation and coordination bodies for prevention and response. Create partnerships with specialized agencies.

Communication	Helps to strengthen FI's internal and external relations for prevention and response; supports development of organizational culture and customer loyalty.
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STEPS TO FOLLOW	EXPLANATION
Exogenous Risk Reduction Plan—Preventive and Corrective Measures	
Analysis of exposure to hazards	Determine, by area of operation, the hazards to which the FI is exposed (natural, socio-natural, anthropogenic, social, political).
Vulnerability assessment	Application of methodology for assessing institutional, social, physical, and client vulnerability to identify problems and propose solutions.
Determining the degree of exposure to exogenous risks	Combine the level of exposure to hazards and the degree of vulnerability.
Proposal of the exogenous risk reduction plan	Based on the vulnerability assessment, recognize problems and propose solutions. There should be action taken in at least three areas: Institutional: incorporate exogenous risk reduction as a strategic axis, work to establish culture through awareness and training, create the Risk and Operational Crisis Management Committee, establish partnerships with specialized organizations Physical: establish methodological criteria for opening new branches and improving existing infrastructure and security Clients: safe credit—self-mapping of risks, client risk cadastre, product design, portfolio diversification, and decentralization.
Monitoring of compliance of the plan	Monitor compliance with established goals and milestones.
Disaster Response Plan—Emergency Management Measures	
Step 1: Preparation	Initial inventory of key assets Status of physical facilities Status of staff Impact of damage to facilities and equipment on finances Impact of damage to staff on operations Impact on core processes Security of key resources Equipment and facilities Legal documents and clients' files Immediate internal actions Branches: repair, closure, relocation Staff Infrastructure Information systems/technology Safety
Step 2: Inventory of clients	Verify event's impact on clients' assets and liabilities Prepare list of potentially affected clients (credit and deposit) Visit/survey clients (credit and deposit) Quantify funding needs of clients (credit and deposit) Review and adjust credit and collection policies Estimate financial impact on FI Develop and implement a financial monitoring system

<p>Step 3: Planning the response</p>	<p>Welfare support to those affected (basic needs) Services to be offered at each branch Policies to protect/stabilize the credit portfolio Debt forgiveness Preventive products Rescheduling Emergency loans Reconstruction loans Inform staff Communicate to clients Ensure institutional liquidity Deposits withdrawals Loan disbursements</p>
<p>Step 4: Implementation and monitoring</p>	<p>Implement programs and policies Daily meetings of the Risk Management and Operational Crisis Management Committee Analyze trends Fine-tune strategies Protect the portfolio</p>

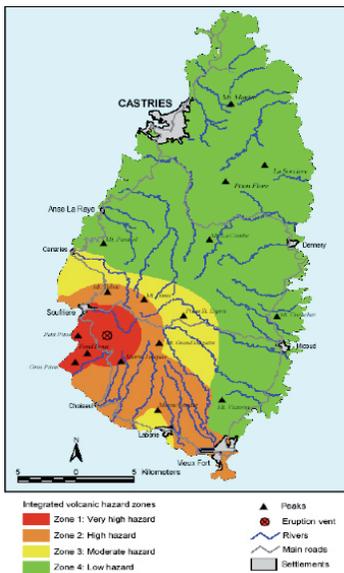
Part II

CASE STUDIES

1. The BELfund Inc. Castries, Saint Lucia
2. COAC 4 de Octubre, Riobamba, Ecuador
3. AMC, San Miguel, El Salvador
4. JNSBL, Kingston, Jamaica
5. LICU, Orange Walk, Belize

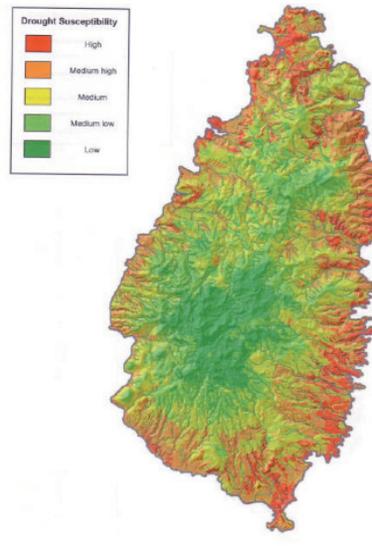
Case study The James Belgrave Micro Enterprise Development Fund Inc. Castries, Saint Lucia

Saint Lucia: Hazard Maps

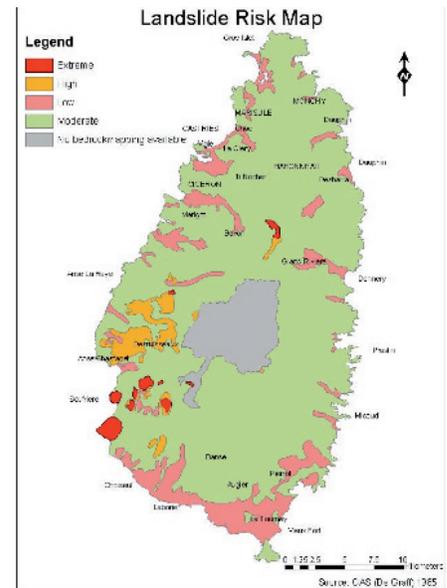


Map 1: Integrated Volcanic Hazard Cone

Source: Government of Saint Lucia (2010).



Map 2: Drought Susceptibility



Map 3: Landslide Risk

THE INSTITUTION²⁵

The James Belgrave Micro Enterprise Development Fund Inc. (The BELfund Inc.) was established by the Government of Saint Lucia primarily to promote sustainable development through self-help microenterprise projects for less-privileged individuals, families, and groups by providing low-cost loans, enterprise training, technical assistance, and other support services.

The overall objective of the BELfund is the empowerment of poor, destitute, unemployed Saint Lucian microentrepreneurs. BELfund fosters self-employment and job creation through the promotion and development of commercial and productive activities between low-income social and economic groups and the informal sector in Saint Lucia. This will be accomplished by providing credit, business training, business support, and other business services to poor persons seeking to become self-sufficient and therefore independent.

SAINT LUCIA'S EXPOSURE TO NATURAL HAZARDS²⁶

The island of Saint Lucia, a small island with limited landmass, steep topography, volcanic soils, and short distances between watershed areas and the coast, is highly vulnerable to the effects of severe weather events. The towns of Castries, Anse La Raye, Soufriere, and Vieux Fort have been severely affected by past events. The town of Soufriere is also vulnerable to volcanic hazards from the nearby active Qualibou Caldera.

²⁵ Source: <http://www.belfundstlucia.com>

²⁶ Sources: CTSF. *Report on the First Phase of Technical Assistance to the James Belgrave Micro Enterprise Development Fund Inc.* April 2009; and Government of Saint Lucia. World Bank/OECS Emergency Recovery and Disaster Management Project. *National Emergency Management Plan. Executive Summary.* Rev. January 20, 2010.

ORIGIN AND EVOLUTION OF EXOGENOUS RISK MANAGEMENT AT THE BELFUND

When the two CTSF consultants arrived at the BELfund, the institution was not making use of any disaster management plan or exogenous risk reduction plan. The consultants' visit improved the institution's awareness of all the factors that could affect its financial sustainability and that, up until that moment, had not been considered in its operations. General manager Mr. Marcellus Joseph said, "The experience with the CTSF was rewarding. Before participating in the program, a lot of things were taken for granted."

Through the methodologies developed by the TSF and the CTSF, the consultants pointed out a number of items or activities that were not being addressed. From the moment the BELfund received the diagnostic report and its accompanying proposed plan for exogenous risk reduction, the institution began taking steps to be better prepared to face possible events.

1. Some measures adopted after receiving the report based on the consultants' first visit were:
2. Hire armed security
3. Establish entry controls to the office through both the front and side doors

4. Improve the contents of the first aid kit
5. Locate sensitive equipment (computers, for example) in safer places: build pallets to place equipment on to protect it from flooding
6. Make keys for the back door, which serves as an emergency exit
7. Keep insurance policies updated and pay premiums on time
8. Incorporate disaster management concepts into the training program for clients

Near the end of October 2010, Hurricane Tomas hit Saint Lucia. The impact began on a Saturday, but the worst went well into Sunday. Official announcements had spoken of a weather system approaching the island, but a hurricane was not expected. However, at the BELfund's offices staff proceeded to protect equipment (put computers on top of desks and cover them with plastic bags) and safeguard documents. The government declared a national emergency and all businesses were closed; the authorities proceeded to assess the situation. The Tuesday following the storm, Mr. Joseph and the management information systems officer went to the BELfund's office and found it flooded. Actions were taken to clean up the premises; equipment and electrical systems were checked and found to be in perfect condition. By Wednesday, the institution was up and running; it only took 24 hours to resume operations, whereas some companies were closed for days or even weeks.



Saint Lucia: Images of the Impact of Hurricane Tomas
October 2010
Source: BELfund Inc.

With respect to clients affected, in November of 2010 BELfund's board of directors approved a policy that outlined the following details to help those affected by Hurricane Tomas:

- The policy will be applied on a case-by-case basis
- Additional loans granted to affected clients
- Grace periods or moratoriums provided to help clients rejuvenate their businesses
- Interest rates lowered to 5% for all new loans granted to hurricane victims

A maximum of 30 loans were affected by the hurricane, and because these clients did not necessarily need additional financing, the BELfund granted a six-month moratorium on total monthly installments to help them get back in business by easing their cash flows.

After the experience with Hurricane Tomas, the BELfund has taken additional actions to be better prepared to face exogenous events. It has changed its location, moving the office to an area that is not necessarily flood prone, although they will continue to be vigilant. Likewise, the BELfund has contacted the National Emergency Management Organization (NEMO) for help in preparing a new disaster management plan for the institution's current location.

PENDING TASKS FOR THE NEAR FUTURE

Despite progress made by the BELfund, there is still a ways to go to be completely ready to face any kind of exogenous event that could strike with catastrophic consequences. The institution is thinking not only of hurricanes, but also of fires, building collapse, etc. Drills still need to be performed with all staff so they are completely aware of what to do in any type of event. The general manager considers the BELfund to be halfway to its goal of complete readiness, however, "staff are already being proactive and communicating any warning sign they become aware of."

Creating awareness and interest among clients is another issue to work on. Up to now, clients have shown mixed reactions to disaster management. Some clients realize and understand the effect that an exogenous event can have on their livelihoods

and businesses, and the challenges that exposure and vulnerability impose on them. But other clients just listen and do not seem to be sensitized because these topics are not a priority to them.

KEY FACTORS TO SUCCESS IN THE IMPLEMENTATION OF A COMPREHENSIVE EXOGENOUS RISK MANAGEMENT PLAN

The most important factor is education and sensitization so that people stop taking things for granted. In Saint Lucia, people's attitudes have changed somewhat since Hurricane Tomas, because before this event, Saint Lucians did not think the island and their lives could be affected by an event of this sort. But, because people have a short memory, there is a need for a serious sensitization and education program that acknowledges that disasters are not only the result of natural hazards, but they can also be provoked by humans. Communities need to be in a position to act and react against adverse situations.

Governance is another important element. The board of directors at the BELfund was established in September 2009. Even though the directors did not participate in the CTSF, they were so concerned with the impact of Hurricane Tomas that the board did play a key role in the issuance of a credit policy for emergency situations.

LESSONS LEARNED FROM EXOGENOUS RISK MANAGEMENT

1. Financial institutions that work with the least privileged groups of society should never take exogenous events from different sources (natural or man-made) for granted.
2. Moreover, preparation is necessary because exogenous events can happen at any time, and—given the vulnerable conditions of people's housing and businesses—these events can have disastrous consequences.
3. Taking preventive and precautionary measures will help any organization and community get back in business in as short a time as possible following a disaster.

Case Study

Cooperativa de Ahorro y Crédito 4 De Octubre

Riobamba, Ecuador

THE INSTITUTION²⁷

The Cooperativa de Ahorro y Crédito 4 de Octubre Ltda. (COAC 4 de Octubre) is a private, limited liability entity with social capital composed of share certificates owned by its partners, inspired by the universal principles of the cooperative movement.

In 1995, a group of drivers in Penipe County, located northeast of Riobamba, decided to create an organization intended to meet the financial needs of the sector. The result was the founding of the COAC 4 de Octubre on February 26, 1996, in Penipe.

With the passage of time, the credit union became integral to the life of the community and to the solution of its economic problems, and extended its area of work and service. To date, the COAC 4 de Octubre has seven offices: Penipe, Quimiag, Cajabamba, Terminal Oriental, Politécnica, Dolorosa, and Puyo.

COAC 4 de Octubre is the MFI affiliated with ELF and a beneficiary of the TSF that has had the most comprehensive program of assistance, both technical and financial:

1. Emergency liquidity financing (2006);
2. Technical assistance post-volcanic eruption (2006);
3. Ex ante technical assistance for diagnosis of exposure to natural hazards and vulnerability, and proposal of an exogenous risk reduction plan (2007); and
4. Theoretical-practical implementation workshop (2010).



RISK SITUATION OF COAC 4 DE OCTUBRE AND ITS MEMBERS

Penipe County, where the main office is located, is one of the immediate zones of influence of the Tungurahua Volcano and is considered high risk. The volcano began its eruptive process, which continues to this day, in 1999, and there have been two eruptive periods of significant magnitude: in October 1999 and in July–August 2006. But the volcano is not the only hazard; Penipe County is also exposed to landslides, earthquakes, and droughts. In addition, the population is characterized by severe conditions of vulnerability, including illiteracy, high rates of poverty, malnutrition, and lack of basic services.

In December 1999 a red alert was declared and five of the seven parishes of Penipe County were evacuated (a total of 6,500 evacuees). However, because the evacuation was unexpected, unplanned,

²⁷ Source: <http://www.4octubre.net>

EL ALTAR: Images of the Destruction Produced by Tungurahua Volcano (2006)

Source: COAC 4 de Octubre.

and unsustainable, the villagers returned to their lands on their own the following year.

The Condition of Canton: Before and After

In July–August 2006, the area of El Altar, identified as safe for locals and as a safe destination for evacuees from the nearby settlements of Puela and El Manzano, and where the credit union had the highest percentage of its portfolio, was the scene of a tragedy resulting from nature's unpredictable behavior. As Tungurahua Volcano erupted, a creek was clogged with volcanic material. The river dammed at the entrance to El Altar, and the avalanche that followed flooded the security zone, destroying lives, homes, businesses, crops, roads, and bridges.

From that moment, the Municipality of Penipe developed a plan to relocate the inhabitants of the high-risk areas to avoid a tragedy of similar magnitude in the future. A housing complex was constructed in Penipe to house 260 families, and they were given a title of home ownership on the condition that they live in Penipe (if a family does not occupy its home in Penipe, the City Council may revoke the property title). To date, many families sleep at their home in Penipe but continue to develop their economic activity (mainly agriculture, livestock, and animal husbandry) in high-risk areas such as Puela and El Manzano. Additionally, the Ministerio de Inclusión Económica y Social (Ministry of Economic and Social Inclusion) has two permanent shelters that are equipped and stocked with provisions. The shelters were upgraded in 2007 with financial support from the Spanish Agency for International Development Cooperation and have the capacity to safeguard 480 people.



Picture 1: View of Penipe's housing complex



Picture 2: View of Penipe's housing complex and its playground



Picture 3: Cristo Rey Shelter



Picture 4: Announcement of the shelter upgrade project

Source: Ligia Castro Monge.

The condition of exposure continues, and given the dynamics of the volcano it is possible to expect severe damage in the event of another sizable eruption. In fact, since late April 2011, the Tungurahua Volcano has begun a new eruptive cycle that put into action the Municipality's plan to evacuate families. On May 25, 2011, there was a meeting of the National Emergency Operations Committee and local leaders to discuss, among other things, the report on the evolution of the Tungurahua Volcano eruption process and the demands made by affected communities and parishes such as (i) government acquisition of an estate where food can be produced in times of emergency in a 50-50 joint venture scheme; (ii) keeping the Penipe Baños road open; and (iii) access to credit to purchase land in safe areas without losing possession of affected lands.²⁸

ORIGIN AND EVOLUTION OF EXOGENOUS RISK MANAGEMENT AT THE COAC 4 DE OCTUBRE

When the Tungurahua Volcano first erupted in October 1999, the credit union had a loan portfolio of approximately 538,600 sucres (close to US\$21,544). At that time, members sold assets to pay their debts to the Cooperative, which did not cease operations for even one day during the worst of the eruption. Because it had nowhere to relocate the funds, the credit union filled with liquid assets. Looking for a way to capitalize on that excess liquidity, and interested in new partners and consumer clients, the

²⁸ *La Prensa*—Chimborazo. Thursday, May 26, 2011. Page a2.

credit union signed a financing agreement with officers of the Municipality of Penipe.

With the return of evacuated residents in 2000, the credit union signed an agreement with Swiss Development Cooperation (SDC) to finance the revival of production and sources of income generation in Penipe, granting loans at favorable financial conditions (annual interest rate of 7%,²⁹ where four percentage points are capitalized). The Cooperative was the only financial institution who serviced Penipe County in times of crisis; the others withdrew from the region. This agreement was extended in 2008 with the contribution of funds from the Municipality of Penipe designed to support new business development and small productive projects in the county: orchards and livestock, pigs, birds, and other small animals. SDC withdrew from Ecuador, but the funds contributed to this agreement were donated to continue supporting these kinds of productive initiatives.

Between 1999 and 2006 (when the second period of major eruptions took place), though the volcano showed some activity, there was no awareness of the need for planning and prevention, since it was never thought that the volcano's behavior would be cyclical and recurring in the long term. The credit union continued concentrating its operations in Penipe County, which represented 65% of the total portfolio (Table 1). Reflecting on the tragedy of El Altar (July–August 2006), which was a safe area according to the risk rating issued by the municipal government, led COAC 4 de Octubre, on the recommendation of SWISSCONTACT, to establish communication with the ELF to have access to not only emergency funds but also technical assistance to cope with the disaster. It had become clear that it was not advisable to continue to act reactively; permanent exposure to the volcano demanded a precautionary approach.

Table 1
COAC 4 de Octubre
PENIPE: Credit Portfolio Balances
in US\$

DATE	TOTAL Portfolio COAC	Cartera PENIPE por tipo de fondo			Portfolio PENIPE	% of Total
		SDC	MUNICIPALITY	COAC		
Junio del 2006	2,145,158	38,612	12,093	1,343,543	1,394,248	65.0
Dic. del 2006	2,616,329	33,913	4,977	749,299	788,189	30.1
Dic. del 2007	3,296,441	33,614	187	559,063	592,864	18.0
Dic. del 2008	4,006,252	40,126	57,847	571,174	669,147	16.7
Dic. del 2009	5,186,970	33,751	59,351	653,787	746,889	14.4
Dic. del 2010	6,279,908	18,172	46,934	841,079	906,185	14.4
Abril del 2011	6,853,103	15,793	53,777	904,405	973,975	14.2

Source: COAC 4 de Octubre.

Mrs. Yolanda Haro, general manager of COAC 4 de Octubre, states that the result of the first technical assistance from ELF's TSF (ex post, in response to the July–August 2006 eruptive cycle) was very positive; at a time when donors were closing their doors to the credit union (and an international bank that had already approved funding did not disburse the resources given the uncertainty of the credit union's

financial sustainability), not only did ELF provide funding to fill the liquidity gap faced by the institution, but it gave the Cooperative a first set of tools and recommendations that have been useful since 2006, namely:

²⁹ The ordinary loan interest rate is 17%.

- i Emergency-response plan to exogenous events (contingency plan), which oriented the credit union in terms of organization for emergency response; questionnaires to assess the degree of impact on credit and deposit clients, both at home and at their place of business (see the client surveys shown in Tables 8 and 9 of the Disaster Response Plan, earlier in this document); monitoring system for key financial indicators and liquidity; safeguard of information backups and difficult-to-replace documentation in safe locations; etc.
- ii Guidelines for stabilization of the loan portfolio and liquidity, such as the strengthening of the Riobamba branch given its good market potential and as a means to diversify and decentralize the loan portfolio; credit refinancing based on actual conditions of impact and potential recovery of clients; definition and approval of a liquidity management policy; and customer classification based on the perceived level of risk by type of natural hazard and according to geographical location.
- iii Reduction of manual data processing, and consolidation of the development of technology for information management and managerial decision-making.

In fact, Mrs. Haro considers 2006 a year of innovation and preparation for contingencies that, although confined to volcanic eruption, laid the foundation to expand coverage to other threats such as theft, assault, power outages, and fires. Each year, the credit union reviews and updates the contingency plan or emergency operations management plan, defined as a “set of actions necessary to control the effects of contingency.”³⁰ The plan itself provides the necessary condition for effective and efficient operation:

EL ÉXITO DEL MANUAL DE CONTINGENCIAS NO DEPENDE DE LOS RECURSOS MATERIALES, SINO DE LA PARTICIPACIÓN Y EL COMPROMISO DE LOS FUNCIONARIOS DE LA COOPERATIVA DE AHORRO Y CRÉDITO 4 DE OCTUBRE.

Subsequently, in November 2007, a second team of consultants from the TSF/ELF visited the credit union to make the diagnosis of institutional, physical, social, and client vulnerability, as well as diagnosis of exposure to natural hazards—which, in the case of COAC 4 de Octubre, was limited then, and even today, to volcanic eruption—and based on those inputs, prepare a draft of an exogenous risk reduction plan for the credit union. However, the recent opening of the El Puyo branch in the Ecuadorian Amazon could mean exposure to threats of flooding and landslides that the Cooperative has not yet evaluated; there are plans to do so in 2012, using as a base the Toolbox provided by ELF’s technical assistance.

In September 2010, another team of consultants from the TSF/ELF developed a theoretical-practical workshop aimed at the implementation of the risk reduction proposal in the Cooperative. The objective of the workshop was to consolidate the acquired conceptual base, strengthening disaster risk knowledge and its relationship to development and microfinance activity. As part of the introductory workshop, the consultants conducted a review of the activities performed by the institution from the perspective of exogenous risk reduction and the achievement of greater security in its operations and for its clients. In summary, progress made by COAC 4 de Octubre since 2006 included:

- Geographical diversification of the portfolio, reducing the relative share of the portfolio placed in high-risk areas (see Table 2).
- Identification of clients’ locations, making it possible to estimate the portfolio at risk from exposure to volcanic hazards, the potential outflow of funds deposited by members, and liquidity needs in case of disaster, and establishment of contingency measures for the Cooperative to face a new crisis.

For example, as part of the follow-up of the contingency plan, at the end of each month the general manager is provided with detailed data on the portfolio in Penipe County by aggregated risk area (Table 2) and by member (Table 3).

³⁰ Cooperativa de Ahorro y Crédito 4 de Octubre Ltda. *Plan de Contingencias*. January 1, 2011. Page 8.

Table 2
COAC 4 de Octubre
Penipe's Portfolio as of April 2011

Area	Amount in US\$	Number of Loans
PUELA	13,700	6
EL ALTAR	225,900	74
MATUS	173,450	62
BAYUSHIG	138,405	47
CANDELARIA	12,000	3
PENIPE	410,520	125
TOTAL	973,975	317

Source: COAC 4 de Octubre.

Note: Red = high-risk area; orange = medium-risk area; yellow = low-risk area.

Table 3
COAC 4 de Octubre
Puela: Portfolio by Member (April 2011)
in US\$

NAME	MEMBER No.	AMOUNT DISBURSED	OUTSTANDING AMOUNT
Member 1	14	3,000	2,853.12
Member 2	1419	1,500	1,149.65
Member 3	3346	400	270.03
Member 4	3862	6,000	3,485.76
Member 5	5793	2,000	2,000.00
Member 6	5805	800	800.00
TOTAL		13,700	10,558.56

Source: COAC 4 de Octubre.

Moreover, whenever the Tungurahua Volcano resumes its activity (emission of ash, rocks, etc.), the credit union establishes communication with its members to find out the effects they have experienced and where they have relocated, to be able

to estimate how many members may require some type of refinancing and how much. Table 4 shows the case of the new eruptive cycle that began in April 2011 and that at the time this case study was written (May 2011) still kept the county on orange alert.

Table 4
COAC 4 de Octubre
Puela: Damage Estimate to Members with Loans with the Credit Union and Agreements (April 2011)

NAME	MEMBER No.	OUTSTANDING AMOUNT IN US\$	IMPACT DESCRIPTION	LOCATION OF MEMBER
Member 1	14	2,853.12	Ash falling (high)	RIOBAMBA
Member 2	1419	1,149.65	Avalanche (high)	RIOBAMBA
Member 3	3346	270.03	Pyroclastic flows (high)	PENIPE
Member 4	3862	3,485.76	Mud flows (high)	PENIPE
Member 5	5793	2,000.00	NA	NABUZO
Member 6	5805	800.00	NA	PENIPE
OUTSTANDING TOTAL		10,558.56		

Source: COAC 4 de Octubre.

Additionally, in order to be able to provide a prompt response if needed by members, the Committee for Risk and Crisis Management issues resolutions to activate the contingency plan and policies to be adopted by the credit union, which are endorsed by the board of directors as shown in Box 1. The good news

for the April 2011 eruptive cycle is that the default rate has not been affected, members are paying normally and expressing willingness to pay (regardless of their ability to pay), and the credit union's process of outreach and awareness to its members has led most of them to diversify their sources of income.

Box 1
FROM THE COMMITTEE FOR RISK AND CRISIS MANAGEMENT
Wednesday, April 27, 2011

Resolution 002. Act No. 7 APPLICATION OF PC4
PC4. NATURAL DISASTERS

Resolution 003. Act No. 7. In the case of members affected by the ash who ask to extend deadlines for payments, properties will be inspected to compare with the use for which the loan was granted. If the information and inspection report match, the credit union will operate as follows:

1. First three months, interest-only payments.
2. If the problem continues, three additional months of interest-only payments.
3. If the member's loan term is about to end, it will be refinanced for up to six months according to the degree of impact.
4. At the end of the three or six months of interest-only payments, if the member has fully complied with these payments, the loan will be refinanced for a term up to six months according to the level of impact.

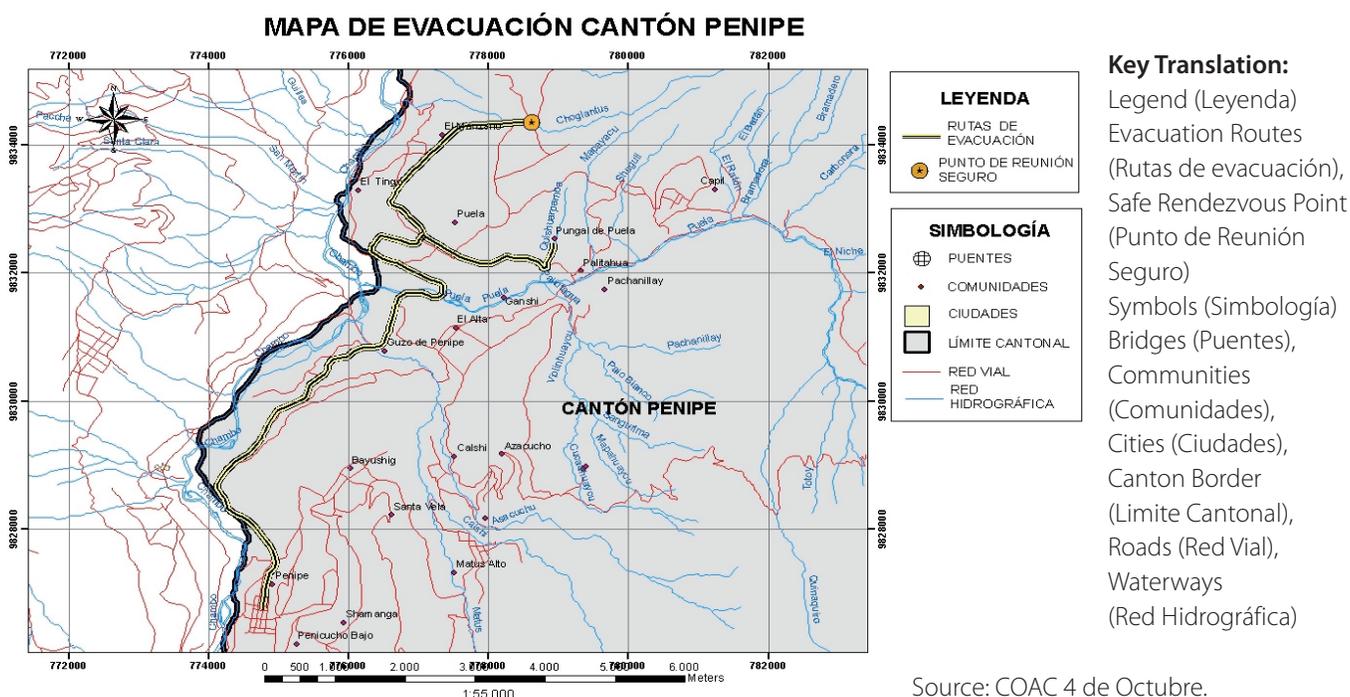
Source: COAC 4 de Octubre.

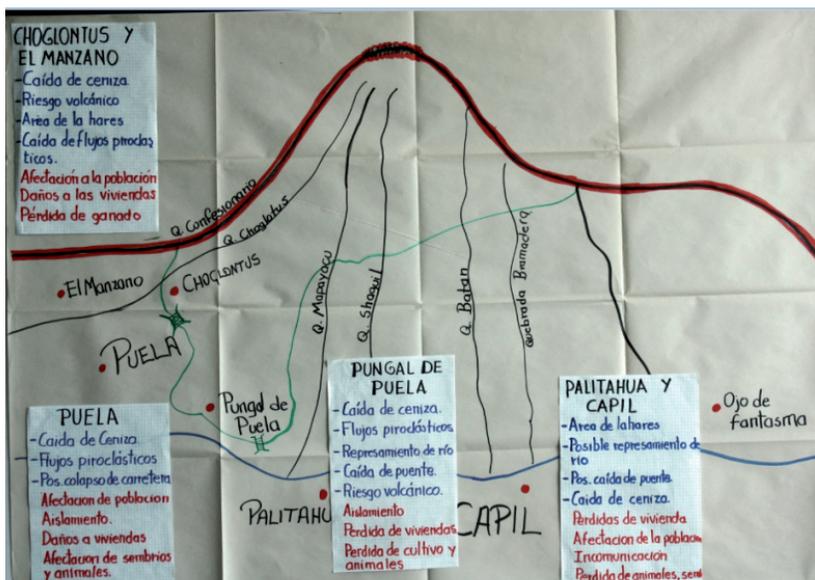
Some of the measures the Committee for Risk and Crisis Management has put into place include:

- Establishing and maintaining strategic alliances with the local government, community organi-

zations, and supporting institutions. This has allowed the credit union to have direct access to the members of the Emerging Operations Committee of Penipe, information alerts and status updates, evacuation route maps (Map 1), and more.

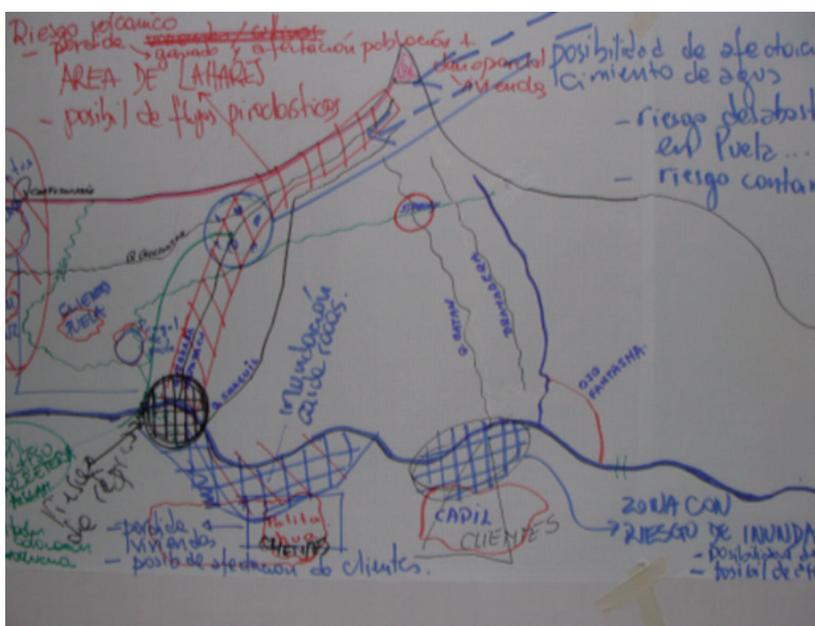
Map 1





Picture 5
 Puela: Identification of hazards

Source: COAC 4 de Octubre.



Picture 6
 Puela: Preliminary risk map

Source: COAC 4 de Octubre.

- Adoption of security measures for branches and monitoring of infrastructure improvement/strengthening needs.
 - Transfer of legal and sensitive documents from the Penipe branch to the Terminal of Riobamba branch when there is an activity warning for the Tungurahua Volcano.
 - Construction of the new building for the Terminal branch according to banking security standards, which has allowed for the establishment of a data center that provides better conditions of availability of space, and protection of the server and data. In terms of systems, policies for daily backups and safeguarding of a copy of the backup in a bank vault have also been established.
 - Training the complete staff who use security equipment, especially in using fire extinguishers in conjunction with firefighting squads.
 - Development of a cell phone text-messaging system that rapidly alerts key partners about the progress of the volcano's eruption and other natural hazards that evolve slowly, so that in the future the situation may be better handled.
- During the theoretical-practical workshop developed by the TSF/ELF consultants in September 2010, which was directed toward the credit union's implementation of the risk reduction proposal, one of the most important and most impactful activities, because of its degree of community inclusion,

was the self-mapping of risks.³¹ The objective was “To contribute to clients’ safety by recognizing clients’ risks and their chances for improving their self-protection and the safety of their business.” In this activity, whose fieldwork component was developed in Puela, relevant stakeholders in the area who are concerned with the issue of risk reduction joined the credit union’s staff, including Tungurahua Volcano Watchers, coordinator of the county’s Emerging Operations Committee, a firefighters’ representative, members of the Puela Parish, and members of supervisory boards. The final products were the identification of hazards (Picture 5) and the preliminary risk map for Puela (Picture 6).

Actions to continue improving exogenous risk management: what is missing?

The credit union has made progress in building a risk cadastre that might appear rather homemade to some because it is not based on a digital geographic information system but on physical maps and the staff’s knowledge of the risk areas. However, the costs of the development of a geo-referenced cadastre, and the fact that to date the exposure to threats seems to be very focused in Penipe County, do not seem to justify the investment. The credit union’s expansion into the Ecuadorian Amazon, with the consequent exposure to new and diverse threats, could lead to a reconsideration of this decision in the future, however. Moreover, a policy may need to be developed at the COAC 4 de Octubre to consider exogenous risk exposures while the zones of expansion are being defined. To date, decisions to expand are based on market potential and demand (in the cases of El Puyo, Macas, and El Tena, all in the Amazon region).

Keys to success in the adoption of a comprehensive Exogenous risk management plan

Without the technical and financial assistance provided by the TSF and ELF, the COAC 4 de Octubre would not be serving its members effectively and efficiently today, and would not have experienced sustained and sustainable growth. The funding provided by ELF to bridge the liquidity gap faced by the credit union after the volcanic eruption in 2006 allowed the orga-

nization to continue serving members by rescheduling obligations of those affected and financing those located in nonexposed areas. Technical assistance, which covered three stages (one post-eruption and two ex ante), brought knowledge and tools to COAC that have enabled it to make progress in managing and reducing the identified exogenous risk.

Consequently, the process begun by COAC 4 de Octubre five years ago in association with the TSF/ELF and led by Mrs. Haro, COAC’s general manager, allows Mrs. Haro to say that one of the keys to success in a financial institution exposed to exogenous risks is to look at risk as a cross-cutting axis. The aim is to develop an institutional culture of exogenous risk management and an internal capacity to gauge the risk and the vulnerability of both the institution and its customers in order to protect the capital and guarantee sustainability.

Another success factor is to learn to identify the needs of members so that customized products can be tailored to their vulnerability and risk level. For the credit union, this kind of work is an element of social responsibility, which helps improve members’ capital through institutional efficiency. That improvement of member’s social capital became possible the moment the institution adapted itself to the needs of its members.

Finally, and not least important, a key to success lies in the support at the highest level of corporate governance of the initiatives proposed by the general manager. In the case of COAC 4 de Octubre, the board of directors consists of members elected by the general assembly. These members are not necessarily experts in finance or risk, but some of them, being entrepreneurs who have experienced the loss of their capital as a result of volcanic eruptions or who live in the area of imminent danger, have developed a great sensitivity toward the problems of exposure to natural hazards, vulnerability, and risk. This personal experience has led them to let general management move step by step in building a new management model that considers exogenous risk as an additional variable in planning, decision-making, and monitoring of the business. The ultimate goal is to ensure the credit union’s viability and increased economic value in the long run.

³¹ For the methodology of the self-mapping of risks, see the Toolbox, Annex 3: Methodological Process for the Self-Mapping of Risks, included on the CD that accompanies this document.

Lessons learned after five years of Exogenous Risk Management

It is necessary for financial institutions working in areas highly exposed to natural, socio-natural, and/or man-made hazards to have a parallel study and analysis axis to advance the recognition of the impact that exogenous risks may have on business and financial sustainability. Incorporating the dimension of exogenous risk into planning and financial operations means working under a new institutional setting that is more complex but also more comprehensive, in which financial concerns are no longer separate from physical, geographical, and human considerations. Thus, understanding the dynamics of disasters and exogenous risks, and how these affect an institution's results, is a sine qua non for an efficient, effective, safe, and stable financial institution.

Therefore, in the experience of COAC 4 de Octubre, one of the most important lessons is that developing and monitoring compliance of a policy and a comprehensive plan for exogenous risk management is as relevant to a financial institution as developing

and monitoring compliance of a credit policy and procedure. Why? Because to work without the compass of exogenous risk is to ignore environmental conditions and geographic location, and these are, ultimately, what will determine the survival of the institution. After all, everything that has been created and accumulated over the years can be erased in a few seconds...

And when a financial institution adopts this new vision in its operations and becomes more socially responsible and committed, it discovers a whole new range of opportunities and capabilities, which at the end of the day will allow it to have a stronger position in relating to clients, funders, members, and the wider community. It will also discover new knowledge and training needs. Accordingly, another lesson learned is that the process cannot occur in a vacuum; it demands the education of the organization, and this is not an activity for just a day or a moment, but a constant and ongoing action that, in time, will permeate all levels of the organization and will have a multiplying effect on the families and communities of those who work in the financial institution.

Case Study

Sociedad Cooperativa de Ahorro y Crédito AMC de R. L. de C. V.

San Miguel, El Salvador

THE INSTITUTION³²

Sociedad Cooperativa de Ahorro y Crédito AMC de R.L. de C.V. (AMC) is an organization specialized in microfinance operating throughout El Salvador. Its mission is “To be the financial institution that provides specialized services to the sector of micro and small enterprises and self-employed and low-income workers at national and regional levels, under a scheme of social profitability that guarantees its permanence, soundness, and the satisfaction of its customers, employees, and partners.”

ORIGIN AND EVOLUTION OF EXOGENOUS RISK MANAGEMENT AT AMC

In 2004, AMC was the second organization to participate in the first stage of the TSF, which at its inception focused on the development of proposals for emergency-response plans based on an analysis of the institutional situation, specifically of exposure to natural, socio-natural, and anthropogenic hazards; information systems and security management; access to coverage/insurance, and institutional preparedness. Nevertheless, from 2004 until 2010, exogenous risk management was not a variable for credit risk analysis, despite the country’s high exposure to

In 2004, a consultant from Development Alternatives Initiative and another from the TSF visited San Miguel to perform a situational diagnosis of exogenous risk management at AMC, and to propose an emergency response plan. Six years later, in 2010, two consultants from the TSF visited AMC to develop the implementation workshop and share methodologies for ex ante exogenous risk management.

natural hazards (such as earthquakes, volcanic eruption, landslides, and floods).

In 2010, AMC was the beneficiary of the second phase of the TSF. Experience with the implementation workshop of the exogenous risk reduction plan highlighted an institutional weakness: not recognizing the relationship between exogenous risks and the credit risk of customers who work and reside in high-exposure, high-vulnerability geographic environments. Once this awareness was created, action lines were drawn to incorporate exogenous risk analysis as an additional ingredient of credit risk management.

ACTIONS BEING IMPLEMENTED FOR EXOGENOUS RISK REDUCTION AT AMC (POST-2010 WORKSHOP)

1. Matrix of programs, actions, and follow-up indicators

In order to have a common thread connecting actions and activity planning, AMC’s management team developed a matrix of programs, actions, and follow-up indicators that is “the product of reflection, assimilation, and wishes to ensure the safety of customers and employees in order to continue with the development of the microfinance activity.”³³ Thematic areas are training, communication, adapted products, and safe agencies (see Box 1). This matrix is an adaptation of the action axes that the TSF and CTSF have proposed for adoption by participating microfinance institutions (for details, see Chapter II).

³² Source: <http://www.amc.com.sv>

³³ AMC: Matrix of Programs, Actions, and Follow-up Indicators.

Box 1
AMC: Matrix of Programs, Actions, and Follow-up Indicators

STRATEGIC AXIS	SUB-AXES	PROGRAMS	ACTIONS	FOLLOW-UP INDICATORS	EST. TIME FOR IMPLEMENTATION
INCORPORATE DISASTER RISK REDUCTION AND INCREASE SAFETY OF THE INSTITUTION AND ITS CUSTOMERS TO ENSURE AMC'S SUSTAINABILITY	Improved institutional risk management	Education for prevention and safety	Incorporate topics related to risk management into the training plan	No. of agencies that have conducted training	6 months
			Development and dissemination of the contingency plan to employees and lead clients.	No. of agencies that have developed and disseminated a contingency plan	6 months
			Create a risk unit within the institution.		
	Knowledge about risk	Education for prevention and safety	Incorporate risk management into the training plan.	No. of clients in cadastre / Total no. of clients	6 months
			Develop a client risk cadastre	No. of agencies trained	12 months
	Safe credit	Prepared for adversity	Additional insurance for loss of assets.	No. of credits for which ex ante risk measurement procedure has been applied / No. of loans approved for the period	10 months
			Encourage proactive customers.	No. of special credits (adapted products and services)	6 months
			Emergency credit lines (to be regulated).	No. of special credits (adapted products and services)	5 months
			Design other products according to the needs of the organization and its clients.	Total no. of customers at risk	10 months
	Safe branches	Safety is our priority	Signage for evacuation routes.	No. of risk reduction–equipped agency buildings / Total no. of agencies	2 months
Link AMC's website with SNET's website.				1 month	
Agreements and partnerships with emergency centers.				6 months	
Create a monitoring area and links with the central committee.				6 months	
Improve equipment and communication tools.				12 months	
Map clients according to risk zoning.				12 months	
		Apply criteria for opening new branches.	No. of branches opened considering risk-reduction criteria / Total no. of branches	6 months	

Source: AMC.

2. Risk Maps

Using methods provided by the TSE, AMC has begun a preliminary risk map based on the experience and field knowledge of branch managers and loan officers, with emphasis on identifying not only areas prone to natural hazards but also to crime, which happens to

be the priority in El Salvador. The methodology is to make an inventory of hazard-prone areas that will be linked to client locations in order to determine the percentage of the portfolio exposed, which in the end will lead to the development of internal policies to address the findings. Table 1 presents an excerpt from the branches' first attempt at risks identifica-

tion, which describes the type of exposure by work areas. The ultimate goal is to have a detailed map of the susceptibility of the institution and its portfolio to crime and natural hazards. The information generated internally will be cross-referenced with

the information handled by organizations that specialize in prevention and emergency management, such as the Comité de Emergencia Nacional (COEN, National Emergency Committee) and the Ministerio de Gobernación (Ministry of Interior).

Table 1
AMC: FORMAT OF IDENTIFICATION OF RISK AREAS (NATURAL DESASTERS)

Nº	AGENCY N°		STATE	TOWN	SUBURB	CITY	NEIGHBORHOOD	TYPE OF RISK
15	400	Jucuapa	San Miguel	Chinameca		Las Maria	Las Piletas	Flooding
16	400	Jucuapa	San Miguel	Chinameca		Las Peñas		Flooding
17	400	Jucuapa	San Miguel	Lolotique		San Francisco		River Overflow
18	400	Jucuapa	San Miguel	Lolotique		Concepcion		Landslides and Flooding
19	400	Jucuapa	San Miguel	Lolotique		Amaya	Guanacastillo	River Overflow
20	400	Jucuapa	San Miguel	Nueva Guadalupe		San Luis		River Overflow
21	400	Jucuapa	San Miguel	Nueva Guadalupe				Flooding
22	500	La Union	La Union	La Union		Sirama	Lourdes	Flooding
23	500	La Union	La Union	La Union		Sirama	La Galilea	Flooding
24	500	La Union	La Union	La Union		S	San Cayetano	Flooding
25	500	La Union	La Union	La Union	Campo Villata			Flooding
62	1100	Ilobasco					Peñas Blancas	Landslides and Flooding
63	1100	Ilobasco		Llobasco		San Jose	Aguaszarca, Las Flores, El Gavilán, San Antonio	Flooding
65	1100	Ilobasco		Tejutepeque		El Zapote	El Zapote Centro	Flooding
66	1100	Ilobasco		Tejutepeque		El Tamagaz	El Tamagaz Centro	Flooding
67	1100	Ilobasco		Cinquera		San Benito	San Benito Centro	Flooding
68	1100	Ilobasco		Jutiapa		San Sebastian	Llanolargo	Flooding

Source: AMC.

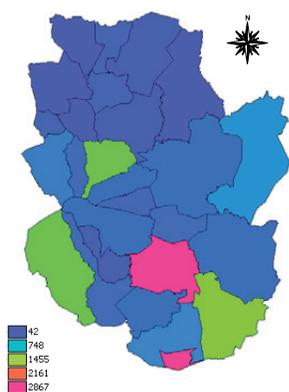
To complement this, and with the support of the Unidad de Sistemas de Información Geográfica (Geographic Information Systems Unit) of the Agencia de Desarrollo Económico Local de Morazán (ADEL Morazán, Local Economic Development Agency of Morazán), the main shareholder of AMC, the first maps for the Department of Morazán are being developed. AMC has already acquired GPS units to mark customer locations, relate customer location with exposure to threats, and build an initial index of the portfolio's risk. Later, the vulnerability

analysis of clients will be performed, and then the client database will be migrated to a risk cadastre as recommended by TSF.

Below, the mappings made in June 2011 are shown. These maps are still under construction; once loaded with information on exposure to natural and social hazards, they will provide AMC with the basis for defining portfolio growth areas in the Department of Morazán. Subsequently, mapping and analysis will be developed for other departments where AMC works.

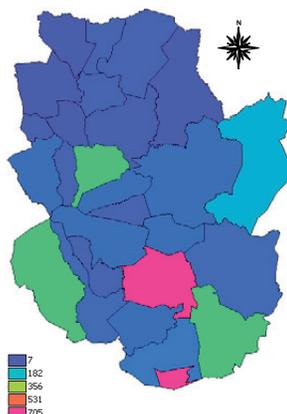
AMC: Mappings of Credit Portfolio for the Department of Morazán

CREDITOS ACTIVOS



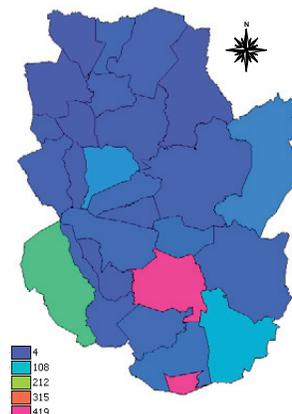
Map 1: Active Loans Mapa No. 1:

CREDITOS OTORGADOS



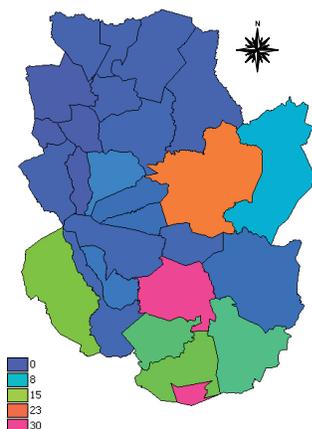
Map 2: Granted Loans

COMERCIO



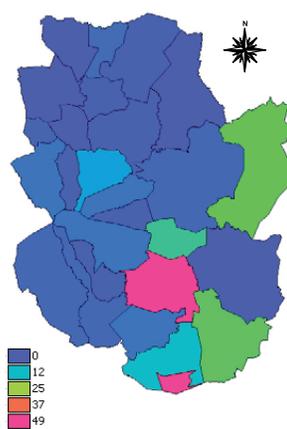
Map 3: Loans to the Trade Sector

INDUSTRIA



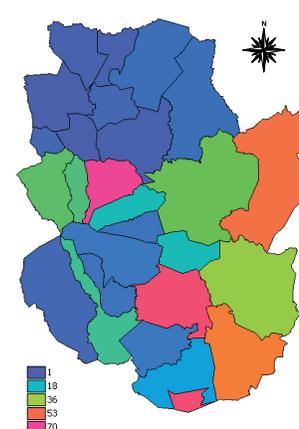
Map 4: Loans to the Industry Sector

SERVICIOS



Map 5: Loans to the Service Sector

AGROPECUARIO



Map 6: Loans to the Agriculture Sector

Source: AMC.

3. Collaterals

Another issue to examine is collateral. Traditionally, a valuation is performed of the property but not of the environment in which it is located and the threats to which it is exposed, and how the recovery value could be affected in case of disaster. To that end, AMC is exploring the possibility of having real estate appraisers incorporate considerations of location, accessibility, and potential risk in their assessment.

4. Emergency Plan

Using the contingency plan provided by TSF as a foundation, the institutional safety area has

developed an emergency plan³⁴ that will enable AMC to:

1. **Respond** quickly and effectively to any emergency situation;
2. **Mitigate** the effects and damage caused by expected and unexpected events brought about by natural phenomena or human activities;
3. **Take** the necessary measures to save lives and prevent or minimize possible damage or loss of assets at each facility;

³⁴ Sociedad Cooperativa de Ahorro y Crédito AMC de R.L. *Plan de Emergencias Institucional*. Presentation. 2011.

4. **React** during and after an emergency; and
5. **Establish** a system that allows everybody at AMC **to recover** and return to normalcy within a reasonably short period of time.

The emergency plan defines the formation of the emergency committee (Box 2) and the functions of each of its members, and establishes operating procedures for earthquakes, fires, hydrometeorological phenomena, volcanic eruption, and armed assault.

Box 2
AMC: Organization of the Institutional Emergency Committee

1. **General Coordinator**
 Western Zone: Executive Deputy Director of Operations
 Eastern Zone: Business Manager
2. **Emergency Safety and Security Coordinator**
 Security Coordinator
3. **General Support Coordinator**
 Operations Manager
4. **Communications Coordinator**
 Information Systems Manager
5. **Implementation Coordinators**
 Branch Managers

The general functions of the emergency committee include updating coordination mechanisms to ensure active, timely, and effective participation in disaster prevention and relief among the various departments and branches of AMC.

Source: Sociedad Cooperativa de Ahorro y Crédito AMC de R.L. (AMC). *Plan de Emergencias Institucional*. 2011.

3. Signage

The most visible action that has been taken is improving signage. All offices have installed signs indicating exits, evacuation routes, safety measures in case of emergency (earthquake and fire). These signs are located both in the internal offices and in areas where customers are served (Picture 1).



Picture 1
 AMC: Emergency signage
 Source: Ligia Castro Monge.

4. Training

Staff training has been aimed at creating awareness about exposure to threats and vulnerabilities, but the emergency plan still needs to be disseminated and discussed, and drills performed, in order to achieve a greater degree of internalization of the concepts. Drills will be conducted with the support of Red Cross and COEN.

5. Security

Significant efforts have been made in terms of the security of AMC's facilities. Alarms and a closed-circuit system with monitoring center have been installed in all branches. Also, strict entry and exit hours for staff have been defined, and restrictions on office access have been established. Additionally, a different security company has been chosen that can provide better controls and reports of security flaws.

EXPECTED BENEFITS, SUCCESS FACTORS, AND LESSONS LEARNED FROM EXOGENOUS RISK MANAGEMENT

The executive director of AMC, Mr. Wilson Salmerón, summarizes the expected benefits of exogenous risk management as follows: “At the institutional level, the benefits are far-reaching, because a better understanding of the geographic areas in which the institution operates leads to knowledge of the environmental and social risks to which clients are exposed and allows AMC to design an awareness program tailored to the characteristics of the customers’ locations so they know how to deal with disasters. Additionally, AMC will be able to establish a more effective and efficient zoning scheme for loan officers that will optimize costs and knowledge of the environment.”

The first undisputed success factor has been the institutional commitment from the board and the ex-

ecutive director of AMC as a result of the TSF/ELF implementation workshop. A second success factor is the support of the TSF consultants who were in charge of the implementation workshop, who with their dynamism and knowledge knew how to spark the organization’s interest in adopting the suggested lines of action.

Credit risk cannot be seen solely as a commercial issue, because clients’ capacity to pay is also affected by exogenous factors (environmental and social) that can lead to customers needing to relocate their business or home. The main lesson learned so far by AMC is that environmental conditions impose institutional constraints, but at the same time offer opportunities. Therefore, the conclusion is that integrated risk management in a microfinance institution cannot be restricted to the management of financial and economic variables, because the portfolio’s risk profile and the institution’s sustainability can change overnight due to exogenous factors.

Case Study

Jamaica National Small Business Loans Limited

Kingston, Jamaica

THE INSTITUTION³⁵

Jamaica National Small Business Loans Ltd. (JNSBL), created in 2000, is an institution specialized in the provision of microcredit. JNSBL is a subsidiary of the JN Group, which offers a wide range of financial services and support.

Jamaica has experienced rapid growth in its small and micro business sector over the past decade: employment in this sector has grown by 20%, accounting for close to 37% of the employed labor force (more than 415,000 people) and contributing 22% of Gross Domestic Product, according to the Planning Institute of Jamaica.

JNSBL recognizes the importance of the micro and small business sector to the development of the Jamaican economy, and supports the economy's growth with its BizStart, BizGrow, and BizBoost credit products, which have helped many entrepreneurs realize their potential and launch various new enterprises, while helping others expand their businesses.

JAMAICA'S PHYSICAL CHARACTERISTICS AND EXPOSURE TO HAZARDS

Jamaica is a nation exposed to different types of exogenous events as a result of its geographical location and geological features. Major threats are landslides, hurricanes, floods, and earthquakes. These threats, combined with high-vulnerability situations, result in disasters of varying severity. The most frequent events, landslides and floods, cause multiple impacts at the local level, including, in some cases, isolation of certain areas of the country. In the recent past, the south has been the area hardest hit by hurricanes and floods. Population growth, uncontrolled urbanization processes, and rural and urban poverty have led to the development of unplanned settlements on marginal and environmentally sensitive lands (flood plains and unstable hillsides).³⁶

Table 1
Jamaica: Disaster Statistics
1980–2010

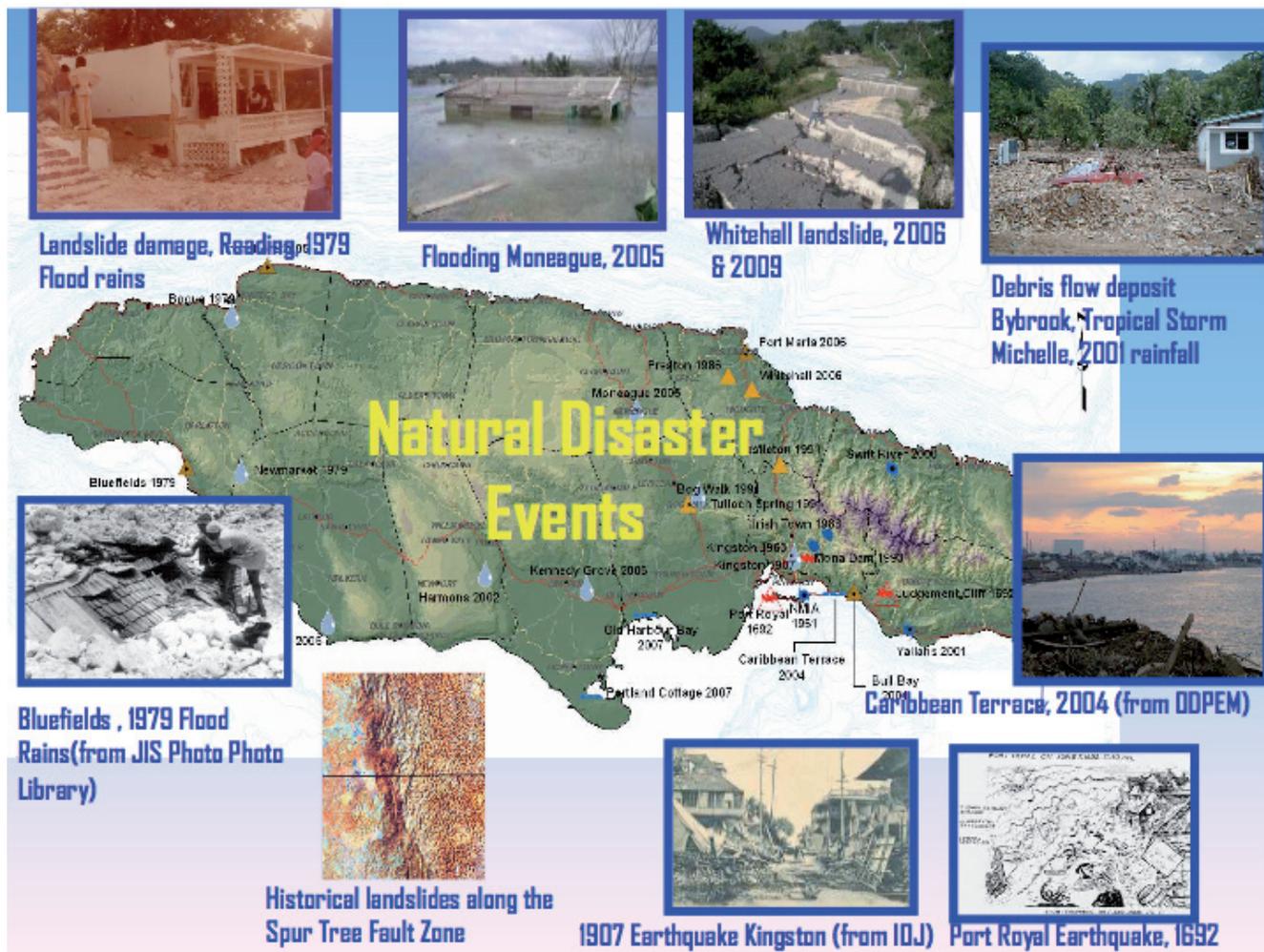
Disaster Type	Number	Damage Costs ('000 US\$)
Drought	1	6,000
Flooding	2	168,400
Storms	13	2,575,415
Total	16	2,749,815

Source: "EM-DAT: The OFDA/CRED International."

³⁵ Sources: <http://www.jnsbl.com> and <http://www.jnsb.com>

³⁶ Ronald Jackson, Deputy Director, Office of Disaster Preparedness and Emergency Management (ODPEM). *Managing Natural Hazards in Jamaica*. 2005.

Map 1
Jamaica: Natural Disasters



Source: Parris, Francis, and Ahmad (2009).

THE ORIGIN OF EXOGENOUS RISK MANAGEMENT AT JNSBL

In 2004, JNSBL began using GPS units to mark the locations of its clients. What caused the institution to invest in this technology? Mr. Frank Whyllie, general manager of JNSBL, gives an anecdotal answer to this question: A loan officer at Browns Town went on holiday, and during that period he resigned and never returned to the office. The remaining staff of the branch had difficulty locating their former colleague's clients using the addresses registered in the system and described in the clients' folders, so it became necessary to find a solution to avoid this type of situation.

The general manager told this story at a board meeting, and some time later the chairman of the

JN Group brought a GPS unit and explained how this technology could help in JNSBL's fieldwork. The general manager got in his car, accompanied by a loan officer (who later became the operations manager and was in charge of operational management of the Disaster Mitigation Program at JNSBL until the end of 2010), and went out into the field to test the GPS. Convinced of the usefulness and accuracy of this technology, the general manager issued a purchase order for global positioning units, and supervisors, credit officers, and collection officers were trained in their use. This was the origin of the process credit officers use to mark clients and that collection officers use to search for clients with obligations in arrears.

Over time, other concerns arose. What other use might there be for the information on client

Table 2
JNSBL: Number of Credits and Amount of Portfolio at Risk

	Coastal inundation (10 mts.)	Alluvial plains	Landslide	Earthquake	Extreme winds (> 175 mph)
Number of credits	831	5,113	935	3,202	5,316
Portfolio at risk (J\$)	\$37,973,500	\$250,141,000	\$42,004,500	\$153,091,500	\$241,831,000

Source: JNSBL and Mona GeoInformatics Institute (2008).

location? The JN Group's president reported that Mona GeoInformatics Institute, a unit of the University of the West Indies (Mona Campus, Jamaica), could load the customer database information onto maps. The first discovery from the maps was that some credit officers were traveling long distances from their assigned work areas in search of clients; JNSBL took corrective action to improve this situation. Also, JNSBL began cross-referencing its information with various databases being developed by the utility companies and others, and with the hazard exposure information generated by specialized agencies. Thus, JNSBL was able to determine the percentage of the portfolio exposed to threats such as flooding, landslides, earthquakes, crime, etc. But over time, as new clients were incorporated into JNSBL's portfolio, the maps became obsolete, and it became necessary to update them constantly. The first mappings, produced in early 2008, led to conclusions such as those shown in Table 2.

It was precisely then that the CTSF and JNSBL partnered and jointly developed the Disaster Mitigation Program. Under the terms agreed upon for CTSF technical assistance to JNSBL, two consultants visited the institution in mid-2008 to diagnose its exposure and vulnerability and prepare a draft plan for exogenous risk reduction. Subsequently, in early 2009, the consultants discussed and adjusted the proposed plan with JNSBL, conducted an initial training session for the institution's regional supervisors and training coordinators, and met with the systems development firm that JNSBL hired to develop the system to assess client vulnerability. The aforementioned system has been one important component of the Disaster Mitigation Program of JNSBL, and it uses a methodology for assessing vulnerability (or susceptibility) of clients to different hazards based on

socioeconomic, housing, and business attributes that, when combined with hazard exposure maps, enables JNSBL to determine the risk level of its loan portfolio, develop scenarios of portfolio at risk, develop new loan products, make loan approval decisions considering the client's risk level, act preventively in the event of hurricane and tropical-storm warnings, and have greater response capacity and flexibility in the event of a disaster. According to general manager Mr. Whyllie, this is important because "in Jamaica there is a tendency to react to warnings the day the meteorological phenomenon is expected to make landfall. Then, JNSBL has had to take the responsibility to plan for its clients, since many of them fail to plan for themselves." Similarly, JNSBL has mapped its staff to know their geographic location and living conditions as well.

For the above purposes, JNSBL created the Geographic Information Systems Unit,³⁷ assigned to the operations department, and hired a specialist in Geographic Information Systems who would take over the administration and analysis of the client vulnerability assessment system and the generation and analysis of risk indices of the portfolio. The board also requested that JNSBL's monthly report include a chapter on progress made in the implementation of the Disaster Mitigation Program. Box 1 presents, by way of example, an extract from one of the unit's reports to the board (in the second half of 2010).

³⁷ Geographic Information System/Science (GIS) is a system of hardware, software, data, people, organizations, and institutional arrangements for collecting, storing, analyzing, and disseminating information about areas of the earth (Duiker and Kjerne, 1989). Taken from JNSBL, GIS for JNSBL_08_10_10_Regions.ppt.

Box 1 JNSBL: Disaster Mitigation Program

Introduction

JNSBL has adopted a comprehensive approach in order to become sustainable and efficient in its operation by determining the vulnerability of each credit not only to human factors, but also to natural threats and phenomena. This strategy represents a substantive approach to prevent and minimize delays in case of disaster through prevention and preparedness.

A group of consultants were charged with developing an instrument to assist in determining the vulnerability of the loan portfolio, and the result was a questionnaire designed to capture relevant data to be integrated into the Client Vulnerability Evaluator (CVE) software and analyzed in a Geographic Information System (GIS).

The CVE software allows JNSBL to assess how susceptible a business is to a particular threat, and also to inform the client about the area's vulnerability to various threats. Having this information before a loan is granted also gives JNSBL greater control over its exposure to disasters and allows JNSBL to support those clients who need assistance in case of disaster or assist them with mitigation measures (generators, water tanks, etc.).

Client Vulnerability Evaluator (CVE)

The CVE analyzes the quantitative information obtained from the questionnaires and assigns a vulnerability weighting to each loan, which can be analyzed in a GIS environment to assign a spatial input (e.g., location) to the client. The software allows the vulnerability information to be specific to the client rather than at the community level.

Source: JNSBL.

The questionnaire JNSBL uses to capture client data is based on the format of the TSF/CTSF Toolbox (Annex 4: Proposal to Expand the Client Database and Convert It into a Client Risk Cadastre) but was adapted to the characteristics of JNSBL's clients, the institution's interest in collecting more detailed information on some client characteristics, and the hazards to which the country is exposed. The questionnaire is administered by loan officers during their client visits and is later processed and analyzed by the GIS Unit.

PRACTICAL APPLICATIONS OF GIS

One question that readers may be asking is, What practical uses does JNSBL have for information on hazards and client vulnerability, which seems like an area that has little connection with the operation of a financial institution?

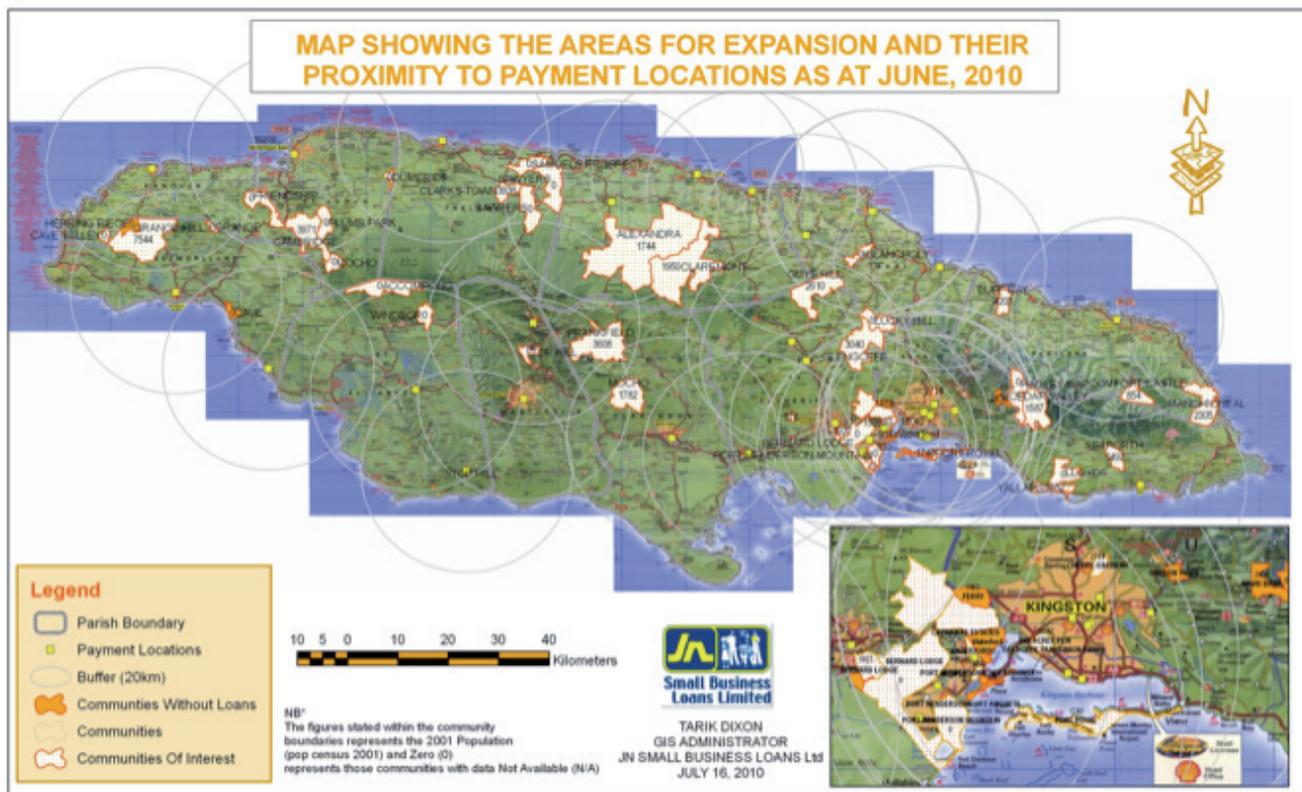
First, JNSBL sees the Disaster Mitigation Program as a component of the Client Protection Program that the institution is implementing, which

covers topics such as transparency of information to customers, establishment of channels to handle complaints, collection procedures, collateral treatment, behavior of loan officers, avoiding client over-indebtedness, and training and knowledge transfer to customers.

Therefore, JNSBL finds new ways to use GIS to improve its operational and financial efficiency. The characteristics of clients served by the institution and their susceptibility to exogenous events, together with the level of exposure to certain types of natural hazards in Jamaica, makes JNSBL's loan portfolio very fragile: portfolio risk in normal times is about 2%, but it can reach 20% if a hurricane hits the island. Thus, some of JNSBL's uses for GIS are:

1. Identify areas of the country where JNSBL has not placed loans (untouched areas for expansion), areas of interest for expansion and their proximity to offices where customers could make payments on their loans, and areas that will not be served in order to reduce portfolio risk.

Map 2



Source: JNSBL. GIS for JNSBL_08_10_10_Regions.ppt.

2. Use of GPS coordinates for the general location of customers and employees, location of customers with loans in arrears, location of loans/clients without addresses registered in their files, and geographic location of the collateral to determine safety of its location.
3. Early-warning system to customers and offices located in areas with potential to be affected by weather events. In 2010, Jamaica was affected by two tropical storms, Thomas and Nicole, and because JNSBL was able to identify clients who would be impacted by these storms, the institution could alert them and support their relocation before the storms hit. This helped clients avoid significant losses and allowed the institution to retrieve and protect equipment and documents. It should be noted that 90% of customers who suffered some kind of impact were on the ex ante list that JNSBL used to activate the alert. In 2010, no clients saw their homes or businesses destroyed as in previous years, for example as happened in 2004 with Hurricane Ivan, which caused very considerable damage to JNSBL. In 2004, JNSBL did not know how to organize a response (where to start, what to do, which steps to follow). The difference in outcome for 2010 and 2004 is explained by preparation and a proactive approach.
4. From the standpoint of human resource management at JNSBL, the GIS allows the institution to maintain communication and connection with staff in the event of disaster and provide them with assistance. For example, two officers were affected by flooding as a result of the tropical storms of 2010, and JNSBL was able to provide them with timely assistance. Moreover, in daily operations, the GIS allows the institution to identify the most efficient and safest travel routes for loan officers and optimize the use of resources by minimizing distances traveled to perform portfolio monitoring.
5. The GIS Unit has developed eight different maps that cover locations of customers, competitors, and JNSBL offices and are updated monthly. The uses for the information could be said to be endless, because "virtually all human activity occurs in a location (it has a location component) and therefore can be

Table 3
JNSBL: Map Types Prepared by the GIS Unit

Map Types	Description
Crime Maps	Location of loans in Kingston and St. Andrew's Crime Hot Spot
Disbursement	Disbursements from the regional offices
Portfolio at Risk	Portfolio at risk for the regional offices
Arrears	Location of loans in arrears by region or parish
Boundary	Loans boundary by region or parish
Hazards	Loans vulnerable to various hazards (individual and multi-hazard)
Location	All loans and payment locations around Jamaica
Sphere of Influence	Creates a buffer around any point of interest and shows the loans within the buffer

Source: JNSBL. GIS for JNSBL_08_10_10_Regions.ppt.

mapped, analyzed and evaluated with GIS methodologies.”³⁸

Some of the conclusions arising from the dynamic analysis of the GIS have been: (i) credit clients that are located closer to payment offices (less than 5 km) show higher arrears; (ii) the female-to-male ratio is 2:1, but men show two times more arrears than women; (iii) there is a positive correlation between the location of a client in a crime hot spot and a delay in payment of obligations; and (iv) customers who own their homes have more late payments on business loans than customers who rent housing. (Why? Homeowners prioritize payment of the mortgage over payment of the business loan, because the house is the collateral for the mortgage and they could lose their home if they do not comply with the payment schedule.)

- Determine the vulnerability of credits/clients to different types of threats (for all existing customers and for each new customer), and identify loans affected by exogenous events and quantify the portfolio affected. This has given JNSBL the ability to:

- Prioritize visits to clients according to their

level of risk (combination of exposure and vulnerability);

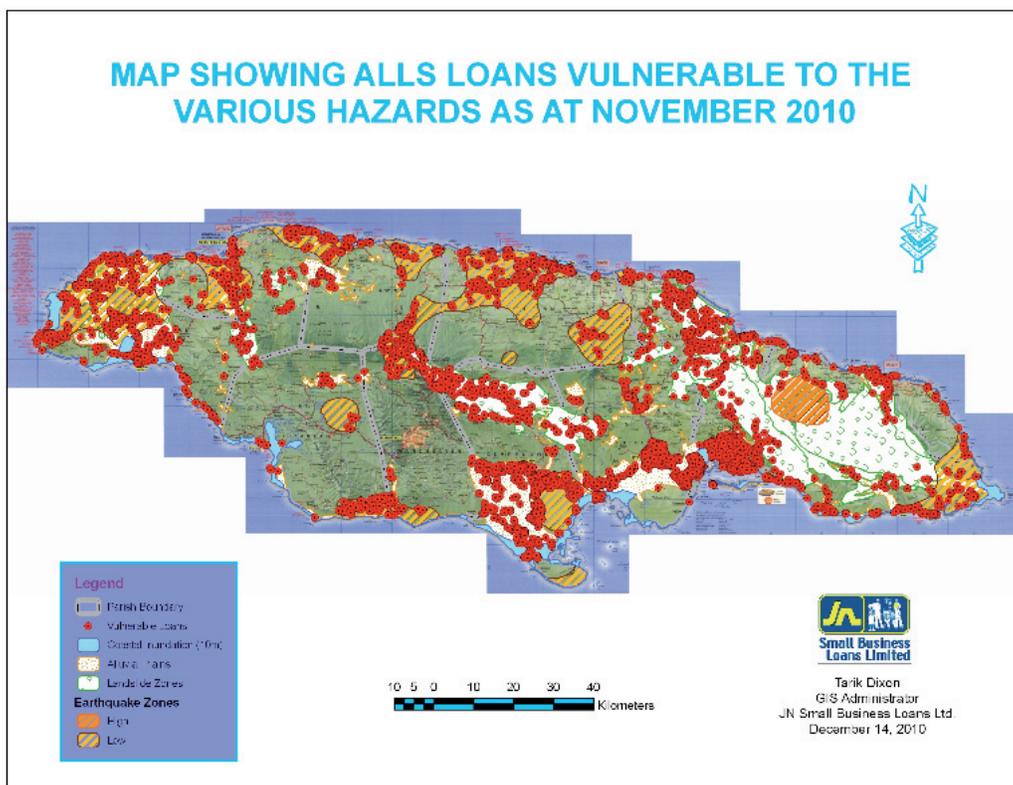
- Quickly generate an estimate of damages to customers (JNSBL has used the survey developed by the TSF and CTSF that appears in Chapter II of this document as Table 8);
- Project how much money customers may need to recover quickly; and
- Expediently process, approve, and disburse emergency loans, whose characteristics are determined on a case-by-case basis.

Similarly, this knowledge has made possible the development and implementation of preventive credit policies: do not give customers as much money as requested, and select the time of year during which funding is awarded or wait until hurricane or flooding seasons are over before providing a new loan.

³⁸ Interview with Mr. Tarik Dixon, former GIS Administrator at JNSBL and current Spatial Data Analyst, National Spatial Data Management Division, Office of the Prime Minister. May 17, 2011.

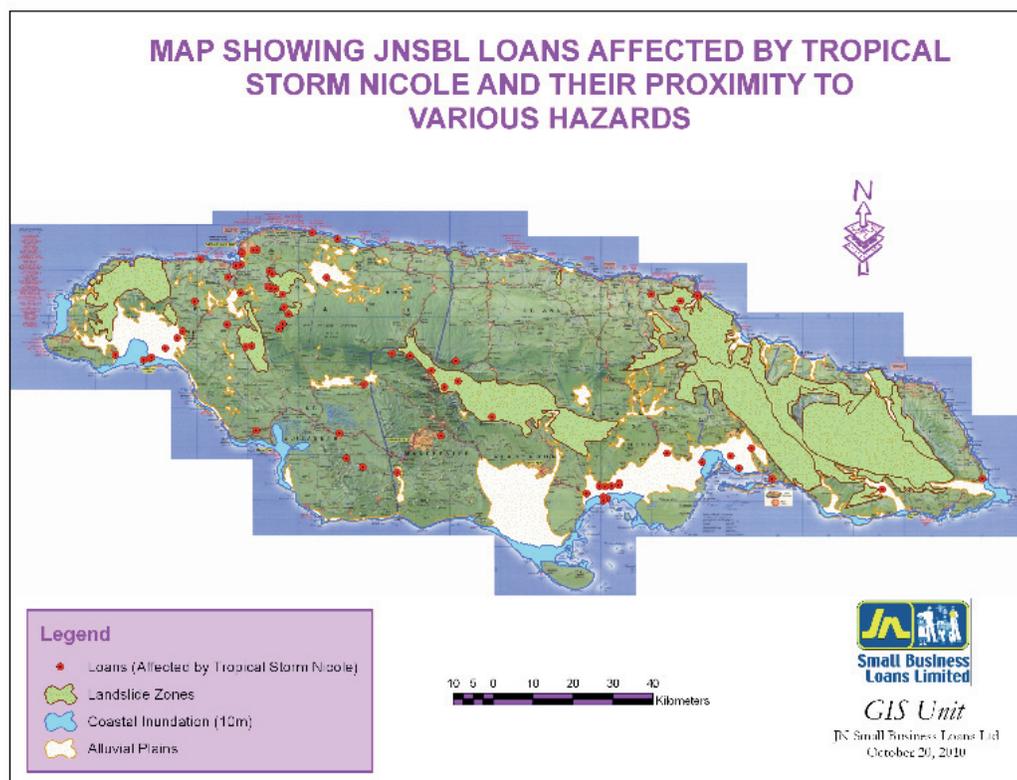
Map 3

Source: JNSBL; available at http://jnsbl.com/pdf/Vulnerable%20Loans_20_12_10.pdf.



Map 4

JNSBL: Report of Loans Affected by Tropical Storm Nicole
 October 2010



Source: JNSBL; available at http://jnsbl.com/pdf/JNSBL%20Damage%20Report_19_10_10.pdf.

OTHER PREVENTIVE ACTIONS PUT IN PLACE

JNSBL actions have not focused solely on the use of technology and information. The institution has also taken other less-sophisticated but equally important actions to ensure business continuity and reduce expected losses in case of an emergency, based on the exposure and vulnerability diagnosis of JNSBL, and the exogenous risk reduction plan developed by the CTSF. Among these, the following can be mentioned:

1. Relocation of offices after physical vulnerabilities were identified in existing facilities. This was the case for several JNSBL branches that shared a building with the post office.
2. Training of all field officers in basic concepts of exogenous risk management and disaster preparedness and response, and in the use of fire extinguishers (including having area managers demonstrate proper use of fire extinguishers to their staff).
3. Evacuation drills in main branches that have alarm systems. In secondary branch offices that do not have alarms, the security officer would know how to proceed. The drill procedure is that all people in the building (employees, clients, and visitors) should meet at the designated safe area within five minutes for roll call; security officers then check that there is no one left inside the building and secure the premises.
4. Design of a form that each supervisor must complete and submit to headquarters in May of each year to inform on the degree of preparedness for the hurricane season (see Box 2: Checklist for Hurricane Preparedness). The information for each office is consolidated, and headquarters proceeds to purchase special equipment and supplies (e.g., plastic bags, first aid kits, batteries, flashlights, etc.); prepare orders to repair buildings; update national, regional, and local contact lists (police, firefighters, Red Cross, etc.); and update staff information.

Box 2

JNSBL: Checklist for Hurricane Preparedness

 JN Subsidiary Hurricane Preparedness Checklist		Select Location	
Items	Yes	No	Comments
Physical building/Assets Inspection			
Readiness of Supplies			
Readiness of First Aid			
Water pumps functioning			
Generators Functioning			
Fire Equipment Readiness			
Shelving and Storage Readiness			
Readiness of protection for all equipment, filling cabinets, data backups			
Update Staff Contact information- Ensure BCP contact template is updated and forwarded to RMU.			
Obtain contact numbers for critical service personnel within your area such as Electricians, plumbers, C&WJ JPSCo, NWC, Digicel, Infochannel Representatives, Contractors, Fire Dept, Police, Metrological Office, ODPEM, Shelters and Parish Disaster Committees.			
Keep contact list of critical Head Office Personnel.			
Ensure that there are no areas that will encourage water build-up in storage/operating areas. Clear drains and gutters.			
Update Cost Listing of essential equipment, supplies and services			
Obtain car chargers and spare batteries. Ensure all cell phones are fully charged.			

Assign Warden responsibilities for the hurricane to qualified individuals. These responsibilities include Shutting down the Server, Advising Key Contact Persons, Ensure Checklist is completed and submitted.		
Hurricane Supplies		
Water Supply	Cellular phone	Cleaning Equipment
Plastic bag to secure equipment	Fuel	
Fluorescent visible ink	Hurricane Shutters	
Name		
Signature		Date

Source: JNSBL.

Preparation, together with the ODPEM, of a disaster preparedness manual for clients. This action stems from the strategic alliance between these two organizations, formalized in a Memorandum of Understanding. The manual, which contains instructions and easy-to-follow guidelines, aims to support customers in understanding and preparing for exogenous events such as hurricanes, floods, fires, and earthquakes, in order to save lives, minimize injuries, and reduce financial loss. JNSBL was in charge of the printing and distribution of the manual to customers. Additionally, when loan officers visit clients and fill out the vulnerability questionnaire, they explain the questionnaire’s purpose and take the opportunity to raise awareness and suggest measures customers can take to improve their safety. Customers have shown curiosity about why it is necessary to gather information and how the information will be used.

Financial planning and budgeting incorporates projections adapted to the conditions of hurricane exposure. It is widely known that the hurricane season runs from July through October (in some years until November). Therefore, the standard budget must be adjusted to reflect a reality that involves changes in the demand for resources, customers’ ability to pay, and increased portfolio risk.

COST OF THE DISASTER MITIGATION PROGRAM

JNSBL’s vulnerability and exposure to natural hazards is linked to the country’s vulnerability and exposure; therefore, the likelihood is high that a disaster affecting Jamaica will have adverse effects on JNSBL’s operations. Thus, having a mitigation strategy and a corresponding contingency plan is a necessary condition for JNSBL, as it should be for any microfinance institution that operates under such unpredictable conditions.

The program has had significant costs for JNSBL, especially in relation to the GIS, but it is crucial for minimizing portfolio losses in the event of a disaster. For example, the increase in arrears on JNSBL’s loan portfolio caused by the three latest hurricanes that have hit Jamaica (Ivan—2004, Dean—2007, and Gustav—2008) was US\$104,342. Institutionally, there is awareness and acceptance that most of the financial gains of the program will come in the long run, and that many of its benefits (increased customer loyalty, JNSBL’s improved corporate image as contributor to safe microcredit, etc.) cannot be quantified. Table 4 shows a breakdown of the GIS costs by type of expenditure.

Table 4
JNSBL: GIS Cost in US\$

Account	Amount	Type of Expenditure
GIS staff	26,745	Annual, recurring
Garmin Etrex units	12,791	Capital expenditure
Garmin Nuvi units	4,500	Capital expenditure
ArcGIS maintenance	393	Annual, recurring
Total Capital Expenditure	17,291	
Total Annual Expenditure	27,138	

Source: JNSBL. JNSBL DMP and GIS Report Training—September_28_2010.ppt.

PENDING ACTIONS

Currently, evaluation of client vulnerability (high, medium, or low) is quantified after loan disbursement, but the information collected by loan officers to fill out the client vulnerability questionnaire is an additional consideration for credit approval. JNSBL has plans in the not-too-distant future to design a new system of credit evaluation that will integrate the vulnerability assessment of clients so that the credit evaluation report will contain the ex ante quantification of the vulnerability index.

In terms of information systems, JNSBL is in the process of identifying a location outside of Kingston to house the backup system for the data processing center; potential locations are Montego Bay and Mandeville in the northwest of the country, which has not had much exposure to hurricanes and tropical storms. To date, the mirror support system is located in the office of the parent company, the JN Group, which is on the other side of Kingston from where the main center is located.

Strengthening the culture toward risk reduction among staff and, later, customers in the northwest of the country is a challenge, because these areas have no experience with hurricanes. For example, in the case of JNSBL's staff, filling out the questionnaire to measure the vulnerability of clients is considered extra work, and its importance for decision-making, effective preparedness, and efficient response is not appreciated.

An action that will be addressed in the future is the development of office floor plans that indicate safe areas within buildings, evacuation routes, emergency exits, fire extinguishers, etc. The floor plans will be placed in areas where they are visible to both JNSBL staff and customers.

Because there has been more seismic activity in Jamaica recently, and because the country is located on the same tectonic plates as Haiti, JNSBL wants to strengthen its level of earthquake preparedness, not only in terms of physical security, but especially regarding the safety of staff and customers, so as to avoid a panic situation that can lead to a catastrophe of major proportions.

The design and development of products adapted to the conditions of hazard exposure and vulnerability has been limited and is considered a pending issue. However, the development of new products in general is part of the institutional strengthening program that JNSBL is implementing with the support

of the International Finance Corporation (IFC). Thus, products specifically aimed at reducing risk exposure will be developed under this program.

JNSBL believes that its role in disseminating information and providing outreach regarding disaster preparedness strategies should be on a larger scale and directed not only toward clients, but toward communities where the institution works. Availability of resources to fund training and support materials (e.g., disaster preparedness manuals for clients), however, is a current limitation.

KEYS TO SUCCESS AND LESSONS LEARNED

There is no doubt that a key to the success of JNSBL's Disaster Mitigation Program has been the board's support in adopting this kind of institutional action. Moreover, at the highest levels of corporate governance at the JN Group there is a commitment to business continuity assurance and, as part of that, hurricane preparedness. This has led to the establishment of exogenous risk reduction as a strategic objective at JNSBL, a subsidiary of the group. This top-down approach to exogenous risk reduction in particular, and to overall risk management in a financial institution, ensures permanent interest and program continuity.

Another decisive factor was having knowledge, support, and technical assistance from the University of the West Indies. If the university had not had a specialized unit to guide and train JNSBL in the use and understanding of spatial analysis technology, the development of GIS and its use and application in JNSBL's daily operations would not have been possible.

Finally, another key ingredient in the development of the Disaster Mitigation Program at JNSBL was the CTSF's technical assistance, which incorporated a comprehensive and wide-ranging vision to the efforts already in implementation. It also provided new tools for analysis and evaluation that have allowed the institution to generate new applications and uses of information, all with the goal of attaining financial sustainability.

Introducing innovative lines of action is not easy, especially when it requires a structural change in people's thinking; this is even more difficult for people who cannot understand the mind-set of expecting disasters to occur because they have never

experienced or been affected by one. In the case of Jamaica, this may be due to the fact that one typically thinks only of disasters like hurricanes, floods, and earthquakes. But what if the exogenous event were a fire? Mental or cultural change is difficult; it needs to be driven with force and determination because prevention and preparedness must be mandatory, not voluntary. Moreover, the effort must be sustainable, not a one-time action that can be easily forgotten after a year in which an event does not take place. People's natural tendency is to be dissatisfied with having to do more work that, in principle, appears to be unrelated to the business at hand. But, when it is explained what preparation and the GIS can do for

them—for example, reduce the workload in case of disaster—the attitude changes.

At JNSBL some people have asked, What is the purpose of all this? We are a bank. The response from the general manager, Mr. Whyllie, has been: "Yes, we're a bank, but a bank is made up of clients, and in order to have a healthy bank we need those clients to be prepared, because an unprotected customer involves a high exposure for the institution. JNSBL does not want to lose money, so if customers take action to protect their home and business, JNSBL is willing to grant the financing they need to grow; otherwise, JNSBL will have to be careful with how much to grant them."

Case Study

La Inmaculada Credit Union Limited

Orange Walk, Belize

THE INSTITUTION³⁹

La Inmaculada Credit Union Ltd. (LICU) was registered on June 5, 1949. Twelve members began this unique financial institution amidst an atmosphere of colonial rule and the struggle against it. Today, the institution has a membership of around 13,000 people.

As reflected by its mission statement, “La Inmaculada Credit Union Limited is a unique, democratic, and cooperative financial institution comprised of visionary shareholders who are pooling resources to achieve economic and social well-being by empowering its members through education, savings, and sound financial management and by providing innovative, affordable financial services, thus guaranteeing maximum returns to its shareholders.”

LICU not only focuses on business; it also focuses on the community. One of its main goals is to give back to the community in order to form a better and brighter future for the people of Belize.

BELIZE’S EXPOSURE TO NATURAL HAZARDS⁴⁰

Belize is located south of the Yucatán Peninsula on the eastern coast of Central America. It is considered a part of the Western Caribbean states of the British West Indies and is bordered to the north by Mexico and to the west and south by Guatemala. The territory is open to the Caribbean Sea on its eastern side and claims more than 100 smaller islands and atolls that combine to create the second-largest coral reef in the world.

Belize has a long, low-lying coastline that is within the trajectories of late-season hurricanes and is also home to 45% of the country’s population, ports, and industries. Belize is less susceptible to landslides and earthquakes than the other Caribbean territories. There are no known volcanoes in Belize, but the territory is exposed to ash falls from volca-

noes in neighboring countries. Landslides are rare, but excessive annual rainfall routinely causes flash floods and river breaches, especially in the western and southern regions of the country. More recently, the Orange Walk District, located in the western part of the country, where LICU operates, has been experiencing a severe drought, affecting crops and cattle raising.

Hurricanes have had the most devastating effect on Belize. Belizeans have experienced damage due to high winds and storm surges. Coastal towns and areas are extremely exposed. Some of the major storms that have severely impacted the country are the hurricane of 1931, which claimed 1,500 lives, and Hurricane Hattie in 1961, which killed 275 people and practically wiped out Belize City, which was the capital city at the time.

ORIGIN AND EVOLUTION OF EXOGENOUS RISK MANAGEMENT AT LICU

The CTSF was the first project in which LICU participated. LICU found out about the CTSF through the Belize Credit Union League.⁴¹ LICU’s general manager, Mrs. Yolanda L. Gómez, became interested in participating in the project because “people cannot just relocate when affected by a disaster; they need to find ways to cope and live with risk by looking at the bigger picture.”

³⁹ Source: <http://www.licu.org>

⁴⁰ Sources: Kareem M. Usher. *Natural Hazard Mitigation Strategies in the Continental Caribbean: The Case of Belize*. Études Caribéennes. 2007; and CDERA and CDB. *Belize National Hazard Mitigation Plan*. June 2006.

⁴¹ The Belize Credit Union League is an association of credit unions and was established to further the credit union movement’s common interests through advocacy, bulk purchasing, and training for the benefit of its members.

Moreover, Mrs. Gómez says that through the CTSF, LICU learned that risk is a daily challenge and that preparation and planning for the unexpected is necessary in risk-prone areas. Moreover, the technical assistance provided by the CTSF has driven LICU to develop a holistic vision of the financial business that defines how services are delivered to the members. As a result, LICU has looked for solutions to other risk exposures to avoid the increase in delinquency of the portfolio, such as:

1. Drought: Promotion of member investment in irrigation systems and the use of nonchemical inputs based on microorganisms, bio-stimulants, and bacteria (for example, Eco-Hum, Aminogel, and Aqua-Hum, produced under technological license of EARTH University) that increase production. Pictures 1 and 2 show a training session promoted by LICU for its agricultural members.
2. Market prices: For seasonal agricultural products, it is common to observe a reduction in prices when there is excess supply, which in many cases makes the activity unprofitable. One limitation farmers face is the absence of storage facilities to control the quantity of production entering the market and, as a result, stabilize prices. LICU cannot finance storage facilities, but it supports farmers in diversifying their production so they will not depend solely on one product for income generation. This is a direct lesson from the CTSF: as members diversify the sources of income, LICU diversifies its credit portfolio and its risks.



Picture 1



Picture 2

Technical Assistance Provided to LICU by the CTSF

Two consultants hired by the CTSF visited LICU in August 2009. On the first visit, the consultants discussed with LICU's staff exogenous risks, vulnerabilities, and the need for contingency planning, and also analyzed the degree of vulnerability of LICU (institutional, social, infrastructure, clients). Also, the consultants visited members of La Inmaculada to gather information on how they had been affected by flooding and to assess the location of clients. To close the first visit, the consultants made a presentation to the board of directors about the program and their initial findings. A few weeks later, the CTSF sent LICU the consultants' proposal for an integral exogenous risk management plan. Finally, in November 2009, one of the consultants visited LICU to discuss and explain the plan and provide training to LICU staff.

3. Financial illiteracy: Rural members' lack of knowledge on issues such as business planning and income and expenditure tracking has driven many of them into unprofitable investments and difficulties repaying credits (this has been the case of pineapple producers in Orange Walk). Under the auspices of the Small Scale Enterprise Development in Agriculture and Tourism Project for the Orange Walk and Corozal Rural Communities, LICU developed financial-literacy training sessions and an income/expenditure recording booklet to help members determine for themselves how their

Source: LICU.



Picture 3

Source: LICU.



Picture 4

productive activity is performing, and make decisions about continuing business as usual and/or diversifying their production. Pictures 3 and 4 show scenes from the training sessions run by LICU staff.

Additionally, LICU has adopted a good number of the CTSF specialists' recommendations to reduce its vulnerability. A summary is presented below:

1. Reduction of Institutional Vulnerability

- a. Risk reduction is a transversal axis on the strategic plan.
- b. The hurricane preparedness plan has been updated, and currently all staff know and are reminded of what to do in case of hurricane, and who is responsible for each task.
- c. Training sessions for staff were held with the National Emergency Management Organization (NEMO) on national policy and the alert system; Red Cross on first aid (Picture 5); and the fire department on the use of fire extinguishers (Picture 6).

2. Reduction of Physical Vulnerability

- a. The main server was relocated to a safer area of the building, and two backups of the database and systems are kept outside the office, one in a bank's safe and another at a place known only to responsible staff.

- b. Fire extinguishers and a fire alarm system were installed (Picture 7) and a fire drill was conducted; fire extinguishers are reviewed and replenished periodically.



Picture 5: Red Cross training on first aid

Picture 6: Staff training on use of fire extinguishers
Source: LICU.



Picture 7: Fire extinguishers and fire alarm system



Picture 8: Identification of emergency exit



Picture 9: Emergency phones listing

- c. The emergency exit is clearly identified and all staff knows where the remote control for opening it is kept (Picture 8). Also, emergency phones listings have been located all over the building where staff members and customers can see them (Picture 9).

3. Reduction of Client Vulnerability

- a. As part of the educational sessions LICU imparts at the community level, staff have visited almost every village in Orange Walk District to create awareness and encourage preparedness among villagers, whether they are members of LICU or not (Picture 10).
- b. LICU has encouraged its members to obtain life and property insurance. LICU has entered into an alliance with a Belizean insurance company to develop crop insurance.
- c. The credit analysis rating was changed to include an assessment of client vulnerability based on four variables: location of residence, location of business, dependency on business, and nature of business (left side of Table 1). A global vulnerability index has also been defined (right side of Table 1). This information

is taken into consideration for loan approval. In addition, the inspection form used when clients give a property as collateral includes a section for risk exposure analysis. Mrs. Gómez explains that members were not happy when these new conditions and requirements were put in place. But, when LICU staff educated members about why these changes were introduced, they changed their minds, and now members feel they are being better served.



Picture 10: Educational session at a village

Table 1
LICU: Client Vulnerability Assessment

C.) Vulnerability		VULNERABILITY	
(i) Location of member's residence		HIGH	11-16
(a.) coastal region	-3 points	MEDIUM	6-10
(b.) low land region	-2 points	LOW	0-5
(c.) high land region	0 points		
(ii) Location of business			
(a.) coastal region	-4 points		
(b.) low land region	-3 points		
(c.) high land region	0 points		
(iii) Dependency on Business			
(a.) Over 80%	-5 points		
(b.) 50% - 79%	-4 points		
(c.) 34% - 49%	-3 points		
(d.) 33% or less	0 points		
(iv) Nature of Business			
(a.) Agriculture	-4 points		
(b.) Commercial	-3 points		

Source: LICU, credit rating analysis.

d. Development of microfinance products to achieve diversification of the credit portfolio, which had previously been oriented mainly toward consumer lending and sugar cane lending. This action was implemented with the support of the CARIB-CAP, a capacity-building project for microfinance institutions in the Caribbean financed by the IDB, and included the development of an improved credit-lending methodology and review of credit policy.

e. To support diversification of clients' income-generating activities, LICU has entered into alliances with various organizations (Pictures 11 through 14):

- i. With the Fisheries Department of the Ministry of Agriculture, Taiwan mission, and Japan International Cooperation Agency (JICA) to develop tilapia farms
- ii. With the European Union and the Small Scale Enterprise Development in Agriculture and Tourism Project for the Orange Walk and Corozal Rural Communities, pro-

duction of papaya, vegetables, honey, grains, and small livestock has been promoted in an effort to help sugar cane producers alleviate poverty through diversification. To this end, LICU has created a separate program called Quick Credit.

iii. With the Ministry of Agriculture to support the development of the value chain for plantain and papaya.



Picture 11: Signing of agreement with the Taiwan mission



Picture 12: Signing of the papaya production and financing agreement



Picture 14: Papaya field visit



Picture 13: Inaugural ceremony for the tilapia project in San Jose Village with the participation of the Fisheries Dept., Ministry of Agriculture

Source: LICU.

KEY FACTORS IN THE IMPLEMENTATION OF A COMPREHENSIVE EXOGENOUS RISK MANAGEMENT PLAN

1. Governance and visionary guidance

The development of a risk management culture is a top-down process that involves a conscious effort to do things differently and be receptive to change, and this has been the case at La Inmaculada Credit Union. The highest level of governance in the institution, the board of directors, has been sensitized to the need to reduce LICU's exposure to exogenous risks, and has given the general management its endorsement and approval to take actions that will move LICU onto a more financially secure and sustainable path.

2. Living the mission

Living the mission should be part of the institution's culture, because if staff do not

live the mission, nothing will happen. LICU was created and continues to work to help its members be better off, and that does not mean giving them a loan no matter what. If this were LICU's objective, some members would be in a more disadvantaged position. An improved portfolio management process, such as the one currently being implemented, which considers exposure to exogenous risks and vulnerability, represents an incentive for the credit union's members because better-performing assets mean more dividends.

3. Leadership

Mrs. Gómez, general manager of La Inmaculada Credit Union, has been an active participant in trainings for staff and in member information sessions. She has sought out new initiatives of technical assistance and support to strengthen LICU capacities, and has identified and negotiated alliances for the direct betterment of LICU and its members.

4. **Information sharing across the board**

At LICU, information flows both top-down and bottom-up, which facilitates the coordination of actions and motivates all staff to be part of new ways of doing things. But information also flows horizontally, from LICU to members and vice versa.

LESSONS LEARNED FROM EXOGENOUS RISK MANAGEMENT

Financial institutions that work with the least privileged groups of society have much more to do for their clients than just grant credits. These institutions have to help their clients go from point A to point B through income generation, and this is not necessarily accomplished only with financing, but also with education, training, and information sharing.

Exogenous risk awareness has brought innovation and vision to La Inmaculada, and in Mrs. Gómez's own words, it "...has pushed the institution

to step out of the box. LICU has been able to move away from the usual way of doing things." As a result, LICU has become eager to participate in new ventures, such as the CARIB-CAP and the European Union's Small Scale Enterprise Development in Agriculture and Tourism Project for the Orange Walk and Corozal Rural Communities.

WHAT IS LEFT TO BE DONE?

When disasters have occurred, the practice at LICU has been to give clients a waiver, but in some cases the waiver does not give clients the possibility to go back into business. LICU has realized the need to create a contingency fund to finance emergency loans and refinancing if disaster strikes. The general manager has already raised the issue with the board of directors, and the board has expressed its intention to move forward with a proposal. For 2012, the general manager will formally present to the board the proposal to build up a contingency fund for special cases, to be financed by between 3% and 5% of LICU's net surplus.

Experts Interviewed

CDB

1. Ms. Lisa Harding

ELF/OMTRIX

1. Mr. Juan Carlos Pereira
 2. Mrs. Cynthia León
- Mrs. Lorna Li

MIF

1. Ms. Winsome Leslie

The BELfund Inc.

1. Mr. Marcellus Joseph

COAC 4 de Octubre

1. Mrs. Yolanda Haro

ENLACE

1. Mrs. Haydee Gálvez
2. Mrs. Argentina de Quintanilla

AMC

1. Mr. Wilson Salmerón
2. Mr. Victor Amaya

JNSBL

1. Mr. Frank Whyllie
2. Mrs. Thelma Yong
3. Mrs. Sue-Anne Reid
4. Mr. Neville Francis
5. Ms. Kelly-An Sharpe
6. Mr. Tarik Dixon

LICU

1. Mrs. Yolanda L. Gómez

TSF/CTSF Consultants

1. Mrs. Laura Acquaviva
2. Ms. Caren Becerra
3. Ms. Marlene Attz
4. Mrs. Debra Williams-Grant

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Introduction to the Toolbox

A Comprehensive Exogenous Risk Management Plan must come from a previous diagnostic study that analyzes the weaknesses and vulnerabilities of, and threats to which both the financial intermediary and its customers are exposed.

For this reason, the TSF and CTSF developed a set of methodological proposals that constitute this toolbox, which is attached in digital format to this publication. The findings are derived from the Vulnerability Table, Risk Self-Mapping, and Client's Risk Cadastre which allow financial institutions to create a plan of intervention with preventative and corrective characteristics, **The Exogenous Risk Reduction Plan**, in order to strengthen the position of both the financial institution and its clients prior to disaster (that is, prior to the occurrence of exogenous risk).

At the same time, the findings of the Vulnerability Table, Risk Self-Mapping, and Client's Risk Cadastre guide financial intermediaries in implementing a plan of action once an exogenous risk has materialized, **the Disaster Response Plan**, by allowing the institution to prioritize response measures and make more efficient use of available resources, focused on the geographical perspective economic sectors, types of clients, exposure to the exogenous event, etc.

Below is a brief description of the proposed methodology:

1. Vulnerability Tables and Theoretical Values of Vulnerability (Annex 1)

A format for the implementation of the methodology which allows users to assess the vulnerability of the financial institution in terms of institutional size, social factors, physical weaknesses, and customer vulnerabilities. These tables form the basis for the construction of policies, the definition of objectives, actions to be carried out, all while adjusting roles and a timeframe for intervention based on the severity of the problem. For example,

a high priority problem (high vulnerability) should be addressed in the short term. The steps for completing the vulnerability tables, generating and interpreting results, and formulating proposals for action is detailed in **Annex 2 (Methodological Process for the Identification of Vulnerability Conditions and Description of Variables)** along with a description of each variable of analysis.

This diagnostic method is based on a set of diagnostic matrices for each variable. Responses are weighted in two or three ranks. The most unfavorable conditions always have the highest value (most vulnerable), while the least unfavorable conditions always have the lowest (least vulnerable). The assessment is done at both the national, institutional level, and the decentralized level (headquarters and individual branches), examining the physical, social, and customer factors in order to account for different characteristics across branches, their locations, neighboring socio-economic conditions, and the demographics of each branch's client base.

After examining four types of vulnerability (institutional, social, physical, and customers), and identifying the problems that could arise from the vulnerabilities, we proceed to state the actions that could be implemented to reduce potential risk, and develop an Exogenous Risk Reduction Plan to cover preventative and corrective measures.

2. Risk Self-mapping (Annex 3)

This annex describes in detail the steps required in the construction of risk maps (risk analysis in detail for maximum-exposure areas identified through zoning threats and client locations). The purpose of the Risk Self-mapping is to provide the financial institution and customers the capacity and mechanisms needed to adapt to constraints imposed by

conditions of risk and reduce the impact of disasters; that is, generate alternative adaptation based on better understanding of the environment and its influence over the development of productive activities. Thus, Risk Self-mapping is an instrument which contributes to the identification/determination of

- i. Methods suited for the business developments which comprise the revenue base of customers
- ii. Safety zones for clients and their activities
- iii. Self-protection practices that improve the ability to respond to disasters.

3. Client Vulnerability Identification and Client Risk Cadastre Integration (Annex 4)

The format contained in Annex 4, which should be adapted to the appropriate conditions of the financial institution's clients and the threats to which they are exposed, allows the institution to compile information about clients that makes it possible to evaluate the

level of vulnerability clients face and integrate that information into the Client Risk Cadastre.

The Client Risk Cadastre is a tool which complements the Risk Self-mapping whose objective is to provide information about the level of vulnerability clients face which, correlated with the threat exposure information, helps create a unique indicator that defines a client as a high, medium, or low risk for the institution because of their vulnerability level and level of exposure to different threats either at home or at their place of business. This indicator provides a more refined credit policy which considers the clients' vulnerability and their exposure to different threats; that is, the level of risk and given that level of risk, the financial conditions under which a credit may be granted (amount, term, interest rate, collateral, funding purpose, etc).

4. **Annex 5** describes the methodological process (step-by-step guide) to identify the conditions of client vulnerability and the integration into the Client Risk Cadastre.