

Working Paper No. 49

Approaches of MFIs to Disasters and Climate Change Adaptation in Bangladesh

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Abstract

Bangladesh is highly vulnerable to climate-induced disasters. Poor and vulnerable people living in the country's many disaster-prone areas are systematically excluded from access to the formal banking systems. Microfinance Institutions (MFIs) provide the opportunity of financial inclusion for these people. This paper reveals that MFIs provide credit, savings and insurance products that contribute to livelihood development, though further effort could be made to align these products with climate change adaptation needs. Some of the MFIs have separate disaster management funds, which they draw on to assist their member households when disaster strikes. Some of them offer disaster-related non-financial services, like post-disaster relief and rehabilitation programmes. This paper argues however, that there is potential for MFIs to develop their products and services further to more effectively promote climate change adaptation, such as further involvement in disaster mitigation and preparedness, introducing products tailored to needs, increasing loan size and availability, introducing low-cost insurance schemes such as index-based crop and livestock insurance, "greening" their operations, and offering small and medium enterprise loans and non-credit support. Supportive regulations should also be developed. Further research in the form of experimental design of microfinance combining financial and non-financial services to address risks and vulnerabilities of climate change could provide additional knowledge on how to move forward.

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1. Introduction

Climate is a significant threat to the life and livelihoods of low income people in Bangladesh. Climate change could increase the frequency and intensity of natural calamities. According to Global Climate Risk Index 2016, annual average loss from disasters for 1995 to 2014 is 0.86 per cent of GDP for the country. With the expanding size of the economy, these costs are likely to increase in absolute terms and as a proportion of GDP, if climate change is not factored in the long-term economic plan (Ministry of Environment and Forests, 2009). Bangladesh has just graduated from the status of low-income to lower middle-income country, as classified by the World Bank, through significant progress in reducing poverty; from around 48.9 per cent in 2000 the incidence of moderate poverty came down to 31.5 per cent in 2010 (BBS, 2012). There have been many other notable progresses in economic and social spheres during this short period. The extensive operations of microfinance institutions (MFIs) including their rural financing and non-financial services have made an important contribution to this progress. (Tenaw and Islam, 2009).

A large number of rural poor and non-poor vulnerable households who are MFI clients are under constant threat of climate-related natural disasters. These threats could increase significantly due to climate change. People living in climate-vulnerable areas like the coastal belt, *chars*, *haor*¹, and other flood-prone areas are projected to experience increased risk of extreme weather events such as cyclones, tornados, and storm surges, erratic and intense rainfall, floods and flash floods, and droughts. Riverbank erosion and sedimentation of riverbeds are also expected to become serious problems. The massive transformation of cultivable land from non-flood-prone to moderately or extreme flood-prone status is also projected (Akter et al., 2007).

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¹ *Chars* are low-lying temporary sand islands formed through silt deposition and erosion. *Haor* is a wetland ecosystem in the northeastern part of Bangladesh, which physically is a bowl or saucer shaped shallow depression. They are also known as back-swamps.

MFIs with their extensive delivery services could play an important role in climate change adaptation. However, climate change also poses a threat to them, due to the risks it brings to financial service delivery. MFIs depend on the economic resilience of their members, or more specifically, the capacity of their members to use loans productively, which changes in weather patterns and extreme weather events could undermine.

Given this backdrop, there is a need for understanding the role of micro financial and non-financial services of the MFIs in addressing challenges emanating from climate change. The objectives of this paper are to (i) understand the linkage between climatic risk management and micro financial and non-financial services, (ii) comprehend the performance of microfinance products and services of microfinance institutions to address the challenges poor households face in climate change vulnerable parts of the country, (iii) better understand the climate change and disaster-related programmes of major MFIs, and (iv) suggest how MFIs could be further engaged in supporting climate change adaptation.

Data and information for this paper are from an extensive review of the literature, interviews of senior officials of government organizations and MFIs, and a field study of two MFIs working in the coastal areas in Bangladesh. The rest of this paper has been organised as follows. After this brief prelude, Section 2 presents the changing focus of financial and non-financial services of MFIs in disaster risk reduction and climate change adaptation and also different products offered by MFIs and their delivery mechanisms. Section 3 describes various measures of the MFIs and their financiers to address disaster losses and promote climate change adaptation. Some policy recommendations to address the adversities emanating from climate change through financial innovations of MFIs are suggested in Section 4. Section 5 provides concluding remarks.

2. Disasters, Climate Change and MFI Services

In Bangladesh, climate-induced disasters impact a poor household's income and assets in four distinct ways:

- a) Temporary inability to earn: Rapid-onset disasters, particularly floods, can prevent poor households from taking part in the activities that traditionally act as wellsprings of earnings.
- b) Increased basic expenditures: Transporting assets and other items from the household's residence to a safe place, expanded wellbeing risks, and increased costs for essential nourishment and fuel all incidentally build the sum of money required for a family to merely survive (Ahmed and Ahmed, 1999).
- c) Damage to or destruction of income-generating assets: Apart from their transitory inability to earn wages, households' income-generating assets (crops, livestock, brick-making kilns, etc.) may be destroyed or lost due to disaster (Huda and Barua, 1999).
- d) Damage to or destruction of household assets: Disasters can destroy household belongings, including the home itself (Brown and Nagarajan, 2000).

When a disaster hits, effects one and two listed above result in a rapid decline in net household income, the size and duration of which depends largely on the size of the catastrophe and its impact on the household. The third and fourth effects tend to have more profound impacts on post-disaster recovery. The combined effect of these various impacts is that climate-related disasters in Bangladesh present immense obstacles to households lifting themselves out of poverty and remaining above the poverty line.

Access to financial products and services is vital to the poor for risk management and reducing vulnerability to climate-induced disasters and shocks. However, in Bangladesh a significant segment of the low-income group remains excluded from the formal financial system. A massive microfinance sector led by developmental NGOs (non-governmental organizations) has emerged to fill this vacuum in financial service delivery. Their financial services include credit, savings, insurance, and other related services, which they deliver in the villages, almost to the door of the households. Many MFIs also provide non-financial services like training and other forms of capacity development, information provision, and technology transfer. Given their extensive delivery infrastructure, the wide range of support services they provide and their expertise working directly with communities and households, it would seem that MFIs could play an important role in climate change adaptation in Bangladesh.

The remainder of this section looks at the financial and non-financial services provided by MFIs and their potential relevance to climate change adaptation.

2.1 Financial Services

MFIs can potentially assist poor and vulnerable households in adapting to climate change by providing financial services that enable them to increase their incomes and accumulate assets, which could reduce their vulnerability to shocks. The more assets and capabilities people have, the less vulnerable they are (Ellis, 2000). However, some assets, whether financial, physical, human, social or natural, may turn out to be better in promoting climate change adaptation than others (Scoones, 1998). Thus, whether or how microfinance is contributing to climate change adaptation needs to be understood in terms of its impacts on types of household assets. Temporal considerations are also important. For example, in the case of natural disasters, microfinance might contribute to *ex ante* risk management and reduction, through asset accumulation, income diversification, and reinforcement of reciprocity agreements (social capital), whereas *ex post*, microfinance may assist with coping by maintaining consumption during and after a crisis, and speed up recovery (Ellis, 2000).

The relevance of the main financial services delivered by MFIs as well as their disaster-related programmes to climate change adaptation are discussed below.

2.1.1 Credit

Microcredit, or small loans, could contribute to climate change adaptation by enabling households to develop and diversify their asset base. In addition to their regular loans, Bangladesh's MFIs provide credit for non-productive purposes, such as dealing with

emergencies, home improvement and education, which may also reduce household vulnerability to climate-related and other shocks. MFI borrowers regard credit as an instrument for reducing vulnerability, not just one for increasing wealth. Zaman (1999) found that even during and after the devastating flood in 1998, MFI clients continued to repay loans so that credit sources remained open to them. In some cases, clients did not intend to draw down their savings after the flood as this would have reduced the size of loans they could access (Zaman, 1999).

Microcredit can thus potentially contribute to adaptation by assisting households prepare for, cope with and recover from climate-related hazards. Having assisted their clients through many disasters, Bangladesh's MFIs have in fact tailored their credit products with this in mind. They have developed disaster-related loans and made adjustments in their credit delivery services. These include (i) pre-disaster or pre-emptive measures, (ii) emergency response, and (iii) reconstruction or asset replacement initiatives.

Pre-Disaster or Pre-emptive Measures: Before a disaster, MFIs may adjust their existing loans or introduce new loans to reduce the exposure of customers to disaster-related losses. The timing of the flood season (except for the flash flood that occurs in haor areas) is known in Bangladesh. Several MFIs have explored different options for repayment schedules in order to reduce the pressure on households during the flood season. Some MFIs provide loans for their clients to construct stronger and less exposed houses or to purchase small boats to transport their possessions and thus reduce losses when floodwaters rise. Programmes to support the construction of disaster-resilient housing include the Bangladesh Bank's ten-year loans for surge-prone coastal areas.

Illustrative examples of MFI support for disaster preparedness are provided by SKS and Manab Mukti Sangstha (MMS). They provide loans to individual members for the purchase of small vessels. During normal times, the borrowers use the vessels for transportation, fishing and other forms of income generation. During disasters, they use the boats to transport their belongings to higher ground. A second type of pre-disaster loan product offered by these two MFIs is an advance to all members in a surge-affected group to form a group surge cover, with the aim of generating income after a disaster strikes (Brown and Nagarajan, 2000).

Emergency response: During and immediately after a disaster, MFIs may reschedule existing loans to reduce the burden of repayment and provide emergency loans for households to substitute the sources of income they lost temporarily due to the disaster. Being mostly development-oriented NGOs, many MFIs also provide food, clothing, medicine, or other relief goods during the relief phase.

In 1998, in response to the massive flooding of that year, many MFIs provided advanced rescheduling to allow borrowers to defer some repayments on their existing loans. Rescheduling was conducted on a case-by-case basis, rather than through a "blanket" approach. In this way, individuals or groups of borrowers had their loans rescheduled for varying periods from three to ten weeks and could later make up the missed installments. Such rescheduling is clearly important for borrowers. Based on field data during the major flood of

2004, Shoji (2007) found that the rescheduling of loans reduces borrowing from moneylenders and works as a safety net to prevent the borrower from falling further into poverty. Rescheduling, however, reduces MFI cash reserves and this can be a serious problem especially for smaller MFIs.

It appears that now most MFIs allow their members to reschedule installments as one of a number of mechanisms they have introduced for protecting the portfolio of their borrowers during floods or other periods of hardship. These mechanisms include: (i) loan rescheduling with or without interest, (ii) combining grants and working capital loans, (iii) types of insurance, such as group contingency funds (Grameen Bank), (iv) low-interest open savings accounts (BURO Bangladesh), and (iv) zero-interest current accounts for members to enable them to withdraw money without disturbing their term deposits (Matin et al., 2001).

Variations in the application of these mechanisms can be found among the MFIs. For example, Grameen Bank introduced a system for its borrowers to renegotiate their loan contracts whenever they face repayment problems. It introduced this mechanism after the major flood of 1998, when the Bank experienced a major problem with repayments and drop out of members due to the rigidity and conditionality built into its system. After disasters the bank allows an exit option for borrowers under which a borrower can renegotiate her/his contract to extend the repayment period and lower the installment amount if she/he faces problems in repayment (Dowla and Barua, 2006).

Another mechanism employed by many MFIs is offering fast disbursal loans to help their borrowers during the disaster. These loans are generally quite small, for short periods and with zero to full market rate of interest. Strong demand for these loans by the clients implies that this type of loan matches their needs during the coping period, though some criticisms have been raised over the small loan size and quick onset of repayments after disbursement. Small and medium sized MFIs are less able to provide emergency loans because of their small cash reserves, whereas larger MFIs are able to transfer funds from within their internal networks and have the capacity to request additional funds from donors to support the provision of emergency loans. Several MFIs have created their own disaster loan funds to ensure they have the necessary liquidity to provide emergency loans and other services during disasters.

Reconstruction or asset replacement initiatives: After the relief phase MFIs restart their regular loan programmes. In this reconstruction phase, MFIs may provide loans to help their members repair and recover damaged and lost resources. The loan size, interest rate and terms vary between the MFIs and depend on the activity being financed. For instance, BRAC's reconstruction loan programme gives loans only for wage earning or income generating resources with a flat interest rate of 15 per cent. Credit disbursal is in-kind as BRAC gives borrowers "substitution resources" like seeds, poultry, animals, or saplings. Some MFIs are not able to offer any asset replacement or reconstruction loans because of their financial constraints (Brown and Nagarajan, 2000). A significant shortcoming of using loans for reconstruction is that clients may not have the capacity to take on more debt if they are already committed to repaying pre-disaster or emergency loans.

2.1.2 Savings

Micro savings products in Bangladesh were initially mostly just small deposits that MFIs required their members to deposit on a weekly or monthly basis. For the MFIs, these deposits enabled them to build up a pool of funds that they could then use to offer loans. Compulsory savings products are still an important part of many MFI schemes and could build household adaptive capacity and reduce vulnerability to natural hazards. However, the contribution of these schemes to reducing vulnerability appears to be limited for two reasons. First, the required deposits are very small as the target group of the MFIs is poor households, who have limited ability to save. This means that members need to deposit savings for several years to accumulate a balance that is large enough to be useful during or in the wake of disasters. Second, the MFIs may not have sufficient reserves to meet the demands for savings withdrawals during a disaster. Smaller MFIs may limit withdrawals to 50 to 75 per cent of members' savings due to their lack of liquidity.

In recent years, there has been a significant movement in the MFI sector towards providing voluntary savings products and diversity in product types to better serve the needs of poor households. Voluntary savings products are useful for households who, when aware of an impending disaster, such as a seasonal flood, wish to sell some of their assets and store the cash they receive in a safe place. The introduction of voluntary and flexible savings schemes by some MFIs has proved very popular, indicating that poor households have a need for savings services, and not just credit services. For example, after providing members open access to withdraw their funds in the first year, BURO Bangladesh recorded a 52 per cent increase in average savings balances per member (Dowla and Barua, 2006). Grameen Bank also noted a similar positive response from its members when it introduced several contractual savings schemes. Other MFIs also introduced diversity and flexibility into their savings products, making them more relevant to coping and recovery during floods (Meyer, 2002).

MFIs have also modified their savings products to make them more useful for their members in dealing with shocks. BURO Bangladesh has introduced contractual term savings that require its clients to make regular savings deposits for a certain period in exchange for the guarantee that they will be able to withdraw up to three-quarters of the accumulated balance without penalty during a disaster (Dowla, 2011). This type of arrangement can help clients self-insure and pursue riskier and potentially more profitable livelihood activities (Hammill et al., 2008). Flexible and diverse saving products may thus be contributing in various ways, both directly and indirectly, to climate change adaptation.

2.1.3 Micro Insurance

Micro insurance is a direct instrument of disaster risk management. Formal insurance is superior to informal measures in-so-far as it enables the poor to cover specific risks and hazards, such as injury, death, natural hazards, etc. (Churchill, 2006). However, formal insurance is mostly not available to poor rural households in Bangladesh, as the MFIs are confronted by several formidable challenges to designing and implementing insurance schemes to cover disaster losses.

The first of these challenges is achieving scale to reduce the impacts of exposure. As the clients of smaller MFIs are mostly located within a small geographical area, a single natural disaster is likely to affect either most or all of them at the same time. If disaster strikes, the smaller MFIs would be exposed to unmanageable losses. Larger MFIs with a national presence would be less affected, though large weather events, such as cyclones of the scale of Sidr and Aila in 2007 and 2009, respectively, or devastating floods like that of 2004, would make even the largest MFIs incapable of covering the losses.

The second challenge is related to moral hazard, i.e. having access to insurance could result in high risk taking, thus exposing the insured to greater losses. MFIs may be unable to discern whether the insured took the usual measures to avoid the losses they are claiming for.

The third challenge is that the participants in MFI schemes are poor households, many of whom are exposed to catastrophic risks. Because they are poor, their ability to pay insurance premiums is low. However, because they are exposed to catastrophic risks, insurance would only be financially viable if high insurance premiums are charged, or if the premiums are heavily subsidised.

A fourth challenge is the complications in the process of setting premiums. There is a deficiency of technical skills in the MFIs to determine adequate premiums for disaster-related insurance products. Calculation of reasonable possibility, frequency, intensity, depth and severity of risk requires specialised actuarial knowledge and skills, which the MFIs do not possess.

The challenges of promoting insurance to disaster prone low-income rural households are not unique to Bangladesh. Microinsurance is widely viewed as an important and effective mechanism to mitigate natural hazard risks (Botzen and van den Bergh, 2008) and disaster risk insurance programmes have been introduced in many developing countries (Mechler et al., 2006). However, voluntary participation in these insurance schemes has been much lower than expected. For example, less than five per cent of the eligible farmers in a drought-prone area in India subscribed to cheap rainfall insurance (Gine et al., 2008). In microinsurance studies, the low purchase rate of weather-related micro-insurance products has been called a 'puzzle in need of an explanation' (Cole et al., 2009).

Despite the challenges described above, some MFIs in Bangladesh do provide some types of insurance, including credit, health, life and livestock coverage. In terms of credit-linked insurance, MFIs have demonstrated significant interest offering insurance as a way to insure their outstanding loans (Alderman and Haque, 2007). While there has been significant progress bundling credit and insurance for livestock fattening, there is a risk that compulsory insurance schemes that are bundled with micro-credit or savings schemes could limit the ability of low-income households to access credit facilities, as such schemes increase the costs of borrowing or reduce the returns from savings (Akter et al., 2011).

Some examples of insurance to mitigate disaster risks can also be found. Proshika, for example, introduced compulsory group-based insurance in 1997. Clients had to deposit two percent of their savings in an insurance fund from which double the amount of the accumulated

savings was returned in the event of any loss of the members due to natural disasters (Akter et al., 2011). Also, in some cases the MFIs act as partner agents of the insurance companies and collect the microinsurance premiums for them. The latest available information reveals that ten insurance companies through partnering with 61 MFIs have been offering a range of microinsurance products in 81 schemes. The cumulative premium collection has been over Tk.11.2 billion from about 4.5 million clients (Bangladesh Bank, 2012).

In Bangladesh, there has been little progress with weather-based index insurance of agricultural crops. This is an attractive option as it avoids the costly and difficult process of loss assessment and avoids moral hazard (French et al., 2007). However, achieving scale to reduce the impact of exposure poses a major problem for the insurer, as agricultural losses from natural disasters such as floods and cyclones can be immense. A multi-risk crop insurance programme was introduced by the Government of Bangladesh nearly four decades ago, which covered the product harm perils of more than 15,000 farmers (Miah, 1992). The scheme was grossly unsuccessful as the volume of loss cases significantly surpassed the revenue from the premiums.

Important relationships have been observed between microcredit and microinsurance. Access to pre-disaster microcredit has been found to increase the take-up rate of microinsurance products (Gine et al., 2008 and Cole et al., 2009). Access to pre-disaster microcredit increases the affordability of insurance by enhancing household income or by relaxing shortage of liquidity. It also appears that microcredit and microinsurance can act as substitutes. Post-disaster microcredit can act as an implicit insurance against natural hazards. Therefore, households treat post-disaster microcredit and micro-insurance as substitutes subject to the fact that they independently serve as instruments for mitigating disaster losses (Brouwer et al., 2009). A study in the rural floodplains of Bangladesh reveals that post-disaster microcredit has a positive relationship with the decision to participate in insurance programmes and a negative relationship with willingness to pay premiums for flood-insurance. This may be due to the fact that households who accessed post-disaster microcredit to cope with natural disaster induced losses in the past were willing to invest in flood insurance as an alternative disaster coping measure (Akter and Fatema, 2011).

In sum, none of the MFIs provides insurance against disaster-related losses. This is, however, hardly surprising given the covariate nature of climate-related disaster risks and problems in accomplishing adequate scale, maintaining reasonable premiums, and controlling moral hazard. In fact, some insurance products exclude disaster-related losses on the basis that this could plunge them into considerable loss.

2.2 Responding to disasters

Being mostly development-oriented NGOs, Bangladesh's MFIs provide a wide range of services to households and communities, of which microfinance is but one. These include informal education and health programmes, awareness raising activities, training on income generation, institution building, etc. Below, we discuss those activities that are most directly related to natural disasters.

2.2.1 Disaster Management Fund

Some MFIs have developed special funds, either supported by donors or from their own income, to provide assistance to communities during and in the aftermath of disasters. These disaster management funds help the MFIs protect themselves from liquidity crises when there is a sudden run on savings deposits during a natural disaster. When invested in government bonds or long-term deposit schemes in the banks, these funds can be disbursed within 48 hours and distributed among the affected clients on soft terms. The Palli Karma-Sahayak Foundation (PKSF), the largest microfinance wholesaler in Bangladesh, requires all of its partner MFIs to contribute one per cent of the interest from their income to a Disaster Management Fund (DMF). PKSF then provides additional funds to its partner organizations to cope with disasters.

2.2.2 Disaster Management Plans and Activities

With millions of members that are exposed to climate hazards, it is important for MFIs to take a comprehensive and multi-dimensional approach at individual and household levels to assist their members in preparing for, mitigating, coping with and recovering from climate-related shocks (Scoones, 1998). Recognizing these challenges, many MFIs have developed disaster plans, basing the content on their experiences with floods, cyclones, tidal surges and other natural hazards. The Grameen Bank, for example, has developed a disaster plan with three phases. First, it prepares its members at the beginning of the flood season by having its staff remind them at weekly meetings to store nonperishable food items and to immunize livestock. In the second phase, which is during the flood period, bank staff visit borrowers at their homes or in shelters to distribute water purification tablets and oral rehydration solution, and deliver savings. Repayments are suspended and local branch managers are authorised to declare their centres as 'disaster centres'. Bank staff also provide at-cost emergency food aid that must be repaid after the flood. Third, in the post-flood period the Bank makes cash transfers using geographical targeting of the worst hit areas and uses local knowledge and branch managers to trigger these transfers. The Bank disburses money from each of its centre's disaster fund. The head office also sends money to the worst affected areas from the Bank's Rehabilitation Fund, which is financed from imputed tax and undistributed dividends. The Bank reschedules loans and offers new loans for its members to resume their income generating activities and rebuild damaged houses (Dowla and Barua, 2006).

MFIs have developed their approaches to disaster management over time, mostly in response to floods and cyclones as these are the most recurrent natural disasters. Their initiatives include constructing flood and cyclone shelters, assisting their members raise the plinths of homesteads and construct tube wells, providing basic food and medical services during emergencies, distributing agricultural inputs and credit for rehabilitation after disasters, and various types of training for MFI staff and community members to support rehabilitation.

However, the full potential of MFIs to support disaster planning and mitigation is yet to be realised. In terms of financial services, only a few of the MFIs working in the disaster-prone areas offer loans to protect assets from disasters or build disaster resilient houses. Currently,

much of the training on disasters provided by MFIs to their members is confined to raising awareness. Further training and support of MFI management and field staff is required for disaster mitigation to be mainstreamed in their programmes and activities.

3. MFI Approaches to Disasters and Climate Change Adaptation

The previous section touched upon MFI financial services and their relevance to climate change adaptation and provided a brief overview of how MFIs have incorporated disaster planning and action into their programmes. This section digs more deeply into MFI involvement in disaster risk reduction and climate change adaptation, providing several illustrative examples of the types of approaches they are implementing. The policy context of climate change adaptation and disaster risk reduction is first briefly described to assist in contextualizing the approaches taken by the MFIs.

In recent years, the government has formulated several strategies and plans in response to the economy-wide negative consequences of disasters and other adverse effects of climate change. It formulated the Climate Change Strategy and Action Plan (CCSAP) in 2009 and the National Disaster Management Plan (NDMP) for 2010-2015. The CCSAP has a decade-long programme (2009-2018) to build the capacity and resilience of the country to meet the challenges of climate change. It encompasses food security, social protection and health to ensure the protection of the poorest and most vulnerable groups; comprehensive disaster management to strengthen the country's existing disaster management systems; climate-resilient infrastructure; research and knowledge management to predict the likely impacts of climate change; and enhanced capacity of government organizations, civil society and the private sector to address the challenge of climate change. The NDMP articulated two types of measures for adaptation, viz. intervention and facilitation. In addition to these two documents, a background study was conducted for the Seventh Five-Year Plan (2016-2020) that also has relevance to climate change. It recommends readiness, enhancing management skills, prioritization and costing of programmes and projects, strengthening integration of climate change actions with development efforts, and improving implementation, monitoring and shared learning and integration of gender responsiveness in project design for better disaster management and climate change adaptation.

MFI engagement in climate change and disaster management is located in this wider policy context. Several examples are provide below to highlight the types of approaches MFIs have adopted and to consider precisely what the role of MFIs should be in disaster risk reduction and adaptation.

3.1 Palli Karma-Sahayak Foundation (PKSF)

PKSF was established by the Government of Bangladesh in 1990 as a not-for-profit organization with the purpose of supporting the extension of microfinance services to achieve sustainable poverty reduction through employment generation. PKSF has various programmes to support the delivery of services through MFIs that are registered as its “partner organizations”

(POs). Some of these programmes target disaster risk reduction and climate change adaptation. For example, under its Community Climate Change Project some POs provide technical and financial assistance for rainwater harvesting and water filtration and for climate-resilient livelihood activities in the southern part of Bangladesh affected by salinization and frequent storm surges. PKSf understands that greater support is needed to scale up these efforts and reduce costs to households, and plans to establish a separate division to more effectively support climate change adaptation. Table 1 provides a list of some of the programmes PKSf has initiative in response to climate-related hazards.

Table 1: PKSf programmes to support disaster affected households

Year	Name of Project	Main features	Support
2002	Socio-Economic Rehabilitation Loan Programme (SRLP)	Financing disaster-stricken people	Asia Development Bank
2004	Livelihood Restoration Project (LRP)	Loan for recovery from disaster	World Bank
2007	Emergency 2007 Flood Restoration and Recovery Assistance Programme (EFRRAP)	Loan for recovery from disaster	World Bank
2007	Special Assistance for Housing of Sidr Affected Borrowers (SAHOS)	Finance for recovery from disaster	Government
2007	Rehabilitation of Sidr Affected Coastal Fishery, Small Business and Livestock Enterprise (RESCUE)	Finance for recovery from disaster	Government

The following specialised programmes are notable in terms of their support for disaster management and climate change adaptation:

Emergency 2007 Flood Restoration and Recovery Assistance Programme (EFRRAP): Launched by the Government of Bangladesh in co-operation with the World Bank in July 2008, EFRRAP was an initiative of PKSf in response to the flood of 2007 that directly affected over 13 million people in 47 districts. The World Bank allocated a grant of US\$15 million to PKSf through the Ministry of Finance and the Social Development Foundation (SDF). PKSf was assigned to channel this fund with revolving facilities under its existing Disaster Management Loan Policy for the implementation of livelihood restoration activities. EFRRAP provided quick and flexible financial assistance to minimize flood losses by improving and upgrading the livelihoods of the poor households. The programme was confined to flood-prone, recurrently distressed, river-erosion, char and extremely disadvantaged areas.

During FY2010-2011, Tk.173.00 million was disbursed to POs through EFRRAP, which in-turn distributed a total of Tk.410.57 million in the form of loans to flood-affected persons for recovery. Under EFRRAP 111 POs have delivered soft loans and other forms of assistance to 270,317 members for livelihood restoration, post-disaster rehabilitation and disaster preparedness.

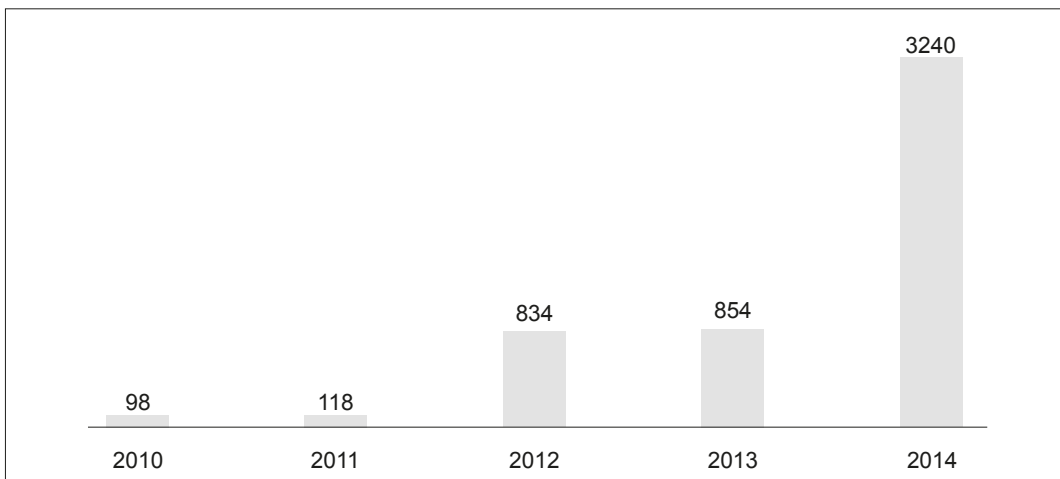
Community Climate Change Project (CCCP): The CCCP is implemented under the BCCSAP and is funded under the Bangladesh Climate Change Resilience Fund (BCCRF), which is a multi-donor trust fund. Ten percent of the accumulated fund of the BCCRF is assigned for NGO

programmes aimed at enhancing the ability of people to adapt to the adverse effects of climate change. PKSF manages this budget window and transfers funds on to its POs for climate change adaptation interventions at household or community level. The activities funded under the CCCP through POs include primary health care services, raising household plinths, household level rainwater harvesting, community level water filtration systems, training on climate-resilient livelihood activities, vermicompost making, etc.

Programmed Initiatives for Monga Eradication (PRIME): PRIME aims at eradicating monga, or seasonal starvation, which occurs during the lean period in the agricultural cycle. PRIME was first implemented in northern parts of the country and after its initial success was expanded to southern parts affected by cyclones Sidr and Aila. PRIME objectives are to assist people to cope with the seasonal loss of livelihood causing monga and to create diversified household income sources to eradicate monga. PRIME interventions include food-for-work, emergency loans, flexible micro-credit, micro savings, training on income generating activities and health services and medicine supply. PRIME has also provided relief after disasters. During 2010 and 2011, PRIME supplied about 140,000 liters of safe drinking water per day to Aila victims for nearly 150 days. It also re-excavated 15 ponds contaminated by saline water to preserve fresh water in Shayamnagar upazila in Satkhira district. Under PRIME-3, a total of 3,959 beneficiaries were involved for 60 days in work programmes in the Aila-affected area. The programmes provided a total of 240,117 workdays worth Tk.36 million.

Disaster Management Fund (DMF): The DMF provides quick financial assistance to poor households to cope with and recover from disasters, prevent them resorting to advanced sale of labour and enable them to smooth consumption. It is utilised in times of disaster or afterwards for restoration of livelihoods, rehabilitation, urgent medical services, water and sanitation, and to meet emergency consumer needs. PKSF mobilised this fund from its own income and from other organizations. The DMF has increased rapidly since it was launched (Figure 2).

Figure 2: Growth of PKSF Disaster Management Fund (Million Tk.)



Source: Based on Annual PKSF Reports.

3.2 BRAC

BRAC, the largest NGO in Bangladesh, was first involved in relief efforts to support disaster-affected households in the 1970s. Microfinance later became an important element of its rural development programme, which is aimed at assisting poor households lift themselves out of poverty. BRAC adjusts its financial services to help members cope with and recover from climate-related hazards, in addition to providing relief, employment and other support.

Credit and savings: BRAC does not have any specialised loan product targeting climate change; it offers the same product having the same interest rate and repayment periods (weekly or monthly) all over Bangladesh. However, when households are impacted by covariate shocks, it employs several credit-related measures to help them get back on their feet. BRAC suspends all loan repayments after any disaster; for example, after Sidr struck in 2007, it suspended repayments through to March 2008. It also provisions for a loan product that is accessible to clients immediately after any disaster, regardless of whether they have several running loans. BRAC is also implementing a pilot “Voucher Project” that provides vouchers to borrowers when they cannot pay an installment in any period. Each voucher slip can be used for each installment.

Insurance: The only (quasi) insurance BRAC provides is writing off outstanding loans when the family head dies. BRAC is now pilot testing life insurance in partnership with an insurance company. Clients have to pay premiums of Tk.7 per Tk.1,000 for insuring both the husband and wife of a household.

Emergency relief response: BRAC usually responds to any major disaster by providing food, medical and water services through its local infrastructure in the affected region. During Sidr, it delivered healthcare, water and sanitation services, partnering with government departments, other emergency relief agencies and local NGOs. After Aila, BRAC initially provided emergency food and shelters, followed by water and sanitation facilities, and then livelihood support.

Creating immediate employment opportunities: BRAC has introduced a series of food-for-work schemes, which focus on repairing roads, schools and public clinics damaged by disasters.

Long-term rehabilitation: BRAC conducts a range of activities aimed at rehabilitation after disasters. These include rebuilding educational infrastructure, reestablishing social forestry, replacing poultry and livestock, agricultural rehabilitation, replacing fishing boats, repairing water filters, constructing additional cyclone shelters and creating long-term livelihoods. BRAC implemented relief and rehabilitation programmes in Sidr-affected areas, in addition to an initial write-off of affected members’ loans amounting to US\$4.9 million. In 2008, BRAC initiated the post-Sidr Livelihood Rehabilitation Programme (LRP) to restore the livelihoods of the disaster-affected households. As part of its rehabilitation programme, in the wake of Aila BRAC helped households develop small-scale enterprises, establish homestead gardens for vegetable cultivation, and excavate ponds for fisheries, and distributed rickshaw-vans among the hardest hit households.

Adaptation-related assistance for livelihoods in agriculture: In 2010, BRAC introduced the salt-tolerant rice variety BRRIdhan-47, fish cultivation and crab fattening in areas affected by salinization after Aila had struck. It introduced the 'mound technique' for growing vegetables in submerged soil in the coastal areas affected by Sidr and Aila. BRAC also encouraged the cultivation of new cereal varieties, hybrid crops, and early maturing crops to deal with the new conditions that farmers were experiencing after these disasters. It introduced maize in Sidr-affected areas, and to assist farmers to switch to hybrid varieties provided support in the form of training, seeds, fertilizer, tillage services for land preparation, irrigation services, and renting of equipment. BRAC also introduced mechanized ploughs, low lift pumps and sprayers.

Vegetables and betel leaf: After Sidr, BRAC provided a total of 66,034 small women farmers with grants of Tk.4,000 per acre for land preparation, and the purchase of seed/vines and fertilizer. Betel leaf production is mainly undertaken by women from the Hindu minority households in the Sidr-affected areas.

Tree plantation and social forestry: BRAC provided assistance for replanting trees after Sidr. It provided Tk.4,000 per woman for land preparation, the purchase of seedlings and fertilizer to prepare land, and the purchase of fertilizer and seeds under its social forestry programme.

Livestock rearing and fisheries: BRAC helped households who had lost cattle because of Sidr purchase cows. It also provided Sidr-affected fishers support of Tk.20,000 for the construction of fishing boats, and the purchase of fishing nets and other items for fishing. Fishers were also provided matching support for their labour for manufacturing boats. BRAC directly provided 200 boats and nets in 2008.

Early warning and operations: BRAC's Disaster, Environment and Climate Change programme (DECC) includes an early warning system. This provides daily weather forecasts by collecting data from the Bangladesh and Indian meteorological departments, the Bangladesh Flood Forecasting and Warning Centre and the Regional Integrated Multi-Hazard Early Warning System. It rapidly collects and disseminates real-time information to vulnerable areas before disasters. In addition, DECC has developed standard operating procedures (SOPs) to respond to natural disasters, which BRAC uses as a guideline for its operations before, during and after disasters. The district BRAC representatives (DBRs) coordinate the responsibilities of other BRAC staff in their respective areas in cases of emergency. They also oversee the communication flow, evacuation, rescue, and relief distribution activities, and maintain close contact with local government officials for effective implementation of these activities.

Community-level training: BRAC provides disaster management training to clients of its major programmes. Its community health volunteers and health workers receive first aid training to apply during and after disasters. The trained teachers of BRAC schools teach the students about disaster risk reduction (DRR), and distribute information, education and communication materials.

Disaster-resilient communities: DECC has constructed 43 disaster-resilient houses and one disaster resilient school at Shyamnagar upazila in Satkhira district using local materials and

knowledge. These are expected to save lives and assets during emergencies by acting as community cyclone shelters.

Alternative livelihood options: DECC has begun forming women's groups in the areas affected by cyclones, floods and drought to identify the most vulnerable members, and provide livelihood support grants and training. The alternative livelihood options offered to these groups are tailoring, rice processing, crab fattening, net making, and livestock rearing.

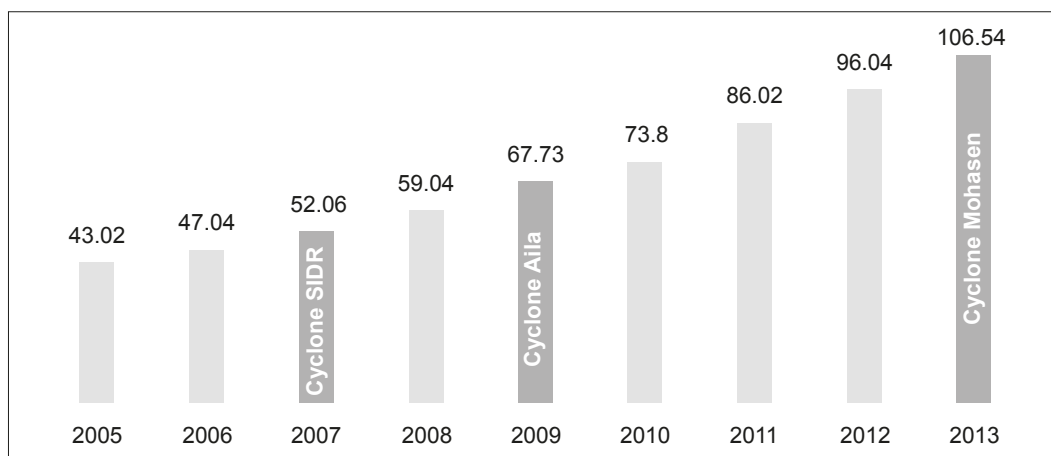
Being climate-smart: DECC is coordinating research to model the effects of climate change on BRAC's programmes to identify programmes that should proactively address vulnerability and become resilient to the adverse effects of climate change. It also aims to develop an action plan to address the future challenges of the programmes.

3.3 BURO Bangladesh

BURO Bangladesh is a large national MFI that has a disaster mitigation programme for its affected clients. It has been selected as a pre-qualified NGO to work with the United Nations Country Team in responding to disaster emergency in Bangladesh. The disaster-related support it provides is not based on vulnerability mapping, but rather on need assessment surveys. Currently it has no specific financial product for climate change adaptation and has no insurance programme other than credit insurance in which debt dies with the borrower. Its disaster-related assistance includes the following:

Disaster loan: BURO's disaster loans are intended to reduce the effect of shocks to households' financial and physical assets immediately after natural disasters. The loans are intended to meet affected households' immediate needs for cash during the difficult times in the wake of a disaster. Rather than undertaking charitable activities, BURO provides disaster loans to build a self-help attitude and self-reliance among the disaster-affected households. Disaster loans range from Tk.3,000-5,000, carry an interest rate of 10 percent, and are to be repaid over one year.

Figure 3: Annual amounts of BURO Bangladesh's Emergency Disaster Fund (Million Tk.)



Source: Based on Annual Reports of BURO Bangladesh.

Emergency Disaster Fund (Donor Grant): BURO has set up a disaster fund in which four donors, viz. Sida, Swiss Agency for Development and Cooperation (SDC), UK Department for International Development (DFID) and the Australian Agency for International Development (AusAID), have so far provided grants of Tk.30.27 million. The fund earns interest in a bank and the fund total now stands at Tk.106.54 million (Figure 3). The fund enables BURO to extend loans with lower charges to assist affected households in rebuilding their livelihoods after a disaster (Annual Report, 2013-14).

Disaster awareness programme: BURO is conducting this programme in disaster-prone areas. The disaster awareness programme includes pre-disaster and post-disaster preparedness. Activities include raising public awareness for minimizing disaster losses, and encouraging households to construct disaster resilient houses and hygienic toilets.

Disaster management programme: The disaster management programme aims to reduce income erosion of BURO clients by providing services related to disaster preparedness and response. To promote disaster preparedness, the programme provides technical assistance aimed at building institutional capacity and encourages existing indigenous practices. BURO responds to disasters by (i) distributing in-kind emergency relief; (ii) quickly disbursing loans to affected customers; (iii) providing rehabilitation support, e.g. constructing/repairing houses and roads, raising the level of flood shelters, providing water and sanitation facilities, etc.; (iv) supporting economic activities, e.g. through seed and fertilizer distribution, etc.; and (v) participating in strengthening the network of information, response and preparedness activities during disasters.

3.4 ASA

ASA is one of Bangladesh's largest MFIs. Compared with many other MFIs in the country, ASA's support to households is more focused on financial services, though it does offer some services to support disaster risk reduction. In terms of disaster-related activities, ASA initiated a microcredit programme for flood-affected people on a pilot basis in the late 1980s. Currently, it does not have any specialized financial product targeting vulnerable people in disaster-prone areas or climate change adaptation, but it operates some relevant non-financial services in southern parts of the country, such as raising public awareness for pre-disaster preparedness, providing relief during disasters, training its members to cope with the new conditions they are facing, etc. To promote rehabilitation after disasters, ASA defers repayments and offers housing loans. Other programmes to assist disaster-affected households include stipends for school children from poor and disadvantaged households, especially in cyclone Sidr- and Aila-affected areas, and programmes on drinking water and irrigation, especially in Aila-affected areas where salinity is a major problem for small and marginal farmers.

ASA's insurance products are limited to credit insurance, which is compulsory. Before receiving a loan, the borrower must pay Tk.3 per Tk.1,000 (or Tk.7 for the borrower and his/her spouse or guardian), and in return the loan is written off if the borrower (or borrower and his/her spouse or guardian) dies. ASA is considering developing crop insurance, livestock insurance, and other insurance products.

3.5 Approaches of Selected Local MFIs

To gain a deeper understand of how MFIs are working on disaster and climate change adaptation issues, a qualitative field study was conducted on the programmes of two local PKSF POs in Shyamnagar upazila of Satkhira district in 2014. Satkhira is a low-lying district heavily dissected by rivers in the disaster-prone and climate change sensitive southwestern part of the coastal belt of Bangladesh. The study intended to identify if there are any distinct programmes that MFIs have in disaster prone areas and what the needs of their clients are for support to promote climate change adaptation.

3.5.1 Jagorani Chakra Foundation (JCF)

Established in 1975, JCF is currently operating five branches in Shyamnagar upazila. One of these branches was studied in detail. The branch was established in 2006 and at the time of the survey had 1,097 members. Sidr and Aila affected 54 and 88 per cent of members, respectively, while cyclone Mohasen in 2013 did not cross this area.

The studied branch has not provided direct support for disaster preparedness or risk mitigation. The only insurance provided is debt insurance. The branch has not provided any training or advice regarding disaster management. JCF offers no specific financial product for disaster management and climate change adaptation.

While the branch has not been involved directly in disaster preparedness in any significant way, it has supported coping and recovery. Immediately after Sidr and Aila, it distributed basic items including candles, water, saline, and biscuits, etc. to affected households. It also rescheduled loan repayments and extended repayment periods according to the severity of disasters. Members affected by Sidr received their savings and loan repayment was postponed for three months and compulsory savings for two months. Members were encouraged to restart loan installments three months after the disaster, but this was not mandatory. After Sidr, the branch provided a total of Tk.773,000 in the form of two-year loans with four per cent interest to 597 members to repair houses and toilets. Each household received a loan of Tk.4,000. After Aila, the branch provided loans of Tk.10,000 at four per cent interest from the PKSF's EFRRAP (Emergency 2007 Flood Restoration and Recovery Assistance Programme) and DMF (Disaster Management Fund) to 963 members. The total value of the loans from these two sources was Tk.1,473,000 and Tk.2,073,000, respectively. EFRRAP loans were used to repair houses, to build dams, etc., while DMF loans were for repairing houses. The branch manager reported that the fund was adequate to cover all the affected clients.

3.5.2 Bangladesh Development Society (BDS)

BDS was established in 1998 and now has a total of 9,500 members in Shyamnagar upazila. As with JCF, it does not offer any health, property or life insurance products. Its involvement in disaster-related activities has centred on coping and recover, rather than on activities aimed directly at disaster preparedness and mitigation. As with JCF, it provides some basic instructions for its members to reduce disaster risks, i.e. (i) they should go to a shelter as soon

as they receive warning of a disaster; (ii) they should build disaster resilient houses with a better foundation and strong pillars; (iii) they should make a high wall of soil to protect their houses; and (iv) large trees around the house should be removed to avoid death and damage to houses.

After Sidr, loan repayment was postponed for four months and savings were returned to 300 members. The studied branch granted three types of loans to 353 women: SAHOS (Special Assistance for Housing of Sidr Affected Borrowers) loans to 22 members, RESCUE (Rehabilitation of Sidr Affected Coastal Fishery, Small Business and Livestock Enterprise) loans to 60 members and LRP (Livelihood Restoration Project) loans to 271 members. The amount of funds for these loans that the branch received from PKSF was Tk.200,000 from SAHOS, Tk.900,000 from RESCUE and Tk.750,000 from LRP. All these are soft loans. For SAHOS loans, members are not required to pay any installments in the first six months, and those who repay the loans in three months are not required to pay interest. RESCUE loans have a duration of 36 months and an interest rate of four percent. LRP loans have a short duration of 12 months and carry a charge of four per cent interest.

3.6 MFI Approaches to Disaster Risk Reduction and Climate Change Adaptation in Comparative Perspective

MFIs are implementing various programmes and projects related to disaster risk reduction and climate change adaptation. Most appear to have specific programmes or strategies for the disaster relief phase, including providing basic necessities, adjusting their financial products to reduce the burden on households, and making deposits and emergency soft loans available to their members. Some have established their own disaster funds for these purposes, while PKSF POs are able to draw on PKSF's Disaster Management Fund. With support from donors PKSF has established various programmes and some NGOs have developed their own initiatives to facilitate recovery and reconstruction. These interventions include loans to reconstruct houses, toilets, etc. and recover livelihood activities. Overall, MFIs appear to be less involved in the disaster preparation stage. Some do have disaster awareness programmes and support vulnerability assessments and disaster management planning at community level, but this may not be common across the MFI sector. Lack of funding for disaster preparation and the attraction to donors of providing funding for relief and recovery probably explains why MFI's may give less attention to disaster preparedness.

Some MFIs are also providing financial and non-financial services, and a combination of both, directly aimed at promoting adaptation to climate change. A variety of non-financial adaptation interventions aimed at household and community level are being implemented by MFIs under PKSF's Community Climate Change Project.

3.6.1 Financial Services

Credit: Some commonalities and differences can be seen in the way in which the MFIs have developed their credit products to reflect the disasters that their members face. BURO Bangladesh, Proshika and JCF, for example, all reschedule loan repayments after natural disasters and extend the repayment period depending on the severity of impacts, while BDS

only postpones loan repayments. Grameen Bank allows renegotiation of repayments and also has an exit option for borrowers.

MFIs have begun to develop special credit programmes to directly support climate change adaptation. BRAC, for example, has introduced zero-interest loans under its Agricultural Credit Programme for the cultivation of climate adaptive crops (e.g. beans, corns and sunflower). BURO Bangladesh's support for summer tomato production is another example of how MFI's are assisting households adapt their livelihoods to altered climate conditions. PKSF's PRIME programme has, through its participating POs, also matched loans with alternative livelihood activities, such as crab fattening, that are expected to be more climate resilient.

Savings: MFIs were initially reluctant to provide their members with full access to compulsory savings, as the savings provide a revolving pool of funds for their credit services. However, they began to realize the importance to poor households of having access to their savings as well as to voluntary savings products. BRAC, JCF, BDS and many other MFIs now provide their clients access to their compulsory savings during disasters. Some MFIs, such as Grameen Bank, have introduced voluntary savings products, which have proved popular.

Insurance: Insurance services are generally not as well developed as credit and loan services, despite the theorized potential of formal insurance to mitigate risks faced by vulnerable households. The strongest product development has been made with credit-life, health and livestock insurance. Most MFIs, including those reviewed in this paper, offer credit-life insurance, under which "debt dies with the debtor." Health insurance is offered by some MFIs and has been promoted under PKSF's Developing Inclusive Insurance Sector Project (DIISP), though, because of high exposure to risk and low ability to pay, the payouts are not expected to cover the full cost of medical services. Livestock insurance is also promoted under the same project.

3.6.2 Non-financial Support

The non-financial support provided by MFIs mainly consists of disaster planning, relief and rehabilitation support during and after disasters, and targeted support on adaptation to households already affected by climate change. Even though all of them are trying to help vulnerable households and communities, the nature and extent of the programs vary depending on the institutions providing the service, areas affected, type of disaster covered and nature of the programmes.

There is an overall dearth of comprehensive disaster plans among the studied organizations. The main approach they take to disaster planning is to prepare their clients for the disasters by providing early warning and information, conducting staff visits to the areas likely to be affected, and guiding their members on what to do during the disaster, such as taking shelter, conserving dry food and other basic items that assist with coping. This approach was introduced by the Grameen Bank in response to the flood of 1998. A similar but more comprehensive approach was developed by Proshika, which includes improving the knowledge base of the vulnerable communities on how to reduce disaster risks. This approach has been customised by BDS through training programmes for salinity- and cyclone-prone areas.

All the studied MFIs have programmes on extending support during and after disasters in the form of relief operations. The support during and immediately disasters include inspections of the affected areas, and providing food and basic medical care, water, and water purification tablets. Another common approach is providing rehabilitation support to reconstruction physical infrastructure at community and household levels. Financial support may be provided for the repair and reconstruction of household dwellings.

There are, however, some differences in the approaches to support clients taken by MFIs before, during and after disasters. For example, PKSF's disaster management fund, which extends support to restore the livelihoods of affected households through its POs, is somewhat unique. The creation of such funds provides the foundations for a responsive approach to disaster relief and rehabilitation as the funds can be directed according to needs.

Compared to disaster risk reduction, direct MFI support for adaptation is more limited, though some examples were observed in this review. The approaches vary largely across MFIs. Perhaps the most comprehensive package of adaptation support is provided by PKSF's CCCP implemented through its POs. The CCCP provides small grants to households and communities for a variety of interventions including rainwater harvesting to address the problem of salinity. It also provides training on climate-resilient livelihoods, such as crab fattening, in the disaster-prone areas; however, the CCCP does not provide financial services to support these livelihoods. Some matching of financial services with alternative livelihoods can be seen in BRAC and other MFIs that are supporting the introduction of new crops and agricultural methods in areas affected by climate change. A challenge that needs to be faced is to develop dedicated funding and a programmatic approach to support adaptation interventions at household and community-level that cannot be self-financing or financed locally.

Table 2: MFIs in Disasters and Climate Change Adaptation

Products/ Services	PKSF	Grameen Bank	BRAC	ASA
Credit	Under PRIME, PKSF POs provide flexible microfinance services to households vulnerable to seasonal starvation. Disaster-related loans provided under the SAHOS and RESCUE programmes.	Borrowers can renegotiate the repayment schedule after a disaster. They can exit if they face problems in repayment	<ul style="list-style-type: none"> • Zero-interest loan under Agricultural Credit Programme for climate adaptive crops (e.g. beans, corns and sunflower) • Suspended all loan repayments in the cyclone affected areas • Regular loan repayments can be suspended for a period. Interest rates can be reduced significantly for up to two months. • Loans can be restructured for clients with marginal disaster losses (based on field visits). • Loans can be refinanced for clients with high disaster losses (based on field visits). • New loans are offered for productive asset replacement of up to 12 months at 15 percent interest. 	Micro-credit program for the flood affected people on pilot basis in the late eighties
Savings	No disaster specific savings item	Before flood season the borrowers are suggested to put extra money as savings so that they can withdraw during and after flood	<ul style="list-style-type: none"> • Clients can withdraw savings up to a specific pre-established amount. BRAC provides full access to borrower's own emergency savings 	None
Insurance	Under PKSF's Developing Inclusive Insurance Sector Project (DIISP), POs are providing credit-life, livestock and health insurance	<ul style="list-style-type: none"> • Insurance scheme for micro-enterprises against losses caused by natural disasters • Livestock insurance for its members 	None	None

Table 2: MFIs in Disasters and Climate Change Adaptation (Cont.)

Products/ Services	PKSF	Grameen Bank	BRAC	ASA
Disaster plan	None	Prepares borrowers at the beginning of flood season	None	None
Support during and after disaster	Maintains a disaster management fund for livelihood restoration, rehabilitation (repair houses), urgent medical services, water and sanitation (including tube wells and latrines), and to meet emergency consumption needs during and after disasters through POs.	<p>During Disaster: Staff visit borrowers at home or in shelters, distribute water purification tablets and oral rehydration solution</p> <p>After Disaster: Makes cash transfers</p>	<p>During Disaster: Provides relief</p> <p>After Disaster: Extensive efforts in health, water and sanitation Medical teams work in remotest affected areas. Introduces a number of agricultural and nonagricultural interventions</p>	<p>During Disaster: Provides relief</p> <p>After Disaster: Assesses the losses and provides credit support for rehabilitation</p>
Other direct adaptation support	Through the CCCP, supports various adaptation measures through small grants to households and communities. The measures include rainwater harvesting, training on climate-resilient livelihoods such as crab fattening, home gardens, etc.	None	None	Stipend programme for poor and disadvantaged school children and programme on safe water for drinking and irrigation purposes in Sidr and Aila affected areas.

Table 2: MFIs in Disasters and Climate Change Adaptation (Cont'd)

Products/ Services	BURO Bangladesh	Proshika	JCF	BDS
Credit	Loan repayment is rescheduled and repayment period is extended	No specific credit programme but loan repayment is rescheduled and repayment period is extended, depending on severity of impacts	No specific credit programme but loan repayment is rescheduled and repayment period is extended, depending on severity of impacts	No specific credit programme but loan repayments are postponed after disaster
Savings	None	None	Affected clients have access to their savings when disaster strikes	Affected clients have access to their savings when during disasters
Insurance	None	Compulsory group-based insurance since 1997	Credit insurance	None
Disaster plan	None	Used to deliver software services stressing on preventive measures to improve the knowledge of the community on comprehensive risk reduction	None	Provide training to its members to cope up with adversities
Support during and after disaster	Relief operation during disaster and rehabilitation after disaster	Used to conduct relief operation during disaster and rehabilitation after disaster	Provides basic goods such as candle, water, oral rehydration saline, biscuits, etc. during disaster, and provides loan to repair houses and to rebuild toilets after disaster	Provided loans to rebuild houses after Sidr
Other direct adaptation support			Field officers talk about sanitation during the general meetings	Provides some general guidance to reduce the losses arising from disaster

4. Way Forward

Based on the above discussion, the following broad recommendations are suggested for strengthening the contribution of microfinance and MFIs to climate change adaptation in Bangladesh.

4.1 Development and resourcing of comprehensive and multidimensional adaptation and disaster risk reduction programmes:

MFIs are already implementing a range of interventions designed to increase household adaptive capacity and reduce disaster risks. Their interventions include community-level vulnerability assessments and disaster planning, early warning systems, distribution of relief, training on climate-resilient livelihoods, health and sanitation programmes, loans for the construction of disaster-resilient houses, small grants for activities such as plinth raising to protect homes, livestock, pond fisheries and other assets, etc. However, these activities are not always located in comprehensive adaptation / disaster risk reduction programmes, and are in many cases dependent on short-life donor funding. Their sustainability is thus a concern. The challenge here is to extract best practices and scale up the activities within a comprehensive strategy on adaptation and disaster risk reduction implemented by each MFI. To achieve this will require innovative financial and technical support from funders. PKSF, as an umbrella organization for much of the MFI sector, has a particularly important role to play. Its plan to establish an adaptation division within the organization is timely.

4.2 Climate-orientation:

There might be a conflict between short-term MFI-funded income generation activities and responses required to improve resilience to the adversities of climate change. MFIs should thus adopt a climate lens in their financial activities to avoid increased vulnerability to climate change in the long run (Agrawala and Carraro, 2010). Currently BRAC is examining the climate sensitivity of its programmes in order to be a “Climate Smart BRAC”. Other MFIs can learn from this initiative to ensure their programmes are climate resilient.

4.3 Increasing availability of products and services:

MFIs should have a policy to reach out with appropriate products and services to poor people who are most vulnerable to climatic risks due to them residing in hard-to-reach and exposed areas such as char, haor and the coastal belt. The concentration of MFI branches operating in these areas tends to be lower than in less exposed and more accessible locations. Increasing the number of MFI branches in these areas will make micro financial services more available to climate-vulnerable households. Some means of subsidizing these branches may have to be considered, as the vulnerability of their clients to climate risks may mean that the branches may not be able to operate at full cost recovery.

4.4 Increase the size of the loan:

The average size of loans provided by MFIs has apparently increased in the past few years in response to the fact that some households were joining more than one MFI to gain access to greater credit. However, MFIs in disaster-prone and coastal areas are reluctant to provide loans as start-up capital because of perceived risks. They are unwilling to finance new projects outside their established products. A government-MFI joint initiative could scale-up microfinance and develop hybrid products towards creating new economic opportunities in these areas. The government can provide finances through PKSF to its POs who can then offer new and scaled up products for creating new economic opportunities in disaster-prone areas. Making larger loans available and packaging these with training on specific enterprises could increase the contribution of microfinance to household income, which would contribute to household adaptive capacity.

4.5 Index-based crop insurance:

Agro-based poor households suffer considerably whenever their seasonal crops are damaged by disasters. If they cannot repay their existing loans, they find it difficult to get new loans, especially from formal and quasi-formal sources; hence, crop insurance can be of great help to these households. In the case of index-based insurance, the claims would be paid when a physical level (trigger) has been reached, e.g. a predetermined amount of rainfall. The index should be highly correlated with losses, which means that careful assessment of historical climate and loss and damage data is required. Index-based insurance has two key advantages over conventional indemnity insurance. First, the expense associated with loss assessment is avoided. Second, moral hazard is reduced as the payout is based on a trigger, not on farmer claims. Further, multiple types of crops and perils can be covered to further reduce the risks that farmers are exposed to (Akter et al., 2007). However, considerable risk to the insurer is associated with any type of crop insurance; hence, reinsurance services for MFIs is needed before crop insurance can take off in Bangladesh. In addition, a regulatory framework is required to enable the MFIs to offer insurance and have access to reinsurance.

4.6 Greening of MFIs:

Due to their poverty and lack of environmental awareness many poor people who are directly dependent on ecosystems for their livelihoods resort to activities that degrade the environment. In order to repay loans on time, they may undertake income-generating activities that deplete and degrade natural resources and ecosystem services. To avoid this, MFIs should promote environmental literacy and environmentally sustainable alternative livelihoods. The challenge is for MFIs to realize a 'triple bottom line' constituting economic, social and environmental returns for vulnerability reduction and climate change adaptation (Hammill et al., 2008).

4.7 Establishing microfinance banks:

Lack of liquidity is a major constraint facing NGO MFIs that want to expand their financial and non-financial services. Under the law, they are not allowed to accept savings deposits from

non-members. The Grameen Bank, which was established under the Grameen Bank Ordinance 1983, is allowed to accept deposits from non-members and this has contributed greatly to its strong financial foundation. If NGO MFIs could take deposits from non-members, they would have extra liquidity to provide a greater variety of financial products, including larger loans, and to provide non-financial services to build the adaptive capacity of their poor members. A law or regulation that allows MFIs to transform their financial services into microfinance banks is thus needed.

4.8 Piloting of packaged services through experimental design:

Just as climate change is dynamic, so too is adaptation. Adaptation is not a once-off activity, but rather a continual process in which decisions are taken from household through to national level and beyond to predict, prepare for and respond to change. Many NGO MFIs are in the process of adjusting their financial and non-financial services to foster adaptation to climate change by providing poor individuals and households with support for developing their capacities and accumulating and managing assets to mitigate and recover from shocks. Some MFIs are also providing support for the development of climate-resilient livelihoods in areas already impacted by climate change. These initiatives are important, but there is a need for greater piloting of financial and non-financial services packaged to promote adaptation at household and community levels. Such “packages” could combine financial services (credit, savings and insurance), infrastructure development, technical and human capital development (education, training and health), institution building, social and natural asset development, and collaborative networks (NGOs, local level and national government, research bodies, private sector, etc.). This piloting should be conducted within a rigorous experimental design to facilitate the extraction of evidence-based recommendations for best practice. The experimental design to address challenges emanating from climate change could be organised as follows:

- Assessment of the nature, extent, and severity of extreme weather events and slow onset climate change impacts in exposed areas;
- Assessment of the gap between the needs of vulnerable people and available products/interventions;
- Assessment of the comparative advantages of MFIs and their limitations to fill these gaps;
- Piloting in heterogeneous areas appropriate packages of inputs, including financial and non-financial services, community-level institution building, collaborative adaptation networks, etc.;
- Identifying impacts using controls;
- Deriving policy lessons for devising optimal strategy/product mix for better adaptation.

5. Concluding Remarks

This paper tries to understand the approaches and potential role of MFIs in disaster management and climate change in Bangladesh. In reviewing both the pre-emptive measures and response mechanisms of the MFIs to climate-induced disasters, this paper reveals that MFIs have developed a range of financial and non-financial services to assist their members mitigate, cope with and recover from climate shocks. However, the scale, intensity and frequency of climate-related disasters are projected to increase, posing a serious threat to the MFI sector in Bangladesh.

PKSF has been playing a catalytic role in preparing the MFI sector for climate change by designing a range of programmes on adaptation and disaster risk reduction based on best practices and providing training and resources for its partner organizations to implement these across many parts of the country. Many MFIs have designed their own programmes on adaptation and disaster risk reduction, some of which are discussed in this paper. However, across the MFI sector, there are insufficient resources and technical support for the development of comprehensive adaptation and disaster risk reduction programmes within each MFI, and many of the current interventions will last only for the duration of donor funding.

The overriding challenge is to generate the necessary financial and technical support and create the necessary institutional framework for MFIs to mainstream disaster risk reduction and climate change adaptation into their programmes, and to link these programmes at local and national levels with the efforts of government and other actors. The specific disaster risk reduction and climate change adaptation activities incorporated into MFI programmes can then be based on existing good practices and the results of piloting. Further innovations combining financial and non-financial services to address risks and vulnerabilities of climate change should be tested through experimental design, keeping in mind the heterogeneity of contexts and needs. Piloting to develop new insurance products, flexible financial services tailored to client needs and larger loans for business start-up, to develop adaptive agricultural practices, and to strengthen MFI involvement in disaster planning, relief and recovery is especially needed. MFIs can also initiate “climate-smart”² programmes and increase outreach to climate-vulnerable areas. The institutional framework necessary for these changes includes reform of the regulatory regime to facilitate the establishment of micro-finance banks.

² Being “climate-smart” is about identifying programmes that proactively address vulnerability and become resilient to the adverse effects of climate change (<http://brac.net/disaster-management-climate-change/item/746-programme-activities>).



All the studied MFIs have programmes on extending support during and after disasters in the form of relief operations. The support during and immediately disasters include inspections of the affected areas, and providing food and basic medical care, water, and water purification tablets. Another common approach is providing rehabilitation support to reconstruction physical infrastructure at community and household levels. Financial support may be provided for the repair and reconstruction of household dwellings.

There are, however, some differences in the approaches to support clients taken by MFIs before, during and after disasters. For example, PKSF's disaster management fund, which extends support to restore the livelihoods of affected households through its POs, is somewhat unique. The creation of such funds provides the foundations for a responsive approach to disaster relief and rehabilitation as the funds can be directed according to needs.

Compared to disaster risk reduction, direct MFI support for adaptation is more limited, though some examples were observed in this review. The approaches vary largely across MFIs. Perhaps the most comprehensive package of adaptation support is provided by PKSF's CCCP implemented through its POs. The CCCP provides small grants to households and communities for a variety of interventions including rainwater harvesting to address the problem of salinity. It also provides training on climate-resilient livelihoods, such as crab fattening, in the disaster-prone areas; however, the CCCP does not provide financial services to support these livelihoods. Some matching of financial services with alternative livelihoods can be seen in BRAC and other MFIs that are supporting the introduction of new crops and agricultural methods in areas affected by climate change. A challenge that needs to be faced is to develop dedicated funding and a programmatic approach to support adaptation interventions at household and community-level that cannot be self-financing or financed locally.

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