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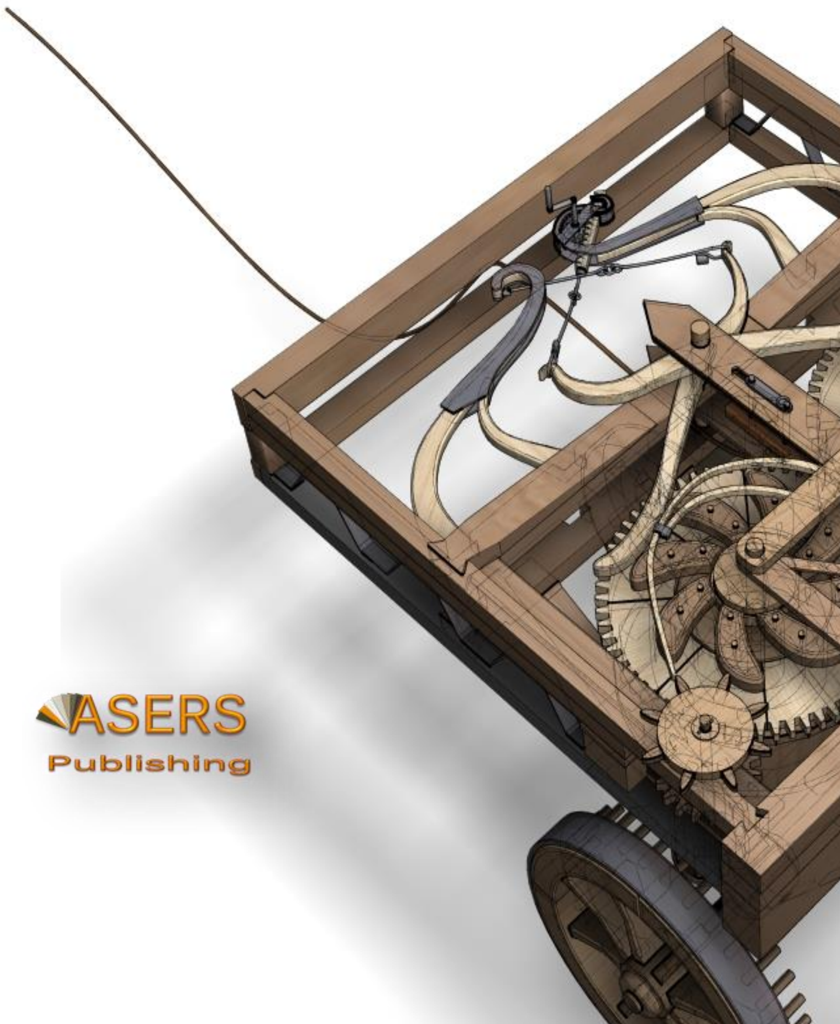

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Role of Microfinance in Mitigating Disasters in Pakistan

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Abstract

The study is aimed at exploring the usage of microfinance and related services to mitigate the effect of natural disasters and risk, both at community and industry level in the current Pakistani context. For this purpose, overall work is carried out based on the various strategies adopted by the Micro Finance Institutes MFIs specifically disaster loan funds, disaster preparedness, designing of new products, sustainability of MFIs through post-disaster approaches. It also provides the evidence to recognize the MF roles within disaster risk reduction and mitigation measures. Along with the risk reduction, it delivers the context for poverty alleviation through provision of diversified earning sources and rehabilitation of local community. It is the first study to explore the role of MFIs in disaster risks reduction and mitigation both at community and industry level in the economy of Pakistan.

Keywords: microfinance; natural disaster; risk; mitigation; Pakistan.

JEL Classification: G01; Q54; Q56; Q58; Z32; R11.

Introduction

In the last decade, numbers of catastrophic and natural disasters have been witnessed in both developing and developed states which are almost equal to susceptible (Anand Kumar & Newport 2005; Hood 2005; Sawada & Takasaki 2017).These disasters were in the form of Gujarat Earthquake in 2001(Roy, Shah, Patel, & Coughlin, 2002), heat waves in Europe 2003 (Beniston 2004), tsunami 2005 (Tamamoto 2005), hurricane in USA 2005 (Pielke Jr 2005), earthquake in Pakistan 2005 (Mujeeb & Jaffery 2007), (Cavallo, Powell & Becerra 2010), (Asgary Anjum & Azimi 2012; Lau & Kim 2012) and (Lott, Christidis, & Stott 2013) etc. Meanwhile the Tohoku earthquake 2011 and its aftershocks are very much devastating in nature (Kazama & Noda 2012) However, the main threat to the universal environment comes from the global warming (Fenton, Paavola & Tallontire 2015; Yao *et al.* 2012). The melting of Himalayas finally causes a major flood in south Asian states like Pakistan, India, Bangladesh and Nepal (Gaiha, Hill & Thapa 2010; Memon 2011). Besides, the rising sea level due to melting glaciers can be reason for cyclone in the coastal regions (Haque 2003; Memon 2011). Since from last many decades, various natural disasters have affected Pakistan like flood of 1973 shacked approximately 40 million individuals and 07 Million in the year 2005 (Tariq & Van de Giesen 2012). MFIs has been established as core institutions to reduce the financial misery of poor clients which can have positive impact on sustainable wellbeing, which is however not be an easy task to achieve (Anand Kumar & Newport 2007; Khandker 2005; Sakai 2011; Weiss & Montgomery 2005). The contemporary progress in micro finance sector has explored its significance and application for disaster risk mitigation and management (DRMM) both at individual and community level (Christoplos, Mitchell & Liljelund 2001; Marincioni, Appiotti, Pusceddu & Byrne 2013; Pantoja 2002; Vakis 2006). There is a great need of time to proclaim the consciousness of challenges for micro finance in the wake of natural disaster mitigation. Many micro finance institutes (MFIs) are dealing with the strategies development and implementation for instance in the form of liquidity management and integrity of loan portfolio at an institutional level (Parvin & Shaw 2013). Additionally, the rule of MFIs cannot be discarded at calamity time for the affected families at community level as well.

During decades, microfinance institutions (MFIs) are playing an important role in providing the resilience to different parts of the worlds through the provision of financial support. Generally speaking, MFIs are considered as crucial part of an overall disaster risk management strategy. Prior studies showed that MFIs support the communities through the funding of financial sustenance program in assuring the sufficient amount of capital for the convalescence and the retrieval process. These financial sustenance programs are more crucial for that community which depend on the small size business. Researchers believed that micro finance is a vulnerable tool of reducing potential disasters (Fenton *et al.* 2017; Schmude *et al.* 2018). Shyamaladevi (2020) argued that microfinance provides different financial services and develop social consistency to deal with the disasters as it plays the role of an arbitrator between different donor agencies and the affected people. Sserwanga *et al.* (2014) also support the significant role of microfinance in disaster management and argued that the policy makers are highly enthusiastic to allocate the sufficient amount of funds to mitigate the disasters. Ullah and Khan (2017) report that the vigilance and the resilience of disaster can be reinforced by providing the access to the financial capital as the provision of financial capital increases the alleviation from the imitate disasters. Dhakal *et al.* (2019) indicate that MFIs provide different financial services (*i.e.*, credit and saving services) to deal with after-effects of the disasters. Joshi *et al.* (2020) showed that MFIs help in disaster risk preparedness by organizing different trainings on disaster risk management. Raschky and Chantarat (2020) believed that financial resources are the pre-requisite for the disaster risk management. By conducting the research on ASEAN economies, their study reveals the positive role of micro-finance institutions in disaster risk mitigation. They conclude that MFIs offer disaster contingency savings and insurance for the disaster preparedness and disaster risk management. Mitrović (2015) finds that micro finance institutions help to recover from the disasters by providing the access to credit for the investment in disaster proof assets which are reflected as the most essential choice in the disaster risk management. Torres *et al.* (2019) find that small and medium enterprises (SMEs) play an important role in mitigating the natural disasters. They suggest that when disaster strikes, the SMEs are not only emphasis on their own retrieval, but they are highly devoted and tortuous in the persistence of the societies in which they operate. Eggers (2020) reviews the literature review of 69 manuscripts and revealed a positive relationship between SMEs and disaster recovery. He reports that SMEs play a crucial role to overcome with the economic downturns, resulted from a natural disaster. Moşteanu *et al.* (2020) narrate that disaster mitigation can be reinforced by providing the micro finance services. Havko *et al.* (2017) indicate that microfinance institutions positively contributed to the disaster recovery as MFIs are the primary source of credit availability to replace type damaged structures, resulted from the imitate disasters. Fenton *et al.* (2017) find that in case of disaster situation, MFIs reduce the uninterrupted risk exposure to the disaster damages. Katongole (2020) showed that an imitate disaster creates the financial vulnerability in the backward communities by disclosing their resources, health and possessions. Due to the occurrence of a disaster the poor faces greater financial risk. In this situation MFIs play the role of last resort for the poor communities through the provision of loans which help to reduce this financial risk.

1. Background of MFIs in Pakistan

Pakistan Micro Finance Industry has been emerging through innovative, diversified products on the horizon of global microfinance. Growth has been identified through outreach and geographical footmark of MFIs. Overall industry includes micro finance banks, microfinance institutes MFIs, NGOs and similar organizations. Besides this business models are also emerging from “one size fits all” model to individual borrowers of mainstream microfinance providers (MMFPS). The service line and product line has also extended to emergency loans, contingency plan loans, micro financing for housing, insurance and reinsurance etc. financial performance of overall industry has got improvement and achieved sustainability in the year 2011. With the increasing numbers of MFIs, the competition at local level has been intensified specifically in urban areas of the country. MFIs has been forced to go and target the same clients, resulting in the unhealthy competition and multiple borrowings which results in repayment crises, although to specific areas but raise the overall credit risk for the industry. However, the industry response to such risk is up to somehow admirable. The initiative of microfinance credit information bureau (MFCIB) helps the MFIs in managing the risk of debt burden of clients and to scrutinize defaulters as well. Another threat to MFIs in the local environment is voting constituency of politicians which are accounts for most of the individual's representation. The local politicians exercise such opportunity to announce the write-off the debts for defaulters. Such issue is not an unusual factor for Pakistan where the historical records has provided substantial evidence. In order to control such potential threats, overall industry has established the regulations with the help of SBP. The launching of Financial Literacy Program to enhance the understanding of general public for financial products and services with strengthening the regulatory framework for the overall industry are the two supporting components. Pakistan Microfinance Networks (PMN) has introduced various programs for such compliance in the form of client's disclosure and consumer protection.

Table 1. The numbers of active borrowers and penetration rate

Details of Items	2017 – Quarter1	2016 – Quarter4	Units	%
Number of Branches/Units	3422	3220	202	6.27
Number of Districts Covered	105	104	01	0.96
Penetration Rate (%)	23.63	22.3		1.33
Active Borrowers	4,878,741	4,572,245	306,496	6.70
Gross Loan Portfolio (PKR Millions)	152,064	136,943	15,121	11.04
Number of Loans Disbursed	1,245,15	1,485,165	-240,014	-16.16
Disbursements (PKR Millions)	51,662	61,831	-10,169	-16.45
Average Loan Size (PKR)	41,490	41,633	-137	-0.33
Number of Savers	22,473,771	23,091,250	-617,479	-2.67
Value of Savings (PKR Millions)	120,496	121,383	-887	-0.73
Average Saving Balance (PKR)	5,362	5,257	105	2.00
Number of Policy Holders	6,224,238	5,855,668	368,570	6.29
Sum Insured (PKR Millions)	165,855	150,544	15,311	10.17

Source: PMN (2017)

Note: 01US$=105.34 PKR (Exchange Rate: 25-07-17)

Despite the progress in the last years, there is still an upside potential for improvement that is yet not tapped. As per the estimation of Pakistan Microfinance Networks, 27 million clients are still there to be targeted in various areas with the present penetration rate of 11.7 %. This significant gap explains that besides all the achievements, the industry is still far from realization of its major potential. The task of growth is not yet without risk and challenges for instance availability of funds, creation of sustainable organizations with practicable business models, volatility in the economy and overall security threat to state. The outreach of Microfinance in Pakistan is increasing day by day to alleviate the poverty in the economy. To achieve the target markets, Government has set out growth strategy by reaching to 10 Millions of active borrowers by the end of 2015 (Rauf & Mahmood 2009), but this number is not achieved yet, due to several issues in the Economy and of course the priorities of the Government as well. However, the outreach in terms of number of districts covered, active borrowers and penetration rate increase as stated in Table (1) below. The growth rate of 7.13 % was also recorded in the last year in Gross Loan Portfolio.

2. Recent Disasters and Their Impacts

In any type of disaster in a state or a region, peoples and overall economy are the direct victims of it. However, throughout the microfinance industry, the damages are ripple and vulnerable which are specifically exposed to the threats originating from disasters. Low capital is associated with MFIs and thus leads to limited buffer to incorporate losses. MFIs are working as financial business concerns susceptible to the liquidity issues. In addition, MFIs are trying to create stability in social and financial issues which can finally create a political unrest in the form of pursuing the reclamation after the catastrophe.

2.1 Impact on MFIs

As the natural calamity strikes to the economy, MFIs which had done significant efforts to develop a reasonable level of Funds Portfolio with the outreach of clients also faced impediments. At organization level, MFIs also face the detrimental effects in terms of infrastructure and ordeal to employees as the staff is hired from local community. Loss of information and archival records also happen. Meanwhile after the disasters, MFIs must work hard on two dimensions; to retain the relations with the clients and preserving of credits. The prospect of increase in the delinquencies also arises due to the instant declines in cash flows (delay in payments and low deposits).

Overall liquidity position tends to be very much challenging as most of MFIs tends to repay the loans in time of natural crisis.

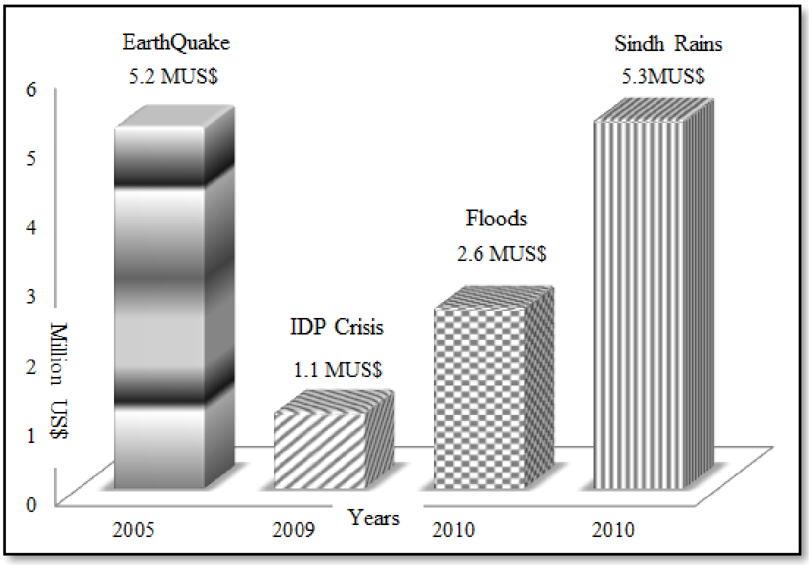
2.2 Impact on Overall Sector

The losses after the natural disasters can significantly impact on the outreach plan of overall MFIs industry. This might be in the form of closure of certain programs or the products which were designed at the time of pre-calamity. The attitude of lending in susceptible areas may be reluctant even the need of getting loans in these constituencies. With the increase in level of risk for overall portfolio, the borrowing from various resources will be expensive.

2.3 Impact on Overall State

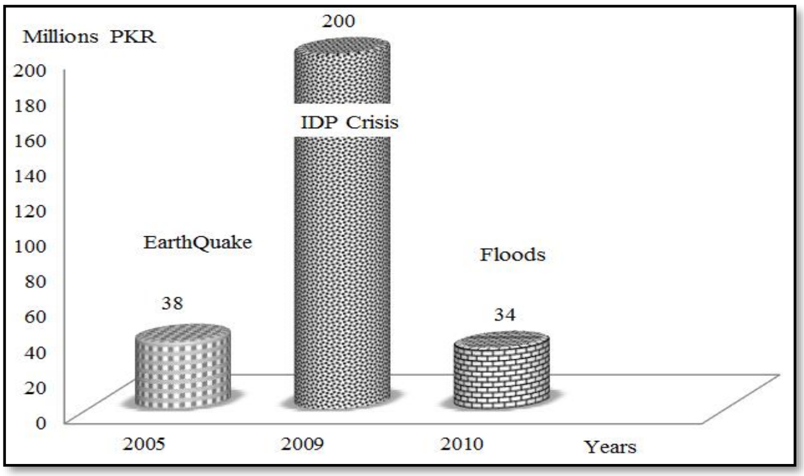
Pakistan must face some severe natural disasters in several decades like the flood in 1973 & 1992, earthquake 2005 in major northern areas, flood in 2009-2010 (Figure 1), and finally the rains in Sindh 2011. Each of these disasters has hit the microfinance industry. These disasters have targeted majority of those MFIs which were working in rural areas (Figure 2).

Figure 1. Financial Damages to the Economy



Source: PMN (2017)

Figure 2. Damage to Microfinance Portfolio



Source: PMN (2017)

2.4 Impact on the Clients

Natural calamities have also significant impact on the earnings sources of clients either a temporal or permanent format. The seasonal effects are in the form of losses of standing crops and finally financial misfortune to the landowners and farmers until the upcoming crop season. The longer effect might be in the form of damages to orchards of fruits which will take years to grow. Other fatalities to clients might be for instance displacement or reconstruction of houses and losses of physical and animal assets.

3. Global Approaches to Secure MFIs against Natural Disasters

The concept of Micro Insurance Catastrophe Risk organization (MiCRO) has been emerged after the earthquake in Haiti and in Philippines where such calamities work as core incitements to discover and explore some innovative ways for securing MF industry. MiCRO is a licensed company which can work almost in any country to secure the MF sector from any type of natural disasters.

3.1 Dealing with Disaster Risk: Institutional Level

Various organizations have renowned the curriculum derived from the effects of disaster on microfinance, especially at the level of MFP and client. For stakeholders the disasters in Haiti; after the earthquake of 2010, in Sri Lanka; after tsunami of 2004, and in Pakistan; after floods of 2010 post disaster microfinance have been capitulated important lessons to deal with disaster and preparing for disasters. Institutions need to act on multiple bases to manage disaster risk and calamities.

3.2 Better Equity and Reserve Balance

To mitigate the aftershocks of any disaster, strong institutions are better equipped with the equity and reserved amount so to deal with such calamities through proactive financial approach. Strengthening the institutions with the better and appropriate reserve plans can help to mitigate and manage such risks.

3.3 Diversification and Modification in the Product Lines

Through product development, risk of disaster can be further alleviated. In the context of Pakistan, flood disaster critically smacks the agriculture sector (as notice in the recent floods). Institutions provide loans concentrated in agriculture suffer the most and could gain by expanding their loaning activities into economic sectors that is urban micro-enterprises. In the same way, the loaning institutions helps to rally savings even small amounts and initiate that these funds become very significant for clients. These institutions shift into recovery phase and rehabilitations. Majority of clients of MFIs needs significant amount of capital just after the disasters, but the nature of payment in group lending will vary. If an MFIs is currently providing a loan facility to its clients it must has to consider that its MIS is handling the changing and modification in case of group lending (Anand Kumar & Newport 2007) .

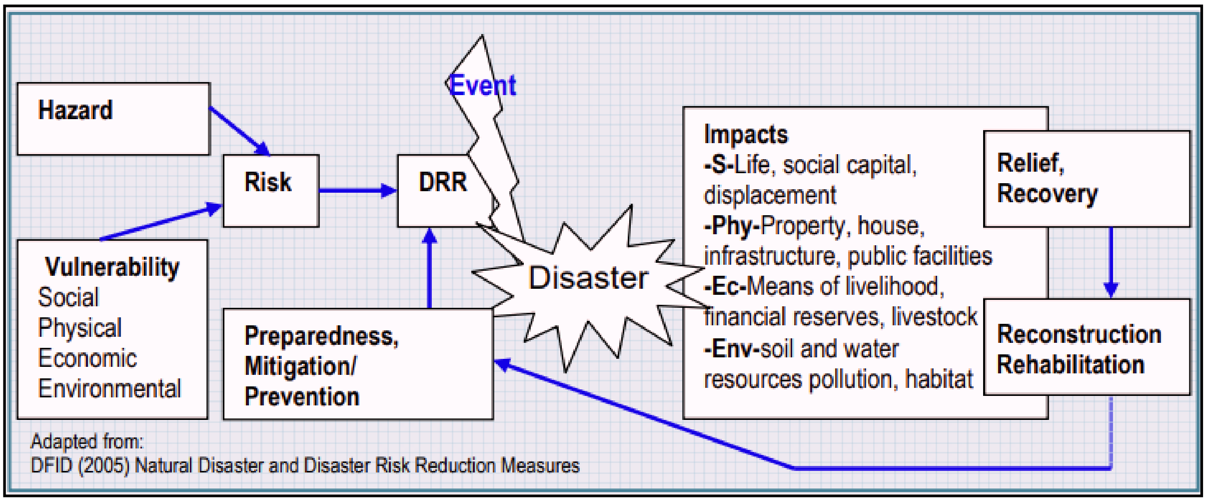
3.4 Geographical Outreach

In specific geographic areas, concentration of outreach enhances disaster risk. Expansion of outreach to neighboring or far away regions would help institutions to diversify their risk as well. As per the research findings in the last decade, depth of micro-financial services has more growth as compare to the services in the commercial banking firms (Martzys 2006).

3.5 Disaster Preparedness

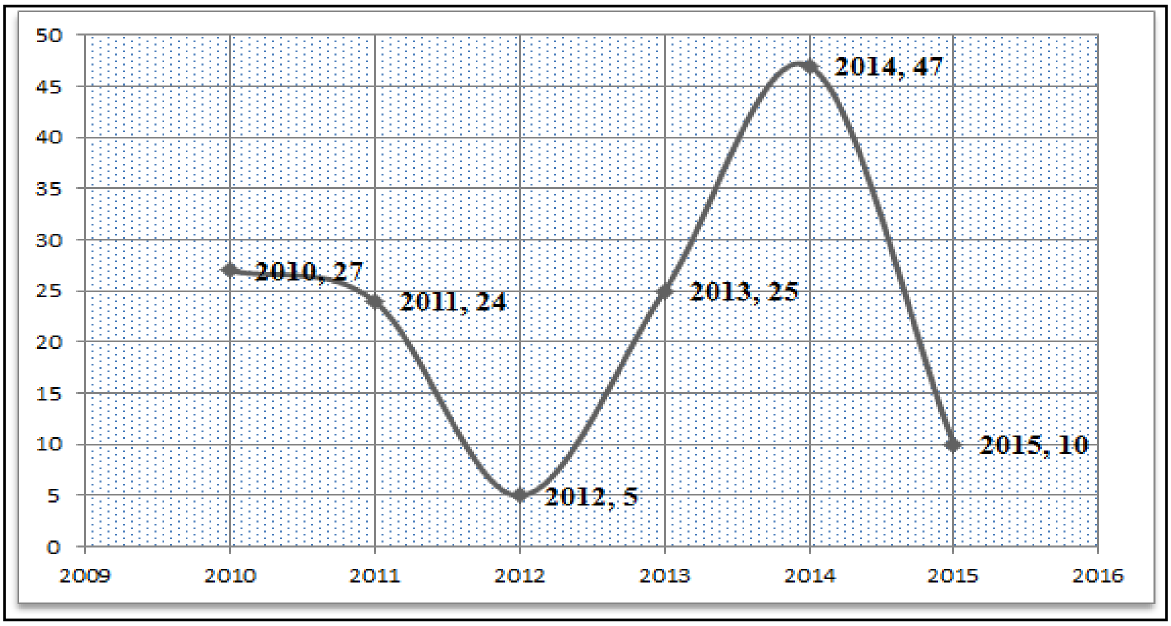
Proactive approach is needed to manage the risk for the institutions working in disaster lying face down areas as they approach other operational risks. To deal with issues such as communication between head offices and branches, it is essential to have a clearly proven contingency plan. During the disaster and post disaster segment changes occurs in policies and communication with clients is important. The project of National Rural Support Programme (NRSP) under the title of recovery, rehabilitation, reconstruction and preparedness program (3R+P) in southern Sindh, funded by Pakistan Poverty Alleviation Fund (PPAF) was commenced in year 2012 (Figure 3) and similar activities have been carried out up to now (PPAF 2017). This program includes the risk reduction during disaster, protection and enhancement of livelihood and development of infrastructure in community. Meanwhile, the Disaster Risk Mapping process especially in the Swat district is also carried out by Monitoring; Evaluation & Research Design Section of NRSP was very much effective (Hassan 2011). The component of Disaster Risk Reduction DRR consists of both capacity building and capacity enhancement (Figure 4). Additionally, the staff training programs in last years were also conducted various regions.

Figure 3. Disaster Risk, Potential Harms and Management Cycle



Source: PPAF (2017)

Figure 4. Numbers of Trainings for Disaster Management 2010-2015



Source: NIDM (2017)

3.6 Diversifying Income Sources and Safeguarding of Livelihoods

The establishment of microfinance institutes has provided the opportunity in reducing the idiosyncratic risk as faced by the poor households through providing the diversified sources of income (Anand Kumar & Newport 2005). MFIs help to generate the income and to increase the livelihood options for the women and to rebuild their assets. The helping of poor for divergent income sources by fostering various jobs and in generating regular employment possibilities. However, the range of employment opportunity as provided by MFIs also depends on the natural of natural calamities. For instance, if the Micro finance is only non-agriculture activities and drought season has hit the economy, then those activities will not be directly affected. Meanwhile if the nature of disaster is in the form of flood which will finally destroy the houses and other assets, then it will automatically reduce the opportunity to get benefit of non-agriculture work (Anand Kumar & Newport 2005). The aftershocks of Sindh flood in year 2010-11 were devastating in nature and finally created the problem of food security and earnings. After the flood of 2010, Food and Agriculture Organization FAO of United Nations UN have reached almost 10 million individuals across Pakistan with their prime effort to save over a million of livestock's and provision of food for 04 million people in time duration of six month approximately (FAO 2017).

3.7 Dealing with Disasters Risk: Industry Level

Even after the proper strategies for the disaster risk mitigation and management, still there would be challenges to tackle which will remain beyond the control of MFIs. Risk in terms of inherent nature needs a solution from overall sector of MF. For this issue, the fundamental solution is to generate disaster adaption fund at sector level. Such funds can have diversity in nature based on the calamity effect and geographical spread of such misfortunes. The context of disaster risk financing and Insurance (DRFI) program has been established by World Bank which has a similar framework. Besides this, integrated disaster risk management approach has also been established by Inter-American Development Bank (IDB), which has the components of national risk evaluation, mitigation and prevention measures, strengthening the local and national institutions. As explained below the various levels of disasters and natural calamities can be best managed through various alternatives.

3.8 Community Based Disaster Risk Management

A program of joint effort by NRSP, USAID and RSPN was implemented from September 2012 to December 2013 in approximately 10 UCs of Badin and Thatta, which had benefited 110,879 individuals approximately (RSPN 2017). The project was started with the core objective to develop resilience among the local communities prone to disasters. Two local level committees under the title of village Disaster Management Committee and Union Council Disaster Management Committee were established.

3.9 Disaster Loan Funds

Disaster loan fund is a balance in the reserved funds held by the organization to address the financial misfortunes at the time of disasters. The core objective for creating DLF is to control the liquidity issues in an immediate time of crisis. Creation of DLF helps the MFIs to provide the loaning facility to those who are affected by the calamities. Such funds are also lump sum grand from the donor agencies which can further be utilized in different formats. Present level of DLF can be either managed by the privately owned organization or any other company (Aban Haq 2013). For instance, in Central America such funds are setup and managed by inter-American Development Bank (IDB), in Bangladesh by CARE or on behalf of donor like the case of Palli Karmi Sahayak Foundation (PKSF) and in Pakistan such funds are managed by Asian Development Bank (ADB) which has provided a loan of $200 Million to manage disaster risk (Nation 2016).

Conclusion

In microfinance sector of Pakistan, there is somehow disagreement in managing the disaster risks. The solution for disaster mitigation and management is complementary for both the institutional sustainability and for the society at large. In the present age, global stakeholders have paid attention to the risks to MFIs linked with the natural disasters. Structural solutions for the risk management practices can vary based on the direct inheritors. At global level, following core models have been recognized:

(i) As a solution for the MFIs a funding program at local level like the disaster loan funds (DLF) could be considered. Yet, the DLF, such funding program might be the ability to secure against the liquidity issues just the time of losses of loans. Meanwhile such program can also secure the income sources for the MFIs which were lost either in the form of loan refinancing or rescheduling. Such package could be controlled and managed by SBP, a local funding company or similar organization like Pakistan Poverty Alleviation Fund (PPAF) but should be an open opportunity for all who are interested to be part of it. Contribution for such funds could be from donors as seed capital while participant MFIs also must add some agreed amounts as well. Meanwhile, the DLF could also be considered as the supporting fund for the MFIs for administration after look, managing the other risk factors like delinquency risk and liquidity risk and specifically the rebuilding of operational activities as damaged by the factors of calamities.

(ii) The second core option for managing disaster risk is to look at the global risk mitigation and management platforms like MiCRO. Such option could be exercised by the MFIs industry as a whole or group of MFIs or finally the Governmental organizations like NDMA who could have a dialogue and discussion over the stat's exposure to such natural losses. However, the exercising such options might not the tax efficient as the income accumulated or reserve funds would be tax deductible under the applicable rules and regulations of the country. The core reason to establish the unit as not for profit organization is to make it tax efficient under the income tax ordinance 2001. For this matter, company's ordinance 1984, section 42 provides the guidelines to establish catastrophic insurance fund company (CIFC) proposed as not for profit organization. Such unit can be supervised by the directors or the donor/sponsors and established under any of the two formats: (1) Limited by the guarantee of the sponsors and with no share capital; and (2) Limited by the guarantee of the sponsors and with share capital.

The earnings in the financial statements in the form of retained earnings are very much important to make the MFIs sustainable and low reliance on the donor funds. The technical and managerial affairs of such companies could be served by the supervisors or managers, selected through a proper recruitment pyramid process by the BODs.

References

[1] Aban Haq, S.M.A. 2013. *Options For Managing Disaster Risk*, 16, pp. 12.

[2] Anand Kumar, T., and Newport, J.K. 2005. Role of microfinance in disaster mitigation. *Disaster Prevention and Management: An International Journal,* 14(2): 176-182. DOI:10.1108/09653560510595173

[3] Anand Kumar, T., and Newport, J.K. 2007. Institutional preparedness and sustainability of micro finance institutions during post disaster scenario. *Disaster Prevention and Management: An International Journal*, 16(1): 21-32.

[4] Asgary, A., Anjum, M.I., and Azimi, N. 2012. Disaster recovery and business continuity after the 2010 flood in Pakistan: Case of small businesses. *International Journal of Disaster Risk Reduction*, 2: 46-56. DOI:https://doi.org/10.1016/j.ijdrr.2012.08.001

[5] Beniston, M. 2004. The 2003 heat wave in Europe: A shape of things to come? An analysis based on Swiss climatological data and model simulations. *Geophysical Research Letters*, 31(2): 1-4. 0094. DOI:10.1029/2003GL018857

[6] Cavallo, E., Powell, A., and Becerra, O. 2010. Estimating the direct economic damages of the earthquake in Haiti. *The Economic Journal*, 120(546): F298-F312. DOI: https://doi.org/10.1111/j.1468-0297.2010.02378.x

[7] Christoplos, I., Mitchell, J., and Liljelund, A. 2001. Re-framing risk: The changing context of disaster mitigation and preparedness. *Disasters*, 25(3): 185-198. DOI: 10.1111/1467-7717.00171

[8] Dhakal, N.H., Simkhada, N.R., and Ozaki, M. 2019. Microfinance for Disaster Recovery: Lessons from the 2015 Nepal Earthquake. Available at: https://think-asia.org/handle/11540/10202

[9] Eggers, F. 2020. Masters of disasters? Challenges and opportunities for SMEs in times of crisis. *Journal of Business Research,* 116: 199-208. DOI: 10.1016/j.jbusres.2020.05.025

[10] Fenton, A., Paavola, J., and Tallontire, A. 2015. Microfinance and climate change adaptation: an overview of the current literature. *Enterprise Development and Microfinance*, 26(3): 262-273. DOI:https://doi.org/10.3362/1755-1986.2015.023

[11] Fenton, A., Tallontire, A., and Paavola, J. 2017. Vulnerability of microfinance institutions to climate risk in the Satkhira District, Southwest Bangladesh. Available at: http://re.indiaenvironmentportal.org.in/files/file/Vulnerability%20of%20microfinance%20institutions%20to%20climate%20risk%20in%20the%20Satkhira%20District%2C%20Southwest%20Bangladesh.pdf

[12] Gaiha, R., Hill, K., and Thapa, G. 2010. Natural disasters in South Asia: The Australian National University, Australia South Asia Research Centre.

[13] Haque, C.E. 2003. Perspectives of natural disasters in East and South Asia, and the Pacific Island States: Socio-economic correlates and needs assessment. *Natural hazards,* 29(3): 465-483. DOI:10.1023/A:1024765608135

[14] Hassan, A. 2011. Disaster risk mapping district Swat (Vol. IV, pp. 92). Evaluation & Research Report NRSP-MER/2011-IV, Islamabad, Pakistan: National Rural Support Programme. Available at: http://www.nrsp.org.pk/publications/Baseline-Studies/Disaster-Risk-Mapping-District-Swat.pdf

[15] Havko, J., *et al.* 2017. Financing the disaster resilient city in the Slovak Republic. *Procedia Engineering*, 192: 301-306. DOI: 10.1016/j.proeng.2017.06.052

[16] Hood, J. 2005. Emerging Risks in the 21st Century: An Agenda for Action. *Risk Management*, 7(2): 69-70.

[17] Joshi, M.Y., Flacke, J., and Schwarz, N. 2020. Do microfinance institutes help slum-dwellers in coping with frequent disasters? An agent-based modelling study. *International Journal of Disaster Risk Reduction*, 101627. DOI: https://doi.org/10.1016/j.ijdrr.2020.101627

[18] Katongole, C. 2020. The role of disaster risk financing in building resilience of poor communities in the Karamoja region of Uganda: Evidence from an experimental study. *International Journal of Disaster Risk Reduction*, 45: 101458. DOI: 10.1016/j.ijdrr.2019.101458

[19] Kazama, M., and Noda, T. 2012. Damage statistics (Summary of the 2011 off the Pacific Coast of Tohoku Earthquake damage). *Soils and Foundations*, 52(5): 780-792. DOI:https://doi.org/10.1016/j.sandf.2012.11.003

[20] Khandker, S.R. 2005. Microfinance and poverty: Evidence using panel data from Bangladesh. *The World Bank Economic Review*, 19(2): 263-286. DOI: http://hdl.handle.net/10986/16478

[21] Lau, W.K., and Kim, K.-M. 2012. The 2010 Pakistan flood and Russian heat wave: Teleconnection of hydrometeorological extremes. *Journal of Hydrometeorology,* 13(1): 392-403. DOI: 10.1175/JHM-D-11-016.1

[22] Lott, F.C., Christidis, N., and Stott, P.A. 2013. Can the 2011 East African drought be attributed to human-induced climate change? *Geophysical Research Letters*, 40(6): 1177-1181. DOI:https://doi.org/10.1002/grl.50235

[23] Marincioni, F., Appiotti, F., Pusceddu, A., and Byrne, K. 2013. Enhancing resistance and resilience to disasters with microfinance: Parallels with ecological trophic systems. *International Journal of Disaster Risk Reduction*, 4: 52–62. DOI: https://doi.org/10.1016/j.ijdrr.2013.01.001

[24] Martzys, R. 2006. Microfinance Institutions: Profitability at the service of Outreach. A study of Microfinance Industry in the ECA region*.* Unpublished MA Thesis.

[25] Memon, N. 2011. Climate Change and Natural Disasters in Pakistan; Strengthening Participatory Organization (SPO): Islamabad, Pakistan.

[26] Mitrović, V. 2015. Resilience: detecting vulnerability in marginal groups. *Disaster Prevention and Managemen*t, 24(2): 185-200. DOI: https://doi.org/10.1108/DPM-05-2014-0096

[27] Moşteanu, N.R., Faccia, A., and Cavaliere, L.P.L. 2020. Disaster Management, Digitalization and Financial Resources: key factors to keep the organization ongoing. In Proceedings of the 2020 4th International Conference on Cloud and Big Data Computing (pp. 118-122).

[28] Mujeeb, S., and Jaffery, S. 2007. Emergency blood transfusion services after the 2005 earthquake in Pakistan. *Emergency Medicine Journal*, 24(1): 22-24. DOI: 10.1136/emj.2006.036848

[29] Nation, T. 2016. Disaster Risk Management Fund established with ADB loan. Retrieved 03-07-19. Available at: http://nation.com.pk/national/03-Dec-2016/disaster-risk-management-fund-established-with-adb-loan

[30] Pantoja, E. 2002. Microfinance and disaster risk management: Experiences and lessons learned. The World Bank. Washington, DC.

[31] Parvin, G.A., and Shaw, R. 2013. Microfinance institutions and a coastal community's disaster risk reduction, response, and recovery process: a case study of Hatiya, Bangladesh. *Disasters,* 37(1): 165-184. DOI:https://doi.org/10.1111/j.1467-7717.2012.01292.x

[32] Pielke Jr, R. A. 2005. Are there trends in hurricane destruction. *Nature*, 438: 2-29. DOI: 10.1038/nature04426

[33] Raschky, P., and Chantarat, S. 2020. Natural Disaster Risk Financing and Transfer in ASEAN Countries. In Oxford Research Encyclopedia of Natural Hazard Science. DOI:https://doi.org/10.1093/acrefore/9780199389407.013.198

[34] Rauf, S.A., and Mahmood, T. 2009. Growth and performance of microfinance in Pakistan. *Pakistan Economic and Social Review,* 99-122.

[35] Roy, N., Shah, H., Patel, V., and Coughlin, R.R. 2002. The Gujarat earthquake (2001) experience in a seismically unprepared area: community hospital medical response. *Prehospital and Disaster Medicine,* 17(4): 186-195. DOI: 10.1017/S1049023X00000947

[36] Sakai, R. 2011. *Microfinance for Poverty Reduction.* (Bachelor Bachelor Thesis), Japan. Available at: http://www.tufs.ac.jp/st/club/unohp/sotsuron_zenbun_sakai2011.pdf (7908079)

[37] Sawada, Y., and Takasaki, Y. 2017. Natural Disaster, Poverty, and Development: An Introduction. *World Development*.

[38] Schmude, J., Zavareh, S., Schwaiger, K. M., and Karl, M. 2018. Micro-level assessment of regional and local disaster impacts in tourist destinations. *Tourism Geographies*, 20(2): 290-308. DOI:https://doi.org/10.1080/14616688.2018.1438506

[39] Shyamaladevi, H. 2020. Role of Micro Finance in Disaster Management. *Studies in Indian Place Names*, 40(12): 986-990.

[40] Sserwanga, A., Kiconco, R. I., Nystrand, M., and Mindra, R. 2014. Social entrepreneurship and post conflict recovery in Uganda. *Journal of Enterprising Communities: People and Places in the Global Economy*, 8(4): 300-317. DOI: 10.1108/JEC-02-2014-0001

[41] Tamamoto, M. 2005. After the tsunami: How Japan can lead. *Far Eastern Economic Review*, 168(2): 10-18.

[42] Tariq, M.A.U.R., and Van de Giesen, N. 2012. Floods and flood management in Pakistan. *Physics and Chemistry of the Earth, Parts A/B/C*, 47: 11-20.

[43] Torres, A. P., Marshall, M. I., and Sydnor, S. 2019. Does social capital pay off? The case of small business resilience after Hurricane Katrina. *Journal of Contingencies and Crisis Management*, 27(2): 168-181. DOI:https://doi.org/10.1111/1468-5973.12248

[44] Ullah, I., and Khan, M. 2017. Microfinance as a tool for developing resilience in vulnerable communities. *Journal of Enterprising Communities: People and Places in the Global Economy*, 11(2): 237-257. DOI:10.1108/JEC-06-2015-0033

[45] Vakis, R. 2006. Complementing natural disasters management: the role of social protection. Washington, DC: The World Bank Social Protection Paper, 543.

[46] Weiss, J., and Montgomery, H. 2005. Great expectations: microfinance and poverty reduction in Asia and Latin America. *Oxford Development Studies*, 33(3-4): 391-416. DOI:10.2139/ssrn.1396122

[47] Yao, T., *et al.* 2012. Different glacier status with atmospheric circulations in Tibetan Plateau and surroundings. *Nature Climate Change*, 2(9): 663-667. DOI: 10.1038/nclimate1580

[48] FAO 2017. FAO in Emergineces. Available at: http://www.fao.org/emergencies/countries/detail/en/c/161432

[49] NIDM. 2017. Training Courses and Participation. Available at: http://nidm.edu.pk/Training/TrainingCoursesAndParticipation

[50] PMN. 2017. Micro Watch. Retrieved 01-07-17. Available at: http://www.pmn.org.pk/assets/articles/MicroWATCH%20-%20Issue%2016.pdf

[51] PPAF. 2017. Disaster Management Strategy and Investment Program (1st ed., pp. 63).

[52] RSPN. 2017. USAID-RSPN TAHAFUZ Project – Building Resilience through Community Based Disaster Risk Management in the Sindh Province of Pakistan. Retrieved 03-07-17. Available at: http://www.rspn.org/index.php/projects/completed/usaid-rspn-tahafuz-project

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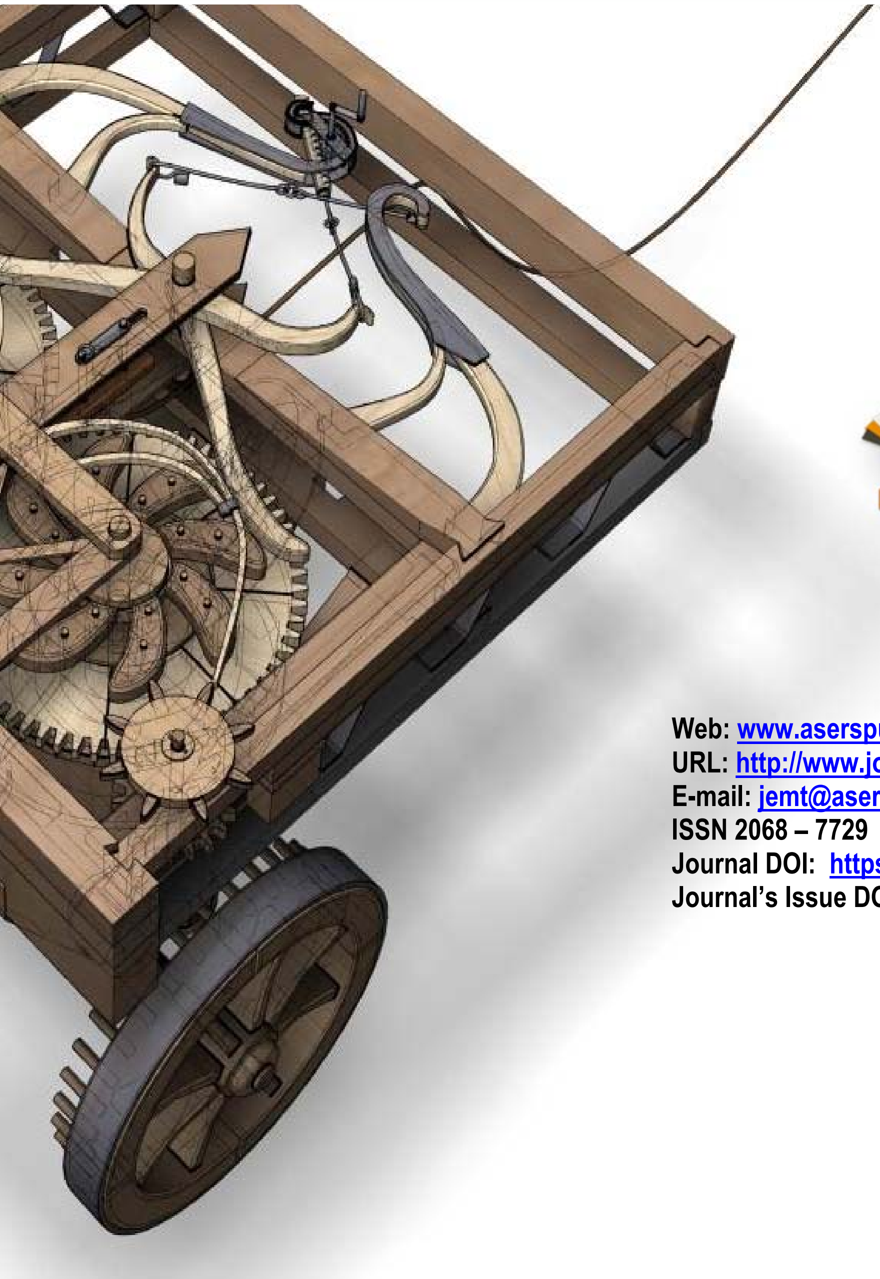

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